Industry-specific

QAD SOLUTIONS

Manufacturing Applications

Technical Reference

QAD Business Intelligence

Installing QAD BI
Upgrading QAD BI
Using QAD BI
Reference

QAD

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QAD BI Version 2.3.1
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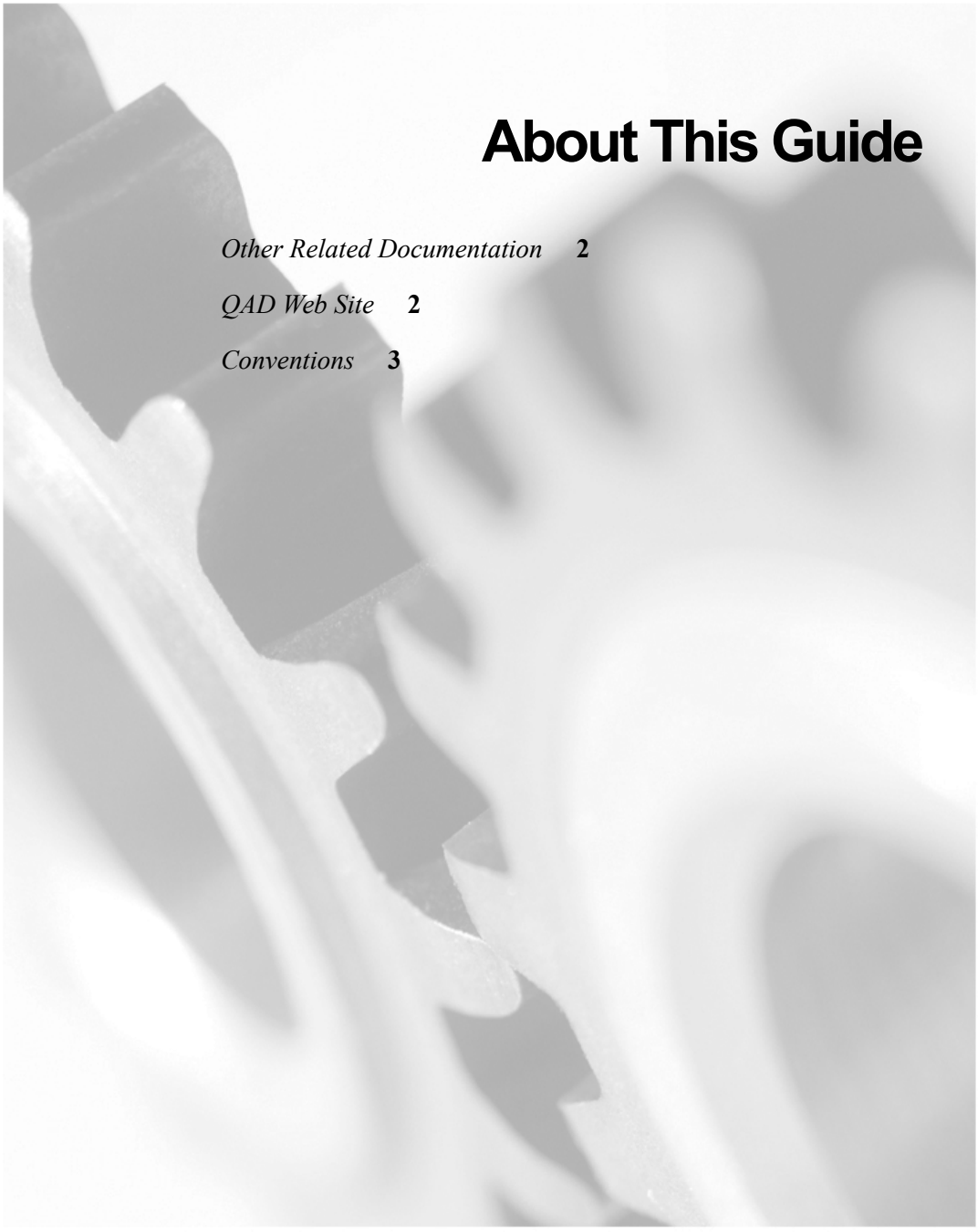

About This Guide

Other Related Documentation

- For information about Cognos 8, see the documentation from Cognos.
- For information on the QAD-provided models and key performance indicators (KPIs), see *Reference Guide: QAD Business Intelligence Key Performance Indicators*. This is provided on the installation CD for each model you purchased.
- For information about functions in MFG/PRO, see the relevant MFG/PRO user guide.
- For information about Access, see the documentation from Microsoft Corporation.

QAD Web Site

The QAD Web site provides a wide variety of information about the company and its products. You can access the Web site at:

http://www.qad.com/

If you have a QAD Web account, product documentation is available for viewing or downloading at:

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Register for a QAD Web account by accessing the Web site and clicking the Accounts link at the top of the screen. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

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Most user documentation is available in two formats:

- Portable document format (PDF). PDF files can be downloaded from the QAD Web site to your computer. You can view them with the free Adobe Acrobat Reader. A link for downloading this program is also available on the QAD Web site.
- HTML. You can view user documentation through your Web browser. The documents include search tools for easily locating topics of interest.

Features also include an online solution database to help QAD BI users answer questions about setting up and using the product. Additionally, the QAD Web site has information about training classes and other services that can help you learn about QAD BI.

Conventions

This document uses the text or typographic conventions listed in the following table.

If you see:	It means:
`monospaced text`	A command or file name.
`italicized monospaced text`	A variable name for a value you enter as part of an operating system command; for example, *`YourCDROMDir`*.
`indented command line`	A long command that you enter as one line, although it appears in the text as two lines.
Note	Alerts the reader to exceptions or special conditions.
Important	Alerts the reader to critical information.
Warning	Used in situations where you can overwrite or corrupt data, unless you follow the instructions.

Chapter 1

Installing QAD BI

The following topics provide the information required for installing the QAD Business Intelligence (QAD BI) solution. They also provide guidelines and information for setting up or configuring required and optional third-party applications.

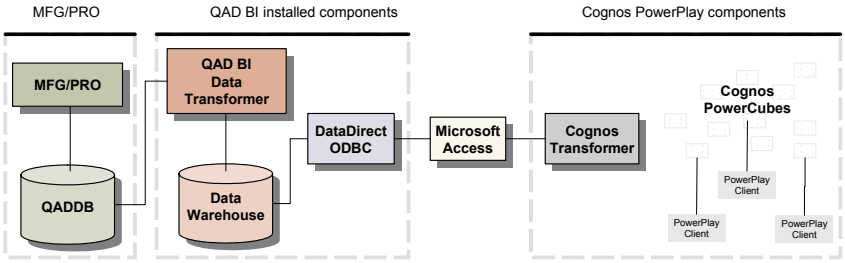
If you are an existing customer who is upgrading an installed version of QAD BI, you can skip the instructions in this chapter and go directly to Chapter 2, “Upgrading QAD BI,” on page 37.

See “Using QAD BI” on page 47 for information on using the features of QAD BI.

Overview

QAD BI provides a complete business intelligence solution for analyzing data residing in MFG/PRO and other data sources. It extracts and transforms data from one or many data sources using flexible rules and stores this information in a data warehouse. Prebuilt MFG/PRO models support powerful multidimensional analysis against the data warehouse using Cognos 8. Figure 1.1 illustrates the overall structure of the solution.

Fig. 1.1 Component Overview



System Requirements

Supported Platforms

The Data Transformer runs on Windows 2000, XP, and 2003.

Minimum Hardware Requirements

- Pentium III, 500 MHz or higher
- Minimum 128 MB RAM, 1 GB recommended
- 1 GB hard disk space or more depending on the size of the data warehouse

Note Generalizations about hardware must be evaluated with an understanding of the amount of data that will be processed through QAD BI. The server hosting the data warehouse should follow recommended practices for supporting Progress databases and (if implemented) Cognos PowerCubes.

For minimum hardware requirements to install and run Cognos 8 components, see Chapter 5, “Installing Cognos 8,” in the *Cognos 8 Business Intelligence Installation and Configuration Guide*.

Supported MFG/PRO Versions

QAD BI ships with two Data Transformer editions:

- The Data Transformer Progress 9.1 edition works with any service pack of MFG/PRO 9.0, eB, eB2, and eB2.1 running on Progress 9.
- The Data Transformer OpenEdge 10 edition works with any service pack level of MFG/PRO 9.0, eB and eB2, and eB2.1 running on Progress 9.1, OpenEdge 10.0B, or OpenEdge 10.1A.

Note For MFG/PRO 9.0 running on Progress 8.3, you need QAD BI 2.0.

QAD BI is available in the following languages: English, French, Spanish, German, Dutch, Simplified Chinese, Traditional Chinese, Japanese, and Korean.

Your source MFG/PRO database can use any Western European language based on code page ISO8859-1. Or it can use any of the following supported double-byte languages: Simplified Chinese, Traditional Chinese, Japanese, Korean. If you want to use QAD BI with multiple data sources and multiple languages, only the following combinations are supported:

- Any combination of ISO8859-1 languages
- English and any one of the supported double-byte languages

Third-Party Software Components

QAD BI ships with two editions of Data Transformer on a single CD to support Progress 9 and OpenEdge 10 respectively.

The following components are required for the installation of the QAD BI Data Transformer Progress 9 edition:

- Progress 9.1D or 9.1E with the following components:
  - Provision Plus
  - Enterprise DB
  - 4GL Development System

- DataDirect SequeLink Server and ODBC Edition Client 4.5

The following components are required for the installation of the QAD BI Data Transformer OpenEdge 10 edition:

- OpenEdge 10.1A with the following components:
  - OE Application Server Basic or OE Application Server Enterprise
  - OE Enterprise RDBMS
  - 4GL Development System

The following component is required for all installations of QAD BI.

- Microsoft Access 2000, 2002, or 2003

  Note Microsoft Access is only used to maintain data relationships. It is not used to store MFG/PRO data.

The following component is required when creating PowerCubes for use with Cognos 8:

- Cognos PowerPlay Transformer Edition

The following component is required when creating and managing business-related metadata for use in Cognos 8 analysis and reporting:

- Cognos Framework Manager

The following components are required when implementing Web-based Cognos 8 interfaces:

- Content store database using one of the following:
  - Microsoft SQL Server
  - Oracle
  - DB2
  - Sybase Adaptive Server Enterprise (ASE)
- Cognos 8 PowerPlay Server
- HTTP Server
  - On Windows 2000 or Windows XP: Microsoft Internet Information Services
  - On Windows 2003: Application Server

The following components are required when extracting data from non-Progress data sources:

- Progress/OpenEdge Oracle DataServer
- Progress/OpenEdge MS SQL Server DataServer
- Progress/OpenEdge ODBC DataServer

The following component is required to process data warehouse tasks in parallel:

- Progress AppServer

Performance

The following suggestions are general recommendations that should boost performance in most implementations:

- The data warehouse database should be located on the same server as the QAD BI Data Transformer.
- The Cognos PowerCubes should be generated on the same server as the QAD BI Data Transformer.
- The network connections between the server hosting the Data Transformer and the MFG/PRO servers should be capable of supporting large data transfers efficiently.

Installation Media

The QAD BI software suite is packaged on multiple CDs. Depending on your purchase order, you may have received a CD to install the QAD BI Data Transformer, a CD to install the common business model architecture components, as well as CDs to install each of the QAD BI business models.

The complete QAD BI suite includes the following media:

- QAD BI Data Transformer
- QAD BI Common Model components
- QAD BI Sales Analysis Model
- QAD BI Financial Controlling Model
- QAD BI Service Performance Model

- QAD BI Manufacturing Performance Model
- QAD BI Inventory Monitoring Model
- QAD BI Forecasting Model
- QAD BI Vendor Rating Model

Installation Steps

Installing QAD BI is a multi-step process. Each step is detailed in the following sections. Complete each step before moving on to the next. Each task is discussed in its own section:

- Verify the Prerequisite Components
- Set Up Language Support
- Prepare the DataDirect SequeLink Components
- Install the Cognos Components
- Install the QAD BI Data Transformer Files
- Update the ODBC Account
- Install the Common Components and Business Models

Note QAD recommends you install QAD BI in a test environment first.

Verify the Prerequisite Components

Progress

QAD BI requires the Enterprise database components of Progress 9.1D, 9.1E, or OpenEdge 10.1A. Use the Progress installation instructions to install the necessary components. Once they have been installed, verify that they are functioning properly by stopping and starting the Progress AdminService and connecting to the service using the Progress Explorer tool.

To stop and start the Progress AdminService:

1. Launch the Windows Services Manager (Start|Control Panel|Administrative Tools|Services).
2. Right-click AdminService for Progress/OpenEdge and choose Stop.

3 Right-click AdminService for Progress/OpenEdge and choose Start.

To connect to the service using the Progress Explorer tool:

1 Launch the Progress Explorer (All Programs|Progress|Progress Explorer or All Programs|OpenEdge|Progress Explorer).

2 Right-click the Progress Explorer node and choose Add Progress Server.

3 Choose OK to configure a local server.

4 Right-click the localhost node and choose Connect.

Important QAD recommends setting the Progress/OpenEdge AdminService startup type to Manual. On some systems, Progress errors occur periodically when the service is set to Automatic. Anytime the server is rebooted, the service must be manually started.

Progress System Variables

Before you proceed with the QAD BI installation, you should:

- Verify that the DLC and PROMSGS system variables are set.
- Verify that the *`ProgressInstallDir`*`\bin` directory is in the system path variable.

Use these steps to verify the system variable and path information:

1 On your Windows Desktop, right-click My Computer and choose System Properties.

2 Click the Advanced tab and choose Environment Variables.

3 Verify that DLC and PROMSGS are set. If they are not, click New and enter the variable name and value to set the missing variables:

`DLC=`*`ProgressInstallDir`*

`PROMSGS=`*`ProgressInstallDir`*`\promsgs`

4 Double-click the Path system variable. Review the value to make sure the *`ProgressInstallDir`*`\bin` directory is included. If it is not included, add it to the end of the path, delimited by a semicolon (;).

Microsoft Access

QAD BI has been tested to ensure that it interacts seamlessly with Microsoft Access 2000 and newer releases. It has not been tested with previous releases. Before you proceed with the QAD BI installation, perform the following system checks:

- Verify the Access version compatibility.
- Set the Macro/Security option to low when using Access 2003.

To verify the version compatibility:

1. Launch Access.
2. Choose Help|About Access.
3. Verify that you have Microsoft Access 2000 or above.
4. Click OK to return to the application.

To set the Macro/Security level to low when using Microsoft Access 2003:

1. From the Tools menu, choose Macros|Security.
2. Set Security to Low.

SMTP Mail Server Account

A valid SMTP (outgoing) mail server account is required when configuring Cognos 8 Server. The account will be used to send reports by e-mail.

Make sure you know the following information:

- Host name and port of your SMTP mail server
- Account and password for the SMTP mail server

Set Up Language Support

To support different languages, you must set special language encoding and fonts in the Windows operating system:

1 To set language encoding, choose Start|Control Panel|Regional and Language Options|Advanced.

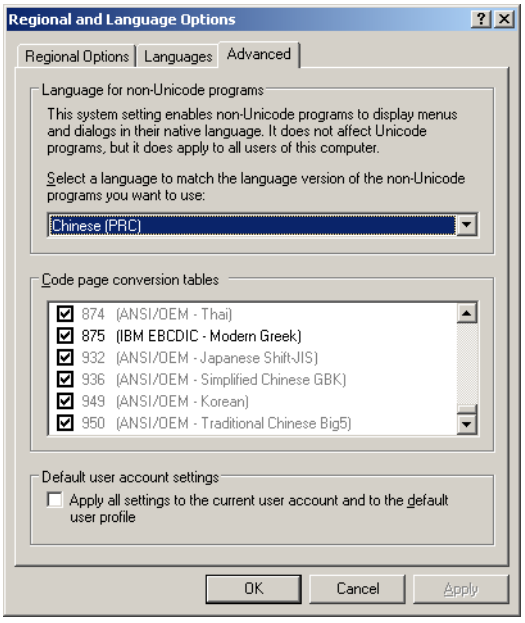


Fig. 1.2
Regional and Language Options

2 From the Language for non-Unicode programs frame, choose the language you require.

3 From the Code page conversion tables frame, select the code page conversion tables you require.

Prepare the DataDirect SequeLink Components

Important This step is not needed for Progress OpenEdge 10 installations.

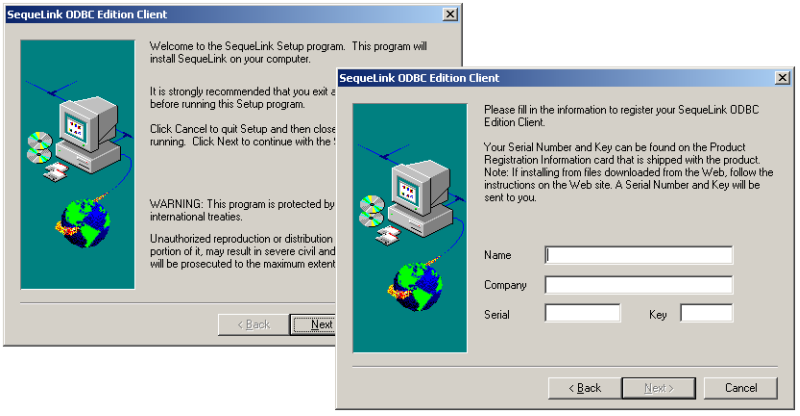
Install the DataDirect SequeLink components only if you are installing the QAD BI Data Transformer Progress 9.1 edition. For the QAD BI Data Transformer OpenEdge 10 edition, the OpenEdge installation utility installs the DataDirect SQL ODBC drivers for you when you install OpenEdge.

Use the following steps to install and configure the DataDirect SequeLink components. These components are provided on the QAD BI Data Transformer installation CD in the `\etl-progress9\sequelink` subdirectory.

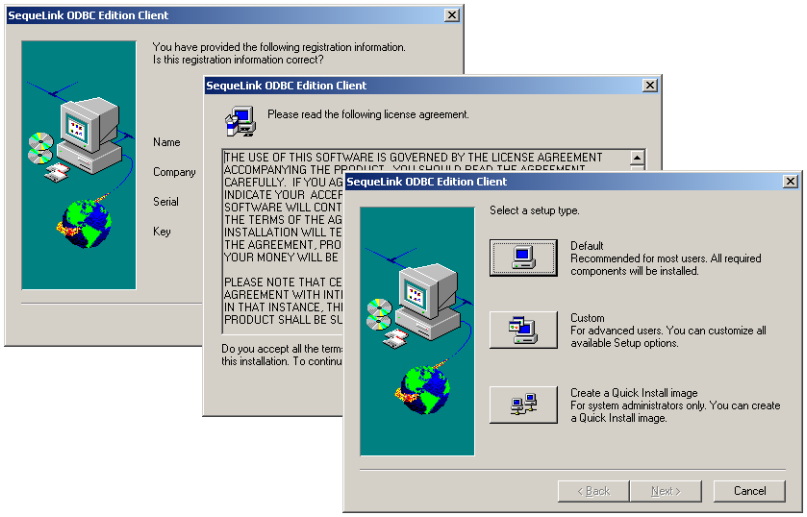
Note The DataDirect ODBC Edition Client and the DataDirect SequeLink Server software are licensed for use with QAD BI only.

Install the DataDirect ODBC Edition Client

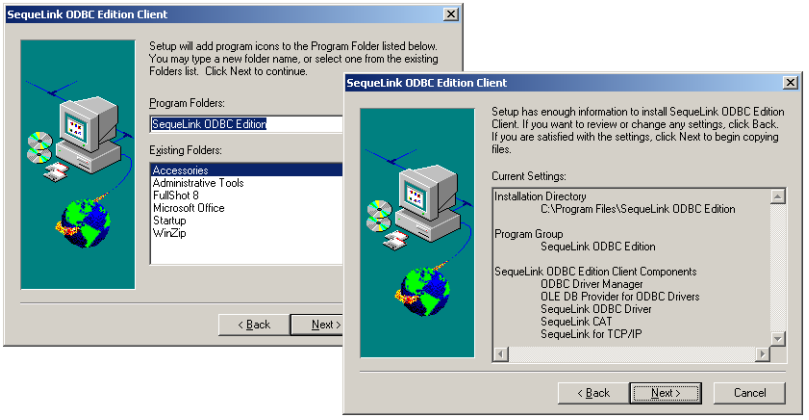
1. Start the DataDirect ODBC client installation by running the `\etl-progress9\sequelink\client\setup.exe` installation program.
2. Review the client information, and enter your product registration information.



3 Review your registration information and license agreement, and then choose the Default installation.



4 Choose a folder where to place the program icons, review the installation configuration, and begin the installation process.



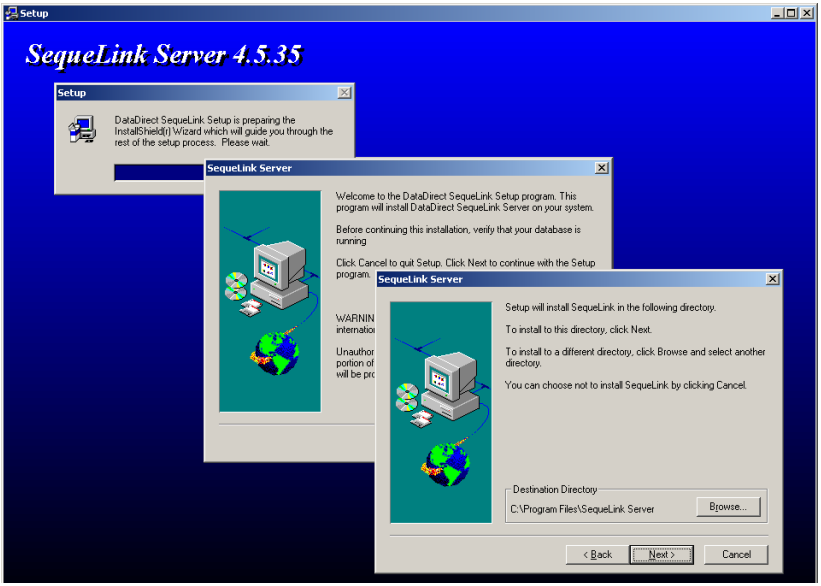
Install the DataDirect SequeLink Server

Use these steps to install the DataDirect SequeLink Server:

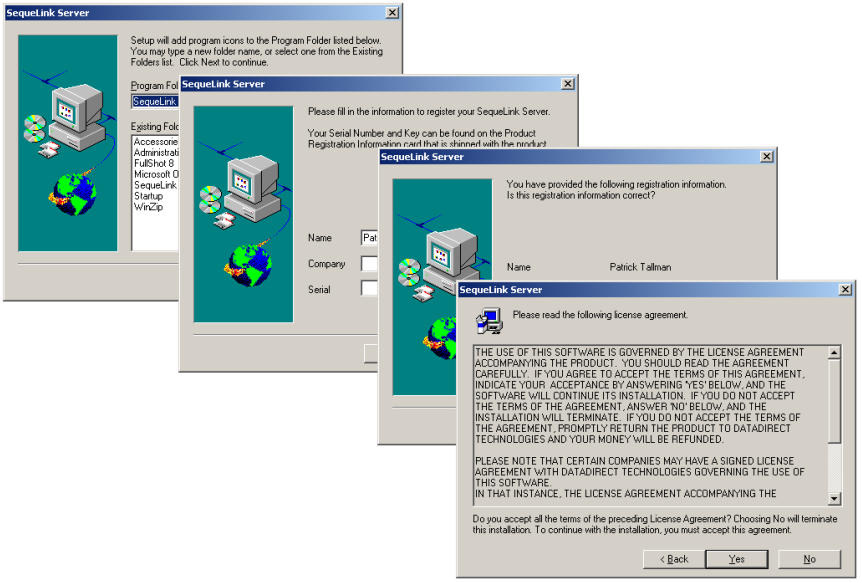
1. Start the SequeLink Server installation by running the `setup.exe` installation program found in:

   `\etl-progress9\sequelink\server\`

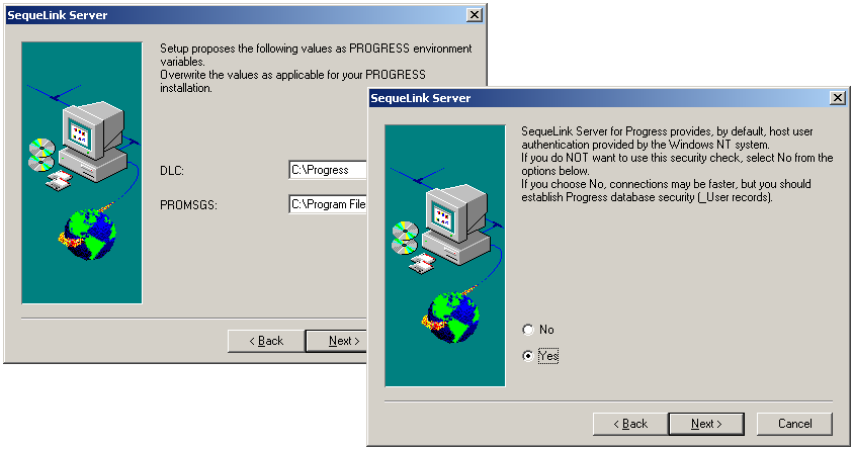
2. Review the product information and verify the installation directory. If a previous installation of the product is detected, you should install into the same directory as the previous installation.



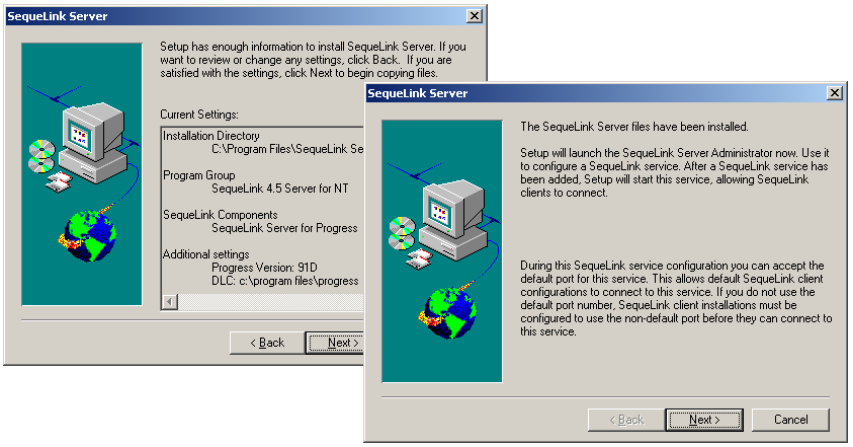
3. Choose the program group to create, enter and verify your registration information, and review the license agreement.



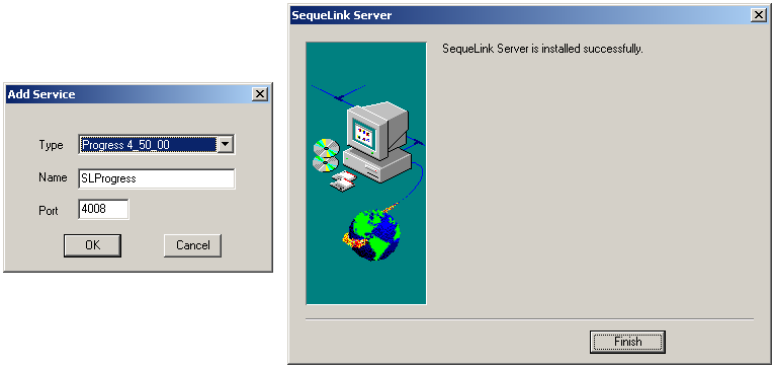
4 When prompted, enter the Progress directory information as required.



