SYBASE®

Getting Started

ECMap™

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[Windows]

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Sybase, Inc., One Sybase Drive, Dublin, CA 94568.

Contents

About This Book

The tutorials in this book provide a brief hands-on introduction to ECMap™. Each tutorial walks through the creation of a particular type of map and uses specific methods for creating the record definitions needed by ECMap.

The objective of each tutorial is to allow you to perform all of the basic functions of creating a map and then add a few capabilities to the finished map, giving you an understanding of the overall functioning of the product. It is not the intention of the tutorials to teach you how to use the product, although it can help to serve that purpose.

Audience

While you certainly do not need to be a programmer to use ECMap, it is helpful to be familiar with certain technical concepts.

How to use this book

- Chapter 1, “Mapping Sequential File Data”.
- Chapter 2, “Creating an Outbound Map”.
- Chapter 3, “Mapping XML Data”.

Related documents

The following documents ship with ECMap:

- *ECMap New Features Guide*
- *ECMap Installation Guide*
- *Release Bulletin for ECMap*
- *ECMap Reference Guide*
- *ECMap User Guide*
- *ECMap Getting Started*

Additional documents are referred to in the ECMap documentation to supply you with specific information that supports this product:

- *ECRTP Reference Guide* to use the data transformation engine

Documentation that supports ECMap can be found on the Sybase Product Manuals web site. Go to Product Manuals at http://www.sybase.com/support/manuals, select ECMap from the drop-down list, and click Go!

Other sources of information

Use the Sybase Getting Started CD, the SyBooks Bookshelf CD, and the Sybase Product Manuals web site to learn more about your product:

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks Bookshelf CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The SyBooks Bookshelf CD is included with your software. It contains product manuals in a platform-independent bookshelf that contains fully searchable, HTML-based documentation.

  Some documentation is provided in PDF format, which you can access through the PDF directory on the SyBooks Bookshelf CD. To view the PDF files, you need Adobe Acrobat Reader.

  Refer to the *README.txt* file on the SyBooks Bookshelf CD for instructions on installing and starting SyBooks.
- The Sybase Product Manuals Web site is the online version of the SyBooks Bookshelf CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

  To access the Product Manuals Web site, go to Product Manuals at http://www.sybase.com/support/manuals/.

Sybase EBFs and software maintenance

❖ **Finding the latest information on EBFs and software maintenance**

1. Point your Web browser to the Sybase Support Page at http://www.sybase.com/support.
2. Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.
3. Select a product.
4. Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as a Technical Support Contact. If you have not registered, but have valid information provided by your Sybase representative or through your support contract, click Edit Roles to add the "Technical Support Contact" role to your MySybase profile.

5 Click the Info icon to display the EBF/Maintenance report, or click the product description to download the software.

Conventions

The formatting conventions used in this manual are:

Formatting example	Indicates
command names and method names	When used in descriptive text, this font indicates keywords such as: • Command names used in descriptive text • C++ and Java method or class names used in descriptive text • Java package names used in descriptive text
myCounter variable *Server*.log *myfile.txt*, *sybase\bin* *User Guide* Chapter 1, "Introduction"	Italic font indicates: • Program variables • Parts of input text that must be substituted • Directory and file names. • Book titles References to chapter titles have initial caps and are enclosed within quotation marks.
File > Save	Menu names and menu items are displayed in plain text. The angle bracket indicates how to navigate menu selections, such as from the File menu to the Save option.
parse|put|get Name|Address	The vertical bar indicates: • Options available within code • Delimiter within message examples
create table table created	Monospace font indicates: • Information that you enter on a command line or as program text. • Example output fragments

If you need help

Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you cannot resolve a problem using the manuals or online help, please have the designated person contact Sybase Technical Support or the Sybase subsidiary in your area.

CHAPTER 1

Mapping Sequential File Data

About this chapter

The tutorial in this chapter walks through the creation of an any-to-any map to convert a sequential file to a COBOL file.

Contents

Creating an any-to-any map for sequential file to COBOL conversion

A map is a set of instructions used to transform source data in one format to destination data in a different format. ECMap provides many options for your source and destination data. Each can be a flat file, a database, XML/HTML, or standards data – X12, EDIFACT, or HL7. This means that ECMap can convert X12 data to a flat file, a flat file to a database, EDIFACT to XML/HTML, a database to HL7, a flat file to a flat file, a database to a database, HL7 to X12, and many other combinations.

During this tutorial of ECMap, you create and run a map to convert data from the format of one proprietary application to the format of a different proprietary application. ECMap calls this kind of map an any-to-any map. The data in each application is a flat file.

For this exercise, you are a company called Major Insurer, Inc. that sells insurance policies to large companies. In order to provide health insurance coverage to the employees of these companies, you need enrollment information for each covered employee. The goal of this exercise is to create and run a map to convert data from the format of the proprietary Human Resources application of your trading partner, Big Manufacturing Company, to the format of your own enrollment database.

Complete this exercise in three easy steps:

1 “Setting up your mapping environment” on page 3

2 “Mapping your data” on page 7

3 “Running your map” on page 25

Install ECMap on your PC to use this tutorial.

Warning! You must create the following directory in order for the map to run:

```
c:\QT\output
```

❖ **Starting the tutorial**

1 From the desktop, double-click the ECMap (globe) icon on your desktop. (When you install ECMap, the installation process automatically places this icon on your desktop.)

2 In the Password text box on the Login window, type ecmap. Press Enter or select OK.

The main ECMap window opens and you are ready to begin the tutorial. To perform actions in ECMap, you can use the menu options at the top of the window or the icons on the toolbar. (The icons are also available on the ECMap Work Space, which can be opened by choosing Workspace from the View menu on the main ECMap window.)

Table 1-1: Menu icons

Project 	Map 	Company 
Partners 	Application Directories 	Files/Databases 
Records/Tables 	Memory Variables 	Rules 
Mapping 	Map Flow 	Generate Map 
Run Map 		

Hints

- On many windows with a drop-down list of available choices, if you begin typing your choice, ECMap automatically enters it for you.
- You can use the Tab key to move from text box to text box when entering data on a window.
- On windows with a Next option, you can either select Next or press Alt-N.
- We assume you are using C as your hard drive. If not, substitute your hard drive letter for C.

Setting up your mapping environment

Less maps required equals less time and money spent.

ECMap Project and Map definition allows you to group related information together. This forms the baseline for sharing information and logic across projects and maps. The design of ECMap is oriented towards minimizing the number of maps created – a map can serve multiple trading partner relationships.

The bottom line is that development costs are reduced and maintenance costs are lowered as well.

Setting up your mapping environment involves:

- Setting up a project
- Setting up a map

❖ Setting up a project

To set up a project, you must provide a project name and a directory path for grouping your maps. Optionally, you may also provide a description of the project and the name and telephone number of a contact person. In this tutorial, you name your project Health Insurance and place your mapping information in the project directory c:\hlthmaps.

1 Select Project on the toolbar or Workspace. The Project window displays.

2 From the File menu on the Project window, select New. From the New submenu, select Project. The New Project window displays.

3 Enter `Health Insurance` in the Project Name text box.

4 Project Description is an optional field.

5 Enter `c:\hlthmaps` in the Directory text box. You can also Browse for the directory if it already exists.

6 Contact is an optional field.

7 Phone Number is an optional field.

8 Select OK to exit from the New Project window and return to the Project - Health Insurance window.

❖ Setting up a map

ECMap makes it easy to ensure that your data is Y2K compliant. You simply define a specific “windowing” year as your “Century Minimum”. All 6-digit dates with years beginning at this year are assumed to be in the current century, while all dates with prior years are assumed to be in the next century. ECMap automatically converts all 6-digit dates to 8-digit dates for you.

If you are using an ODBC database for your log database, you must also set up the DSN (Data Source Name) to connect the database that contains log information to this map.

Optionally, you can also provide a description of the map.

1 From the File menu on the Project - Health Insurance window, select New. From the New submenu, select Map. The New Map Definition window displays. It has three tabs – Map Properties, Map Directories, and Map DSN. Enter the required information on each tab before you select OK at the bottom of the window.

2 On the map properties tab

   a ECMap automatically populates the Map/Project text box with the name of the project – Health Insurance.

   b In the Map/Map text box, enter `BIGMANCO`.

   c From the Map/MapType drop-down list, select ANY2ANY.

   d In the Options/Century Minimum text box, enter `11`.

   e Options/Description is an optional field.

3 On the map directories tab, projects and maps can be stored in the directory structure of your choice. This allows for extreme flexibility for both map development and map management in the operations environment.

   • Select the Map Directories tab to make it active. ECMap automatically populates the text boxes of all the directories, in the format *c:*\ <*project directory path*>\<*map name*>. The directory entries for this example appear as follows:

```
c:\hlthmaps\BIGMANCO
```

For this example, you use these default directories. However, ECMap gives you the option to change the default entries, and it makes changing them a very easy process. You can use the Change All button in combination with the Change/Protect buttons to change multiple unprotected directories at once, or you can manually change the directories one at a time. The protection status does not affect manual changes.

Note To change multiple directories at one time, set the protection status of each directory you want to change to Change and set all others to Protect. Select Change All to browse for a new directory. All the unprotected directories are changed to the directory you select.

Since you are allowed to browse for unprotected directories only, the Invert button is a handy feature that allows you to temporarily change a protected directory to unprotected, browse for and select a new directory, and then change the status back to protected by selecting the Invert button again.

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4 On the Map DSN tab:

a Enter information on the Map DSN tab only if you are using ODBC databases. Since you are not using ODBC databases in this tutorial, do not enter information on this tab.

b Select OK to return to the Project Maps window.

❖ **Creating an any-to-any map**

Assign a name to the map and associate that name with attributes, including a list of directories. You must:

1 Define the type of map as Any2Any

2 Specify the transaction as ANY

3 Specify the Y2K windowing year (Century Minimum)

4 Specify the directories in which map-related information are stored

❖ **Making your new map the current active map**

- The project map that you just defined is highlighted on the Map – Health Insurance BIGMANCO window. You now make the map “current” by double-clicking on it.

You return to the main ECMap window and the “current” map information displays in the status bar at the bottom of the window.

Note Each time you start ECMap, it “remembers” the last map you used and automatically opens it for you.

Mapping your data

Choose to use a record definition as the source, the destination, or both. The default is both.

Mapping your data involves:

- Defining the source data.
- Defining the destination data.
- Mapping the source data to the destination data.
- Creating the map flow.

Defining the source data

Manually enter the record definitions for the source data, which is enrollment data from your trading partner. The enrollment file is produced by your trading partner’s human resources application (HR_ENRL.SEQ) and consists of two record types – one for subscribers (ENRL_SUB) and one for dependents (ENRL_DEP). These formats are displayed below:

```
HR_ENRL.SEQ
REC_TYPE                1     AN
SUBSCR_ID               9     AN
RELATIONSHIP            1     AN
SSN                     9     AN
NAME_LAST              20     AN
NAME_FIRST             20     AN
NAME_MI                 1     AN
ADDR1                  35     AN
ADDR2                  35     AN
CITY                   20     AN
STATE              2    AN
```

```
ZIP_5              5     AN
DT_OF_BRTH         8     DT
COVG_START_DT      8     DT
COVG_END_DT        8     DT
```

❖ **Manually entering record definitions**

ECMap automatically calculates the record length for you as you add fields to the record.

1 Select Records/Tables on the toolbar or Workspace. The Records/Tables window displays.

2 Right-click Records on the Records/Tables window and choose New Record from the drop-down menu. The New Record window displays with the Required tab selected.

3 Enter the following on the New Record window, Required tab:

- Record Name – enter ENRL_SUB
- Record Description – enter Employee/subscriber record
- Record Length – enter 0
- End Character – select CRLF from the drop-down list

4 Select the Optional tab.

5 In Record Type, select Source (input data to map).

6 Select OK to display the New Field window. The New Field window has two tabs – Fields and Options.

❖ **Navigating through the fields in a record**

ECMap automatically fills in the Start Position of the current field. For the first field in a record, ECMap enters “1”. For subsequent fields, ECMap calculates the start position based on the field lengths you entered for the previous fields.

1 On the Fields tab, ECMap automatically enters the Record Name, ENRL_SUB.

2 The Field Description is optional; if you leave it blank, ECMap populates it with the Field Name.

3 You must enter the Field Name, Length, and Type on the Fields tab.

4 The Web Parameter is required only for HTML or XML data.

5 If you begin typing “AN” ECMap automatically enters the alphanumeric Field Type for you.

6 After you enter the information on the Fields tab for each field (except the last), select Next. A blank New Field window displays. After you enter the information for the last field in the record,

7 Select OK to return to the New Record window.

8 After you have entered the information for one field, to move to a new field, you can TAB down to Next and press Enter, select Next, or press the “N” key while holding down the ALT key.

❖ **Entering information in the fields in a record**

1 Enter the following on the Fields tab, then select Next:

```
Field Name          REC_TYPE
Field Length        1
Field Type          AN
```

2 Enter the following on the Fields tab, then select Next:

```
Field Name          SUBSCR_ID
Field Length        9
Field Type          AN
```

3 Enter the following on the Fields tab, then select Next:

```
Field Name         RELATIONSHIP
Field Length        1
Field Type          AN
```

4 Enter the following on the Fields tab, then select Next:

```
Field Name          SSN
Field Length        9
Field Type          AN
```

5 Enter the following on the Fields tab, then select Next:

```
Field Name          NAME_LAST
Field Length        20
Field Type          AN
```

6 Enter the following on the Fields tab, then select Next:

```
Field Name          NAME_FIRST
Field Length        20
Field Type          AN
```

7 Enter the following on the Fields tab, then select Next:

```
Field Name          NAME_MI
Field Length        1
Field Type          AN
```

8 Enter the following on the Fields tab, then select Next:

```
Field Name          ADDR1
Field Length        35
Field Type          AN
```

9 Enter the following on the Fields tab, then select Next:

```
Field Name          ADDR2
Field Length        35
Field Type          AN
```

10 Enter the following on the Fields tab, then select Next:

```
Field Name          CITY
Field Length          20
Field Type          AN
```

11 Enter the following on the Fields tab, then select Next:

```
Field Name          STATE
Field Length        2
Field Type          AN
```

12 Enter the following on the Fields tab, then select Next:

```
Field Name          ZIP_5
Field Length        5
Field Type          AN
```

13 Enter the following on the Fields tab, then select Next:

```
Enter on the Fields tab:
Field Name          DT_OF_BIRTH
Field Length        8
```

```
Field Type          DT
```

14 Two text boxes appear. Select from the drop-down list, then select Next:

```
Date Format          YYYYMMDD
Century Minimum Type Use global century minimum
```

Note If you start typing “YYY..” ECMap automatically enters the Date Format for you.

If you start typing “Use Glo...”, ECMap enters the Century Minimum Type for you automatically.

15 Enter on the Fields tab:

```
Field Name          COVG_START_DT
Field Length        8
Field Type          DT
```

16 Two text boxes appear. Select from the drop-down list, then select Next:

```
Date Format          YYYYMMDD
Century Minimum Type Use global century minimum
```

17 Enter on the Fields tab:

```
Field Name          COVG_END_DT
Field Length        8
Field Type          DT
```

18 Select from the drop-down list:

```
Date Format          YYYYMMDD
Century Minimum Type Use global century minimum
```

Select OK to return to the Records/Tables window. The fields in the record ENRL_SUB are displayed.

Note If you accidentally select Next instead of OK, you must select Cancel to exit from the Field Properties window and return to the New Record window.

❖ **Creating a copy of a record and its fields**

1 Right-click ENRL_SUB and choose Template Record from the drop-down menu.

The Template Record window displays with the Required tab selected. Record Description, Record Length, and End Character are automatically populated with information from the ENRL_SUB record.

2 For the Required tab, enter or change the following:

- Name – enter ENRL_DEP.
- Description – change the description to Employee dependent record.
- Length – do not make any changes.
- For End Character – keep CRLF.

3 Select the Optional tab.

- For Record Type, keep Source (input data to map).
- Leave Record Tag blank.

4 Select OK to return to the Records/Tables window.

❖ **Adding field attributes to the manually entered records**

1 On the Records/Tables window, open ENRL_SUB, right-click REC_TYPE under ENRL_SUB, and choose Field Properties from the drop-down menu. The Field Properties window displays.

2 Select the Options tab to make it active. Select the check box next to Record Type to check it and then select in the Record Type text box.

3 Type S in the text box and select OK to return to the Records/Tables window. Close the ENRL_SUB record by selecting the minus button next to it.

Note The “record type” field property associates an application data record with a layout. In this example, assign “S” as the record type for a subscriber record and “D” as the record type for a dependent record. This is an arbitrary choice, and you may assign any unique value you choose.

---

4 Open ENRL_DEP, right-click REC_TYPE under ENRL_DEP, and choose Field Properties from the drop-down menu. The Field Properties window displays.

5 Select the Options tab to make it active.

6 Select the check box next to Record Type to check it and then select in the Record Type text box.

7 Type D in the text box and select OK to return to the Records/Tables window.

8 From the File menu on the Records/Tables window, choose Close to return to the main ECMap window.

Defining the destination data

Import the file definition for the destination application data from a COBOL copybook. The description of the enrollment file in the enrollment database is contained in the COBOL copybook whose format displays below:

```
ENROLL.CBL01 HLTH_INS_ENRL.
10 EMPLOYER_ID                  PIC X(5).
10 EMPLOYER_NAME                PIC X(20).
10 SUBSCRIBER_ID                PIC X(12).
10 COVERAGE_EFFECTIVE_DATE      PIC 9(8).
10 COVERAGE_TERMINATION-DATE    PIC 9(8).
10 SUBSCRIBER_SSN               PIC X(9).
10 SUBSCRIBER_LAST_NAME         PIC X(15).
10 SUBSCRIBER_FIRST_NAM         PIC X(15).
10 SUBSCRIBER_MI                PIC X(1).
10 SUBSCRIBER_DOB               PIC 9(8).
10 ADDRRESS_1                   PIC X(25).
10 ADDRRESS_2                   PIC X(25).
10 CITY                         PIC X(25).
10 STATE                        PIC X(2).
10 ZIP_CODE                     PIC X(10).
10 DEPENDENT_SSN                PIC X(9).
10 DEPENDENT_FIRST_NAME         PIC X(15).
10 DEPENDENT_LAST_NAME           PIC X(15).
10 DEPENDENT_MI                 PIC X(1).
10 DEPENDENT_DOB                PIC 9(8).
```

❖ **Changing field attributes in the imported COBOL data**

1 Select Record/Tables on the toolbar or Workspace. The Records/Tables window displays, with three records – the two records you manually entered (ENRL_SUB and ENRL_DEP) and the record you just imported (HLTH_INS_ENRL).

