



The Mainframe Software Partner
For The Next 50 Years

File-AID/EX Getting Started

Release 16.03

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Introduction

Managing Data with File-AID/EX

File-AID/EX is a data management tool designed to help developers more efficiently manage and prepare data for testing. It allows developers to easily copy, convert, transform, compare, and edit data, validate test data results, and restore test data to its baseline state. File-AID/EX allows users to access many of the major databases and file types across the various Windows platforms. For a detailed list of supported Windows platforms, refer to the *File-AID/EX Release Notes*. File-AID/EX provides cross-database support for Microsoft SQL Server, Oracle, Sybase, and DB2 Universal Database (UDB) databases. Moreover, a wide range of data types, including mainframe data and XML, are supported.

File-AID/EX Enterprise Edition, an optional addition to File-AID/EX, allows developers to access mainframe data on MVS. Together with File-AID/EX, File-AID/EX Enterprise Edition enables the movement of test data between mainframe and distributed environments. File-AID/EX Enterprise Edition supports the major MVS data types (VSAM, QSAM, IMS, and DB2 UDB z/OS). It also supports File-AID/RDX extract files by moving related DB2 data types to a distributed database. Refer to the *File-AID/EX Installation Guide* for information on installing this option.

About this Guide

This guide provides the information needed to get users started using File-AID/EX.

All of the File-AID/EX tutorials use the same tutorial database. The tutorial database will be created when the first tutorial in the Related Extract and Related Loader chapter of the File-AID/EX Getting Started guide is completed. The sample files that are used in conjunction with the tutorials are located in the <File-AID/EX installation directory>/Samples folder.

This guide consists of the following chapters:

- Chapter 1, “File-AID/EX Basics”, provides an overview of File-AID/EX, a description of the user interface, and instructions for performing basic tasks.
- Chapter 2, “Related Extract and Related Loader Tutorials”, provides examples of how to extract data from one database and load that data into a test database.
- Chapter 3, “ComparePro Tutorials”, provides examples of how to use ComparePro to compare one file or database to another.
- Chapter 4, “ConverterPro Tutorials”, provides examples of how to use ConverterPro to convert data from one file or database type to another.
- Chapter 5, “Data Privacy Tutorials”, provides examples of how to use data privacy in File-AID/EX.

Who Should Read this Guide

This guide is written for developers, testers, and database administrators working with the following:

- Relational databases and flat files accessible from Windows
- Flat files on UNIX platforms (Solaris, HP-UX, or AIX), or on Red Hat Linux

As a prerequisite, users must be familiar with the Windows or UNIX operating systems.

Conventions Used in this Guide

The following conventions are used to draw your attention to special information:

This convention	Identifies
boldface	Information that you type, choices that you select from a window or menu, and keys that you press. Information should be typed in lowercase letters unless otherwise indicated. Boldface is also used to emphasize important points.
<i><italic></i>	Placeholders for items you must supply. For example: when the guide says to type <i><drive>:\</i> , type the letter of the drive followed by a colon and a slash. Information should be typed in lowercase letters, unless otherwise indicated. Italic is also used to introduce new terms and indicate book titles.
Note:	Information that emphasizes important points.
CAUTION:	Information to prevent data loss or corruption.

Documentation

If you cannot locate the information you need or the information in this guide is not clear, please let us know. See “Getting Help” on page 9 for information on how to contact Compuware.

Publications

The File-AID/EX documentation set includes the following references:

- *File-AID/EX Installation Guide* includes system requirements and instructions for installing File-AID/EX and File-AID/EX Enterprise Edition. This guide is provided in PDF format.
- *File-AID/EX Getting Started* includes an overview of File-AID/EX, instructions for migrating from a previous release, and tutorials that teach you how to use the File-AID/EX component. This guide is provided in PDF format.
- *File-AID/EX Best Practices* includes information on configuring File-AID/EX and benchmarks to help you make the best use of File-AID/EX.
- File-AID/EX online help provides descriptions of the File-AID/EX tools, operating procedures, and reference information. On the **Help** menu:
 - Click **Contents** to view an outline of available topics. This provides information in a logical order to help you perform tasks in the order they need to be performed.
 - Click **Index** and type the term for which you seek information.
 - Click **Find** to search for words and phrases in help topics. This will usually offer several topics from which to choose. Click a topic to select it.
 - Click **Help** on an active window for specific help with that feature.

Viewing the Online Books

File-AID/EX online books are provided in PDF format, and require Adobe Reader 6.0 or more current to view them. The free Adobe Reader is available on the Adobe web site at www.adobe.com.

The online books are available from the Compuware Go Customer Support website located at <http://go.compuware.com/>.

Getting Help

Compuware provides a variety of support resources to make it easy for you to find the information you need.

Corporate Web Site

To access Compuware's site on the Web, go to <http://www.compuware.com>. The Compuware site provides a variety of product and support information.

FrontLine Support Web Site

You can access online information for Compuware products via our FrontLine support site at <http://go.compuware.com>. FrontLine provides access to critical information about your Compuware products. You can review frequently asked questions, read or download documentation, access product fixes, or e-mail your questions or comments. The first time you access FrontLine, you are required to register and obtain a password. Registration is free.

Compuware now offers user communities, online forums to collaborate, network, and exchange best practices with other Compuware solution users worldwide. Go to <http://groups.compuware.com> to join.

Contacting Customer Support

At Compuware, we strive to make our products and documentation the best in the industry. Feedback from our customers helps us maintain our quality standards. If you need support services, please obtain the following information before calling Compuware's 24-hour telephone support:

- The name, release number, and build number of your product. From the product's **Help** menu, select **About** to view this information.
- Installation information including installed options, whether the product uses local or network databases, whether it is installed in the default directories, whether it is a standalone or network installation, and whether it is a client or server installation.
- Environment information, such as the operating system and release on which the product is installed, memory, hardware and network specification, and the names and releases of other applications that were running when the problem occurred.
- The location of the problem within the running application and the user actions taken before the problem occurred.
- The exact application, licensing, or operating system error messages, if any.

Phone

- USA and Canada: 1-800-538-7822 or 1-313-227-5444.
- All other countries: Contact your local Compuware office. Contact information is available at <http://go.compuware.com>.

Web

You can report issues via the **Report and Track Calls** tab on the FrontLine home page.

Note: Please report all high-priority issues by phone.

Mail

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Chapter 1.

File-AID/EX Basics

Overview

File-AID/EX gives users the power to perform many data management tasks:

- Extract, transform, and load related sets of data at the client or server level, from any supported database, to create a subset of larger production databases. Refer to Chapter 2, “Related Extract and Related Loader Tutorials” to learn how to use Related Extract and Related Loader and to learn how to use the Data Privacy Manager with Related Extract and Related Loader.
- Convert data at the client or server level from one source to one target, many sources to one target, one source to many targets, and many sources to many targets.
- Create data using the Data Generation component within ConverterPro and then convert the data into one or more targets. Refer to “Tutorial 1: Apply Field Encryption Using the Data Privacy Manager” on page 81 to learn how to disguise data using the Data Privacy Manager within ConverterPro.
- Convert and move test data between mainframe and distributed environments. The optional File-AID/EX Enterprise Edition provides specific modules for accessing mainframe data on the MVS platform.
- Compare formatted data, multiple tables related by referential integrity or application relationship, database structures (schema), stored procedures, triggers, table structures (fields, keys, indexes), XML file content, text files, flat or delimited files, flat files using COBOL layouts, and groups (compare sets) of existing ComparePro Specifications. Refer to Chapter 3, “ComparePro Tutorials” to learn how to use ComparePro.
- Edit and browse relational data through a connection to a JDBC data source on a local machine.
- View binary objects such as graphics, videos, sounds, and document files.
- Define, update, and manage data privacy criteria in a common, sharable repository, which after being defined can be applied in the File-AID/EX Related Extract, Related Loader, and ConverterPro components. For detailed information about data privacy, refer to the online help. See Chapter 5, “Data Privacy Tutorials” to learn how to use the Data Privacy Manager.
- Perform lookups, create expressions, and edit data field types during loading of related data.
- Specify data selection options and conditions prior to processing.
- Define application relationships and referential integrity between tables for use in extracting related subsets.
- Save connection information as templates for reuse.
- Store specifications in a local or shared repository.

File-AID/EX User Interface

File-AID/EX provides a familiar user interface for quickly and easily manipulating data.

Access the File-AID/EX Homebase in one of the following ways:

- Double-click the File-AID/EX Homebase desktop icon.
- Launch Homebase like any other application based on your operating system.

The **File-AID/EX Homebase** window appears containing two panes. The left pane of the Homebase window is divided into two views: the **Repository View** and the **Data View**, while the right pane is the **Content List**. The **Repository View** shows the following:

- The local and shared repositories to which the user has access
- The contents of those repositories, such as the specifications, sets, log files, report files, and result files

The **Data View** shows the user's connectors and is used to choose the connector, schema, and table for which the user wants to launch a File-AID/EX tool.

The **Content List** lists the items that correspond to what was chosen in the left pane.

Repositories

Two types of repositories can exist: the local repository and shared repositories. Objects in the local repository are created on the local machine and other users cannot access these objects. Shared repositories are a reference on a given machine to a storage area residing on another client machine or on a server. This repository is shared by other users.

Note: For production environments, Compuware recommends that users set up a shared repository in an industry-standard RDMS rather than using the local repository created when File-AID/EX is installed. The local repository is not managed or backed up, and is meant only to provide a starting point for small testing scenarios, not production environments.

Both the local repository and shared repositories can contain the following objects:

- Application relationships, selection criteria, and connection templates
- Specifications from ComparePro, ConverterPro, Related Extract Wizard, and Related Loader
- Specification sets from ComparePro and ConverterPro
- Results from ComparePro
- Logs from ConverterPro, Related Extract Wizard, and Related Loader

Refer to "Local Repository and File-AID/EX Shared Repositories" on page 17 for more information about repositories.

Navigating to Objects

Within File-AID/EX users can navigate across a network to the various network nodes and databases, JDBC, file systems, tables, and files.

Note: Refer to the *File-AID/EX Installation Guide* for specific information about which of the File-AID/EX tools support each of the following network nodes, databases, file types, or objects.

Accessing the File-AID/EX Tools

The File-AID/EX tools can be accessed from a variety of ways:

- By clicking the toolbar buttons on the **File-AID/EX Homebase** window's toolbar.
- From the **Tools** menu.

Performing Basic Tasks

File-AID/EX contains the following tools to help users perform tasks quickly and efficiently.

- **ConverterPro:** Copy, convert, and transform data.
- **ComparePro:** Compare data.
- **Related Extract** and **Related Loader:** Extract and load data.
- **Repositories:** Store specifications, results, and other information about operations that have been performed using the File-AID/EX tools.
- **Security:** Maintain existing data security.

ConverterPro

With ConverterPro users can copy, convert, and transform data using easy-to-follow wizards. ConverterPro runs simple one-to-one conversions with local databases and flat files as well as complex many-to-many conversions using remote MVS data types or a combination of data types.

A ConverterPro conversion specification contains information about source and target data and how to relate source fields to target fields. Desired data can be filtered before running the conversion specification.

Users can share specifications by using shared repositories.

Users can perform data disguise on ConverterPro conversion specifications using the Data Privacy Manager. Refer to "Tutorial 1: Apply Field Encryption Using the Data Privacy Manager" on page 81 or refer to the Data Privacy Manager online help for more information.

The key ConverterPro features are its source to target migration, connection, and browsing capabilities.

- ConverterPro can copy, convert, and transform data from the following:
 - One data source to one data target (One-to-One)
 - Multiple data sources to one data target data (Many-to-One)
 - One data source to many data targets (One-to-Many)
 - Many data sources to many data targets (Many-to-Many)
 - Hierarchical sources to hierarchical targets
- ConverterPro enables source and target data browsing.
- Once connected and mapped, a data source can be dynamically changed facilitating effortless testing against multiple environments.
- The optional Data Generation feature provides sample data for your conversion specifications.

ConverterPro is made up of three components:

- **GUI:** ConverterPro's user interface. The ConverterPro window makes it possible to intuitively define a conversion.

- **Execution Server:** The server that runs data conversions. It can be installed on a local or remote UNIX (HP-UX, Solaris, AIX) Linux, or Windows drive.
- **Communication Manager:** Middleware that provides an interface between the GUI, repository, and Execution Server.

The ConverterPro window consists of menus, panels, and tabs that allow users to perform conversion tasks. Additional information on these features is available in the ConverterPro online help.

Basic steps for performing a conversion using ConverterPro:

1. Specify data source connection information, and select source data to be included in the conversion specification.
2. Specify data target connection information, and select target data type for the conversion specification.
3. Specify selection criteria, if desired.
4. Map and manipulate data. Define the relationship between source and target data (fields). Customize data by specifying additional processing.
5. Save the conversion specification.
6. Run the conversion.

Note: To apply Data Privacy to your conversion specification, perform it before or after step 4.

Refer to the online help for more information on how to copy, convert, and transform data. Refer to Chapter 4, “ConverterPro Tutorials” to learn how to perform a file or database conversion.

Starting ConverterPro

Start ConverterPro in one of the following ways:

- Launch ConverterPro like any other application based on your operating system.
- From the Homebase **Tools** menu, select **ConverterPro**.
- From Homebase, click the ConverterPro toolbar icon.

ComparePro

With ComparePro, users can compare information at the database, table, and row level. Users can compare data in XML, flat files using COBOL layouts, ASCII text files, related data in Oracle, Sybase, MS SQL Server, DB2 UDB, and any Database Management System (DBMS) for which a compatible driver is available.

With its easy-to-use wizard, the tedious task of comparing data has become very simple. The comparison report includes rows that have been inserted, deleted, or changed. The comparison report also shows the detailed differences between stored procedures or triggers that are being compared. In addition, users can build specifications that can be grouped together in a group specification. These specifications can be run interactively or in batch mode. All specifications and results can be saved for re-execution or review respectively.

Refer to the ComparePro online help for detailed information on how to compare data. See Chapter 3, “ComparePro Tutorials” to learn how to create and run a ComparePro Specification.

Starting ComparePro

Start ComparePro in any of the following ways:

- Launch ComparePro like any other application based on your operating system.
- From the Homebase **Tools** menu, select **ComparePro**.
- From Homebase, click the **ComparePro** toolbar icon.
- From Homebase, right-click on a source, choose **ComparePro** from the menu, and then choose **Data Compare** for comparing two tables, **Related Compare** for comparing a table and all of its related tables to those in another schema or database, or **Table Structure Compare** for comparing structures between tables or databases.

Related Extract and Related Loader

File-AID/EX helps users create a test relational database from a larger production database by extracting, loading, and transforming related data at the client or server level. Users can extract from and load data into the same database, or can extract from one database and load into a different database. During the same load process, users can also perform data transformations with table and file lookup capability, create and modify expressions, change field data types, and disguise data using the Data Privacy Manager.

Refer to Chapter 5, “Data Privacy Tutorials” to learn how to use the Data Privacy Manager with Related Extract and Related Loader. Refer to the Data Privacy Manager online help for complete details.

Note: When the data is maintained by the database, it is called *referential integrity* (RI). When the data is maintained by the application, it is called *application relationships* (AR) and is defined in the File-AID/EX Application Relationship Editor.

File-AID/EX extracts the selected data from the tables in the database. Then users can specify the criteria for subsetting the parent table. File-AID/EX loads the data into the test database and, if necessary, creates the target tables, indices, and relationships between the tables. Expertise in the database or the relationships between the tables is not necessary since no coding of SQL, scripts, or programs is required. The data is extracted based on relationships maintained by the database or by the application.

Refer to Chapter 2, “Related Extract and Related Loader Tutorials” to learn how to create and run extract and load specifications. Refer to the Related Extract and Related Loader online help for detailed information on how to extract and load data and how to define application relationships and selection criteria.

Starting the Related Extract Wizard

Start the Related Extract Wizard in any of the following ways:

- Launch Related Extract Wizard like any other application based on your operating system.
- From the Homebase **Tools** menu, select **Related Extract**.
- From Homebase, click the **Related Extract Wizard** toolbar icon.
- From Homebase, right-click a source, then choose **Extract** from the menu.


Starting the Selection Criteria Wizard

The Selection Criteria Wizard allows users to create selection criteria or select previously created selection criteria. Users can specify options and conditions for selecting data records or rows for processing. By applying selection criteria to specific records or rows,

users can create a subset of source data with which to work. Once the selection criteria are specified, they can be stored in a repository for reuse.

Note: The Selection Criteria Wizard is only for use with Related Extract. ComparePro, ConverterPro, and Related Loader have alternative methods for specifying selection criteria.

Start the Selection Criteria Wizard in any of the following ways:

- Launch Selection Criteria Wizard like any other application based on your operating system.
- From the Homebase toolbar, click  .
- From the Homebase **Tools** menu, select **Selection Criteria**.
- From the Homebase **Repository View**, select **Selection Criteria** and then, in the right pane, right-click the selection criteria and select **Open**.
- From the **Prune Relationships and Set Selection Criteria** page in the Related Extract Wizard, right-click the appropriate table and make a selection from the submenu.

Starting the Application Relationship Editor

The Application Relationship Editor lets users specify application relationships (AR) between tables, save them to the local repository or the File-AID/EX shared repositories, and then use them at a later time as part of the extract process.

In an application relationship, the *application* preserves the defined relationships between tables when records are added or deleted. Application relationships ensure that key values are consistent. This consistency requires that all references link to existent values, and if a key value changes, all references to it change consistently throughout the database.

Start the Application Relationship Editor in any of the following ways:

- Launch Application Relationship Editor like any other application based on your operating system.
- From the Homebase **Tools** menu, select **Application Relationship Editor**.
- From Homebase, click the **Application Relationship Editor** toolbar icon.

Starting Related Loader

Start Related Loader in any of the following ways:

- Launch Related Loader like any other application based on your operating system.
- From the Homebase **Tools** menu, select **Related Loader**.
- From Homebase, click the **Related Loader** toolbar icon.
- From a command line, use the **rxload** or **batchengine** command.

Data Privacy Manager

The Data Privacy Manager protects data by concealing sensitive information while maintaining data integrity, table relationships, and data format during processing. For example, data in an employee name field can be replaced with recognizable fictitious names or a nonsensical set of characters.

The Data Privacy Manager builds rules to disguise data for a defined collection of fields. It provides a graphical means for applying data encryption to fields for the File-AID/EX supported data connections. With the Data Privacy Manager, users can replace field

values with consistent valid data via key encryption using an encoding key value or via substitution with meaningful readable data.

The Data Privacy Manager is invoked from within other File-AID/EX components including Related Extract, Related Loader, and ConverterPro. The originating application passes field or extract data files to the Data Privacy Manager, which performs encryption or decryption. When finished, the Data Privacy Manager exits and the encryption or decryption rules are returned to the calling application. The calling application inserts the encryption or decryption rules into its specification.

Note: The Data Privacy Manager is not a standalone application. It can only be accessed from within Related Extract, Related Loader, and ConverterPro.

The Data Privacy Manager allows users to save fields, extract templates, and data privacy project templates. A project template is composed of both field or extract data privacy information. Data Privacy templates contain all of the information needed to exist within a repository so they can be reused in other data privacy requests.

Start the Data Privacy Manager in Related Extract

1. From the **Prune Relationships and Set Selection Criteria** window, click **Discover All Now** to enable the **Data Privacy** button.
2. Click **Data Privacy** to start the Data Privacy Manager.

Note: Refer to “Starting the Data Privacy Manager” on page 79 for instructions on how to start the Data Privacy Manager in Related Extract. Refer to the rest of the tutorials in that chapter for instructions on using the Data Privacy Manager. Refer to the Data Privacy Manager online help for complete details.

Start the Data Privacy Manager in Related Loader

1. Create a new load specification to enable the **Data Privacy** button.
2. Click **Data Privacy** to start the Data Privacy Manager.

Note: Refer to “Starting the Data Privacy Manager” on page 79 for instructions on how to start the Data Privacy Manager in Related Loader. Refer to the rest of the tutorials in that chapter for information on how to use the Data Privacy Manager. Refer to the Data Privacy Manager online help for complete details.

Start the Data Privacy Manager in ConverterPro

1. Navigate to the **Mapping Editor** tab to enable the **Data Privacy** button.
2. Click **Data Privacy** to start the Data Privacy Manager.

Note: Refer to “Tutorial 1: Apply Field Encryption Using the Data Privacy Manager” on page 81 for instructions on how to use the Data Privacy Manager in ConverterPro. Refer to the Data Privacy Manager online help for complete details.

Local Repository and File-AID/EX Shared Repositories

The repositories are storage areas for all types of objects that are created and saved when running one of the File-AID/EX tools. The types of objects stored in the repository are

specifications, logs, sets, results, connection templates, application relationships, and selection criteria. The following list defines these object types:

Specifications	The file that defines the connection information, data source, data target, conditions and options selected during processing. Types of specifications include ComparePro, ConverterPro, Related Extract, and Related Loader.
Logs	A report detailing status messages during a specific process.
Sets	A group of ComparePro or ConverterPro specifications that are run as a group.
Results	The differences between the base and test source that result from running a ComparePro Specification.
Connection Template	Defines the parameters required for connecting to data. These parameters include the user ID, password, host/server name, and port number.
Application Relationship	The defined relationships between tables (when records are entered or deleted) that are preserved by the application.
Selection Criteria	The file specifying the options and conditions for selecting data records or rows for processing.

