Developer's Handbook

Netscape ECXpert™

Version 3.0

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Contents

About this Book

This *Handbook* describes the concepts, interface and underlying data organization of the ECXpert Software Developer's Kit.

This Preface discusses the intended audience, the organization of the *Handbook*, and provides a listing of typographic conventions used in this document. If you spend a few minutes looking through the Preface before reading the rest of the *Handbook*, you will be able to utilize the *Handbook* more effectively.

Before You Begin

You only need to use this manual if you are running command line utilities or your are developing C++ programs that submit files to ECXpert or access the ECXpert database.

If you need an overview of ECXpert, read the *ECXpert System Site Administrator's Guide* first. You should read Chapter 1, "Introducing the ECXpert Software Developer's Kit," in this manual to obtain a brief overview of the SDK components. If you are using the API in conjunction with TradingXpert, you should read the *TradingXpert Getting Started Guide* as well.

Before you begin, download the latest version of the ECXpert Release Note. See the following section for instructions.

Downloading the Latest Version of any ECXpert Release Note

We continuously update Netscape ECXpert release notes. Follow these steps to:

- Determine whether you have the latest version of any Netscape ECXpert Release Note

- Download a copy of any Netscape ECXpert Release Note
- Provide a link to any ECXpert Release Note on the Netscape ECXpert **Support** | **Help** | **Manuals** screen

Note In these instructions, the environment variable or `$NSBASE` is the full path to the Netscape ECXpert installation directory. See "Setting Up the $NSBASE Environment Variable" in the *ECXpert Getting Started Guide*.

1. **Go to the ECXpert Product Information and Support web page.**

   http://help.netscape.com/products/apps/ecxpert/

2. **Find the most recent version of the ECXpert Release Note.**

   To find the most recent version of the ECXpert Release Note, look at the date next to the link to the ECXpert Release Note PDF file.

3. **Download the ECXpert Release Note PDF file.**

4. **Copy the release note into the manuals directory.**

   $NSBASE/NS-apps/ECXpert/UI/html/help/manuals

5. **Include a link to the release note on the "manuals" screen.**

   Edit the *$NSBASE/NS-apps/ECXpert/UI/html/help/frm2man.htm* file to include a reference to the ECXpert Release Note PDF file.

   A link to the ECXpert Release Note PDF file should appear in the left frame of the **Support** | **Help** | **Manuals** screen.

The ECXpert Documentation Set

You may wish to refer to other ECXpert books for additional information. This section discusses each book in the ECXpert documentation set.

Cross-Document Index

This *Cross-Document Index* indexes topics across the entire document set. If a topic appears in multiple books, the *Cross-document Index* lists each book and page number the topic appears on.

Release Note

After you receive the ECXpert 2.0 software, before you do anything else, you should download the *ECXpert 2.0 Release Note*. See "Downloading the Latest Version of any ECXpert Release Note" on page 11 for instructions.

The Release Note contains:

- A list of bugs fixed in the current release
- A list of all documentation corrections
- Warnings and workarounds for known problems
- Additional important information you should know before you install or use ECXpert

The *Release Note* is platform-specific, so make sure you have the right version for the platform you're using.

Getting Started Guide

The *ECXpert Getting Started Guide* is the book you use to install ECXpert. It includes preinstallation tasks—including basic instructions for installing or upgrading to the required version of Oracle—ECXpert installation steps, and information on additional tasks you may wish to perform after you install ECXpert. The *Getting Started Guide* is platform-specific, so make sure you have the right version for the platform you're using.

User's Guide

All documentation needed by ordinary users is supplied in the *ECXpert User's Guide* and in the online help.

Site Administrator’s Handbook

The *ECXpert Site Administrator’s Handbook* is written for the ECXpert System’s site administrator. This book provides an overview of the ECXpert system and uses specific examples, or “scenarios,” to illustrate the different ways in which ECXpert can be used most effectively in a wide variety of different business situations. It also covers the ECXpert Server Administrative Interface in depth, discusses the ECXpert commandline utilities, and explains how to integrate ECXpert with Oracle Financials, SAP, and MQSeries.

Operations Reference Manual

If you ever have difficulty using ECXpert, the *ECXpert Operations Reference Manual* more than likely documents a quick resolution. This book contains basic troubleshooting guidelines for ECXpert, other Netscape products, and Third-party products. It also includes a complete error message reference.

Audience

This manual is written for several audiences:

- system administrators who want to run command line utility programs
- C++ programmers who want to manipulate the ECXpert database outside of ECXpert or submit files to ECXpert for processing
- database administrators who need to know the structure of an ECXpert database

Organization

This manual is divided into 15 chapters and three appendixes:

- Chapter 1, “Introducing the ECXpert Software Developer’s Kit,” identifies the command lines utilities and classes in the SDK. It also introduces custom services.
- Chapter 2, “Creating a Custom Service,” describes how to create a custom service.
- Chapter 3, “Creating a User-defined Communications Service,”describes how to write a program or script that you want to install as a user-defined communications service.
- Chapter 4, “Using the NAS ECXpert Submit Extension,” describes the JavaS-cript API for the SDK.
- Chapter 5, “The ECXpert XML SDK,” describes the the ECXpert XML software developer kit (SDK).
- Chapter 6, “The EcxBase Class,” describes the base class for classes in the SDK.
- Chapter 7, “The EcxInit Class,” describes a class for initializing other objects.
- Chapter 8, “The EcxSubmit Class,” describes a class for submitting files to ECXpert for processing.
- Chapter 9, “The EcxLogin Class,” describes a class that represents a logged-in user.
- Chapter 10, “The EcxMember Class,” describes a class that represents member records in an ECXpert database.
- Chapter 11, “The EcxAddresses Class,” describes a class that represents member address records in an ECXpert database.
- Chapter 12, “Partnership-Related Classes,” describes a class that represents partnership-related records.
- Chapter 13, “Document-Related Classes,” describes a class that represents records in an ECXpert database for documents sent to the logged-in user via ECXpert.
- Chapter 14, “The EcxTracking Class,” describes a class that represents records in an ECXpert database for documents sent from the logged-in user via ECXpert.

- Chapter 15, “The EcxLog Class,” describes a class that represents log records in an ECXpert database.
- Chapter 16, “The EcxFtpClient Class,” describes a class that is an FTP client API which allows you to send and receive files via FTP.
- Chapter 17, “The EcxService Class,” describes a class that represents service records in an ECXpert database.
- Chapter 18, “The EcxServiceList Class,” describes a class that represents service list records in an ECXpert database.
- Chapter 19, “Customizing Reports,” describes how to use the Actuate Reporting System to create custom reports that access the ECXpert database.
- Appendix A, “ECXpert Database Schema,” details the table structure of the database underlying the ECXpert System.

Conventions

A number of typographic conventions are used throughout this manual to help you recognize special terms and instructions. These conventions are summarized in the table below.

Convention	Meaning	Example
boldface	items on the screen	Click the **Submit** button to save your changes.
	names of keys	Press **Enter** to clear the message.
boldface numbered steps	higher level descriptions of tasks you perform (more detailed instructions follow)	**3. Enter the group information.** Enter the name in the **Group Name** field, and a short description in the **Description** field.
italics	key words, such as terms that are defined in the text	The notices posted on an electronic BBS are called *articles*.
	names of books	For more information, refer to the *Netscape ECXpert Getting Started Guide*.
`courier font`	command line input or output	Enter the following command: `ls *.html`
	text file content, such as HTML templates and configuration files	`<TITLE>Password Check</TITLE>` `<IMG SRC="/ui/icons/hd_svcs.gif">`
	code samples	`Syntax: const char* getName() const;`

Chapter

1

Introducing the ECXpert Software Developer's Kit

This chapter provides a description of the software developement kit for ECXpert. This description provides an overview of the command line utilities, custom services, and API.

This chapter contains the following sections:

- Overview
- Custom Services
- User-Defined Communications Service
- ECXpert API
- Custom Reports

Overview

The ECXpert Software Development Kit consists of the following parts:

- a protocol for implementing custom services
- an API for accessing the database and for submitting files to ECXpert

The following sections introduce these parts.

Custom Services

A custom service is an application or program that is called by ECXpert to perform a specific task, such as moving a document to a directory outside of ECXpert's control, sending e-mail to a user when a document is sent or received, or preprocessing or translating a file in a custom way.

The chapter "Creating a Custom Service" on page 29 specifies language requirements and calling conventions for implementing a custom service. The chapter also includes examples, which are written in Perl.

User-Defined Communications Service

A user-defined communications service is an application or program that is called by ECXpert to deliver files after ECXpert has finished processing them.

The chapter "Creating a User-defined Communications Service" on page 43 explains how to implement a user-defined communications service.