Note When ECMap imports a record definition, the program automatically populates the text boxes on the Fields tab – Record Name, Field Name, Field Description, Start Position, Field Length, and Field Type.

---

2 Right-click HLTH_INS_ENRL and choose Record Properties from the drop-down menu. The Record Properties window displays. Select the Optional tab. For the Record Type field, select the dropdown list box and choose Destination. Select OK to exit the Record Properties window.

3 Double-click HLTH_INS_ENRL to display the fields in the record.

4 Right-click EMPLOYER_ID and choose Field Properties from the drop-down menu. Select the Options tab of the Field Properties window to make it active and check Fixed String. Select the text box and type 13579. Select Next to display the Field Properties window for the next field in the record, EMPLOYER_NAME.

5 On the Options tab of the Field Properties window for EMPLOYER_NAME, check Fixed String. Select the text box and type Big Manufacturing Co. Select OK.

6 Right-click COVERAGE_EFFECTIVE_DATE and choose Field Properties from the drop-down menu. The Field Properties window displays. It has two tabs – Fields and Options.

7 For Field Type on the Fields tab, select DT-DATE from the drop-down list. Two additional text boxes appear – Date Format and Century Minimum Type.

Note COBOL date fields are imported with a Field Type of UI. They must be changed to DT and a date format selected.

---

8 For Date Format, select MMDDYYYY from the drop-down list.

In the Century Minimum Type field, select Use global century minimum. Select Next to display the Field Properties window for the next field – COVERAGE_TERMINATION_DATE.

Note The Y2K logic in ECMap allows the default values specified in the map definition process to be overridden on a field-by-field basis.

9 For Field Type on the Fields tab, select DT-DATE from the drop-down list. Two additional text boxes appear – Date Format and Century Minimum Type.

10 For Date Format, select MMDDYYYY from the drop-down list. In the Century Minimum Type field, select Use global century minimum. Select OK to exit the Record Properties window.

Note If you choose different date formats for your input and output data, ECMap automatically makes the conversion for you.

11 Right-click SUBSCRIBER_DOB and choose Field Properties from the drop-down menu. The Field Properties window displays.

12 For Field Type on the Fields tab, select DT-DATE from the drop-down list. Two additional text boxes appear – Date Format and Century Minimum Type.

13 For Date Format, select MMDDYYYY from the drop-down list. In the Century Minimum Type field, select Use global century minimum.

14 Select OK to exit the Record Properties window.

15 Right-click DEPENDENT_DOB and choose Field Properties from the drop-down menu. The Field Properties window displays.

16 For Field Type on the Fields tab, select DT-DATE from the drop-down list. Two additional text boxes appear – Date Format and Century Minimum Type.

17 For Date Format, select MMDDYYYY from the drop-down list. In the Century Minimum Type field, select Use global century minimum.

18 Select OK to exit the Record Properties window.

19 On the Records/Tables window, choose Close from the File menu to return to the main ECMap window.

❖ **Importing record definitions from a COBOL copybook**

1 From the Application Files menu on the main ECMap window, select Import Definition.

2 From the Import Definition submenu, select COBOL. The COBOL Record Definition Import window displays. ECMap automatically enters the names of the Project and Map.

3 Select Browse next to the COBOL Definition Import File/File Name. The Choose COBOL Import File window displays.

4 Locate *c:\Program Files\Sybase\ECMap\maps\data\enroll.cbl* and double-click it. You return to the COBOL Record Definition Import window and the program automatically enters the full directory path in the COBOL Definition Import File/File Name text box.

This specifies the location of the file (directory and file) containing the COBOL record definitions.

5 In the Options section of the window, select Add Application Record, File Name, and Directory. This populates the File Location/File Name and the File Location/Directory with the file name and directory path of the imported record definition.

6 In the File Location section of the window, select the File Name text box and change enroll.cbl to enroll.seq. Then, select the Directory text box and change the directory to *c:\QT\OUTPUT*. This specifies the location of the file (directory and file) containing the COBOL application data.

7 Select Continue. If a file with this name:

- Does not exist, the New File window displays. Go to the next step.
- Already exists, the Select COBOL Records window displays. Go to Step 9. (A file with this name would already exist, for example, if you repeat this sequence of steps.)

8 On the New File window, ECMap automatically enters the *enroll.seq* as the File Name. Select SEQUENTIAL-ASCII as the File Type from the drop-down list. The File Description is an optional field. Select OK. The Select COBOL Records window displays.

Note The file *enroll.cbl* contains the COBOL record definitions. The file *enroll.seq* contains the COBOL data.

---

9 Select 01 HLTH_INS_ENRL to select it and select LOAD. The View Log dialog box appears with the message “Run Complete”. The definition of the record HLTH_INS_ENRL has been imported into ECMap and is associated with the file enroll.seq. The file *enroll.seq* is associated with the directory *c:\QT\OUTPUT*. Select Yes on the View Log dialog box.

10 The COBOL Import Log window displays, with a listing of the extracted records and a summary of any syntax errors in the file.

11 Select OK. In the excobol dialog box, the message “Extract Run Completed Successfully” displays.

12 Select OK on the excobol dialog box to return to the COBOL Record Definition Import window.

13 Select Cancel to exit from the COBOL Record Definition Import window to return to the main ECMap window.

❖ **Linking records to files and directories**

When you imported the COBOL record definition, you chose Add Application Record, File Name, and Directory. This automatically linked the records (to be read using the imported definitions) with a file and directory. ECMap uses this directory path to locate the application data when the map is run. When you manually entered record definitions, you told ECMap how to read the records, but not how to find the data. Now, link the records (to be read with the definitions you manually entered) with a file and a directory.

1 Select Applications Directory on the toolbar or Workspace. The Directories (Mailboxes) window displays. The directory path you set up when you imported the COBOL record definitions displays – *c:\QT\OUTPUT*.

2 Double-click a directory to display the files it contains. Double-click a file to display the records it contains. Double-click a record to display the fields it contains.

3 On the Directories (Mailboxes) window, right-click Application Directories and choose New Directory. The New Directory window displays. For Directory, Browse for or enter *c:\Program Files\Sybase\ECMap\ maps\data*. Select OK to return to the Directories (Mailboxes) window.

4 Select *c:\..\maps\data* and choose Open from the Application Files menu at the top of the window. The Files/ Databases window displays beside the Directories (Mailboxes) window.

5 Right-click Files on the Files/Databases window and choose New File. The New File window displays. Select in the File Name text box and enter HR_ENRL.SEQ. For File Type, choose SEQUENTIAL-ASCII from the drop-down list. File Description is optional. Select OK to close the New File window.

6 Select HR_ENRL.SEQ and choose Open from the Record menu at the top of the Files/Databases window. The Records/Tables window displays beside the Directories (Mailboxes) and Files/Databases windows.

7 On the Records/Tables window, all three record definitions associated with this map are displayed.

8 Drag ENRL_SUB from the Records/Tables window and drop it on HR_ENRL.SEQ on the Files/Databases window. Now, drag ENRL_DEP from the Records/Tables window and also drop it on HR_ENRL.SEQ on the Files/Databases window. You have associated the records with a file.

9 Drag HR_ENRL.SEQ from the Files/Databases window and drop it on *c:\Program Files\Sybase\ECMap\maps\data* on the Directories (Mailboxes) window. You have associated the file with a directory.

   You have now linked your input records with a file and a directory. On all three windows, you can double-click to display files in a directory, records in a file, and fields in a record.

10 Choose Close from the File menu on each of these three windows to close them and return to the main ECMap window.

❖ **Mapping the source data to the destination data**

Mapping in ECMap is an easy drag-and-drop procedure. On the Any-to-Any mapping window, the source records are on the left, the destination records are on the right, and the mapping results are at the bottom of the window. Between the source and destination records, there is a temporary mapping workspace where you can map multiple records at one time.

Note To make sure that you have "grabbed" the element that you want to drag-and-drop, a small icon of a page must appear when you highlight the element. If the small page icon does not appear until after your cursor moves onto the section of the window with application data, you did not "grab" the element and you cannot drop it onto a record field to map the element to the field.

Create your mapping instructions with one of these methods:

- Drag record fields from the source data and dropping them on record fields in the destination data one at a time
- Enter multiple source and destination record fields in the temporary mapping workspace and mapping them simultaneously with the select of a button.
- Select Mapping on the toolbar or Workspace. The Rule Definition – New window displays. For Rule Number, enter 20. For Rule Definition, enter Mapping Commands. Select OK and the Any-to-Any Map window displays. Under Rules in the upper right corner of the window, 20 displays in the Number text box and 1 displays in the Line text box. You are ready to begin entering the individual mapping commands.

❖ **Individually mapping fields from the ENRL_SUB record**

Mapping in an any-to-any map takes place in one rule, and each instance of mapping is a command in this rule. Each time you map a field, ECMap assigns a new line number to the command that is being created.

To individually map fields in the ENRL_SUB record, drag a Source field from the right side of the window and drop it onto a Destination field on the left side of the window. The results show up in the Mapping section in the bottom middle of the window.

1 Double-click ENRL_SUB under Source and HLTH_INS_ENRL under Destination to display the fields in the records.

- Drag the SUBSCR_ID field of the ENRL_SUB record under Source and drop it on the SUBSCRIBER_ID field of the HLTH_INS_ENRL record under Destination.
- Drag SSN and drop it on SUBSCRIBER_SSN.
- Drag NAME_LAST and drop it on SUBSCRIBER_ LAST _NAME.
- Drag NAME_FIRST and drop it on SUBSCRIBER_ FIRST _NAME.
- Drag NAME_MI and drop it on SUBSCRIBER_MI.
- Drag ADDR1 and drop it on ADDRESS_1.
- Drag ADDR2 and drop it on ADDRESS_2.
- Drag CITY and drop it on CITY.
- Drag STATE and drop it on STATE.
- Drag ZIP_5 and drop it on ZIP_CODE.
- Drag DT_OF_BIRTH and drop it on SUBSCRIBER_DOB.

- Drag COVG_START_DT and drop it on COVERAGE_EFFECTIVE_DATE.
- Drag COVG_END_DT and drop it on COVERAGE_TERMINATION-DATE.

2 Under Source, close the ENRL_SUB record by selecting the minus button next to it. Double-click the ENRL_DEP record to open it.

❖ **Mapping multiple fields simultaneously from the ENRL_DEP record:**

In addition to individual drag-and-drop mapping, you can also map multiple fields at one time. First, you double-click the Source fields that you want to map, and they appear under Source in the temporary mapping workspace in the middle of the window. Then, you double-click the Destination fields you want to map, and they appear under Destination in the temporary mapping workspace. Finally, you select => between the two sides of the temporary mapping workspace and each Source field is mapped to the Destination field directly across from it. The results of all the mappings show up in the middle section at the bottom of the window.

1 From the ENRL_DEP record under Source, double-click:

- SSN
- NAME_LAST
- NAME_FIRST
- NAME_MI
- DT_OF_BIRTH

There are five Source entries in the temporary mapping workspace.

2 From the HLTH_INS_ENRL record under Destination, double-click:

- DEPENDENT_SSN
- DEPENDENT_LAST_ NAME
- DEPENDENT_FIRST_NAME
- DEPENDENT_MI
- DEPENDENT_DOB

There are five Destination entries in the temporary mapping workspace.

3 Select => between the two sides of the temporary mapping workspace. Each Source field is mapped to the Destination field directly across from it. The temporary mapping workspace is now blank, and the results of all the mappings show up in the middle section at the bottom of the window. Select X in the upper right corner of the Any-to-Any Map window to close that window and return to the main ECMap window.

❖ Creating the map flow

The map flow defines the relationship between the source application data and the destination application data. Levels and rules are the tools you use to create flow. You just created one rule – 20 Mapping Commands – when you mapped your data. Now, create the rules to read and write the data. Also create the levels that tell ECMap when to perform these rules.

- Select Map Flow on the toolbar or Workspace. The Any-to-Any Map Flow window displays. From the Option menu at the top of the window, select Multiple Files so that it is unchecked.

Note To toggle between checking and unchecking an option, simply select the option.

❖ Adding rules

1 From the View menu at the top of the Any-to-Any Map Flow window, choose Rules. The Rule Definitions window displays.

2 From the File menu of the Rule Definitions window, choose New Rule. The Rule Definition – New window displays:

   a For Rule Number, enter 10.

   b For Rule Definition, enter Read Subscriber Record.

   c Select OK to return to the Rule Definitions window.

Note ECMap usually offers you more than one way to perform an action. For example, whenever you can choose New from a File menu, you can also right-click an object on the window to display a drop-down menu that allows you to add a new object.

---

3 Right-click rule 10: Read Subscriber Record and choose New Command from the drop-down menu. The Rule Command - New window displays. The Rule Number and Line Number are automatically entered by ECMap.

4 In the Command text box on the Rule Command - New window, choose Sequential I/O from the drop-down menu. Four additional text boxes appear:

   a Select the I/O Command up arrow and choose Read Record.

   b Select the Application Directory up arrow to display the Directories (Mailboxes) window.

   c Double-click *c:\Program Files\Sybase\ECMap\maps\data*, then double-click HR_ENRL.SEQ, and finally double-click ENRL_SUB.

   d When you double-click ENRL_SUB, the program automatically enters the directory, file, and record you double-clicked in the Application Directory, Application File, and File Record text boxes.

   e Select OK on the Rule Command – New window to close both that window and the Directories (Mailboxes) window.

5 From the File menu of the Rule Definitions window, choose New Rule. The Rule Definition – New window displays:

   a For Rule Number, enter 30.

   b Rule Definition, enter Read Dependent Record.

   c Select OK to close the Rule Definition - New window.

6 Right-click rule 30: Read Dependent Record and choose New Command from the drop-down menu. The Rule Command - New window displays.

7 In the Command text box on the Rule Command - New window, choose Sequential I/O from the drop-down menu. Four additional text boxes appear.

   a Select the I/O Command up arrow and choose Read Record.

   b Select the Application Directory up arrow to display the Directories (Mailboxes) window.

   c Double-click *c:\Program Files\Sybase\ECMap\maps\data*, then double-click HR_ENRL.SEQ, and finally double-click ENRL_DEP (the record you want to read). When you double-click ENRL_DEP, the program automatically enters the directory, file, and record you double-clicked in the Application Directory, Application File, and File Record text boxes.

   d Select OK on the Rule Command – New window to close both that window and the Directories (Mailboxes) window.

8 From the File menu on the Rule Definitions window, choose New Rule. The Rule Definition – New window displays.

   a For Rule Number, enter 40.

   b Rule Definition, enter Write Output Record.

   c Select OK to close the Rule Definition - New window.

9 Right-click rule 40: Write Output Record and choose New Command from the drop-down menu. The Rule Command – New window displays.

10 In the Command text box on the Rule Command – New window, choose Sequential I/O from the drop-down menu.

   a For the I/O Command, choose Write Record. Select the Application Directory up arrow to display the Directories (Mailboxes) window.

   b Double-click *c:\qt\OUTPUT*, the double-click *enroll.seq*, and finally double-click HLTH_INS_ ENRL (the record you want to write). When you double-click HLTH_INS_ENRL, the program automatically enters the directory, file, and record you double-clicked in the Application Directory, Application File, and File Record text boxes.

   c Select OK on the Rule Command – New window to close both that window and the Directories (Mailboxes) window.

11 Choose Close from the File menu of the Rule Definitions window to close that window and return to the Any-to-Any Map Flow window.

❖ **Adding levels**

Our source file is read sequentially, and the record type field determines when to break to a new level.

1 From the File menu of the Any-to-Any Map Flow window, choose New. Choose Add Master Level from the New submenu.

   The Any-to-Any Record Flow window displays side-by-side with the Any-to-Any Map Flow window. It has two tabs – Required and Advanced. In this exercise, enter information only on the Required tab.

2 On the Required Tab of the Any-to-Any Record Flow window, identify the following:

   a Under Levels, select the Current up arrow. The Levels window displays to the left, superimposed over the Any-to-Any Map Flow window.

b From the File menu of the Levels window, choose New. The New Level window displays. In the first text box, enter 100 as the level code. In the second text box, enter Read and Map Subscriber Record. Select OK to close to the New Level window.

c On the Levels window, double-click 100 Read and Map Subscriber Record. The program enters 100 in the Current text box under Levels.

d Under Record Type, Mandatory has already been selected and cannot be changed.

e Under Records, select the Current up arrow. The Records/Tables window displays to the left, superimposed over the Any-to-Any Map Flow window.

f On the Records/Tables window, double-click ENRL_SUB, and the program enters it in the Current text box under Records.

g Under Rules, select the I/O up arrow. The Rule Definitions window displays to the left, superimposed over the Any-to-Any Map Flow window.

h On the Rule Definitions window, double-click rule 10: Read Subscriber Record. The program automatically enters 10 in the first I/O text box and Read Subscriber Record in the second I/O text box. Leave the default 0: DO Nothing rule as both the Before rule and as the After rule.

i Select OK on the Any-to-Any Record Flow of Level 100 window to return to the Any-to-Any Map Flow window.

j From the File menu on the Any-to-Any Map Flow window, choose New. Choose Add Child Level from the New submenu. The Any-to-Any Record Flow window displays.