Note: Application relationships from a File-AID/EX release prior to 2.8 appear in the local repository using the naming convention: <schema>.<driving table> AR Set.

For detailed information, refer to the individual component's online help.

There are two types of repositories:

- Local repository
- File-AID/EX shared repositories

Local Repository

The Local Repository is automatically created on the machine as the default repository. Refer to the online help to change the default repository. From the local repository users can retrieve, make changes to, and run objects created on their machines. Other users cannot access objects on another user's local repository unless they add a reference on their machine to that local repository.

Note: For production environments, Compuware recommends that users set up a shared repository in an industry-standard RDMS rather than using the local repository created when File-AID/EX is installed. The local repository is not managed or backed up, and is meant only to provide a starting point for small testing scenarios, not production environments.

File-AID/EX Shared Repositories

File-AID/EX shared repositories are located on another client machine or server that is shared by other users. From the File-AID/EX shared repositories, users can access and change objects created by other users, but users must give them new names to save the changes and run the objects.

The File-AID/EX shared repositories folder automatically appears the first time users run File-AID/EX. Under this folder, users can manually add and remove references to specific shared repositories. To add a reference, the shared repository must first be created as a

DB2 UDB, Oracle, Sybase or Microsoft SQL Server database by the database administrator (DBA).

Importing Folders and Objects in the Repositories

Users can import objects into the local repository or the File-AID/EX shared repositories. Objects can be opened, executed, or deleted, and some objects can be saved as XML files.

Importing Objects into a Repository

1. Save the repository specification as an XML file.
2. In the **Repository View**, navigate to the folder that contains the objects to be manipulated.
3. Right-click the folder. The folder chosen determines the choices in the menu.
4. Select **Import XML**.
5. Select the file to be imported, type the name in the repository folder under which to store it, and click **OK**. The file then appears in the appropriate repository folder.

Objects

To access and manipulate objects in the local repository or the File-AID/EX shared repositories:

1. Navigate to the object type (specification, conversion, selection criteria, application relationship, or log) in one of the following ways:
 - a. Click one of the buttons, and the object types appear in the **Content List**.
 - b. Navigate within the **Repository View** to the local repository or the File-AID/EX shared repositories and click the plus (+) sign. The object types appear in the **Repository View**, or in the **Content List**.
2. Click on the object type in the **Repository View**, or double-click on the object type in the **Content List**. The specific objects appear in the **Content List**.
3. Right-click the object.

The following is a description of the items on the menus. Select one of the following:

– **Open**

Depending on the object selected (a specification or log and type of specification), the appropriate tool appears. For example: If Application Relationship is selected, the Application Relationship Editor appears.

When opening or executing a Related Extract or Related Loader specification that was saved without the user ID and password, the **Enter Connection Userid and Password** dialog box appears. Refer to the “Extracting Data” or “Loading Data” topics in the File-AID/EX online help for information.

Note: When opening a Related Extract specification, a message box appears asking whether to validate table definitions. Refer to the Extracting Data topics in the File-AID/EX online help for information.

– **Execute**

The ConverterPro, ComparePro, Related Extract, or Related Loader process begins.

Users can view extract, load, or conversion processes currently running by clicking **Tools>ViewActive Processes** from the Homebase window. The **View Active Processes** window appears. Select the process to view and click **Open**.

– **Save As XML**

An export dialog box appears. Use this dialog box to select the location and the text file to which to export the selection criteria or extract specification. Click **Save**. Focus returns to the File-AID/EX user interface.

– **Print**

The File-AID/EX Process Log window and the Print window appear. Click **OK**. The process log is printed, and focus returns to the File-AID/EX window.

Note: Users can only print logs for ConverterPro, Related Extract, and Related Loader specifications.

– **Process Logs**

The log for the conversion, extract specification, or Related Loader specification appears. This log details the following statistics about the specific process:

- Date and time of the process
- The name of the tables or files being extracted, loaded, or converted
- The types of relationships
- The number of records or rows being extracted, loaded, or converted
- Any error messages

Users can print or delete this log.

– **Delete**

A message appears asking for confirmation to delete the object. Click **Yes** or **No**.

Note: If a deleted object was applied as part of another object, the primary object will no longer apply the deleted object. For example: If selection criteria used in an extract specification is deleted, the extract specification no longer applies the selection criteria.

– **Import**

The **Open** window appears where users can select the xml file to import.

– **Change Password**

A window appears that lets users change your local repository password. First type your old password, then your new password, and then your new password a second time for confirmation. Click **OK** or **Cancel**.

– **Properties**

The **Properties** window for the object appears.

Entering Connection UserID and Password

The **Enter Connection UserID and Password** dialog box appears when users open a Related Extract or Related Loader specification stored in a repository that has been saved without connection parameters. This feature requires that a user know the user ID and password before being able to access a specification that has been saved without the user ID and password.

Tutorials

The tutorials in the following chapters guide users through the different processes involved in using Related Extract, Related Loader, ComparePro, ConverterPro, and the Data Privacy Manager. They also highlight the various features for these components.

To use the tutorials, users must first install File-AID/EX with the component they want to use. Refer to the *File-AID/EX Installation Guide* for detailed installation instructions.

Note: Users must complete the Related Loader Tutorial 1 before they can perform any of the other tutorials because it creates the tables for the tutorial database.

Chapter 2.

Related Extract and Related Loader Tutorials

The tutorials in this chapter help users get started using Related Extract and Related Loader. To learn more about how to use Related Extract and Related Loader, refer to the online help.

Tutorial 1: Load Data from Samples Folder

Tutorial 1 teaches how to load the data from extract data (XML) files in the Samples folder.

Note: The resulting data from Part 1 and Part 2 of this tutorial creates the tutorial database that will be used to perform the rest of the tutorials in this guide. Therefore, both Part 1 and Part 2 of this tutorial must be completed successfully before the tutorial database is available for the rest of the tutorials. Although the steps for each part is similar, they load two different source extract data files, both of which are required for later tutorials.

After completing this tutorial, users will be able to do the following:

- Start Related Loader.
- Create a Related Loader specification.
- Select the source for a new load specification.
- Create a Related Loader target database connector.
- Review the Load Specification notebook tabs.
- Run a load.
- Save the Related Loader specification.

Refer to the Related Loader online help for detailed information about using Related Loader.

Database Description

First Load File

Target Database Name: fileaidex_tutorial

Load File and Location:

`<install directory>:\Program Files\Compuware\File-AID_EX\Samples\tutorialExtract_1\META\XML`

Schema Name: dbo.category

Driving Table Name: category

Table Names: customer, shipper, orders, category, item, ordereditem, authors, supplier, employee

Second Load File

Target Database Name: fileaidex_tutorial

Load File and Location:

<install directory>:\Program Files\Compuware\File-AID_EX\Samples\tutorialExtract_2\META\XML

Schema Name: guest.authors

Driving Table Name: authors

Table Names: category, item, customer, shipper, orders, ordereditem, authors

Create the Target Database

Create a target database called fileaidex_tutorial. This database must be created before the information in this tutorial can be used and saved. The sample tutorials in this chapter were completed using Microsoft SQL Server, however any of the File-AID/EX-supported databases can be used. Refer to the Release Notes for a list of supported databases.

Select the Source for a New Load Specification - Part 1

1. Launch Related Loader like any other application based on your operating system. The Related Loader wizard launches.
2. From the **File** menu, select **New** or click **New** on the toolbar. The **Create New Load Specification** dialog box appears.
3. From the **Load Input Specification Type** list, select **Extract Data File**.
4. From the **Path and File Name** field, click **Browse**. The **Select Extract File** dialog box appears.
5. Navigate to <install directory>\Samples\tutorialExtract_1\META.
6. Double-click the XML file. The **Create New Load Specification** dialog box reappears with the path and file name populated.
7. Click **OK**. The **Connect to Target Database** dialog box appears.
8. In the **Connectors** list, select <new>.
9. From the **Connector Type** list, select the connector type that corresponds to the database used to create the target database above. The dialog box repopulates to display fields appropriate to the connector type selected.

This tutorial uses MS SQL/JDBC. If another database type is chosen, the fields may vary.
10. In the **Connector Name** field, enter a name for the connector.
11. In the **Server** field, enter the machine name of the machine being used.

Note: The machine name can be found in the Repository View of the **File-AID/EX Homebase** window.

12. In the **Database Name** field, enter *fileaidex_tutorial*.
13. In the **Port Number** field, enter 1433.
14. In the **User ID** field, enter the database user ID.
15. In the **Password** field, enter the database password.
16. Click **Connect** to verify the database connection. A connection failed message appears if the connection information is incorrect; otherwise the connection was successful. Contact the system administrator if assistance is needed.
17. To save this connector for future use, click **Save As Template**.

Note: This connection template is used in future tutorials.

18. Click **Finish**. The **Generate Constraint Names** dialog box appears.
19. Click **Yes**, which will result in the following:
 - Unique constraint names are generated when the load is run if any target tables do not exist.
 - Primary keys begin with a K, followed by the name of the source table, and end with a number.
 - Foreign keys begin with an F, followed by the name of the source table, and end with a number.
 - Indexes begin with an I, followed by the name of the source table, and end with a number.

The **Load Specification** notebook appears showing the source and target tables.

Note: Clicking **No** would result in the following:

- The same constraint names are generated for unique keys, foreign keys, and indices when the load is run if any target tables do not exist.
- An error appears after the load is completed, indicating that the constraint names are the same.

Specify the Tables, Column Mapping, and Load Method

There are four tabs along the right side of the **Load Specification** notebook. The **Table** tab appears first. The **Table** tab is a graphical display of the source tables and the target tables into which data is loaded from the XML file. Here, initially, the source and target table are the same name.

1. Select the **dbo.customer** source table.
2. Right-click and select **Change Target Creators**. The **Change Target Creators** dialog box appears.

Note: Right-clicking anywhere on a notebook page applies the selected action to the currently selected table.

3. From the **Change Creator for Table** list, select **guest**.
4. Select the **Apply to All Tables** check box and click **OK**.

The high-level qualifying target table names on the **Table** tab are changed to *guest*.

To view additional information and options, select the **Column Mapping**, **Auto Create**, and **Options** tabs.

- The **Column Mapping** tab lists source table columns and their related target table columns, and displays lookups specified on target columns. It displays one source and target table combination at a time. To see the other tables, select the table tabs at the bottom of the page.
 - The **Auto Create** tab displays the specifications used to create the new table.
 - The **Options** tab displays the input file name, load methods, and options available. The fields displayed vary depending on the database and load method used.
5. Click **Run Load** to load the source tables into the target table. The **SQL Insert Status** window appears.

Run the Load

The **SQL Insert Status** window lets the user review the specification and verify its accuracy.

1. After reviewing the table names, click **Load**. An informational message appears when the load is complete.
2. Click **OK**.
3. Click **Close** to exit the **SQL Insert Status** window.
4. Click **Yes** on the message that appears asking whether to save the SQL Insert Report. The **Save report as** dialog box appears.
5. In the **File name** field, type **Tutorial_1a_Load_Report** and click **Save**.

Save the Related Loader Specification

1. From the **File** menu, select **Save**. The **Save Load Specification** dialog box appears.
2. In the **Name** field, type **Tutorial_1a_Load**.
3. Optionally, in the **Description** field, type a description.
4. Select the **Save with Connection Userid/Password** check box.
5. From the **Target Repository** list, select **Local Repository**.
6. Click **OK**. The **Load Specification** notebook window appears and the name of the specification appears in the title bar.
7. From the **File** menu, select **Close** to close the load specification without closing Related Loader.

Select the Source for a New Load Specification - Part 2

Although the steps in this part of the tutorial appear to be similar to the ones performed in Part 1, it will load a second extract data file needed for future tutorials.

1. If Related Loader is not already started, launch it like any other application based on your operating system.
2. From the **File** menu, select **New** or click **New** on the toolbar. The **Create New Load Specification** dialog box appears.
3. From the **Load Input Specification Type** list, select **Extract Data File**.
4. From the **Path and File Name** field, click **Browse**. The **Select Extract File** dialog box appears.
5. Navigate to `<install directory>\Samples\tutorialExtract_2\META`.
6. Double-click the XML file. The **Create New Load Specification** dialog box reappears with the path and file name populated.
7. Click **OK**. The **Connect to Target Database** dialog box appears.
8. In the **Connectors** list, select the previously saved connector (in the example, it is `SQL_Connector`). The dialog box redisplays with the fields prepopulated.
9. Click **Connect** to verify your database connection. If the connection is valid, the **Finish** button is enabled.
10. Click **Finish**. The **Generate Constraint Names** dialog box appears.
11. Click **Yes**. The **Load Specification** notebook appears showing the source and target tables.

Specify the Tables, Column Mapping, and Load Method

The **Table** tab is a graphical display of your source tables and the target tables into which data is loaded from the XML file.

In Tutorial 1 Part 1, initially, the source and target tables were the same name. In Tutorial 1 Part 2, the source and target tables have different names. One reason for naming the tables this way is so that the tutorial user will have something to compare when using the ComparePro tutorials.

1. Optionally, view information on the other tabs by selecting them as done in Part 1.
2. Click **Run Load** to load the source tables into the target tables. The **SQL Insert Status** window appears.

Run the Load

The **SQL Insert Status** window lets the user review the specification and verify its accuracy.

1. Click **Load** to begin the load. An informational message appears when the load is complete.
2. Click **OK**.
3. Click **Close** to exit the **SQL Insert Status** window.
4. Click **Yes** on the message that appears asking whether to save the SQL Insert Report. The **Save report as** dialog box appears.
5. In the **File name** field, type `Tutorial_1b_Load_Report` and click **Save**.

Save the Related Loader Specification

1. From the **File** menu, select **Save**. The **Save Load Specification** dialog box appears.
2. In the **Name** field, type **Tutorial_1b_Load**.
3. Optionally, in the **Description** field, type a description.
4. Select the **Save with Connection Userid/Password** check box.
5. From the **Target Repository** list, select **Local Repository**.
6. Click **OK**. The **Load Specification** notebook window appears and the name of the specification appears in the title bar.
7. From the **File** menu, select **Exit** to exit Related Loader.

Tutorial 1 is now complete.

Tutorial 2: Extract Data from a Production System

This tutorial teaches how to extract related subsets of data from tables in the database that were created in Tutorial 1.

Note: The resulting data in this tutorial is required to complete “Tutorial 3: Load Data from Extract in Tutorial 2” and can also be used in the “Data Privacy Tutorials”.

After completing this tutorial, users will be able to do the following:

- Start Related Extract.
- Create an extract specification.
- Select a driving table.
- Use a preexisting database connector.
- Select a schema.
- Select a relationship discovery option.
- Prune relationships.
- Create and save selection criteria using the Selection Criteria wizard.
- Save an extract specification.
- Run an extract specification.
- View the Extract Results Report.

Database Description

The sample database contains several tables. This tutorial extracts the information from the category, orders, and ordereditem tables.

Database Name: fileaidex_tutorial

Schema Name: dbo.category

Driving Table Name: category

Table Names: item orders, ordereditem

Select the Driving Table

The driving table is the table from which the extraction process begins.

1. Launch Related Extract like any other application based on your operating system. The Related Extract wizard launches.
2. From the **Specify the Extract Criteria** list, select <new> to create *new* extract criteria.
3. From the **Source Repository** list, select <Local Repository>.
4. Click **Next**. The **Select Driving Table and Relationship Options** dialog box appears.
5. Click **Browse** to begin the process of selecting the driving table. The **Connect to Source Database** dialog box appears.
6. From the **Connectors** list, select the Tutorial 1 connector. The dialog box populates with information about that connector.

Note: This tutorial uses MS SQL/JDBC. Some of the fields may be different based on the database type chosen.

7. Click **Connect** to verify your database connection.
8. Click **Next**. The **Choose Driving Table** dialog box appears.
9. From the **Schemas** box, select **dbo**. A list of tables in the dbo schema appears in the **Tables** box.

10. From the **Tables** box, select **category**. *dbo.category* appears in the **Driving Table** field.
11. Click **Finish**. The **Select Driving Table and Relationship Options** dialog box reappears with *dbo.category* in the **Driving Table** field.
12. From the **Relationship Discovery Options** list, select **Use referential integrity and application relationships**.

Note: The relationship discovery option determines how relationships between tables are discovered during an extract. Using application relationships (AR), the *application* preserves the defined relationships between tables when records are added or deleted. Using referential integrity (RI), the *database* preserves the defined relationships between tables when records are added or deleted.

13. Click **Next**. The **Prune relationships and Set Selection Criteria (Graphical View)** dialog box appears.

Create the Extract Specification

Pruning allows users to choose which table relationships to exclude from the extract, while selection criteria allows users to filter record selection so only records that meet certain criteria are included in the results.

1. Click **Discover All Now** to display all related table information. A message appears stating that discovering all related tables may be a lengthy process and asking whether to continue.
2. Click **Yes** to continue. The driving table (*dbo.category*), related tables, and the ARs or RIs appear in the graphical view.

Note: Three options exist for viewing the extract specification: graphical, table list, and relationship list. Each view provides options not available in the other views. The view can be changed by selecting from the radio buttons in the **Views** box.



3. To prune the shipper information, right-click the solid black line between **dbo.shipper** and **dbo.orders** and select **Exclude**. A red "X" appears on the line and the **dbo.shipper** table dims.
4. To prune customer information, right-click the solid black line between **dbo.customer** and **dbo.orders** and select **Exclude**. A red "X" appears on the line and the **dbo.customer** table dims.

Create Selection Criteria




This tutorial will create selection criteria that extracts only the orders with a minimum quantity of 100 items costing \$1.00 or more.

1. Right-click **dbo.orderitem** and select **Selection Criteria > New**. The Selection Criteria Wizard's **General Page** appears.
2. In the **Name** field, enter **Tutorial2_Criteria** as the name for the selection criteria being created.
3. Optionally, in the **Description** field, enter a description for the selection criteria being created.
4. Click **Next**. The **Condition Page** appears. The **Condition Page** allows users to build conditions for selecting records. Conditions consist of a field, logical operators, and values.
5. Click **All of these conditions must be true**, which is the default (AND) condition.

Note: One or more of these conditions must be true is the OR condition.

6. To limit the data to orders with a quantity of 100 or more, do the following:
 - Click <select field> and select **Quantity** from the list of fields available for the selected table. The field name appears on the **Condition** page.
 - Click <condition> and select **Greater than or equal to**. The operator is added to the **Condition** page.
 - Select the condition. <enter values> appears.
 - Click <enter values>.  appears.
 - Click . The **Number** dialog box appears.
 - In the **Enter value** field, type **100** and click **OK**. A SQL statement is generated and is added to the SQL box at the bottom of the wizard page.

Note: The SQL statement cannot be edited.

7. To limit the data to items costing \$1.00 or more, do the following:
 - Select the condition already created and click  to begin adding another condition. A new condition line appears.
 - Click <select field> and select **UnitPrice** from the list of fields available for the selected table. The field name appears on the **Condition** page.
 - Click <condition> and select **Greater than or equal to**. The operator is added to the **Condition** page.
 - Select the condition. <enter values> appears.
 - Click <enter values>.  appears.
 - Click . The **Number** dialog box appears.
 - In the **Enter value** field, type **1.00** and click **OK**. A SQL statement is generated and is added to the SQL box at the bottom of the wizard page.
8. Click **Next**. The **Options Page** appears. This page is used to specify the options for selecting records or rows from the entire source file or table: where to begin, how to continue, and when to stop.
9. In the **Starting record (row)** box, select **First** to begin processing with the first record in the table or file.

Note: Selecting **Record number** and entering a record number begins processing at a specific record in the table or file. This option is only applicable to non-keyed files or tables.


10. In the **From the specified starting record (row)** box, choose **Select every record (row)** to indicate the interval in which records should continue to be selected:

Note: Selecting **Select every <value>** selects records at regular intervals, such as every 10th record. Selecting **Select every <value> and skip every <value>** selects records at regular intervals but skip others (for example, entering 2 and 12 selects two records and then skips 12 records).

11. Clear the **Limit number of records to search** check box to indicate a search of all records.

Note: When searching large files, limiting the search can help prevent excessive I/O processing.

12. Clear the **Limit number of records to select** check box to indicate that all records should be selected.

Note: When searching large files, limiting the selection can help prevent excessive I/O processing.
13. Click **Finish** to validate the information entered in the Selection Criteria Wizard and save it to the repository. The Save to Repository dialog box appears.
14. From the **Repository** list, select Local Repository and click **OK**. The **Prune relationships and Set Selection Criteria** dialog box appears.  appears on the dbo.ordereditem table, indicating selection criteria was applied to this table.

A message box may appear stating the following:

CAUTION:
You have specified selection criteria for this table. This may result in some unresolved RI or AR relationships. You can change the result of the extract to include these otherwise excluded rows by checking the SATISFY RI/AR option when you right-mouse click on the table you applied selection criteria to.