ECXpert API

The ECXpert APIs allow you to manipulate the database outside of ECXpert. You can manipulate database records in the following ways:

- add, retrieve, delete, and update membership records
- add, retrieve, and delete address records

- add, retrieve, and change partnership-related records
- retrieve document records
- retrieve tracking records
- add log records

In addition, the API allows you to submit files for processing by ECXpert.

The API is available for C++. The chapters that describe the classes in the API show C++ syntax and examples. Chapter 4, “Using the NAS ECXpert Submit Extension” on page 51 describes the Java Submit API.

Use the SparkWorks C++ compiler, version 4.1 to compile the ECXpert SDK.

Important Changes to the ECXpert 2.0 SDK have made following classes backwards incompatible:

- EcxDocument
- EcxLog
- EcxPartnership
- EcxSubmit
- EcxTracking

You must to rewrite any code you have written with these classes to reflect the changes that have been made since the ECXpert 1.1.1 SDK. If you do not rewrite your code, it will not compile.

Additionally, the following classes are new with ECXpert 2.0:

- EcxFtpClient()
- EcxService()
- EcxServiceList()

Special LDAP Entry in *ecx.ini* File

If you have LDAP enabled with ECXpert, in the `[LDAP]` section of the *ecx.ini* file, set the `cn` parameter to `ECX` before you start using the ECXpert API. No harm is done if you fail to do this, but some false error messages may appear when listing members using the SDK API.

Class Library

Most classes descend from the `EcxBase` class, which defines the error-handling that is available in the class library.

The following table provides a brief description of the classes:

Table 1.1

Class	Defines	Page No.
`EcxAddresses`	Trading address records.	158
`EcxBase`	Base class for SDK.	102
`EcxDocID`	A document by its key.	231
`EcxDocument`	Documents sent to ECXpert.	214
`EcxFtpClient`	FTP Client API to send and receive documents via FTP	263
`EcxInit`	An initialization object.	108
`EcxLog`	Log records.	252
`EcxLogin`	User-login objects.	128
`EcxMember`	Membership records	134
`EcxPartnerID`	A partnership by its key.	209
`EcxPartnership`	Partnership view-related records.	166
`EcxService`	Service records.	275
`EcxServiceList`	Service list records.	291
`EcxSubmit`	Submission objects.	112
`EcxTracking`	Documents sent from ECXpert.	236

Relationship Between Objects and Database Records

The following table shows classes whose objects each represent a record in a database table:

Table 1.2

Class	Record in Table	Described on page
`EcxAddresses`	MBAddresses	365
`EcxDocument`	TrkDoc	388
`EcxLog`	EventLog	398
`EcxMember`	Members	363
`EcxPartnership`	Partnership view from the following tables:	
	Partnerships	366
	PNDocs	368
	PNGroup	372
	PNStd	373
`EcxTracking`	TrkDoc	388

Note that objects of the `EcxDocument` and `EcxTracking` classes represent the same kind of records. Objects of the `EcxDocument` class represent documents that have been sent to ECXpert. Objects of the `EcxTracking` class represent documents that you have sent using ECXpert.

Database Access

Before you can use an object of any SDK class, you must create a single `EcxInit` object. Typically, you create the `EcxInit` object in your program's `main()` function.

To access a record in the database or to add a record to the database, you must

1. create an object that corresponds to the kind of record you want to manipulate and

2. associate the object with an `EcxLogin` object.

The `EcxLogin` object specifies the user who is allowed to access the record. In most cases, only users who are also administrators can add, change, or delete records. Non-administrators can retrieve their own records; administrators can retrieve any record.

When you access an object's field, you are only accessing the in-memory value for the field. The record in the database remains unchanged.

Using Lists

Most classes provide a `List()` method that you can use to retrieve records that match a specific criteria. When you call the `List()` method, the first record that matches the criteria is associated with the object and the record's fields populate the object. You call the Next() method to retrieve the next record in the list; the newly retrieved record's fields replace the previous values in the object. You call the `More()` method to determine if there are more records in the list and, if desired, to count the remaining records. You can call the `Clear()` method to reset the list. Calling the `Clear()` method also disassociates the object with all records.

Error Handling

Methods that access the database may set result codes that you can access by calling the object's `Errnum()` method. You can also call the object's `ErrMsg()` method to determine and, perhaps, display the cause. The following codes are defined by the SDK:

Result	Value	Description
`noError`	0	No error occurred.
`unknownError`	1	An unspecified error occurred.
`logicError`	2	Internal error.

`notImplemented`	3	Internal error.
`invalidArgument`	4	A required argument is missing or an argument contains invalid data or improperly formatted data.
`outOfMem`	5	Insufficient memory to create an object.
`argumentOutOfRange`	6	An argument contains data that is not within the allowable range of values.
`uninitializedData`	12	An object has not been completely set up. For example, this error occurs if you attempt to use an `EcxLogin` object that is not associated with a valid user.
`invalidValue`	13	Invalid value.
`invalidData`	17	Invalid date.
`notFoundErr`	21	Record not found.
`invalidRequest`	22	An action was attempted for which you do not have permission; for example, when a non-administrator attempts an action that can only be performed by an administrator.
`missingData`	27	Missing data.
`securityException`	60000	An action was attempted for which you do not have permission; for example, when a non-administrator attempts an action that can only be performed by an administrator.
`invalidLogin`	60001	Invalid login.

In addition to the error codes defined by the SDK, additional errors codes can be returned from the underlying database access functions. Database error codes are in the range of 501 to 606, inclusive.

Oracle Warnings When Compiling the ECXpert SDK

If you are using Oracle8, release 8.0.4 or Oracle7, release 7.3.3.5, you will see a series of warning messages when you compile the ECXpert SDK. These warning messages appear to have no affect on the resulting compiled executable.

Note If you are using Oracle7, release 7.3.4, you will not see these warning messages.

If you are using Oracle8, release 8.0.4, when you compile the ECXpert SDK you will see a series of warning messages, of which the first three should be similar to the following:

```
ld: warning: symbol ‘osnttc’ has differing sizes:
(file /export2/actraadm/NS-apps/ECXpert/lib/libecxsdkdb10.so value=0x4c; file
/export2/oracle/product/8.0.4/lib/libclntsh.so value=0x74);
/export2/actraadm/NS-apps/ECXpert/lib/libecxsdkdb10.so definition taken
ld: warning: symbol ‘nstrcarray’ has differing sizes:
(file /export2/actraadm/NS-apps/ECXpert/lib/libecxsdkdb10.so value=0xce4; file
/export2/oracle/product/8.0.4/lib/libclntsh.so value=0xde0);
/export2/actraadm/NS-apps/ECXpert/lib/libecxsdkdb10.so definition taken
ld: warning: symbol ‘nnfgtable’ has differing sizes:
```

If you are using Oracle7, release 7.3.3.5, when you compile the ECXpert SDK you will see a series of warning messages, of which the first three should be similar to the following:

```
ld: warning: symbol ‘nnfgtable’ has differing sizes:
(file /disk1/actraadm/install1/NS-apps/ECXpert/lib/libecxsdkdb10.so value=0x30;
file /disk1/oracle7/wg7322/lib/libclntsh.so value=0x40);
/disk1/actraadm/install1/NS-apps/ECXpert/lib/libecxsdkdb10.so definition taken
ld: warning: symbol ‘nls_global_lock’ has differing sizes:
(file /disk1/actraadm/install1/NS-apps/ECXpert/lib/libecxsdkdb10.so value=0x20;
file /disk1/oracle7/wg7322/lib/libclntsh.so value=0x28);
/disk1/oracle7/wg7322/lib/libclntsh.so definition taken
ld: warning: symbol ‘nlstdgbl’ has differing sizes:
(file /disk1/actraadm/install1/NS-apps/ECXpert/lib/libecxsdkdb10.so value=0x148;
file /disk1/oracle7/wg7322/lib/libclntsh.so value=0x178);
/disk1/oracle7/wg7322/lib/libclntsh.so definition taken
```

Custom Reports

ECXpert includes the Actuate Reporting System, which you can use create custom reports. These reports access the ECXpert database directly using the Select statement you specify to select records for your report. For information about how to create custom reports, see “Customizing Reports” on page 307. For information about the database schema that you use to specify the selection criteria, see “ECXpert Database Schema” on page 347.

Chapter

2

Creating a Custom Service

This chapter describes how to write a program or script that you want to install as a custom service. The following topics are covered:

- Overview
- Language Requirements
- Call and Return Conventions
- Custom Service Examples

Overview

A service list may include custom services. A **custom service** is an application or program that is called by ECXpert to perform a specific task. Examples of these tasks include:

- moving a document to a directory outside of ECXpert's control
- sending e-mail to a user when a document is sent or received
- preprocessing or translating a file in a custom way

The following sections specify languages that you can use to implement a custom service, the conventions that ECXpert follows to call your service, and the conventions your service must follow when it returns. Several examples, written in Perl, are provided to show how your program can receive and use parameters passed to your service from ECXpert.