3 On the Advanced Tab of the Any-to-Any Record Flow window:

a Under Levels, select the Current up arrow. The Levels window displays to the left, superimposed over the Any-to-Any Map Flow window.

b From the File menu on the Levels window, choose New. The New Level window displays. In the first text box, enter 200 as the level. In the second text box, enter Read Dependent Record and Map. Select OK to close the New Level window.

c On the Levels window, double-click 200 Read Dependent Record and Map. The program enters 200 in the Current text box under Levels.

d As the Record Type, choose Optional (No Msg).

e Under Records, select the Current up arrow. The Records/Tables window displays to the left, superimposed over the Any-to-Any Map Flow window.

f On the Records/Tables window, double-click ENRL_DEP, and the program enters it in the Current text box under Records. Close the Records/Tables window.

g Under Rules, select the I/O up arrow. The Rule Definitions window displays.

h On the Rule Definitions window, double-click rule 30: Read Dependent Record. The program automatically enters 30 in the first I/O text box on the Any-to-Any Record Flow window and Read Dependent Record in the second I/O text box.

i On the Rule Definitions window, double-click rule 20: Mapping Commands. The program automatically enters 20 in the first Before text box on the Any-to-Any Record Flow window and Mapping Commands in the second Before text box.

j On the Rule Definitions window, double-click rule 40: Write Output Record. The program automatically enters 40 in the first After text box on the Any-to-Any Record Flow window and Write Output Record in the second After text box. Close the Rule Definitions window.

k Select OK on the Any-to-Any Record Flow of Level 200 window to close that window and return to the Any-to-Any Map Flow window. Choose Close from the File menu of the Any-to-Any Map Flow window to return to the main ECMap window. Close all other open windows.

Running your map

ECMap is known for its high speed and quality performance. Map generation results in an efficient map run process, which in turn contributes to the speed and throughput of the ECMap mapping product.

Running your map involves:

• “Generating your map” on page 26

- "Running your map" on page 26

The final steps in the mapping process are to generate and run your map. During generation, your map is checked to make sure that everything is set up properly. Generating the map produces the *.map* file, which contains all the mapping instructions you created. Running the map – with the ECRTP runtime program – interprets the *.map* file, reads the input data, performs the mapping, and creates the output file.

❖ Generating your map

When you generate a map, ECMap compiles all of your business rules and logic into your finished map.

1 Select Generate Map (the yellow traffic light) on the toolbar or Workspace. The Generate Map window displays.

2 Make sure that the Multiple Files check box is not checked.

Note Multiple Files is checked by default. Select the check box to uncheck it, or you receive a warning – "All Recd Files with Multiple Recs must have Record Type Fields"

3 Select Run on the Generate Map window. Messages flash across the text box until the following message appears: "Map generation completed successfully".

4 You can view the results of the map generation process by selecting View Log. The Generate Log window displays.

5 Select Exit to return to the main ECMap window.

❖ Running your map

Map files are distributed and deployed with the runtime engine.

1 Select Run Map (the green traffic light) on the toolbar or Workspace.

The Run Any-to-Any Map window displays. It has several tabs – Required, Option 1, Option 2, File Alias, ODBC Alias, Parameters, I/O Redirect, and Web Script.

For this exercise, you have to enter only one value. The program has already entered the other required information for you.

If a map run is successful and Short Trace is used, the message "Maprun Complete – No Errors Encountered" appears. If the run is not successful, you need to run the map again, choosing Long Trace. You would then use the expanded information in this log to correct your errors.

2 On the Option 1 tab, select Short Trace as the Trace Type.

3 Select Run Map.

4 Select View Trace to review the trace log. The message "Maprun Complete – No Errors Encountered" displays on the outgoing.err-Notepad window.

Note If you choose Long Trace as the Trace Type, ECMap gives you a detailed list of records read and written, rules performed, etc.

5 Close the outgoing.err Notepad window.

6 Close the Run Any-to-Any Map window to return to the main ECMap window.

CHAPTER 2

Creating an Outbound Map

About this chapter

The tutorial in this chapter walks through the creation of an any-to-any map to convert COBOL data to an X12 850 transaction.

Contents

Creating an outbound transaction map

During this tutorial of ECMap, create and run a map to convert data from a flat file to an X12 transaction set. ECMap calls this kind of map an outbound transaction map.

For this exercise, you are a company called Computer Services, Inc. who orders supplies from a trading partner called Memory Plus. The goal of this exercise is to create and run a map to convert data from the format of your Order Management System (COBOL-based application) to an X12 850 Transaction Set (the standard EDI Purchase Order) to send to your trading partner.

You can complete this exercise in three easy steps:

- "Setting up your mapping environment" on page 31
- "Mapping your data" on page 39
- "Running your map" on page 50

After you successfully create and run your map, we introduce you to a few of the features that set ECMap apart from other mapping software and give you the ability to integrate complex business logic into your maps easily and quickly.

In order to use this tutorial, you need to have installed ECMap on your PC.

Warning! You must create the following directory in order for the map to run:

```
c:\ Program Files\Sybase\ECMap\maps\data\OUT.X12
```

❖ **Starting the tutorial**

1 From the desktop, double-click the ECMap (globe) icon on your desktop. (When you install ECMap, the installation process automatically places this icon on your desktop.)

2 In the Password text box on the Login window, type ecmap. Press ENTER or select OK.

The main ECMap window opens and you are ready to begin the tutorial. To perform actions in ECMap, you can use the menu options at the top of the window or the icons on the toolbar. (The icons are also available on the ECMap Work Space, which can be opened by choosing Workspace from the View menu on the main ECMap window.)

Table 2-1: Menu icons

Project 	Map 	Company 
Partners 	Application Directories 	Files/Databases 
Records/Tables 	Memory Variables 	Rules 
Mapping 	Map Flow 	Generate Map 
Run Map 		

Hints

- On many windows with a drop-down list of available choices, if you begin typing your choice, ECMap automatically enters it for you.
- You can use the Tab key to move from text box to text box when entering data on a window.
- On windows with a Next option, you can either select Next or press Alt-N.
- We assume you are using C as your hard drive. If not, substitute your hard drive letter for C.

Setting up your mapping environment

Less maps required equals less time and money spent.

ECMap Project and Map definition allows you to group related information together. This forms the baseline for sharing information and logic across projects and maps. The design of ECMap is oriented towards minimizing the number of maps created - a map can serve multiple trading partner relationships.

The bottom line is that development costs are reduced and maintenance costs are lowered as well.

Setting up your mapping environment involves:

- "Setting up a project" on page 32
- "Setting up a map" on page 32
- "Entering your company information" on page 35
- "Defining your trading partner and creating a trade agreement" on page 37

❖ Setting up a project

To set up a project, you must provide a project name and a directory path for grouping your maps. Optionally, you may also provide a description of the project and the name and telephone number of a contact person. In this tutorial, name your project Upgrades Division and place your mapping information in the directory *c:\upgrades\maps*.

1 Select Project on the toolbar or Workspace. The Projects window displays.

2 From the File menu on the Projects window, select New. From the New submenu, select Project. The New Project window displays.

3 Type Upgrades Division in the Project Name text box.

4 Project Description is an optional field.

5 Type *c:\upgrades\maps* in the Directory text box. You can also Browse for the directory if it already exists.

6 Contact is an optional field.

7 Phone Number is an optional field.

8 Select OK to return to the Projects window.

❖ Setting up a map

Sybase maintains a comprehensive set of Standards, which are shipped to you with your ECMap installation CD. This includes X12 standards associated with the American National Standards Institute (ANSI), UN/EDIFACT, and HL7 (Health Level 7). Our Annual Upgrade Subscription provides updates to these standards within 30 days of the issue of a change by DISA, the Data Interchange Standards Association.

To create an X12 map, you assign a name to the map and associate that name with attributes, including a list of directories. You must first define the type of map as X12, then specify:

- The X12 transaction set used in the map
- The direction of the map - OUT writes an X12 file and IN reads an X12 file
- The version of the X12 standard used in the map
- The size of the date in the EDI functional group envelope
- The Y2K windowing year
- The directories in which map-related information is located
- The directory in which the ECMap standards are located

- If you are using an ODBC database for either your trading partner or log database, you must also set up the DSNs (Data Source Names) to connect the databases that contain trading partner and/or log information to this map

Optionally, you may also provide a description of the map.

1 With Upgrades Division highlighted on the Project window, select New from the File menu and Map from the New submenu. The New Map Definition window displays. It has three tabs – Map Properties, Map Directories, and Map DSN. Enter the required information on each tab before you select OK at the bottom of the window.

2 On the map properties tab:

a ECMap automatically populates the Map/Project text box with the name of the project – Upgrades Division.

b In the Map/Map text box, type OUTPO1.

c From the Map/MapType drop-down list, select X12.

d In the Options/Transaction text box, type 850.

e From the Options/Direction drop-down list, select OUT.

f From the Options/Version drop-down list, select 004010.

g In the Options/8 Digit Date in X12 Envelope text box, accept the default entry Y.

Note ECMap makes it easy to ensure that your data is Y2K compliant. You simply define a specific year as your "Century Minimum". All 6-digit dates with years beginning at this year are assumed to be in the current century, while all dates with prior years are assumed to be in the next century. ECMap then automatically converts all 6-digit dates to 8-digit dates for you.

h Options/Description is an optional field.

3 On the map directories tab:

Projects and maps can be stored in the directory structure of your choice. This allows for extreme flexibility for both map development and map management in the operations environment.

To change multiple directories at one time, set the protection status of each directory you want to change to Change and make sure that all others are set to Protect. Select Change All to browse for a new directory, to which all unprotected directories are changed.

a Select the Map Directories tab to make it active.

ECMap automatically populates all of the directory text boxes except the EDI Standard Tables directory, in the format *c:*\<*project directory path*>\<*map name*>. The directory entries for this example appear as follows:

```
c:\upgrades\maps\OUTPO1
```

For this example, accept these directories. However, ECMap gives you the option to change the default entries, and it makes changing them a very easy process. You can manually change them one at a time, or you can use the Change All button in combination with the Change/Protect buttons to change multiple unprotected directories at once. The protection status does not affect manual changes.

b Rather than manually entering the EDI Standard Tables directory, browse for it. First, select the Invert button to change the protection status of all the map directories. This causes all the directories except the standards directory to be protected. (Originally, only the standards directory was protected and all of the map directories were unprotected.) Then, select Change All and the Select a Directory… window displays. Find and double-click the following standards directory:

```
c:\Program Files\Sybase\Standards\4010
```

Note Since you are allowed to browse for unprotected directories only, the Invert button is a handy feature that allows you to change a protected directory to unprotected, browse for and select a new directory, and then change the status back to protected by selecting the Invert button again. This is particularly useful when you want to browse for the standards directory.

c Select OK and the directory path is automatically entered in the EDI Standard Tables directory text box. Select Invert again to change the protection status back to its original configuration.

4 On the map DSN tab:

a Enter information on the Map DSN tab only if you are using ODBC databases. Since we are not using ODBC databases in this tutorial, do not enter information on this tab.

b Select OK to return to the Map - Upgrades Division window.

❖ **Making your new map the current active map**

- Each time you start ECMap, it "remembers" the last map you used and automatically opens it for you. You now make the project and map "current" by highlighting the map you just defined (OUTPO1) on the Map – Upgrades Division window and double-clicking on it. You return to the main ECMap window and the "current" map information displays in the status bar at the bottom of the window.

❖ **Entering your company information**

ECMap is designed to support environments with a large number of trading partners and transactions. For third-party service organizations, business-to-business applications, and networks, ECMap allows a company to maintain multiple company profiles.

The Company ID information identifies your company to the outside world. The Interchange Qualifier and Code you enter for your company are used in the ISA envelope to route your messages through the chain of networks to their final destination.

1 Select Company on the toolbar or Workspace. The Company ID window displays.

2 From the File menu on the Company ID window, select New. The Company ID – New window displays.

3 In the Company section at the top of the window:

- Type 1 in the Profile Number text box.

  The record number field allows a company to have multiple values to identify itself to the outside world.

4 Type Computer Services, Inc. in the Name text box.

5 In the section labeled Outbound Sender Default Envelope Values:

The default value for the Interchange:Qualifier is 01.

The associated Interchange/Description is D-U-N-S Number, Dun & Bradstreet. (Each qualifier has an associated description, which is used to automatically populate the Interchange/Description text box when you enter a qualifier.)

This value is placed in the ISA 05 data element of the X12 Interchange envelope.

6 In the Interchange/Code text box, enter `033459876`.

This value is placed in the ISA 06 data element of the X12 Interchange envelope.

7 The Interchange Internal ID and the Interchange Internal Sub-ID are used only for EDIFACT maps. Since you are creating an X12 map, you do not enter these values.

8 In the Group: Code text box, type `033459876`.

This value is placed in the GS 02 data element of the X12 Functional Group envelope.

9 The Group: Qualifier is not required for X12 maps. Accept the default entries for Authorization: Qualifier, Description, and Code and for Security: Qualifier, Description, and Code.

10 Select OK to return to the Company ID window. From the File menu on the Company ID window, select Close to return to the main ECMap window.

❖ **Defining your trading partner and creating a trade agreement**

Trading Partner management allows for support of multiple trading partners and trade agreements. A trade agreement defines the business transactions that your company is exchanging with your trading partners. The trade agreement also sets up the default X12 version, test/production status, and map flow direction to establish a baseline for "unattended" data translation. This gives ECMap the capability of switching maps while running, as it detects the parameters defined by the trade agreement and automatically invokes the correct map.

When you define your trading partner, you link the trading partner's EDI address with the value used by application system to represent the trading partner. When you create a trade agreement, you link your trading partner to a map so the proper map is executed.

1 Select Trading Partners on the toolbar or Workspace. The Trading Partners window displays.

2 From the File menu on the Trading Partners window, select New.

The Trading Partner – New window displays. It has four tabs – General, Contacts, Envelope/Lookup, and Delimiter/Terminator. Enter the required information on each tab before you select OK at the bottom of the window.

3 On the general tab:

In the Trading Partner section at the top of the window:

a Type `24680` in the Internal ID text box.

This is the value used by your company's application to identify the trading partner.

b Type `Memory Plus` in the Name text box.

c Type `Memory Plus` in the Mailbox Name text box.

Mailboxing is integrated with EC Gateway Server and further supports a lights-out "unattended" environment. Mailboxing is supported by trading partner and by specific transaction type for a trading partner. It is also supported by communications channel if you use EC Gateway Server.

d For the entry in the Mailbox Folder text box, you can either Browse for it on the Select a Directory … window or type *c:\Program Files\Sybase\ECMap\maps\data\OUT*.

(The mailbox is the directory where the data is placed for transmission to and receipt from the trading partner.)

e The information in the View/Modify Interchange Control Number section is rarely changed. Do not make any modifications to the numbers displayed.

f Copy this Trading Partner's data when "Copy Tables" utility is used is an optional feature, which you do not use in this exercise.

ECMap has a utility that lets you copy ODBC trading partner databases – with the option to copy all databases or only those with this Export check box checked.

4 On the contacts tab:

All of the information on the Contacts tab is optional.

The qualifier value is placed in the ISA 07 data element of the X12 interchange envelope. The code is placed in the ISA 08 data element.

5 On the envelope/lookup tab:

In the top section of the window labeled Outbound Receiver Default Envelope Values/Inbound Lookup Values:

a The default value for the Interchange: Qualifier is 01 with D-U-N-S Number, Dun & Bradstreet as the associated Description.

In the Interchange:Code text box, type 024509876.

b The Interchange Internal ID and the Interchange Internal Sub-ID are used only for EDIFACT maps.

Since you are creating an X12 map, you do not enter these values.

c In the Group text box row, Code field, type 024509876.

This value is placed in the GS 03 data element of the X12 functional group envelope.

d The Group: Qualifier is not required for X12 maps. Accept the default entries for Authorization: Qualifier, Description, and Code and for Security: Qualifier, Description, and Code.

In the bottom section of the window labeled Outbound Sender Override Envelope Values/Inbound Lookup Values:

e Do not enter any information in this section for this exercise.

6 On the delimiters/terminators tab:

All of the information on the Delimiters tab is optional.

a You can override the standard values for segment, element, and subelement separators and for release characters.

b Select OK to return to the Trading Partners window.

❖ **Creating a trade agreement**

ECMap trade agreement profiles establish an environment for "unattended" map translation, regardless of trading partner and trading partner versions. Using trade agreements, ECMap can automatically switch maps while it is running, as it detects changes in trading partners and transactions.

1 From the File menu on the Trading Partners window, select Trade Agreements . . .

The Trade Agreements with Trade Partner: Memory Plus window displays.

Note Trading partners may use different EDI versions of the transaction sets that are sent and/or received and therefore may require different maps.

2 From the File menu on the Trade Agreements with Trade Partner: Memory Plus window, select Add Map.

A trade agreement is created linking the current map with the trading partner, and the map information for the current map is used to populate the window – Transaction, Purpose, Status, Version, and Map.

3 From the File menu on the Trade Agreements with Trade Partner: Memory Plus window, select Close to return to the Trading Partners window.

4 From the File menu on the Trading Partners window, select Close to return to the main ECMap window.

Mapping your data

Mapping your data involves:

- Defining the application data.

- Creating a customized transaction set.
- Mapping the source data to the destination data.
- Creating the map flow.

Defining the application data

ECMap gives you the option to import a variety of application data formats. You can import record definitions from COBOL copybooks, ODBC data sources (such as Microsoft Access, Oracle, Sequel Server, and Excel), delimited flat files, other maps, etc. ECMap also allows you to import record definitions from HTML and XML formats.

Export options are also available for ODBC databases, HTML, and XML.

The ability to import record definitions eliminates the manual step of re-keying the information –saving time and money and preventing the introduction of errors.