Note: Selecting the **Satisfy RI/AR** check box removes the selection criteria specified.
15. Click **Next**. The **Save Related Extract Specification** dialog box appears.

Save and Run the Extract Specification

1. In the **Extract Name** field, type **Tutorial2_Extract**.
2. Optionally, in the **Description** field, type a description.
3. Select **Save and execute**.
4. Select **Save with Userid/Password**.
5. Click **Next**. The **Extract Specification Summary** dialog box appears listing the parameters selected for this extract, including the name of extract, database connection, user, driving table, AR, and RI.
6. Review these parameters to ensure they are correct, and click **Run**. The **Extract Runtime Status Report** dialog box appears. The report shows the number of rows extracted from which tables, the number of related rows extracted, and the parent and dependent tables.
7. Review the process log.
8. Click **Exit**.

Note: This extract specification and its results are required to complete Tutorial 3.

Tutorial 2 is now complete.

Tutorial 3: Load Data from Extract in Tutorial 2

This tutorial teaches how to load the data that was extracted in Tutorial 2.

Note: The resulting data from this tutorial can also be used for the Data Privacy tutorials. Refer to “Data Privacy Tutorials” on page 79.

Database Description

Target Database Name: fileaidex_tutorial

Schema Name: guest.category

Driving Table Name: category

Table Names: item, orders, ordereditem

After completing this tutorial, users will be able to do the following:

- Start Related Loader.
- Select the source for a new load specification.
- Use a saved Related Loader target connector.
- Run a load.
- Save the Related Loader specification.

Select the Source for a New Load Specification

1. Launch Related Loader like any other application based on your operating system. Related Loader launches.
2. From the **File** menu, select **New** or click **New** on the toolbar. The **Create New Load Specification** dialog box appears.
3. In the **Load Input Specification Type** list, select **Repository Extract**.
4. In the **Repository Extract** list, select **Tutorial2_Extract**.
5. In the **Source Repository** list, select **Local Repository**.
6. Click **OK**. The **Connect to Target Database** dialog box appears.
7. In the **Connectors** list, select the Tutorial 1 connector.

Note: The fields in this dialog box vary depending on the type of connector selected. In this tutorial, Microsoft SQL Server was used. If a different database is chosen, there may be some differences on some of the following screens. However, the process is the same.

8. Click **Connect** to verify your database connection.
9. Click **Finish**. The **Generate Constraint Names** dialog box appears.

Note: If an error message appears, make corrections and click **Connect** again.

10. Click **Yes** to generate unique names in the index and constraint DDL for non-existent tables. The **Load Specification Notebook** appears showing the source and target tables.

Specify the Tables, Column Mapping, and Load Method

Note: Refer to the Related Loader online help for detailed information about the Load Specification Notebook tabs.

The target tables use the current userid as the creator and the input file table name for the table name.

1. Select the **dbo.orders** source table.
2. Right-click and select **Change Target Creators**. The **Change Target Creators** dialog box appears.
3. From the list, select **guest** to change the creator from **dbo** to **guest**.
4. Select the **Apply to All Tables** check box and click **OK**. The target table names on the Table page update accordingly.
5. Select the **guest.orders** table. The table name becomes editable. Add **_new** to the end of the table name. Repeat this step for each of the target table names.

Note: Additional information and options are available on the Column Mapping, Auto Create, and Options pages. No changes should be made on these pages for this tutorial.

6. Click **Run Load** to load the source tables into the target tables. The **SQL Insert Status** window appears.

Run the Load

The **SQL Insert Status** window lets users review the specification and verify its accuracy.

1. After reviewing the information, click **Load** to begin the load. A message indicates when the load has completed.
2. Click **OK**.

Note: Refer to the Related Loader online help for detailed information about the columns on this page.

3. Click **Close** to exit the **SQL Insert Status** window. A message appears asking whether to save the SQL Insert Report.
4. Click **Yes**. The **Save report as** dialog box appears.
5. In the **File name** box, type **Tutorial3_Load_Report** and click **Save**.

Save the Related Loader Specification

1. From the **File** menu, select **Save**. The **Save Load Specification** dialog box appears.
2. In the **Name** field, type **Tutorial3_Load**.
3. In the **Description** field, type **quantity 100 or more, cost per item \$1.00 or more**.
4. Select **Save with Connection Userid/Password**.
5. In the **Target Repository** list, select **Local Repository**.
6. Click **OK**. The load specification is saved to the repository and the **Load Specification Notebook** window appears with the name of the specification in the title bar.
7. From the **File** menu, select **Exit** to exit Related Loader.

Tutorial 3 is now complete.

Chapter 3.

ComparePro Tutorials

The tutorials in this chapter help users get started using ComparePro. To learn more about how to use ComparePro, refer to the online help.

Tutorial 1: Data Compare

This tutorial teaches how to compare data in one database table to data in another database table.

After completing this tutorial, users will be able to do the following:

- Choose a comparison type.
- Connect to a data source.
- Specify data tables.
- Define baseline and test field pairings.
- Specify selection criteria.
- Select field sort order.
- Specify processing options.
- Save and run a comparison
- View comparison results.

Note: The tutorials in this guide use Microsoft SQL Server as the database. If a different data base was chosen when creating the tutorial database in Chapter 2, the screens will be somewhat different. However, the steps to follow are the same.

Select the Type of Comparison

1. Launch ComparePro like any other application based on your operating system. The **Welcome to File-AID/EX ComparePro** dialog box appears.
2. Click **Create a new Comparison**. The **New ComparePro Specification** dialog box appears listing all of the available comparison types.
3. Click **Data Compare** then select **Basic Data Compare**, which compares formatted data between various data sources. The **Data Connection Wizard - Adding Baseline** dialog box appears.

Connect to the Baseline Data Source

This procedure describes how to create a new connection template using the File-AID/EX Tutorial database. Users can then use the resulting connection template for all of the ComparePro tutorials.




1. From the **Connector Name** list, select **connector templates**. The **Open Connection Template** dialog box appears.
2. Select the template created in the first tutorial in the Related Extract and Related Loader chapter, then click **OK**. The **Data Connection Wizard - Adding Baseline** dialog box appears with the connector information prefilled.



Note: If experiencing difficulty logging on to the database server, contact the database administrator.

3. Click **Connect**. A connection validation confirmation message appears.
4. Click **OK**.
5. Click **Next**. The **Table/View Selection** panel appears.

Specify the Baseline Tables

1. Double-click **dbo.authors** to move this table to the **Selected Record Layouts** column. Click **Finish**. The Baseline tab in ComparePro displays an overview of the Baseline connection.

The **Baseline Connections** pane displays database connection information. Connection information can be edited by clicking , which launches the Data Connection Wizard. Connections can be added or deleted using this pane's Add () and Delete () buttons.

The **Tables/Views** pane lists each table or view included in this comparison. Browse a sample of the table contents by right-clicking a table in the **Tables/Views** pane and selecting **Browse Data**. Tables can be added or deleted using this pane's  and  buttons.

2. Click **Next** to define the test data source. The **Data Connection Wizard - Adding Test** dialog box appears.




Connect to the Test Data Source



For this tutorial, the test tables reside in the same database as the baseline tables.

1. From the **Connector Name** list, select **connector templates**. The **Open Connection Template** dialog box appears.
1. Select the template used earlier, then click **OK**. The **Data Connection Wizard - Adding Test** dialog box appears with the connector information prefilled.
2. Click **Connect**. A connection validation confirmation message appears.
3. Click **OK**.
4. Click **Next**. The **Table/View Selection** panel appears.

Specify the Test Tables

1. Double-click **guest.authors** in the **Available Record Layouts** pane to move this table to the **Selected Record Layouts** pane.
2. Click **Finish**. The **Test** tab in ComparePro displays an overview of the test connection.


The **Test Connections** pane displays database connection information. Connection information can be edited by clicking , which launches the Data Connection Wizard. Connections can be added or deleted using this pane's  and  buttons.

The **Tables/Views** pane lists each table or view included in this comparison. Browse a sample of the table contents by right-clicking a table in the **Tables/Views** pane and selecting **Browse Data**. Users can add or delete tables using this pane's  and  buttons.


3. Click **Next** to define baseline to test pairing information. The ComparePro **Pairings** tab appears.

Define Baseline and Test Field Pairings


The upper portion of the **Pairings** tab lists each pair of data sources being compared. The lower portion of this tab contains subtabs on which advanced options can be set, such as field pairing, selection criteria, sort order, and processing options.

1. Select the **Field Pairing** tab. An overview of the baseline-to-test field pairings appears.
2. Click . The **Field Pairing** dialog box appears. This dialog box is used to select the fields being compared and to match baseline fields to test fields.
3. Click the **Field Pairing** tab.
4. From the **Automap** list, select **By Field Name Match**.
5. Click **OK**. Baseline fields and test fields with similar names are paired together.

Specify Selection Criteria

1. Select the **Selection Criteria** tab.
2. Click . The **Selection Criteria** dialog box appears. This dialog box is used to create record filters that reduce the amount of data being compared. Do not specify any selection criteria for this tutorial.
3. Click **OK**.

Select Field Sort Order

1. Click the **Sort Order** tab.
2. Click . The **Field Sort Order** dialog box appears. This dialog box has two tabs (**Baseline** and **Test**) that allow users to specify the sort order for baseline fields and test fields. By default, tables are sorted in ascending order by primary key. Do not change the sort order for this tutorial.
3. Select the **Test** tab to view the sort order for the test fields.
4. Click **OK**.

Specify Processing Options

1. Click the **Processing options** tab. These options allow users to specify which items to include or ignore in the compare.
2. Make changes to the processing options as desired.



Save and Run the Comparison

1. From the **File** menu, select **Save** to save your compare specification. The **Save Compare Specification As** dialog box appears.
2. In the **Name** field, type a name for the specification.
3. In the **Description** field, type a description for the specification.
4. Select **Save with Userid/Password** and click **OK**. The compare specification is saved to the repository.
5. Click **Run**. The **Execution Status Viewer** dialog box appears with the **Summary** tab displayed. This tab displays the specification name, the number of baseline and test records processed, and the overall execution status.
6. Select the **Details** tab. This tab displays detailed information about the specification and any messages returned from the File-AID/EX Execution Server.

View the Results

1. Click **View Results**. The ComparePro **Results** view appears and shows the results for this specification.

If this specification was run multiple times, each set of results would appear in the results list (left pane). The upper portion of the right pane displays high-level statistics of the comparison. The lower pane displays connection information (on the **Pairings** tab) and the fields where differences in this comparison occurred (on the **Field Statistics** tab).

2. Click **Detailed Results** (in the upper right corner of the lower right pane). The **Detailed Results Viewer** appears. This window lists each difference found between the baseline data and the test data. Select a row in the table to view the data values.
3. Click  to close the **Detailed Results Viewer**.
4. Click the **Pairing Info** tab. The baseline and test connection information appears.
5. Click **View Detail**. The **View Detail Pair Information** appears. This report lists baseline and test connection information, selection criteria, sort order, data processing options, and field pairings for the specification.
6. Click  to close the **View Detail Pair Information**.
7. Click the **Field Statistics** tab. The bar graph displays the percentage of differences found for each field. Click any bar in the graph to reveal detailed information for the selected field. Bars only appear for fields with differences.
8. From the **File** menu, select **Close**.

Tutorial 1 is now complete.

Tutorial 2: Related Data Compare

This tutorial teaches how to compare data in related sets of tables.

After completing this tutorial, users will be able to do the following:

- Select a type of comparison.
- Connect to a data source.
- Define driving table relationships.
- Define baseline and test field pairings.
- Specify selection criteria.
- Select field sort order.
- Specify processing options.
- Save and run a comparison.
- View comparison results.
- Save and print results.

Select the Type of Comparison

1. Launch ComparePro like any other application based on your operating system. The **Welcome to File-AID/EX ComparePro** dialog box appears.
2. Click **Create a new Comparison**. The **New ComparePro Specification** dialog box appears.
3. Click **Data Compare** then select **Related Data Compare**, which compares data from multiple tables related by referential integrity or application relationship. The **Related Data Connection Wizard** appears.

Connect to the Baseline Data Source

In this tutorial, Microsoft SQL Server was used. If a different database type is chosen, some of the following sample dialog boxes will be slightly different. However, the steps to follow are the same.

1. From the **Connector Name** list, select **connector templates**. The **Open Connection Template** dialog box appears.
2. Select the connection template created and saved earlier and click **OK**. The **Related Data Connection Wizard** appears with the connector information prefilled.
3. Click **Connect**. A connection validation confirmation message appears.
4. Click **OK**.
5. Click **Next**. The **Driving Table Selection** page appears.

Define Baseline Driving Table Relationships

Use this page to select the parent table for the related data compare.

1. Select **dbo.orderitem** as the driving table and click **Next**. The **Define Relationship Source** page appears.
2. Select the **Referential Integrity** check box to direct ComparePro to define this type of relationship with the driving table, then click **Next**. The **Table List View** of the **Related Data Connection Wizard** appears showing the relationships for the driving table.

Note: Relationships can be defined using referential integrity (RI), application relationships (AR), or a combination of both.

3. Click **Graphical View**. The table relationships are displayed in a graphical format.

4. Click **Relationship List View**. A list of all parent tables, their dependent tables, access status, and constraint names appears.

Note: Within any of the driving table views, users can view table properties, and include or exclude application relationships, referential integrity, or all relationships.

5. Click **Finish**. The **Baseline** tab of the **Related Data Compare** dialog box shows an overview of the baseline connections and the baseline structures that have been added to the specification.
6. Click **Next**. The **Related Data Connection Wizard** also appears.

Connect to the Test Data Source

1. From the **Connector Name** list, select the connection template that created and saved in Tutorial 1 and click **OK**. The connection information populates.
2. Click **Connect**. A connection validation confirmation message appears.
3. Click **OK**.
4. Click **Next**. The **Define Relationship Test** page appears.
5. Select **Relationship Discovery** as the method for defining the set of tables to use for the test and click **Next**. The **Driving Table Selection** page appears.

Note: Test tables can be defined through either relationship discovery or by using the schema within the baseline tables.

6. Select **guest.ordereditem** as the table to use as the starting point in the relationship definition, then click **Next**. The **Define Relationship Source** page appears.
7. Select the **Referential Integrity** check box to direct ComparePro to use this type of relationship with the driving table, then click **Next**. The **Related Data Connection Wizard** appears showing the relationships for the test table in its **Table List View**.

Note: Relationships can be defined using referential integrity (RI), application relationships (AR), or a combination of both.

8. Click **Graphical View**. The table relationships are displayed in a graphical format.
9. Click **Relationship List View**. A list of all parent tables, their dependent tables, access status, and constraint names appears.


Note: Within any of the test table views, users can view table properties, and include or exclude application relationships, referential integrity, or all relationships.

10. Click **Finish**. The **Test** tab of the **Related Data Compare** dialog box shows an overview of the test connections and the test structures that have been added to the specification.
11. Click **Next**. The **Pairings** tab, which is used to define pairings, appears.


Define Baseline and Test Field Pairings

The upper portion of the **Pairings** tab lists each pair of data sources being compared. The lower portion of this tab contains subtabs on which advanced options can be set, such as field pairing, selection criteria, sort order and processing options.


1. Select **dbo.ordereditem** in the **Compare Pairings** table.
2. Select the **Field Pairing** tab.

3. Click . The **Field Pairing** dialog box appears. The **Baseline Fields** and **Test Fields** tabs are used to select columns to include in the comparison while the **Field Pairing** tab is used to create field pairings.
4. Select the **Field Pairing** tab. The available test fields and an overview of the baseline-to-test field pairings appears.
5. From the **Automap** list, select **By Field Name Match**.
6. Click **OK**. The **Related Data Compare** dialog box appears and the **Field Pairing** tab shows that baseline and test fields with similar names are paired together.

Specify Selection Criteria

1. Select the **Selection Criteria** tab.
2. Click . The **Selection Criteria** dialog box appears. This dialog box is used to create record filters that reduce the amount of data being compared. Do not specify any selection criteria for this tutorial.
3. Click **OK**.

Select Field Sort Order

1. Select the **Sort Order** tab.
2. Click . The **Field Sort Order** dialog box appears. This dialog box has two tabs (**Baseline** and **Test**) that allow users to specify the sort order for baseline fields and test fields. By default, tables are sorted in ascending order by primary key.

Do not change the sort order for this tutorial.
3. Select the **Baseline** tab and notice that the baseline table **dbo.orderedititem** is sorted by the **OrderNo** field. Select the **Test** tab and notice the test table **guest.orderedititem** is also sorted by the **OrderNo** field. Do not change the sort order for this tutorial.
4. Click **OK**.

Specify Processing Options

1. Select the **Processing options** tab. These options allow users to specify which items to include or ignore in the compare.
2. Make changes to the processing options as desired.


Save and Run the Comparison

1. From the **File** menu, select **Save** to save the compare specification. The **Save Compare Specification As** dialog box appears.
2. In the **Name** field, type a name for the specification.
3. In the **Description** field, type a description for the specification.
4. Select the **Save with Userid/Password** check box and click **OK**. The compare specification is saved to the repository and the **Related Data Compare** window appears.
5. Click **Run**. The **Execution Status Viewer** dialog box appears with the **Summary** tab displayed. This tab displays the specification name, the number of baseline and test records processed, and the overall execution status.
6. Select the **Details** tab. This tab displays detailed information about the specification, including the current database and table names, and execution start/stop times.

View the Results

1. Click **View Results**. The ComparePro **Results** view's **High Level Statistics** tab appears showing a summary of the comparison results. The bar graph in the **Result Pairings Summary** pane lists each table or view included in the comparison and the percentage of differences found.
1. In the **Results Pairings Summary** panel, click a line in the bar graph. The **Detailed Statistics** tab appears with the **Compare Statistics** subtab selected in the lower pane.

Note: Clicking any pairing in the upper pane of the **Detailed Statistics** tab results in the lower pane showing graphed statistics for that pairing. Statistics shown include the number of records compared and the number of different records that were inserted, deleted, or updated. 🚩 indicates that differences were found during the comparison.

2. Select the **Pairing Info** subtab. The baseline and test connection information appears.
3. Click **View Detail**. The **View Detail Pair Information** window appears. This report lists baseline and test connection information, selection criteria, sort order, data processing options, and field pairings for the specification.
4. Click  to close the **View Detail Pair Information** window.
5. Click **Detailed Results**. The **Detailed Results Viewer** appears. This window lists each difference found between the baseline and test tables.

The **Detailed Results Viewer** allows users to apply selection criteria and filter the viewed data by inserts, deletes, and updates. Users can drill deeper into the results to view individual character differences, as well as hide/show columns.

6. Close the **Detailed Results Viewer**.

Tutorial 2 is now complete.

Tutorial 3: Schema Compare

This tutorial teaches how to compare the tables and indexes in a new schema with the tables and indexes in an old schema.

The primary tasks include the following:

- Specify the type of compare.
- Connect to a baseline data source.
- Specify a baseline schema.
- Connect to a test data source.
- Specify a test schema.
- Specify processing options and selection criteria.
- Save and run a comparison.
- View the results.

Select the Type of Comparison

1. Launch ComparePro like any other application based on your operating system. The **Welcome to File-AID/EX ComparePro** dialog box appears.
2. Click **Create a new Comparison**. The **New ComparePro Specification** dialog box appears.
3. Select **Schema Compare** and select **General Schema Compare**. The **Schema Connection Wizard** appears.

Connect to the Baseline Data Source

1. From the **Connector Name** list, select **connector templates**. The **Open Connection Template** dialog box appears.
2. Select the connection template that created and saved earlier and click **OK**. The **Schema Connection Wizard** appears with the connection information prefilled.
3. Click **Connect**. A connection validation confirmation message appears.
4. Click **OK**.
5. Click **Next**. The **Schema Connection Wizard** appears.

Specify the Baseline Schema

Use this dialog box to select the baseline schema for the comparison.


1. From the **Available Schema** box, select **dbo** and click to add the dbo schema to the **Selected Schema** box.
2. Click **Finish**. The **Schema Compare** window appears. The **Baseline** tab is active and displays information about the baseline connection and the baseline schema that has been added to the specification.
3. Click **Next** to define the test data source. The **Schema Connection Wizard** appears.

Connect to the Test Data Source

1. From the **Connector Name** list, select the connector used earlier. The **Schema Connection Wizard** appears with the connector information prefilled.
2. Click **Connect**. A connection validation confirmation message appears.
3. Click **OK**.
4. Click **Next**. The **Schema Selection** page appears.

Specify the Test Schema

Use this page to select the test schema for comparing.

1. From the **Available Schema** box, select **guest** and click  to add the guest schema to the **Selected Schema** box.
2. Click **Finish**. The **Schema Compare** window appears. The **Test** tab is active and displays information about the test connection and the test schema that has been added to the specification.
3. Click **Next**. The **Pairings** tab appears.

Specify Processing Options and Selection Criteria

The upper portion of the **Pairings** tab lists the pair of schemas selected for the comparison. The lower portion of this tab contains subtabs on which advanced options can be set, such as processing options and various selection criteria.