5 Review the components to be installed, and proceed with the installation. Once the files are installed successfully, you are notified that the SequeLink Server Administrator will be launched to add a SequeLink service.



6 When the SequeLink Server Administrator displays, accept the default configuration. Once the service is added, the SequeLink Server installation is complete.



7 Configure the SequeLink OCBC Driver to support Progress 9.1D or Progress 9.1E.

a From SequeLink Server Administrator, choose the Load Config button to open the configuration. For further details, read `version.txt` under the following directory:

`SequeLinkServerInstallDir``\4_50_00\bin`

b Depending on which Progress version you are using, enter the relevant configuration details as shown in Figure 1.3 and Figure 1.4.

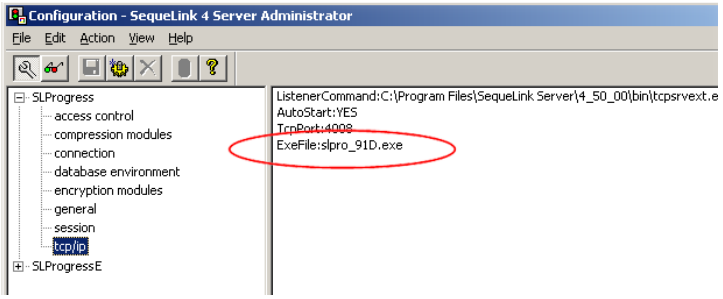


Fig. 1.3 Configuration for Progress 9.1D

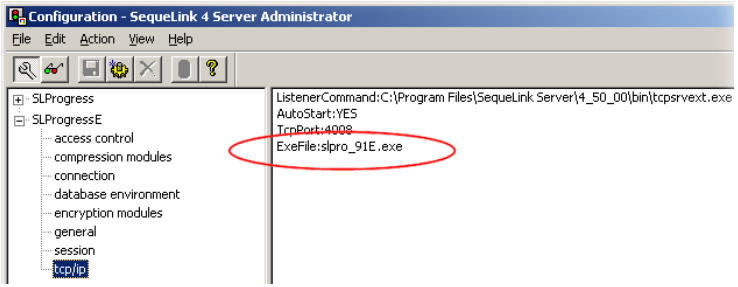


Fig. 1.4 Configuration for Progress 9.1E

Install the Cognos Components

The installation steps described here assume that you are installing all Cognos 8 components on one computer. For other Cognos 8 installation options, see Chapter 7, “Installation Options,” in the *Cognos 8 Architecture and Planning Guide*.

Use the steps in this section to install and configure:

- Cognos PowerPlay Transformer
- Cognos PowerPlay Server
- Cognos Framework Manager

Install and Configure Cognos PowerPlay Transformer

Installing Cognos PowerPlay Transformer

1. Insert the Cognos 8 Business Intelligence OLAP Modelling 8.1 Windows CD.
2. In the Cognos 8 Business Intelligence OLAP Modelling 8.1 Windows screen, select Install Cognos 8 Business Intelligence OLAP Modelling 8.1 Windows.
3. Select all default options unless using a double-byte language.

   If you need to use a double-byte language in BI, at the Character Set Selection screen, select Locales for other languages.
4. In the Component Configuration screen, select the following option button:

   ```
   Exit the Installation Wizard without configuring
   components. You must later configure the components to
   complete the installation.
   ```
5. Click Next.
6. In the Finish screen, click Finish.
7. In the Cognos 8 Business Intelligence OLAP Modelling 8.1 Windows screen, click Exit.

Applying the Current Configuration

1. From the Windows Start menu, choose All Programs|Cognos 8|Tools|Configuration Manager.
2. In the Cognos Configuration Manager Welcome screen, choose the Open the current configuration option under the Start tab.
3. In the Configuration Manager Explorer panel, right-click the top-level node that has your computer name and choose Apply Selection.
4. Click Yes at the prompt for confirmation.
5. The Configuration Manager application progress bar displays. When the application process is complete, click OK and exit Configuration Manager.

Note When the following warning message displays, ignore it and choose OK:

```
Warning: Could not complete Apply for
YourComputerName.
```

Install and Configure Cognos PowerPlay Server

Installing Cognos 8 PowerPlay Server

1. Launch the Cognos 8 PowerPlay Server installation program from the Cognos PowerPlay Server installation CD.
2. Select all default options unless using a double-byte language.

   If you need to use a double-byte language in BI, at the Character Set Selection screen, select Locales for other languages.
3. In the Finish screen, click Finish.

Creating the Content Store

The content store is a database that Cognos Content Manager uses to store global configuration data, global settings (such as the language and currency formats shown in the user interface), connections to data sources, and product-specific content. Design models and log files are not stored in the content store.

By default, Cognos 8 products share the content store database. You must create this database using one of the following:

- Microsoft SQL Server
- Oracle
- DB2
- Sybase Adaptive Server Enterprise (ASE)

The following steps create the content store database using the Microsoft SQL Server Desktop Engine provided with the QAD BI Transformer installation CD. For information on creating the content store using other databases, see Chapter 6, “Setting up the Environment,” in the *Cognos 8 Business Intelligence Installation and Configuration Guide*.

1. Launch `MSDE2000A.exe` from the QAD BI Data Transformer installation CD and unpack the installation files to a temporary installation folder on the server.
2. Open `setup.ini` in the temporary installation folder using a text editor and add the following under `[Options]`:

   ```
   SECURITYMODE=SQL
   SAPWD="sa"
   DISABLENETWORKPROTOCOLS=0
   ```

3. Save the `setup.ini` file.
4. Launch `setup.exe` in the temporary installation folder and wait until the installation process completes.
5. From the Windows Start menu, choose All Programs|Control Panel|Administrative Tools|Services.
6. In the Services screen, right-click MSSQLSERVER and choose Start to start the service.
7. Open the MS-DOS Command Prompt window and execute the following commands:

   ```
   osql -E localhost
   create database cm
   go
   ```

   Note `cm` is the default Cognos content store database name.
8. The create database process messages display.
9. Close the Command Prompt window. The content store database has been created.

Installing HTTP Server

To access Cognos 8 interfaces through the Cognos 8 Web portal, you must install and configure an HTTP server to host Cognos 8 Server files and components.

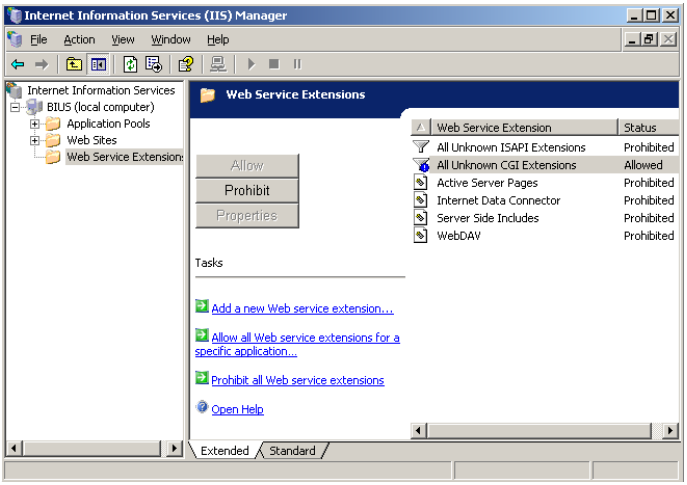
Use Microsoft Internet Information Services on Windows 2000 or Windows XP; use Application Server on Windows 2003.

1. From the Windows Start menu, choose Control Panel|Add or Remove Programs.
2. In the left pane, click Add/Remove Windows Components.
3. In the Windows Components Wizard screen, check one of the following:
   - Internet Information Services (IIS) box when the target machine is running Windows 2000 or Windows XP
   - Application Server when the target machine is running Windows 2003
4. Click Next.
5. Accept the default options to complete the installation unless you are using IIS 6.0.

   If you use IIS 6.0, ensure that the CGI extension can be executed by doing this:

   a. Go to your IIS 6.0 control panel.
   b. Select Web Service Extensions from the left tree.
   c. Select All Unknown CGI Extensions and click Allow.
   d. When prompted to confirm, click Yes.

Fig. 1.5
Internet Information Services Manager



Configuring HTTP Server

Before you use Web pages generated by Cognos 8, you must configure your Web server. You must set up virtual directories, also known as Web aliases, for the directories that contain the HTML and Web files for Cognos 8.

Alias	Location	Permission
cognos8	*CognosSvrInstallDir*\webcontent	Read, Run-scripts
cognos8/cgi-bin	*CognosSvrInstallDir*\cgi-bin	Read, Run-scripts, Execute
cognos8/help	*CognosSvrInstallDir*\webcontent\documentation	Read, Run-scripts

Note *CognosSvrInstallDir* is the directory where you installed Cognos 8 PowerPlay Server.

Use these steps to configure Internet Information Server:

1. In the left pane of the Internet Information Services Manager window, expand the folder that has your computer name and then expand the Web Site folder.
2. Right-click the folder that contains the Web site where you will run your Cognos product and choose New|Virtual Directory. If you have only one Web site, its default name is `Default Web Site`.

3 In the Virtual Directory Creation Wizard dialog box, click Next.

4 In the Alias text box, enter cognos8, and then click Next.

5 Click Browse, select the *CognosSvrInstallDir*\webcontent folder, and then click Next.

6 Ensure that the Read and Run-scripts check boxes are selected, and then click Next.

7 Click Finish.

8 In the left pane of Internet Information Services Manager, right-click the Cognos8 folder you just created and choose New|Virtual Directory.

9 In the Virtual Directory Creation Wizard dialog box, click Next.

10 In the Alias text box, enter cgi-bin, and then click Next.

11 Click Browse, select the *CognosSvrInstallDir*\cgi-bin folder, and then click Next.

12 Ensure that the Read, Run-scripts, and Execute check boxes are selected, and then click Next.

13 Click Finish.

14 In the left pane of Internet Information Services Manager, right-click the Cognos8 folder and choose New|Virtual Directory.

15 In the Virtual Directory Creation Wizard dialog box, click Next.

16 In the Alias text box, enter help, and then click Next.

17 Click Browse, select the following folder, and then click Next:

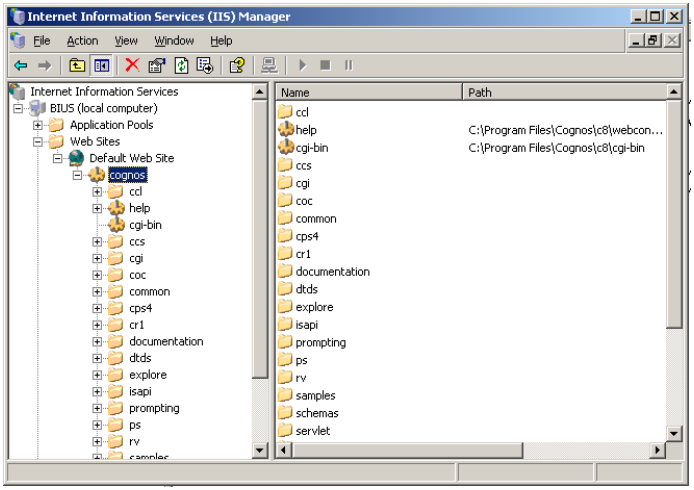
CognosSvrInstallDir\webcontent\documentation

18 Ensure that the Read and Run-scripts check boxes are selected, and then click Next.

19 Click Finish.

20 The HTTP server is configured. Exit IIS Manager.

Fig. 1.6
Configure Internet Information Services



Configuring Web Browsers

Cognos 8 uses the default browser configurations provided by Microsoft, Netscape, and Firefox. For all browsers, you must ensure that settings are enabled for cookies and Java scripts. Additional required settings are specific to the browser.

Table 1.1
Web Browser Settings

Browser	Setting	Cognos Component
Internet Explorer	Run ActiveX controls and plug-ins Script ActiveX controls marked safe for scripting	Analysis Studio
Netscape	Allow Cookies JavaScript	Cognos Connection
Firefox	Allow Cookies Enable Java Enable JavaScript Load Images	Cognos Connection

Configuring Cognos Server Components

After you install the Cognos 8 Server components, the following configuration tasks are required.

Setting Database Connection Properties for the Content Store

1. From the Windows Start menu, choose All Programs|Cognos 8|Cognos Configuration.
2. The Cognos Configuration screen displays. In the Explorer window, under Data Access, Content Manager, click Content Store. By default, Cognos components use properties for a Microsoft SQL Server database.
3. If necessary, in the Content Store Database Resource Properties window, change the default value for the Database server and port number.
4. For the Database name property, use `cm` as the default content store database name. If you used a different database name when you previously created the SQL Server database, enter that name.
5. Click the Value box next to the User ID and password property and then click the edit button when it appears.
6. In the Value – User ID and password dialog box, enter `sa` as both user ID and password; then click OK.

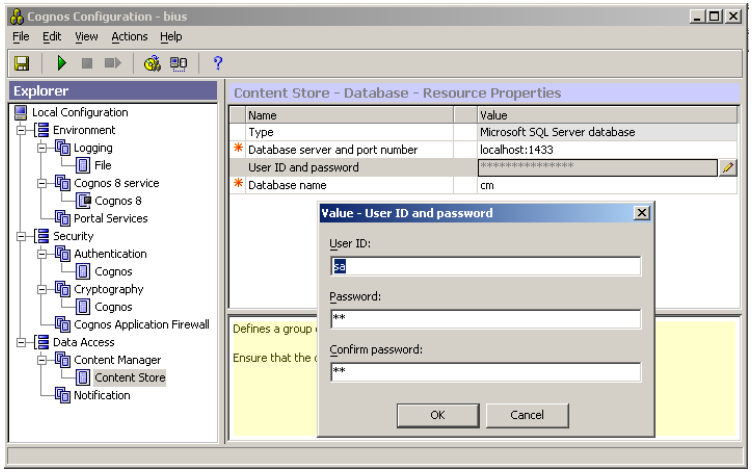


Fig. 1.7 Set Database Connection Properties for the Content Store

7. Right-click Content Store in the Explorer window and choose Test to test the database connection.

8 On the File menu, click Save.

9 The log-in credentials are immediately encrypted.

Specifying a Mail Server Account

If you want to send reports by e-mail, you must configure a mail server account.

1 In the Cognos Configuration Explorer window, under Data Access, click Notification.

2 In the Properties window, for the SMTP mail server property, enter the host name and port of your SMTP (outgoing) mail server.

3 Click the Value box next to the Account and password property and then click the edit button when it appears.

4 Enter the appropriate values in the Value – Account and password dialog box and then click OK.

Note If log-on credentials are not required for the SMTP server, remove the default information for the Account and password property. When you are prompted for confirmation to leave this property blank, click Yes. Ensure that the default user name has been removed. Otherwise, the default account is used and notifications will not work properly.

5 In the Properties window, enter the appropriate value for the default sender account.

6 Right-click Notification in the Explorer window and choose Test to test the mail server connection.

7 On the File menu, click Save.

Testing the Server Components

You can test your configuration settings by running the test feature before you start the Cognos 8 service. Then you can test the installation by starting the Cognos 8 service and then opening Cognos Connection. On Windows, the Cognos 8 service is configured to start automatically by default.

1. Start Cognos Configuration.
2. Ensure that you save your configuration; otherwise, you will not be able to start the Cognos 8 service.
3. In the Explorer window, click Local Configuration.
4. On the Actions menu, click Test.

   Cognos Configuration checks the CSK availability; tests the namespace configuration; and tests the connections to the content store, logging database, notification database, and mail server.
5. If any test fails, reconfigure the affected properties and then test again. Do not start the service until all tests pass.
6. On the Actions menu, click Start.

   It may take a few minutes for the Cognos 8 service to start. This action starts all installed services that are not running. If you want to start a particular service, select the service node in the Explorer window and then click Start on the Actions menu.
7. Open a Web browser.
8. Enter the following in the address bar and press Enter, where `cognos8` is the virtual directory you created when you configured the Web server:

   ```
   http://host_name:port/cognos8
   ```
9. It may take a few minutes for the Web page to open. If you see the Welcome page of Cognos Connection, your Cognos 8 installation is working.

Install and Configure Cognos Framework Manager

You must install and configure Framework Manager before you can use Cognos 8 for analysis.

Use these steps to install Cognos Framework Manager:

1. Launch the Cognos Framework Manager installation program from the Cognos 8 Business Intelligence Modelling Windows CD.
2. Select all default options.
3. Click Yes at the following prompts:

   ```
   Warning: You are installing to the same location as a
   previous installation. Do you want to continue?
   ```

   ```
   This installation will replace existing files.
   Select Yes to automatically create a backup of all files
   that are replaced.
   ```

4. In the Finish screen, click Finish.

Install the QAD BI Data Transformer Files

This section includes the information you need to install the QAD BI Data Transformer program and data files using the QAD BI Data Transformer installation CD.

The QAD BI Data Transformer installation CD includes two editions of Data Transformer:

- QAD BI Data Transformer Progress 9.1 edition, located under the `etl-progress9` directory
- QAD BI Data Transformer OpenEdge 10 edition, located under the `etl-progress10` directory

To begin the installation of the Data Transformer edition you want, launch `install.bat` from the corresponding directory on the installation CD. You are then prompted to provide several installation parameters. Use the following descriptions as a guide.

Note The values you provide are saved in the system registry and are used as defaults on subsequent QAD BI installations.

Important If you specify a Program Files directory where the QAD BI Data Transformer was previously installed, you are prompted either to upgrade or to replace the existing installation.

- Choosing to upgrade the existing installation updates the QAD BI program files to the installed version while retaining the existing data warehouse configuration and data.
- Choosing to replace the existing installation completely replaces all program and data files.

Support Multiple Code Page Data Sources. Indicate whether the product needs to connect to double-byte language source databases and English source databases at same time. Enter either Y for yes or N for no.

Default Encoding. Specify the default encoding used by the Data Transformer. ISO8859-1 is the code page for Western languages. The code pages for supported double-byte languages are:

GB2312: Simplified Chinese

CP936: Extended Simplified Chinese GBK

CP950: Traditional Chinese Big-5

CP949: Korean

SHIFT-JIS: Japanese

Program Files Directory. Specify the directory where program files will be installed. The directory name should not contain spaces.

Data Directory. Specify the directory where the data warehouse and administration databases will be installed. The directory name should not contain spaces.

Progress Directory. Specify the directory where Progress was installed.

Data Warehouse Database Name. Specify the name assigned to the data warehouse database in the Progress Explorer tool.

Data Warehouse Database Port. Specify the TCP-IP port to use for the data warehouse database server in the Progress Explorer tool.

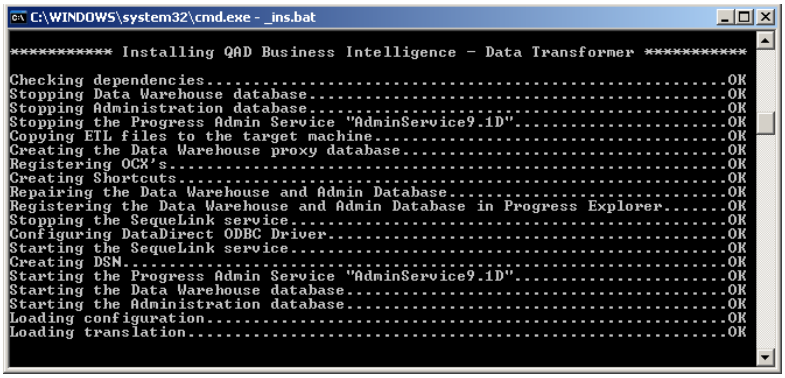
Administration Database Name. Specify the name assigned to the Administration database in the Progress Explorer tool.

Administration Database Port. Specify the TCP-IP port to use for the Administration database server in the Progress Explorer tool.

Program Group. Specify the name of a program group where application shortcuts will be installed.

After you enter the required installation parameters, several automated tasks execute and a status screen displays.

Fig. 1.8
QAD BI Data Transformer Installation Status Screen



After the installation script completes, exit the DOS screen.

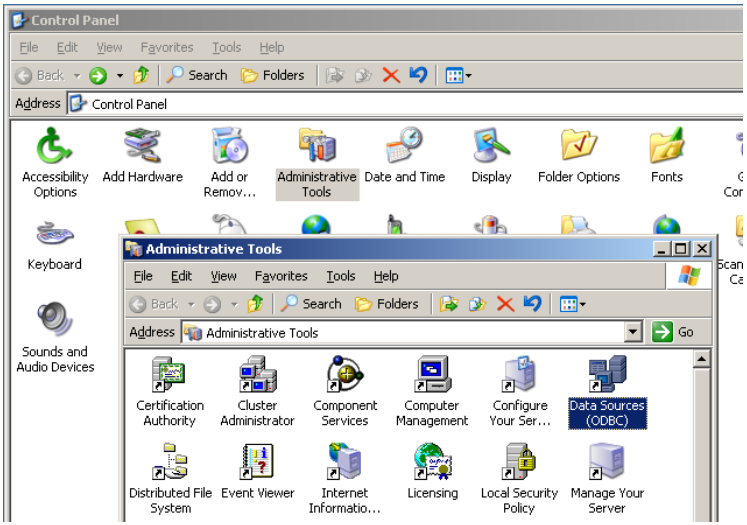
Update the ODBC Account

Skip this step if you are installing QAD BI on OpenEdge 10.1A.

An ODBC Data Source Name (DSN) was created by the installation using the Data Warehouse Database Name installation parameter. The DSN must be configured to use a Windows account with Administrative rights.

To set the account, follow these steps, which assume that you are using Windows XP Professional; other operating systems may require slightly different steps.

1 Access the ODBC Administrator by selecting Start|Control Panel|Administrative Tools|Data Sources (ODBC).



2 The ODBC Data Source Administrator displays. Choose the System DSN tab; then select the appropriate DSN and click Configure.

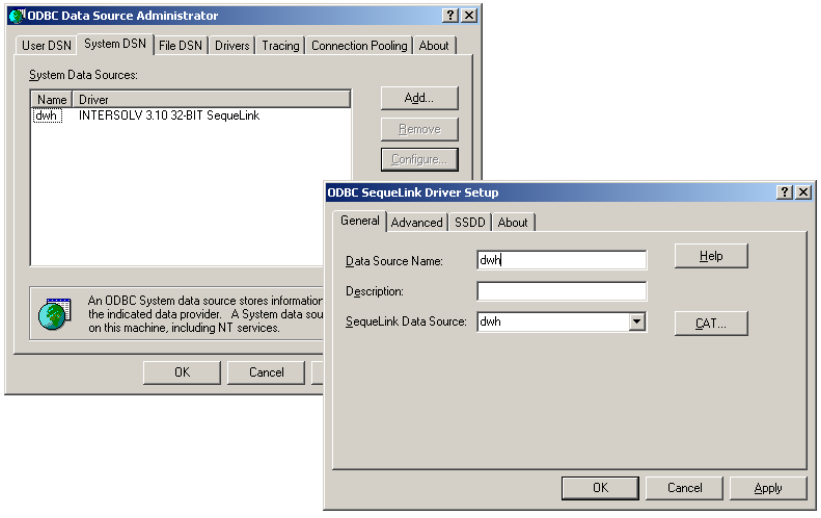
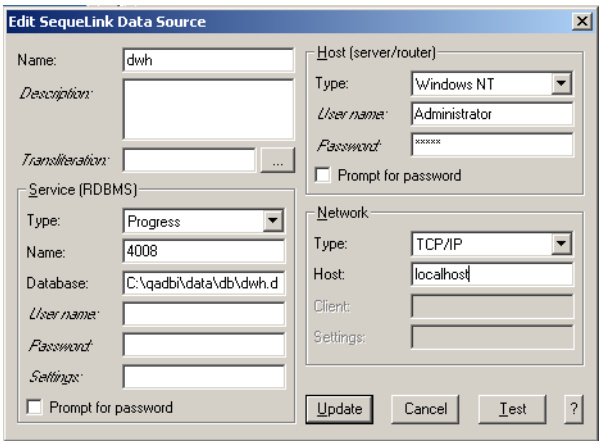


Fig. 1.9
ODBC SequeLink Driver Setup

3 Click CAT in the ODBC SequeLink Driver Setup screen. The Edit SequeLink Data Source screen displays. In the Host panel, enter authentication information for a Windows account with Administrative privileges, and clear the Prompt for Password check box.

Fig. 1.10
Edit SequeLink Data Source



4 Click Test to make sure the account and password information is valid.

5 Click Update to save your changes and return to the previous screen. Exit each screen, confirming your changes, until you are returned to your desktop.

Note You must do this task before you run the BI Data Transformer.

Install the Common Components and Business Models

Your QAD BI package may include several business model CDs. This section includes information to help you install the common model components and the business models. The same steps are used to install each of these components. You can install the business model CDs in any order once the common model components have been installed.

To begin the installation, launch `install.bat` from the selected CD.

You are then prompted to provide several installation parameters. Use the following descriptions as a guide.

Note The values you provide are saved in the system registry and are used as defaults on subsequent QAD BI installations.

Program Files Directory. Specify the directory where program files will be installed. The directory name should not contain spaces.

Data Directory. Specify the directory where the business models will be installed. The directory name should not contain spaces.

See “Using QAD-Provided Model Data” on page 102 for information on how to load the business model data.

Chapter 2

Upgrading QAD BI

Overview

If you are upgrading QAD BI to release 2.3.1 from any prior release, you must complete a set of steps to prepare your data to take advantage of the new features.

Upgrade Summary

For all previous releases, you must install the new QAD BI Data Transformer files.

If you are upgrading from QAD Business Intelligence version 2.2 or earlier, you must complete the following steps:

- Upgrade your version of Cognos from Cognos Series 7 to Cognos 8.
- Modify the business key index definition file if you have customized the schema for the QAD-provided models.
- Modify custom replication scripts for each table for which you have customized replication method.
- Bulk generate and validate replication scripts.
- Run the Update Links command in Data Transformer.

Prior to Upgrading

Make sure you back up your data warehouse prior to upgrading QAD BI.

If you are upgrading to the QAD BI OpenEdge 10 edition, you must first convert your data warehouse and administration databases (`dwh` and `dwh-admin`) to OpenEdge release 10. For information on converting Progress version 9 databases to OpenEdge release 10, see *OpenEdge Data Management: Database Administration Guide*.

Upgrade Cognos Series 7 to Cognos 8

Use these steps to upgrade Cognos Series 7 to Cognos 8:

1 Optionally, migrate or upgrade Cognos 7 content to Cognos 8.

If you have Cognos Series 7 content, you can move some of that content to Cognos 8 using migration and upgrade tools that are available in a separate installation. For detailed information, see Chapter 4, "Upgrading to Cognos 8," in *Cognos 8 Business Intelligence Installation and Configuration Guide*.

2 Uninstall all Cognos Series 7 components.

3 Install the Cognos 8 components. Use exactly the same steps detailed in "Install the Cognos Components" on page 19.

Install the New Data Transformer Files

This section includes the information you need to install the new QAD BI Data Transformer program and data files.