Import the file definition from a COBOL copybook. The purchase order file produced by the purchasing system consists of two records whose descriptions are contained in a COBOL copybook called ORDERS.CBL. The format of the COBOL copybook displays below.

```
ORDERS.CBL01 ORDER-HEADER.
10 REC-TYPE         PIC X(1).
10 VENDOR-NO        PIC X(12).
10 PO-DATE          PIC 9(8).
10 PO-NO            PIC X(22).
10 CONTRACT-NO      PIC X(9).
10 SHIP-TO-DUNS     PIC X(13).
10 PO-LINE-NO       PIC X(2).
10 PROCESSED        PIC X(1).
10 FILLER           PIC X(50).01 ORDER-DETAIL.
10 REC-TYPE         PIC X(1).
10 PO-NO            PIC X(22).
10 QTY              PIC 9(4).
10 UOM              PIC X(2).
10 DESCRIPTION      PIC X(50).
10 ITEM-NO          PIC X(12).
10 STOCK-LOC        PIC X(4).
10 UPC-NO           PIC X(12).
10 ITEM-PRICE       PIC 9(5)v99.
10 FILLER           PIC X(50).
```

The data file produced by the purchasing system, ORDERS.SEQ, contains the purchase order data that is mapped to the X12 850 Transaction Set. The file that is used in this exercise contains data for two purchase orders, as shown below:

```
ORDERS.SEQ
A24680    19990109PO1133557799-1    98-100010027364321    4Y
CPO1133557799-1  160EA233MHz Upgrade chip    11410-CP A310900123456890 19800
CPO1133557799-1  8DZ100MB Zip Disk    21410-ZD A311520098345690 15700
CPO1133557799-1  32EAPowerEdge 6300 400MHz    31420-CP A312100034201120 65399
CPO1133557799-1  16EAUltra ATA/66 8.4 GB Hard Drive    41420-HD
A313090035201127 19350
A24680    19990109PO321335577-1    98-301010023364990    3Y
CPO321335577-1  20EA333MHz Upgrade    11409-CP    A310990412345688 7998
CPO321335577-1  8EAPowerEdge 6300 400MHz    31420-CP    A312100034201120 19350
CPO321335577-1  32DZZip Disks 100MG    21409-ZD    A315050903420190 9900
```

❖ **Importing a data definition from COBOL**

1 From the Application Files menu on the main ECMap window, select Import Definition. Then select COBOL from the Import Definition submenu. The COBOL Record Definition Import window displays. ECMap automatically populates the Project and Map names.

2 Select Browse next to the COBOL Definition Import File/File Name. The Choose COBOL Import File window displays.

3 Locate the file *c:\Program Files\Sybase\ECMap\maps\data\orders.cbl* and double-click it.

You return to the COBOL Record Definition Import window, and the program automatically enters it in the COBOL Definition Import File/File Name text box.

This specifies the location of the file containing the COBOL record definitions – *orders.cbl*.

4 In the Options section of the window, select Add Application Record, File Name, and Directory.

This populates the File Location/File Name and the File Location/Directory with the file name and directory path of the imported record definition.

5 In the File Location section of the window, select in the File Name text box and change *orders.cbl* to *orders.seq*.

This specifies the location of the file containing the COBOL application data - *orders.seq*.

6 Select Continue.

If a file with this name does not exist, the New File window displays. Go to Step 7. If a file with this name already exists, the Select COBOL Records window displays. Go to Step 9. (A file with this name would already exist, for example, if you repeat this sequence of steps or if you have used the ECMap training manual.)

7 On the New File window, ECMap automatically enters the File Name. Select SEQUENTIAL-ASCII as the File Type from the drop-down list.

8 The File Description is an optional field. Select OK. The Select COBOL Records window displays.

9 On the Select COBOL Records window, select ORDER-DETAIL, hold down Shift and select ORDER-HEADER to select both records.

10 Select LOAD. If you have previously loaded the record definitions, you are asked to confirm that you want to overwrite the application file records. Select Yes. The View Log dialog box appears with the message "Run Complete". The records have been imported into ECMap, and they are associated with the file *orders.seq*. The file orders.seq is associated with the directory *c:\..\data*. Select Yes.

11 You return to the COBOL Import Log window displays, with a listing of the extracted records and a summary of any syntax errors in the file. Select OK. The excobol dialog box displays, with the message "Extract Run Completed Successfully". Select OK.

12 The COBOL Record Definition Import window displays. Select X in the upper right corner of the window to return to the main ECMap window.

❖ **Adding field attributes to the imported COBOL data**

1 Select Records/Tables on the toolbar or Workspace. The Records/Tables window displays, with the two records you imported - ORDER-DETAIL and ORDER-HEADER.

2 Double-click ORDER-HEADER to display the fields in the header record.

3 Select the REC-TYPE field to select it. From the Field menu at the top of the window, select Properties. The Field Properties window for the REC-TYPE field displays. It has two tabs – Fields and Options. ECMap automatically populates the text boxes on the Fields tab – Record Name, Field Name, Field Description, Start Position, Field Length, and Field Type.

The “record type” field property associates an application data record with a layout. In this example, we assign “A” as the record type for a header record. This is an arbitrary choice, and you may assign any unique value you choose.

4 Select the Options tab to make it active, and then select the check box next to Record Type. Type A in the Record Type text box. Select Next to view the next field in the record.

5 The Field Properties window for the VENDOR-NO field displays. Select the Options tab to make it active, and then select the check box next to Trading Partner ID. Select Next to view the next field in the record.

The VENDOR-NO field is used to retrieve information from the trading partner file to build the X12 envelopes that surround the transaction. It is the internal value in the application data that identifies to whom the data is being sent.

6 The Field Properties window for the PO-DATE field displays. In the Field Type on the Fields tab, select DT-Date from the drop-down list. Two additional text boxes appear – Date Format and Century Minimum Type.

COBOL date fields are imported with a Field Type of UI. They must be changed to DT and a date format selected.

7 In the Date Format field, select YYYYMMDD from the drop-down list. In the Century Minimum Type field, select Use global century minimum

The Y2K logic in ECMap allows the default value specified in the Map definition process to be overridden on a field by field basis.

8 Select OK to return to the Records/Tables window.

9 Close the ORDER-HEADER record by selecting the minus sign next to it. Double-click the ORDER-DETAIL record to display the fields in the detail record.

10 Select the REC-TYPE field to select it. From the Field menu at the top of the window, select Properties. The Field Properties window for the REC-TYPE field displays.

The “record type” field property associates an application data record with a layout. In this example, we assign “C” as the record type for a detail record. This is an arbitrary choice, and you may assign any unique value you choose.

11 Select the Options tab to make it active, and then select the check box next to Record Type. Type C in the Record Type text box.

12 Select OK to return to the Records/Tables window. From the File menu on the Records/Tables window, select Close to return to the main ECMap window.

❖ **Creating a customized transaction set**

ECMap comes pre-loaded with information about the ANSI X12, UN EDIFACT, and HL7 standards. When you select a transaction, ECMap already knows which segments are mandatory and which are optional.

Annual upgrade subscriptions quickly provide you with changes almost as soon as they are released.

ECMap's optional SEF (Standard Exchange Format) Utility further automates the mapping process by allowing you to automatically import implementation guides from your trading partners.

Bundled standards, timely upgrades, the SEF utility – all these features help to reduce the time required for both development and maintenance.

With ECMap, it is easy to create a customized transaction set based on your implementation guide. The full X12 transaction set displays in the Create Transaction window. Simply check the segments you want to include and tell ECMap to "make" the transaction.

For our transaction, we include the following segments in the 850 Transaction Set: ST, BEG, N1, PO1, and SE.

1 From the Build menu on the main ECMap window, select Create Transaction. The Create Transaction- 850 Purchase Order window appears.

2 The mandatory segments ST, BEG, PO1, and SE are already checked.

3 To select N1, you must first locate it. To quickly locate the N1 segment, choose Find from the Edit menu. When the Find dialog box displays, enter N1 in the Search text box and select Find. The program automatically takes you to the first N1 segment. (There are four N1 segments.) Select the N1 check box to select it. (Be sure not to check the N1 loop, but only the N1 segment. If you check the loop, all of the segments within the loop are checked.)

4 From the File menu on the 850 Purchase Order window, select Make Transaction. The transaction is created, and the Mapping – Application to X12 window displays. The left section of the window is Source: Application Data and the right section of the window is Destination: X12. The bottom of the window is the Mapping section.

❖ **Mapping the source data to the destination data**

Mapping in ECMap is an easy drag-and-drop procedure. ECMap automatically populates some elements from information you entered. In this example, ECMap maps the SE and the ST segments. Map the BEG, N1, and PO1 segments by simply dragging record fields from our application data and dropping them onto the appropriate elements. ECMap has a feature that allows you to globally ignore any elements that do not have to be mapped.

To make sure that you have "grabbed" the element that you want to drag-and-drop, a small icon of a page must appear when you highlight the element. If the small page icon does not appear until after your cursor moves onto the section of the window with application data, you did not "grab" the element and you cannot drop it onto a record field to map the element to the field.

As data is mapped to elements, the yellow circles next to the elements turn green. The most recently mapped record field has a check mark next to it. And the mapping assignments are displayed in the bottom section of the mapping window.

To quickly locate a code, select any entry in the Value column and type the code you want to locate. Or you can use the Find command in the Edit menu. In either case, ECMap automatically displays the highlighted code.

By giving you a graphical view of your mapping and the business rules you have used, ECMap makes it easy for you to review the work you have completed.

1 Map the BEG segment:

   a On the Destination: X12 section of the Mapping - Application to X12 window, double-click the BEG segment.

      The elements associated with the BEG segment are displayed.

   b Right-click BEG 01 (Transaction Set Purpose Code) to display a drop-down menu. From the menu, left-click Full Code List to select it.

      The Full Code List for Element 353 displays, superimposed over the left section of the window.

   c Click, hold, and drag the code Value 00 (not the Code Description Original) from the Full Code List for Element 353 section and drop it on BEG 01 in the Destination: X12 section. In the Mapping section at the bottom of the window, STRVAR appears under Record and 00 appears under Field Name.

d Right-click BEG 02 (Purchase Order Type Code) to display a drop-down menu. From the menu, left-click Full Code List to select it. The Full Code List for Element 92 appears on the left section of the window.

e Click, hold, and drag the code Value SA (not the Code Description Stand-alone Order) from the Full Code List for Element 92 section and drop it on BEG 02 in the Destination: X12 section. In the Mapping section, STRVAR appears under Record and SA appears under Field Name.

f Right-click BEG 03 (Purchase Order Number) to display a drop-down menu. From the menu, left-click Record/Field from to select it.

The two records ORDER-DETAIL and ORDER-HEADER display in the Source: Application Data section of the window.

g Double-click the ORDER-HEADER record to display the fields in the record.

h Click, hold, and drag the field PO-NO from the Source: Application Data section and drop it on BEG 03 (Purchase Order Number) in the Destination: X12 section. In the Mapping section, ORDER-HEADER appears under Record and PO-NO appears under Field Name.

i Close the BEG segment by selecting the minus sign next to it.

2 Mapping the N1 segment

a On the Destination: X12 section of the Mapping – Application to X12 window, double-click the N1 segment. The elements associated with the N1 segment are displayed.

b From the View menu at the top of the window, select Segment Detail.

The Segment window displays. Highlight the N1 Level. From the Edit menu, select Properties. The Segment Properties N1 window displays. In the Loop text box, delete N1. In the Depth text box, change 1 to 0. Select OK. From the File menu on the Segment window, choose Close to return to the Mapping – Application to X12 window.

Note On outbound maps, the loop and level structure must sometimes be changed to allow ECMap to create the map flow automatically.

c Right-click N1 01 (Entity Identifier Code) to display the drop-down menu. From the menu, left-click Full Code List to select it. The Full Code List for Element 98 appears on the left section of the window.

Note ECMap contains the full code list for every element in every transaction in every version of X12 that is shipped with the product.

d Click, hold, and drag the code Value ST (not the Code Description Ship To) from the Full Code List for Element 98 section and drop it on N1 01 in the Destination: X12 section. In the Mapping section at the bottom of the window, STRVAR appears under Record and ST appears under Field Name.

e Right-click N1 03 (Identification Code Qualifier) to display the drop-down menu. From the menu, left-click Full Code List to select it. The Full Code List for Element 66 appears on the left section of the window.

f Click, hold, and drag the code Value 1 (not the Code Description D-U-N-S Number, Dun & Bradstreet) from the Full Code List for Element 66 section and drop it N1 03 in the Destination: X12 section. In the Mapping section at the bottom of the window, STRVAR appears under Record and 1 appears under Field Name.

g Right-click N1 04 (Identification Code) to display the drop-down menu. From the menu, left-click Record/Field to select it. The two records ORDER-DETAIL and ORDER-HEADER display again in the Source: Application Data section of the window. If the fields of the ORDER-HEADER record are not displayed, double-click ORDER-HEADER.

h Click, hold, and drag the field SHIP-TO-DUNS from the Source: Application Data section and drop it on N1 04 in the Destination: X12 section. In the Mapping section, ORDER-HEADER appears under Record and SHIP-TO-DUNS appears under Field Name.

i Close the N1 segment by selecting the minus sign next to it.

3 Mapping the PO1 segment

a On the Destination: X12 section of the Mapping– Application to X12 window, double-click the PO1 segment. The elements associated with the PO1 segment are displayed.

b Close the ORDER-HEADER record by selecting the minus sign next to it. Double-click the ORDER-DETAIL record to display the fields in the record.

c Click, hold, and drag the field QTY from the Source: Application Data section and drop it on PO1 02 (Quantity Ordered) in the Destination: X12 section. In the Mapping section, ORDER-DETAIL appears under Record and QTY appears under Field Name.

d Click, hold, and drag the field UOM from the Source: Application Data section and drop it on PO1 03 (Unit or Basis for Measurement Code) in the Destination: X12 section. In the Mapping section, ORDER-DETAIL appears under Record and UOM appears under Field Name.

e Click, hold, and drag the field ITEM-PRICE from the Source: Application Data section and drop it on PO1 04 (Unit Price) in the Destination: X12 section. In the Mapping section, ORDER-DETAIL appears under Record and ITEM-PRICE appears under Field Name.

f Right-click PO1 06 (Product/Service ID Qualifier) to display the drop-down menu. From the menu, left-click Full Code List to select it. The Full Code List for Element 235 appears on the left section of the window.

g Click, hold, and drag the code Value VN (not the code Description Vendor's (Seller's) Item Number) from the Full Code List for Element 235 section and drop it on PO1 06 in the Destination: X12 section. In the Mapping section at the bottom of the window, STRVAR appears under Record and VN appears under Field Name.

h Right-click PO1 07 (Product/Service ID) to display the drop-down menu. From the menu, left-click Record/Field to select it.

i Click, hold, and drag the field ITEM-NO from the Source: Application Data section and drop it on PO1 07 in the Destination: X12 section.

j Close the PO1 segment by selecting the minus sign next to it.

4 Ignoring unmapped elements

Once you have mapped the necessary fields, ECMap gives you the option of ignoring the rest of the unmapped elements. You ignore elements because you do not need them for this map or because ECMap automatically fills these elements.

a From the Segment menu at the top of the Mapping - Application to X12 window, select Ignore. From the Ignore submenu, select All.

b A Confirm dialog box displays, with the following message: “Mark all uninitialized elements as IGNORE?” Select YES. In the Mapping section, IGNVAR now appears under Record and IGNORE appears under Field Name for all previously unmapped elements.

c From the File menu on the Mapping- Application to X12 window, select Close to return to the main ECMap window.

❖ **Creating the map flow**

Map flow is the heart of ECMap, mirroring the relationship between input and output and defining the context of data at each point in the mapping cycle.

Map flow gives you the flexibility you need to adapt any business transaction to your application format.

The map flow defines the relationship between the application data and the segments in the X12 transaction set.

Note To toggle between checking and unchecking an option, simply select the option.

---

1 Select Map Flow on the toolbar or Workspace. The Outbound Map Flow window displays. From the Options menu, select Multiple Files to uncheck it. From the File menu, choose Create Flow.

If you have previously created flow for this map, a Confirm dialog box displays, asking whether you want to “Delete existing flow and build new default flow?” Go to Step 2. (You would have already created the flow, for example, if you are repeating these steps.) If this is the first time you have created flow for this map, go to Step 4.

2 If you answer NO to the question “Delete existing flow and build new default flow?”, the Outbound Map Flow window displays with a diagram of the flow you created previously - including rules, next level, and break level. Go to Step 5. If you answer YES, the Rule Number Control window displays.

3 On the Rule Number Control window, select Delete All Rules under Rule Number Delete Option. Select OK.

4 A Success dialog box displays, with the message “Flow Creation Complete”. Select OK and a diagram of the flow created by ECMap displays on the Outbound Map Flow window - with the IO Rule, Before Rule, After Rule, Next Level, and Break Level shown in the bottom section of the window.

5 From the File menu on the Outbound Map Flow window, choose Close to return to the main ECMap window.

Running your map

ECMap’s mapping engine is known for its high speed and ability to handle complex mapping requirements.

Running your map involves:

- Generating your map.
- Running your map.

The final steps in the mapping process are to generate and run your map. During generation, your map is checked to make sure that everything is set up properly. When you run your map, the outbound EDI file or inbound application file is actually built.

Generating a map produces a *.map* file that contains the mapping instructions you created. Running a map—with the ECRTP runtime program—interprets the *.map* file and maps the data.

❖ Generating your map

When you generate a map, you compile all your business rules and logic into your finished map.

1 Select Generate Map yellow traffic light icon on the toolbar or Workspace. The Generate Map window displays.

2 Make sure that the Multiple Files check box is not checked. Multiple Files is checked by default. Left-click the check box to uncheck it, or you receive a warning – “All Recd Files with Multiple Recs must have Record Type Fields”

3 Select Run on the Generate Map window. Messages flash across the text box until the following message appears: “Map Generation Completed Successfully”.

4 You can view the results of the map generation process by selecting View Log. The Generate Log window displays.

5 Select Exit to return to the main ECMap window.

❖ **Running your map**

Map files can be distributed and deployed with the run-time engine.

1 Select Run Map (the green traffic light) on the toolbar or Workspace. The Run Outbound Map window displays. It has eight tabs – Required, Option 1, Option 2, File Alias, ODBC Alias, Parameters, I/O Redirect, and Web Script. For this exercise, enter information only on the Required tab.

2 In the Output EDI File text box on the Required tab, type *c:\Program Files\Sybase\ECMap\maps\data\OUT.X12*. This is the name of the file that the runtime program creates to contain the output EDI data. ECMap automatically populates the Map Name, Transaction Name, Map Directory, Log Type, and Trading Partner Directory.

3 Select Open.

4 The Log Type contains a default value and is therefore optional.

5 The Non-ODBC Trading Partner check box must contain a check because you are not using an ODBC trading partner database.

6 Select Store RunTime Trading Partner Data.

Note Do this the first time you run a map or anytime you change trading partner information.