1. Select the **Processing Options** tab. This tab allows users to select structures to include in the compare, such as stored procedures, tables, triggers, and views. For this tutorial, do not make any changes.
2. Click **Stored Procedures Options** to view the available processing options for stored procedures. The **Stored Procedure Processing Options** dialog box appears. For this tutorial, do not make any changes. Click **Cancel**.
3. Click **Trigger Options** to view the available processing options for triggers. The **Trigger Processing Options** dialog box appears. For this tutorial, do not make any changes. Click **Cancel**.
4. Click **Table Structure Options** to view the available processing options for table structures. The **Table Structure Options** dialog box appears. For this tutorial, do not make any changes. Click **Cancel**.
5. Click **View Options** to view the available processing options for views. The **View Processing Options** dialog box appears. For this tutorial, do not make any changes. Click **Cancel**.

Save and Run the Comparison

1. From the **File** menu, select **Save** to save your compare specification. The **Save Compare Specification As** dialog box appears.
2. In the **Name** field, type a name for the specification.
3. In the **Description** field, type a description for the specification.
4. Select the **Save with Userid/Password** check box and click **OK**. The compare specification is saved to the repository and the **Schema Compare** window appears.
5. Click **Run**. The **Execution Status Viewer** dialog box appears with the **Summary** tab displayed. This tab displays the specification name, the number of baseline and test records processed, and the overall execution status.
6. Select the **Details** tab. This tab displays detailed information about the specification and any messages returned from the File-AID/EX Execution Server.

View the Results

1. Click **View Results**. The ComparePro **Results** view appears showing results of this schema compare.
2. Select the **Pairing Info** tab to view the baseline and test connection information.

3. Click **Detailed Results**. The **Detailed Results Viewer** appears. This window lists each difference found between baseline and test data. Select a row in the table to view the data values.
4. From the **File** menu, select **Close**.

Tutorial 3 is now complete.

Chapter 4.

ConverterPro Tutorials

The tutorials in this chapter help users get started using ConverterPro. The information in Tutorial 1 is used in the data privacy tutorial and some of the other ConverterPro tutorials. Perform Tutorial 1 and save the completed conversion specification before performing the other tutorials.

To learn more about using ConverterPro, refer to the online help.

The tutorials assume that users have successfully installed File-AID/EX, including the ConverterPro component. If necessary, refer to the *File-AID/EX Installation Guide*.

Note: In these tutorials, a Microsoft SQL Server database is used (created in first Related Loader tutorial). If using a different database, there may be some minor differences in the sample screens. However, the steps are the same.

Tutorial 1: Convert Relational Database Table to Delimited File

In this tutorial, users will learn how to convert data from a database table to a delimited file.

Conversion Type: One-to-one.

After completing this tutorial, users will be able to do the following:

- Use a connection saved in a previous tutorial.
- Create a delimited connector.
- Map a source to a target using automapping.
- Edit a record layout using the Record Layout Editor.
- Save and run the conversion specification.
- Browse source and target data (after running the conversion specification).

CAUTION:

DO NOT MODIFY SYSTEM TABLES. The tables start with *dbo.sys*.

Source and Target Data Descriptions

Data Source

Connector type: Microsoft SQL Server (use a database type installed on the system being used)

Connector name: The connector created in Tutorial 1 in Chapter 2, “Related Extract and Related Loader Tutorials”

Database name: fileaidex_tutorial

Table name: dbo.authors


Data Target

Connector Type: Delimited file

File name and location: <your directory path>/tutorial1.asc

Define the Data Source

The table or view selected as the data source will be converted to the output type specified when the data target is defined.

1. Launch ConverterPro like any other application based on your operating system. The **ConverterPro** dialog box appears, displaying the **Data Sources** tab. The **Data Sources** tab allows users to define a data source connection.
2. From the **Connector Name** list, select the **connector templates**. The **Open Connection Template** dialog box appears.
3. Select the connection created in the first Related Loader tutorial and click **OK**. The connector panel appears with the connection information prefilled.
4. Click **Show all tables/views** so that all tables and views from the fileaidex_tutorial database will be included in the selection.
5. Click **Connect**. A connection validation confirmation message appears.
6. Click **OK**.
7. Click **Next**. The **Table/View Selection** panel appears with existing tables and views from the fileaidex_tutorial database listed in the **Available Record Layouts** box.
8. Select **dbo.authors** and click  to add this table to the **Selected Record Layouts** box.

CAUTION:

DO NOT MODIFY SYSTEM TABLES. These tables start with *dbo.sys*.

9. Click **Next**. The **Data Targets** tab appears. The project tree view in the left pane of the ConverterPro window displays the authors table and the chosen connector under the Data Sources node. The actual table name (designated by dbo.authors) and connector are displayed below the authors table. Clicking the table name, actual table name, or connector displays their respective properties in the Properties view. Refer to the ConverterPro online help for detailed information about the project tree and properties views.

Define the Data Target

Use the **Data Targets** tab to define a target connection and the format of the conversion specification output.

1. From the **Connector Name** list, select **new**.
2. From the **Connector Type** list, select **Delimited File**. The **Delimited File** pane appears.
3. In the **Connector Name** field, type **Tutorial1_Delimited**.
4. In the **File Name** field, type <your directory path>/Tutorial1.asc, or click **Browse** and navigate to <your directory path> and add file name **Tutorial1.asc**. The **File Name** field populates with the path and file name. This file is the data target in this conversion specification and will be created when this specification is run.

Note: Ensure that the directory path specified is a valid, locally mapped drive or path to which the user has write access.

5. From the **Target Action (Exist/Not Exist)** list, select **Recreate/Create**.
6. Click **Next**. The **Record Layout Selection** pane appears.
7. From the **Existing Record Layouts** box, select **authors** and click to add it to the **Selected Record Layouts** box.
8. Click **Next**. The **Data Targets** tab displays the field names, field data type, encoding type, and record occurrence or field length of the fields in the authors table.
9. From the **Record Separator** list, select **CR-LF**.
10. Click **Next**. The **Mapping Editor** tab appears. The project tree view displays the authors file and Tutorial1_Delimited connector under the **Data Targets** node. The path and file name are displayed below the authors file.

Map the Source to the Target

The **Mapping Editor** tab is used to specify source-to-target mapping.

Fields from the source authors table appear in the left pane, while fields from the target authors file appear in the right pane.

Using Automap

Use the automapping feature to map each field in the source authors table to a corresponding field in the target authors file.

If the field names in the source and target files are not the same, a source field can be manually dragged and dropped it onto a target field. In this tutorial, field names in the source table are identical to the field names in the target file, so automapping can be used.

1. Right-click **authors** in the **Source** column, then select **Automap > By Field Name Match**. All like-named fields are mapped. The automap result appears in the **Mapped Field** column.

Save and Run the Conversion Specification

Before running this conversion specification, save it to the repository.

1. From the **File** menu, select **Save**. The **Save Conversion As** dialog box appears.
2. In the **Name** field, type **Tutorial1**.
3. In the **Description** field, type *<database type> to Delimited File*.
4. Select the **Save with Userid/Password** check box.



Note: **Save with Userid/Password** saves the user ID and password of the database used to create the source data connector. This also applies if the target created requires a user ID and password.

5. Click **OK** and then click **Next**. The **Conversion Customization** pane appears. This pane allows users to make modifications to a conversion specification. For this tutorial, no changes are needed.
6. Click **Next**.
7. From the **Actions** menu, select **Run** to run the conversion. The **Execution Status Viewer** appears. Its **Summary** tab displays the conversion specification name (**Tutorial1**), the database table, delimited file name and location, and the number of records read, inserted, updated, deleted, and discarded. The authors file is written to the directory path specified.

8. Select the **Details** tab. Additional information about the conversion specification is appears.
9. Click **Close**.

Browse the Source and Target

To verify what was written to the target, compare the data in the Source Data Browser with the data in the Target Data Browser.

1. Click . The **Source Data Browser** appears, displaying the contents of the source database.
2. Click . The **Target Data Browser** appears, displaying the contents of the authors.asc file.
3. Compare the source and target browsers to see that the conversion converted the information accurately.
4. Click **OK** on both browser windows to return to the ConverterPro window.

Tutorial 1 is now complete.

Tutorial 2: Combine and Convert Data Files

In this tutorial, users will learn how to combine two small data files into one data file. This tutorial uses ConverterPro expressions to transform the data files before they are written to the output file.

Note: In the record layout, dragging a field to another position within a record layout changes the name of the field. For example, Position will become Position_2. If moved again, it will become Position_3. The reason this happens is to prevent duplicate field names. Duplicate field names can occur when a field at one level has the same name as a field at another level. If both fields kept the same name and were moved to the same level, this could cause data errors. However, for automap to work correctly in the tutorials, Compuware recommends that users rename any fields where the name changes to the original field name.

Conversion Type: Many-to-one.

After completing this tutorial, users will be able to do the following:

- Define data source and data target connections.
- Import record layouts using the Record Layout Editor.
- Relate multiple data sources using the Specify Parent-Child Relationships pane.
- Relate fields within multiple data sources using the Specify Data Relationships pane.
- Map the source to the target using automapping.
- Apply expressions to target fields using the Expression Editor.
- Save and run a conversion specification.
- Browse source and target data.

Source and Target Data Descriptions

In this tutorial, both the source and target data types are comma-delimited files.

Data Sources

<File-AID/EX installation directory>\Samples\Source.empdata.dat

<File-AID/EX installation directory>\Samples\Source.saldata.dat

The fields in the Source.empdata.dat file include the following:

```
Firstname,Lastname,SSN,Address,City,State,Year
```

Source.empdata.dat contains the following data:

```
Copeland,David,458-23-6852,8300 Jollyville Rd,Austin,Tx,72
Gordan,Julia,449-53-2663,928 E. 40th #103,Austin,Tx,69
Ramirez,Victor,421-44-2255,233 Main St,New Braunfels,Tx,55
Vance,Damon,215-77-4258,3442 Pleasant Valley,Austin,Tx,71
```

The fields in the Source.saldata.dat include the following:

```
SSN,Position,Salary
```

Source.saldata.dat contains the following data:

```
421-44-2255,V.P. Sales,75000
458-23-6852,President,120000
215-77-4258,Ex. V.P.,92000
449-53-2663,V.P. Tech Support,78000
```

Data Target

c:\Target.empdata_trgt.dat or <your directory path>\Target.empdata_trgt.dat

The target format defines the data to be converted. It also provides a blueprint or schema of all output data objects. If the target delimited file is converted to another database or data location, then it is necessary to set up a specific schema layout for the file.

For this tutorial, the target data file layout is as follows:


```
Firstname,Lastname,SSN,YOB,Position,Salary
```

Within the file, the data fields have the following format:

```
Firstname: String
Lastname: String
SSN: 11-byte fixed-length string
YOB: Four-digit integer YOB
Position: String
Salary: Integer
```

Define the First Data Source

This conversion specification contains two source files. The first step is to define the first data source using ConverterPro's **Data Sources** tab.

1. Launch ConverterPro like any other application based on your operating system. The **ConverterPro** window appears.
1. Click . The **Data Sources** tab appears.
2. From the **Connector Type** list, select **Delimited File**. The **Delimited File** pane appears.
3. In the *Delimited File pane's* **Connector Name** field, type **empdata**.
4. Click **Browse**, navigate to the Samples folder within the File-AID/EX installation directory, select **Source.empdata.dat**, and click **Open**. This is the first data source for this conversion specification. The path and file name appear in the **File Name** field.

Note: If the Source.empdata.dat file is not shown, be sure to select **All Files** in the **Files of Type** field.

5. Click **Next**. The **Record Layout Selection** pane appears.
6. Click **Next**. The delimited parser pane appears.

Note: To convert numeric fields with no delimiter to a delimited target file, the target field type must be numeric.

7. In the **Name** field, type **empdata**.
8. From the **Header Record** list, select **Yes**. The headers move to the column headings row.
9. Click **Next**. The record layout table pane appears, and the empdata record layout is complete.
10. Click **More Sources**. The project tree view updates to display the first data source (empdata) and connector (empdata). The path and file name appear below the data source.

Define the Second Data Source

11. From the **Connector Type** list, select **Delimited File**. The **Delimited File** pane appears.
12. In the *Delimited File pane's* **Connector Name** field, type **saldata**.
13. Click **Browse**, navigate to the Samples folder within the File-AID/EX installation directory, select **Source.saldata.dat**, and click **Open**. The path and file name appear in the **File Name** field.
14. Click **Next**. The **Record Layout Selection** pane appears.

Note: Import a layout to describe the fields in saldata (just as was done for empdata). Since delimited file was selected on the previous pane, **Parse Delimited File** and the source file appear on this pane.

15. Click **Next**. The parse delimited file settings pane appears.
16. In the **Name** field, type **saldata**.
17. Click **Next**. The record layout table pane populates with the new information. The table name (saldata) appears in the **Name** column. Field names appear below the table name. The **Occurs/Length** column displays the number of occurrences of the record or the length of the field. Field type, encoding, and comments appear in respective columns.

Change Table Information

Following are the field format requirements for saldata:

Field1 = SSN, Type = String, Encoding = Display, Occurs/Length = VAR

Field2 = Position, Type = String, Encoding = Display, Occurs/Length = VAR

Field3 = Salary, Type = String, Encoding = Display, Occurs/Length = VAR


1. Double-click **Field1** to make it editable, type **SSN** and press **Enter**. The remaining fields already match the requirements of the tutorial.
2. Double-click **Field2**, type **Position** and press **Enter**. The remaining fields already match the requirements of the tutorial.
3. Double-click **Field3**, type **Salary** and press **Enter**. The saldata record layout is complete.
4. Click **Finish Source** or **Next**. The **Data Targets** tab appears. The project tree view updates to display the second data source (saldata) and connector (saldata). The path and file name appear below the data source.

Define the Data Target

1. From the **Connector Type** list, select **Delimited File**. The **Delimited File** pane appears.
2. In the *Delimited File pane's* **Connector Name** field, type **empdata_target**.
3. In the **File Name** field, type one of the following:
 - c:\Target.empdata_trgt.dat
 - <your directory path>\Target.empdata_trgt.dat

Note: Ensure that the directory path specified is a valid, locally mapped drive or path to which the user has write access.

4. From the **Target/Action (Exist/Not Exist)** field, select **Recreate/Create**.

5. Click **Next**. The **Record Layout Selection** pane appears. The **Existing Record Layouts** box shows the empdata and saldata record layouts that have been defined. Next, this tutorial will modify these source record layouts to easily create the record layout for empdata_trgt.dat.
6. Click . The empdata and saldata record layouts are added to the **Selected Record Layouts** box.
7. Click **Next**. The delimited parser pane appears.
8. Modify the empdata_trgt record layout by doing the following:
 - a. Double-click **empdata**, rename it to **empdata_trgt** and press **Enter**.
 - b. Double-click the **Year** field, rename it to **YOB** and press **Enter**.
 - c. In the **Type** column list for **YOB**, select **Integer**.
9. Modify the saldata record layout by doing the following:
 - a. Right-click the **SSN** field and select **Delete**. The **SSN** field is deleted.
 - b. Drag the **Position** field below the **YOB** field in the empdata_trgt record layout.
 - c. Drag the **Salary** field below the **Position** field in the empdata_trgt record layout.
 - d. Double-click and rename any updated field names to the original field names. Automap is easier to use in this tutorial if the source and target fields names match.
 - e. Delete the **saldata** record layout. Only the empdata_trgt record layout remains.
 - f. Delete the **City** field.
 - g. Delete the **State** field.
 - h. Delete the **Address** field.
10. Click **Next**. The project tree view updates to display the empdata_trgt target and empdata_target connector. The path and file name appear below the data target. The **Mapping Editor** tab appears.

Specify Parent-Child Relationships

The **Specify Parent-Child Relationships** pane of the **Mapping Editor** tab displays the data sources that have been selected.

The order in which the two data sources are processed is determined by which source is the parent and which source is the child.

1. Select **saldata** and click **Make Child**. The **saldata** source moves a level below **empdata**, making it a child and making **empdata** the parent.
2. Click **Next**. The **Set Source Record Level Relationships** pane appears.

Specify Source Record Level Relationships

The **Set Source Record Level Relationships** pane displays data sources in the hierarchical order that was specified in the **Specify Parent-Child Relationships** pane.

This pane is used to specify fields that relate the data sources to each other. This tutorial uses the SSN field to relate the empdata and saldata sources.

1. Select the empdata's **SSN** field and drag-and-drop this field onto the saldata's **SSN** field. **Source.empdata.SSN** appears in the **Relationship Expression** column. The required relationship information to process the two sources correctly is now in place.

Using this relationship expression, the Execution Server searches saldata until it finds an SSN to match the current record being checked in empdata. It then continues

with the mapping process. If a match is not found, then the Execution Server proceeds to the next record in empdata.

2. Click **Next**. The **Mapping Editor** tab appears.

Map the Source to the Target

The **Mapping Editor** tab allows users to specify source-to-target mapping. The upper pane displays the data relationships specified on the previous pane. The lower pane displays the fields from the empdata source and from the empdata_trgt target. To view the saldata source in the lower pane, select saldata from the upper pane.

Using Automap

Use the automap feature to map each field in empdata to a corresponding field in empdata_trgt.



1. In the **Source** box in the lower pane, right-click **empdata** and select **Automap > By Field Name Match**. The **Mapped Field** column displays the mapping results in which all like-named fields are mapped and the **Year** field is mapped to the **YOB** field.

Using the Expression Editor

The Expression Editor allows users to create various expressions that reformat, transform, calculate, and validate source data before it is placed in the mapped target field.

This section of the tutorial creates an expression that results in a four-digit year of birth and applies it to the target **YOB** (year of birth) field.

This expression will add the numeric value 1900 to the two-digit **Year** field in the source, thus creating a four-digit year of birth when this source field maps to the target field.

1. In the **Mapped Field** column for **YOB**, click . The **Expression Editor - Mapping Customization** dialog box appears. The mapped source field, **STR2INT(Source.empdata.Year)**, appears. STR2INT specifies that the string for year is translated into an integer based on your specifying YOB as an integer earlier.
2. Position the cursor after **STR2INT(Source.empdata.Year)** and click . A plus sign appears at the cursor position.
3. Type **1900** after the + sign. The expression now reads as follows:

```
STR2INT(Source.empdata.Year)+1900
```

4. Click **OK** to save the expression. The **YOB** field shows the expression just created.

Note: If the change does not appear, click the field again.

Save and Run the Conversion Specification

Before running this conversion specification, save it to the repository.

1. From the **File** menu, select **Save**. The **Save Conversion As** dialog box appears.
2. In the **Name** field, type **Tutorial2**.
3. In the **Description** field, type **Combining two data sources into one data target**.
4. Select the **Save with Userid/Password** check box.
5. Click **OK**.
6. Click **Next** twice to advance to the final **Mapping Editor** window.
7. Click **Run**. The **Execution Summary Viewer** displays the conversion progress.

The conversion specification name (Tutorial2), execution submission date, and time appear in the **Execution Summary Viewer**. The **Summary** tab shows that four records were read from empdata, four records were read from saldata, and four records were written to empdata_trgt. It also shows that no records were discarded.



The **Execution Summary Viewer** consists of two tabs: **Summary** and **Details**. The default view shows summary information. Select the **Details** tab for more information about your conversion.

Target.empdata_trgt.dat is written to the directory path specified.

8. Click **Close**.

Browse the Source and Target

To verify what was written to the target, compare the data in the Source Data Browser with the data in the Target Data Browser.

1. Click  or, from the **Tools** menu, select **Browse Source**. The **Source Data Browser** appears, displaying empdata and saldata content. Click either file in the pane on the left to see the desired information.
2. Click  or, from the **Tools** menu, select **Browse Target**. The **Target Data Browser** appears, displaying empdata_trgt contents. The fields from empdata and saldata have been merged into empdata_trgt and the year of birth has been converted.
3. After reviewing the source and target data, close the browsers.

Tutorial 2 is now complete.

Tutorial 3: Convert MVS QSAM File to Flat File

This tutorial assumes that users have installed File-AID/EX Enterprise Edition on a Mainframe. Refer to the chapter on installing the File-AID/EX Enterprise Edition in the *File-AID/EX Installation Guide* for installation instructions.

Note: OPTION 4 - TRAINING OPTIONS must be installed during File-AID/EX Enterprise Edition Installation before users can complete this tutorial.

In this tutorial, users will learn how to convert an MVS QSAM hierarchical dataset to a flat file. This tutorial also teaches how to change packed fields to string data types, using the Record Layout Editor.

Conversion Type: One-to-One.

After completing this tutorial, users will be able to do the following:

- Define data source and data target connections.
- Import a COBOL copybook.
- Map a source to a target using automapping.
- Edit the record layout using the Record Layout Editor.
- Save and run the conversion specification.
- Browse source and target data.

Source and Target Data Descriptions

Data Source

Connector Type: QSAM

Dataset Name: <user ID>.FESAMP.PARTS.SEQ

where <user ID> is the high level qualifier that the installer used to copy the dataset. Refer to “Copy the Dataset from the Media” on page 57.