To begin the installation, launch `install.bat` from the temporary folder where you previously copied all the files from the QAD BI Data Transformer Installation CD. You are then prompted to provide several installation parameters. Use the following descriptions as a guide.

Note The values you provide are saved in the system registry and are used as defaults on subsequent QAD BI installations.

Important When you specify a Program Files directory where the QAD BI Data Transformer was previously installed, you are prompted either to upgrade or to replace the existing installation.

- Choosing to upgrade the existing installation updates the QAD BI program files to the installed version while retaining the existing data warehouse configuration and data.
- Choosing to replace the existing installation completely replaces all program and data files.

Support Multiple Code Page Data Sources. Indicate whether the product needs to connect to double-byte language source databases and English source databases at same time. Enter either Y for yes or N for no.

Default Encoding. Specify the default encoding used by the Data Transformer. ISO8859-1 is the code page for Western languages. The code pages for supported double-byte languages are:

GB2312: Simplified Chinese

CP936: Extended Simplified Chinese GBK

CP950: Traditional Chinese Big-5

CP949: Korean

SHIFT-JIS: Japanese

Program Files Directory. Specify the directory where program files will be installed. The directory name should not contain spaces.

Data Directory. Specify the directory where the data warehouse and administration databases will be installed. The directory name should not contain spaces.

Progress Directory. Specify the directory where Progress was installed.

Data Warehouse Database Name. Specify the name assigned to the data warehouse database in the Progress Explorer tool.

Data Warehouse Database Port. Specify the TCP-IP port to use for the data warehouse database server in the Progress Explorer tool.

Administration Database Name. Specify the name assigned to the Administration database in the Progress Explorer tool.

Administration Database Port. Specify the TCP-IP port to use for the Administration database server in the Progress Explorer tool.

Program Group. Specify the name of a program group where application shortcuts will be installed.

After you enter the required installation parameters, several automated tasks execute and a status screen displays.

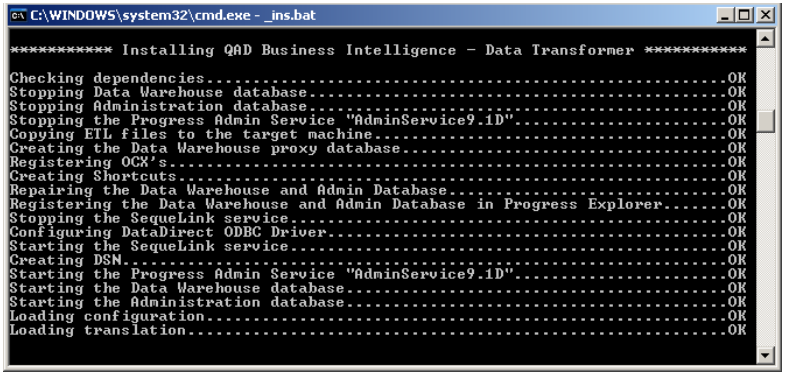


Fig. 2.1
QAD BI Data Transformer Installation Screen

After the installation script completes, exit the DOS screen.

Modify Business Key Index Definition File

Skip the steps in this section and the subsequent sections if you are upgrading from QAD Business Intelligence 2.2.1.

The business key index definition file is used to define business key indexes for the standard tables in the QAD-provided models. See “Add Business Key Indexes” on page 82 for detailed information on the business key index.

If you have not customized the schema for the QAD-provided models in the data warehouse, please skip to “Modify Custom Replication Scripts” on page 43. See “Using QAD-Provided Model Data” on page 102 for detailed information.

If you have made changes to the table schema of the QAD-provided models in the data warehouse, you may need to modify the business key index definition file to reflect the schema changes.

1. Copy all the files in the `etl-progress9` or `etl-progress10` directory on the QAD BI Data Transformer Installation CD to a temporary folder on your local drive, depending on which edition of QAD BI you are upgrading to.
2. Locate the `bk_index.xml` file in:

   tempinstalldir`\install\qadbi\etl\upgrade\update-12\`

   tempinstalldir is the directory specified in the previous step.
3. Unset the read-only attribute on `bk_index.xml`.
4. Open `bk_index.xml` in a text editor. Use Table 2.1 to inspect and modify the file.

Table 2.1 Business Key Index Definition File Tags

Tag	Description
<TABLE>	Schema definition of the table in the data warehouse.
<TABLE-NAME>	Name of the table.
<MAPPED-FIELD>	Definition of new field to be added to the table.
<INDEX>	Business key index definition for the table.
<INDEX-NAME>	Name of the index.
<INDEX-FULL>	Indicate whether the index is a complete business key index: Yes: Complete business key index No: Incomplete business key index
<INDEX-ACTIVE>	Indicate whether the index is an active business key index: Yes: Active business key index No: Inactive business key index
<INDEX-UNIQUE>	Indicate whether the index is unique: Yes: Unique index No: Non-unique key index
<INDEX-FIELD>	Specify the fields that make up the index.

Example You need to define three fields: Reference_, gltr_line, and gltr_rflag as the business key index for the General_Ledger_Transactions table. However, the gltr_line and gltr_rflag fields are currently not available in the standard QAD-provided table schema in the data warehouse. So, you need to modify the business key definition file to add two new fields and define a business key index for the table, as shown in the following sample script.

```
<TABLE>
    <TABLE-NAME>General_Ledger_Transactions_</TABLE-NAME>
    <MAPPED-FIELD>
        <SRC-TABLE>gltr_hist</SRC-TABLE>
        <SRC-FIELD>gltr_line</SRC-FIELD>
        <TRG-FIELD>gltr_line</TRG-FIELD>
        <DATA-TYPE>integer</DATA-TYPE>
        <FIELD-FORMAT>&gt;&gt;&gt;9</FIELD-FORMAT>
        <FIELD-DESC>The line number</FIELD-DESC>
    </MAPPED-FIELD>
    <MAPPED-FIELD>
        <SRC-TABLE>gltr_hist</SRC-TABLE>
        <SRC-FIELD>gltr_rflag</SRC-FIELD>
        <TRG-FIELD>gltr_rflag</TRG-FIELD>
        <DATA-TYPE>logical</DATA-TYPE>
        <FIELD-FORMAT>yes/no</FIELD-FORMAT>
        <FIELD-DESC>Set to yes</FIELD-DESC>
    </MAPPED-FIELD>
    <INDEX>
        <INDEX-NAME>BK_General_Ledger_Transactions_</INDEX-NAME>
        <INDEX-FULL>yes</INDEX-FULL>
        <INDEX-ACTIVE>yes</INDEX-ACTIVE>
        <INDEX-UNIQUE>no</INDEX-UNIQUE>
        <INDEX-FIELD>Reference_</INDEX-FIELD>
        <INDEX-FIELD>gltr_line</INDEX-FIELD>
        <INDEX-FIELD>gltr_rflag</INDEX-FIELD>
    </INDEX>
</TABLE>
```

5 Save the changes.

Modify Custom Replication Scripts

If you used the custom replication method for a table, you need to manually modify the replication script for that table in QAD BI Data Transformer. See “Define Replication Method” on page 72 for detailed information on replication methods.

To modify a custom replication script, add the following line to the end of the `Where` clause in the script that defines the conditions for the data to be replicated.

```
DBname.TableName.ARCHIVE = 0
```

Example

Custom replication script before modification:

```
DELBLOCK:
REPEAT:
    DEFINE VARIABLE delCounter AS INTEGER NO-UNDO.
    delCounter = 0.
    DO TRANSACTION:
        FOR EACH {&TRG-DB}.Call_Types_
            WHERE {&TRG-DB}.Call_Types_.DB-NAME = theDbName
            EXCLUSIVE-LOCK:
            {appl/repl-st1.i}
            DELETE {&TRG-DB}.Call_Types_.
            delCounter = delCounter + 1.
            IF delCounter = {&DEL_TRANSACTION_SIZE}
            THEN LEAVE.
        END.
        IF delCounter = 0 THEN LEAVE DELBLOCK.
    END.
END.
{appl/repl-st2.i}

FOR EACH {&SRC-DB}.fct_mstr NO-LOCK
    <WHERE-CLAUSE>:
    {appl/repl-st3.i}
    CREATE {&TRG-DB}.Call_Types_.
    <FIELD-MAPPING>
END.
{appl/repl-st4.i}
```

Custom replication script after modification (added script is highlighted in bold):

```
DELBLOCK:
REPEAT:
    DEFINE VARIABLE delCounter AS INTEGER NO-UNDO.
    delCounter = 0.
    DO TRANSACTION:
        FOR EACH {&TRG-DB}.Call_Types_
            WHERE {&TRG-DB}.Call_Types_.DB-NAME = theDbName
            AND
            {&TRG-DB}.Call_Types_.archive = 0
            EXCLUSIVE-LOCK:
            {appl/repl-st1.i}
            DELETE {&TRG-DB}.Call_Types_.
            delCounter = delCounter + 1.
            IF delCounter = {&DEL_TRANSACTION_SIZE}
            THEN LEAVE.
        END.
```

```
            IF delCounter = 0 THEN LEAVE DELBLOCK.
        END.
    END.
    {appl/repl-st2.i}

    FOR EACH {&SRC-DB}.fct_mstr NO-LOCK
        <WHERE-CLAUSE>:
        {appl/repl-st3.i}
        CREATE {&TRG-DB}.Call_Types_.
        <FIELD-MAPPING>
    END.
{appl/repl-st4.i}
```

Bulk Generate and Validate Replication Scripts

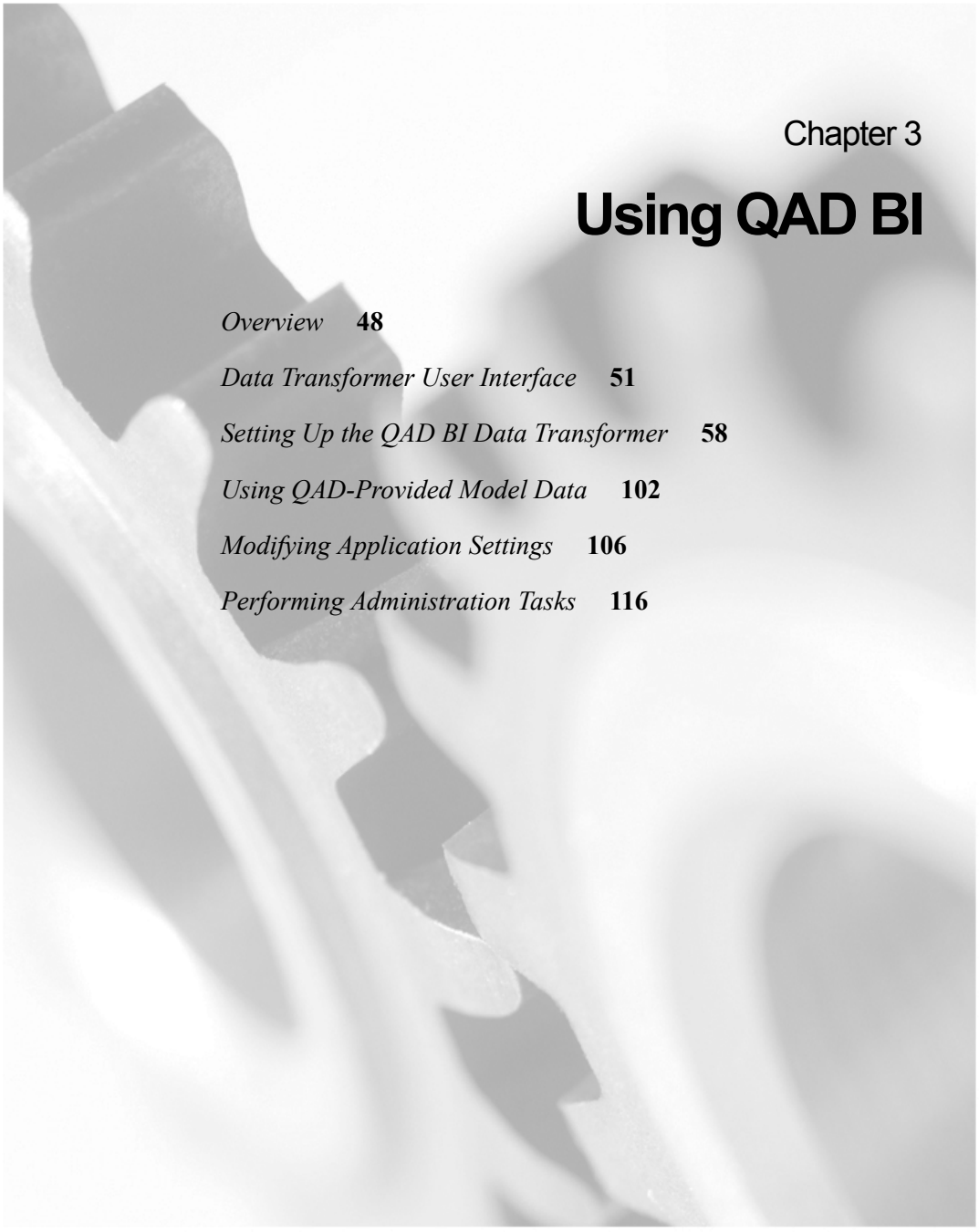
You must have the system regenerate new replication scripts for tables using the incremental load and full refresh replication methods and, at the same time, check all the scripts based on the updated data warehouse structure.

Select the database in the QAD BI Data Transformer main screen directory tree, and then choose Tools|Check Scripts.

The system updates the table icons in the directory tree to show whether they passed validation. A green triangle indicates a validated script; a yellow exclamation point indicates a problem.

Update Table Links

Run the Update Links command in the QAD BI Data Transformer to update the table links to reflect the changes made in the data warehouse. See “Update Links” on page 96 for details.



Chapter 3

Using QAD BI

Overview

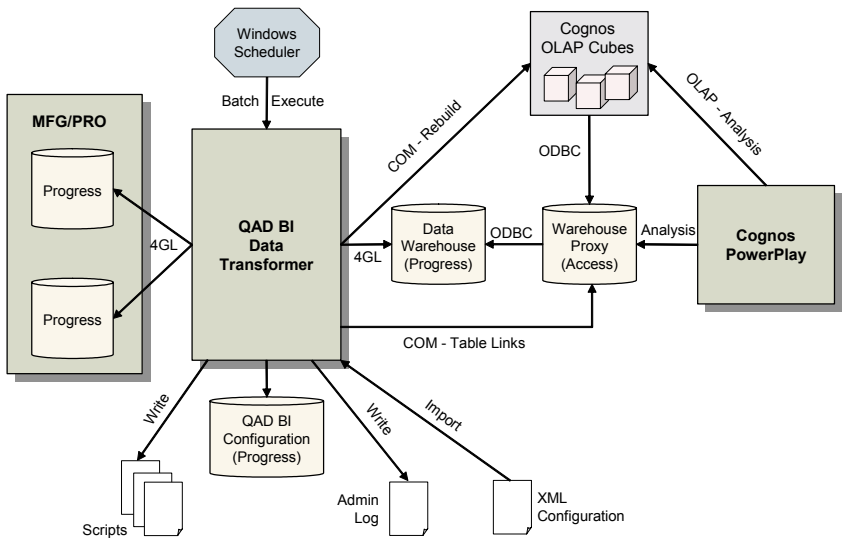
The QAD Business Intelligence (QAD BI) product lets users extract and restructure data from MFG/PRO and other data sources into a Progress-based data warehouse presenting a business-oriented view of the enterprise. Analysts can use Cognos 8 to perform powerful multidimensional analysis against the data warehouse.

The QAD BI solution includes:

- One or more existing data sources
- The Data Transformer Extract-Transform-Load (ETL) tool
- The data warehouse
- A Microsoft Access database used as a database proxy between the data warehouse and PowerPlay
- The PowerPlay application from Cognos

Figure 3.1 illustrates the overall structure of QAD BI.

Fig. 3.1
QAD BI Overview



The following sections summarize the role each element plays in QAD BI. See Chapter 1, “Installing QAD BI,” for information on installing and configuring the individual components.

MFG/PRO

MFG/PRO databases are the primary source of the data that is made available within the data warehouse by the ETL process for analysis in Cognos PowerPlay.

In a multi-database environment, the data warehouse can be configured to populate the same table from more than one source database.

Note While you can have multiple data sources, language combinations are restricted to compatible code pages. See "Supported MFG/PRO Versions" on page 7.

See the user guides for your version of MFG/PRO for information on its features.

QAD BI Data Transformer

Data Transformer is an ETL tool for building and maintaining a data warehouse specifically designed to support analysis. You can use the Data Transformer to configure tasks to structure the data warehouse or load and then modify predefined business models from QAD.

Data Transformer generates a set of Progress scripts to synchronize the data warehouse with the source databases. Progress developers can customize the automatically generated scripts or create new scripts to extend the ETL process.

This guide includes detailed information on using the features of Data Transformer to configure your QAD BI environment.

Data Warehouse

The data warehouse is a Progress database that is populated with data from MFG/PRO and/or other data sources during the ETL process. The data warehouse is an environment separate from the source databases where data can be specially structured to support analysis.

Microsoft Access Database

Access is used as a query layer that makes data in the Progress warehouse available to Cognos PowerPlay. The Access database itself does not store any data. Instead, it serves only to maintain relationships for the data warehouse and to provide an interface for the Cognos PowerPlay Transformer.

In the QAD BI architecture, Access provides the connection to the data warehouse using ODBC and is referred to as the data warehouse proxy.

An Update Links command available in the QAD BI Data Transformer is used to update the table links when changes take place in the data warehouse.

See the Microsoft user documentation for details on using Microsoft Access.

Cognos PowerPlay

An important part of the QAD BI solution is supplied by Cognos PowerPlay—an online analytical processing (OLAP) software application that lets users perform multidimensional analysis, create reports, and share them to make better decisions.

PowerPlay draws information from the data warehouse using the proxy to model and build PowerCubes, or simply cubes—the Cognos term for optimized, multidimensional data sets that enable users to perform analysis with quick response times.

See the Cognos documentation for information on configuring and using PowerPlay, as well as on how to configure PowerCubes.

QAD-Provided Models

QAD sells the following seven models to provide out-of-the-box analysis for standard MFG/PRO installations. The seven models together provide support for more than 100 key performance indicators (KPIs).

- Inventory monitoring, for insight into current and historic inventory trends

- Manufacturing performance, including statistics on work orders, production costs, productivity, and throughput
- Forecasting performance
- Sales analysis, including statistical trends in sales and revenue margins
- Financial controls, encompassing gauges for profitability, investments, and the effectiveness of financial management
- Vendor rating intelligence, from patterns in purchase price and cost, to materials delivery
- Service performance insights, including service profitability and trends in customer calls and contract selection

For information on the models and KPIs, see *Reference Guide: QAD Business Intelligence Key Performance Indicators*. This is provided on the installation CD for each model you purchased.

A model is realized by the following components:

- Replication tasks to extract, transform, and load selected data from MFG/PRO into the data warehouse.
- Relationship definitions for the model tables in the data warehouse defined in the data warehouse proxy (Access).
- Cognos OLAP model defining the multidimensional representation of the tables in the data warehouse. Building the OLAP model creates an OLAP cube that can be analyzed using the Cognos reporting tools.

See “Using QAD-Provided Model Data” on page 102 for information on how to implement models.

Data Transformer User Interface

Important This guide is limited mainly to descriptions of the features of the QAD BI Data Transformer. For information on user interfaces for associated tools such as Cognos PowerPlay and Microsoft Access, see the user documentation for those products.

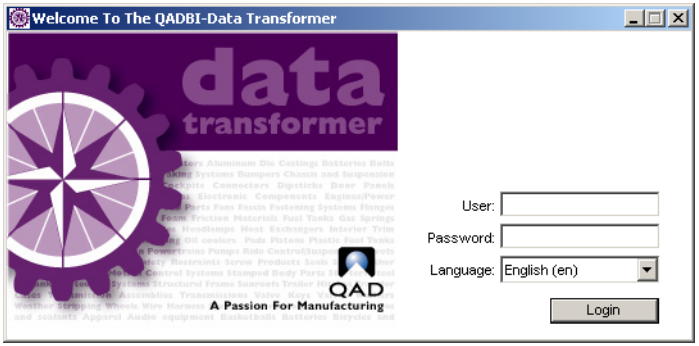
The QAD BI Data Transformer features a Windows-based graphical user interface. Windows conventions are used throughout the product; for example, drop-down menus, shortcut menus, drag-and-drop, and so on.

This section describes user interface features specific to the QAD BI Data Transformer.

Starting

As part of the initialization process, the Data Transformer prompts for user credentials.

Fig. 3.2
QAD BI Data Transformer Log-in Screen



The credentials provided are authenticated against the users configured in the data warehouse database. When installed, the data warehouse database is configured with a single user:

User: `dwh`

Password: `admin`

You can add new users or change the default user with the Progress Data Dictionary tool connected to the data warehouse database. See “Update User Records” on page 116 for details.

The language selected from the drop-down list determines the language in which text labels and menus display.

Important If you chose to enable the support of multiple code page data sources during installation, a warning message displays after log-in. Ignore it and choose OK. It has no impact on your application and database. See “Update the ODBC Account” on page 32 for details.

Fig. 3.3
Log-In Warning

Navigating

Navigation within the Data Transformer provides up to three methods of accessing individual functions, depending on the type of action being performed:

- Menus on the Data Transformer main screen
- Toolbar commands
- Context-sensitive shortcut menus

The primary view of the Data Transformer is the main screen, which includes a toolbar, a menu bar, and a two-pane navigation tree.

The left pane shows the current structure of the data warehouse. When completely minimized, the top-level tree is a series of category folders. When completely maximized, it lists all the tables and custom scripts in the warehouse. Select a table to display its fields in the right pane.

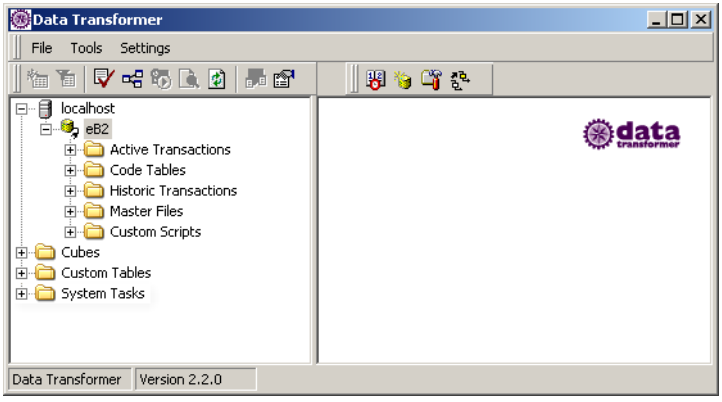


Fig. 3.4
QAD BI Data Transformer Main Screen (OpenEdge 10 Edition)

Note The System Tasks folder is not available in the QAD BI Data Transformer Progress 9.1 edition.

Some functions are available using any of these methods. For example, when a table is selected in the main menu, you can define subsets by clicking Subset on the Tools menu, clicking the Subset command on the toolbar, or right-clicking the table name and selecting Subset. Whichever method you use, the same Map Table screen displays.

Note Some screens include their own toolbars, typically containing two or three additional commands that apply only to the current function.

Other functions are available using only one method. For example, in the Indexes screen, you must click a command to add or delete an index, or to define a primary index.

Toolbar Commands and Menu Functions

Table 3.1 through Table 3.5 list the menu functions and related toolbar commands.

Table 3.1
Main Screen
Toolbar Commands

Command	Menu Function
	Replication Setup
	Subset
	Check Scripts
	Update Links
	Execute Now
	Preview Data (data warehouse)
	Refresh
	Field Mapping

Command	Menu Function
	Properties
	Task List
	Add Database
	Application Settings
	Rebuild Links

Table 3.2
Field Selection Toolbar Commands

Command	Menu Function
	Field Properties
	Add Field
	Delete Field (custom tables only)

Table 3.3
Indexes Toolbar Commands

Command	Menu Function
	Add Index
	Delete Index
	Designate as Primary Index
	Designate as Business Key Index

Command	Menu Function
	Delete Business Key Index
	Designate as Complete Business Key Index
	Designate as Incomplete Business Key Index

Table 3.4
Import Metadata Toolbar Commands

Command	Menu Function
	Open and load metadata file
	Exit screen without loading metadata

Table 3.5
Tasklist Toolbar Commands

Command	Menu Function
	Select All
	Select None

Note Toolbar commands are context sensitive; they are enabled only when the function they represent is appropriate to the current task or selection. Unavailable commands display in gray.

Other situations require you to right-click to display and choose available functions. For example, to assign tables to the data warehouse structure, you must right-click the appropriate database and choose the Select Tables command. There is no other access point for this function.

Source System Icons

The Data Transformer distinguishes items in the left pane of the main screen (the tree) using icons. Table 3.6 lists the icons and their descriptions.

Table 3.6 Source System Icons

Icon	Description
	Server
	Schema holder
	Connected domain database
	Disconnected domain database
	Connected database or domain
	Disconnected database or domain
	Logical grouping
	Source table prior to replication setup
	Validated table
	Non-validated table

Icon	Description
	Table with script error
	Subset
	Validated code table
	Non-validated code table
	Code table with script error
	Validated custom script
	Non-validated custom script
	Custom script with script error
	Cube
	Custom table
	Merged table

Setting Up the QAD BI Data Transformer

This section describes the steps necessary to connect to an MFG/PRO database that provides source data to the QAD BI analysis tools, as well as define the tables and fields that are included in the analysis models. Additionally, you control how and when data is replicated between this database and the data warehouse, which serves as the actual source of data used in analysis.

You can use one of the following methods to set up the Data Transformer:

- Perform a manual setup by defining tables and fields based on the MFG/PRO database schema.
- If you purchased one or more of the QAD-developed business models, load table definitions and scripts; then use the Data Transformer tools to fine-tune your environment as needed.

See “Using QAD-Provided Model Data” on page 102 for information.

Figure 3.5 summarizes the work flow used in the setup tasks. Subsequent paragraphs describe each task.

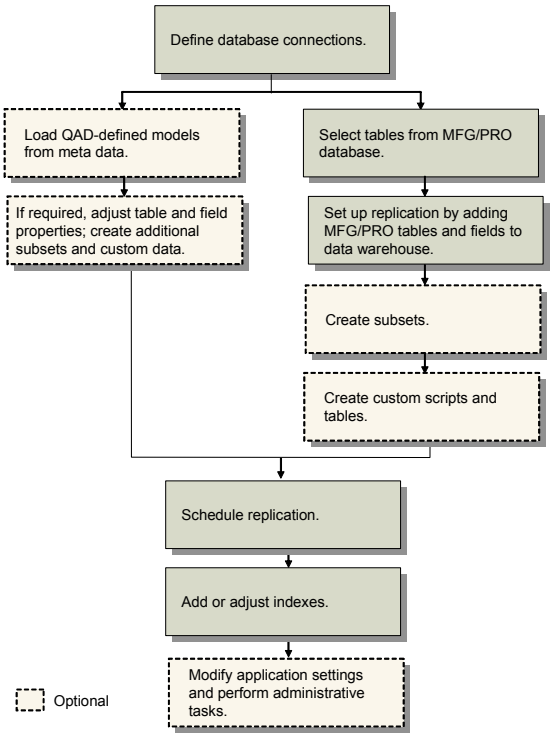


Fig. 3.5
QAD BI Setup Work Flow

Define Database Connections

Note Many required connection settings are specified during QAD BI installation. See “Modifying Application Settings” on page 106 if you need to modify any of this information.