7 The runmap dialog box appears, with the message “Store TP Successfully!” Select OK.

8 Select Run Map.

If you have run this map before, you get a runmap dialog box, asking “Do you want to delete the existing output EDI file?” If you answer NO, the program overwrites the previous output EDI file. If you answer YES, the program appends the new output EDI file to the previous output EDI file.

9 Select View Trace to review the trace log. If the run was successful, the outgoing.err-Notepad window displays, with the message “Maprun Complete – No Errors Encountered”. If the run was not successful, you would use the information in this log to correct your errors and then run the map again. You can also select View Translog to display the translog.out-Notepad window. Select X in the upper right corner of the window to exit either window.

ECMap is designed for local development and testing. The EC Gateway product completes the cycle – allowing production to take place on a remote platform.

10 If the run was successful, the View EDI File button is active. Press the button to display the output EDI file on the EDI Viewer window. Your output should look like the example below - with the exception of the italicized numbers, which represent information such as dates that change with each maprun. Select Exit to return to the Run Outbound Map window.

11 Select X in the upper right corner of the window to close the Run Outbound Map window to return to the main ECMap window.

Sample X12 output

```
ISA*00* *00* *01*033459876 *01*024509876
*990808*1201*U*00200*000000001*0*P*>
GS*PO*033459876*024509876*19990808*1201*0*X*004010
ST*850*1
BEG*00*SA*PO1133557799-1**19990109
N1*ST**1*027364321
PO1**160*EA*198.00**VN*11410-CP
PO1**8*DZ*157.00**VN*21410-ZD
PO1**32*EA*653.99**VN*31420-CP
PO1**16*EA*193.50**VN*41420-HD
SE*8*1
ST*850*2
BEG*00*SA*PO321335577-1**19990109
N1*ST**1*023364990
PO1**20*EA*79.98**VN*11409-CP
PO1**8*EA*193.50**VN*31420-CP
PO1**3*2D*99.00**VN*21409-ZD
SE*7*2
GE*2*0
IEA*1*000000001
```

Adding complex business logic to your map

The exercise you just completed demonstrated how quickly and easily you can create and run a map with ECMap. You are now introduced to the features that really set this mapping tool apart from the competition. ECMap's rich array of rule commands, flexible cross-reference functionality, conditional logic, and simple yet powerful memory variables allow you to imbed complex business rules into your maps and seamlessly integrate applications.

For the final portion of this exercise, you use memory variables, rule commands, and a cross-reference table to convert information imbedded in a description field in your application and include it in the purchase order (X12 850 Transaction Set) that you are sending to your trading partner. If the item is a computer, the description field is used to find the product line code for that computer. If the item is not a computer, the accessory product code is used.

Steps:

1 Select Mapping on the toolbar or Workspace. The Mapping – Application to X12 window displays. Notice that there are now levels on the Destination: X12 section on the right side of the window. These levels were automatically assigned by ECMap when it created the flow.

2 On the Destination: X12 section of the window, double-click the PO1 segment to display the elements.

❖ Creating memory variables

You can create Memory Variables in more than one way - from the Tools menu on the main ECMap window and in several places on the mapping window.

1 Right-click PO1 09 (Product/Service ID) and select Memory Variable from the drop-down menu.

Source: Memory Variables now appears on the left side of the window in place of the Source: Application Data.

2 Right-click the Application Directory: Memory Variables under Source: Memory Variables, and select New from the drop-down menu.

The New Memory Variables window displays, with two tabs – Fields and Options.

3 In the Memory Variable Name text box on the Fields tab, enter Product_Line_Desc. The Memory Variable Description is optional. Select the Field Type text box, and begin typing AN-Alpha Numeric or select it from the drop-down list. Select the Field Length text box and enter 15. Select OK to return to the main mapping window.

All you need to do is begin typing a valid field type in the text box, and ECMap automatically completes it and enter it in the text box.

4 Right-click the Memory Variables application directory and select New from the drop-down menu. The New Memory Variables window displays again.

5 In the Memory Variable Name text box on the Fields tab, enter Product_Line. The Memory Variable Description is optional. Select the Field Type text box, and begin typing AN-Alpha Numeric or select it from the drop-down list. Select the Field Length text box and enter 13. Select OK to return to the main mapping window.

6 Right-click the Memory Variables application directory and select New from the drop-down menu. The New Memory Variables window displays again.

7 In the Memory Variable Name text box on the Fields tab, enter Convert_Success.

The Memory Variable Description is optional. Select the Field Type text box, and begin typing AN-Alpha Numeric or select it from the drop-down list. Select the Field Length text box and enter 1. Select OK to return to the main mapping window.

❖ **Mapping a memory variable**

- Drag the memory variable Product_Line from the Source: Memory Variables section and drop it on PO1 09 (Product/Service ID) in the Destination: X12 section of the window.

❖ **Mapping a constant**

X12 syntax rules require a qualifier for an ID code.

1 Right-click PO1 08 (Product/Service ID Qualifier) and choose Constant from the drop-down menu. The Constant dialog box displays.

2 In the Enter Constant text box, type ZZ. Select OK to exit the Constant dialog box and return to the main mapping window. The constant ZZ is mapped to PO1 08.

❖ **Creating and using rule commands**

ECMap enters 1 as the Line Number for the first command in a rule. Each time you add a new command, ECMap automatically enters the line number based on the option you chose for adding a new command.

1 From the Element menu on the Mapping– Application to X12 window, choose Rule. From the Rule submenu, choose Prior. Rule Definitions displays on the left side of the window, with three rules listed. The 0 Do Nothing rule is automatically created for every map. ECMap created the 20 READ ORDER-HEADER rule and the 30 READ ORDER-DETAIL when it created the map flow.

2 Right-click the Rules application directory and choose New from the drop-down menu. The Rule Definition – New window displays.

3 In the Rule Number text box, enter 40. In the Rule Description text box, enter Convert Product Line Code. Select OK to return to the mapping window. Rule 40: Convert Product Line Code now appears in the list of rules under Rule Definitions.

4 Right-click Rule 40: Convert Product Line Code and choose New Command from the drop-down menu. The Rule Command – New window displays. ECMap automatically enters the Rule Number and Line Number.

5 In the Command text box on the Rule Command – New window, begin typing the command Substring or choose Substring from the drop down list. A Parameters section appears at the bottom of the window, with four text boxes.

   All you need to do is begin typing a valid rule in the text box, and ECMap automatically completes it and enter it in the text box.

6 Select the Source String up arrow and choose Record/Field from the drop-down list. The Records/Tables window displays. Double-click the ORDER-DETAIL record to display the fields. Double-click the DESCRIPTON field in the ORDER-DETAIL record to enter ORDER-DETAIL/ DESCRIPTON in the Source String text box. Choose Close from the File menu to close the Records/Tables window.

7 Select the Substring Start up arrow and choose Constant from the drop-down list. The Constant Value dialog box displays. In the Enter a Constant Value text box, enter 1. Select OK to close the dialog box and enter the value in the Substring Start text box.

8 Select the Substring Length up arrow and choose Constant from the drop-down list. The Constant Value dialog box displays. In the Enter a Constant Value text box, enter 15. Select OK to close the dialog box and enter the value in the Substring Length text box and exit from the window.

9 Select the Destination String up arrow and choose Memory Variable from the drop-down list. The Memory Variables window displays. Double-click Product_Line_Desc to enter it into the Destination String text box. Choose Close from the File menu to close the Memory Variables window. Select OK to close the Rule Command – New window and return to the mapping window.

❖ **Creating and using a cross-reference table**

Cross-reference tables can be added as part of a rule using the Table Conversion command, or they can be independently created and attached to an element.

1 In the Rule Definitions section, right-click Rule 40: Convert Product Line Code and choose New Command from the drop-down menu. The Rule Command – New window displays.

2 In the Command text box on the Rule Command – New window, begin typing the command Table Conversion or choose Table Conversion from the drop down list. A Parameters section appears at the bottom of the window, with six text boxes.

3 Select the Conversion Table up arrow and the Cross Reference Tables window displays. Choose New from the File menu, and the New Cross Reference Table window displays.

4 ECMap automatically enters the Project and Map name. Enter ProdLine - the name of the cross reference table - in the File Name text box. (This name must be 8-characters or less.)

As the Standard Field Length, enter 13. As the Application Field Length, enter 15. Under Standard Field Number, select No Field Number. In the Description text box, enter Converts computer name to product line. Select Create.

5 The Cross Reference Table Properties window displays, with ProdLine automatically entered as the Table name. Choose New from the File menu. The New Cross Reference Entries window displays, with the same Table name automatically entered.

6 On the New Cross Reference Entries window, enter the conversion formulas to be used in the cross reference table you are creating. For EDI Value, enter PE6300 Series. For Application Value, enter PowerEdge 6300. For Description, enter PE6300 Series.

If you are making multiple entries into the cross reference table, you would select Next to apply the current entry and bring up a new window to add another entry.

7 Select OK to return to the Cross Reference Table Properties window. Choose Close from the File menu to return to the Cross Reference Tables window.

8 Double-click ProdLine on the Cross Reference Tables window to enter it in the Conversion Table text box. Choose Close from the File menu to close the Cross Reference Table window.

9 Select the Source Variable up arrow and choose Memory Variable from the drop-down list. The Memory Variables window displays. Double-click Product_Line_Desc to enter it in the Source Variable text box.

10 Select the Destination Variable up arrow and choose Memory Variable from the drop-down list. Drag Product_Line from the Memory Variables window and drop it in the Destination Variable text box.

You can either double-click the memory variable to enter it in the text box, or you can drag and drop it into the text box. ECMap often gives you several ways to perform an action so that you can tailor mapping to your style.

11 Select the Status Variable up arrow and choose Memory Variable from the drop-down list. Either double-click Convert_Success to enter it in the Status Variable text box or drag and drop it into the text box. Choose Close from the File menu to close the Memory Variables window.

12 Select the On Failure, Return up arrow and choose Constant from the drop-down list. The Constant Value dialog box displays. In the Enter a Constant Value text box, enter Accessory. Select OK to close the dialog box.

13 Select the On Failure, Generate up arrow and choose No Error Message from the drop-down list. Select OK on the Rule Command - New window to return to the mapping window. Choose Close from the File menu of the Mapping- Application to X12 window to return to the main ECMap window.

If you are adding multiple commands, select Apply. The current command is added to the rule and a blank Rule Command – New window appears.

❖ **Associating the rule with an element**

- Drag Rule 40: Convert Product Line Code from the Rule Definition window to the Destination: X12 window and drop it on the PO1 09 (Product/Service ID). It displays beneath as Rule: PRIOR 40.

❖ **Regenerating and rerunning the map**

Now that you have added additional functionality to your map, all you need to do is generate the map again and then run it.

1 Follow the instructions for Step 3. Run Your Map (starting on page E-47 of this document).

2 When you have successfully generated and rerun your map, select View EDI File. The output now includes the product line codes that we mapped using memory variables, rule commands, and a cross reference table. The output should look like the sample on the next page.

Revised sample X12 output

```
ISA*00* *00*    *01*033459876    *01*024509876
*990808*1201*U*00200*000000001*0*P*>
GS*PO*033459876*024509876*19990808*1201*0*X*004010
ST*850*1
BEG*00*SA*PO1133557799-1**19990109
N1*ST**1*027364321
PO1**160*EA*198.00**VN*11410-CP**Accessory
PO1**8*DZ*157.00**VN*21410-ZD**Accessory
PO1**32*EA*653.99**VN*31420-CP**PE6300 Series
PO1**16*EA*193.50**VN*41420-HD**Accessory
SE*8*1
ST*850*2
BEG*00*SA*PO321335577-1**19990109
N1*ST**1*023364990PO1**20*EA*79.98**VN*11409-CP**Accessory
PO1**8*EA*193.50**VN*31420-CP** PE6300 Series
PO1**3*2D*99.00**VN*21409-ZD**Accessory
SE*7*2
GE*2*0IEA*1*000000001
```

CHAPTER 3

Mapping XML Data

About this chapter

The tutorial in this chapter walks through the creation of an an XML map to convert XML data to an ODBC database.

Contents

Creating an XML map

During this tutorial of ECMap, create a map that converts XML data to a proprietary ODBC database format. Use an any-to-any map to accomplish this — importing the source record definitions from XML schema and the destination record definitions from the ODBC output data. We use a BizTalk XML schema in this example.

For this exercise, you are a company called Toys for Business that sells electronic toys to a trading partner called Major Playtime Tools (MPT). MPT sends all of its purchase orders as XML data, and you must be able to accept purchase orders in this format in order to do business with MPT.

You can complete this exercise in three easy steps:

1 “Setting up your mapping environment” on page 61

2 “Mapping your data” on page 66

3 “Running your map” on page 100

To use this tutorial, you need to have installed ECMap on your PC.

You need the following data files, which were supplied with this tutorial:

- *c:\Program Files\Sybase\ECMap\maps\data\podata.xml*
- *c:\Program Files\Sybase\ECMap\maps\data\poschema.xsd*
- *c:\Program Files\Sybase\ECMap\maps\data\PO_DATA.mdb*

Throughout this tour, the above path is abbreviated to c:\..\

❖ Starting the tutorial

1 From the desktop, double-click the ECMap (globe) icon on your desktop. (When you install ECMap, the installation process automatically places this icon on your desktop.)

2 In the Password text box on the Login window, type ecmap. Press ENTER or select OK.

The main ECMap window opens and you are ready to begin the tutorial. To perform actions in ECMap, you can use the menu options at the top of the window or the icons on the toolbar. (The icons are also available on the ECMap Work Space, which can be opened by choosing Workspace from the View menu on the main ECMap window.)

Table 3-1: Menu icons

Project 	Map 	Company 
Partners 	Application Directories 	Files/Databases 
Records/Tables 	Memory Variables 	Rules 
Mapping 	Map Flow 	Generate Map 
Run Map 		

Hints

- On many windows with a drop-down list of available choices, if you begin typing your choice, ECMap automatically enters it for you.
- You can use the Tab key to move from text box to text box when entering data on a window.
- On windows with a Next option, you can either select Next or press Alt-N.
- We assume you are using C as your hard drive. If not, substitute your hard drive letter for C.

Setting up your mapping environment

Setting up your mapping environment involves:

- Setting up a project.
- Setting up a map.

❖ **Setting up a project**

Less maps required = less time and money spent.

ECMap Project and Map definition allows you to group related information together. This forms the baseline for sharing information and logic across projects and maps. The design of ECMap is oriented towards minimizing the number of maps created - a map can serve multiple trading partner relationships.

The bottom line is that development costs are reduced and maintenance costs are lowered as well.

To set up a project, you must provide a project name and a directory path for grouping your maps. Optionally, you may also provide a description of the project and the name and telephone number of a contact person. In this tutorial, name your project Purchase Orders and place your mapping information in the directory *c:\..\PurchaseOrders*.

1 Select Project on the toolbar at the top of the window. The Projects window displays.

2 From the File menu on the Projects window, select New. From the New submenu, select Project. The New Project window displays.

3 Type `PurchaseOrders` in the Project Name text box.

4 Project Description is an optional field.

5 Type *c:\..\PurchaseOrders* in the Directory text box. You can also Browse for the directory on the Select a Directory window if it already exists.

6 Contact is an optional field.

7 Phone Number is an optional field.

8 Select OK to return to the Project – PurchaseOrders window. (Once you have created a project, the window label changes to include the name of that project.)

❖ **Setting up a map**

ECMap makes it easy to ensure that your data is Y2K compliant. You simply define a specific “windowing” year as your “Century Minimum”. All 6-digit dates with years beginning at this year are assumed to be in the current century, while all dates with prior years are assumed to be in the next century. ECMap automatically converts all 6-digit dates to 8-digit dates for you.

To create an any-to-any map, you assign a name to the map and associate that name with attributes, including a list of directories. You must:

- Define the type of map as ANY2ANY.
- Specify the Y2K windowing year (Century Minimum).
- Specify the directories in which map-related information are stored.
- Set up a DSN (Data Source Name) to point to the database that contains log information if you are using an ODBC database.

Optionally, you may also provide a description of the map.

1 Highlight PurchaseOrders on the Project - PurchaseOrders window and select New from the File menu. From the New submenu, select Map. The New Map Definition window displays. It has three tabs – Map Properties, Map Directories, and Map DSN. Follow the steps below to enter the required information on each tab before you select OK at the bottom of the window.

2 On the map properties tab, under map:

   a ECMap automatically populates the Project text box with the name of the project – PurchaseOrders.

   b In the Map text box, type MPT.

   c When you start typing, ECMap enters the entry automatically for you. From the Map Type drop-down list, select ANY2ANY. (The bottom part of the window changes after you make this selection.)

3 On the map properties tab, under options:

   a In the Century Minimum text box, type 50. (This is arbitrary and can be any number from 1 to 99.)

   b Description is an optional field.

4 On the map directories tab:

Projects and maps can be stored in the directory structure of your choice. This allows for extreme flexibility for both map development and map management in the operations environment.

Note To change multiple directories at one time, set the protection status of each directory you want to change to Change and set all others to Protect. Select Change All to browse for a new directory. All the unprotected directories are changed to the directory you select.

Since you are allowed to browse for unprotected directories only, the Invert button is a handy feature that allows you to temporarily change a protected directory to unprotected, browse for and select a new directory, and then change the status back to protected by selecting the Invert button again.

Select the Map Directories tab to make it active. ECMap automatically populates the text boxes of all the directories, in the format *c:\<project directory path>\<map name>*. The directory entries for this example appear as follows:

```
c:\..\PurchaseOrders\MPT
```

For this example, use these default directories. However, ECMap gives you the option to change the default entries, and it makes changing them a very easy process. You can use the Change All button in combination with the Change/Protect buttons to change multiple unprotected directories at once, or you can manually change the directories one at a time. The protection status does not affect manual changes.

5 On the map DSN tab:

Select the Map DSN tab to make it active. For any-to-any maps, you enter information on this tab only if you are using ODBC log databases. Since you are using an ODBC log database in this tutorial, you must configure the DSN that points to the ODBC log database. (For convenience, configure the DSN for the ODBC database containing the output of the map at the same time. You could perform this step later.)