Data Target

Connector Type: Flat File (Flat File will be changed to Delimited File using the Record Layout Editor)

File Name: parts.asc

File location: c: or the user’s directory path

About the Dataset

The dataset for this conversion is located on the media shipped with the product. It includes engineering parts file information. This tutorial writes the dataset to a flat file.

Copy the Dataset from the Media

The dataset for this tutorial is provided in the Training Files installed with File-AID/EX Enterprise Edition. If the administrator installed all of the options during Enterprise Edition Installation, then it is only necessary to run the CLIST to make a copy of the datasets for individual use. The CLIST copies the base training file under the High-Level Qualifier that the user provides.


While running the CLIST, the following error may be encountered:

```
MASTER TRAINING FILES NOT FOUND
CONTACT YOUR FILE-AID/EX ENTERPRISE INSTALLER
```

This means the Training Files were not installed with the File-AID/EX Enterprise Edition installation. Have the administrator select and install OPTION 4 - TRAINING OPTIONS during File-AID/EX Enterprise Edition Installation. For more information, refer to the *File-AID/EX Installation Guide*.

Define the Data Source

After starting ConverterPro, begin defining source data and connection information using the **Data Sources** tab.

1. In ConverterPro, click **New** ().
2. From the **Connector Type** list, select **QSAM** to establish a QSAM source connection. The **QSAM** pane appears.
3. In the **Connector Name** field, type **QSAM_PARTS**.
4. Obtain the host TCP/IP address and port number from the MVS systems administrator. Type this information in the **Host TCP/IP Address** and **Port Number** fields. Valid port numbers include 1 through 65,535.
5. In **Dataset Name**, type your user ID, followed by a period, and FESAMP.PARTS.SEQ.

For example: *yourID.FESAMP.PARTS.SEQ*

This is the data source for this conversion specification.

6. In the **User ID** and **Password** fields, type your mainframe user ID and password.
7. Click **Next**. Since there are no existing record layouts in this conversion, the **Record Layout Selection** pane appears so users can create or import table or file layouts.
8. Import record layouts by selecting a record layout type from the **Record Layouts Type** list. In this case, **COBOL - OS/390 Copybook** is selected. Keep this selection.
9. Type the layout dataset name and member name for PDS datasets in the field. For example:

```
YOURID.FESAMP.LAYOUTS(PARTS)
```

10. Click **Next**. The record layout table pane appears showing field names, data type, encoding type, record number of occurrences or field length, and comment text if available for the record or field. This may take a few minutes. The record layout is complete.
11. Click **Next** to finish defining the QSAM (source) connection. The first pane of the **Data Targets** tab appears.

Note: The Project Tree view is updated to display the **PROD001_PART_TABLE** file and **QSAM_PARTS** connector. The dataset name is displayed below the **PROD001_PART_TABLE** file. Click the file name, dataset name, or connector to display the respective properties in the Properties view. Refer to the ConverterPro online help for detailed project tree and properties information.

Define the Data Target

Define target connection and data using the **Data Targets** tab.

1. From the **Connector Type** list, select **Flat File** to establish a flat file target connection. The **Flat File** panel appears.
2. In the **Connector Name** field, type **PARTS_FLATFILE**.


3. In the **File Name** field, type `c:\parts.asc` or `<your directory path>\parts.asc`.

Note: Ensure that the directory path specified is a valid and locally mapped drive and path.

The `parts.asc` file is the data target in this conversion specification.

4. In the **Target Action (Exist/Not Exist)** list select **Recreate/Create**.
5. Click **Next**. The **Record Layout Selection** pane appears. The **Existing Record Layouts** column shows the previously imported source record layout (`PROD001_PART_TABLE`).

Since a flat file is selected as the data target, a record layout that describes the fields in this file must be specified. In this conversion specification, the output record layout file must be an exact copy of the input record layout file.

6. Select `PROD001_PART_TABLE` and click **Add** () to add the file to the **Selected Record Layouts** column.
7. Click **Next**. The record layout table appears. It looks exactly like the source record layout. Do not change anything on this pane.
8. Click **Next**. The **Mapping Editor** grid appears. The project tree view is updated to display the `PROD001_PART_TABLE` data target and `PARTS_FLATFILE` connector. The path and file name are displayed below the data target.

Map the Source to the Target

Use the Mapping Editor grid to specify source to target mapping.

Fields from the `PROD001_PART_TABLE` (source) appear on the left in the grid. Fields from the `PROD001_PART_TABLE` (target) appear on the right.

Editing the Record Layouts

Change the `RecordDelimiter` property to designate a record delimiter and change packed data types to string data types:

1. In the project tree view, right-click the `PROD001_PART_TABLE` data target and select **View\Edit Record Layout**. The **Record Layout Editor** window appears.
2. Click the `RecordDelimiter` property value and select **CR-LF** (carriage return-line feed) from the list. A carriage return-line feed is placed at the end of each record after the record is written. This property is displayed only when the record is selected (the top line), not when a field is selected.

Note: Whether the packed data types need to be changed to string data types depends on how the target file created will be used. To create a target file that will be uploaded back to the mainframe, leave the packed fields unchanged. To use this file on Windows or UNIX, change them to string. For this tutorial, they will be changed to string.

3. In the **Type** column, click the list for the first **Packed** field and select **String**. Select each of the other packed fields and change them to **String** also.
4. Click **OK** to save the information and return to the **ConverterPro** window.

Using Automap

Use the automapping feature to map each field in the source to a corresponding field in the target. When no clear correlation exists between the source and target, a source field must be manually dragged and dropped onto a target field. In this tutorial, source fields are identical to the target fields, so automapping can be used.

1. From the **Source** column, right-click on **PROD001_PART_TABLE** and select **Automap > By Field Name Match**. All like-named fields are mapped. In this case, all fields are mapped since the source and target field names are identical. The results appear in the **Mapped Field** column.
2. Click **Next**. The **Conversion Customization** pane appears. Do not change anything on this pane.
3. Click **Next**. The **Conversion Execution** pane appears.

Save and Run the Conversion Specification

Before running this conversion specification, save it to the repository.

1. From the **File** menu, select **Save**. The **Save Conversion As** dialog box appears.
2. In the **Name** field, type **Tutorial3**.
3. In the **Description** field, type **QSAM to flat file**.
The **Save with Userid/Password** option is selected. Keep this selection.
4. Click **OK** to save the specification.
5. In **Data Targets**, on the final **Mapping Editor** pane, verify that **Recreate/Create** is selected in the **Target Action** list.
6. From the **Actions** menu, select **Run**. The **Execution Summary Viewer** appears showing the progress of the conversion. This may take a few minutes to execute since it is accessing information from the mainframe.

The Execution Summary Viewer Summary tab shows the conversion specification name (Tutorial3), execution submission date, and time. It also shows that 56 records were read from **PROD001_PART_TABLE** (source) and written to **PROD001_PART_TABLE** (target). It also shows that no records were discarded.


The Execution Summary Viewer has two tabs: Summary and Detail. Click the **Details** tab to see additional information about the conversion specification.

The parts file is written to the directory path specified.

7. When the status message says **Complete**, click **Close**.

Browse the Source and Target

To verify what was written to the target, compare the data in the **Source Data Browser** with the data in the **Target Data Browser**.

1. From the **Tools** menu, select **Browse Source**. The **Source Data Browser** appears.
2. From the **Tools** menu, select **Browse Target**. The **Target Data Browser** appears to show **PROD001_PART_TABLE** contents.
1. To confirm that the conversion copied the file correctly, click  to compare the results.
2. After browsing the source data, click **OK** to return to the **ConverterPro** window.

Tutorial 3 is now complete.

Tutorial 4: Convert Delimited File to XML

In this tutorial, users will learn how to perform a conversion that takes two data files, one containing time zone information and one containing state information, and combines them into one XML file that groups the states by time zone. The record layout describing the layout of the target XML file is defined by combining the source record layout definitions.

Note: In the record layout, dragging a field to another position within a record layout changes the name of the field. For example, Position will become Position_2. If moved again, it will become Position_3. The reason this happens is to prevent duplicate field names. Duplicate field names can occur when a field at one level has the same name as a field at another level. If both fields kept the same name and were moved to the same level, this could cause data errors. However, for automap to work correctly in the tutorials, Compuware recommends that users rename any fields where the name changes to the original field name.

Conversion Type: Many-to-One.

After completing this tutorial, users will be able to do the following do the following:

- Define data source and data target connections.
- Relate multiple data sources using the Specify Parent-Child Relationships pane.
- Relate fields within multiple data sources using the Specify Data Relationships pane.
- Map the source to the target using automapping.
- Save and run the conversion specification.
- Browse source and target data.

Source and Target Data Descriptions

Data Sources

Connector Types: Delimited Files

Location:

<File-AID/EX installation directory>\samples\Source.timezone.dat

<File-AID/EX installation directory>\samples\Source.state.dat

Source.timezone.dat contains the following data:

```
timezone_abbrev,timezone_name
CST,Central Standard Time
EST,Eastern Standard Time
MST,Mountain Standard Time
PST,Pacific Standard Time
```

The first five lines of Source.state.dat are:

```
state_abbrev,state_name,timezone_abbrev
AK,Alaska,PST
AL,Alabama,EST
AR,Arkansas,CST
AZ,Arizona,MST
```

Both data files are comma-delimited files that contain a header record describing the columns.

Data Target

Connector Type: XML File


File name and location: *<your directory path>/Target.state_by_tz.xml*

The output XML file, Target.state_by_tz.xml, will consist of a root element with a child time zone element for each time zone in the Source.timezone.dat input file. Each time zone element contains the associated information from the Source.timezone.dat file together with a child state element for each state in the Source.state.dat file in the time zone. The time zone elements in the output XML file will be of the form:

```
<timezone>
  <timezone_abbrev>content</timezone_abbrev>
  <timezone_name>content</timezone_name>
  <state state_abbrev="abbrev">
    <state_name>content</state_name>
  </state>
  .
  .
  <state state_abbrev="abbrev">
    <state_abbrev>content</state_abbrev>
    <state_name>content</state_name>
  </state>
</timezone>
```

Define the Data Sources and Source Record Layouts

After starting ConverterPro, begin defining source data and connection information using the **Data Sources** tab.

1. In the **ConverterPro** window, click .
2. From the **Connector Type** list, select **Delimited File**.
3. In the **Connector Name** field, type **timezone_delimited**.
4. Click **Browse** and navigate to the **Samples** directory.
5. Select **Source.timezone.dat** and click **Open**.
6. Click **Next**. The **Record Layout Selection** pane appears. Since **Delimited File** was selected in the previous pane, **Parse Delimited File** and the source file are displayed in the associated fields.
7. Click **Next**. The delimited parser window appears.
8. In the **Name** field, type **timezone**.
9. From the **Header Record** list, select **Yes** to move the column headers to the first line on the grid.
10. Click **Next**. The record layout table pane appears. This pane can be used to make changes to the file's properties. To see detailed information about the columns in this pane, refer to the online help information about record layout.


Note: Clicking **Next** instead of **More Sources** opens a blank connector for the second data source. This enables users to start the new source by clicking the **Sources** tab and selecting the desired connector type.

11. Click **More Sources** and follow the instructions in the preceding step. Clicking **More Sources** updates the project tree view to display the first data source (**timezone**) and connector (**timezone**). The path and file name are displayed below the data source.

Define the Second Data Source

1. From the **Data Sources** tab's **Connector Type** list, select **Delimited File**,
2. In the **Connector Name** field, type `state_delimited`.
3. Click **Browse**, navigate to the **Samples** directory, select **Source.state.dat**, and click **Open**.
4. Click **Next**. The **Record Layout Selection** pane appears. Since **Delimited File** was selected in the previous window, **Parse Delimited File** and the source file are displayed in the associated fields.
5. Click **Next**. The delimited parser pane appears.
6. In the **Name** field, type `state`.
7. From the **Header Record** list, select **Yes** to move the column headers to the first line on the grid.
8. Click **Next**. The record layout table pane appears.
9. Click **Next**. This updates the project tree view to display the second data source (`state_delimited`) and connector (`state_delimited`) and advances to the first pane of the **Data Targets** tab. The path and file name are displayed below the data source.

Define the Data Target and Target Record Layout

1. From the **Connector Type** field, select **XML**.
2. In the **Connector Name** field, type `state_tz_xml`.
3. In the **File Name** field, type `<your directory path>/Target.state_by_tz.xml`, or click **Browse** and navigate to `<your directory path>` and add file name `Target.state_by_tz.xml`. The **File name** field populates with the path and file name.
4. Click **Next**. The **Record Layout Selection** pane appears. **Derive Record Layout From** is set to **Existing Source/Target** and the two source record layouts that were just defined appear in the **Existing Record Layouts** box.
5. Click  to add both record layouts to the **Selected Record Layouts** box and click **Next**. The target record layout pane appears. The record layout for the target is constructed from these source definitions.

Note: If a mistake is made while setting the record layout, click **Back** and select both record layouts again. Then click **Next** to start over.

6. Right-click `state` and selecting **Add XML Attribute** to make the `state_abbrev` field an Attribute of the `state` record. This adds a child record named **Attributes** that has a child field named **Attribute1** to the state record.
7. Drag the `state_abbrev` field to the **Attributes** record.
8. Right-click **Attribute1** and select **Delete** to delete this child.
9. Select `state` and drag it to **timezone**. This makes the state record a child of the timezone record.
10. Expand the `state` record node, then right-click the `timezone_abbrev` field and selecting **Delete**. This deletes the `timezone_abbrev` field in the state record, since this information is already in the parent time zone record.
11. Double-click **Top Level Element** and change its name to **root**, then press **Enter**. This creates a single root element, which XML requires.
12. Rename any updated field names to the original field name. Automap is easier to use in this tutorial if the source and target fields names match.

13. Click **Finish Target** to save the target record layout definition. This updates the project tree view and advances to the **Specify Parent-Child Relationships** pane of the **Mapping Editor** tab.

Specify Mapping Information

When selecting more than one data source, the relationships between the sources needs to be specified. These relationships determine how the data is read. In this situation, for each record in the timezone data source, we want to read all associated state records from the state data source.

To define the relationship between the time zone and state record layout definitions:



1. Select **state** and click **Make Child** to make state a child of timezone. State moves from the same level as timezone to a level below.
2. Click **Next**. The **Set Source Record Level Relationships** pane displays the field definitions created earlier showing the hierarchical order specified on the previous pane. This window lets users specify the field that relates timezone to state. In this case, use **timezone_abbrev** to relate the two files.
3. In the timezone record, click **timezone_abbrev** and drag it to the **Relationship Expression** column associated with the **timezone_abbrev** field in the **state** record. ConverterPro now has the required relationship information to process the two files in a related manner.
4. Click **Next**. The **Mapping Editor** appears. Its grid lets users map their data from the source files to the target file. The top pane displays the hierarchy specified on the previous panes. Notice that the relationship expression created shows under the state entry. Clicking on either **timezone** or **state** shows the respective fields for each file in the lower source mapping panel.
5. On the tool bar, click **Automap** and select **By Field Name Match**.
6. Click **Next**. The **Conversion Customization** pane appears and displays a visual summary of the conversion process. The data for nodes can be customized by double-clicking the node.
7. Click **Next**. The conversion execution pane appears, summarizing the conversion specification.

Save and Run the Conversion Specification

1. From the **File** menu, select **Save** to save the conversion specification.
2. In the **Name** field, type **Tutorial4**.
3. In the **Description** field, type **2 Delimited Sources to XML Target**.
4. Select the **Save with Userid/Password** check box.
5. Click **OK**.
6. Click **Run** to start the conversion. The **Execution Status Viewer** window appears, displaying the progress of the conversion.
7. Click **Close** to close the **Execution Status Viewer** window and return to the ConverterPro window.

Browse the Source and Target

To verify what was written to the target, compare the data in the **Source Data Browser** with the data in the **Target Data Browser**.

1. Click . The **Source Data Browser** appears, displaying source.timezone.dat and source.state.dat content. Click either file in the pane on the left to see the desired information on the right.
2. Click  to open the XML file and view your data. The file is opened in your default internet browser.

Tutorial 4 is now complete.

Tutorial 5: Convert XML File to Delimited File Using an XML DTD

In this tutorial, users will learn how to convert an XML file containing state information by timezone into a delimited file. The record layout describing the source XML file is defined by an XML Document Type Definition (DTD) that the user edits. The target record layout is defined from the source record layout.

Note: In the record layout, dragging a field to another position within a record layout changes the name of the field. For example, Position will become Position_2. If moved again, it will become Position_3. The reason this happens is to prevent duplicate field names. Duplicate field names can occur when a field at one level has the same name as a field at another level. If both fields kept the same name and were moved to the same level, this could cause data errors. However, for automap to work correctly in the tutorials, Compuware recommends that users rename any fields where the name changes to the original field name.

Conversion Type: One-to-One.

After completing this tutorial, users will be able to do the following:

- Define data source and data target connections.
- Define a source record layout using an XML DTD.
- Define a target record layout from the source record layout.
- Map the source to the target using automapping.
- Save and run the conversion specification.
- Browse source and target data.

Source and Target Data Descriptions

Data Source

Connector Type: XML File

Source Data Location:

<File-AID/EX installation directory>\samples\Source.state_by_tz.xml

Source Record Layout Location:

<File-AID/EX installation directory>\samples\Source.state_by_tz.dtd

Following are the first few lines of Source.state_by_tz.xml:

```
<?xml version="1.0" ?>
<!DOCTYPE root SYSTEM "Source.state_by_tz.dtd">
<root>
  <timezone>
    <timezone_abbrev>CST</timezone_abbrev>
    <timezone_name>Central Standard Time</timezone_name>
    <state state_abbrev="AR">
      <state_name>Arkansas</state_name>
    </state>
    <state state_abbrev="IA">
      <state_name>Iowa</state_name>
    </state>
  </timezone>
</root>
```

```

<state state_abbrev="IL">
  <state_name>Illinois</state_name>
</state>
<state state_abbrev="IN">
  <state_name>Indiana</state_name>
</state>
...

```

Data Target

Connector Type: Delimited File


File name and location: <your directory path>/Target.state_w_tz.dat

The output delimited file, Target.state_w_tz.dat, is comma delimited and consists of state information for each state together with its time zone abbreviation. The data format is as follows:

```
State_name, state_abbrev, timezone_abbrev
```

Define the Data Source and Source Record Layout

After starting ConverterPro, begin defining source data and connection information using the **Data Sources** tab.

1. On the ConverterPro window, click .
2. From the **Connector Type** list, select **XML**. The XML pane appears.
3. In the **Connector Name** field, type `state_by_tz_xml`.
4. Click **Browse**, navigate to the <File-AID/EX installation directory>\samples\ directory, select the `source.state_by_tz.xml` file, and click **Open**.
5. Click **Next**. The **Record Layout Selection** pane appears.
6. From the **Derive Record Layout From** list, select **XML DTD** to derive the record layout from an XML DTD.
7. Click **Browse**, navigate to the <File-AID/EX installation directory>\samples\ directory, select `Source.state_by_tz.dtd`, and click **Open**. The **Select File** field populates with the path and file name.
8. Click **Next**. The record layout table pane appears.

Note: Since the record layout was derived from an XML DTD on the previous pane, only the record layout derived from the XML DTD is displayed on this pane. The XML DTD shows that state is a child of timezone, which is a child of root.

Note: Since the source record layout is derived from an XML DTD, ConverterPro validates the source XML data against the XML DTD. This validation requires that a DOCTYPE reference appear in the XML data document.

9. Click **Next**. The **Data Targets** tab appears. The project tree view is updated with the data source (**root**) and the connector (`state_by_tz_xml`). The filename and path appear below the data source.

Define the Data Target and Target Record Layout

1. From the **Connector Type** field, select **Delimited File**. The **Delimited File** pane appears.
2. In the **Connector Name** field, type `state_tz_delimited`.

3. In the **File Name** field, type *<your directory path>/Target.state_w_tz.dat*, or click **Browse** and navigate to *<your directory path>* and add file name **Target.state_w_tz.dat**. The **File name** field populates with the path and file name.
4. From in the **Target Action (Exist/Not Exist)** list, select **Recreate/Create**.
5. Click **Next**. The **Record Layout Selection** pane appears.
6. From the **Derive Record Layout From** list, select **Existing Source/Target** if it is not already selected.
7. From the **Existing Record Layouts** box, select **root** and click **[>]** to copy it to the **Selected Record Layouts** box.
8. Click **Next**. The delimited parser pane appears showing the source and target definitions in this project.

Note: The record layout for the target is constructed from the source definition via the steps that follow.