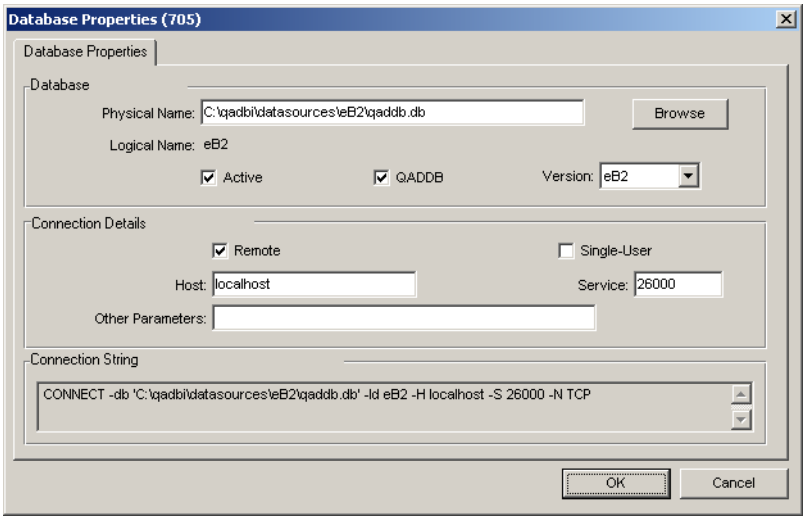
Before you begin mapping fields from the source MFG/PRO database to the data warehouse, you must define the connection parameters for the MFG/PRO database. The Data Transformer reads the source schema, which are used to define the tables and fields that make up the data warehouse structure.

To add a new source database connection, select File|Add Database or click the Add Database command. To edit an existing source database connection, right-click the database in the main Data Transformer screen and select Properties.

If you did not enable support for multiple data sources during installation, the code page of the source database must match the value specified for default encoding during installation. If you did enable this support, the code page of the source database must be either ISO8859-1 or the same code page that you selected during installation. See “Install the QAD BI Data Transformer Files” on page 30 for details.

If you update existing properties, you must disconnect and reconnect to the database to use the new settings.

Fig. 3.6
Database Properties



Physical Name. Specify the name of the database to connect.

Logical Name. Specify a logical database name that will be used to uniquely identify the database and its data within the data warehouse. This field can only be updated when a connection is first defined.

Active. Indicate whether this is an active connection. Databases marked as active are automatically connected when the Data Transformer is started. Tasks associated with databases marked as inactive are not executed during batch (non-interactive) replication.

QADDB. Indicate if this is an MFG/PRO database (Yes) or not (No).

See “Domain Database Data Sources” on page 61.

Version. Select the MFG/PRO version associated with this database.

Remote. Indicate whether the database server is local or remote.

Host. When Remote is Yes, enter the host where the database server is running.

Service. When Remote is Yes, specify the service name or TCP-IP Port on which the remote database server is listening for database connections.

Single-user. Indicate if this is a single-user or a multi-user connection.

Other Parameters. Specify any additional Progress connection parameters to apply to this connection.

Connection String. The system displays the connection string based on the settings entered in the screen after the connection configuration has been accepted.

Domain Database Data Sources

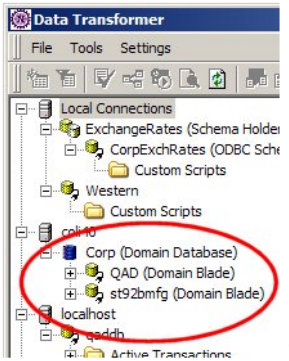
The introduction of the domain concept in the MFG/PRO database provides flexible implementation options for supporting multiple business operations within a single database and eliminates the need for a single database-wide base currency or database-wide control settings. The domain is essentially a logical partition within a single database. Any number of domains can be set up in one physical database—each domain with its own base currency, chart of accounts, and operating controls.

You add the domain database just as any other database, indicating the version as eB2.1. The Data Transformer retrieves a list of all domains defined in the database; each domain is displayed as a subnode of the domain database. From that point forward, a domain is treated exactly as any other database in the system and represented with the Database Connected and Database Disconnected icons.

Important Only the domain database itself can be connected or disconnected. Individual domains cannot be connected or disconnected because they are physically realized in a single database. All domains are connected based on their domain database's status.

Text is appended to the logical names of the domain database and each domain in the tree, to indicate the type of source system—domain database or domain blade, which represents the individual domains within the database. Additionally, the Database Properties screen for an individual domain blade allows only the Active field to be modified. All other fields are read-only and based on the information entered for the domain database.

Fig. 3.7
Domain Database in the Tree



Non-Progress Data Sources

You can connect to non-Progress relational databases using the Progress DataServer technology. See the *Progress DataServer for Oracle Guide,* the *Progress DataServer for Microsoft SQL Server Guide,* or the *Progress DataServer for ODBC Guide* to learn about setting up and configuring DataServers in Progress.

Once the DataServer has been set up, you configure the connection to the schema holder database in the Data Transformer as described previously, leaving the QADDB check box cleared. The Data Transformer lists all of the schema images associated with the schema holder as child connections after the schema holder has been connected. You can right-click each of the child connections and choose Properties to configure connection information specific to the targeted schema image.

For example, if the schema image references an Oracle database, you will need to provide the following information in the Other Parameters field in the Connection Properties screen to use Oracle SQL*Net networking:

```
-U [ORACLE-USERNAME]@[ORACLE-SID]
-P [ORACLE-PASSWORD]
```

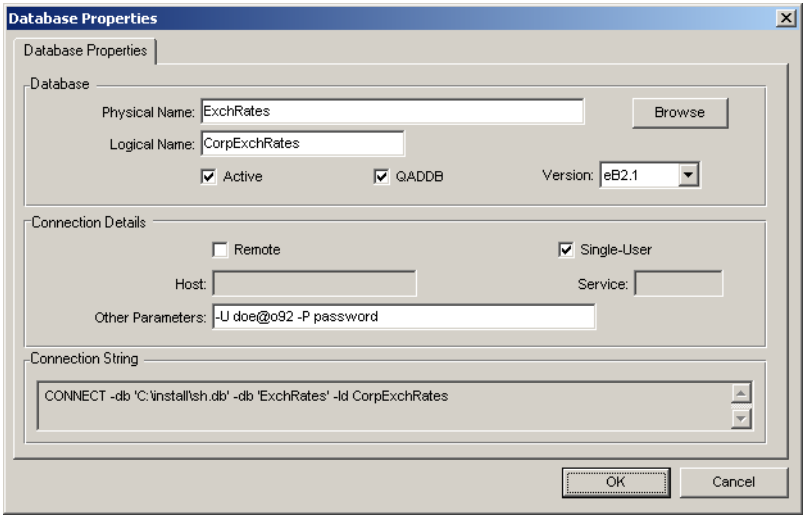


Fig. 3.8
Schema Image Database Properties

When a schema holder is first added, the Data Transformer retrieves all defined schema images and creates additional connection records for each one. You can limit the selection of schema images to include using either the standard Delete function or the Select Schema Images screen.

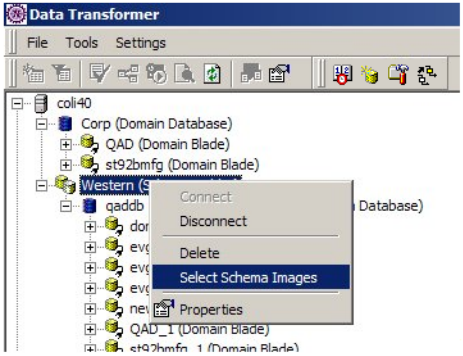
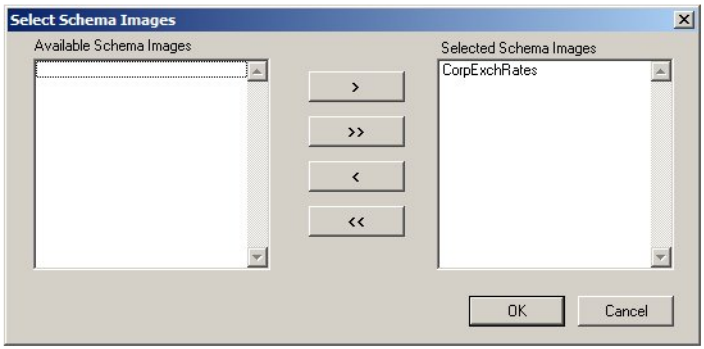


Fig. 3.9
Select Schema Images Menu Item

Use the Select Schema Images screen to choose which schema images you want to work with and remove those you do not need to replicate. Move schema images from the Available Schema Images list to the Selected Schema Images list to have them show up in the tree.

Fig. 3.10
Select Schema Images

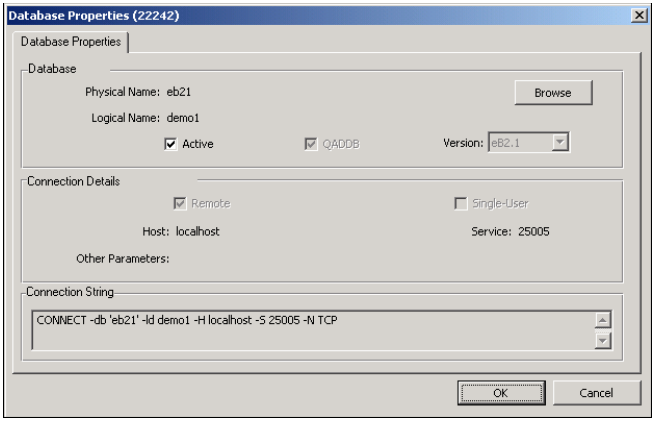


Manage Domains

When a domain database is first added, the Data Transformer retrieves all defined domains and creates additional connection records for each one.

These domains are created with the Active field set to false. You must set this field to true for any domains you want to replicate before they can be scheduled for the batch process.

Fig. 3.11
Database Properties for an Individual Domain



Select domains to include using either the standard Delete function or the Select Domains screen.

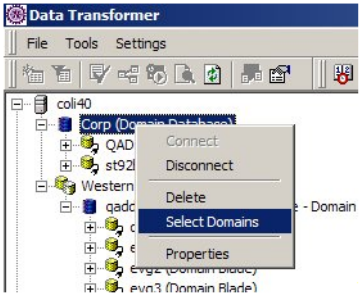


Fig. 3.12
Select Domains Menu Item

Use the Select Domains screen to choose which domains you want to work with and remove those you do not need to replicate. Move domains from the Available Domains list to the Selected Domains list to have them show up in the tree.

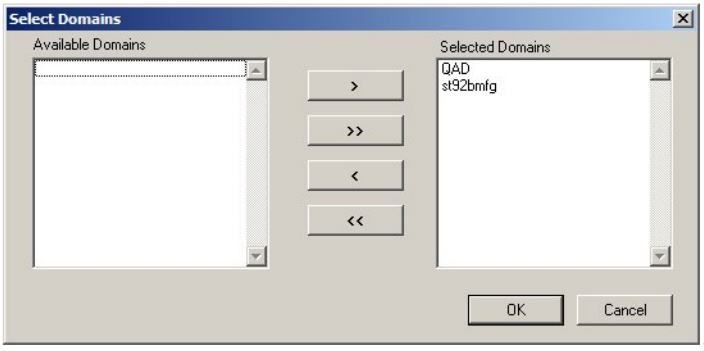


Fig. 3.13
Select Domains

Select Tables

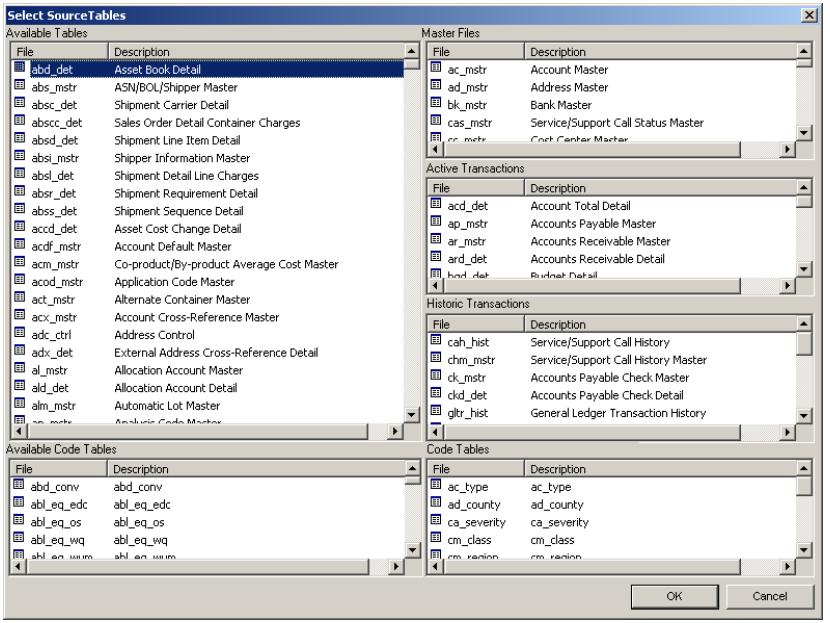
To begin constructing the data warehouse, you first select the tables you want to add to the data warehouse from those in the connected data source.

Note If you loaded the table mapping structure from QAD-provided metadata, you do not have to use this procedure unless you want to modify the default table selections.

To view the available tables, right-click the database icon in the left pane of the main Data Transformer screen. Then choose Select Tables.

The system scans the schema definitions of the connected database and displays the Select Source Tables screen illustrated in Figure 3.14.

Fig. 3.14
Select Source Tables



The selection screen consists of six frames:

- The two on the left side represent source tables from the source database. The system separates standard table listings from fields controlled through generalized codes when connecting to a QADDB database.
- The four frames on the right side represent destinations in the QAD BI data warehouse. These are shown in three groups—Master Files, Active Transactions, and Historic Transactions—as well as a fourth division for fields using generalized codes.

Move tables from the left to the right side using drag-and-drop. You can move tables from either frame on the left into any frame on the right.

If this is the first time you have selected tables from the database—unless you added tables by loading QAD-provided metadata—the frames on the right will be blank. Otherwise, tables you moved in earlier sessions display in the frames where they were placed. Once a table has been moved, it no longer displays in the source frame.

Note Drag-and-drop works in both directions. If you decide you do not want a table to be replicated to the data warehouse, you can move it back to the left side of the screen. If you save your changes and then decide you want to remove a table that has not yet been set up for replication, reopen the Select Tables screen and drag the table to its source location.

Important Removing a table from the right to the left once replication setup has been completed has no effect on the structure of the data warehouse. To remove a replicated table from the data warehouse, select it in the main screen and choose Tools|Delete.

When you finish selecting tables, close the screen. The system prompts you to save your changes.

The directory tree in the main screen updates to display a folder for each of the destination frames that have had tables added.

Set Up Replication

After selecting the tables to be included in the data warehouse, you must define how data should be extracted from the source table into the data warehouse. Activities include:

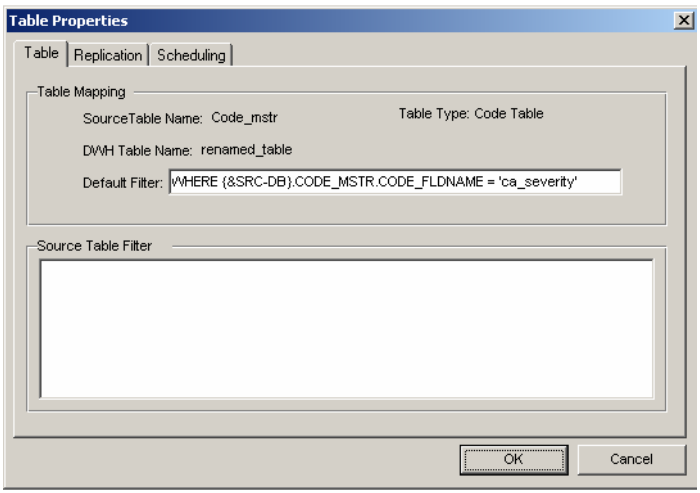
- Map the source table to a new data warehouse table and apply filters.
- Select fields to be replicated and create calculated fields.
- Define replication and scheduling modes.

Map Tables to Warehouse Tables

To start the replication setup, select a table from the main screen and choose Tools|Replication Setup. The Map Table screen displays (Figure 3.16).

Important You cannot choose this option for a table that has already been set up. Instead, select a table and choose individual options from the Tools menu for the function you want to perform. For example, choose Properties to modify the table mapping structure. If the table type is code table, you can use the WHERE clause to define a filter (Figure 3.15).

Fig. 3.15
Table Properties
Mapping Filter



You can configure replication for all of the records in the table or for a subset of the records in the table by applying a filter. Filters can also be used to split a table into multiple table-like entities known as subsets, each of which can be a replication target. See “Create Subsets” on page 78 for details.

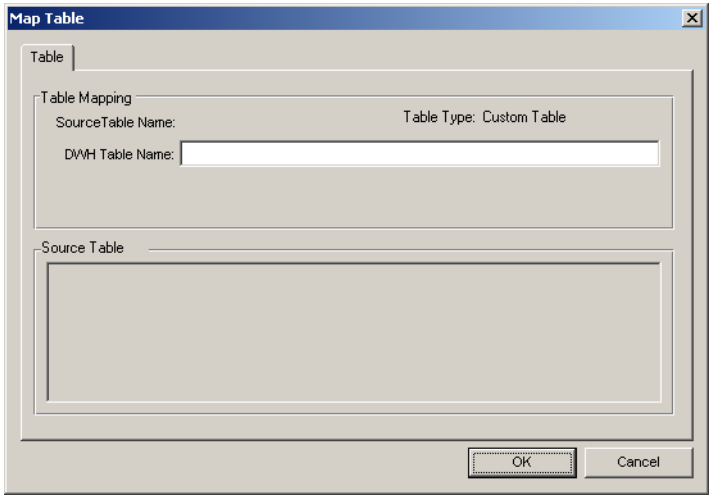


Fig. 3.16
Map Table

Source Table Name. The system displays the source table name.

Table Type. Read-only field that displays the table type—active, historic, master, or code. The system categorizes the tables based on this value.

DWH Table Name. Enter the name of a new data warehouse table that will be created to hold data from the source table.

Source Table Filter. Enter Progress code to filter records that are replicated to the data warehouse. Syntax for the filter always has the same format:

```
WHERE {&SRC-DB}.tablename.fieldname [operator] <value>
AND/OR {&SRC-DB}. tablename.fieldname [operator] <value>
```

[Operator] can have the following values: = , >= , <= , <> , matches , begins.

When this is blank, all records are replicated. When you save your changes, the system validates the syntax.

Click OK to save your changes and display the field mapping screen.

Map Fields to Warehouse Fields

Use the Field Selection frame to select the fields from the source table that will be replicated to the data warehouse table.

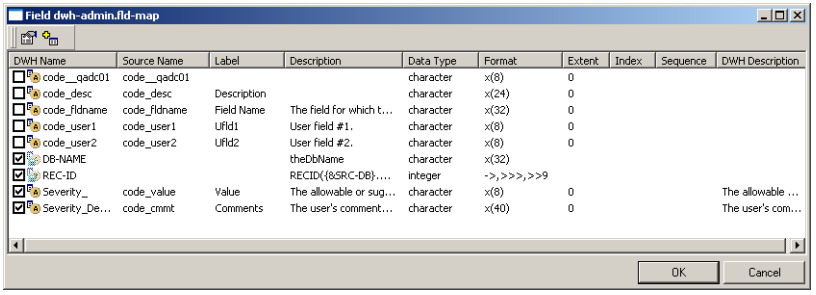
Note After initial replication setup, access this function by selecting a table and choosing Tools|Field Mapping.

Note If you loaded the database structure from QAD-provided metadata, you do not have to use this procedure unless you want to modify the default field mapping structure.

The first column indicates whether a field is included in the replication process. When a field is selected in this screen, values are copied from the source database to the data warehouse during replication.

Important When you first set up table replication, the DB-NAME (and REC-ID for Progress data sources) fields are automatically configured. These system-defined fields are used to maintain links between the data source and the data warehouse. You cannot deselect them.

Fig. 3.17
Field Selection



Specifying Field Properties

To define the properties associated with each field, select it and click the Properties command.

Note You can also define custom calculated fields by clicking the Add Field command. The system displays a Field Properties screen with all data fields blank and input enabled.

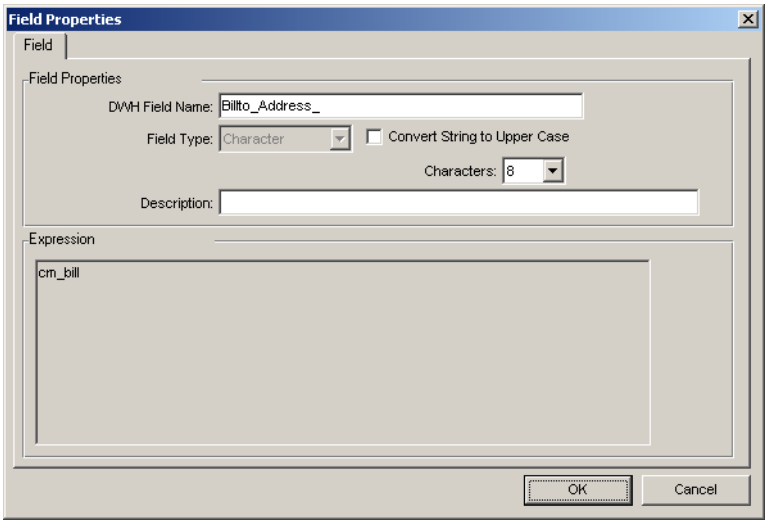


Fig. 3.18
Field Properties

DWH Field Name. Enter the name used to represent this field in the data warehouse. The default is the MFG/PRO schema field name.

Note You also can rename a field directly in the field selection screen by selecting its name and overtyping it.

Field Type. The system displays the field data type from the MFG/PRO schema. You cannot change it.

Convert String to Upper Case. If the field type is Character, set this to Yes to convert the field values to upper-case in the ETL script. This can be used to rationalize data that is entered in mixed cases in the data source for use in Cognos PowerPlay (a case-sensitive tool).

Description. Enter a text description of the field.

Expression. The system displays the field name or formula associated with the field.

Click OK to save the properties of an individual field. When you finish specifying field properties for the table, click OK to save your configuration.

The system validates each field record for syntax.

- Valid: A green triangle on the table icon in the main screen indicates that replication setup is complete for the table.

- Invalid: A yellow exclamation point displays on the table icon and a message indicates the nature of the error.

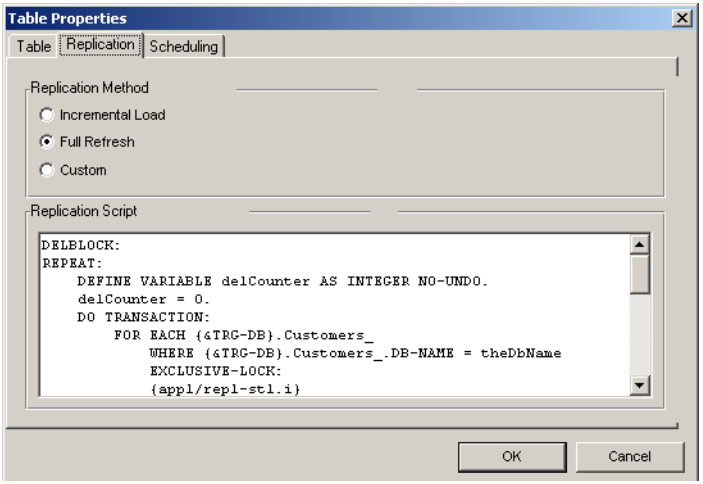
Important To modify field properties for tables that have already completed replication setup, you cannot access the Field Mapping function through the Replication Setup screen. You must first select the table in the main screen, and then choose Tools|Field Mapping. Select the field you want to edit and click the Field Properties command.

Define Replication Method

To specify how the system replicates data between the data source and the data warehouse, select a table in the main screen and choose Tools| Properties. Then click the Replication tab.

Important The Properties tool is available only for tables that have completed the replication.

Fig. 3.19
Table Properties, Replication Tab



Note If you loaded the table warehouse structure from QAD-provided metadata, you do not have to use this procedure unless you want to modify the default setup.

Choose one of three replication methods:

- Incremental Load. Only records that have never been replicated to the data warehouse are selected for replication. This method is typically used for tables that contain historical records such as tr_hist and

ih_hist, or a combination of historical and active transaction records such as wod_det or pod_det. Incremental load generally is not as time consuming as a full refresh.

Important The replication process for incremental load does not determine whether a record has been modified since the last replication—only that it has been created. Be aware that using this method for records that are commonly updated—master records, for example—can create data synchronization problems between MFG/PRO and the data warehouse.

- Full Refresh. The system clears all existing fields in the data warehouse for the data source and completely replaces the contents. This is typically used to replicate master data—often including tables that do not contain more than 10,000 records. It is the default for newly defined tables.
- Custom. Whether a table is replicated depends on some user-defined condition; for example, replication only takes place when an item is associated with a product line.

The system displays a default Progress replication script based on the selected method. If you modify the code, Replication Mode is automatically set to Custom. When you click OK, the system validates the syntax. If there are errors, the table icon in the main screen displays a yellow warning indicator to indicate that a problem exists.

Replicate Data

You can synchronize data between a data warehouse table and the associated MFG/PRO table using two methods:

- Automatically, by setting up scheduling for each table
- Manually, by selecting the table in the main screen, then clicking Execute Now on the Tools menu

The following sections describe these methods.

Scheduling Automatic Replication

Automatic replication takes place using either a serial or parallel strategy. In serial replication, each task is processed sequentially based on its defined sequence—that is, its priority. With parallel replication, a pool of

processors is created and each processor is assigned a task to process. As a processor finishes a task, it is assigned another task to be processed until all tasks have been performed with respect to sequence order.

Note The processor pool size is set to one less than the value of the Minimum and Maximum Servers settings in the AppServer properties screen. See “AppServer Pool Size” on page 115 for details.

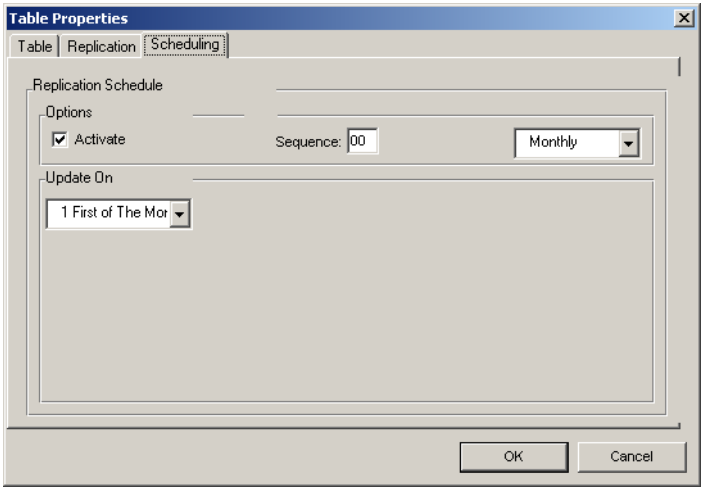
In order to use parallel replication, the Progress AppServer must be installed and configured on the same machine as the QAD BI Data Transformer. For information on setting up and using parallel replication and configuring the AppServer, see “QAD BI Parallel Replication Setup” on page 120.