Language Requirements

Most custom services are written in compiled languages, such as C or C++, or in scripting languages, such as csh, sh, or Perl. You can use any language that has the following capabilities:

- accepts arguments from the command line
- supports file I/O

Because many languages provide these capabilities, your choice of the language is most likely determined by the language's suitablity to the task, its ease of use, and site standards.

Windows NT Under Windows NT 4.0, the custom service may not be a batch file. A simple workaround is to use a Perl script. This is not an ECXpert limitation; NT 4.0 does not allow a background process like the ECXpert Dispatcher to start up an executable that opens a foreground window. Starting up a batch file momentarily opens a DOS window.

Call and Return Conventions

A program that implements a custom service must follow ECXpert's conventions for argument passing when the program is invoked. It must also follow ECXpert's conventions for returning from the program on termination.

When ECXpert calls a custom service it passes three arguments to the service. The first argument is the full path name of a file that contains parameters that control the operation of the service. This file is called the **parameter -specification file**. The second argument is the full path name of a file that contains the files on which the service executes. This file is called the **data-specification file**. The third argument is the full path name of a file that contains data to be passed from each custom service in a service list to subsequent custom services in the same service list. This file is called the **custom parameter file**. The parameter-specification and data-specification files are discussed in the following sections.

When the service returns, it must return a value of 0 if it performed all operations successfully. The service may return any non-zero value to indicate that one or more operations did not succeed.

Warning If your custom service returns a non-zero value, ECXpert stops processing the service list. You can view the status of the service and the service list by checking the Event log in Activity Tracking.

The Parameter-specification File

When ECXpert calls your custom service, it passes the service a parameter-specification file as the service's first argument. This file contains the parameters that may be used by the service. These parameters include the sender and receiver's member IDs, the file type and path name of the document file. Each parameter is identified by a two-letter keyword. Table 2.1 shows the keywords and their descriptions

Table 2.1 Keyword parameters

Keyword	Usage
SE	Member ID of the sender.
RE	Member ID of the sender recipient.

Table 2.1 Keyword parameters

Keyword	Usage
FN	The full path name of the file.
FT	The type of the file.
TI	The file's tracking ID.

The keyword is separated from the parameter's value by an equal sign. Only one keyword-value pair can appear on a single line in the parameter-specification file. Keyword-value pairs can appear in any order within the file. Your service must be able to handle all pairs, in any order, even if your program just ignores the parameter. It must also be robust enough to handle missing keyword-value pairs.

The following example shows the contents of a parameter-specification file.

```
TI=20
SE=Dante
RE=Dash
FN=/export/home/actraadm/actra-home/Actra-apps/ECXpert/tmp/track/trk20
FT=EDI
```

In this example, the tracking ID is 20, the sender is Dante, the receiver is Dash, the file name is `/export/home/actraadm/actra-home/Actra-apps/ECXpert/tmp/track/trk20`, and the file type is EDI.

The Data-specification File

The data-specification file contains the files that ECXpert generates as part of its translation process. For example, the data-specification file may contain files such as these:

```
/export/home/actraadm/.../Actra-apps/ECXpert/data/output/20-1-1-2.out2
/export/home/actraadm/.../Actra-apps/ECXpert/data/output/20-1-1-2.out3
/export/home/actraadm/.../Actra-apps/ECXpert/data/output/20-1-1-1.out2
...
/export/home/actraadm/.../Actra-apps/ECXpert/data/output/20-1-1-8.out3
/export/home/actraadm/.../Actra-apps/ECXpert/data/output/20-1-1.997
```

The Custom Parameter File

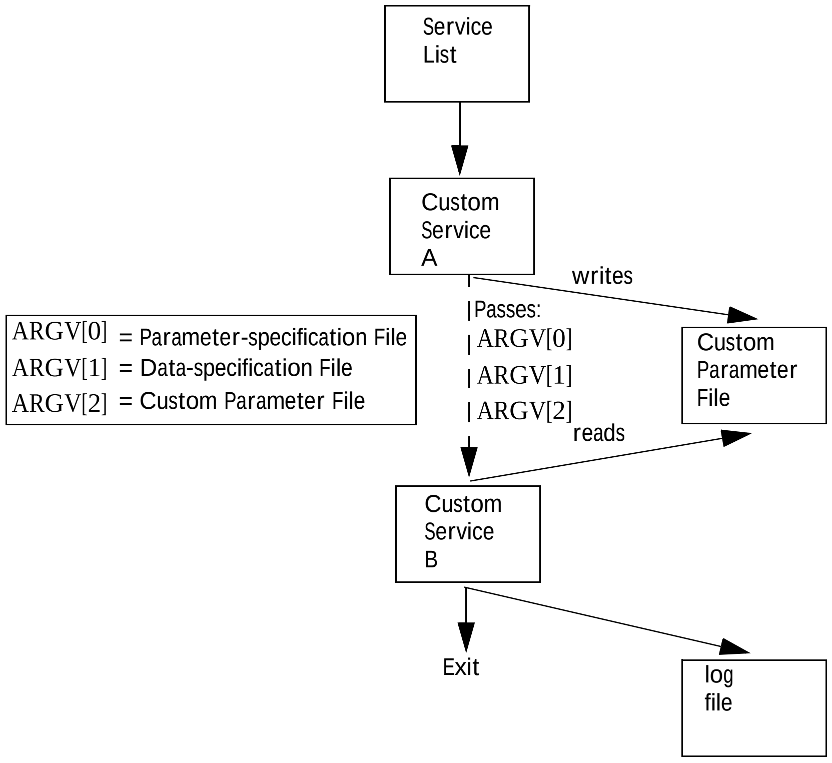
In earlier versions of ECXpert, when ECXpert called a custom service it passed only the parameter-specification file and the data-specification file.

In Netscape ECXpert Version 2.0, a new argument has been added—the full path name of a file that contains data to be passed from any custom service in a service list to subsequent custom services in the same service list. This file is called the custom parameter file. As the custom parameter file passes through the service list, it can be edited by any custom service in the service list.

The custom parameter file is automatically deleted upon completion of the service list.

Example In Figure 2.1, a service list calls Custom Service A. Custom Service A then passes the three parameters—the Parameter-specification filename, the Data-specification filename, and the Custom Parameter filename—to Custom Service B, and writes information to the Custom Service Parameter File. Custom Service B reads the information from the the Custom Service Parameter File, and then exits the service list. When the service list is exited, a log file is created.

Figure 2.1 Custom Parameter File Diagram



Example Write Script

Following is an example of a script that writes information to the Custom Parameter File. In the Figure 2.1, this script is would be used by Custom Service A to write information to the Custom Parameter File:

```
#!/usr/local/tools/bin/perl
#
# File: customSvr_Write.pl
#
# Custom service for ECXpert
#
# Description:
#    This program test out the custom service for ECXpert.  It
#    basically print out to a log file the parameters received
#    from ECXpert when the custom sevice is invoked.
#
```

```
#    In addition to printing out the parameters, it also write
#    a few lines to the custom service file (argv 3) being
#    passed in by dispatcher.  In v2.0 of ECXpert, it supports
#    a 3rd parameter file to allow passing of information between
#    2 custom services.
#
#
# $logFIle = pathname of the log file for this service to output
#
$logFile = "/tmp/customSvr.dbg";

$paramFile = $ARGV[0];
$dataFile  = $ARGV[1];
$customFile = $ARGV[2];

open(LOGF, ">>$logFile") || die "Can’t open log file\n";
print LOGF "--------- Custom_Write Service Start ---------\n";
printTimeToLog();
# print basic file argument
print LOGF "Parameter File (0): $paramFile\n";
print LOGF "Data File      (1):  $dataFile\n";
print LOGF "Custome File   (2): $customFile\n";

# print additional argument if exist
foreach $i (3 .. $#ARGV) {
   print LOGF "additional argument ($i) : $ARGV[$i] \n";
   }
print LOGF "\n";

print LOGF ">>> Parameter File Content:\n";
printAsciiFile($paramFile);
print LOGF ">>> Data File Content:\n";
printAsciiFile($dataFile);
print LOGF ">>> Custom File Content:\n";
printAsciiFile($customFile);

print LOGF ">>> End File Content\n";

print LOGF "\n";
print LOGF ">>> Writing to Custom File\n";
writeAsciiData($customFile, 1, 2);
print LOGF ">>> Finish Write\n";

print LOGF ">>> New Custom File Content:\n";
printAsciiFile($customFile);
print LOGF ">>> End File Content\n";

print LOGF "--------- Custom_Write Service End ---------\n";
close(LOGF);
0;
```

```
############################
# Subroutines
############################
sub printTimeToLog {
local($sec,$min,$hour,$mday,$mon,$year,$wday,$yday,$isdst) =
localtime(time());
$mon += 1;
print LOGF "Time : $mon/$mday/$year $hour:$min:$sec\n";
}


sub printAsciiFile {
   local($dataFileName) = @_[0];
   open(DATAFILE, "$dataFileName");
   while (<DATAFILE>) {
      $lineData = $_;
      print LOGF $lineData;
   }
   close(DATAFILE);
}
sub writeAsciiData{
   (my $outFileName, $arg1, $arg2) = @_;
   open(DATAFILE, ">>$outFileName") || die "Can’t open custom data
file\n";
   print DATAFILE "argument 1 = $arg1\n";
   print DATAFILE "argument 2 = $arg2\n";
   close(DATAFILE);
}Output File
```