6 Configure the DSN for the proprietary inventory and billing database:

a On the System DSN tab, choose Add again.

b Create a DSN for your Inventory and Billing ODBC application database. The Create New Data Source window displays.

c Highlight Microsoft Access Driver (**.mdb*) and select Finish. The ODBC Microsoft Access Setup window displays.

d Enter BILLING in the Data Source Name text box. Select "Select" under Database in the center section of the window, and the Select Database window displays. (The Description is optional.)

e Navigate down into *c:*\..*data* on the right side of the window. On the left side of the window under Database Name, double-click PO_DATA.mdb. You return to the ODBC Microsoft Access Setup window, and the path you selected displays in the Database section: *c:*\..*DATA**PO_DATA.mdb*. Select OK and you return to the ODBC Data Source Administrator window. Select OK to close that window and return to the New Map Definition window.

f The program automatically constructs the DSN for the Inventory and Billing database, but it does not display on the Map DSN tab of the New Map Definition window.

g On the New Map Definition window, select the up arrow for Data Source Name. Highlight Log and double-click on the Log.

h Select OK on the New Map Definition window, and you receive the following message, The Log Table Does Not Exist in This Data Source: "DSN=LOG" Do You Want To Create The Table? Select Yes, and you return to the Map-Purchase Orders MPT window. (Once you have defined a new map, the window label changes to include the name of that map.)

7 Configuring the DSN for the ODBC log database

a In the Log section, enter LOG in the Data Source Name text box and select Configure Data Source. The program automatically constructs and enters the DSN for the log database (DSN=LOG) and enters it in the Log Driver Connect String May be Altered text box. The ODBC Data Source Administrator window displays.

b Select the System DSN tab of the ODBC Data Source Administrator window to make it active. Choose Add on the right side of the window to create a new DSN for the log database. The Create New Data Source window displays.

c In the list of drivers, highlight Microsoft Access Driver (*.*mdb*) and select Finish at the bottom of the window. The ODBC Microsoft Access Setup window displays.

d Enter LOG in the Data Source Name text box. The Description is optional. Select Create in the Database section in the middle of the window, and the New Database window displays.

e Under Directories in the center section of the New Database window, navigate down into *c:\..\data*. In the Database Name text box on the top left side of the window, enter xml_log.mdb and select OK. You receive the message Database *c:MAPS\DATA\xml_log.mdb* was successfully created. Select OK and you return to the ODBC Microsoft Access Setup window. Select OK and you return to the ODBC Data Source Administrator window. You have successfully set up the DSN that points to the log database.

Note If you have previously created the log database, you receive an Error message - The datasource named 'LOG' already exists. Replace it with this definition? Select Yes.

8 Making your new map the current active map

Each time you start ECMap, it "remembers" the last map you used and automatically opens it for you.

To make the project and map "current", double-click MPT (the map you just defined on the New Maps Definition window). You return to the main ECMap window and the "current" map information displays in the status bar at the bottom of the window:

```
Project: PurchaseOrders    Map: MPT
```

Mapping your data

Mapping your data involves:

- Importing the definition of the source data – the BizTalk XML schema.
- Importing the definition of the destination data – the table definition of the ODBC database used by your proprietary inventory and billing application.
- Mapping the XML schema to the ODBC database table format.
- Creating the map flow.

A sample of the XML purchase order data that you receive is shown below. You import the record definition using the BizTalk schema associated with this data. For your reference, a copy of the schema is included at the end of this document in "XML PO SCHEMA (BizTalk 0.8)" on page 104.

```
<?xml version="1.0" ?>
<BizTalk xmlns="urn:schemas-biztalk-org:biztalk/biztalk-0.81.xml">
  <Route>
    <From locationID="http://www.MPT.com" locationType="HTTP"
     process="http://MPT.com/biztalk" path="" handle="45" />
    <To locationID="http://www.ToysForBusinesses.com/biztalk/recv.asp"
     locationType="HTTP" process=""
     path="http://ToysForBusinesses.com/biztalk/recv.asp" handle="45" />
  </Route>
 <Body>
  <PO xmlns="urn:schemas-biztalk.org:fabrikam/orders.xml">
  <POHeader refPromise="0" fromCust="Major Playtime Tools" poNumber="12345"
   description="Sample PO" paymentType="INVOICE" shipType="AIR1D" />
    <Contact contactName="Billy Badger" contactPhone="(425) 123-1234"
     contactEmail="bbadger@MPT.com" />
    <POShipTo street1="8230 Old Courthouse Road" street2="Suite 100"
     street3="" street4="" attn="Susie Sandella" city="Vienna"
     stateProvince="VA" postalCode="22182" country="USA" />
    <POBillTo street1="8230 Old Courthouse Road" street2="Suite 300"
     street3="" street4="" attn="Billy Badger" city="Vienna"
     stateProvince="VA" postalCode="22182" country="USA" />
    <POLines count="2" startAt="1">
      <Item line="1" partNo="VoiceActivatedKeyboard" qty="1"
       unitPrice="3000" uom="Unit" discount="0.0" needAfter="2000-07-31"
       needBefore="2000-05-29" />
     <Item line="2" partNo="VirtualVacationPackage" qty="5" unitPrice="4500"
     uom="Unit" discount="0" needAfter="2000-07-31" needBefore="2000-05-29" />
  </POLines>
  </PO>
 </Body>
</BizTalk>
```

❖ **Defining the source data – importing a record definition from BizTalk XML schema**

In this example, you import the record definition for the source data from a BizTalk XML schema.

1

2 From the Application Files menu at the top of the main ECMap window, select Import Definition.

Select XML from the Import Definition submenu, and then select Schema from the XML submenu.

The XML Schema Import window displays. It has three tabs - Schema Import, XML Elements, and XML Attributes.

3 On the Schema Import tab, select the button on the far right of the window at the end of the File to load text box.

The Open window displays. At the bottom of the window, choose Any files from the Files of type drop-down list.

On the Open window, locate *c:\..\data\poschema.xsd* and double-click it.

You return to the XML Schema Import window, and the program automatically populates the File to load text box with the full-path file name - *C:\..\data\poschema.xsd*.

4 Select Create Records and the program automatically creates record definitions from the XML schema.

The unexpanded XML schema tree displays on the left side of the Schema Import tab - three lines display initially, with one unexpanded XML element called Schema. The associated SAX events display on the right side of the tab.

5 The globe symbol indicates an XML element, and the cloud symbol indicates an XML attribute. If you navigate down into the XML schema tree, you reveal the elements and attributes. You can also view elements on the XML Elements tab and attributes on the XML Attributes tab.

6 Close the XML Schema Import window to return to the main ECMap window.

7 Designating XML Records as Source

a On the ECMap window, select Records/Tables on the toolbar at the top of the main ECMap window.

The Records/Tables window displays. (Initially, only the elements display. However, if you navigate down through the XML element “records”, the XML attribute “fields” display.)

XML elements are indicated by Records/Tables and are equivalent to ECMap “records”. XML attributes are indicated by Records/Tables and are equivalent to ECMap “fields”.

b Right-click on the BizTalk XML “record” element (listed in bold below) and choose Record Properties from the drop-down menu.

The Record Properties window displays. It has two tabs - Required and Optional. For each of the XML elements listed below, select the Optional tab to make it active and then choose Source as the Record Type from the drop-down list. Select Next. Do this for each of the three tables. Select OK to return to the Records/Tables window.

Note If you select the Record Type text box and type S, and the program automatically enters Source for you in the Record Type text box.

c When you have designated all of the elements as Source, close the Records/Tables window to return to the main ECMap window.

The record definitions extracted from the XML schema are shown below. Bold XML elements are equivalent to records. XML attributes nested beneath the elements are equivalent to fields.

BizTalk

- BizTalk_data
- xmlns

Body

- Body_data

Contact

- Contact_data
- contactPhone
- contactEmail
- contactName

From

- From_data
- LocationType
- locationID
- handle
- process
- path

Item

- Item_data
- Qty
- NeedBefore
- discount
- unitPrice
- needAfter
- line
- uom
- partNo

PO

- PO_data
- xmlns

POBillTo

- POBillTo_data
- Street4
- Street3
- Street2
- Street1
- stateProvince
- city
- country
- attn
- postalCode

POHeader

- POHeader_data
- RefPromise
- description
- fromCust

- paymentType
- shipType
- poNumber

POLines

- POLines_data
- count
- startAt

POShipTo

- POShipTo_data
- Street4
- Street3
- Street2
- Street1
- stateProvince
- city
- country
- attn
- postalCode

Route

- Route_data

To

- To_data
- LocationType
- locationID
- handle
- process
- path

8 Creating the path to the input XML data file

You have defined the XML data to be used as input to the map so that ECMap knows how to read it. Now you must tell ECMap where to find the XML data. You do this by defining the path to the file in which the XML input data is stored.

a Select Application Directories on the main ECMap window and the Directories (Mailboxes) window displays.

Choose New from the File menu on the Directories (Mailboxes) window, and the New Directory window displays.

Note Instead of choosing New from the File menu, you can select New in the row of icons beneath the menu items.

---

b Select Browse and the Select a Directory... window displays.

Navigate down to *c:*\..*data* and select OK. You return to the New Directory window and ECMap enters *c:*\..*data* into the Directory text box.

c Select *c:*\..*data* on the Directories(Mailboxes) window to highlight the directory, and choose Open from the Application Files menu at the top of the Directories(Mailboxes) window.

The Files/ Databases window displays to the right of the Directories (Mailboxes) window. Choose New from the File menu on the Files/Databases window, and the New File window displays.

The directory appears to be highlighted and active when you return to the window, but it is not. Four icons appear under the menu options at the top of the window when a directory is active.

d On the New File window, select Browse to search for the File Name. The Choose Application File window displays. In the path *c:*\..*data*, locate the file podata.xml and double-click it.

e You return to the New File window and ECMap automatically enters podata.xml as the File Name. For File Type, choose HTML/XML from the drop-down list. File Description and Decimal Indicator are optional. Select OK to return to the Files/Databases window.

If you start typing, ECMap enters the File Type for you automatically.

f Select *podata.xml* on the Files/Databases window to highlight the file, and choose Open from the Record menu. The Records/Tables window displays to the right of the Files/Databases window.

The file appears to be highlighted and active when you return to the window, but it is not. Four icons appear under the menu options at the top of the window when a file is active.

9 Linking the directory, file, and records

a Drag podata.xml from the Files/Databases window and drop it on *c:\..\data* on the Directories (Mailboxes) window. It displays beneath the folder *C:\..\data*.

b Select the Records/Tables window to make it active. From the View menu on the Records/Tables window, choose Record List. The Record Listing window displays. On this window, left-click the first record, press the Shift key, and left-click the last record - continuing to keep the left mouse button depressed. Without lifting your finger from the left mouse, drag all of the highlighted records (which display as one file being dragged) and drop them onto the file podata.xml on the Files/Databases window. All of the records now display beneath the file *podata.xml*.

Note Make sure that the element displays under the file after you have dropped it.

c By linking the records to the file, and the file to the directory, you have created the path for the input XML data file so that ECMap knows where to find the XML data that is the input to the map – *c:\..\data\podata.xml*. Close the four open windows – Record Listing, Records/Tables, Files/Databases, and Directories (Mailboxes).

❖ **Defining the destination data – importing ODBC database table definitions**

1 Next, you import the three table definitions (listed below) from the PO_DATA ODBC database used by your proprietary Inventory and Billing application.

```
PO_Information
PoNumber
PO_xmls
refPromise
fromCust
description
paymentType
shipType
contactName
contactPhone
```

```
contactEmail
Shipto_street1
Shipto_street2
Shipto_street3
Shipto_street4
Shipto_attn
Shipto_city

Shipto_stateProvince
Shipto_postalCode
Shipto_country
Billto_street1
Billto_street2
Billto_street3
Billto_street4
Billto_attn
Billto_cityBillto_stateProvince
Billto_postalCode
Billto_country

PO_LineItems
poNumber
partNo
qty
unitPrice
uom
discount
needAfter
needBefore

PO_Routing
poNumber
To_From
locationID
locationType
process
path
handle
```

2 Importing the record definition

a From the Application Files menu at the top of the main ECMap window, select Import Definition.

Then select ODBC from the Import Definition submenu. The ODBC Record Definition Import window displays. ECMap automatically populates the Project and Map names.

b Select the up arrow next to the Data Source Name in the center section of the ODBC Record Definition Import window. The Data Source Names window displays, with a list of all current DSNs.

c Double-click BILLING (the DSN you set up earlier that points to the PO_DATA database) on the Data Source Names window.

You return to the ODBC Record Definition Import window, and the program populates the Data Source Name text box with BILLING and the Driver Connect String text box with DSN=BILLING. Select Continue at the bottom of the window. The Table Selection window displays.

d All of the database tables associated with this map display in the bottom section of the window (together with a number of system tables that all start with "MS"). Scroll down through the tables and select the check boxes of the following tables in your PO_DATA database.

PO_Information

PO_LineItems

PO_Routing

e In ECMap, tables are the equivalent of records. Select OK at the bottom of the window, and the program extracts the table ("record") definitions.

A Complete dialog box displays with the message "Record Definitions Imported". Select OK to close the dialog box.

3 Designating the ODBC records as destination

a Select Records/Tables on the toolbar at the top of the main ECMap window, and the Records/Tables window displays. The ODBC tables ("records") you imported display on the window. They are included alphabetically in the list of XML schema elements ("records") that you imported earlier.

b Right-click on one of the tables listed in Step 4 and choose Record Properties from the drop-down menu. The Records/ Tables window displays. It has two tabs - Required and Optional. Select the Optional tab and choose Destination as the Record Type. Select Next. Do this for each of the three tables. Select OK to return to the Records/Tables window.

If you select the Record Type text box and type D, and the program enters Destination for you in the Record Type text box automatically.

c Close the Records/Tables window to return to the main ECMap window.

4 Creating the connection to the inventory and billing database

You have defined the ODBC tables to which the map writes the output data. Now you must tell ECMap where to find the database that contains these tables. You do this by linking the three tables with the database.

a Select Files/Databases on the main ECMap window, and the Files/Databases window displays. Choose New from the File menu, and the New File window displays.

b On the New File window, select Browse to search for the File Name. The Choose Application File window displays. In the path *c:*\..*data*, locate the database PO_DATA.mdb and double-click it.

c You return to the New File window and PO_DATA.mdb is entered as the File Name. For the File Type, choose SQL DATABASE from the drop-down list. The appearance of the window changes.

d Select the up arrow next to the Data Source Name text box, and the Data Source Names window displays.

Double-click BILLING and you return to the New File window.

The program populates the Data Source Name text box with BILLING and constructs the driver connect string, DSN=BILLING, which it uses to populate the Driver Connect String (May Be Altered) text box. Select OK to close the New File window. PO_DATA.mdb now displays as one of the files.

To make sure that the DSN is configured properly, select the Test SQL Connection button. The message Connection Established indicates that the setup is correct.

e Select PO_DATA.mdb on the Files/Databases window to highlight it.

Choose Open from the Record menu, and the Records/Tables window displays to the right of the Files/Databases window.

The file appears to be highlighted and active when you return to the Files/Databases window, but it is not. You can tell when a file is active because Four icons appear under the menu options at the top of the window.

f The records associated with this map display on the Records/ Tables window, including the three tables in the Inventory and Billing database.

PO_Information

PO_LineItems

PO_Routing

g One at a time, drag each of the three tables listed above from the Records/Tables window and drop it on PO_DATA.mdb on the Files/Databases window. The tables should now display beneath database PO_DATA.mdb.

Make sure that each element displays under PO_DATA.mdb after you have dropped it.

h You have now linked the tables to the Inventory and Billing database. Close the Files/Databases window and the Records/Tables window.

❖ **Creating the map flow**

The map flow defines the relationship between the source data and the destination data. It is driven by rules and levels that you create and assign. In this example, XML elements are mapped to ODBC records. You have already defined the source and destination data and told the program where the input and output data are located. Now you set up levels and rules, and use them to create flow.

1 Select Map Flow on the toolbar at the top of the window. The Any-to-Any Map Flow window displays. From the Option menu at the top of the window, make sure that Multiple Files is unchecked. (If it is checked, select it and ECMap unchecks it. You can view it again to make sure that it is unchecked.)

Note To toggle between checking and unchecking an option, simply select on the option.

2 Planning and creating levels:

Create levels based on the structure of the XML data you are reading and the ODBC output you are writing. In this example, you are reading the BizTalk XML schema included at the end of this document.

```
100 BizTalk Level
     200 Route Level
          300 From Level
          310 To Level
     400 Body Level
          500 PO Level
               600 PO Header Level
               610 Contact Level
               620 Ship To Level
               630 Bill To Level
               800 PO Lines Level
                    900 Item Level
```

On the Levels window, create the levels that are used in defining map flow. Assign a number to each level. While these numbers are arbitrary, they generally reflect the hierarchy of the data.

Always have a master level, and it must always be the first level.

a Choose Levels from the View menu at the top of the Any-to-Any Map Flow window.

The Levels window displays.

b On the Levels window, choose New from the File menu, and the New Level window displays.

Create a new level for each of the levels listed above, by entering the level number in the first text box and the level description in the second text box.

As you define a new level, it displays on the Levels window. (If you move the New Level window so that it is not directly over the Levels window, you can see the levels display on the Levels window as you create them.) Begin by entering 100 in the first text box of the New Level window and BizTalk Level in the second text box. Select Next and add the next level - 200 Route Level. When you have finished adding all of the levels, select OK to close the New Level window. Close the Levels window to return to the Any-to-Any Map Flow window.

Note Select Tab to move from the first text box to the second text box. When you finish defining one level and want to define another, select Next on the window or press Alt-N.