9. Select the **state_abbrev** field and drag it to the **state** record. This makes **state_abbrev** a child of **state** and removes it from the **Attributes** record.
10. Right-click the **Attributes** record and select **Delete** to delete it.
11. Select the **timezone_abbrev** field and drag it to the **state** record making it a child of the **state** record.
12. Right-click the **timezone_abbrev** field and select **Move Field > Move Down**. Repeat this one time. This field is now the last field in the **state** record. Fields can also be dragged to the desired position.
13. Right-click the **state** record and select **Move Group > Make Sibling**. Repeat this one time. This makes it a top-level record and puts it on the same level as **root**.
14. Right-click **root** and selecting **Delete** to delete it.
15. Rename any updated field names to the original field name. Automap is easier to use in this tutorial if the source and target fields names match.
16. Verify that the **state** record **Record Separator** is set to **CR-LF** and the **Field Separator** property is set to comma (,).
17. Click **Next**. The project tree view is updated to display the data target (**state**) and connector (**state_tz_delimited**) and the first pane of the **Mapping Editor** tab appears.

Specify the Mapping Information

The Mapping Editor lets users map data from the source XML file to the target delimited file.

1. From the toolbar, click **Automap** and select **By Field Name Match**.
2. Click **Next**. The **Conversion Customization** pane appears and displays a visual summary of the conversion process. The data for nodes can be customized by double-clicking the node.
3. Click **Next**.



Save and Run the Conversion Specification

1. From the **File** menu, select **Save** to save the conversion specification. The **Save Conversion As** dialog box appears.
2. In the **Name** field, type **Tutorial5**.
3. In the **Description** field, optionally enter a description.
4. Select the **Save with Userid/Password** check box.

5. Click **OK**.
6. Click **Run** to start the conversion. As the conversion executes, the **Execution Status Viewer** appears, displaying the progress of the conversion.
7. After the conversion finishes running, click **Close** to close the **Execution Status Viewer**.

Browse the Source and Target

To verify what was written to the target, compare the data in the Source Data Browser with the data in the Target Data Browser.

1. Click . The XML data from your source appears in your default Internet browser.
2. Click  to view the target data. The **Target Data Browser** appears showing the fields in target.state_w_tz.dat.
3. After reviewing the source and target data, close the browsers.

Tutorial 5 is now complete.

Tutorial 6: Create Data Generation Function without External Data Source

In this tutorial, users will learn how to define a Data Generation Function for use in another tutorial. Using the Data Generation Function Wizard, users can create a new function with or without external data sources.

Conversion Type: Data Generation Function. This tutorial creates a new data generation function without using an external data source.

After completing this tutorial, users will be able to do the following:

- Define a Data Generation function without an external source.
- Save the Data Generation function in your repository.


Source Data Description

Data Source

Connector Type: Data Generation

Create a New Data Generation Function

After starting ConverterPro, begin defining your Data Generation function.

1. On the **ConverterPro** window, click .
2. From the **Tools** menu, select **Define Data Generation Function**. The **Data Generation Function Wizard - Function Creation Instructions** wizard appears.
3. Select **Do not use randomly selected data from an external data source** and click **Next**. The **Data Generation Function Wizard - Return Value Characteristics** page appears.
4. Clear the **Return unique values** and **Return a percentage of the values as nulls** check boxes.

Note: For additional information about the return value characteristics, refer to the online help.

5. Click **Next**. The **Data Generation Function Wizard - Function Editor** page appears.
6. In the **Expression Editor** portion of the window, right click **Description** and select **Add Return**. The value in the **Expression** column is returned after the function is executed.
7. Click in the **Expression** column and type **"Hello World"** (the double quotes are required). Click the **Keyword** column to complete the expression.

Note: A single return value must be provided. If less than or more than one return value is included, a validation error occurs when **Next** is clicked.

8. Click **Next**. The **Data Generation Function Wizard - Function Completion** page appears.
9. In the **Name** field, type **HelloWorld**.
10. In the **Description** field, type **My First Function**.

11. Type **Other** in the **Category** field to create a new category called **Other**. The **Category** field allows users to select a category from the list or create a new category for their functions.
12. Select the **Save as Template** and **Save in Current Project** check boxes.
13. Click **Save**. The **Save Data Generation Function As Template** dialog box appears.
14. Click **OK**. The function is saved in the current conversion specification and in the specified repository, and the ConverterPro window appears. This function returns the string "**Hello World**".

Tutorial 6 is now complete.

Tutorial 7: Create Data Generation Function with External Data Source

Using the Data Generation Function Wizard, users can create a new function with or without external data sources. In this tutorial, users will learn how to define a Data Generation Function for use in another tutorial by using an external data source.

Conversion Type: Many-to-One.

After completing this tutorial, users will be able to do the following:

- Define a Data Generation function using an external data source.
- Create a conversion specification using the new Data Generation function.
- Save the Data Generation function as a template.

Source and Target Data Descriptions

Data Source

Connector Type: Data Generation


Connector Type: MS SQL Server database

Source Data Location: tutorial1, located in the local repository

This connector was created in Tutorial 1.

Create a New Data Generation Function

After starting ConverterPro, begin defining the Data Generation function.

1. From the ConverterPro window, click .
2. From the Tools menu, select **Define Data Generation Function**. The **Data Generation Function Wizard - Function Creation Instructions** page appears.
3. Select **Use randomly selected data from an external data source** and click **Next**. The **Data Generation Function Wizard - Data Connector Selection** page appears.
4. In the **Connector Name** list select **connector templates**. The **Open Connection Template** dialog box appears.
5. Select the connector created in Tutorial 1 and click **OK**. The database connector dialog box appears with the information from the template filled in.
6. Click **Connect** to validate the connection, then click **OK** on the validation message box.
7. Click **Next**. The **Table/View Selection** pane appears.
8. Select the **dbo.authors** table from the **Available Record Layouts** box and click **>** to add it to the **Selected Record Layouts** box.
9. Click **Next**. The **Data Generation Function Wizard - Return Column/Field Selection** page appears.
10. From the **Column/Field to be Returned from the External Data Source** list, select **contract**.
11. Click **Next**. The **Data Generation Function Wizard - Return Value Characteristics** page appears.
12. Select only the **Return a percentage of the values as nulls** check box and type 10%.

13. Click **Next**. The **Data Generation Function Wizard - Function Editor** page appears.
14. The **RETURN** field contains the field selected in the previous page. If a field had not been selected, a RETURN would have to be created manually.
15. Click **Next**. The **Data Generation Function Wizard - Function Completion** page appears.
16. In the **Name** field, type **author_contract**.
17. In the **Description** field, type **My second function**.
18. From the **Category** field, select or type **Other** to save the function in a category called Other.
19. Select both the **Save as Template** and **Save in Current Project** check boxes.
20. Click **Save**. The **Save Data Generation Function As Template** dialog box appears.
21. Click **OK**. The function is saved in the current conversion specification and in the specified repository.

Tutorial 7 is now complete.

Tutorial 8: Convert Data Generation Function with No External Source to Delimited File

In this tutorial, users will learn how to use previously defined Data Generation Function with no external source, in a conversion specification. The function HelloWorld that was created in “Tutorial 6: Create Data Generation Function without External Data Source” on page 70 is used to create a delimited file target.

Conversion Type: None-to-One.

After using this tutorial, users will be able to do the following:

- Use an existing Data Generation function in a conversion specification.
- Define a data target connection.
- Map the Data Generation source to the target using automapping.
- Change target maps to the new Data Generation function.
- Save and run the conversion specification.
- Browse target data.

Source and Target Data Descriptions

Data Source

Connector Type: Data Generation

Data Target

Connector Type: Delimited File


File name and location: <your directory path>/Tutorial8.asc

Record Layout Selection Location:

<File-AID/EX installation directory>\samples\Source.timezone.dat

Define the Data Generation Source

After starting ConverterPro, begin defining the source data using the Data Sources tab.


1. In the ConverterPro window, click .
2. From the **Connector Type** list, select **Data Generation**. The **Data Generation** pane appears.
3. Click **Next** to finish defining the source. The **Data Targets** tab appears allowing the user to define your data target.

Define the Data Target and Target Record Layout

1. From the **Connector Type** list, select **Delimited File**. The **Delimited File** window appears.
2. In the **Connector Name** field, type **Tutorial8**.
3. In the **File Name** field, type <your directory path>/Tutorial8.asc, or click **Browse** and navigate to <your directory path> and add file name **Tutorial8.asc**. The **File Name** field populates with the path and file name. If this file does not exist, create it in the file system before doing the conversion.

4. In the **Target Action (Exist /Not Exist)** list, select **Recreate/Create**.
5. Click **Next**. The **Record Layout Selection** pane appears. **Parse Delimited File** is selected as the record layout type, and the file name that entered on the previous pane appears in the **Select File** field.
6. Click **Browse** and navigate to the **Samples** directory where File-AID/EX is installed. Select the **source.timezone.dat** file and click **Open**. This step is necessary because an existing file must be selected as a sample for the record layout since the target file does not already exist.
7. Click **Next**. The delimited parser pane appears.
8. In the **Name** field, type **Tutorial8**.
9. Click **Next**. The **Mapping Editor** tab appears. This tab is used to map the data generation functions to the target fields. The data target has two fields. The fields can be mapped individually or by using Automap.
10. Click **Automap** and select **Defined Functions By Type**. Both fields are mapped.
11. From the **Data Generation Function Templates** list, select **HelloWorld** and drag it to the **Mapped Field** column of Field2. This replaces what is mapped in that field.

Note: The Edit Data Generation Function Parameters dialog box appears if its **Show This Dialog Automatically** check box is selected. Clear this check box to prevent this window from appearing each time a Data Generation function is mapped. Click **Cancel** to close this window.

12. Click **Next**. The record generation pane appears. Use this pane to specify how many records to generate.
13. In the **Total number of records to generate** field, type **100** and click **Next**. The **Conversion Customization** pane appears
14. Click **Next**. The conversion execution pane appears.
15. From the **File** menu, select **Save**. The **Save Conversion As** dialog box appears.
16. In the **Name** field, type **Tutorial8**.
17. Optionally, in the **Description** field, add a description.
18. Click **OK** to save the conversion specification.
19. Click **Run**. The **Execution Status Viewer** window appears.
20. After the conversion finishes running, review the summary or details information and click **Close**.
21. Click . The **Target Data Browser** appears. The random string function put random letters in each field in the **Field1** column and the HelloWorld function put *Hello World* in each field in the **Field2** column. If this conversion specification is run a second time, the random letters in the **Field1** column would be different.
22. Click **OK** to close the **Target Data Browser**.

Tutorial 8 is now complete.

Tutorial 9: Convert Data Generation Function with External Source to Delimited Target

In this tutorial, users will learn how to use a previously defined Data Generation Function in a conversion specification. The function created in “Tutorial 7: Create Data Generation Function with External Data Source” on page 72 is used to create a data generation conversion specification using an external data source to generate a delimited target.

Conversion Type: Many-to-One.

After using this tutorial, users will be able to do the following:

- Use existing Data Generation functions in a conversion specification.
- Define a data target connection.
- Map the Data Generation source to the target using automapping.
- Change target maps to the new Data Generation function.
- Save and run the conversion specification.
- Browse target data.

Source and Target Data Descriptions

Data Source

Connector Type: Data Generation

External Source Connector: Microsoft SQL Server


Data Target

Connector Type: Delimited File

File name and location: <your directory path>/Tutorial9.asc

Define the Data Generation Source

First create a Data Generation source and then an external data source.

1. On the ConverterPro window, click .
2. From the **Connector Type** list, select **Data Generation**. The **Data Generation** pane appears.
3. Click **More Sources** to add another source.

Define the External Data Source

Define the external data source using the connector that was saved in Tutorial 1.

1. From the **Connector Name** list, select <connector templates>. The **Open Connection Template** dialog box appears.
2. Select the template created earlier and click **OK**. The database connector pane appears displaying the information from the template.
3. Click **Next**. The **Table/View Selection** pane appears.

4. Select the **dbo.authors** table from the **Available Record Layouts** box and click **[>]** to add it to the **Selected Record Layouts** box.
5. Click **Next**. The **Data Targets** tab appears.

Define the Data Target and Target Record Layout


1. From the **Connector Type** list, select **Delimited File** to establish a delimited file (target) connection. The **Delimited File** pane appears.
2. In the **Connector Name** field, type **Tutorial9**.
3. In the **File Name** field, type *<your directory path>/Tutorial9.asc*, or click **Browse** and navigate to *<your directory path>* and add file name **Tutorial9.asc**. The **File Name** field populates with the path and file name. If this file does not exist, create it in the file system before doing the conversion.

Note: Ensure that the directory path specified is a valid, locally mapped drive or path to which the user has write access.

4. In the **Target Action (Exist /Not Exist)** list, select **Recreate/Create**.
5. Click **Next**. The **Record Layout Selection** pane appears.
6. Select **authors** from the **Existing Record Layouts** box and click **[>]** to add it to the **Selected Record Layouts** box.
7. Click **Next**. The delimited parser pane appears showing the field names, field data type, encoding type, and record occurrence or length of field for the fields in the **authors** table.
8. From the **Record Separator** list, select **CR-LF**.
9. Select **☰** in the **Contract** row. The **Set Field Length** dialog box appears.
10. In the **Length Type** field, select **Fixed Length**.
11. In the **Length** field, type **5**.
12. Click **OK** to return to the delimited parser pane.
13. Click **Next**. The **Mapping Editor** pane appears. The project tree view displays the **authors** file and **Tutorial9** connector. The path and file name are displayed below the **authors** file.
14. Click **Automap** and select **By Field Name Match**. This maps the information from the external source to the target fields.
15. In the **Source** column, click **Data Generation Functions** to display the available data generation functions.
16. Select **author_contract**, the data generation function that created in Tutorial 7, and drag this to the **Mapped Field** column of the **contract** field.

Note: The **Edit Data Generation Function Parameters** dialog box appears if its **Show This Dialog Automatically** check box is selected. Clear this check box to prevent this window from appearing each time a Data Generation function is mapped. Click **Cancel** to close this window.

17. Click **Next**. The records to generate pane appears.
18. In the **Total number of records to generate** field, type **25**.
19. Click **Next**. The **Conversion Customization** pane appears.
20. Click **Next**. The conversion execution pane appears.
21. From the **File** menu, select **Save**. The **Save Conversion As** dialog box appears.
22. In the **Name** field, type **Tutorial9**.

23. Optionally, in the **Description** field, add a description.
24. Click **OK** to save the conversion specification.
25. Click **Run**. The **Execution Status Viewer** window appears.
26. After the conversion specification finishes running, close the **Execution Summary Viewer** and click the  to view the target file.

Tutorial 9 is now complete.

Chapter 5.

Data Privacy Tutorials

The tutorials in this chapter help users get started using the Data Privacy Manager. To learn more about how to use the Data Privacy Manager, refer to the online help.

Note: For simplicity, the data privacy tutorials in this chapter use ConverterPro specifications. However, the Data Privacy Manager works the same way regardless of whether ConverterPro, Related Extract, or Related Loader is being used.


Starting the Data Privacy Manager

The Data Privacy Manager can be called from ConverterPro, Related Extract, and Related Loader.

Start the Data Privacy Manager from ConverterPro

To start the Data Privacy Manager from ConverterPro, a conversion specification must first be created. For the following tutorials, users can use one of the ConverterPro tutorials previously created in Chapter 4, “ConverterPro Tutorials”. If not already done, complete and save the first ConverterPro tutorial before continuing.

Note: The Data Privacy Manager is not enabled until at least one source and one target have been defined.

1. Start ConverterPro.
2. Click . The **Open Conversion** dialog box appears so an existing specification can be selected.
3. Select **Tutorial1** and click **OK**.
4. Click **Data Privacy** on the toolbar. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box may appear stating that changes cannot be made to ConverterPro while the Data Privacy Manager is open.

5. Continue with one of the tutorials to learn how to use the Data Privacy Manager.

Start the Data Privacy Manager from Related Extract

To start the Data Privacy Manager from Related Extract, a conversion specification must first be created. For the following tutorials, users can use the extract specification in “Tutorial 2: Extract Data from a Production System” on page 29. If not already done, complete and save that tutorial before continuing.

1. Start the Related Extract Wizard.
2. From the **Specify the Extract Criteria** list, select **Tutorial2_Extract**.
3. Click **Next**. The **Non-indexed Table with Selection Criteria Applied Warning** message box appears. For information on this message box, see “Create Selection Criteria” on page 30.

4. Click **OK**.
5. Click **Data Privacy**. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box appears stating that changes cannot be made to Related Extract while the Data Privacy Manager is open.

Users can choose to encrypt one or more data files that were created during the Related Extract process or disguise one or more fields within a selected table.

6. Continue with one of the tutorials to learn how to use the Data Privacy Manager.

Start the Data Privacy Manager from Related Loader

To start the Data Privacy Manager from Related Loader, a load specification must first be created. If not already done, create the load specification in “Tutorial 3: Load Data from Extract in Tutorial 2” on page 33 before continuing.

1. Start Related Loader.
2. Click **Open**. The **Open Existing Load Specification** dialog box appears.
3. From the **Repository Load** list, select **Tutorial3_Load** and click **OK**. The **Connect to Target Database** dialog box appears. The fields on this dialog box list the information specified when the load specification was created.
4. Click **Connect** to verify the database connection.
5. Click **Finish**. The **Load Specification** window appears.
6. From the **File** menu, click **Save As** to save this load specification to a new name. The **Save Load Specification** dialog box appears.
7. Type **Tutorial3_Load_DP** and click **OK**. The **Load Specification** window appears.
8. Click **Data Privacy** to start the Data Privacy Manager. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box appears stating that changes cannot be made to Related Loader while the Data Privacy Manager is open.

9. Click **Specify Field Privacy** in the right pane.
10. Continue with one of the tutorials to learn how to use the Data Privacy Manager.

Tutorial 1: Apply Field Encryption Using the Data Privacy Manager

After completing this tutorial, users will be able to apply field encryption to a field in a conversion specification, extract specification, or load specification.

1. Start ConverterPro, Related Extract, or Related Loader and open the saved specification.
 - For ConverterPro, open **Tutorial1**.
 - For Related Extract, open **Tutorial2_Extract**.
 - For Related Loader, open **Tutorial3_Load**.
2. Click **Data Privacy**. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box appears stating that changes cannot be made to the originating program (ConverterPro, Related Extract, or Related Loader) while the Data Privacy Manager is open.

3. Do one of the following to select the type of disguise to be performed, depending on which tool was used to launch Data Privacy:
 - For ConverterPro: Click **Target Records: Specify Field Privacy**.

Note: ConverterPro allows users to choose to use dynamic privacy rules, apply data privacy to source records, or apply data privacy to target records.

- For Related Extract: Click **Specify Field Privacy**.


Note: Related Extract allows users to choose to use dynamic privacy rules, encrypt one or more data files that were created during the Related Extract process, or disguise one or more fields within a selected table.

- For Related Loader: Click **Specify Field Privacy**.

Note: Related Loader allows users to choose to specify extract data file decryption or to disguise one or more fields within a selected table.

The **Table Selection for Field Disguise** window appears.


4. Select the **authors** table and click **Next**. The **Field and Disguise Type Selection** window appears.
5. From the **Disguise Type** list, select **Field Encryption**.
6. In the **Description** field, type a description.
7. Click **Next**. The **Encryption/Decryption Method** window appears.
8. Type **xxx** in the **Key** field and click **Next**. The **Field Selection** pane appears.
9. Select the **phone** check box to choose the phone field to be encrypted.

Note: The  in the **File-AID Data Solutions Compatibility** and **Field Mask** fields only appear for valid selected fields. For example, a field mask is only valid for a string or decimal data type.

10. Click **Next**. The **Data Privacy Summary** window appears, listing the type of privacy applied, the user who specified the data privacy (owner), the date, the encryption key, and the tables and fields on which privacy was applied.
11. Click **Finish**.

Note: If Related Extract or Related Loader were used for the data privacy specification, a message box may appear stating that one or more fields that participate in a foreign key relationship have been protected. The specified protection will be propagated to all appropriate related fields. Click **OK**.

The **Welcome to the Data Privacy Manager** window reappears.

12. From the **File** menu, select **Apply & Exit**. Data Privacy Manager closes and focus returns to the originating program.
13. Do one of the following to save the specification, depending on which tool was used to launch Data Privacy:
 - For ConverterPro:
 1. From the **File** menu, select **Save As**.
 2. In the **Name** field, type **Tutorial1_DP**.
 3. Click **OK**.
 4. From the ConverterPro window's toolbar, click . The **Execution Status Viewer** window appears. The **Details** tab states that Data Privacy was applied in this conversion.
 5. When execution is finished, click **Close**.
 6. Click **Browse Source Data** and click **Browse Target Data**. The **Source Data Browser** and **Target Data Browser** windows appear. Compare the data in the phone columns to see that the target phone field has been replaced with different data in the same format.
 7. Click **OK** on both browsers to close them.
 - For Related Extract:
 1. Click **Next**. The **Save Related Extract Specification** dialog box appears.
 2. In the **Extract Name** field, type **Tutorial1_DP**.
 3. Click **Next**. The **Extract Specification Summary** dialog box appears.
 4. After reviewing the information in this window, click **Run**.
 5. The **Processing Status** window appears. After reviewing this information, click **Exit**.
 - For Related Loader:
 1. Click **Run Load**. The **SQL Insert Status** dialog box appears.
 2. Click **Load**.
 3. Click **Details** to view the load report.

Tutorial 1 is now complete.