Example Read Script

Following is an example of a script that reads information from the Custom Parameter File. In the Figure 2.1, this script is would be used by Custom Service B to read the Custom Parameter File:

```
#!/usr/local/tools/bin/perl
#
# File: customSvr.pl
#
# Custom service for ECXpert
#
# Description:
#    This program test out the custom service for ECXpert.  It
#    basically print outs to a log file the parameters received
#    from ECXpert when the custom sevice is invoked.
#
# $logFIle = pathname of the log file for this service to output
#
$logFile = "/tmp/customSvr.dbg";

$paramFile = $ARGV[0];
$dataFile  = $ARGV[1];
```

```
$customFile = $ARGV[2];

open(LOGF, ">>$logFile") || die "Can’t open log file\n";
print LOGF "--------- Custom Service Start ---------\n";
printTimeToLog();

# print basic file argument
print LOGF "Parameter File (0): $paramFile\n";
print LOGF "Data File      (1):  $dataFile\n";
print LOGF "Custome File   (2): $customFile\n";

# print additional argument if exist
foreach $i (3 .. $#ARGV) {
   print LOGF "additional argument ($i) : $ARGV[$i] \n";
   }
print LOGF "\n";

print LOGF ">>> Parameter File Content:\n";
printAsciiFile($paramFile);
print LOGF ">>> Data File Content:\n";
printAsciiFile($dataFile);
print LOGF ">>> Custom File Content:\n";
printAsciiFile($customFile);
print LOGF ">>> End File Content\n";

print LOGF "--------- Custom Service End ---------\n";
close(LOGF);
0;


############################
# Subroutines
############################
sub printTimeToLog {
local($sec,$min,$hour,$mday,$mon,$year,$wday,$yday,$isdst) =
localtime(time());
$mon += 1;
print LOGF "Time : $mon/$mday/$year $hour:$min:$sec\n";
}

sub printAsciiFile {
   local($dataFileName) = @_[0];
   open(DATAFILE, "$dataFileName");
   while (<DATAFILE>) {
#     chop($_);
      $lineData = $_;
      print LOGF $lineData;
   }
   close(DATAFILE);
}
```

Example Log File

Following is an example of the log file—*/tmp/customSvr.dbg*—that would be created. In the Figure 2.1, this file would be generated when the service list is exited.

```
--------- Custom_Write Service Start ---------
Time : 10/23/98 13:5:7
Parameter File (0): /disk1/actraadm/install1/NS-apps/ECXpert/data/work
ENVAAAa006zq-28657-0
Data File      (1):  /disk1/actraadm/install1/NS-apps/ECXpert/data/work
LSTBAAa006zq-28657-0
Custome File   (2): /disk1/actraadm/install1/NS-apps/ECXpert/data/work
ARGCAAa006zq-28657-946

>>> Parameter File Content:
TI=946
SE=rav4
RE=escort
FN=/disk1/actraadm/install1/NS-apps/ECXpert/data/work/trk/trk946
FT=custom
RV=0
>>> Data File Content:
>>> Custom File Content:
>>> End File Content

>>> Writing to Custom File
>>> Finish Write
>>> New Custom File Content:
argument 1 = 1
argument 2 = 2
>>> End File Content
--------- Custom_Write Service End ---------
--------- Custom Service Start ---------
Time : 10/23/98 13:5:8
Parameter File (0): /disk1/actraadm/install1/NS-apps/ECXpert/data/work
ENVDAAa006zr-28657-0
Data File      (1):  /disk1/actraadm/install1/NS-apps/ECXpert/data/work
LSTEAAa006zr-28657-0
Custome File   (2): /disk1/actraadm/install1/NS-apps/ECXpert/data/work
ARGCAAa006zq-28657-946

>>> Parameter File Content:
TI=946
SE=rav4
RE=escort
FN=/disk1/actraadm/install1/NS-apps/ECXpert/data/work/trk/trk946
FT=custom
RV=0
>>> Data File Content:
>>> Custom File Content:
argument 1 = 1
argument 2 = 2
>>> End File Content
--------- Custom Service End ---------
```

Custom Service Examples

Your custom service can be divided into a function that parses command line arguments and functions that perform the logic you want to implement. The following examples show a Perl function that handles the command line and Perl scripts that implement two services, a file-copy service and a submission service.

Parsing Command Line Arguments

The following function parses the command line arguments. The function opens the file specified in the first argument and decodes the keyword arguments. It then opens the file specified in the second argument and creates a list of file names. This function is called by the scripts that implement services.

```
#!/usr/local/bin/perl

# This function is designed to be called by a script acting as
# a service within a service list of ECXpert. It takes two parameters.
# The first parameter is expected to be a filename pointing to a file
# that contains submission information. The second parameter is a
# filename that points to a file containing a list of filenames
# that have been unbundled (possibly via translation) by ECXpert.
#
# The function places the parsed values from the first file into an
# associative array called svcArgs. The keys into the array are:
#
#                sender     - the sender of the document
#                receiver   - the receiver of the document
#                trackingID - the tracking id assigned to this document
#                fileName   - the filename
#                fileType   - the type of the file
#
# The function places the file names from the second argument into
# an array called svcFiles.

sub ServiceArgsParse() {
  local(@argv) = @_;

  # This section of code opens the file pointed to by the first
  # parameter and parses out the information.
  open(META, $argv[0]) || die "\nError opening file $argv[0]\n";

  while (<META>) {
    chop($_);
      if (/^TI=(.*)/) { $svcArgs{trackingID} = $1; }
      if (/^SE=(.*)/) { $svcArgs{sender} = $1; }
      if (/^RE=(.*)/) { $svcArgs{receiver} = $1; }
      if (/^FN=(.*)/) { $svcArgs{fileName} = $1; }
      if (/^FT=(.*)/) { $svcArgs{fileType} = $1; }

  close(META);

  # This section of code opens the file pointed to by the second
  # parameter and places each file as an element in an array.

  open(FILELIST, $argv[1]) || die "\nError opening file $argv[1]\n";

  @svcFiles = <FILELIST>;
  chop(@svcFiles);

  close(FILELIST);
}
1;
```

Note that Perl requires a non-zero return as the last line of a file that is required by, meaning included in, another file.

Implementing a File-copy Service

The following script implements a file-copy service. The contents of files in the data-specification file are appended together and their output is separated by a delimiter. The first argument is not used except for printing the keyword values as the first line of the output file.

```
#!/usr/local/bin/perl

# This script copies files from ECXpert to a directory. It may be
# customized by modifying the following variables:
#
#  $targetDirectory  - full path to the directory where the files should
#                      be copied.
#  $delimeter        - the delimiter to be used between concatenated
#                           files
#  $additionalInfo   - if defined, will place the value of the variable
#                          as the first line of the file.

$ACTRA_HOME = "/export/home/actraadm/actra-home";
$ECX_HOME = "$ACTRA_HOME/Actra-apps/ECXpert";

require "$ECX_HOME/custom-services/ServiceArgsParse.pl";

&ServiceArgsParse(@ARGV);

######################################
#  begin user customizable variables #
######################################

$targetDirectory = "/tmp";
$delimeter = "--ECXpert--";
$additionalInfo =       "<SE>$svcArgs{sender}</SE>
                        <RE>$svcArgs{receiver}</RE>"
                        "<TI>$svcArgs{trackingID}</TI>";

###################################
# end user customizable variables #
###################################

$targetFile = $targetDirectory . "/ECX-$svcArgs{trackingID}.dat";
open(COPYFILE, ">$targetFile") || die "\nError opening $targetFile\n";

if ($additionalInfo) {
  print COPYFILE "$additionalInfo\n";
}

$arrayLength = scalar(@svcFiles);
$i = 0;
foreach $file (@svcFiles) {
  $i++;
  open(EACHFILE, $file) || die "\nError opening $file\n";
  print COPYFILE <EACHFILE>;
  close(EACHFILE);

  print COPYFILE "$delimeter\n" if ($i < $arrayLength);
}

close(COPYFILE);

exit 0;
```

Note that a custom service must return 0 to indicate that it succeeded.