Use the Scheduling tab to define when replication takes place for each table in the data warehouse. You can set up different scheduling methods for individual tables based on the frequency of changes to the source table.

Important Automatic scheduling uses the Windows Task Scheduler to start a QAD BI process to review the scheduled replication tasks on a periodic basis.

See “Set Up Windows Task Scheduler” on page 117 for information.

Fig. 3.20
Table Properties, Scheduling Tab



Activate. Select this field to have automatic replication take place on the specified schedule. When Activate is not selected, you must replicate this table manually using Tools|Execute Now.

When a database is marked as Inactive, you cannot change the Activate check box. To set the database's Active/Inactive status, use the Database Properties screen.

Sequence. Specify the relative order in which the task associated with this table should be replicated. Tasks are executed from low sequences to higher sequences. Tasks that share the same sequence may be executed in any order among themselves. In general:

- Tasks that pull data from sources into the data warehouse should be scheduled to precede tasks that operate on data within the data warehouse.
- Tasks that generate Cognos PowerCubes should be scheduled to run after all other tasks.

For a more detailed discussion of setting the sequence for a replication task, see "Setting the Replication Task Sequence" on page 131.

Frequency. Specify how often the replication task for this table should be run. Options are:

- Daily (the default). The table is replicated each day when the Windows scheduler starts up.
- Weekly. The system displays a list of weekdays; select the days you want this table to be replicated. Use Ctrl+Click to select more than one list entry.
- Monthly. The system displays available dates, as well as First of the Month and Last of the Month options.

Note The Windows Task Scheduler should be configured to run the QAD BI process at least as frequently as the most frequent replication task. For example, if the Windows Task Scheduler is set to run every week, even if a table replication task is scheduled to run every day, it will only be run every week.

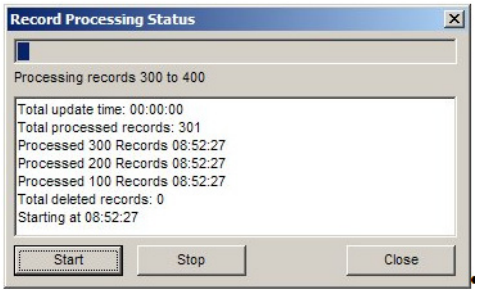
Running Manual Replication

In addition to setting up scheduled replication processes, you can refresh a data warehouse table with updated values from the source database at any time.

Select the table in the main screen and choose Tools|Execute Now. Click Start in the Record Processing Status screen. The system runs the replication task, listing status messages to indicate its progress.

Note The moving status bar at the top of the screen will not necessarily fill completely to the right when the replication task completes. Since each new status message is added to the top of the list, you can determine that replication is finished when the Total Update Time message displays.

Fig. 3.21
Record Processing Status



The buttons at the bottom of the screen control this function:

- Click Start to begin replication.
- Click Stop to end replication.

  Note Replication may not stop immediately when you click the button depending on the nature of the script being executed.
- Click Close to exit the screen.

Rename Table

When you perform Replication Setup, tables are created in the data warehouse. If necessary, you can change a table name by using the Rename Table function on the Data Transformer|Tools menu. This function opens the Rename Table screen.

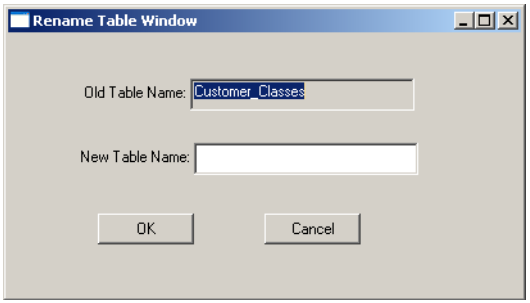


Fig. 3.22
Rename Table

If the old table name cannot be found in the data warehouse, an error message is displayed. An error message also displays if a user enters:

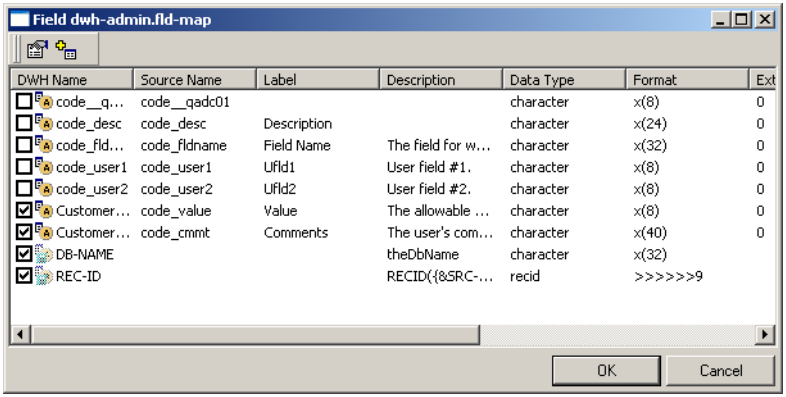
- A blank table name
- Reserved words
- A table name that is already in use

When you click OK and Automatically Check ETL-Scripts and Automatically Refresh Linked Tables is selected in Data Transformer| Settings|Applications Settings, the validation and linking of scripts and tables is automatically performed. See “Modifying Application Settings” on page 106 for details.

When the validation is successful and the linked table refreshed, the new table name is displayed on the main directory tree and a green triangle placed on the table icon. If there is an error, a yellow exclamation point appears on the table icon.

After successfully renaming a table, the field mapping screen is displayed.

Fig. 3.23
Field Mapping



From the field mapping screen, select the fields in the source table that you want to replicate to the data warehouse table. Then click OK.

The system validates each field record for syntax and, when successful, places a green triangle on the table icon in the main screen to indicate that replication setup is completed for that table. If validation fails, a message is displayed to indicate the nature of the error, and the table icon is set to a yellow exclamation point.

Create Subsets

Within the data source, data from different functional areas is sometimes stored in the same table. For example, the MFG/PRO transaction history table (tr_hist) stores data related to sales orders—but it also contains many other types of business documents as well. You can define subsets to isolate the data of interest in a data warehouse table.

In QAD BI Data Transformer, defining a subset is similar to setting up a table for replication. The main difference is that the subset definition includes a filter specification to select the area of interest in the source table.

Instead of Tools|Replication Setup, choose Tools|Subset.

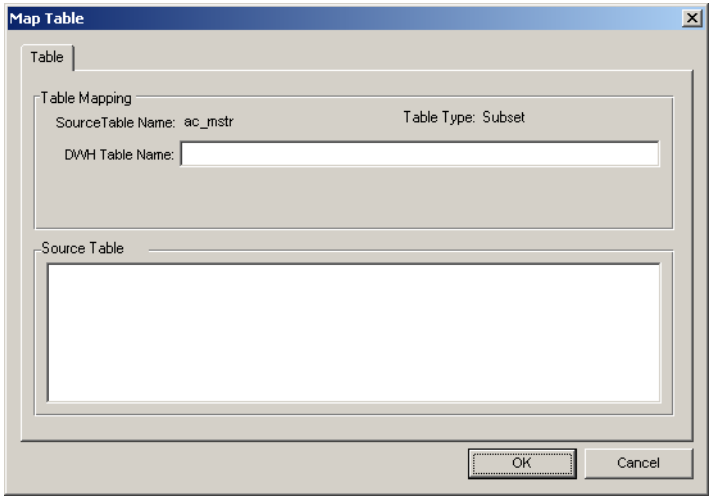


Fig. 3.24
Subset Definition

Table Type defaults to Subset; you cannot change it. Specify the data warehouse table name. Then enter Progress code to filter the records that should be replicated in the data warehouse.

Syntax for the filter always has the same format:

```
WHERE {&SRC-DB}.tablename.fieldname [operator] <value>
AND/OR {&SRC-DB}. tablename.fieldname [operator] <value>
```

[Operator] can have the following values: = , >= , <= , <> , matches , begins.

After defining the subset, you can continue to define fields and replication settings just as in the standard replication setup.

Add Indexes

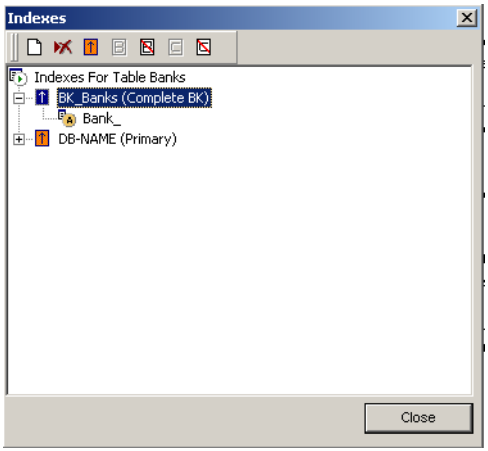
When you select tables for the data warehouse, the system disregards any indexes defined in the data source. Instead, you can custom-design indexes for each table after adding it to the warehouse. This lets you test the performance of your data models first, then add indexes that are appropriate to your specific needs.

Note You can view a list of indexes defined in the data source by selecting the table in the main screen and choosing Tools|Source indexes.

To add an index to a table, select the table in the main screen and choose Tools|Indexes. The Indexes screen displays any existing indexes.

Note By default, the system creates a primary index for each table called DB-NAME. It includes the system-maintained DB-NAME field (and REC-ID for Progress data sources). You cannot modify or delete this index, unless you create a new index and set it as the primary index.

Fig. 3.25
Indexes



Use the commands at the top left to add or delete an index, or designate it as primary.

When you click the Add Index command, the screen illustrated in Figure 3.26 displays.

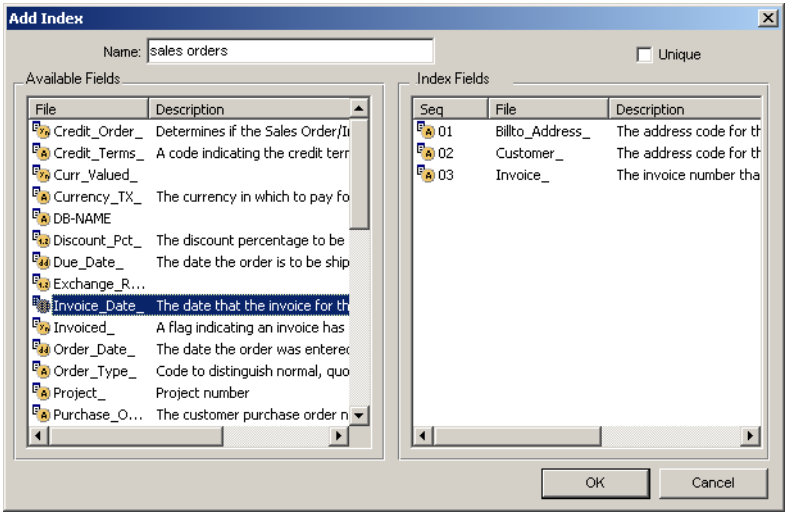


Fig. 3.26
Add Index

Enter a name for the new index. The left pane displays all the fields in the data warehouse table or subset that are available for indexing. Drag-and-drop fields to the right pane to include them in the index.

Important After adding or deleting an index, you should validate the synchronization script using these steps:

1. Select the updated table in the main screen.
2. Choose Tools|Generate ETL-script.
3. Choose Check Script.

If the new index validates properly, a green triangle displays on the table icon. Otherwise, a yellow warning icon displays.

Add Business Key Indexes

For Progress data sources, QAD BI Data Transformer uses the DB-NAME and REC-ID fields to maintain links between the data source and the data warehouse. However, this approach is not always reliable in some circumstances:

- When the user dumps and loads tables in the source database, the REC-ID values of the records in these tables are changed.
- Data is archived and no longer exists in the source database.

In both cases, the links between the data source and the data warehouse are broken and can no longer be used for replication purposes. Continuing to perform data replication without first rebuilding the links may cause data corruption in the data warehouse.

This is where business key index comes into play. You can designate indexes that can represent unique identifiers of records as business key indexes to construct more reliable links between the data source and the data warehouse. You can then use the business key indexes to synchronize the REC-ID values between the source and target databases to re-establish the links based on the REC-ID field for replication purposes.

Note REC-ID cannot be designated as business key index due to the reason stated previously.

You can only define one business key index for a table. If you are certain the business key index you define can uniquely identify each record, designate it as a complete business key index; otherwise, designate it as an incomplete business key index to have the system validate uniqueness and maximize accuracy when rebuilding data links.

Note When processing incomplete business key indexes, the system maximizes accuracy by performing additional operations during data link update, which may require longer execution time.

To designate an index as business key index in a table, select the table in the main screen and choose Tools|Indexes. The Indexes screen displays any existing indexes.

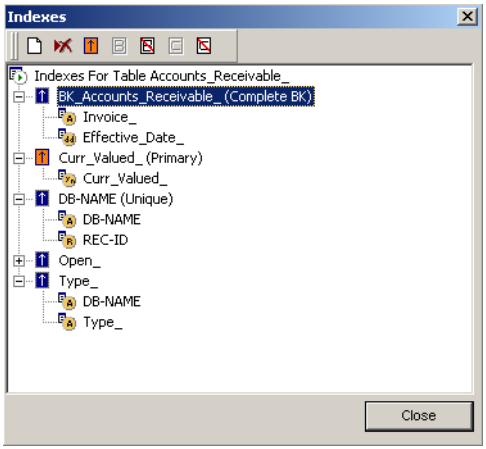


Fig. 3.27
Business Key Indexes

Use the commands at the top left to designate an index as a complete business key index or incomplete business key index.

- To designate an index as a complete business key index, select the index and click the Set to BK icon.
- Use the Complete BK and Incomplete BK icons to switch the business key index between complete and incomplete.
- To remove the business key index, select the index and click the Cancel BK icon.

Note Custom tables do not support business key indexes. Business key index command icons are always greyed in the Indexes window of a custom table.

Preview Data

You can view data both after it has been replicated to the data warehouse and in its original form, in the data source.

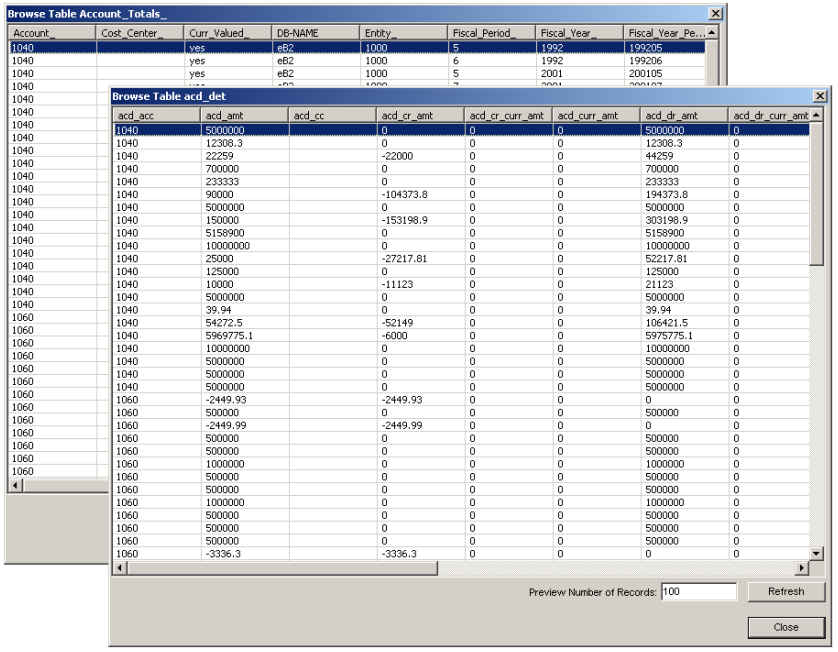
First, select a table in the main screen. Then:

- To view the data records in the data warehouse, choose Tools|Preview Target Data.
- To view the source database records, choose Tools|Preview Source Data.

Figure 3.28 shows the contents of the address master (ad_mstr) table in MFG/PRO, as well as the corresponding Address table in the data warehouse. Note that the MFG/PRO table shows all fields in the schema, identified by the schema field names; the data warehouse displays only the mapped fields.

To sort the records based on values in a specific column, click the column heading.

Fig. 3.28
Table Preview



Delete Target Data

You can delete data records after they have been replicated to the data warehouse. You can delete all data records from a table while preserving its table mapping information.

Choose Delete Target Data from the Data Transformer|Tools menu to open the Record Deletion Status screen.

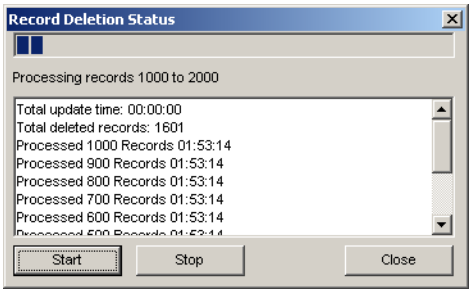


Fig. 3.29
Delete Data Records from Data Warehouse

To start the deletion process, click Start. If it is necessary to stop the deletion before completion, click Stop.

Validate Tables

The Validate Table function on the Data Transformer|Tools menu lets you validate table and field mappings between source tables and data warehouse tables.

Validation takes place in two phases. The system first checks for valid tables; then it checks each field mapping between source table and data warehouse table.

When checking for valid tables, the system determines whether a table has changed, is unchanged, or is missing. This information displays in the Source Table Status and DWH Table Status columns of the Table Mapping frame shown in Figure 3.30.

When checking field mappings, the system determines the field mapping status and displays this information in the Field Mapping frame. If any field mapping status is Mismatching or Invalid, the status Corrupted displays in the Status column of the Table Mapping frame. You should fix the field mapping problems before attempting to recreate a table.

Using this status information, you can detect and recover any corrupted mapping that may have occurred after activities such as database replication.

Fig. 3.30
DWH Table Mapping Validation

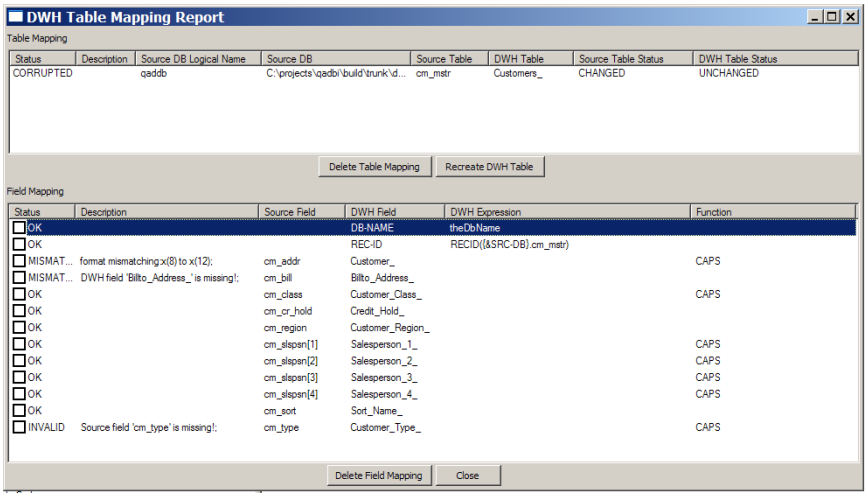


Table Mapping Display and Functions

The following fields display in the Table Mapping frame:

Status. Displays the status of the table, based on the status of associated fields:

OK: No invalid or mismatched field mappings exist.

Corrupted: At least one invalid or mismatched field mapping exists.

Description. This field displays detailed table error information, such as a table is missing.

Source DB Logical Name. The alias for the source database.

Source DB. The physical path to the source database.

Source Table. The name of the table from the source database.

Source Table Status and DWH Table Status. These status fields indicate if mappings between the source and data warehouse are new, unchanged, or missing:

Unchanged: Field mappings are unchanged.

Changed: Field mappings have changed. Either source table fields or data warehouse fields have changed.

Missing: Either the source table or the data warehouse table is missing.

Use the two buttons in the Table Mapping frame to delete tables or recreate them.

Deleting Table Mapping

Clicking the Delete Table Mapping button lets you delete both table and field mapping information. The data warehouse table is also deleted.

Recreating Data Warehouse Table

You can use the Recreate DWH Table button to resolve any mismatching between source and data warehouse tables. You can also use it to delete data from the data warehouse table.

When you click the Recreate DWH Table button, the system:

1. Deletes all mapped data from the data warehouse table and deletes the data warehouse table
2. Creates a data warehouse table based on the original table mapping stored in data warehouse-admin

Before recreating a data warehouse table, ensure that you have deleted any field mappings with the status of Invalid shown in the Field Mapping frame.

Field Mapping Display and Functions

The following fields display in the Field Mapping frame:

Status. Status information is displayed as follows:

OK: Both source and data warehouse fields exist and are consistent.

Invalid: The source table field cannot be found and the field mapping must be deleted.

Mismatch: The source table field or the data warehouse field has changed and are inconsistent. This field mapping can be rebuilt by overriding the target field with the source field.

Description. For mismatched or invalid fields, a brief description of the error.

Source Field. The name of the field in the source table.

DWH Field. The name of the field in the data warehouse table.

DWH Expression. The expression used to calculate the value that populates the data warehouse field.

Function. Currently not used.

When you click Delete Field Mapping after selecting the relevant check boxes, the selected field mapping information stored in data warehouse-admin is deleted but the field data in the data warehouse tables is retained.

When you click Close after performing Delete Field Mapping, the system performs the Recreate DWH Table function.

Create Custom Tables

Not all tables in the data warehouse have to be based on table definitions from the connected data sources. You can create custom tables that exist only in the data warehouse.

Custom tables are populated with data using custom scripts. They can contain virtually any data the designer wants to put in them.

To create a new table, right-click the Custom Tables folder in the main screen and select Create Table. The Map Table screen displays.

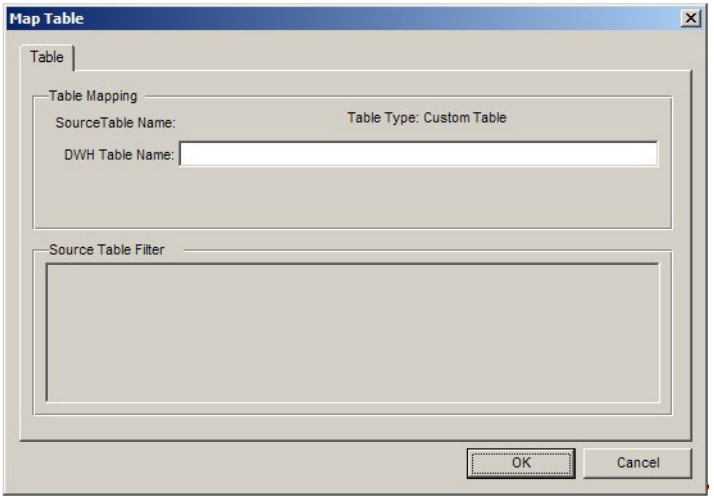


Fig. 3.31
Custom Table Setup

While the overall process is similar to mapping an MFG/PRO table to the data warehouse, you can only access one field—DWH Table Name. Table Type is automatically set to Custom Table, and you cannot define code to filter records because a custom table is not directly based on any source table.

Click OK to display the field mapping screen. Again, navigation is similar to standard table setup. Use the Field Properties and Add Field commands in the upper left corner of the screen to update an existing field or add a new one.

You can define a field to be any data type supported by Progress. However, once you have initially specified a data type, you cannot change it. Instead, delete the field and add a new one with the correct data type.

Once you have created the custom table and defined its fields, you can define indexes for the table using the Indexes right-click option while the custom table is selected in the tree.

Create Custom ETL Scripts

Because of the way some types of data are stored in data sources, data is not always directly usable as management information. In such cases, Data Transformer lets you reference custom ETL scripts that you have

written to convert MFG/PRO data into warehouse data more appropriate for use in analysis. Custom scripts are associated with custom tables, which were described in the previous section.

Important You must be familiar with writing Progress queries to create custom scripts. See the Progress documentation for information.

Note Custom ETL scripts are used to restructure data in the data warehouse. A related type of script—a custom replication script—is used when the Replication Method of a table replication task is set to Custom. It moves data into the data warehouse using custom extraction logic.

Script Guidelines

For a custom script to be usable by QAD BI, it should follow several guidelines:

- Field references must include the full namespace reference to the field, from the database level down; for example, databasename.tablename.fieldname.
- The database name must be the logical database name for the data warehouse, followed by the letter q; for example, dwhq. The following shows an example of a correct field reference:

  ```
  dwhq.Balance_Sheet_totals_.Cost_Center_
  ```

- For scripts that reference the data warehouse, include the following alias as the first line to be used in the script implementation:

  ```
  &SCOPED-DEFINE TRG-DB DWHQ
  ```

- Similarly, for scripts that reference the source database, include the following alias:

  ```
  &SCOPED-DEFINE SRC-DB SRCDB
  ```

- Check the syntax of the saved script using the Progress tools or use the Check Scripts function after adding it.

Figure 3.32 shows an example of a completed script.

```
&SCOPED-DEFINE TRG-DB DWHQ

define variable tooearly like dwhq.Sales_Performance_.Too_early no-undo.
define variable ontime like dwhq.Sales_Performance_.On_time no-undo.
define variable toolate like dwhq.Sales_Performance_.Too_late no-undo.

for each dwhq.Sales_Performance_ exclusive-lock:
   delete dwhq.Sales_Performance_.
end.

for each dwhq.Transaction_History_ NO-LOCK
   where dwhq.Transaction_History_.tr_type = "ISS-SO",
      each dwhq.Invoice_Lines_ NO-LOCK
         where dwhq.Invoice_Lines_.Invoice = dwhq.Transaction_History_.tr_rmks
           and dwhq.Invoice_Lines_.idh_line = dwhq.Transaction_History_.tr_line
           and dwhq.Invoice_Lines_.idh_due_date <> ?
   break by dwhq.Transaction_History_.Order_number by dwhq.Transaction_History_.tr_line:


   if first-of(dwhq.Transaction_History_.tr_line) then
   do:
      ASSIGN
         tooearly = 0
         ontime = 0
         toolate = 0.
   end.

   if dwhq.Transaction_History_.tr_effdate < dwhq.Invoice_Lines_.idh_due_date then
         tooearly = tooearly +
                  ((-1 * dwhq.Transaction_History_.tr_qty_chg) / dwhq.Invoice_Lines_.idh_qty_ord).
       else if dwhq.Transaction_History_.tr_effdate = dwhq.Factuur_Regels_.idh_due_date then
           ontime = ontime +
                ((-1 * dwhq.Transaction_History_.tr_qty_chg) / dwhq.Invoice_Lines_.idh_qty_ord).
              else
           toolate = toolate +
                ((-1 * dwhq.Transaction_History_.tr_qty_chg) / dwhq.Invoice_Lines_.idh_qty_ord).
```

Fig. 3.32
Sample Custom ETL Script

Adding Scripts to Data Transformer

To add a custom script, right-click the Custom Scripts folder in the main screen and select Add ETL-Script.