3 Planning and creating rules

a On the Any-to-Any Map Flow window, choose Rules from the View menu. The Rule Definitions window displays. On this window, you create the rules that are used in defining map flow. In the current mapping example, you read each XML element in a separate rule command. As you read elements that contain data to be mapped, you perform the mapping in additional "assignment" rule commands. Finally, you write the output in other rule commands. Rule numbers are arbitrary and generally reflect the sequence of events. You create the rules based on the elements that must be read, the data that must be mapped, and the output that must be created, as shown below:

```
Do Nothing

100 Read <BizTalk>

200 Read <Route>
  300  Read <From>
  305  Map <From>
  308  Write PO_Routing
  310  Read <To>
  315  Map <To>
  318  Write PO_Routing

400 Read <Body>

500 Read <PO>
505 Map <PO>
 600  Read <POHeader>
 605  Map <POHeader>
```

```
610  Read <Contact>
615  Map <Contact>
620  Read <POShipTo>
625  Map <POShipTo>
630  Read <POBillTo>
635  Map <POBillTo>

700  Write <PO_Information>

800  Read <POLines>
  900  Read<Item>
  905  Map <Item>

1000  Write <POLines>
```

b For each rule command shown above, do the following:

At this point, you are simply creating the rules. Later, you add the actual rule commands that do the reading, writing, and mapping.

- On the Rule Definitions window, select New at the top of the window or choose New Rule from the File menu. The Rule Definition - New window displays.
- On the Rule Definition - New window, enter the Rule Number and the Rule Description. (The Do Nothing already exists.)
- Select OK on the window or press Enter.

As you enter a rule, it displays on the Rule Definitions window. Begin by entering 100 in the Rule Number text box and Read <BizTalk> in the Rule Description text box. Continue adding rules until you have finished with 1000 Write <POLines>. When all of the rules have been entered, close the Rule Definitions window.

4 Creating and defining the map flow table

Now that you have planned and set up levels and rules, you are ready to create map flow, by associating levels, records, and rules with each flow point. Choose New from the File menu on the Any-to-Any Map Flow window, and then choose Add Master Level from the New submenu. The Any-to-Any Record Flow window displays next to the Any-to-Any Map Flow window. It has two tabs – Required and Advanced. The Required tab is active initially and has four sections – Levels, Record Type, Records, and Rules. Beginning with the information for level 100 (shown beginning on the next page) and ending with level 1000, follow the three steps outlined below to enter the flow information for each flow point on the Required tab of the Any-to-Any Record Flow window. (Enter only information shown in bold. ECMap automatically enters the other information on the Required tab for you. The program also automatically enters correct information on the Advanced tab, but not until after you have added the following level.)

a Under Levels, select the up arrow next to the Current text box, and the Levels window displays. Double-click a level and the program enters it automatically in the Current level text box.

b Under Records, select the up arrow next to the Current text box, and the Records/ Tables window displays. Double-click a record and the program enters it automatically in the Current record text box.

c Under Record Type, the program has already checked the correct type - based on the attributes in the schema that you imported. The only instance where you change this is for repeating elements/records. While it is Mandatory to have a detail record, it is optional to have multiple records. In this case, you must change Mandatory to Optional (No Msg) and check Repeating.

d Under Rules, select the up arrow next to the I/O text box, and the Rule Definitions window displays. Double-click a rule and the program enters it automatically in the I/O rule text box. Double-click another rule and the program enters it automatically in the Before rule text box. Double-click another rule and the program enters it automatically in the After rule text box. (If you need only an I/O rule or only I/O and Before rules, select OK to close the Rule Definitions window after you have added the last rule, rather than double-clicking to add another rule.)

After all the information for a flow point has been entered, select OK to add another flow point.

At the bottom of the Any-to-Any Map Flow window, the following information displays for the currently highlighted flow point:

- Current Level
- I/O Rule
- Before Rule
- After Rule
- Next Level
- Break Level

5 Associating levels, records, and rules with flow points:

a The Any-to-Any Record Flow window is open, ready for you to add the master level.

Note If the Any-to-Any Record Flow window is not open, choose New from the File menu on the Any-to-Any Map Flow window, and then choose Add Master Level from the New submenu. The Any-to-Any Record Flow window displays.

Following the four steps in the instructions under Creating and Defining the Map Flow Table, enter on the Required tab of the Any-to-Any Record Flow window the information shown below in bold.

```
Current Level    100
Parent Level     N/A
Record Type      N/A
Current Record   BizTalk
Parent Record    N/A
I/O Rule         100
Before Rule      0
After Rule       0
```

Select OK to create this flow point and close the Any-to-Any Record Flow window. After you create the next flow point, the program enters the following information on the Advanced tab for this flow point:

```
Next Level     200
Break Level    100
```

b Right-click level 100 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Child Level from the New submenu.

Note When the XML schema is imported, the program stores information about the element, such as whether it is mandatory or optional.

On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level      200
Parent Level       100
Record Type        Mandatory
Current Record     Route
Parent Record      BizTalk
I/O Rule           200
Before Rule        0
After Rule         0
```

Select OK to create this flow point and close the Any-to-Any Record Flow window. After you create the next flow point, the program enters the following information on the Advanced tab for this flow point:

```
Next Level    300
Break Level    100
```

c Right-click level 200 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Child Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level      300
Parent Level       200
Record Type        Mandatory
Current Record     From
Parent Record      Route
I/O Rule           300
Before Rule        305
After Rule         308
```

Select OK to create this flow point and close the Any-to-Any Record Flow window. After you create the next flow point, the program enters the following information on the Advanced tab for this flow point:

```
Next Level      310
Break Level     100
```

d Right-click level 300 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Sibling Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level       310
Parent Level        200
Record Type         Mandatory
Current Record      To
Parent Record       Route
I/O Rule            310
Before Rule         315
After Rule          318
```

Select OK to create this flow point and close the Any-to-Any Record Flow window. After you create the next flow point, the program enters the following information on the Advanced tab for this flow point:

```
Next Level      400
Break Level     100
```

e Right-click level 100 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Child Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

Note You must right-click level 100. You are creating a new child level of the master level.

```
Current Level       400
Parent Level        100
Record Type         Mandatory
Current Record      Body
Parent Record       BizTalk
I/O Rule            400
```

```
Before Rule         0
After Rule          0
```

Select OK to create this flow point and close the Any-to-Any Record Flow window. After you create the next flow point, the program enters the following information on the Advanced tab for this flow point:

```
Next Level      500
Break Level     100
```

f Right-click level 400 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Child Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level           500
Parent Level            400
Record Type             Mandatory
Current Record          PO
Parent Record           Body
I/O Rule                500
Before Rule             505
After Rule              0
```

Select OK to create this flow point and close the Any-to-Any Record Flow window. After you create the next flow point, the program enters the following information on the Advanced tab for this flow point:

```
Next Level      600
Break Level     100
```

g Right-click level 500 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Child Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level       600
Parent Level        500
Record Type         Mandatory
Current Record      POHeader
Parent Record       PO
I/O Rule            600
Before Rule         605
After Rule          0
```

Select OK to create the flow point and close the Any-to-Any Record Flow window. At this point, the program automatically enters the following information on the Advanced tab:

```
Next Level      610
Break Level     100
```

h Right-click level 600 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Sibling Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level       610
Parent Level        500
Record Types        Mandatory
Current Record      Contact
Parent Record       PO
I/O Rule            610
Before Rule         615
After Rule          0
```

Select OK to create the flow point and close the Any-to-Any Record Flow window. At this point, the program automatically enters the following information on the Advanced tab:

```
Next Level      620
Break Level     100
```

i Right-click level 610 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Sibling Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level      620
Parent Level       500
Record Type        Mandatory
Current Record     POShipTo
Parent Record      PO
I/O Rule           620
Before Rule        625
After Rule         0
```

Select OK to create the flow point and close the Any-to-Any Record Flow window. At this point, the program automatically enters the following information on the Advanced tab:

```
Next Level      630
Break Level     100
```

j Right-click level 620 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Sibling Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level       630
Parent Level        500
Record Type         Mandatory
Current Record      POBillTo
Parent Record       PO
I/O Rule            630
Before Rule         635
After Rule          700
```

Select OK to create the flow point and close the Any-to-Any Record Flow window. At this point, the program automatically enters the following information on the Advanced tab:

```
Next Level      800
Break Level     100
```

k Right-click level 630 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Sibling Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level       800
Parent Level        500
Record Type         Mandatory
Current Record      POLines
Parent Record       PO
I/O Rule            800
Before Rule         0
After Rule          0
```

Select OK to create the flow point and close the Any-to-Any Record Flow window. At this point, the program automatically enters the following information on the Advanced tab:

```
Next Level      900
Break Level     100
```

l Right-click level 800 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Child Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

Note For level 900, be sure to change the Record Type from Mandatory to Optional and to check the Repeating check box. This is the only level for which you change the Record Type. Right-click level 620 on the Any-to-Any Map Flow window. Choose New from the drop-down menu and Add Sibling Level from the New submenu. On the Required tab of the Any-to-Any Record Flow window, enter the information shown below in bold:

```
Current Level         900
Parent Level          800
Record Type           Optional (No Msg)
                       Repeating
Current Record        Item
Parent Record         POLines
I/O Rule              900
Before Rule           905
After Rule            1000
```

Select OK to create the flow point and close the Any-to-Any Record Flow window. At this point, the program automatically enters the following information on the Advanced tab:

```
Next Level             900
Break Level               100
```

When you have finished building the map flow, the Any-to-Any Map Flow window should look like the representation shown below:

For each flow point, or entry in the flow table, the level number and description display on the main window. As you select each flow point, the associated levels and rules display in a separate section at the bottom of the window.

Close the Any-to-Any Map Flow window and any other windows that remain open, such as Levels, Records/Tables, or Rule Definitions.

6 Reading the XML data and writing to the ODBC database

The last step that you perform before doing the actual mapping is to enter the rule commands to read the XML data and write the ODBC data. For this tutorial, the XML source data is located in *c:\..\data\podata.xml*, and the destination data is stored in PO_DATA.mdb (in the Inventory and Billing database pointed to by the DSN BILLING).

- Select Rules on the toolbar at the top of the window, and the Rule Definitions window displays. The rules that you added earlier display on the window.

❖ **Adding the commands to read the XML data**

1 Right-click rule 100 and choose New Command from the drop-down menu. The Rule Command - New window displays. Select XML I/O from the drop-down list for the Command text box and additional text boxes appear at the bottom of the window.

Note If you begin typing X.. in the Command text box, ECMap automatically enters it for you.

Apply is used to save a command and enter a new command. OK is used to save a command and exit the New Command window.

---

a Select the I/O Command up arrow and choose Read XML from the drop-down menu.

b Select the Application Directory up arrow and the Directories (Mailboxes) window displays. Navigate down through *c:\..\data\podata.xml* and double-click BizTalk.

c The program automatically populates the Application Directory, Application File, and File Record text boxes.

Select OK on the Rule Command-New window to add the command and close both the Directories(Mailboxes) and the Rule Command-New windows. The new command displays under rule 100.

2 Right-click rule 200 and repeat the actions you performed in Step 2.

a Choose New Command from the drop-down menu.

b Enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

c Navigate down into *c:*\..*data**podata.xml* and double-click Route. The program automatically populates the Application Directory, Application File, and File Record text boxes.

d Select OK to close the Directories(Mailboxes) window and the Rule Command-New window.

3 Right-click rule 300 and repeat the actions you performed in Step 2.

a Choose New Command from the drop-down menu.

b Enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

c Navigate down into *c:*\..*data**podata.xml* and double-click From. The program automatically populates the Application Directory, Application File, and File Record text boxes.

d Select OK to close both the Directories(Mailboxes) and the Rule Command-New windows.

4 Right-click rule 310 and repeat the actions you performed in Step 2.

a Choose New Command from the drop-down menu.

b Enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

c Navigate down into *c:*\..*data**podata.xml* and double-click To. The program automatically populates the Application Directory, Application File, and File Record text boxes.

d Select OK to close both the Directories (Mailboxes) and the Rule Command-New windows.

5 Right-click rule 400 and repeat the actions you performed in Step 2.

a Choose New Command from the drop-down menu.

b Enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

c Navigate down into *c:*\..*data**podata.xml* and double-click Body. The program automatically populates the Application Directory, Application File, and File Record text boxes.

d Select OK to close both the Directories (Mailboxes) and the Rule Command-New windows.

6 Right-click rule 500 and repeat the actions you performed in Step 2.

   a Choose New Command from the drop-down menu.

   b Enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

   c Navigate down into *c:\..\data\podata.xml* and double-click PO. The program automatically populates the Application Directory, Application File, and File Record text boxes.

   d Select OK to close both the Directories (Mailboxes) and the Rule Command-New windows.

7 Right-click rule 600 and repeat the actions you performed in Step 2.

   a Choose New Command from the drop-down menu.

   b Enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

   c Navigate down into *c:\..\data\podata.xml* and double-click POHeader. The program automatically populates the Application Directory, Application File, and File Record text boxes.

   d Select OK to close both the Directories(Mailboxes) and the Rule Command-New windows.

8 Right-click rule 610 and repeat the actions you performed in Step 2.

   a Choose New Command from the drop-down menu.

   b Enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

   c Navigate down into *c:\..\data\podata.xml* and double-click Contact. The program automatically populates the Application Directory, Application File, and File Record text boxes.

   d Select OK to close both the Directories (Mailboxes) and the Rule Command-New windows.

9 Right-click rule 620 and repeat the actions you performed in Step 3.

   a Choose New Command from the drop-down menu, and then enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

   b Navigate down into *c:\..\data\podata.xml* and double-click POShipTo. The program automatically populates the Application Directory, Application File, and File Record text boxes.

c Select OK to close both the Directories (Mailboxes) and the Rule Command-New windows.

10 Right-click rule 630 and repeat the actions you performed in Step 2.

a Choose New Command from the drop-down menu, and then enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

b Navigate down into *c:*\..*data**podata.xml* and double-click POBillTo. The program automatically populates the Application Directory, Application File, and File Record text boxes.

c Select OK to close both the Directories (Mailboxes) and the Rule Command-New windows.

11 Right-click rule 800 and repeat the actions you performed in Step 2.

a Choose New Command from the drop-down menu, and then enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

b Navigate down into *c:*\..*data**podata.xml* and double-click POLines. The program automatically populates the Application Directory, Application File, and File Record text boxes.

c Select OK to close both the Directories (Mailboxes) and the Rule Command-New windows.

12 Right-click rule 900 and repeat the actions you performed in Step 2.

a Choose New Command from the drop-down menu, and then enter XML I/O as the Command and Read XML as the I/O Command on the Rule Command–New window.

b Navigate down into *c:*\..*data**podata.xml* and double-click Item. The program automatically populates the Application Directory, Application File, and File Record text boxes.

c Select OK to close both the Directories(Mailboxes) and the Rule Command-New windows.

❖ **Adding the commands to write the ODBC data**

1 Right-click rule 308.

a Choose New Command from the drop-down menu, and then enter SQL as the Command and Insert Record into Table as the I/O Command on the Rule Command – New window.

b Select the up arrow next to SQL Application File Name, and the Files/Databases window displays.

c Double-click on PO_DATA.mdb.

d Double-click on PO_Routing. The program automatically populates the SQL Application File Name, SQL Application File Record, and SQL Table Name text boxes.

e Select OK on Rule Command – New window.

2 Right-click rule 318.

a Choose New Command from the drop-down menu, and then enter SQL as the Command and Insert Record into Table as the I/O Command on the Rule Command – New window.

b Select the up arrow next to SQL Application File Name, and the Files/Databases window displays.

c Double-click on PO_DATA.mdb.

d Double-click on PO_Routing. The program automatically populates the SQL Application File Name, SQL Application File Record, and SQL Table Name text boxes.

e Select OK on Rule Command – New window.

3 Right-click on Rule 700 and choose New Command.

a On the Rule Command – New window, enter SQL as the Command and Insert Record into Table as the I/O Command.

b On the Files/Databases window, double-click PO_Information. The program automatically populates the SQL Application File Name, SQL Application File Record, and SQL Table Name text boxes on the Rule Command – New window.

c Select OK on that window to add another command.

4 Right-click rule 1000 and choose New Command from the drop-down menu.

a Enter SQL as the Command and Insert Record into Table as the I/O Command on the Rule Command – New window.

b Select the up arrow next to SQL Application File Name, and the Files/Databases window displays.

c Navigate down through *c:\..\data\ PO_DATA.mdb* and double-click PO_LineItems. The program automatically populates the SQL Application File Name, SQL Application File Record, and SQL Table Name text boxes.

d Select Apply.

Note Rule 1000 has two commands. When you finish adding the first rule command, select Apply instead of OK. This adds the rule command, but does not close the window. After you add the second rule command, select OK.

---

5 Enter the second command. The Rule Command – New window should still be open.

a Enter Clear Record as the Command, and the window changes.

b Select the up arrow next to Record to Clear, and the Records/ Tables window displays.

c Double-click PO_LineItems, and the program automatically enters it in the Record to Clear text box.

d Select the up arrow next to Type of Record Clear, and choose Clear All Fields from the submenu.

e Select OK to close the Rule Command – New and Records/Tables windows.

Note Do not close the Rule Definitions window.

❖ **Mapping the source data to the destination data**

Mapping in ECMap is a simple procedure of linking source record fields or elements to destination record fields or elements. Source data is on the left side of the Any-to-Any Map window, destination data is on the right, and the results of mapping display at the bottom of the window. In addition, there is a temporary mapping workspace in the middle of the window, where you can map multiple records at one time.

You can create mapping links in one of two ways:

- Drag source objects and drop them on destination objects one at a time.
- Enter multiple source and destination objects in the temporary mapping workspace and map them simultaneously with the select of a button.

1. Using the Mapping icon at the top of the Rule Definitions window and the View Rules button at the bottom of the Any-to-Any Map window, toggle back and forth between the two windows.
2. The Rule Definitions window should be open. Right-click rule 305, choose New Command from the drop-down menu, and enter Assignment as the Command. As the Source under Parameters, choose Constant from the drop-down list and the Constant Value dialog box displays.
   a. Enter From as the constant value and select OK.
   b. As the Destination under Parameters, choose Record/Field and the Records/Tables window displays.
   c. Under PO_Routing, double-click To_From. Select OK to close the Rule Command-New and Records/Tables windows.

      The Line number specifies the order of the rule command in the rule.
   d. Select Mapping from the icons at the top of the Rule Definitions window and the Any-to-Any Map window displays. Under Rule in the upper right corner of the window, 305 displays in the rule Number text box and 1 displays in the Line text box. Type 2 in the Line text box.
   e. On the Source side of the Any-to-Any mapping window, double-click From.
   f. Under Destination, double-click PO_Routing.
   g. Drag the following elements under From and drop them on the specified fields under PO_Routing:

Note On the Any-to-Any Map window, the XML elements display under Source, and the ODBC database tables display under Destination.

Source	Destination
From	PO_Routing
location ID	locationID
locationType	locationType
process	process
path	path
handle	handle

The mapping displays in the bottom middle section of the window.

3 Select View Rules at the bottom of the Any-to-Any Map window, and the Rule Definitions window displays:

   a Right-click rule 315, choose New Command from the drop-down list, and enter Assignment as the Command.

   b As the Source under Parameters, choose Constant from the drop-down list and the Constant Value dialog box displays.

   c Enter To as the constant value and select OK.

   d At the Destination under Parameters, choose Record/Field and the Records/Tables window displays.

   e Under PO_Routing, double-click To_From.

   f Select OK to close the Rule Command-New and Records/Tables windows.

   g Select Mapping on the Rule Definitions window and the Any-to-Any Map window displays.

   h Under Rule in the upper right corner of the window, 315 displays in the rule Number text box and 1 displays in the Line text box.

   i Type 2 in the Line text box.

   j Under Source on the Any-to-Any mapping window, double-click To.

   k Under Destination, the elements under PO_Routing are already displayed.

   l Drag the following elements under To and drop them on the specified fields under PO_Routing:

Source	Destination
To	PO_Routing
location ID	locationID
locationType	locationType
process	process
path	path
handle	handle

4 Select the up arrow next to the Number text box in the top right Rule section of the window, and the Rule Definitions window displays.

   a Double-click rule 505, and the program automatically enters 505 in the Number text box and 1 in the Line text box.

   b Minimize the Rule Definitions window.

c Under Source, double-click PO.

d Under Destination, double-click PO_Information.

e Drag xmlns under PO and drop it on PO_xmlns under PO_Information.

5 Select the up arrow next to the Number text box in the top right Rule section of the window, and the Rule Definitions window displays.

a Double-click rule 605 and the program enters 605 in the Number text box and 1 in the Line text box.

b Select Mapping button and clear middle part of window.

c Minimize the Rule Definitions window.

d Under Source, double-click POHeader

e Double-click each element in the order listed below.

f Under Destination, double-click PO_Information and double-click all of the same elements in the order listed below:

```
Source          Destination
POHeader        PO_Information
refPromise      refPromise
fromCust        fromCust
poNumber        PONumber
description     description
paymentType     paymentType
shipType        shipType
Select => (Apply) to map elements.
```

g As you select elements, they display in the mapping area in the top middle section of the window. When you are finished, select the minus button and each element is mapped to the element directly across from it. The results display at the bottom of the window, and the mapping area at the top is cleared.

6 Select the up arrow next to the Number text box in the top right Rule section of the window, and the Rule Definitions window displays.

a Double-click rule 615 and the program enters 615 in the Number text box and 1 in the Line text box.

b Minimize the Rule Definitions window.

c Select View Mapping and clear the middle part of the window.

d Under Source, double-click Contact and then double-click each element in the order listed below.

e On the Destination side of the window, under PO_Information, double-click all of the same elements in the order listed below:

Source	Destination
Contact	PO_Information
contactName	contactName
contactPhone	contactPhone
contactEmail	contactEmail

f Select the minus between the two sets of data and the mapping is performed.

7 Select the up arrow next to the Number text box in the top right Rule section of the window, and the Rule Definitions window displays.

a Double-click rule 625 and the program enters 625 in the Number text box and 1 in the Line text box.

b Minimize the Rule Definitions window.

c Select View Mapping and clear the middle part of the window.

d Under Source, double-click POShipTo and then double-click each element in the order listed below.

e On the Destination side of the window, under PO_Information, double-click the corresponding elements in the order listed below:

Source	Destination
POShipTo	PO_Information
street1	Shipto_street1
street2	Shipto_street
street3	Shipto_street3
street4	Shipto_street4
attn	Shipto_attn
city	Shipto_city
stateProvince	Shipto_stateProvince
postalCode	Shipto_postalCode
country	Shipto_country

f Select the minus between the two sets of data and the mapping is performed.

8 Select the up arrow next to the Number text box in the top right Rule section of the window, and the Rule Definitions window displays.

a Double-click rule 635 and the program enters 635 in the Number text box and 1 in the Line text box.

b Minimize the Rule Definitions window.

c Select View Mapping and clear the middle part of the window.

d Under Source, double-click POBillTo and then double-click each element in the order listed below.

e On the Destination side of the window, under PO_Information, double-click the corresponding elements in the order listed below:

```
Source          Destination
POBillTo        PO_Information
street1         Billto_street1
street2         Billto_street2
street3         Billto_street3
street4         Billto_street4
attn            Billto_attn
city            Billto_city
stateProvince   Billto_stateProvince
postalCode      Billto_postalCode
country         Billto_country
```

f Select the minus between the two sets of data and mapping is performed.

9 Select the up arrow next to the Number text box in the top right Rule section of the window, and the Rule Definitions window displays.

a Double-click rule 905 and the program automatically enters 905 in the Number text box and 1 in the Line text box.

b Minimize the Rule Definitions window.

c Select View Mapping and clear the middle part of the window.

d Under Source, double-click Item and then double-click each element in the order listed below.

e Under Destination, close PO_Information, double-click PO_LineItems and double-click all of the same elements in the order listed below:

```
Source      Destination
Item        PO_LineItems
partNo      partNo
qty         qty
```

```
unitPrice      unitPrice
uom            uom
discount       discount
needAfter      needAfter
needBefore     needBefore
```

f Under Source, double-click POHeader and then double-click poNumber. Under Destination, double-click PONumber.

g Select the minus between the two sets of data and the mapping is performed.

10 Close the Any-to-Any Map window. You have now finished mapping and are now ready to generate and run your map. Close all open windows.

Running your map

Sybase is known for its high speed and quality performance. Map generation results in an efficient map run process, which in turn contributes to the speed and throughput of Sybase's mapping product.

Running your map involves:

- "Generating your map" on page 100.
- "Running your map" on page 101.

The final steps in the mapping process are to generate and run your map. During generation, your map is checked to make sure that everything is set up properly. When you run your map, the outbound EDI file or inbound application file is actually built.

Generating the map produces the .map file, which contains all the mapping instructions you created. Running the map – with the ECRTP runtime program - interprets the .map file and maps the data.

❖ Generating your map

When you generate a map, you compile all your business rules and logic into your finished map

1 Select Generate Map (the yellow traffic light) on the toolbar at the top of the window. The Generate Map window displays.

2 Make sure that the Multiple Files check box is not checked.

Multiple Files is checked by default. Left-click on the check box to uncheck it, or you receive a warning – "All Recd Files with Multiple Recs must have Record Type Fields"

3 Select Run on the Generate Map window. Messages flash across the text box until the following message appears: Map Generation Completed Successfully.

4 You can view the results of the map generation process by selecting View Log. The Generate Log window displays.

5 Select Exit to return to the main ECMap window.

❖ **Running your map**

Map files can be distributed and deployed with the runtime engine.

1 Select Run Map (the green traffic light) on the toolbar at the top of the window. The Run Any-to-Any Map window displays. It has several tabs – Required, Option 1, Option 2, File Alias, ODBC Alias, Parameters, I/O Redirect, and Web Script.

2 ECMap automatically populates Map Name and Map Directory. Since you configured an ODBC log database, the Log Type is automatically populated with ODBC Log. On the Option 1 tab, Short Trace has already been entered as the default Trace Type, and 10000 has already been entered as the Max Memory Cross-Reference. The Number of Maps in Memory is optional. On the Option 1 tab, select Long Trace.

3 Select Run Map.

4 Select View Trace to review the trace log. The Trnn.dat-Notepad window displays, with the message "Maprun Complete – No Errors Encountered" if the map run was successful. If there are errors, you can use the information in this log to correct your errors and then run the map again.

5 Close the Any-to-Any Map window to return to the main ECMap window.

6 You have now successfully run your map - which read XML input data and wrote output to the ODBC Inventory and Billing database.

If you want to view the output, open Microsoft Access and view the PO_DATA.mdb database.

XML-to-ODBC mapping overview

Figure 3-1 is a graphic representation of XML to ODBC mapping.

Figure 3-1: XML to ODBC mapping

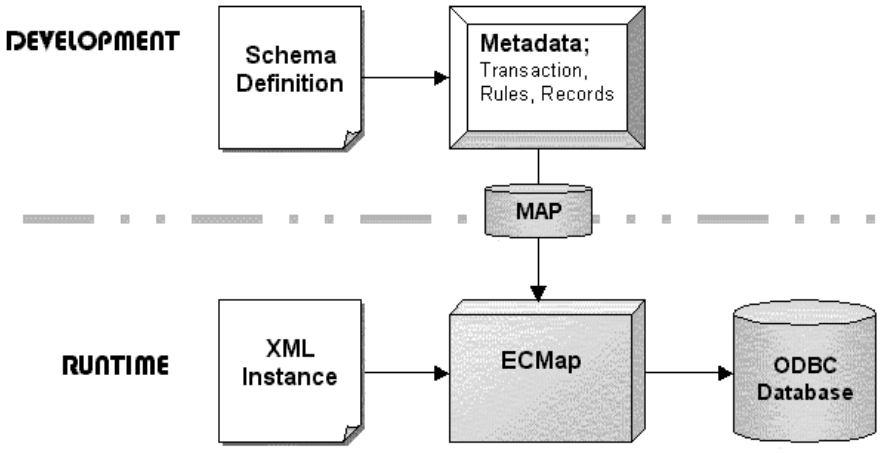
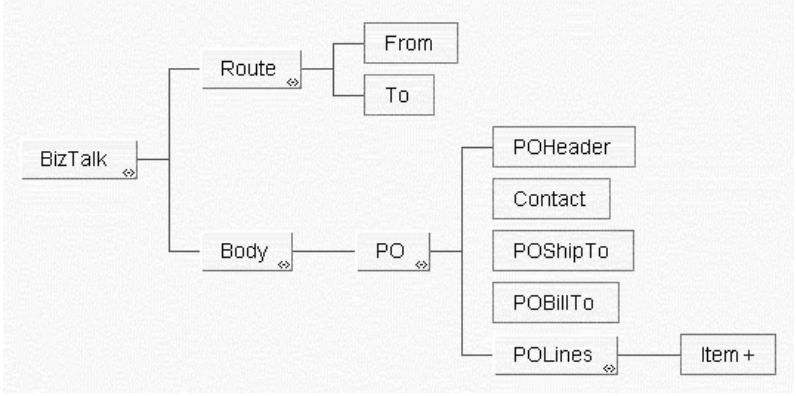


Figure 3-2 is a graphic representation of XML schema used in this tutorial

Figure 3-2: XML Schema



Annotated sample XML data

Sample XML data used in this tutorial, annotated with placement of rules and levels. Levels are shown under Read and Write.

Table 3-2: Sample XML data

Rule Read	Map	Write	XML Purchase Order
			Do Nothing
			<?xml version= "1.0" ?>
100			<BizTalk xmlns= "urn:schemas-biztalk-org:biztalk/biztalk-0.81.xml">
200			<Route>
300	305		<From locationID= "http://www.MPT.com" locationType= "HTTP"
			process= "http://MPT.com/biztalk" path= " " handle= "45" />
		308	Write PO_Routing
310	315		<To locationID= "http://www.ToysForBusinesses.com/biztalk/recv.asp"
			locationType= "HTTP"process=""
			path="http://ToysForBusinesses.com/biztalk/recv.asp" handle="45" />
		318	Write PO_Routing
			</Route>
400			<Body>
500	505		<PO xmlns="urn:schemas-biztalk.org:fabrikam/orders.xml">
600	605		<POHeader refPromise="0" fromCust="Major Playtime Tools" poNumber="12345"
			description="Sample PO" paymentType="INVOICE" shipType="AIR1D" />
610	615		<Contact contactName="Billy Badger" contactPhone="(425) 123-1234"
			contactEmail="bbadger@MPT.com" />
620	625		<POShipTo street1="8230 Old Courthouse Road" street2="Suite 100"
			street3="" street4="" attn="Susie Sandella" city="Vienna"
			stateProvince="VA" postalCode="22182" country="USA" />
630	635		<POBillTo street1="8230 Old Courthouse Road" street2="Suite 300"
			street3="" street4="" attn="Billy Badger" city="Vienna"
			stateProvince="VA" postalCode="22182" country="USA" />
		700	WRITE PO_Information
800			<POLines count="2" startAt="1">

Rule Read	Map	Write	XML Purchase Order
			<Item line="1" partNo="VoiceActivatedKeyboard" qty="1" unitPrice="3000"
			uom="Unit" discount="0.0" needAfter="2000-07-31" needBefore="2000-05-29" />
900	905	1000	WRITE <POLines> to PO_LineItems
			<Item line="2" partNo="VirtualVacationPackage" qty="5" unitPrice="4500"
			uom="Unit" discount="0" needAfter="2000-07-31" needBefore="2000-05-29"/>
900	905	1000	WRITE <POLines> to PO_PO_LineItems
			</POLines>
			</PO>
			</Body>
			</BizTalk>

XML PO SCHEMA (BizTalk 0.8)

```
<?xml version ="1.0"?>
<!--Generated by XML Authority. Conforms to w3c
http://www.w3.org/1999/XMLSchema-->
<schema xmlns = "http://www.w3.org/1999/XMLSchema">
  <element name = "BizTalk">
    <complexType content = "elementOnly">
      <sequence>
        <element ref = "Route"/>
        <element ref = "Body"/>
      </sequence>
        <attribute name = "xmlns" use = "required" type = "string"/>
    </complexType>
  </element>
  <element name = "Route">
    <complexType content = "elementOnly">
      <sequence>
        <element ref = "From"/>
        <element ref = "To"/>
      </sequence>
    </complexType>
  </element>
  <element name = "From">
    <complexType content = "empty">
```

```
      <attribute name = "locationType" use = "required" type = "string"/>
      <attribute name = "locationID" use = "required" type = "string"/>
      <attribute name = "handle" use = "required" type = "string"/>
      <attribute name = "process" use = "required" type = "string"/>
      <attribute name = "path" use = "required" type = "string"/>
  </complexType>
</element>
<element name = "To">
  <complexType content = "empty">
      <attribute name = "locationType" use = "required" type = "string"/>
      <attribute name = "locationID" use = "required" type = "string"/>
      <attribute name = "handle" use = "required" type = "string"/>
      <attribute name = "process" use = "required" type = "string"/>
      <attribute name = "path" use = "required" type = "string"/>
  </complexType>
</element>
<element name = "Body">
  <complexType content = "elementOnly">
    <sequence>
      <element ref = "PO"/>
    </sequence>
  </complexType>
</element>
<element name = "PO">
  <complexType content = "elementOnly">
    <sequence>
      <element ref = "POHeader"/>
      <element ref = "Contact"/>
      <element ref = "POShipTo"/>
      <element ref = "POBillTo"/>
      <element ref = "POLines"/>
    </sequence>
    <attribute name = "xmlns" use = "required" type = "string"/>
  </complexType>
</element>
<element name = "POHeader">
  <complexType content = "empty">
    <attribute name = "refPromise" use = "required" type = "string"/>
    <attribute name = "description" use = "required" type = "string"/>
    <attribute name = "fromCust" use = "required" type = "string"/>
    <attribute name = "paymentType" use = "required" type = "string"/>
    <attribute name = "shipType" use = "required" type = "string"/>
    <attribute name = "poNumber" use = "required" type = "string"/>
  </complexType>
</element>
<element name = "Contact">
```

```
    <complexType content = "empty">
      <attribute name = "contactPhone" use = "required" type = "string"/>
      <attribute name = "contactEmail" use = "required" type = "string"/>
      <attribute name = "contactName" use = "required" type = "string"/>
    </complexType>
  </element>
  <element name = "POShipTo">
    <complexType content = "empty">
      <attribute name = "street4" use = "required" type = "string"/>
      <attribute name = "street3" use = "required" type = "string"/>
      <attribute name = "street2" use = "required" type = "string"/>
      <attribute name = "street1" use = "required" type = "string"/>
      <attribute name = "stateProvince" use = "required" type = "string"/>
      <attribute name = "city" use = "required" type = "string"/>
      <attribute name = "country" use = "required" type = "string"/>
      <attribute name = "attn" use = "required" type = "string"/>
      <attribute name = "postalCode" use = "required" type = "string"/>
    </complexType>
  </element>
  <element name = "POBillTo">
    <complexType content = "empty">
      <attribute name = "street4" use = "required" type = "string"/>
      <attribute name = "street3" use = "required" type = "string"/>
      <attribute name = "street2" use = "required" type = "string"/>
      <attribute name = "street1" use = "required" type = "string"/>
      <attribute name = "stateProvince" use = "required" type = "string"/>
      <attribute name = "city" use = "required" type = "string"/>
      <attribute name = "country" use = "required" type = "string"/>
      <attribute name = "attn" use = "required" type = "string"/>
      <attribute name = "postalCode" use = "required" type = "string"/>
    </complexType>
  </element>
  <element name = "POLines">
    <complexType content = "elementOnly">
      <sequence>
        <element ref = "Item" minOccurs = "1" maxOccurs = "unbounded"/>
      </sequence>
        <attribute name = "count" use = "required" type = "string"/>
        <attribute name = "startAt" use = "required" type = "string"/>
     </complexType>
  </element>
  <element name = "Item">
    <complexType content = "empty">
      <attribute name = "qty" use = "required" type = "string"/>
      <attribute name = "needBefore" use = "required">
        <simpleType base = "NMTOKEN">
```

```
          <enumeration value = "2000-05-29"/>
        </simpleType>
      </attribute>
      <attribute name = "discount" use = "required" type = "string"/>
      <attribute name = "unitPrice" use = "required" type = "string"/>
      <attribute name = "needAfter" use = "required">
        <simpleType base = "NMTOKEN">
          <enumeration value = "2000-07-31"/>
        </simpleType>
      </attribute>
      <attribute name = "line" use = "required" type = "string"/>
      <attribute name = "uom" use = "required">
        <simpleType base = "NMTOKEN">
          <enumeration value = "Unit"/>
        </simpleType>
      </attribute>
      <attribute name = "partNo" use = "required" type = "string"/>
    </complexType>
  </element>
</schema>
```

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