Implementing a Submission Service

The following section implements a submission service. For example, if a file has been submitted to ECXpert, this custom service resumbmits it, effectively forwarding it to another recipient. In this example, all submissions are resubmitted to member ID “Dart.”

```
#!/usr/local/bin/perl

# This script kicks off another submission using information passed in
# from ECXpert and the variables defined below that should be customized
# for specific recipients:
#
#  $targetRecipient    - member id where the document should be
#                              forwarded to

$ACTRA_HOME = "/export/home/actraadm/actra-home";
$ECX_HOME = "$ACTRA_HOME/Actra-apps/ECXpert";

require "$ECX_HOME/custom-services/ServiceArgsParse.pl";

&ServiceArgsParse(@ARGV);

######################################
#  begin user customizable variables #
######################################

$targetRecipient = "Dart";

####################################
#  end user customizable variables #
####################################

$command    = "$ECX_HOME/bin/submit -se $svcArgs{receiver} ";
$command .= "-re $targetRecipient -fn $svcArgs{fileName} ";
$command .= "-ft $svcArgs{fileType} -in $ECX_HOME/config/bdg.ini";

system($command);

exit 0;
```

Chapter

3

Creating a User-defined Communications Service

This chapter describes how to write a program or script that you want to install as a user-defined communications service. The following topics are covered:

- Overview
- Modifying the Configuration File (ecx.ini)
- Writing a User-defined Communications Service

Overview

A **user-defined communications service** is an application or program that is called by ECXpert to deliver files after ECXpert has finished processing them. ECXpert provides the following delivery methods for data:

- SMTP
- FTP
- GEIS FTP
- HTTP

You can provide a user-defined communications service to implement other kinds of disposition methods.

Typically, a user-defined communications service operates on documents that have been bundled into an interchange and are ready for delivery to an external system or it operates on application data ready to be transmitted to another internal host. Examples of tasks performed by a user-defined communications service include sending files via an in-house file transfer utility or submitting the output from ECXpert into a PeopleSoft system.

You implement a user-defined communications service in two parts:

- Modify the configuration file to specify the location of the executable file, titles for the service and its parameters, and to specify other configuration information. ECXpert uses this specification to allow an administrator to set up the service on the Trading Partnership Protocol screen.
- Write the service using a compiled language, such as C or C++, or a scripting language, such as csh, sh, or Perl. The language must accept arguments from the command line and support file I/O.

Windows NT Under Windows NT 4.0, the user-defined communications service may not be a batch file. A simple workaround is to use a Perl script. This is not an ECXpert limitation; NT 4.0 does not allow a background process like the ECXpert Dispatcher to start up an executable that opens a foreground window. Starting up a batch file momentarily opens a DOS window.

The following sections show you how to modify your configuration file and write the service.

Modifying the Configuration File (*ecx.ini*)

The *ecx.ini* configuration file defines how ECXpert initiates the communications service. You must set up a user-defined communications section, as discussed in “User-defined communications sections” on page 249. Below is a sample user-defined communications section *ecx.ini*.

```
[user-defined-1]
section_type = network
type = process
cmd_and_args = /var/tmp/CopyToServer.sh
append_data_file = 1
prefix_data_file =
cmd_type = script
operation = send
data_type = Both
is_comm_agent = yes
internal_name = USER DEFINED 1
visible_name = Copy To Server
parameter_name_1 = Destination Directory:
parameter_name_2 = Destination File Pattern:
parameter_name_3 = User:
parameter_name_4 = Host:
```

In this example, ECXpert calls *CopyToServer* in the */var/tmp/* directory to copy application data. ECXpert appends the bundle file’s full path name when it calls the script. The following table explains each line in the configuration file:

Table 3.1

Line	Description
[user-defined-1]	A section name. The default is `user-defined-1`.
section_type=network	Type of section; must be `network`.
type=process	Type of executable; must be `process`.

Table 3.1

Line	Description
cmd_and_args=/var/tmp/ CopyToServer.sh	Full path to the executable for the user-defined communication service and arguments, entered exactly as you would enter them from the OS command line. In this example, *CopyToServer* is not invoked with arguments other than those passed as parameters. The syntax for this line is as follows: (note that this should appear all on one line in the *ecx.ini* file) `cmd_and_args=<pathname? <static_arguments> <data_filename> <partnership_defined_arguments>` Static arguments are hard-coded arguments, and partnership-defined arguments are arguments you can set up via the partnership pages.
append_data_file=1	Whether to append the name of the data file to the end of the `cmd_and_args` line and the trading partnership parameters. In this case, `CopyToServer` expects the data file name to be appended.
prefix_data_file=	Prefix to add to the file name passed to the user-defined communications service, for example `fname=`. The bundle file name will be concatenated with the prefix. In this example, no prefix is specified.
cmd_type = script	Type of command, valid values: `script` (default), or `executable`. In this case, `CopyToServer` is a script.
operation = send	Type of communications operation involved. In this example, the service sends data.
data_type = Both	Format of the data in the bundle. In this example, the service sends data in an both EDI and application-specific format.
is_comm_agent = yes	Whether the protocol can be selected as a communications agent; must be `yes`.
internal_name = USER DEFINED 1	The internal name that identifies the service. **Do not** change this value. If you do, the service will not work.

Table 3.1

Line	Description
visible_name = Copy To Server	Title that appears as a Primary Outgoing Protocol on the Trading Partnership Protocol screen. In this example, it is “Copy to Server.”
parameter_name_1 = Destination Directory:	Title for the first parameter. In this example, the first parameter specifies the name of the destination directory on the server.
parameter_name_2 = Destination File Pattern:	Title for the second parameter. In this example, the second parameter specifies the destination file pattern on the server.
parameter_name_3 = User:	Title for the third parameter. In this example, the third parameter specifies the name of the user on the server.
parameter_name_4 = Host:	Title for the fourth parameter. In this example, the fourth parameter specifies the server.

The *CopyToServer.sh* script that is executed by this sample user-defined communications service is shown below.

```
#! /bin/sh

#
# Copy the file
#

retval=0
directory=${1}
pattern=${2}
remoteuser=${3}
remotehost=${4}
bundlefile=${5}

suffix="‘echo $bundlefile | sed -e ’s/^.*bndl//’‘"

/bin/rcp ${bundlefile}
${remoteuser}@${remotehost}:${directory}/${pattern}.${suffix} \
              2>> /tmp/edi/id.log

if [ "$?" != "0" ]
then
        retval=‘expr ${retval} +1‘
fi
```

```
## done
#
exit ${retval}
```

Important Notes Keep the following in mind when using this example to implement a user-defined communications service:

- Do not add spaces between the variable names and their assignment values. For example, this assignment works:

  ```
  fname=${1}
  ```

  while the one below does not:

  ```
  fname = ${1}
  ```

- Any recipient user must have a file named *.rhosts* (e.g.,. */u/member2/.rhosts*) containing the following information:

  ```
  hostname      user
  ```

  If `actraadm` is the user, quasar is the host, and `member2` is a recipient user for the *CopyToServer.sh* script, then `member2` would need to have a file named */u/member2/.rhosts* containing the following:

  ```
  quasar     actraadm
  ```

  Remember to include a domain suffix with the *hostname* (e.g., `quasar.actracorp.com`) if the recipient's machine is in a different domain.

- ECXpert, when running your script, will source the *.cshrc* file in the remote directory, not in the local directory. It is necessary to have lines similar to the following near the beginning of the *.cshrc* file in the remote directory to ensure proper execution.

  ```
  #
  # Generic .cshrc
  #

  # Set up a basic path here in case the script bombs out
  setenv PATH /bin:/sbin:/usr/bin:/usr/sbin

  # Set umask
  umask 022

  # Skip rest of setup if not an interactive shell
  if ( $?prompt == 0 ) exit
  if ( "$prompt" == "" ) exit
  ```

Writing a User-defined Communications Service

The user-defined communications service accepts values for the parameters and performs the specified task. The parameters are identified by their position as they are passed to the service. This order is defined as follows:

1. parameters specified in the `cmd_and_args` entry in its section of the configuration file, in the order that they are listed in the entry
2. parameters specified in the configuration file, in order from `parameter_name_1` to `parameter_name_n`, where `n` is the last parameter in its section of the configuration file
3. the bundle file name if the `append_data_file` entry in its section of the configuration file is set to 1

The following shell script is an example of a user-defined communications service. It sets the return value to 0 to indicate success, retrieves the parameters that the administrator specified when setting up the protocol, and performs the copy operation. The parameters are

1. destination file
2. user ID
3. host name
4. full path name of the bundled file

```
#!/bin/sh

#
## Copy the file.
#
retval= 0
fname = ${1}
remoteuser = ${2}
remotehost = ${3}
bundlefile = ${4}
rdist -b -c ${bundlefile} ${remoteuser}@${remotehost}:/tmp/${fname} \
   > /tmp/edi/id.log
if [ "$?" != "0" ]
then
```

```
    retval=‘expr ${retval} + 1‘
fi
## done.
#
exit ${retval}
```

When the service returns, it must return a value of 0 if it performed all operations successfully. The service may return any non-zero value to indicate that one or more operations did not succeed. If an error occurs, check the Event log; the error number is in the log.