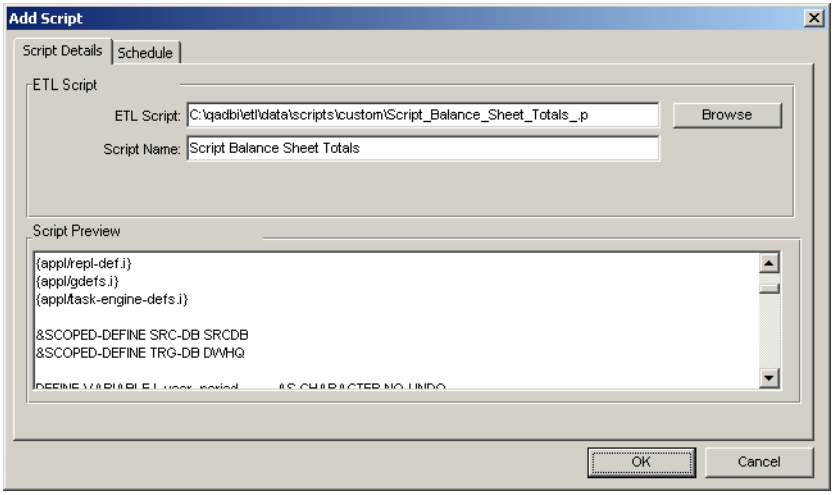


Fig. 3.33
Add Custom Script

Click Browse to navigate to the directory containing the Progress script. The system displays the contents of the script. You can update the default script name as needed. However, you cannot update the content of the script itself in the preview screen.

On the Schedule tab, specify when this script is run. This is the same as scheduling replication for standard tables.

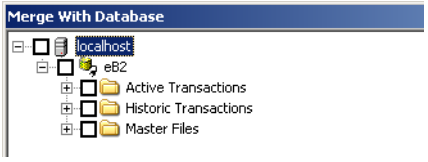
For a more detailed discussion of setting the sequence for a replication task, see “Setting the Replication Task Sequence” on page 131.

Merge Data from Multiple Databases

You can use the merge feature in the Data Transformer to consolidate data from multiple data sources that share the same underlying table definitions. After defining replication for one database, use the Merge command to configure additional databases to reuse the replication configuration of the configured database.

To merge in data from a data source, right-click the data source and select Merge Tables. The system displays the data warehouse structure associated with all other data sources.

Fig. 3.34
Merge Tables



To use the same replication configuration as another data source, select the check box associated with the replication tasks you want to reuse.

When you choose Settings|Task List, the system displays a separate ETL script for each database.

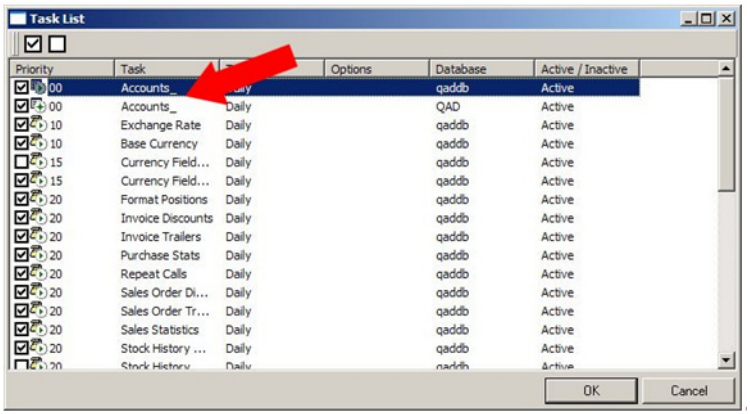


Fig. 3.35
Task List with Merged Item Tables

Use System Tasks

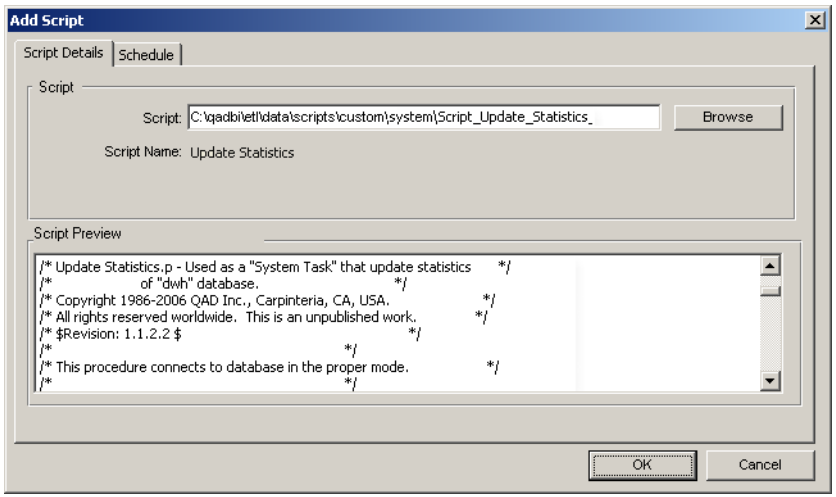
The System Tasks function is only available in the QAD BI Data Transformer OpenEdge 10 edition. This function lets you reference custom scripts that you have written to perform system maintenance tasks, such as updating statistical data in the data warehouse.

Important You must be familiar with writing Progress queries to create custom system task scripts. See the Progress documentation for information.

Adding Custom System Task Scripts

To add a custom system task script, right-click the System Tasks folder in the main screen and select Add Script.

Fig. 3.36
Add Custom
System Task Script



Click Browse to navigate to the directory containing the Progress script. The system displays the contents of the script. You can update the default script name as needed. However, you cannot update the content of the script itself in the preview screen.

On the Schedule tab, specify when this script is run. This is the same as scheduling replication for standard tables.

For a more detailed discussion of setting the sequence for a system task, see “Setting the Replication Task Sequence” on page 131.

Validate System Task Scripts

After loading custom system task scripts, you can have the system regenerate and check all the scripts at the same time based on the data warehouse structure.

Select the System Tasks folder in the main screen directory tree, and then choose Tools|Check Scripts.

The system updates the script icons in the directory tree to show whether they passed validation. A green triangle indicates a validated script; a yellow exclamation point indicates a problem.

You can check an individual system task script by right-clicking the script under the System Tasks folder, then selecting Check Script.

Use the Task List

The Task List provides a consolidated view of all scheduled tasks (whether activated or not) in a single screen. It is an alternative to selecting each element in the application tree and scheduling it using the Properties function. Use it to select and deselect elements scheduled for automated replication.

To view the task list, click the Task List command on the toolbar.

You can select or deselect tasks individually. To select or deselect the entire list at once, use the Select All and Select None commands.

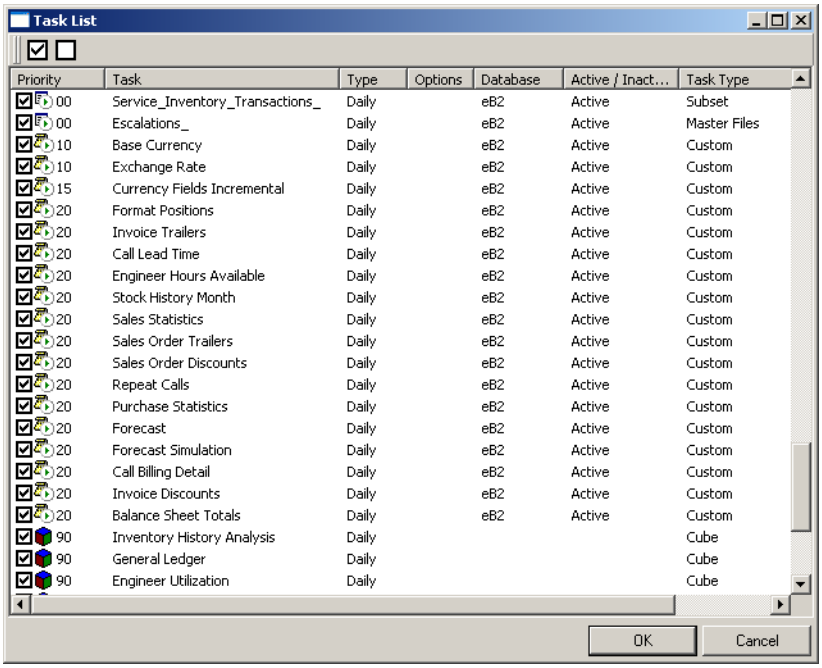


Fig. 3.37
Task List

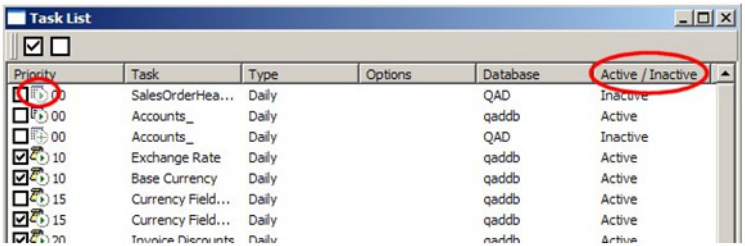
Database Status

A source system (database) can be either active or inactive, as defined in the Database Properties screen. When a source system is marked as inactive, none of its tasks will execute under the batch replication process.

You can determine if a task is from an inactive database by viewing the Active/Inactive column in the Task List or by observing the icon for the task. Inactive tasks display a grayed-out icon. See page 60 for details.

When a database is marked as Inactive you cannot change the Activate check box. To set the database's Active/Inactive status, use the Database Properties screen.

Fig. 3.38
Database Status in the Task List



Update Links

In QAD BI, Microsoft Access serves as the query layer between Cognos PowerPlay and the data warehouse. Use the Data Transformer Update Links command to synchronize table references in Access with the tables and fields available in the data warehouse.

Important You should update links anytime you add or update a table in the warehouse.

You can run the command either for an individual table or for the entire data warehouse by choosing the appropriate icon from the main screen directory tree and clicking the Update Links command:

- For an individual table, select its icon.
- For the entire warehouse, select the database icon.

After a metadata import, scripts can be validated and links updated automatically based on settings in defined in Settings|Application Settings. See "Automatically Refresh Linked Tables" on page 109 for details.

Export Tables

You can export table information in XML format on any level of the main screen directory tree by selecting the icon on the appropriate level and choosing an export command from the Tools menu. For example, to export the entire directory structure, select the database icon and choose Tools|Export Tables. For an individual table, select the table and choose Tools|Export Table Meta Data.

The system prompts you to enter a directory path and file name for the exported data.

The resulting XML file includes the table structure of the selected items in the data warehouse, as well as the contents of the replication scripts.

If your company has multiple instances of QAD BI installed, you can use this feature to synchronize the setup data. Additionally, you can use the XML file as a backup.

To reload data from exported files, use the Load Meta Data function, described on page 103.

Rebuild Links

For Progress data sources, QAD BI Data Transformer uses the DB-NAME and REC-ID fields to maintain links between the data source and the data warehouse. However, this approach is not always reliable in some circumstances:

- When the user dumps and loads tables in the source database, the REC-ID values of the records in these tables are changed.
- Data is archived and no longer exists in the source database.

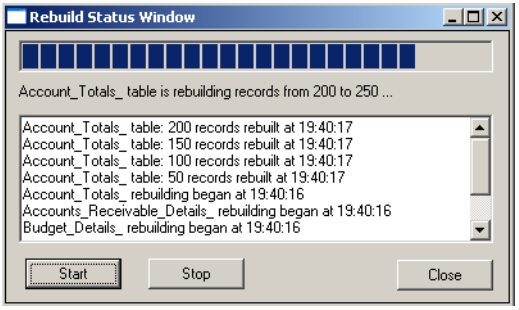
In both cases, the links between the data source and the data warehouse are broken and can no longer be used for replication purposes. Continuing to perform data replication without first rebuilding the links may cause data corruption in the data warehouse.

QAD BI Data Transformer lets you rebuild links by synchronizing the REC-ID values between the source and target databases based on the REC-ID field so that you can continue to perform replication without data loss or corruption. See “Add Business Key Indexes” on page 82 for details on business key index.

Note The rebuild links function does not update custom tables. You need to write Progress scripts in the `updateCustomTables.p` file under the *`DWHWorkDir`*`\appl` directory to customize custom tables. *`DWHWorkDir`* is the data warehouse work directory that you set during installation or in Application Settings. See “Modifying Application Settings” on page 106 for details.

To rebuild links, click the Rebuild Link icon in the Data Transformer main screen. Click Start to start in the status screen. The system runs the rebuilding task, listing status messages to indicate its progress.

Fig. 3.39
Rebuild Links



The buttons at the bottom of the screen control these functions:

- Click Start to begin update.
- Click Stop to end update.
- Click Close to exit the screen.

After rebuilding links is complete, you can review the `rebuild.log` log file generated in the *`DWHWorkDir`*`\log` directory for more detailed processing and error information.

Important Every time you want to dump/load table or archive data in the source database, make sure you perform these operations in the following order:

1. Perform replication to refresh the data warehouse tables with updated values from the source database. See “Replicate Data” on page 73 for details.
2. Perform table dump/load or data archiving.
3. Rebuild links.

If you do not exactly follow this order or if you perform other operations that affect either the source database or the data warehouse in-between these steps, data integrity may be compromised and data corruption may occur in future replications.

Working with the Model

Cognos models supporting multidimensional analysis of business process areas can be purchased from QAD. The models map the contents of the data warehouse to concepts supported by the PowerPlay product such as dimensions, levels, categories, and measures. The product of executing a model against the data warehouse is a Cognos PowerCube.

The location of the models is referenced in the Cognos Transformer tab in the Application Settings screen. See Figure 3.50 on page 110 for details.

Note Cubes can only be built after data has been replicated to the data warehouse database.

You can:

- Create the cube.
- Check the model.
- Check the model relations.
- View the model properties to specify the replication schedule and select the languages in which cubes are generated.

Create the Cube

You can create the cube by using the Create Cube function of the Data Transformer, or by using a batch task. Cubes can only be built after data has been replicated to the data warehouse database.

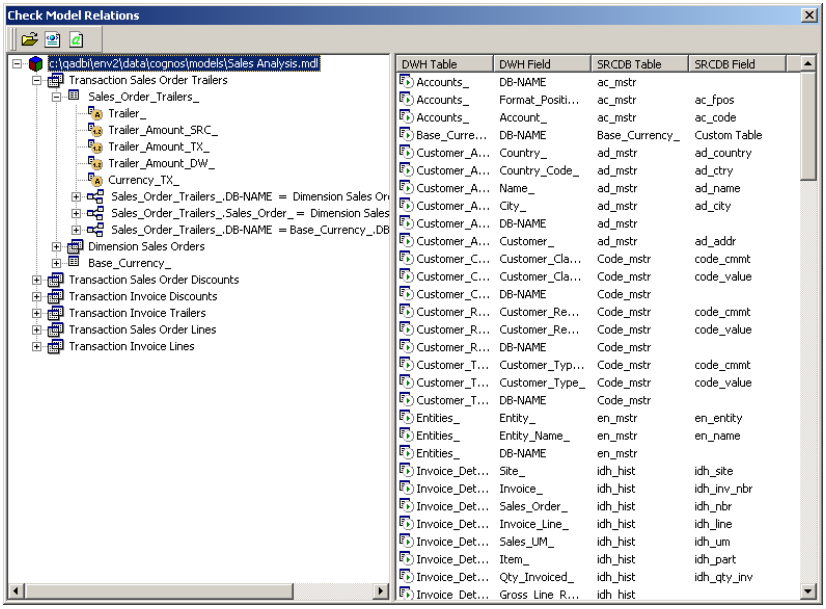
Check the Model

The Cognos PowerPlay Transformer includes a function that verifies the correctness of the model file. Select a cube in the Cubes folder in the main QAD BI screen and choose File|Check Model. The system uses the Cognos function to verify the model and displays an appropriate message.

Check the Model Relations

The Check Model Relations function provides detail information about the data structure of a cube. You can see the relationship between data warehouse and source tables and fields.

Fig. 3.40
Check Model Relations



Specify Model Properties

To display the Model Properties screen, select a model and choose Tools| Properties. The screen contains three tabs.

Cube Details

The Cube Details tab contains read-only displays of the Cognos Transformer model name and path.

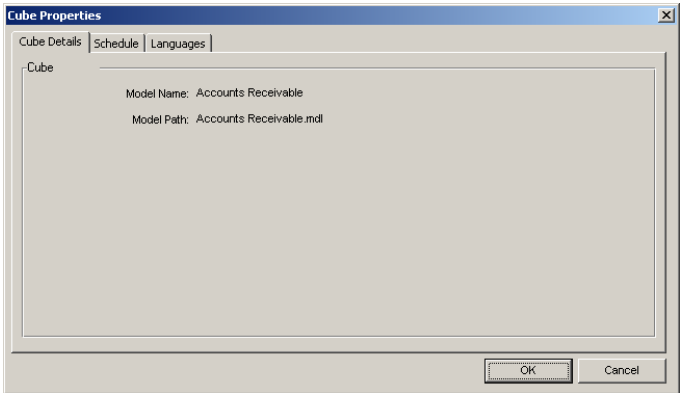


Fig. 3.41
Cube Properties, Cube Details Tab

Schedule

The Schedule tab is the same as the Table and Custom Script Schedule tabs. Select Active and enter a sequence number to enable cube generation within the automated replication.

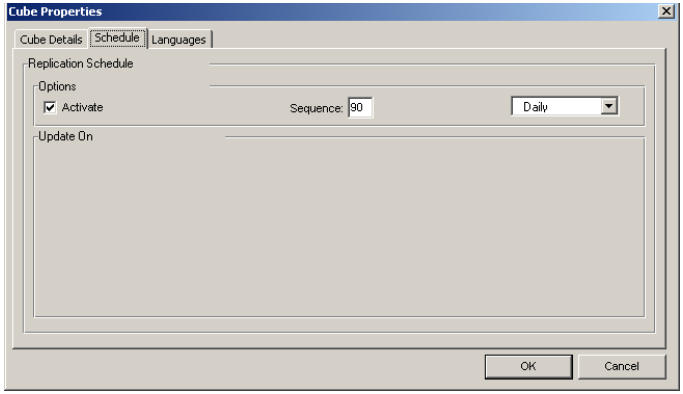


Fig. 3.42
Cube Properties, Schedule Tab

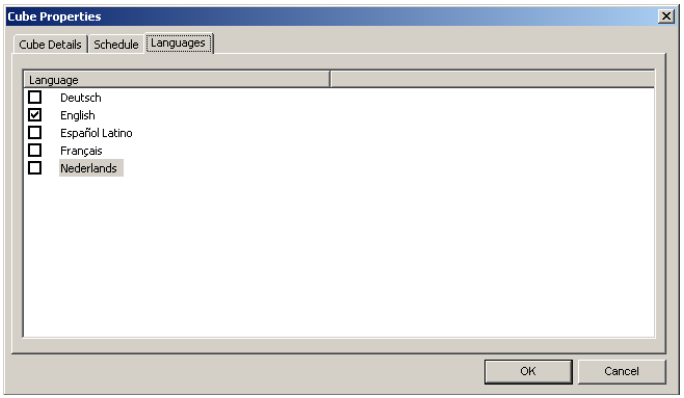
Languages

The Languages tab allows for the selection of the language or languages in which multilingual cubes should be created.

Note Single-language cubes ignore these settings.

Cubes are created in subfolders of the Cube directory (as specified in the Application Settings Cognos Transformer tab). Subfolders are named using the two-character language identifier for the selected languages. If no language is selected, the cube is built directly within the Cube directory.

Fig. 3.43
Cube Properties, Languages Tab



For information on creating or modifying language tokens for translated Cognos Transformer model files, see “Creating Translatable Cognos Transformer Models” on page 133.

Using QAD-Provided Model Data

If your QAD BI configuration includes one or more of the seven predefined models purchased from QAD, load the schema using the Data Transformer’s Load Meta Data function instead of building the data warehouse tables manually from MFG/PRO schema. You can then use the table and field tools to customize the schema for the predefined models as needed.

Note In MFG/PRO eB2.1, you must load metadata and scripts for each domain that you want to analyze.

Perform the following tasks to load the model data and make it ready for use:

1 Load metadata.

2 Load custom scripts.

3 Bulk validate custom scripts.

4 Complete model setup.

Load Metadata

To load the metadata that describes the data warehouse structure used in the models, right-click a database or a domain name—if you are using an MFG/PRO eB2.1 database—in the main screen and select Import Meta Data. The Choose Import File screen displays.

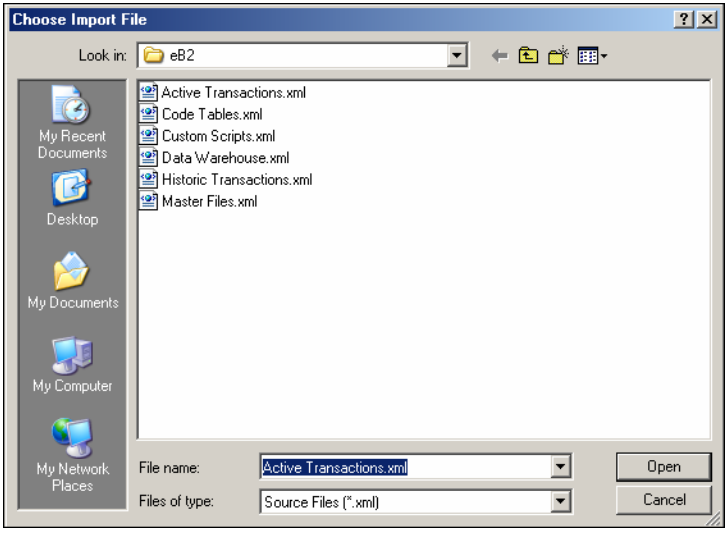


Fig. 3.44
Chose Import File

Navigate to the directory where the model source files were placed during installation. Typically, this is:

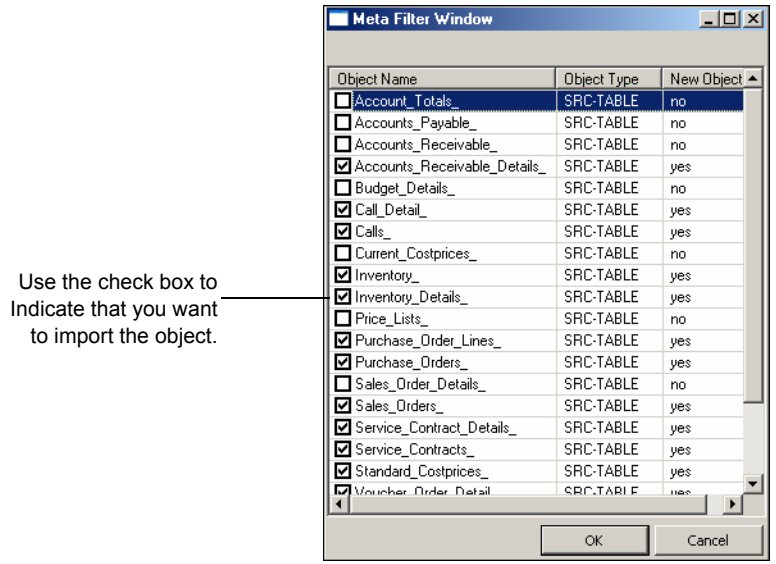
qadbiInstallDir\data\meta*version*

Where version is the MFG/PRO database version; for example:

```
c:\qadbi\data\meta\eB2.1
```

Select a file and click Open to load the metadata and create the data warehouse structure. The Meta Filter Window displays.

Fig. 3.45
Meta Filter Window



The Meta Filter Window presents a list of objects and the following information for each object:

Object Name. Displays the name of an object.

Object Type. Displays the type of the database object: SRC-TABLE, DWH-TABLE, MERGE-TABLE, SCRIPT, or CUBE.

New Object. Indicates whether the object already exits in the database or domain.

Yes: This is a new object that has not been imported before.

No: The object has already been imported.

Use the check box to the left of the object name to indicate whether to import the object. The check box is selected by default when the object is new. If the object is not new, you can select the check box to reimport the object.

Review the list to verify that the selected objects are those you want to import. Then click OK to activate the import. The created data structure then displays in the main screen directory tree. The display includes a green triangle beside a valid object or a yellow exclamation point beside an invalid object.

Note In MFG/PRO eB2.1, metadata must be loaded for each active domain in the database.

Important If this is first time you have loaded the standard XML metafiles, ensure that you load `Custom Scripts.xml` last. After the custom scripts are loaded, they are automatically compiled. Since the scripts refer to several tables in the data warehouse, the table schemas must have already been loaded for successful compilation to take place. If these schemas have not been created in the data warehouse, compilation will fail.

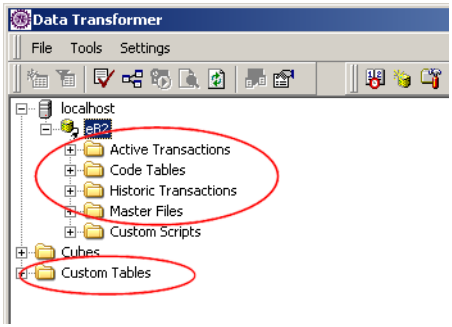


Fig. 3.46
Metadata Loaded

Bulk Generate and Validate Scripts

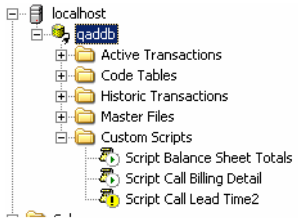
After loading model data and custom scripts, you can have the system regenerate and check all the scripts at the same time based on the completed data warehouse structure.

Select the database in the main screen directory tree, and then choose Tools|Check Scripts.

The system updates the table icons in the directory tree to show whether they passed validation. A green triangle indicates a validated script; a yellow exclamation point indicates a problem. For example, scripts

shown in Figure 3.47 were validated before all the custom scripts were loaded. A secondary custom script, Script Call Lead Time2, failed validation.

Fig. 3.47
Validation Icons



Note You can check the script for an individual table by right-clicking the table on the main screen, then selecting Check Script.

Complete Model Setup

After loading model data and checking scripts, complete setup tasks by:

- Updating the table links for all replication and custom tables; see page 39.
- Scheduling automatic replication for each table, custom script, and cube as shown in the relevant sections above.
- Optionally, fine-tuning the data warehouse structure and replication setup. Use the following sections for reference:
  - “Manage Domains” on page 64
  - “Select Tables” on page 65
  - “Set Up Replication” on page 67

Modifying Application Settings

Based on information entered during the installation, most settings required to connect the components of QAD BI are in place when you begin using the application.

Note An important exception to this is the currency setting, which defaults from the MFG/PRO base currency unless:

- You are connecting to a domain database and the base currencies in the domains are different.

- You are connecting to multiple databases and the base currencies in the databases are different.

In both of these cases, the currency setting is blank and you must manually set the currency for the data warehouse database. See “Currency” on page 108.

If for any reason you need to update any of those settings, choose Settings|Application Settings from the main menu. The system displays a screen with the following tabs:

- Data Warehouse
- Table Linking
- Cognos Transformer
- Batch Process
- Notification
- AppServer

The following sections describe the functions of each tab.

Data Warehouse

The Data Warehouse tab includes parameters applicable to the data warehouse database.