Tutorial 2: Generate Data to Replace Data in Selected Fields

After completing this tutorial, users will be able to do the following:

- Generate data as a replacement for data in a field in a conversion specification, extract specification, or load specification.
- Modify a generic data generation pattern to change the format of the data.

Note: A valid license must be installed to enable the Data Generation functions.

Start the Data Privacy Specification

1. Start ConverterPro, Related Extract, or Related Loader and open the saved specification.
 - For ConverterPro, open **Tutorial1**
 - For Related Extract, open **Tutorial2_Extract**
 - For Related Loader, open **Tutorial3_Load**
2. Click **Data Privacy**. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box appears stating that changes cannot be made to the originating program (ConverterPro, Related Extract, or Related Loader) while the Data Privacy Manager is open.

3. Select the type of disguise to be performed.
 - In ConverterPro, users can choose to do any of the following:
 - Use dynamic privacy rules.
 - Apply data privacy to source records.
 - Apply data privacy to target records.
 Click **Target Records: Specify Field Privacy**.
 - In Related Extract, users can choose to do any of the following:
 - Use dynamic privacy rules.
 - Encrypt one or more data files that were created during the Related Extract process.
 - Disguise one or more fields within a selected table.
 Click **Specify Field Privacy**.
 - In Related Loader, users can choose to do any of the following:
 - Specify extract data file decryption.
 - Disguise one or more fields within a selected table.
 Click **Specify Field Privacy**.

The **Table Selection for Field Disguise** window appears.

4. Select the desired table, in this case **authors**, and click **Next**. The **Field and Disguise Type Selection** window appears.
5. Under **Record Layout**, click **phone**.
6. In the **Disguise Type** list, select **Data Generation - Generator**, enter a description, and click **Next**.

Note: The **Next** button is not enabled until a disguise type is selected and a description is entered.

The **Data Generation Function Mapping** window appears. This window is where users map data generation functions to the record layout field to be disguised. Users can map any of the functions that come with Data Generation. In addition, users can map the data generation functions that have been created in the Data Privacy Manager or the ConverterPro component.

7. In the **Name** box's **Contact Information** section, select **Phone with Area Code** and drag it to the **Mapped Field** column of the **phone** field. The **Edit Data Generation Function Parameters** window appears.

The phone format needs to be changed so that it matches the original phone number format.

8. Click the ellipse icon (⋮) on the **Format** line. This opens the **Expression Editor - Data Generation Function Parameter Editor** window.
9. Change the expression to the following:
`"a##[-]a##[-]####"`
10. Click **OK** twice.
11. Click **Next**. The **Data Privacy Summary** window appears.
12. Click **Finish**. The **Welcome to the Data Privacy Manager** window reappears.
13. To close the Data Privacy Manager window, click **File > Apply & Exit**. Focus returns to the originating component.
14. From the **File** menu, select **Save As**. The **Save Conversion As** dialog box appears.
15. In the **Name** field, type **Tutorial2_DP**, then click **OK**.
16. Run the conversion specification and close the **Execution Status Viewer** window when complete.
17. Click **Browse Source Data** and click **Browse Target Data**. Compare the data in the phone columns. The target phone field has been replaced with generated data in the same format.
18. Click **OK**, to close both the source and target browsers.

Tutorial 2 is now complete.

Tutorial 3: Generate Data Using a Pattern to Replace Data in Selected Fields

After completing this tutorial, users will be able to generate data, using a pattern, as a replacement for data in a field in a conversion specification, extract specification, or load specification.

In this tutorial, the `au_id` field in the author's table will be changed from the current social security number format (###-##-####) to another format.

1. Start ConverterPro, Related Extract, or Related Loader and open the saved specification.
 - For ConverterPro, open **Tutorial1**
 - For Related Extract, open **Tutorial2_Extract**
 - For Related Loader, open **Tutorial3_Load**
2. Click **Data Privacy**. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box appears stating that changes cannot be made to the originating program (ConverterPro, Related Extract, or Related Loader) while the Data Privacy Manager is open.

3. Select the type of disguise to be performed.
 - In ConverterPro, users can choose to do any of the following:
 - Use dynamic privacy rules.
 - Apply data privacy to source records.
 - Apply data privacy to target records.
 Click **Target Records: Specify Field Privacy**.
 - In Related Extract, users can choose to do any of the following:
 - Use dynamic privacy rules.
 - Encrypt one or more data files that were created during the Related Extract process.
 - Disguise one or more fields within a selected table.
 Click **Specify Field Privacy**.
 - In Related Loader, users can choose to do any of the following:
 - Specify extract data file decryption.
 - Disguise one or more fields within a selected table.
 Click **Specify Field Privacy**.

The **Table Selection for Field Disguise** window appears.

4. Select the desired table, in this case **authors**, and click **Next**. The **Field and Disguise Type Selection** window appears.
5. Under **Record Layout**, click **au_id**.
6. In the **Disguise Type** list, select **Data Generation - Pattern**, enter a description, and click **Next**. The **Data Generation Pattern Selection** window appears.

The pattern block is initially blank. This tutorial will change the format of the selected field from its original format of a social security number (for example, 255-25-2555 to start with a letter, then two numbers, then another letter, four numbers and another letter and an ending letter Z (for example, A-55-B5555CZ).


Even though this is a variable size field, since we have added an extra digit, the maximum length must be increased to accommodate the longer target field. This will be done when focus is returned to the ConverterPro window.

To create the pattern and designate a letter, type a capital “A” for uppercase letters and a lowercase “a” for lowercase letters. To create numbers in the pattern, type an uppercase letter “N” or the pound “#” sign.

To enter constants, such as hyphens in particular places in all fields, use brackets “[]” around the constant. More than one constant can be used within the brackets, such as a specific area code {248}.

7. In the **Pattern** box, type:

```
A[-]##[-]A#####A[Z]
```

8. Check the **Unique Values** box. This ensures that no two fields will contain the same data.
9. Leave the **Percentage Null** field at zero. This specifies that all **au_id** fields will contain data.
10. Click **Validate**. This verifies that a valid pattern has been entered. If, for instance, a lowercase “n” was entered to designate a number, an invalid pattern message appears. If the pattern is valid, the **Sample Data** button is enabled.
11. Click **Sample Data**. The **Browse Sample Data** window appears.
12. Check that the sample data is presented in the desired format and close the window.
13. Click **Next**. The **Field Selection** window appears with the **au_id** field selected. A field mask could be used to retain any of the data from the original fields. In this case, since the format of the data was changed, a field mask does not need to be used.
14. Click **Next**. The **Data Privacy Summary** window appears. Review the data. To make any changes, click **Back** until focus returns to the window that needs change.
15. Click **Finish**. The **Welcome to the Data Privacy Manager** window appears.
16. From the **File** menu, select **Apply & Exit**. The calling program, in this case ConverterPro, appears.
17. In the tree view, under Data Targets, right-click **authors** and select **View\Edit Record Layout**. The **Record Layout Editor** appears so the field length can be changed to accommodate the longer number.
18. Select the first field, **au_id(Key# 1)**. The **Properties** pane shows that the **MaxSize** field is 11.
19. Double-click the number **11**, change the **MaxSize** to **12**, and click **OK**. The ConverterPro window appears. If the **MaxSize** is not changed, the letter Z will be truncated and not appear in the target data.
20. From the **File** menu, select **Save As**. The **Save Conversion As** dialog box appears.
21. In the **Name** field, type **Tutorial3_DP**, then click **OK**.
22. Run the conversion specification and, when finished, click  to open the **Target Data Browser** for viewing.

Tutorial 3 is now complete.

Tutorial 4: Create a Date Aging Business Rule

After completing this tutorial, users will be able to do the following:

- Create a date aging business rule.
- Apply date aging to the conversion specification, extract specification, or load specification.

Create the ConverterPro Specification

1. Launch ConverterPro like any other application based on your operating system. The ConverterPro window appears, displaying the Data Sources tab.
2. From the **Connector Name** list, select **connector Templates**. The **Open Connection Template** dialog box appears.
3. Select the connector created earlier and click **OK**.
4. Click **Next**. The **Table/View Selection** window appears.
5. Select **dbo.employee** and move it to the **Selected Record Layouts** panel.
6. Click **Next**. The **Data Targets** tab is enabled.
7. In the **Connector Type** drop-down list, select **Delimited File**. The **Delimited File** window appears.
8. In the **Connector Name** field, type **Employee_Delimited**.
9. In the **File Name** field, type **c:\employee.asc** or *<your directory path>\employee.asc*.

Note: Ensure that the directory path specified is a valid and locally mapped drive or path.

The **employee.asc** file is the data target in this conversion specification.

10. From the **Target Action (Exist/Not Exist)** list, select **Recreate/Create**.
11. Click **Next**. The **Record Layout Selection** window appears, and **Existing Source/Target** is selected by default.
12. Select **employee** from the **Existing Record Layouts** panel and add it to the **Selected Record Layouts** panel.
13. Click **Next**. The **Delimited Parser** window appears, displaying the field names, field data type, encoding type, and record occurrence or field length of the fields in the **employee** table.
14. Change the **Record Separator** field to **CR-LF** if necessary.
15. Click **Next**. The **Mapping Editor** tab appears. The project tree view is updated to display the authors file and Tutorial1_Delimited connector. The path and file name are displayed below the authors file.
16. In the **Source** column, right-click the **employee** table and select **AutoMap > By Field Name Match**. All like-named fields are mapped. The automap result appears in the **Mapped Field** column.
17. From the **File** menu, select **Save**. The **Save Conversion As** window appears.
18. In the **Name** field, type **Tutorial4_DP**.
19. In the **Description** field, type **Date aging business rule**.
20. Click **OK** and then click **Next**. The **Conversion Customization** window appears. From this window users can make modifications to the conversion specification. For this tutorial, no changes are needed.
21. Click **Next** past the **Conversion Customization** window.

22. From the **Actions** menu, select **Run**. The **Execution Status Viewer** appears.
23. Click **Close** when execution is complete.

Create the Date Aging Business Rule

1. Click **Data Privacy**. The **Welcome to the Data Privacy Manager** window appears.


Note: A message box appears stating that changes cannot be made to the originating program (ConverterPro, Related Extract, or Related Loader) while the Data Privacy Manager is open.

2. From the **Tools** menu, select **Date Aging Business Rules**. The **Date Aging Business Rules** window appears.
3. From the **Business Rule** list, select **new**, then click **Add** to create a new rule.
4. From the **Rule Type** list, select **Non Work**.
5. From the **Date** list, select **Saturday**.
6. From the **Action/Type** list, select **Roll Backward**.
7. In the **Description** field, enter a description.
8. Click **Add**. This allows users to add another day, if desired.
9. Following the same steps, select **Non Work**, **Sunday**, and **Roll Forward** and click **Add**.
10. From the **Rule Type** list, select **Holiday**.
11. In the **Date** field, type ******1225** , select **Roll Forward**, and click **Add** to add the Christmas holiday.

Note: The format of this field is YYYYMMDD, however, typing ******** for the year causes Data Privacy to mark this as a holiday every year regardless of the day of the week it appears on.

12. Following the same steps, add ******0101** to add the New Year's Day holiday.
13. Click **Save**. The **Save Date Aging Business Rule** window appears.
14. In the **Name** field, type **NonWork**.
15. In the **Description** field, type an optional description, then click **OK**.
16. Click **OK** again to return to the **Welcome to the Data Privacy Manager** window.
17. From the **File** menu, select **Apply and Exit** to close the Data Privacy Manager.

Use a Business Rule in a ConverterPro, Related Extract, or Related Loader Specification

1. In the ConverterPro window, click  . The **Source Data Browser** opens and **dbo.employee** table is selected. The **emp_dob** field shows a date format of 12/30/1995 (MM/DD/CCYY).
2. Click **OK** to close the **Source Data Browser**.
3. Click **Data Privacy**. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box appears stating that changes cannot be made to the originating program (ConverterPro, Related Extract, or Related Loader) while the Data Privacy Manager is open.

4. Select the type of disguise to be performed.

- In ConverterPro, users can choose to do any of the following:
 - Use dynamic privacy rules
 - Apply data privacy to source records
 - Apply data privacy to target records
 Click **Target Records: Specify Field Privacy**.
- In Related Extract, users can choose to do any of the following:
 - Use dynamic privacy rules
 - Encrypt one or more data files that were created during the Related Extract process
 - Disguise one or more fields within a selected table
 Click **Specify Field Privacy**.
- In Related Loader, users can choose to do any of the following:
 - Specify extract data file decryption
 - Disguise one or more fields within a selected table.
 Click **Specify Field Privacy**.

The **Table Selection for Field Disguise** window appears.

5. Select the desired table, in this case **employee**, and click **Next**. The **Field and Disguise Type Selection** window appears.
6. In the **Disguise Type** list, click **emp_dob** (employee date of birth), select **Date Aging** as the disguise type, enter a description, and click **Next**. The **Date Aging Criteria** window appears.

This window allows users to select how much to change the dates for the specification. Users can add or subtract from the dates or enter a specific replacement date.

7. In the **Date Aging Criteria** section of the window, add **2** to the **Years** field, **3** to the **Months** field and **8** to the **Days** field.
8. Click the **NonWork** rule previously created and click **Select**.

Note: To use a different rule, click **Clear** and select the desired rule.

9. Click **Next**. The **Field Selection** window appears with the **emp_dob** field selected.
10. In the **Pattern** column, click the ellipse icon (⋮). The **Date Aging Pattern Selection** dialog box appears.
11. Select the pattern that matches the source document — **MM*DD*CCYY** and click **OK**. Focus returns to the **Field Selection** window.
12. Select the **Business Rule** check box for the **emp_dob** field and click **Next**. The **Data Privacy Summary** window appears.
13. Check the disguise selections and click **Finish**. Focus returns to the **Welcome to the Data Privacy Manager** window.
14. From the **File** menu, select **Apply & Exit**. Focus returns to the calling program—in this case ConverterPro.
15. From the **File** menu, select **Save** to save the changes to the conversion specification.
16. Run the conversion specification and review the source and target data. The target dates should now be two years, three months, and eight days later than the source dates.

Tutorial 4 is now complete.

Tutorial 5: Use a Translation Table to Map Fields to a Source or Target Table

After completing this tutorial, users will be able to do the following:

- Use a translation table to map fields and replace data in a source or target table for a conversion specification, extract specification, or load specification.
- Use the Translate Fail wizard to prevent translation failures.

Users can choose from several translate disguise types:

- **Translate - Search** uses a lookup translation table to map fields to a source or target table. By defining a Search translation, File-AID/EX is instructed how to look up a data value from an external table or file using a specified key. The results of the lookup will be available for assignment to fields that specified in the source table or file. Original data will be replaced with the data returned from the lookup translation table. By using a user-defined lookup table, the actual data is replaced with readable, disguised data that retains the look and feel of the actual data.
- **Translate - Direct** is a lookup translation where the lookup key is generated in a manner consistent with File-AID/Data Solutions. Users can select one or more fields from which to generate an algorithmic value. This value is used as a row index into the lookup (translation) table or file. File-AID/EX will retrieve a row of data from an external table or file based on a hashed record number. The user specifies the data to be assigned over the originating table or file. The algorithm used is internal within the Data Privacy Manager. By running the translation more than once, using the same data to produce the hash value and using the same translate table containing the same number of entries and the same data, the original results can be reproduced. This is a one-way translation—data replacement is irreversible. After output data is translated using this disguise type, the original data cannot be retrieved.
- **Translate - Hash to Key** is a lookup translation where the lookup key is generated in a manner consistent with File-AID/Data Solutions. Users can select one or more fields from which to generate an algorithmic value. This value is used as a row index into the lookup table or file. File-AID/EX will retrieve a row of data from an external table or file based on a hashed record number. The user specifies the data to be assigned over the originating table or file. The algorithm used is internal within the Data Privacy Manager.
- **Translate - Unique** directs File-AID/EX to use a unique translate table or file to map fields to a source or target table. Based on the key fields specified, File-AID/EX will use key data values to develop a unique hashed record number that will be used to read a row from an external table or file. The results of the lookup, if successful, will be available for assignment to fields that the user specifies. Original data will be replaced with the data returned from the translate (lookup) table or file.
- **Translate - Key** directs File-AID/EX to use a lookup table to map fields to a source or target table. By defining a Key translation, File-AID/EX is instructed how to look up a data value from an external table or file using a specified key. The results of the lookup will be available for assignment to fields specified in the source table or file. Original data will be replaced with the data returned from the lookup translation table. By using a user-defined lookup table, users can replace your actual data with readable, disguised data that retains the look and feel of the actual data.

This tutorial uses the Translate - Search translation type.

1. Start ConverterPro, Related Extract, or Related Loader and open the saved specification.
 - For ConverterPro, open **Tutorial1**.
 - For Related Extract, open **Tutorial2_Extract**.

- For Related Loader, open **Tutorial3_Load**.
2. Click **Data Privacy**. The **Welcome to the Data Privacy Manager** window appears.

Note: A message box appears stating that changes cannot be made to the originating program (ConverterPro, Related Extract, or Related Loader) while the Data Privacy Manager is open.
 3. Select the type of disguise to be performed.
 - In ConverterPro, users can choose to do any of the following:
 - Use dynamic privacy rules.
 - Apply data privacy to source records.
 - Apply data privacy to target records.
 Click **Target Records: Specify Field Privacy**.
 - In Related Extract, users can choose to do any of the following:
 - Use dynamic privacy rules.
 - Encrypt one or more data files that were created during the Related Extract process.
 - Disguise one or more fields within a selected table.
 Click **Specify Field Privacy**.
 - In Related Loader, users can choose to do any of the following:
 - Specify extract data file decryption.
 - Disguise one or more fields within a selected table.
 Click **Specify Field Privacy**.

The **Table Selection for Field Disguise** window appears.
 4. Select the desired table, in this case **authors**, and click **Next**. The **Field and Disguise Type Selection** window appears.
 5. Click the **au_id** field.
 6. From the **Disguise Type** list, select **Translate - Search (Lookup Translation)**.
 7. In the **Description** field, add a description, then click **Next**. The **Lookup Table/File Connector** window appears.
 8. Click **Edit** to select the table or file to use for the lookup (translate) table. The **Lookup Connection Editor - Data Connector Selection** window appears.
 9. From the **Connector Name** list, select **connector templates**.
 10. From the **Connection Name** list, select the source connector created earlier list and click **OK**. The connector information populates the **Lookup Connection Editor** window.
 11. Click **Next**. The **Selection List Filter** window appears. No changes should be made on this window.
 12. Click **Next**. The **Table/View Selection** window appears.
 13. Select **guest.authors** from the list and click **Finish**. Focus returns to the **Lookup Table/File Connector** window with the connector and table name filled in.
 14. Click **Next**. The **Source Lookup Key Selection** window appears.
 15. Select **au_id**. Then, from the **Map Source Field(s) to LookupKey** column's list, select **au_id**. This selects the field from the source table/file that will be matched to the lookup table.

16. Click **Next**. The **Lookup Fields to Return** window appears.
17. Select **au_id**. Then, from the **Lookup Return Field** column's list, select **au_id**. This selects the field from the lookup (translate) table that will be returned to the source file for translation. When a field is selected, the ellipse icon (⋮) in the **Default** field appears.

It is possible, depending on the data in the lookup (translate) table, that matching data might not exist to be translated to the source data. In this case translation will fail. However, from this window, users can open the **Translate Fail Wizard** to specify what File-AID/EX should do to prevent translation failure.
18. In the **Default** field, click the ellipse icon (⋮) to start the **Translate Fail Wizard**. The **Translate Fail Wizard** dialog box appears. On this window, users can make three choices.
 - Select **Translate Fail Wizard** to start the **Translate Fail Wizard**. Clicking **Next** brings up the **Field and Disguise Type Selection** window. On this window, users would usually want to pick either **Data Generation - Generator** or **Data Generator - Pattern** to generate data if no data exists in the lookup (translate) table. After making this selection, users continue through the rest of the disguise windows.
 - Select **Source Value** to keep the original source value if there is no translation data to replace the source value.
 - Select **Constant Value** and enter a value to specify specific information to use if there is no translation data to replace the source value.
19. Select **Source Value** and click **Finish**. **Source Value** appears in the **Default** column next to the ellipse icon (⋮).
20. Click **Next**. The **Data Privacy Summary** window appears.
21. Click **Finish**. Focus returns to the **Welcome to the Data Privacy Manager** window.
22. From the **File** menu, select **Apply & Exit**.
23. From the **File** menu, select **Save As**.
24. In the **Name** field, type **Tutorial5_DP_Translate**.
25. In the **Description** field, type an optional description.
26. Browse the source and target data. The **au_id** fields contain different information.
27. Click the **Run** icon to start the conversion.
28. Browse the source and target data again. Now the **au_id** fields contain the same information.

Tutorial 5 is now complete.