Warning If your custom service returns a non-zero value, ECXpert stops processing the service list.

Chapter

4

Using the NAS ECXpert Submit Extension

This chapter describes the NAS ECXpert extension, and explains how to use the NAS ECXpert submit extension.

This chapter contains the following sections:

- About the NAS ECXpert Extension
- NAS ECXpert Extension Interfaces
- Using the NAS ECXpert Submit Extension

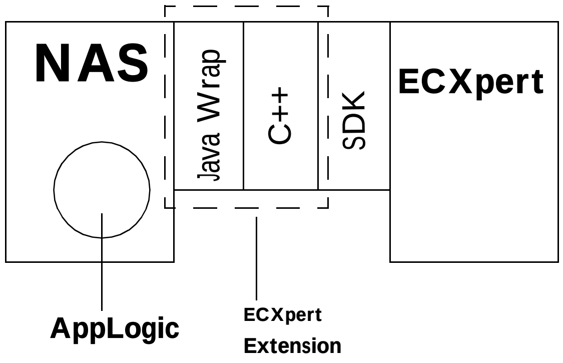
About the NAS ECXpert Extension

The NAS extension of ECXpert contains Java interfaces to ECXpert objects such as member, member address, partnership, document, tracking, log, service, service list, and submission. The extension is written in C++ with a Java wrapper, so that a developer may design Java application logic to directly make use of the extension to interface with the APIs in the ECXpert Software Developer's Kit (SDK).

Note to C++ programmers An *interface* in Java functions exactly as a *class* in C++.

The interfaces and methods in the extension have an almost one-to-one mapping to the classes and methods in the ECXpert SDK. Through this extension, most of the ECXpert functionalitiy is exposed to any developer who wishes to design applications using ECXpert as a platform. For example, it is possible to use the NAS ECXpert extension to administer user and partnership profiles, define services and service lists, submit documents into ECXpert and track its workflow.

Figure 0.1 Interaction with ECXpert



Note The Java classes wrap around the C++ interfaces.

NAS ECXpert Extension Interfaces

The following fourteen NAS ECXpert extension interfaces are available:

- IEcxAddress
- IEcxBase
- IEcxDocID
- IEcxDocument
- IEcxLog
- IEcxLogin
- IEcxMember
- IEcxMgr
- IEcxPartnerId
- IEcxPartnership
- IEcxService
- IEcxServiceList
- IEcxSubmit
- IEcxTracking

This document explains only the NAS ECXpert submit extension in detail. For more information about other functionality available via the NAS ECXpert API, refer to the *Netscape TradingXpert Getting Started Guide*, version 2.0.

Using the NAS ECXpert Submit Extension

The `IEcxSubmit` Interface defines methods that you use to submit a file to ECXpert. You may use these methods to provide a file submission capability within your application instead of requiring the user to execute a command or use ECXpert's HTML interface to submit an object.

You may create objects from the `IEcxSubmit` Interface and use them, directly or you may define a subinterface of the `IEcxSubmit` Interface and create objects from the derived interface. For example, you might define a subinterface that handles much of the application logic associated with files to be submitted to ECXpert. Objects derived from your subinterface would inherit the ability to submit files to ECXpert.

You call methods to specify this information. For example, you call the object's `setSender()` method to specify the sender's member ID. You must specify the files that you wish to submit to ECXpert. You build a submission list by calling the object's `addFile()` method to add a file to the list. You specify the following information when you add a file:

- Document name

- Document type, such as EDIFACT or EDIX12, or a non-EDI type

You may add as many files as you want. If you add more than one file, the files become part of a single multi-part file. When you finish adding the files to the submission list, you may call the object's `Submit()` method to submit the files.

By default, ECXpert moves the files being submitted to the directory specified by the `repository` entry in the configuration file's `tcpip-connector` section. Moving a file (copying the file and deleting the source file after copying) is the most efficient way to submit files if your application executes on the same server as ECXpert.

You may also submit files to ECXpert using a TCP/IP connection. You specify whether or not to use a TCP/IP connection when you call the object's `submit()` method. Using a TCP/IP connection causes ECXpert to stream the contents of the files through a socket to the server. This is a useful technique if your application runs on a remote computer and the files being submitted are relatively small. If you want to submit large files from a remote computer, you should consider using a protocol such as FTP to copy the files to the server and then submit them from the server.

If you wish to submit files to ECXpert from a remote system, you must:

- Edit the ECXpert system's *ecx.ini* file `[tcpip-connector]` section as follows:
  - `port_location=static`
  - `admin_port_type=manual`
  - `admin_port=6001`
  - `listener_port_type=manual`
  - `listener_port=6002`

Note For more information on the *ecx.ini* file, see the *ECXpert Site Administrator's Handbook*.

- Copy the edited *ecx.ini* file to the */bin* directory in the NAS base directory on the remote machine. This is the same directory where any NAS start-up scripts are located.

Note If you stream data through a TCP/IP connection, the source file is not deleted after the data has been streamed to the server.

After you submit a file, you should check for errors. If no error occurred, you may call the object's `getFirstTrackingID()` method to determine the tracking ID of the first file submitted and the object's `getNextTrackingID()` method to determine the tracking ID for each additional file in the list.

Warning If the `submit()` method fails, the value returned by calling the `getFirst-TrackingID()` or `getNextTrackingID()` method is undefined. When you no longer need references to these files, you may call the object's `clear-FileList()` method to remove the files from the list.

Syntax and Methods

Name `IEcxSubmit`

Syntax public interface IEcxSubmit extens com.kivasoft.IObject

Methods Following is a list of methods in the `IEcxSubmit` interface. For additional details about each method, refer to Chapter 8, "The EcxSubmit Class."

Methods
`public int addFile(java.lang.String pFile,java.lang.String pFileType)`
`public int clearFileList()`
`public java.lang.String getDeliveryMethod()`
`public java.lang.String getEcxIniFileName()`
`public int getFirstTrackingID()`
`public java.lang.String getMapName()`
`public java.lang.String getPassword()`
`public java.lang.String getRecipient()`
`public java.lang.String getSender()`
`public int getNextTrackingID()`
`public int setDeliveryMethod(java.lang.String pDeliveryMethod)`
`public int setEcxIniFileName(java.lang.String pIniFileName)`
`public int setMapName(java.lang.String pMapName)`

```
public int setPassword(java.lang.String pPassword)
public int setRecipient(java.lang.String pRecipient)
public int setSender(java.lang.String pSender)
public int submit(boolean bDataStreaming)
```

Note: The `bDataStreaming` parameter should be “true” if submitting to a remote ECXpert system.