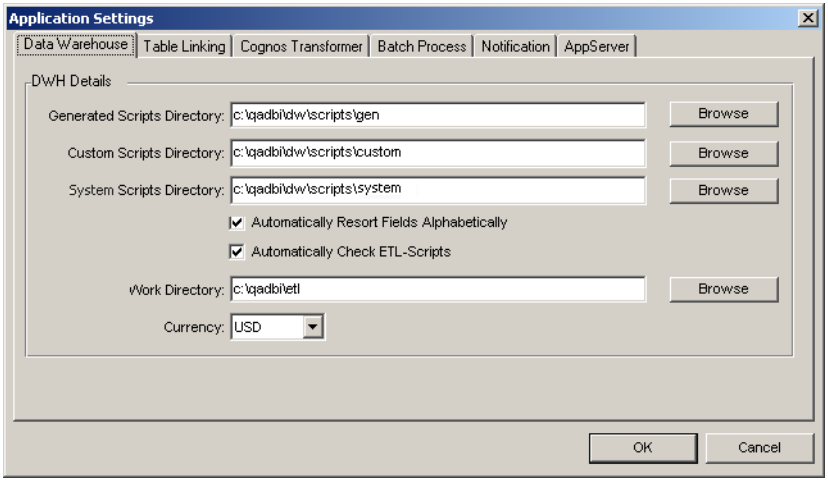


Fig. 3.48 Application Settings, Data Warehouse Tab

Generated Scripts Directory. Enter or browse to the location where the automatically generated table-replication scripts are to be written.

Custom Scripts Directory. Enter or browse to the location where the custom scripts are located.

System Scripts Directory. Enter or browse to the location where the system task scripts are located. This field is only available in the QAD BI Data Transformer OpenEdge 10 edition.

Automatically Resort Fields Alphabetically. Select to have the fields (columns) of the mapped table automatically sorted in the field mapping screen.

Automatically Check ETL-Scripts. Select to automatically generate the mapped table scripts and to compile the generated and custom scripts. This process also applies after a metadata import.

Work Directory. Enter or browse to the location of the ETL tool. This directory contains the encrypted source code, log files, and temporary files and should not be changed unless recommended by QAD Support.

Currency. Select a currency from the list of currency codes in which to express all currency values defined in the standard business models. The default currency is the MFG/PRO base currency.

Table Linking

The Table Linking tab includes parameters used to connect to the Access data warehouse proxy.

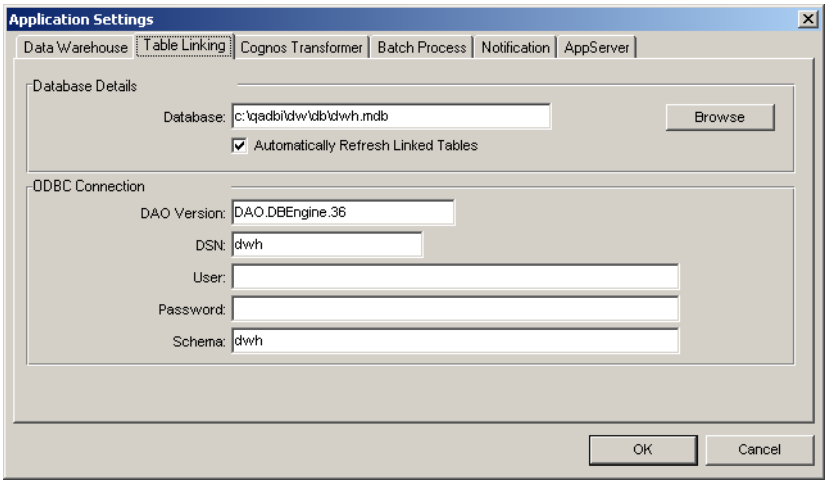


Fig. 3.49 Application Settings, Table Linking Tab

Database. Enter or browse to the location of the data warehouse proxy Access `.mdb` file.

Automatically Refresh Linked Tables. Select this option to automatically update data warehouse proxy link data when mapping tables or after importing metadata.

DAO version. Enter the Database Access Objects database engine version.

Note In general, this field should not be changed.

DSN. Enter the Data Source Name created for the data warehouse proxy ODBC connection. This is initially set during installation. See “Update the ODBC Account” on page 32 for details.

User. Enter the user name for the data warehouse proxy.

Note By default, no user name is required.

Password. Enter the password for the specified user.

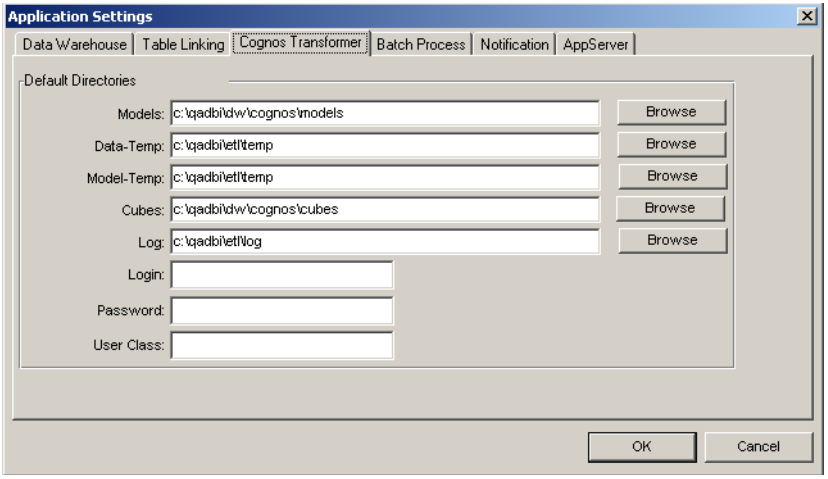
Note By default, no password is required.

Schema. Enter the data warehouse Progress schema name. The default set during installation is `dwh`.

Cognos Transformer

The Cognos Transformer tab includes path preferences used by the Cognos PowerPlay Transformer. The ETL tool uses these settings to set the values in the Cognos Transformer.

Fig. 3.50 Application Settings, Cognos Transformer Tab



Models. Enter or browse to the location where the Cognos model files were installed or copied.

Data-Temp. Enter or browse to the location that the Cognos Transformer should use to store temporary data files created during cube generation.

Model-Temp. Enter or browse to the location that the Cognos Transformer should use to store temporary files created during model operations.

Cubes. Enter or browse to the location where the Cognos Transformer should create the cubes.

Log. Enter or browse to the location where the Cognos Transformer and the Data Transformer should write the log files.

The following optional properties are used when building Cognos models in which Cognos security has been enabled. Cognos security is set up using the Cognos Access Manager and stored in a local authentication export `(.lae)` file or LDAP-compliant namespace.

Login. Specify the log-in for a Cognos user whose authority will be used to regenerate the models.

Password. Specify the password for a Cognos user whose authority will be used to regenerate the models.

User Class. Specify a Cognos User Class to which the specified log-in user belongs and which will be used to regenerate the models.

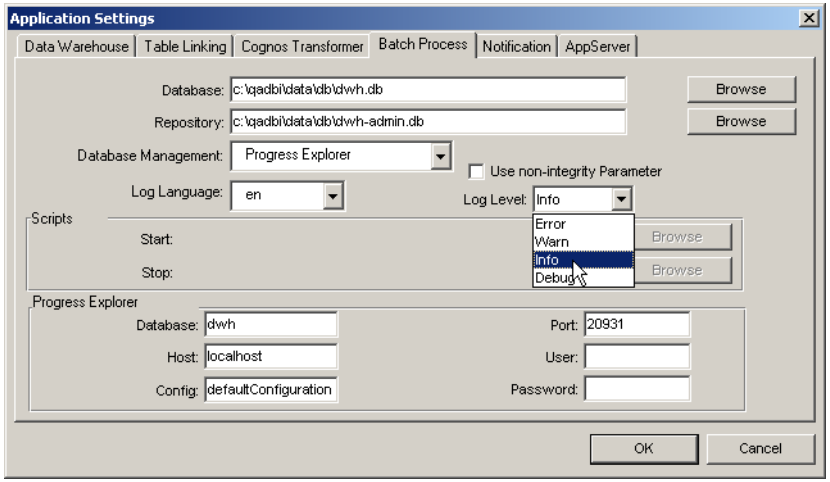
For additional information regarding the use of the Cognos cube security and Transformer, see the Cognos Transformer online help and user documentation.

Batch Process

Use settings on the Batch Process tab to customize QAD BI in the following areas:

- Improve performance.
- Allow concurrent access to the data warehouse while the batch is run.
- Use the Progress-supplied database server administration.
- Use custom scripts (batch files) to start and stop the data warehouse.

Fig. 3.51
Application Settings, Batch Process Tab



Database. Enter or browse to the location of the data warehouse file. By default, this is the `dwh.db` file in the directory where QAD BI is installed.

Repository. Enter or Browse to the location of the data warehouse repository. By default, this is the `dwh-admin.db` file in the directory where QAD BI is installed.

Database Management. Select the method to use to start and stop the data warehouse—Progress Explorer or Scripts. Depending on this setting, you can update the fields in the appropriate frame.

Single User Batch Process. Specify whether the data warehouse database is started in single-user mode when running the batch process. If selected, no other connections to the data warehouse are accepted until the batch process completes. This field is not available when parallel replication is selected on the AppServer tab—that is, the Use AppServer check box is selected.

Use non-integrity parameter. Specify whether the data warehouse is started in non-integrity mode. When this option is selected, Progress runs without using the database integrity or database recovery features.

Important Selecting this option can improve system performance. However, if Progress fails for any reason, you cannot recover the database. Use this feature with caution and make sure you have an adequate database backup strategy.

Log Language. Select the language in which the log information is written.

Log Level. Select the level of log information to be captured.

Error: Displays functional errors

Warn: Displays activities that may cause errors, as well as errors

Info: Displays trace of user activities, as well as errors and warnings

Debug: Displays debug information for developers, as well as errors and warnings

Start. If Database Management is Scripts, enter or browse to the appropriate script files that are used to start the data warehouse.

Stop. If Database Management is Scripts, enter or browse to the appropriate script files that are used to stop the data warehouse.

Database. Enter the data warehouse database name as defined in the Progress Explorer.

Host. Enter the Progress server defined in the Progress Explorer and assigned to manage the data warehouse.

Config. Enter the Progress Explorer Configuration to use to start and stop the data warehouse.

Port. Enter the port or service the data warehouse runs under. This is defined in the Progress Explorer Configuration.

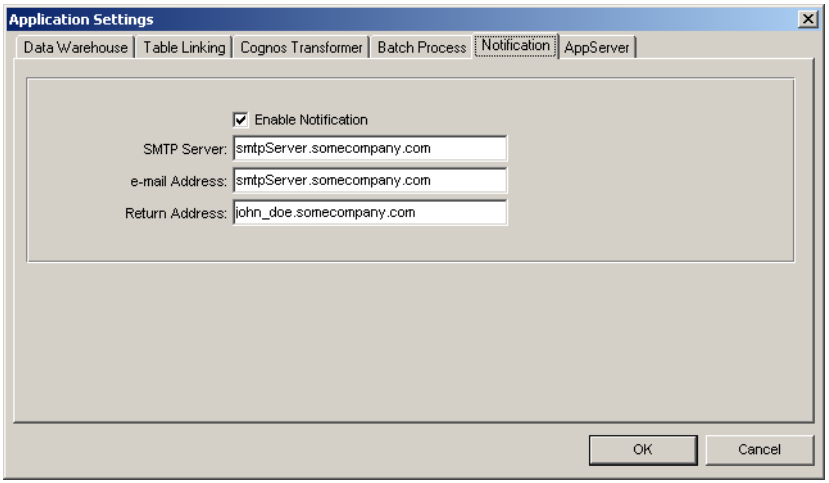
User. Enter a user authorized to start and stop the data warehouse.

Password. Enter the password of the user authorized to start and stop the data warehouse.

Notification

The Notification tab includes information the system uses to send e-mail messages when an error occurs during batch processing.

Fig. 3.52 Application Settings, Notification Tab



Enable Notification. When this is selected, e-mail is sent when errors occur during batch processing.

SMTP Server. Enter the name of the Simple Mail Transfer Protocol server to use to send the e-mail

e-mail Address. Enter the e-mail address of the person you want to receive the e-mail notifications.

Return Address. Enter the e-mail address of the person you want to be used for the return address on the e-mail.

AppServer

The AppServer tab includes information the system uses to determine the replication strategy (that is, serial or parallel via the Use AppServer check box) and, when parallel replication is used, the AppServer configuration information. For more details on parallel replication, see “QAD BI Parallel Replication Setup” on page 120.

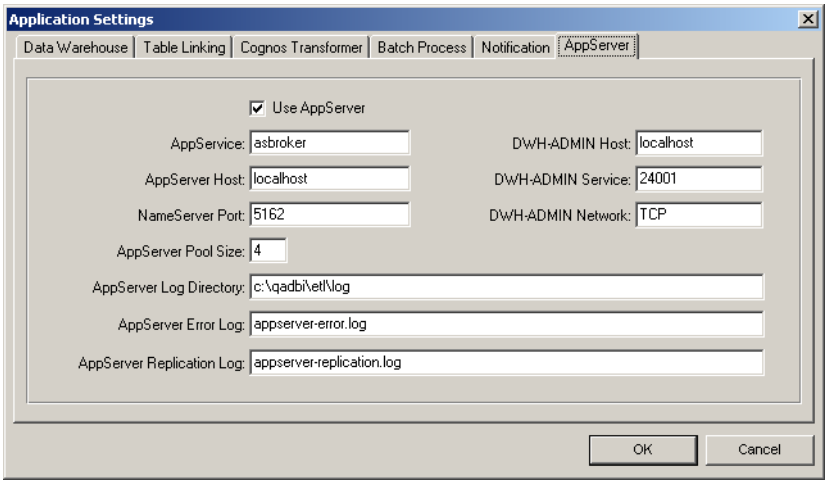


Fig. 3.53 Application Settings, AppServer Tab

Use AppServer. When this is selected, parallel replication is used for the batch replication. When not selected, serial replication is used.

AppService. Enter the name of the AppServer broker. This is the same value that appears in the Progress Explorer tree under the AppServer folder. Also referred to as the AppServer name.

AppServer Host. Enter the name of the server where the AppServer has been installed.

NameServer Port. Specify the port to which the NameServer has been configured to listen. The default is 5162.

AppServer Pool Size. Specify the number of AppServer processes that will be available to process replication tasks. Four is a good starting value for testing. The value entered here must be one less than the value of the Minimum and Maximum Servers settings in the AppServer properties screen. See “QAD BI Parallel Replication Setup” on page 120 for details.

Note Do not set this value too high. Entering a value that is too large can reduce performance on hardware that is insufficient to handle the processing load.

DWH-ADMIN Host. Specify the name of the server where the administration database is running.

DWH-ADMIN Service. Specify the port to which the administration database is configured to listen. The default is 24001.

DWH-ADMIN Network. Specify the protocol that the administration database is configured to use for communication. Default is TCP.

AppServer Log Directory. Specify the directory to which all log files will be written.

AppServer Error Log. Specify the name of the AppServer error log.

AppServer Replication Log. Specify the name of the AppServer replication log.

For additional information on using parallel replication with the Data Transformer, see “QAD BI Parallel Replication Setup” on page 120.

Performing Administration Tasks

Update User Records

During installation, a single default user is defined with database administrator rights in the Progress Administration database:

Default user ID: `dwh`

Default password: `admin`

You can modify this default information, as well as create additional users or delete existing ones, with the following procedure:

1. Start Progress Data Administration.
2. Select Database|Connect and enter connection information in the Connect Database screen. If the default installation was performed, the connection parameters are:
   - Physical Name: dwh
   - Logical Name: dwh
   - Network: TCP
   - Multiple Users: checked
   - Host Name: localhost
   - User ID: dwh

- Password: admin

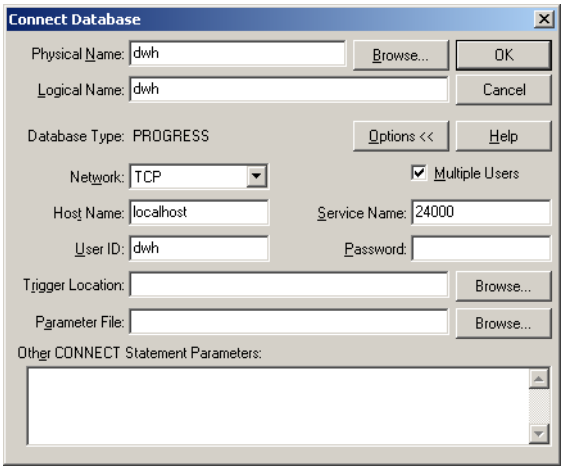


Fig. 3.54
Updating User Data

3 Select Admin|Security|Edit User List.

4 In the Edit User List screen, click Add, Modify, or Delete to manage users.

For additional information on managing users in a Progress database, see the *Progress System Administration Guide*.

Set Up Windows Task Scheduler

You can use Data Transformer to define the replication schedule for each individual task. See “Scheduling Automatic Replication” on page 73 for information on defining task schedules in Data Transformer.

However, you also must set up an operating-system-level scheduling task to look at the individual task schedules and run the processes accordingly.

Note This procedure is based on Windows XP Professional. It may vary for other versions of Windows.

1 To run the Windows Task Scheduler Wizard, select Start|Control Panel|Scheduled Tasks|Add Scheduled Tasks.

2 Click Next to continue.

3 Click Browse and select the Run Tasks shortcut located in the directory where program files were installed.

4 Choose the task schedule:

- Daily
- Weekly
- Monthly
- One time only
- When my computer starts
- When I log on

Depending on your choice, you may be prompted for further scheduling information.

Important The schedule you define here describes when Windows launches its own scheduling task, which in turn looks at the Data Transformer scheduling tasks. You should be sure to define the Windows task so that it is appropriate to the schedule granularity defined for Data Transformer. For example, it would not make sense to define a monthly Windows task if you want to replicate tables every day.

5 Enter the name of a Windows account with sufficient access privileges to execute the Data Transformer on the target machine.

6 Select the date and time for the task to begin.

7 Click Finish to save the task.

Chapter 4

Reference

QAD BI Parallel Replication Setup

This section provides the information required for configuring QAD BI for parallel replication. It also provides QAD BI specific guidelines and information for configuring the Progress AppServer, which is required to replicate tasks in parallel.

See the Progress document *Building Distributed Applications Using the Progress AppServer* for documentation describing the general setup and configuration of the AppServer.

Overview

In order to improve replication performance during batch processing, parallel or multi-threaded processing of the replication tasks is supported using the Progress AppServer. Parallel replication allows for more than one replication task to be processed concurrently by separate Progress processes. In order to use the parallel replication strategy, both the Data Transformer and the AppServer must be configured.

This section assumes the AppServer has been installed and configured using the default settings on the same server as the Data Transformer.

Configure the AppServer

The AppServer can be configured using the Progress Explorer application (recommended) or by directly modifying the `ubroker.properties` file located in *`ProgressInstallDir`*`\properties`.

This section describes only the process of configuring the AppServer using the Progress Explorer application.

1. Open the Progress Explorer application.
2. Connect to the localhost Progress Server.
3. Expand the AppServer folder in the tree in the left pane.
4. Right-click the `asbroker1` item in the expanded AppServer folder and select Properties.

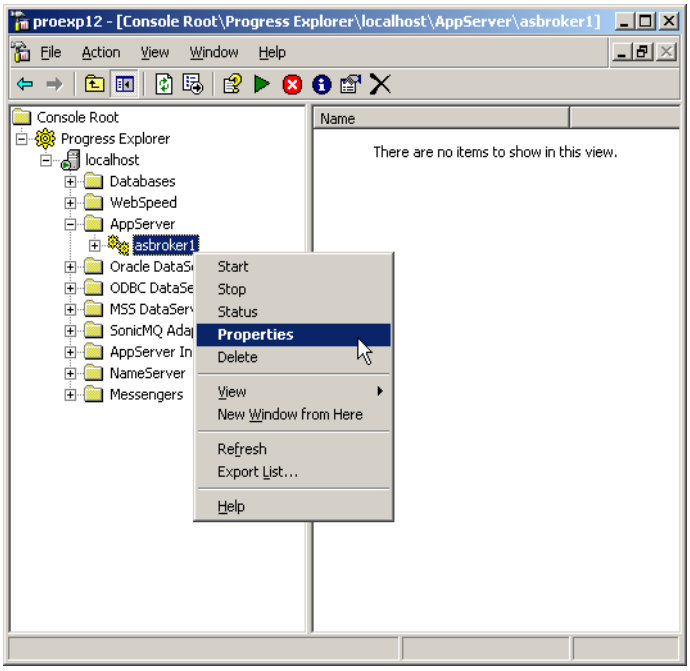


Fig. 4.1
Selecting the Properties for the AppServer

5 Expand the Broker item in the tree and select the General item.

6 Set Operating Mode to `State-reset`.

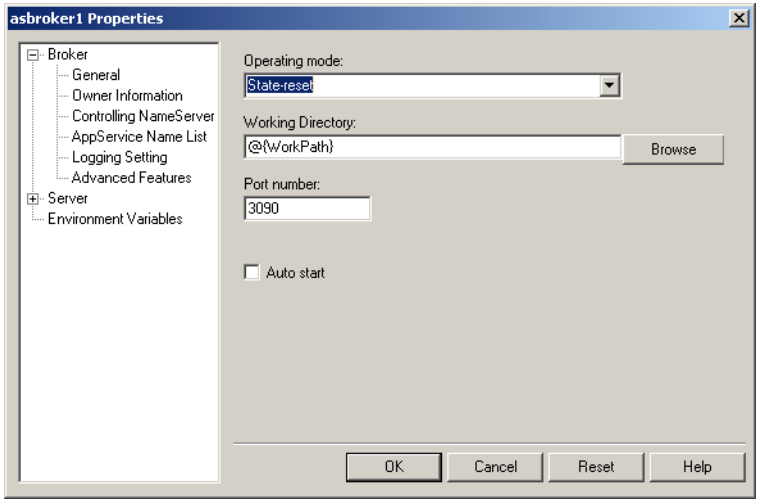


Fig. 4.2
Configuring the Broker's General Parameters

7 Select Logging Setting under the Broker.

8 Modify the Broker log filename setting to the following:

```
ETLInstallDir\log\asbroker1.broker.log
```

where *ETLInstallDir* is the value supplied for the program files during the installation.

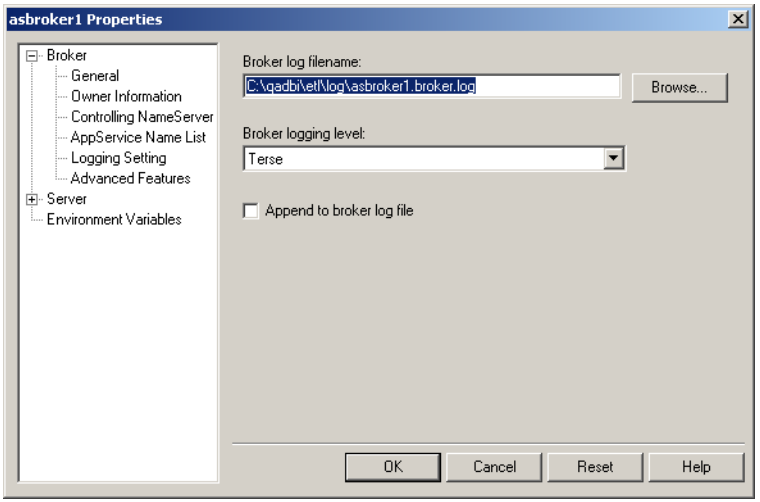


Fig. 4.3 Configuring the Broker's Logging Parameters

9 Expand the Server item in the tree and select the General item.

10 Modify the Server startup parameters setting to the following:

```
-pf ETLInstallDir\appserver.pf
```

Where *ETLInstallDir* is the value supplied for the program files during the installation.

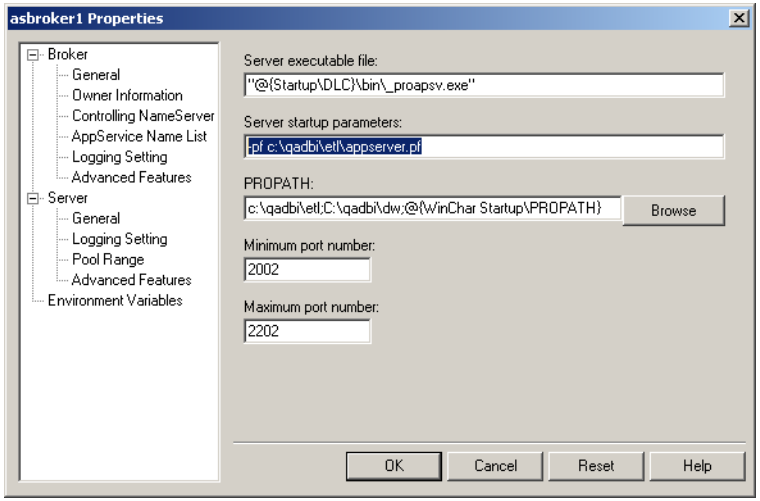


Fig. 4.4
Configuring the Server's General Server Startup Parameter

11 Modify the PROPATH setting to include the following at the beginning:

ETLInstallDir;DataInstallDir;

Where *ETLInstallDir* is the value supplied for the program files and *DataInstallDir* is the value supplied for the data files during the installation.

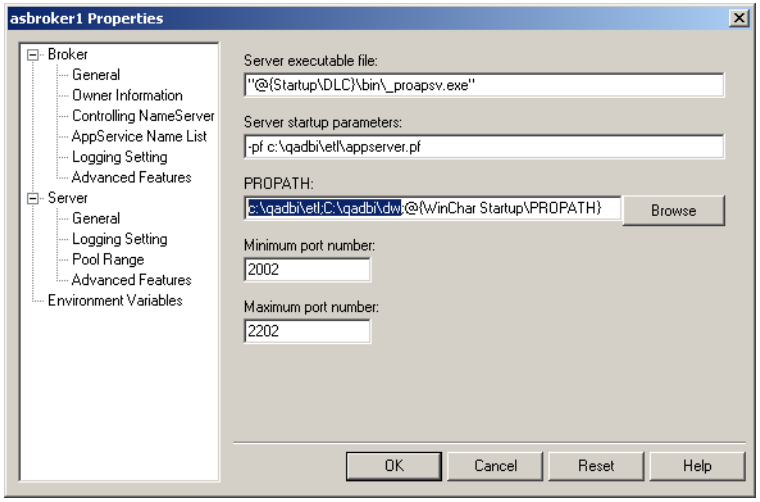


Fig. 4.5
Configuring the Server's General PROPATH Parameter

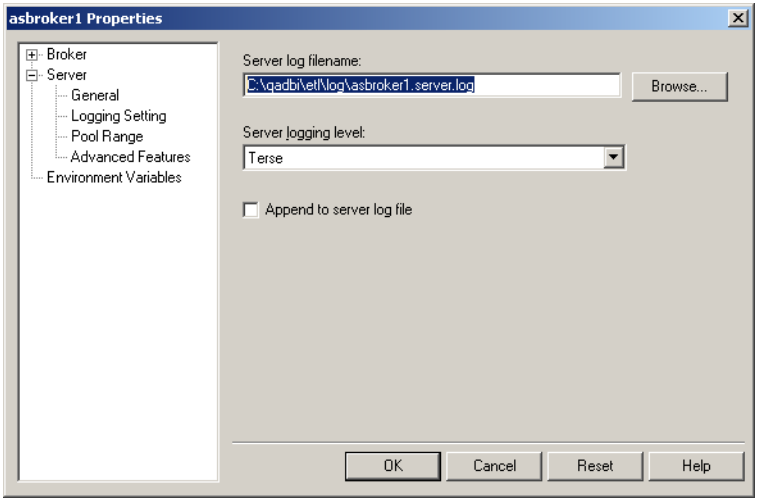
12 Select Logging Setting under the Server.