Glossary

active window. The currently selected window that has input focus. The active window appears in front of other open windows and the title bar may be a different color than that of inactive windows.

alias. A term used with Oracle's SQL*Net network communications product. A string of characters or a mnemonic name that represents a fully-specified SQL*Net Version 1 connect string or an SQL*Net Version 2 service name.

alignment. Aligns the data in a selected field. Alignment can be left, right, center, or on a decimal point.

alphanumeric field. A field containing letters, numbers, or a combination of both.

append. Add records to the end of an existing data file or table.

application. A program or package of programs that performs a task or group of related tasks for a user.

application relationship (AR). The ability of an application to preserve the defined relationships between tables when records are entered or deleted.

application relationship editor. Specifies application relationships (ARs) between tables and saves them to the local repository or a File-AID/EX shared repository. The ARs can then be used at a later time as part of the extract process.

arithmetic operators. The +, -, *, /, and () are operators used to construct arithmetic expressions.

ascending order. A sort order that is alphabetic in alphanumeric fields, low to high in numeric fields, earliest to latest in date fields.

ASCII (American Standard Code for Information Interchange). A sequence of 128 standard characters used with PC computers. See "EBCDIC (Extended Binary Coded Decimal Interchange Code)".

ASCII data. Data that is stored in readable or printable format. ASCII data can be either delimited or fixed.

ASCII delimited. A type of ASCII flat file. Each piece of data (field) in this file is separated by delimiter characters, for example, commas.

binary data. Fixed record length data that may contain straight ASCII or some combination of EBCDIC and packed data.

blank field. A field that does not contain a value.

BLOB (Binary Large Object). A binary object that can exist in a text or memo field. The BLOB data type supports Oracle and DB2 BLOBs in binary format. BLOBs are used by databases for large, non-text objects. This can include images, audio, or video data. BLOBs can be fixed or variable length.

Boolean. A data type that is always in Binary format. It returns a value of "true" or "false".

BRIEF. A source/text editor product of Borland International. Related Loader provides a keyboard mapping file that emulates the BRIEF editor's keyboard mappings.

cascade. An arrangement of all documents in the window, stacked one on top of another, with the title bar of each exposed for selection.

character. A data type for columns that contain fixed-length character strings.

check box. A box that can be selected or cleared to select or deselect an option.

CLOB (Character Large Object). A character string containing single-byte or multi-byte characters with an associated code page. CLOBs can exist in a text or memo field and can be fixed or variable length. The CLOB data type supports Oracle and DB2 CLOBs in Display format.

column. A field within a table or spreadsheet. The column data types determine the structure of a table. A column consists of data items of a single type.

column data type. A data type that indicates the characteristics of a column used to create a table. The column data type can be displayed in a spreadsheet as part of a column heading.

column headings. The field names in a spreadsheet or database table.

communication manager. The manager for converting, extracting, and loading data. The communication manager is an intermediary whose function is to route or pass communication between File-AID/EX clients and the File-AID/EX Execution Server. Primarily, the communication manager retrieves Related Extract, Related Loader, and ConverterPro specifications from the repository and passes them to the File-AID/EX Execution Server to be executed.

concatenate. To merge the records from two files or to add a string of data to data already existing in a field.

concurrent editing. The process where editing changes made to one document or view of the data are immediately reflected in all views of the same data.

condition. A statement that restricts the type and quantity of data selected from a table. Conditions are created in expressions or queries and applied to a data source. The resulting data target contains only the data that was not excluded by the expression.

conditional disguise. A type of data disguise that is applied only when the applied selection criteria is satisfied.

connect string. A term used with Version 1 of Oracle's SQL*Net network communications product. A string of characters that identify the location of an SQL*Net listener that is running on an Oracle server or host machine. Also known as a host string.

connector. A named object containing user-supplied information, such as user identification, password, etc., to connect to a data source or data target. Connectors, once created, can be stored in a repository for reuse.

connector type. The definition of a connector used by ConverterPro and the Data Privacy Manager to specify an object. Some connector types include: Data Generation, DB2 UDB, Delimited File, Flat File, MS SQL Server, Oracle, XML, etc. See the ConverterPro or Data Privacy Manager online help for a complete list of connector types and their definitions.

constant. A specific, unchanging value.

constraint. A column-level table restriction. There are several types of constraints: unique, primary key, index, and check.

conversion set. Two or more conversion specifications grouped together as a set. When the set is executed, the individual specifications are executed sequentially one after the other.

conversion specification. Contains information about your source and target data and how source fields are mapped to target fields. Desired data can be filtered during conversion, and conversion specifications can be saved in a repository for reuse.

ConverterPro. A wizard-based data migration application. The key ConverterPro features include its source to target migration, connection, browsing, data generation, and data privacy capabilities. ConverterPro can convert one or more sources to one or more targets and using the Data Generation feature can create target data without an external source.

customer support. Users can get File-AID/EX customer support by calling 1-800-538-7822 or by writing: Compuware Corporation, One Campus Martius, Detroit, MI 48226-5099.

daemon. A UNIX process that runs in the background, independent of a terminal, and performs a function. An example is the printer daemon, which controls the job queue for the printer.

data connector. A set of panels that defines a physical data connection for a data source or data target within ConverterPro or the Data Privacy Manager.

Data Definition Language. See “DDL (Data Definition Language)”.

data generation. Data Generation - Generator applies data privacy by populating databases and files with meaningful but randomly generated data. Data Generation - Pattern allows users to apply a pattern to the randomly generated data. These are one-way encryptions; data replacement is irreversible and not repeatable.

data integrity. The assurance that the values in a table are protected from corruption.

data privacy. Provides the ability to create rules to protect your data by concealing sensitive information while maintaining data integrity, table relationships, and data format during processing. The Data Privacy Manager can replace field and record values via key encryption or with meaningful readable data. The Data Privacy Manager is not standalone; it is invoked from within ConverterPro, Related Extract and Related Loader.

data source. A file or database that, during processing, is converted to another data type or the same data type with selection criteria applied. The result of the conversion is a data target. See “data target” for more information.

data structure. A method of storing a specific record layout of a data file.

data target. A file or database that resulted from a data source conversion, which may have been another data type or the same data type with selection criteria applied. See “data source” for more information.

data type. The format of the data that a field can contain. Some data types include text, number, packed decimal, Boolean, and 16-bit binary.

database. An organized collection of information, stored systematically in tables or files in a logical manner for retrieval and storage.

database administrator. An individual or department responsible for managing the data source and databases, and for granting access privileges to users.

Database Management System (DBMS). A program designed to store and manage databases. DBMSs provide data integrity and security, uniform data administration, and reduced application development time.

date aging. A data privacy protection type that allows users to apply data privacy by generating dates or timestamps to replace existing dates or timestamps in the selected fields. This type of data privacy is repeatable and will return the same values each time the specification is run. Date aging can be run on string, date, and timestamp field types only. The date pattern specifies the format in which the date is stored.

date data type. A data type that contains a date value designating the year, month, and day.

DBMS. See “Database Management System (DBMS)”.

DB2 Universal Database (UDB). A relational database management system offered by IBM Corporation. SQL (Structured Query Language) is used to manipulate DB2 UDB objects.

DDE (Dynamic Data Exchange). A way for two or more applications to share data.

DDL (Data Definition Language). The layout or structure of a target table. The DDL defines all of the column names, types, sizes, and table information.

decimal. A number that can contain a fractional part with 7-8 significant digits (this range assumes a 32-bit architecture). ConverterPro and the Data Privacy Manager Lookup Connection Editor process binary floats of 4 and 8 bytes in size. See “column headings”.

decimal scaling. The ability to move a decimal position within a number in a field. For zoned or packed numbers, the decimal position can be moved to the left within the number. For binary numbers, the decimal can be moved left or right within the number. For floating point numbers, users can specify a fixed number of decimal places.

default instance. The Oracle database to which an Oracle client workstation is, by default, configured to connect. A default instance is created when the default Oracle database is started from the client workstation and an explicit SQL*Net connection specifier is not used. The default database can reside on the client or remote workstation.

delimited file. An ASCII data file that contains field separators (usually a comma), field entries usually begin and end with double quotation marks ("), and records are usually separated by a carriage return-line feed. Records and fields are not usually of fixed length. It may or may not contain field delimiters.

descending order. A sort order that is reverse alphabetical in alphanumeric fields, high to low in numeric fields, latest to earliest in date fields.

direct translation. A data privacy lookup translation where the lookup key is generated in a manner consistent with File-AID/Data Solutions. Users can select one or more fields from which to generate an algorithmic value. This value is used as a row index into the lookup (translation) table or file. File-AID/EX will retrieve a row of data from an external table or file based on a hashed record number. Users specify the data to be assigned over the originating table or file. The algorithm used is internal within the Data Privacy Manager.

DNS (Domain Name Server). A server that maps domain names to IP addresses.

driving table. The Related Extract table that is selected to start the discovery of parent, child, and sibling relationships. It is the table from which a user starts the extraction process.

EBCDIC (Extended Binary Coded Decimal Interchange Code). A 256-character set used with a mainframe computer.

Endian. A property for the ConverterPro Record Layout Editor. It describes the order in which bytes are arranged in memory and allows processor identification on which source files were created, or on which target files will be written. There are two types: Big and

Little. In a Big Endian system, the most significant value is stored first. In a Little Endian system, the least significant value is stored first. Generally mainframe computers use Big Endian and PC computers use Little Endian.

execution server. The server that executes the File-AID/EX conversions, extracts and loads. It is designed for high-performance and full functionality, and can connect to relational data environments and MVS data types. The execution server is an alias for the engine that validates connections and executes conversion specifications. An execution server can be a local workstation or remote.

expression. A combination of operators, literal values, field names, and functions used to perform calculations, enter a specific value, concatenate data, or otherwise modify data in a particular field.

field. A column of information in a data file or table. A field contains the same type of data for each record in the data file or table.

field decryption. Enables the decryption of individual fields that have previously been encrypted using the field encryption protection type.

field encryption. Enables the encryption of individual fields while maintaining data integrity. Using the field encryption protection type, users can decrypt encrypted data.

field mask. Enables the processing of selected character positions of a field. In data privacy, by default, all characters of a disguised field are disguised. However, with a field mask, the masked portions appear as they do in the source while the unmasked portions are disguised.

field size. The length of a data field. Data fields can be designated as fixed length or variable length. Each field in a fixed-length column contains data that is a specific length based on the setting for that column. Variable length fields can contain data no longer than the maximum size set in your record layout, but each field is not necessarily the same length.

field type. The characteristics of the type of data contained in a field. Some typical field types include alphanumeric, number, currency, date, and memo.

field value. The actual data contained in one field of a record. If no data is present, the field is considered null.

File-AID/EX Homebase. The initial window that appears when users first start File-AID/EX. From the Homebase window, users can access all of the File-AID/EX components.

flat file. An ASCII or EBCDIC file type that consists of fixed-length fields and records. It differs from delimited files in that it does not contain field or record separators.

float. A data type consisting of a number that can contain a fractional part with seven-eight significant digits. This range assumes a 32-bit architecture. ConverterPro and the Data Privacy Lookup Connection Editor process binary floats of 4 and 8 bytes in size.

foreign key. The column or columns whose values must match the values of the primary key of a related table, often called an application relationship. The foreign key is used to enforce referential integrity.

function. A small program that returns a value based on the results of a calculation or other operation.

hash to key translation. A data privacy lookup translation where the lookup key is generated in a manner consistent with File-AID/Data Solutions. Users can select one or more fields from which to generate an algorithmic value. This value is used as a row index into the lookup table or file. File-AID/EX will retrieve a row of data from an external table or

file based on a hashed record number. Users specify the data to be assigned over the originating table or file. The algorithm used is internal within the Data Privacy Manager.

header. Information that appears at the beginning of a data file but is not a part of the actual data.

Homepage. The initial window that appears when users first start File-AID/EX. From the Homepage window, users can access all of the File-AID/EX components.

icon. A small picture that generally lets users start a program or perform a function.

index. A list of keys, each of which identifies a unique record. Using an index key makes it quicker to locate or sort records.

integer. A data type consisting of a number without a fractional part or an SQL NUMBER data type. ConverterPro and the Data Privacy Lookup Connection Editor recognize integers within the range of -2147483647 to 2147483647 in 32-bit architecture. ConverterPro and the Data Privacy Manager process binary integers of 1, 2, 4 and 8 bytes in size. If an integer's length > 18, or scale is not equal to 0, or precision > 0, then the execution server recognizes an integer data type as equivalent to an SQL NUMBER data type. This data type has >= 38 digits of SQL precision.

Java stack trace. A user-friendly snapshot of the threads and monitors in a Java1 Virtual Machine (JVM).

JDBC (Java Database Connectivity). A Java API that enables Java programs to execute SQL statements and interact with SQL-compliant databases. JDBC makes it possible to write a single database application that can execute on different platforms and interact with different DBMSs.

kernel. The UNIX operating system file responsible for interaction with hardware, memory management, job execution, and file system management.

key translation. A data privacy lookup translation specifying that the user wants to use a lookup table to map fields to a source or target table. Defining a key translation instructs File-AID/EX how to look up a data value from an external table or file using a specified key. The results of the lookup will be available for assignment to fields that are specified in the source table or file. Original data will be replaced with the data returned from the lookup translation table.

KSDS (Keyed Sequential Data Set). A data file that contains a record key to locate a data record.

leading blanks or zeros. Blank spaces or zeros that occur at the beginning of a field before the actual data in the field. This can occur when the field size is larger than the amount of data that the field contains.

list box. A box within a window that provides a list of items for selection. If all of the items do not fit within the list box, the list box includes a vertical scroll bar. Some list boxes allow more than one choice to be made.

local repository. A storage area on your local machine for objects, such as specifications, logs, sets, results, connection templates, application relationships, and selection criteria, that are created from processes applied to data.

logical operator. The operators (=, #, >, <, or ..) that are followed by text or a value.

lookup. A specification describing connection information and properties that enable the user to return data from an external table or file, and which are based on a field in the source table or file.

main menu. The first screen when the user starts a program. The main menu often contains a menu bar that offers multiple program options in the form of drop-down lists.

mapping editor. A ConverterPro interface that manipulates conversion specifications by mapping a data source to a data target prior to conversion execution.

MS SQL Server cursors. A database object used by applications to manipulate data in a set on a row-by-row basis, instead of the typical SQL commands that operate on all of the rows in the set at one time.

MSDE (Microsoft Database Engine). A free Microsoft SQL Server database. During File-AID/EX installation, a search is made for a valid SQL Server installation. If found, File-AID/EX creates a local repository in this SQL Server instance. If not found, File-AID/EX installs MSDE and creates a local repository in the same location where MSDE is installed.

notebook. A graphical representation of a notebook in Related Loader that contains pages designated by tabbed dividers. Users can access the pages of the notebook by clicking the tabs.

number field. A field that can contain only numbers; a sign, such as positive (+) or negative (-); and/or a decimal point. A sign is only applicable to a numeric data type field.

operator. The part of a condition that defines how the left and right sides of the condition should be compared when the condition is evaluated. It is a symbol that represents the operation to be performed on a value or values. There are several types of operators including addition (+ for numeric values), concatenation (+ for string values), subtraction (- for a numeric value), unary negation (- negates a numeric value or a variable containing a numeric value), multiplication (*), division (/), equal (==), not equal (!=), greater than (>), greater than or equal (>=), less than (<), less than or equal (<=), and open and close parentheses ().

packed data type. A binary-coded decimal with one digit per nibble. The packed decimal data type must be fixed length. Packed decimal data types in a source definition can map to an integer data type in a target definition without using a ConverterPro conversion macro.

PCB (Program Communication Block). An IMS control block that describes an application program's interface to an IMS database. One or more PCBs can be used to create a PSB. See "PSB (Program Specification Block)".

primary key. The column or columns whose values uniquely identify a row in a table. The primary key is used to enforce referential integrity.

propagated disguise rule. A rule that propagates relationships when users disguise a key field containing a foreign key relationship. The protection the user selects will be propagated to all appropriate related fields. Propagated disguise rules can be created for any of the Data Privacy disguise types.

PSB (Program Specification Block). An IMS control block that describes databases and logical message destinations that are used by an application program. A PSB is made up of one or more PCBs. See "PCB (Program Communication Block)".

record. One row of information in a data file or table.

record layout. The arrangement and structure of data in a record including the order and size of the components of the record.

record layout editor. An interface that allows users to import, create, and edit record layout definitions.

record number. A unique number that identifies each record in a data file or table.

referential integrity (RI). Preserves the defined relationship between database tables when records are added or deleted.

regular expression. A combination of operators, literal values, field names, and functions that perform calculations, enter a specific value, concatenate data, or otherwise modify data in a particular field.

repository. A storage area for conversion specifications, extract specifications and logs, compare specifications, data privacy rules, selection criteria, and application relationships. Repositories can be local or shared by other users.

Related Extract wizard. A tool for extracting data from local and remote related tables created in DB2 UDB, Oracle, Sybase, and Microsoft SQL Server databases.

schema. The structure of a database that is described in a formal language supported by the Database Management System (DBMS). In a relational database, the schema defines the tables, the fields in each table, and the relationships between fields and tables.

search translation. A data privacy lookup translation specifying that the user wants to use a lookup translation table to map fields to a source or target table. By defining a search translation, users instruct File-AID/EX how to look up a data value from an external table or file using a specified key. The results of the lookup will be available for assignment to fields that the user specifies in the source table or file. Original data will be replaced with the data returned from the lookup translation table.

Selection Criteria wizard. A tool that lets users specify options and conditions for selecting data records for processing. By selecting specific records, users can create a subset of records from your source data with which to work.

server. The machine that responds to a request by the calling application or client in a DDE or OLE conversation.

set. A group of ConverterPro conversion specifications or Compare Facility compare specifications. When a user runs a set, it runs all of the conversion or compare specifications one right after the other.

shared repositories. A reference on your local machine to a storage area residing on another client machine or server that can contain specifications, logs, sets, results, connection templates, application relationships, and selection criteria. File-AID/EX shared repositories can be shared by multiple users.

source file. The data file from which information will be gathered to create a subset of the original file or to convert to another data type. When the conversion specification is executed, the target file is created.

SQL (Structured Query Language). A standard language for storing and manipulating data in relational databases.

status bar. An informational message window for the user. Messages indicate the status of current commands in the window and explain what the menu items perform when selected.

stored procedure. An operation that is stored in the database and executes on the server when called. The stored procedure is available to all clients. When the stored procedure is modified, all clients receive the new version.

string. An alphanumeric value or an expression consisting of alphanumeric characters. It can be a sequence of ASCII or EBCDIC characters of any length.

structure. The arrangement of fields in a data file.

syntax error. An error caused by an incorrectly expressed statement.

table. The basic storage structure of a relational database. A table is a two-dimensional structure made up of rows and columns that contains data.

target file. The file that is created from the information that is transferred from a source file after the conversion specification is executed.

TCP/IP (Transmission Control Protocol/Internet Protocol). A widely used network protocol that the internet is built upon.

template. A reusable object saved within a repository.

time. A data type consisting of a string containing the time in a combination of hours, minutes, and seconds. The TIME function in ConverterPro and the Data Privacy Manager uses a 24-hour clock. The Time data type in ConverterPro and the Data Privacy Manager supports DB2's Time data type in Binary format.

timestamp. A data type consisting of a string containing the date and time in a combination of years, months, days, hours, minutes, and seconds. ConverterPro's Timestamp data type supports MS SQL Server's Timestamp data type in Binary format.

trailing blanks or zeros. Blank spaces or zeros that occur at the end of a field after the actual data in the field. This can occur when the field size is larger than the amount of data that the field contains.

translation. A process that replaces values in a field or record with disguised data. The Data Privacy Manager translates data to create output that appears to be the same format as the original data. The disguised data can be meaningful readable data, or it can be random characters depending on your data privacy rules.

translation failure. Occurs when a translation has been requested and no replacement value can be returned. File-AID/EX.

trigger. An action that causes a procedure to be automatically invoked. A trigger goes into effect when the user modifies data by using an insert, delete, or update command.

unique key. A column or index that ensures that no identical key values are stored in a table.

unique translation. A data privacy translation specifying that the user wants to use a unique translate table or file to map fields to a source or target table. Based on the key fields specified, File-AID/EX will use the key data values to develop a unique hashed record number that will be used to read a row from an external table or file. The results of the lookup, if successful, will be available for assignment to fields specified. Original data will be replaced with the data returned from the translate (lookup) table or file.

user exits. Data privacy exits written by users to perform calculations, analysis, and modifications on individual fields in ways that are not provided as part of the File-AID/EX product. File-AID/EX takes the specified data field, passes it to the field level exit for conversion, and returns the new value to the data field.

variable size. Specifies that the data in a field can be different lengths in different records.

variant. A unique data type that can contain numeric, string, or date data, as well as the special values **Empty** and **Null**.

XML (Extensible Markup Language). A markup language developed by the World Wide Web Consortium. It is a system for organizing and tagging elements of a Web document and is based on SGML (Standard Generalized Markup Language). It enables creation of customized tags, which allow the definition, transmission, validation, and interpretation of data across different computing environments.

XML DTD (Document Type Definition). Consists of rules that define the structure of an XML or SGML document. DTD definitions can be embedded within an XML document or can exist in a separate file.

XML schema. Defines the structure of an XML document. An XML schema indicates which elements and combinations are allowed. An XML schema is a file that can be referenced via a URL (Uniform Resource Locator).c

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