Example

```
WARNING:  This is a machine generated list, do not modify below
** WizardDictionaryValues={
**   CodeTemplate="/kiva/templates/DoInputWizard.javatmpl",
**   CodeFiles="*.java;Session:SessionAccessorInsert.java",
**   CodeProject="Input",
**   CodeDir="/kiva/APPS/ecx_demo/",
**   CodeLanguage="Java",
**   SessionOut=[
**     "sender"
**     "password"
**     "recipient"
**     "fileName"
**     "fileType"
**     "ecxIniFileName"
**   ],
**   BaseAgent="ecx_demo.BaseAppLogic",
**   CodeWizard="com.kivasoft.wizard.DoInputWizardFactory",
**   CodeFile="/kiva/APPS/ecx_demo/Input.java",
**   Input_filename="/kiva/APPS/DevXpert/web/ecx_demo/
index.html",
**   CodeGUID="{588779da-f69c-15e5-e4e3-080020794ab3}",
**   Project="/kiva/APPS/ecx_demo/ecx_demo.gxm",
**   ValIn={com.kivasoft.tools.KSVectorHash
**     ValIn=[
**       "sender"
**       "password"
**       "recipient"
**       "fileName"
**        "fileType"
**        "ecxIniFileName"
**        "remoteSubmission"
**      ],
**      ValIn_NotNull=[
**        "true"
**        "true"
**        "true"
**        "true"
**        "true"
**        "true"
**        "true"
**      ],
**    },
** }
** WARNING:  This is a machine generated list, do not modify
above
*/
package ecx_demo;

import java.util.*;

import com.kivasoft.*;
import com.kivasoft.applogic.*;
import com.kivasoft.session.*;
import com.kivasoft.types.*;
import com.kivasoft.util.*;

import ecx_demo.Session;

import ecx_demo.BaseAppLogic;

import ecx.*;

public class Input extends ecx_demo.BaseAppLogic
{

    public String guid()
    {
        return "{588779da-f69c-15e5-e4e3-080020794ab3}";
    }

    public int execute()
    {
        ecx_demo.Session session = getSessionProxy();

        if (session == null) {
          return result("<HTML>Call to getSessionProxy() failed
in Input</HTML>");
        }

        //
        // Verify correctness of valIn criteria
        //
        String sender = valIn.getValString("sender");

        if ( null == sender ||
             0 == sender.trim().length() )
        {
            log("Input error on sender");
            return result("<HTML><BODY>sender should not be
null!</BODY></HTML>");
        }
        String password = valIn.getValString("password");

        if ( null == password ||
             0 == password.trim().length() )
        {
            log("Input error on password");
            return result("<HTML><BODY>password should not be
null!</BODY></HTML>");
        }
        String recipient = valIn.getValString("recipient");

        if ( null == recipient ||
             0 == recipient.trim().length() )
        {
            log("Input error on recipient");
            return result("<HTML><BODY>recipient should not be
null!</BODY></HTML>");
        }
        String fileName = valIn.getValString("fileName");

        if ( null == fileName ||
             0 == fileName.trim().length() )
        {
            log("Input error on fileName");
            return result("<HTML><BODY>fileName should not be
null!</BODY></HTML>");
        }
        String fileType = valIn.getValString("fileType");

        if ( null == fileType ||
             0 == fileType.trim().length() )
        {
            log("Input error on fileType");
            return result("<HTML><BODY>fileType should not be
null!</BODY></HTML>");
        }
        String ecxIniFileName =
valIn.getValString("ecxIniFileName");

        if ( null == ecxIniFileName ||
             0 == ecxIniFileName.trim().length() )
        {
            log("Input error on ecxIniFileName");
           return result("<HTML><BODY>ecxIniFileName should not
be null!</BODY></HTML>");
        }
        String remoteSubmission =
valIn.getValString("remoteSubmission");

        if ( null == remoteSubmission ||
             0 == remoteSubmission.trim().length() )
        {
            log("Input error on remoteSubmission");
            return result("<HTML><BODY>remoteSubmission should
not be null!</BODY></HTML>");
```

```
            }

            //
            // Save login criteria into the session.
            //
            session.setsender(valIn.getValString("sender"));
            session.setpassword(valIn.getValString("password"));
            session.setrecipient(valIn.getValString("recipient"));
            session.setfileName(valIn.getValString("fileName"));
            session.setfileType(valIn.getValString("fileType"));

    session.setecxIniFileName(valIn.getValString("ecxIniFileName"))
    ;
            session.saveSession();


        // Get the extension
        IEcxMgr ecxMgr = access_cECX.getcECX(context,null,this);
        IEcxSubmit ecxSubmit = ecxMgr.createSubmit();

        System.out.println("Got the extension...");

        ecxSubmit.setSender(sender);
        ecxSubmit.setRecipient(recipient);
        ecxSubmit.setPassword(password);
        ecxSubmit.addFile(fileName, fileType);
        ecxSubmit.setEcxIniFileName(ecxIniFileName);

        System.out.println("Set all parameters...");

        boolean remote;
        if (remoteSubmission.equals("yes"))
          remote = true;
        else
          remote = false;
        ecxSubmit.submit(remote);

        // Return screens
        if (((IEcxBase)ecxSubmit).errnum() == 0)
        {
           String successString = "Submission successful, the file’s
    ECXpert tracking ID is " + ecxSubmit.getFirstTrackingID() + ".";
            return streamResult(successString);
        }
        else
        {
            String errorString = "Submission failed, error number "
    + ((IEcxBase)ecxSubmit).errnum() + ".";
            return streamResult(errorString);
        }

      } // execute

    } // class
```

Chapter

5

The ECXpert XML SDK

This chapter describes the ECXpert XML software developer kit (SDK). The following topics are covered:

- Overview
- Directory Structure and Source Files
- CXIP_MSG Class Reference
- CXxsMSG Class Reference
- CXxsDOM Class Reference
- CXIPInit Class Reference
- CXIPConnection Class Reference
- CXIPListener Class Reference
- CXSubmit Class Reference
- Examples

Overview

The ECXpert XML SDK provides a set of C++ Class APIs for users to build applications communicating with eXML-Connector through XML-formatted messages. The SDK library also includes APIs to allow user applications to listen to a port and/or connect to a (host, port) for message exchanges. There are some samples that illustrate how to build a simple server and client programs. There is also a utility that allows easy submission of document to the eXML-Connector.

The eXML-Connector works as another (generic) communications agent in the ECXpert architecture. In the outbound (with respect to ECXpert) process at the transportation/Gateway stage, the document details are propagated to the eXML-Connector by a NSPkt. The eXML-Connector determines what to do with the document based on the information contained in NSPkt. It translates NSPkt info. into an XML-formatted message (XFM), and passes it to the specified service. This service can reside anywhere on the network, and the eXML-Connector interacts with it using XFM.

In the inbound transaction, any XML-based application can send a submission or service request to ECXpert, based on XFM. This request is intercepted by the eXML-Connector, which passes on the ECXpert internals.

Directory Structure and Source Files

The XML SDK directory (*$NSBASE/NS-apps/ECXpert/xmlsdk*) in the ECXpert directory tree includes required libraries, header files, and some sample programs. These are listed in .

Table 5.1 ECXpert XML SDK directory contents

Subdirectory or File	Description of Contents
$NSBASE/NS-apps/ECXpert/bin/xmlsbmt	The utility for use to submit a document to eXML Connector
xmlsdk	The XML SDK root directory
xmlsdk/bin	The SDK binary directory
xmlsdk/config	The XML SDK configuration directory
xmlsdk/config/xmlserver.ini	the configuration file for sample program xmlserver

Table 5.1 ECXpert XML SDK directory contents (Continued)

Subdirectory or File	Description of Contents
xmlsdk/example	The XML SDK example directory
xmlsdk/example/Make-file.{platform}	The Makefile sample file
xmlsdk/example/xmlcli-ent.cpp	The xmlclient sample program
xmlsdk/example/ xmlserver.cpp	The xmlserver sample program
xmlsdk/example/xmlsub-mit.cpp	The xmlsubmit sample program
xmlsdk/include	The XML SDK include directory
xmlsdk/include/cxbase.h	XML SDK header file
xmlsdk/include/cxipconn.h	XML SDK header file for CXIPConnection class
xmlsdk/include/cxipinit.h	XML SDK header file for CXIPInit class
xmlsdk/include/cxiplsnr.h	XML SDK header file for CXIPListener class
xmlsdk/include/cxipmsg.h	XML SDK header file for CXIP_MSG class
xmlsdk/include/cxsbmt.h	XML SDK header file for CXSubmit class
xmlsdk/include/cxtypes.h	XML SDK header file
xmlsdk/include/cxxsdom.h	XML SDK header file for CXxsDOM class
xmlsdk/include/cxxsmsg.h	XML SDK header file for CXxsMSG class
xmlsdk/include/xmlparser	The XML SDK xmlparser include directory
xmlsdk/include/xmlparser/ xmlparse.h	The XML SDK xmlparser header file
xmlsdk/lib	The XML SDK library directory
xmlsdk/lib/libecxmlcxbase.a	XML SDK library file
xmlsdk/lib/libecxmlcxcs.a	XML SDK library file
xmlsdk/lib/libecxmlcxsdk.a	XML SDK library file
xmlsdk/lib/libecxmlcxus.a	XML SDK library file
xmlsdk/lib/libecxmlcxxs.a	XML SDK library file
xmlsdk/lib/libecxmlxml.a	XML SDK xmlparser library file

CXIP_MSG Class Reference

Interface	`cxipmsg.h`
Superclasses	`CXxsMSG, CXxsDOM`
Subclasses	`None`
Syntax	`class CXIP_MSG : public CXxsMSG { ... };`

Constructor and Destructor

CXIP_MSG( )

Creates a `CXIP_MSG` object.

Syntax `CXIP_MSG::CXIP_MSG();`

Parameters None.

Creates a `CXIP_MSG` object undefined content.

Syntax

```
CXIP_MSG::CXIP_MSG(const char *doc, const char *dtd =
CXIP_MSG_DTD);
```

Parameters The `CXIP_MSG()` method has the following parameters:

`doc`	the document
`dtd`	the dtd, pass "" (empty string) if dtd is already embedded in document

Creates a `CXIP_MSG` object given the document and DTD.

Syntax `CXIP_MSG::CXIP_MSG(const char *doc, int opt = 0);`

Parameters The `CXIP_MSG()` method has the following parameters:

`doc`	the XML document including needed DTD
`opt`	the option, which can be OR'ed from the following option: • CXXS_OPT_DELETEDOC - delete the XML message once the internal DOM object tree is formatted after the parsing

Creates a `CXIP_MSG` object given the content from the given object.

Syntax `CXIP_MSG::CXIP_MSG(CXIP_MSG& obj);`

Parameters The `CXIP_MSG()` method has the following parameter:

`obj`	the object to copy from

~CXIP_MSG( )

Destroys a `CXIP_MSG` object.