13 Modify the Server log filename setting to the following:

ETLInstallDir\log\asbroker1.server.log

Where *ETLInstallDir* is the value supplied for the program files during the installation.

Fig. 4.6
Configuring the Server's Logging Parameters



14 Select Pool Range under the Server.

15 Modify the initial number of servers to start, maximum servers, and minimum servers settings to the integer value equal to your AppServer Pool Size setting + 1. For example, this document indicates that the value 4 should be used. So, use 5 for the Initial number of servers to start setting. See "AppServer Pool Size" on page 115 for details.

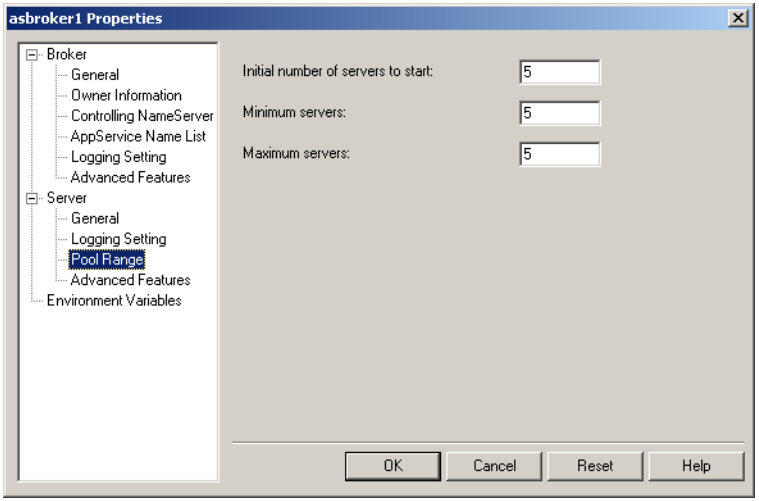


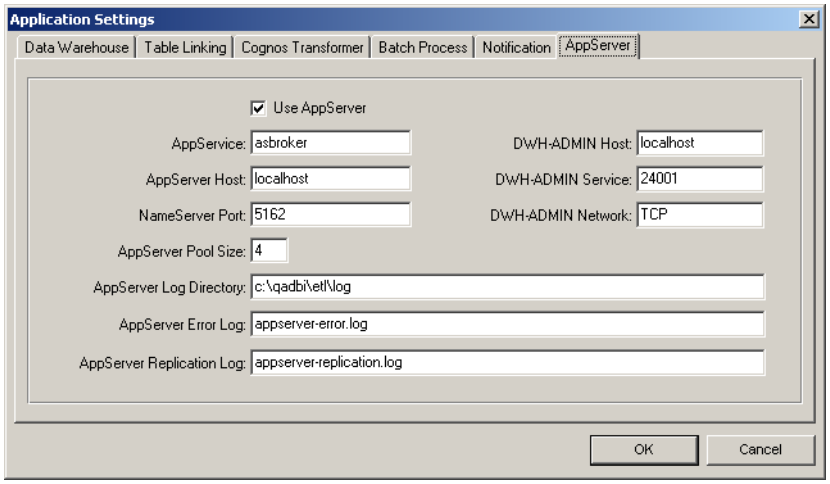
Fig. 4.7 Configuring the Server's Pool Range Parameters

Important If changes were made to the AppServer's configuration, the server must be shut down and restarted for the modifications to take effect.

Configure the Data Transformer

1. Start the Application Settings dialog for the Data Transformer.
2. Switch to the AppServer tab.
3. Select the Use AppServer check box to enable processing of tasks in parallel. When this check box is not selected, the default serial processing will be used.
4. Enter information for your setup for every field on the tab. The following graphic depicts the AppServer default settings. See "AppServer" on page 114 for details.

Fig. 4.8 Configuring AppServer Parameters



See detailed field descriptions for the AppServer tab in “AppServer” on page 114.

Multicurrency Configuration

This section provides the information required to enable QAD BI to extract data from MFG/PRO sources that have differing base or system currencies and to convert the currencies to a single user-defined data warehouse currency for the standard business models.

Overview

Multicurrency support in QAD BI allows amounts valued in different currencies to be revalued in a common currency within the standard business models. This provides a foundation for analytic operations that compare and aggregate amounts that were originally valued in different currencies.

Important The Sequence dependencies for multicurrency scripts must be observed to get the correct results. See “Setting the Replication Task Sequence” on page 131 for information.

Configure the Data Warehouse Currency

A single currency can be defined as the data warehouse currency in the Data Transformer. When a data warehouse currency is defined, all source system currencies are revalued using the Exchange Rate table (see next section) in this currency. If no data warehouse currency is defined, the data warehouse is considered a single-currency implementation and no conversions occur.

To set the Date Warehouse currency, follow these steps:

1. Choose Settings|Application Settings from the menu.
2. Select the data warehouse tab and select the desired currency from the Currency drop-down list.
3. Click OK to save the selected currency as the data warehouse currency.

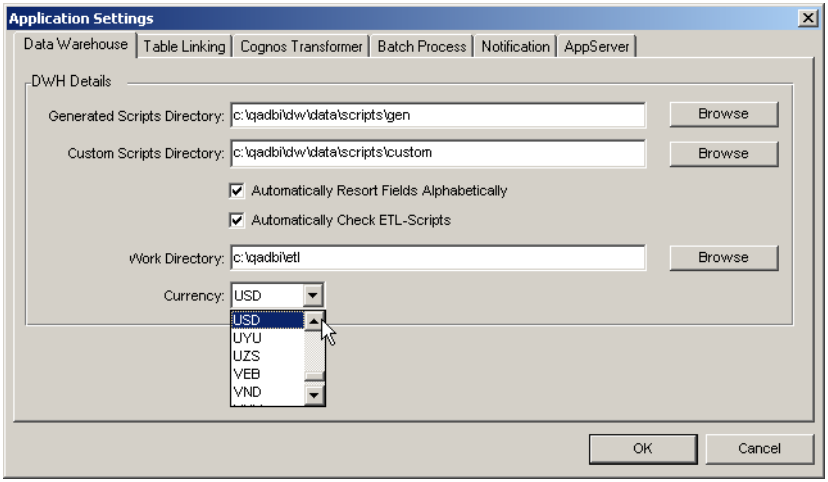


Fig. 4.9 Setting the Data Warehouse Currency

Configure Multicurrency Custom Scripts

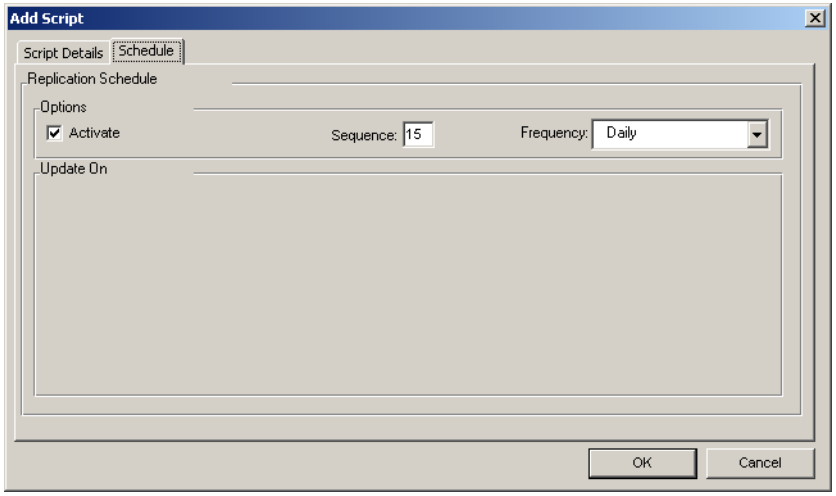
For source systems with differing base currencies defined, the Data Transformer supports conversion of currency values into a single currency for analysis—that is, the data warehouse currency. To value multiple currencies in a single currency, additional custom scripts must be added to the source metadata and configured for replication.

In addition to setting the data warehouse currency in the Application Settings, you must perform the following steps to enable multicurrency support in QAD BI.

Note These steps assume the table tasks have all been configured with a Sequence value less than 10 (by default they will have the value 00) and that the Custom Scripts Sequence values are greater than 15.

1. Start the Data Transformer and navigate to the Custom Scripts folder in the tree.
2. Right-click the Custom Scripts folder and select Add Script.
3. Click Browse in the Add Script screen and navigate to the *QADBIDataDir*`\scripts\custom` directory; select the `Script_Currency_Fields_Incremental_.p` custom script, and click Open.
4. Select the Schedule tab and set the fields as follows:
   - Activate: selected
   - Sequence: 15
   - Frequency: any item in the list

Fig. 4.10 Setting the Schedule Fields for Script_Currency_ Fields_ Incremental_.p



5. Again choose to add a custom script (see steps 2 and 3 above).

6 Click Browse in the Add Script screen and navigate to the *QADBIDataDir*\scripts\custom directory; select the Script_Base_Currency_.p custom script, and click Open.

7 Select the Schedule tab and set the fields as follows:

- Activate: selected
- Sequence: 10
- Frequency: any item in the list

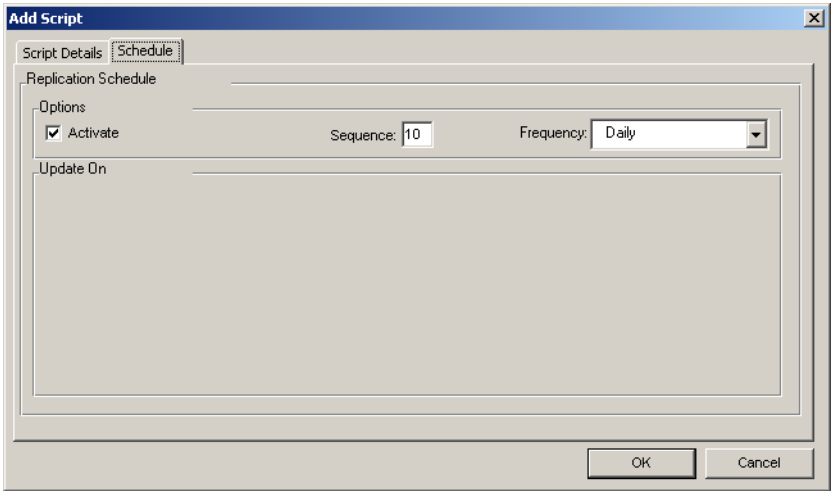


Fig. 4.11 Setting the Schedule Fields for Script_Base_Currency_.p

8 Repeat steps 5 through 7 for Script_Exchange_Rate_.p.

Modifying Currency

After the first batch replication has run in a multicurrency-enabled configuration, the base currency may change in either the source system or the data warehouse. To accommodate this change, a custom script must be executed.

Note This procedure assumes that multicurrency replication has been set up as described in this section.

1. Start the Data Transformer and navigate to and expand the Custom Scripts folder in the tree.
2. Right-click the `Script_Currency_Fields_Incremental_.p` custom script and select Properties.
3. Select the Schedule tab and clear the Activate check box.
4. Click OK to save the changes.
5. Right-click the Custom Scripts folder and select Add Script.
6. Click Browse in the Add Script screen and navigate to the *`QADBIDataDir`*`\scripts\custom` directory; select the `Script_Currency_Fields_Full_.p` custom script, and click Open.
7. Select the Schedule tab and set the fields as follows:
   - Activate: selected
   - Sequence: 15
   - Frequency: any item in the list
8. Exit the Data Transformer and execute the batch replication.
9. Start the Data Transformer and navigate to and expand the Custom Scripts folder in the tree.
10. Right-click the `Script_Currency_Fields_Incremental_.p` custom script and select Properties.
11. Select the Schedule tab and select the Activate check box.
12. Click OK to save the changes.
13. Right-click the `Script_Currency_Fields_Full_.p` custom script and select Properties.
14. Select the Schedule tab and clear the Activate check box.
15. Click OK to save the changes.

QAD BI has now been configured to use the new source base currency or data warehouse currency. Batch replication can continue in the normal manner.

Setting the Replication Task Sequence

This section provides detailed information for configuring replication task sequences in the Data Transformer.

Overview

In order to configure replication tasks to run automatically in batch mode, the Schedule tab for Tables, Custom Scripts, and Cubes must be properly set up. This section discusses the setting of the Sequence field in these screens so that the dependencies for each task type—Tables, Custom Scripts, and Cubes—are met.

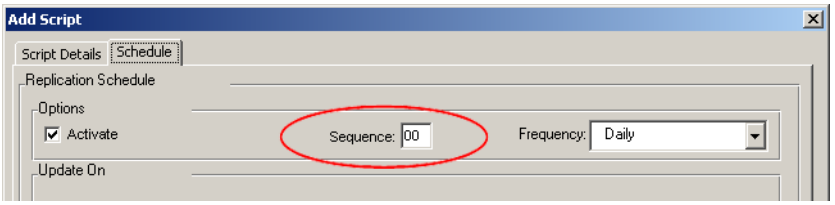


Fig. 4.12
Setting the Sequence for a Replication Task

Dependencies exist between the Table, Custom Script, and Cube tasks. In general, all Table tasks must run before the Custom Script tasks and all Custom Script tasks must run before the Cube tasks.

Single-Currency Sequence Dependencies

Table 4.1 lists the dependencies between the task types and the recommended values that should be used in a standard single-currency installation.

Note All dependencies require that prior dependencies have also been met.

Table 4.1 Single-Currency Dependencies

Script or Task Type	Dependencies	Recommended Sequence Setting
Table	None	00
Script_Currency_Fields_ Incremental_.p	Table	15
Custom Script	Script_Currency_Fields_ Incremental_.p	20
Cube	Custom Script	90

Multicurrency Sequence Dependencies

Some special considerations must be observed if the Data Transformer is being used in multicurrency mode. Table 4.2 lists the dependencies between the task types and the recommended values that should be used in a standard multicurrency installation.

Note All dependencies require that prior dependencies have also been met.

Table 4.2 Multicurrency Sequence Dependencies

Script or Task Type	Dependencies	Recommended Sequence Setting
Table	None	00
Script_Base_Currency_.p Script_Exchange_Rate_.p	Table	10
Script_Currency_Fields_ Incremental_.p	Script_Base_Currency_.p and Script_Exchange_Rate_.p	15
Custom Script	Script_Currency_Fields_ Incremental_.p	20
Cube	Custom Script	90

Creating Translatable Cognos Transformer Models

This section provides information for creating translatable Cognos Transformer models.

Overview

The QAD BI Data Transformer supports creating Cognos Transformer models using tokens to define text for dimensions, levels, categories, and measures. These tokens are translated during replication using user-defined replacement text specified using the Data Transformer Label function.

Cognos Transformer Model

The model is created using tokens of the form `${token}` for any text that requires translation; for example, dimension names, level names, and so on. Keep in mind that when a language is not defined in the Languages tab of Cube Properties, the value of `token` is used for the text; the `${` and `}` is stripped from the `${token}`.

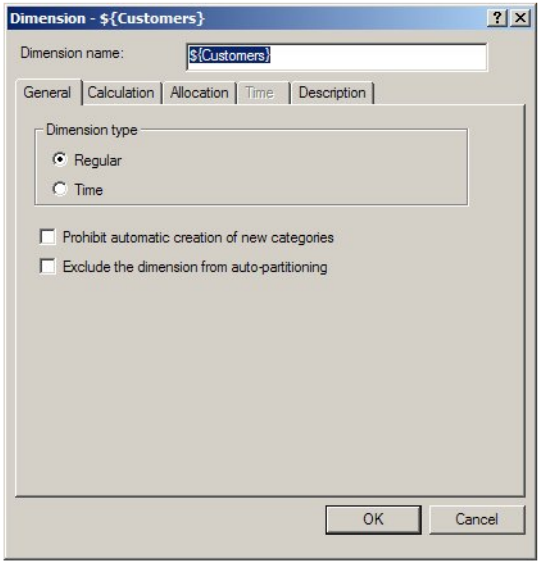


Fig. 4.13 Defining Cognos Transformer Model Text Using a Token

The token is replaced by the value defined, using the Data Transformer Label function described in the next section, for the language being processed.

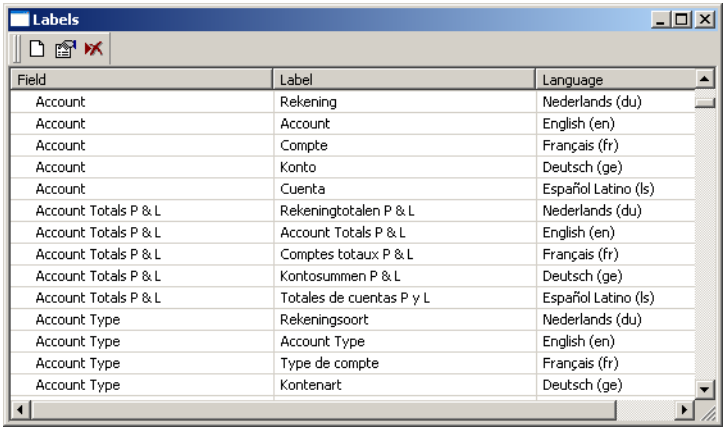
Data Transformer User-Defined Labels

In addition to defining your Cognos Transformer model using tokens, the Data Transformer's configuration database must be updated with the token and its language-dependent translations. This is accomplished using the following steps:

1 In the Data Transformer, choose Settings|Labels from the menu. This displays the Labels screen.

2 In the Labels screen, click the New button on the toolbar.

Fig. 4.14
Labels



3 Enter the information to define your translatable token in the Add Label screen as follows:

- Field: Enter the token used in the Cognos Transformer model.

Example If the token entered in the Cognos Transformer model is `${Customer}`, enter `Customer` in this field.

- Languages: Select the language you are defining for the token from the drop-down list.
- Label: Enter the text that should be used to replace the token.

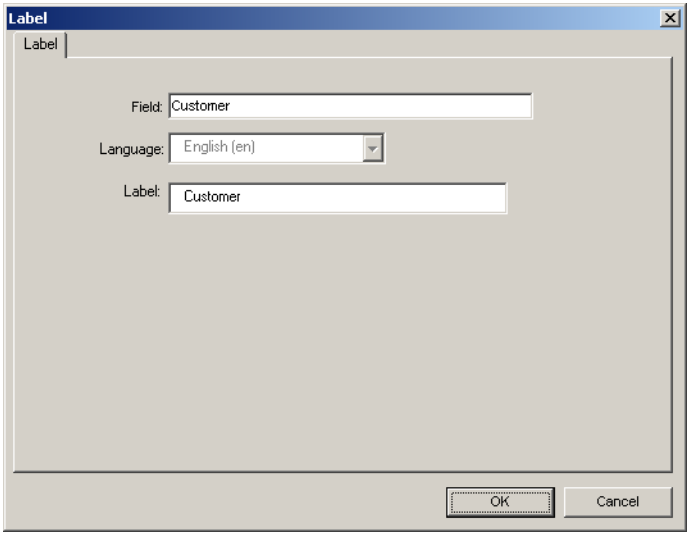


Fig. 4.15
Add Label

4 Repeat Steps 2 and 3 for all languages you want to define. When finished, the Labels screen should contain multiple records for the token—one for each language defined.

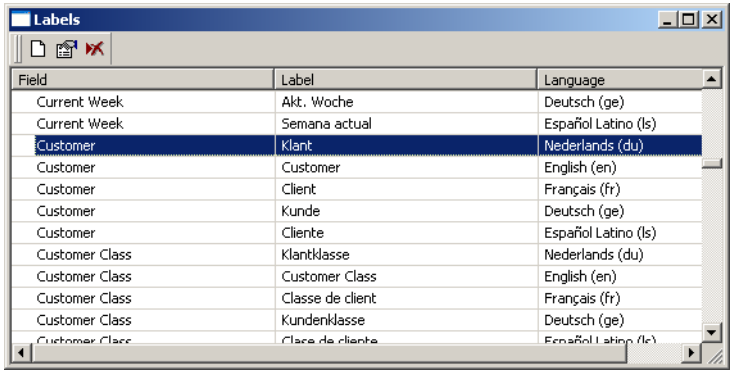


Fig. 4.16
Multiple Languages Defined for Customers Token

Manually Loading Custom Scripts

Overview

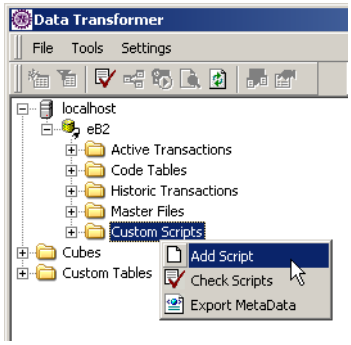
You can manually load custom scripts. This section provides information on the interdependencies between custom scripts as well as instructions for loading them.

Alternately, the predefined business models offered for sale by QAD include prebuilt custom scripts and tables to transform data in the data warehouse into the data required by the Cognos cubes. To load custom scripts in this fashion, see the sections under “Using QAD-Provided Model Data” on page 102.

Load Custom Scripts

To manually load custom scripts, right-click the Custom Scripts folder in the main screen directory tree and select Add Script.

Fig. 4.17
Add a Customer Script



The Add Script screen displays. Click Browse to navigate to the directory where the custom script files were placed during installation. Typically, this is:

qadbiInstallDir\data\scripts\custom

For example:

c:\qadbi\data\scripts\custom

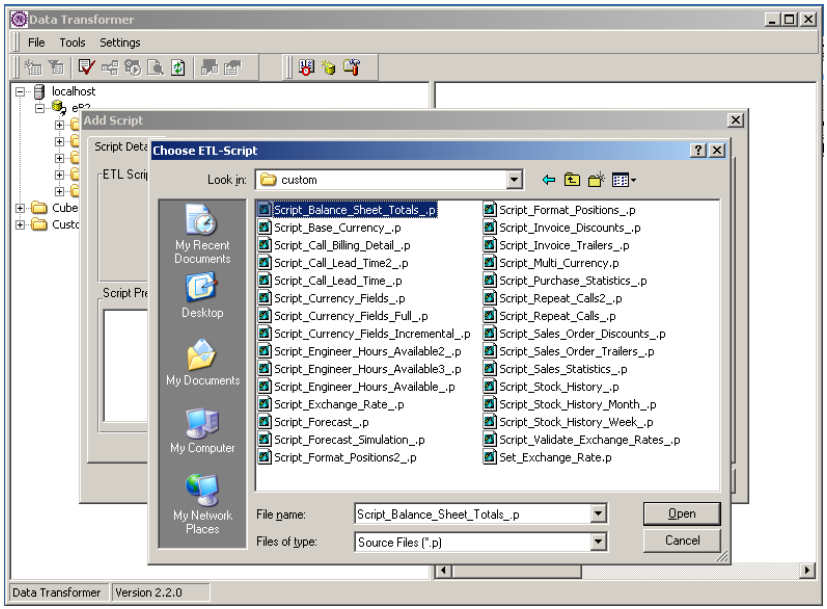


Fig. 4.18
Selecting Custom Scripts

Select the first script on the list and click Open. The system populates the Script Details frame with the path, the default script name—which you can update as needed—and a preview of the script contents.

Important Not all scripts in the custom folder are to be loaded into the Data Transformer. Table 4.3 lists the custom scripts distributed for the current version. Only primary scripts should be loaded. Loaded secondary scripts will fail validation.

Table 4.3
Custom Primary and Secondary Scripts

Primary Scripts	Secondary Scripts
Script_Balance_Sheet_Totals_.p	None
Script_Call_Billing_Detail_.p	None
Script_Call_Lead_Time_.p	Script_Call_Lead_Time2_.p
Script_Engineer_Hours_Available_.p	Script_Engineer_Hours_Available2_.p Script_Engineer_Hours_Available3_.p
Script_Forecast_.p	None
Script_Forecast_Simulation_.p	None
Script_Format_Positions_.p	Script_Format_Positions2_.p
Script_Invoice_Discounts_.p	None

Primary Scripts	Secondary Scripts
Script_Invoice_Trailers_.p	None
Script_Purchase_Statistics_.p	None
Script_Repeat_Calls_.p	Script_Repeat_Calls2_.p
Script_Sales_Order_Discounts_.p	None
Script_Sales_Order_Trailers_.p	None
Script_Sales_Statistics_.p	None
Script_Stock_History_Week_.p	Script_Stock_History_.p
Script_Stock_History_Month_.p	Script_Stock_History_.p
Script_Currency_Fields_Incremental_.p	Script_Currency_Fields_.p
Additional scripts should be loaded if multiple MFG/PRO base currencies will be used. To support multiple MFG/PRO base currencies:	
Script_Base_Currency_.p	None
Script_Exchange_Rate_.p	None

The additional scripts shown in Table 4.4 are required for multiple MFG/PRO base currencies.

Table 4.4
Multiple-Currency Scripts

Primary Scripts	Secondary Scripts
Script_Base_Currency_.p	None
Script_Exchange_Rate_.p	None

Important The custom script `Script_Multi_Currency.p` is a utility script—that is, not a primary or secondary script—and should *not* be scheduled by users.

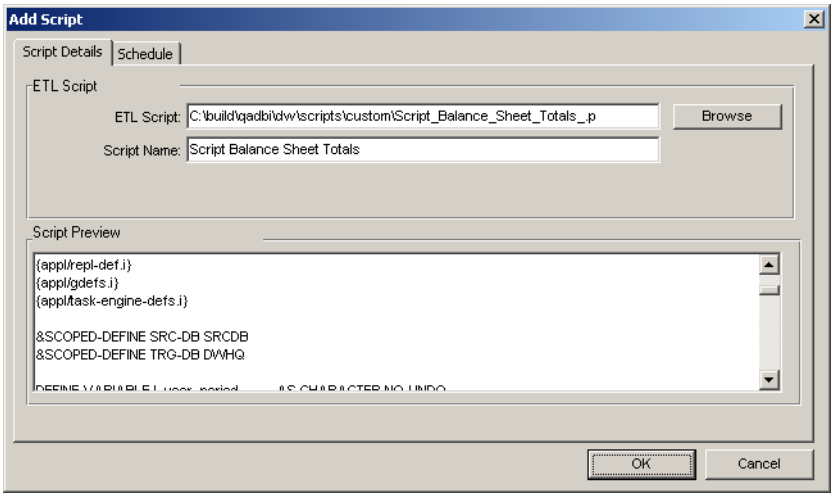


Fig. 4.19
Add Script

Click the Schedule tab to specify when this script will run to replicate data. For information on scheduling, see “Scheduling Automatic Replication” on page 73.

Note To ensure that custom scripts are run after any standard (that is, generated) scripts, set Sequence to a value that is greater than the highest standard script’s sequence. For additional information regarding the use of multicurrencies, see “Multicurrency Configuration” on page 126.

Repeat this task for each primary script in the directory.

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