Syntax `virtual ~CXIP_MSG();`

CXxsMSG Class Reference

Interface cxxsmsg`.h`

Superclasses `CXxsDOM`

Subclasses `CXIP_MSG`

Syntax `class CXxsMSG : public CXxsDOM { ... };`

Constructor and Destructor

CXxsMSG( )

Creates a CXxsMSG object.

Syntax Not intended to be used directly.

~CXxsMSG( )

Destroys a CXxsMSG object.

Syntax Not intended to be used directly.

Methods

This section lists the methods of the `CXxsMSG` class.

GetMSGTYPE( )

Gets the MSGTYPE attribute from the CONTROL section in the CXIP message.

Syntax

```
int CXxsMSG::GetMSGTYPE(char **v, int allocstr = 0);
```

Parameters The `GetMSGTYPE()` method has the following parameters:

`v`	pointer to the MSGTYPE string pointer
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

GetSERVICE( )

Gets the SERVICE attribute from the CONTROL section in the CXIP message.

Syntax

```
int CXxsMSG::GetSERVICE(char **v, int allocstr = 0);
```

Parameters The `GetSERVICE()` method has the following parameters:

`v`	pointer to the SERVICE string pointer
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

GetTIMEOUT( )

Gets the TIMEOUT attribute from the CONTROL section in the CXIP message.

Syntax `int CXxsMSG::GetTIMEOUT(long *v);`

Parameters The `GetTIMEOUT()` method has the following parameters:

`v`	pointer to the TIMEOUT value
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

GetRETRIES( )

Gets the RETRIES attribute from the CONTROL section in the CXIP message.

Syntax `int CXxsMSG::GetRETRIES(long *v);`

Parameters The `GetRETRIES()` method has the following parameter:

`v`	pointer to the RETRIES value

Returns 0 when successful; -1 otherwise.

GetSTATUS( )

Gets the STATUS attribute the CONTROL section in from the CXIP message.

Syntax `int CXxsMSG::GetSTATUS(long *v);`

Parameters The `GetSTATUS()` method has the following parameter:

`v`	pointer to the STATUS value

Returns 0 when successful; -1 otherwise.

GetSENDER( )

Gets the SENDER attribute from the PREDEFINED MONITOR section in the CXIP message.

Syntax `int CXxsMSG::GetSENDER(char **v, int allocstr = 0) ;`

Parameters The `GetSENDER()` method has the following parameters:

`v`	pointer to the SENDER string pointer
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

GetRECEIVER( )

Gets the RECEIVER attribute from the PREDEFINED MONITOR section in the CXIP message.

Syntax `int CXxsMSG::GetRECEIVER(char **v, int allocstr = 0);`

Parameters The `GetRECEIVER()` method has the following parameters:

`v`	pointer to the RECEIVER string pointer
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

GetTIMESTAMP( )

Gets the TIMESTAMP attribute from the PREDEFINED MONITOR section in the CXIP message.

Syntax `int CXxsMSG::GetTIMESTAMP(char **v, int allocstr = 0);`

Parameters The `GetTIMESTAMP()` method has the following parameters:

`v`	pointer to the TIMESTAMP string pointer
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

GetCONTROL( )

Gets the CONTROL section object from the CXIP message.

Syntax `int CXxsMSG::GetCONTROL(CXxsObj *obj);`

Parameters The `GetCONTROL()` method has the following parameter:

`obj`	the found control object

Returns 0 when successful; -1 otherwise.

GetMONITOR( )

Gets the PREDEFINED MONITOR section object from the CXIP message.

Syntax `int CXxsMSG::GetMONITOR(CXxsObj *obj);`

Parameters The `GetMONITOR()` method has the following parameter:

`obj`	the found predefined monitor object

Returns 0 when successful; -1 otherwise.

Gets the USRDEFINED MONITOR section object from the CXIP message.

Syntax `int CXxsMSG::GetMONITOR(const char *n, CXxsObj *obj);`

Parameters The `GetMONITOR()` method has the following parameters:

`n`	the name of the (user-defined) monitor section
`obj`	the found monitor object

Returns 0 when successful; -1 otherwise.

GetPredefinedMONITOR( )

Gets the PREDEFINED MONITOR section object from the CXIP message.

Syntax `int CXxsMSG::GetPredefinedMONITOR(CXxsObj *obj);`

Parameters The `GetPredefinedMONITOR()` method has the following parameter:

`obj`	the found predefined monitor object

Returns 0 when successful; -1 otherwise.

GetUsrDefinedMONITOR()

Syntax `int CXxsMSG::GetUsrDefinedMONITOR(CXxsObj *obj);`

Gets the first USRDEFINED MONITOR section object from the CXIP message.

Parameters The `GetUsrDefinedMONITOR()` method has the following parameter:

`obj`	the found monitor objec

Syntax `int CXxsMSG::GetUsrDefinedMONITOR(CXxsObj pobj, CXxsObj *obj);`

Gets the next USRDEFINED MONITOR section object from the CXIP message.

Parameters The `CXxsMSG()` method has the following parameters:

`pobj`	the current monitor object
`obj`	the found monitor object

Syntax `int CXxsMSG::GetUsrDefinedMONITOR(const char *n, CXxsObj *obj);`

Gets the named USRDEFINED MONITOR section object from the CXIP message.

Parameters The `GetUsrDefinedMONITOR()` method has the following parameters:

`n`	the name of the monitor object
`obj`	the found monitor object

Returns 0 when successful; -1 otherwise.

GetINPUT()

Gets the first INPUT object from the DATA section in the CXIP message.

Syntax `int CXxsMSG::GetINPUT(CXxsObj *obj) ;`

Parameters The `GetINPUT()` method has the following parameter:

`obj`	the found input object

Gets the next INPUT object from the data section in the CXIP message.

Syntax `int CXxsMSG::GetINPUT(CXxsObj pobj, CXxsObj *obj);`

Parameters The `GetINPUT()` method has the following parameters:

`pobj`	the current input object
`obj`	the found input object

Gets the named INPUT object from the data section in the CXIP message.

Syntax `int CXxsMSG::GetINPUT(const char *n, CXxsObj *obj);`

Parameters The `GetINPUT()` method has the following parameters:

`n`	the name of the input object
`obj`	the found input object

Gets the named INPUT value from the data section in the CXIP message.

Syntax `int CXxsMSG::GetINPUT(const char *n, int *v);`

Parameters The `GetINPUT()` method has the following parameters:

`n`	name of the input object
`v`	pointer to the input value

Gets the named INPUT value from the data section in the CXIP message.

Syntax

```
int CXxsMSG::GetINPUT(const char *n, char **v, int allocstr =
0);
```

Parameters The `GetINPUT()` method has the following parameters:

`n`	name of the input object
`v`	pointer to the pointer of input value string
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

GetOUTPUT()

Gets the first OUTPUT object from the DATA section in the CXIP message.

Syntax

```
int CXxsMSG::GetOUTPUT(CXxsObj *obj);
```

Parameters The `GetOUTPUT()` method has the following parameter:

`obj`	the found output object

Gets the next OUTPUT object from the data section in the CXIP message.

Syntax

```
int CXxsMSG::GetOUTPUT(CXxsObj pobj, CXxsObj *obj);
```

Parameters The `GetOUTPUT()` method has the following parameters:

`pobj`	the current output object
`obj`	the found output object

Gets the named OUTPUT object from the data section in the CXIP message.

Syntax

```
int CXxsMSG::GetOUTPUT(const char *n, CXxsObj *obj);
```

Parameters The `GetOUTPUT()` method has the following parameters:

`n`	the name of the output object
`obj`	the found output object

Gets the named OUTPUT value from the data section in the CXIP message.

Syntax

```
int CXxsMSG::GetOUTPUT(const char *n, int *v);
```

Parameters The `GetOUTPUT()` method has the following parameters:

`n`	name of the output object
`v`	pointer to the output value

Gets the named OUTPUT value from the data section in the CXIP message.

Syntax `int CXxsMSG::GetOUTPUT(const char *n, char **v, int allocstr = 0);`

Parameters The `GetOUTPUT()` method has the following parameters:

`n`	name of the output object
`v`	pointer to the pointer of output value string
`allocstr`	flag indicating whether to allocate a space for the returned value, or simply point to the object private data

Returns 0 when successful; -1 otherwise.

SetCONTROL( )

Sets the specified attribute in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::SetCONTROL(const char *n, long v);`

Parameters The `SetCONTROL()` method has the following parameters:

`n`	the name of the attribute
`v`	the attribute value

Sets the specified attribute in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::SetCONTROL(const char *n, const char *v);`

Parameters The `SetCONTROL()` method has the following parameters:

`n`	the name of the attribute
`v`	the attribute value

Returns 0 when successful; -1 otherwise.

SetMSGTYPE( )

Sets the MSGTYPE attribute in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::SetMSGTYPE(const char *v);`

Parameters The `SetMSGTYPE()` method has the following parameter:

`v`	the MSGTYPE value

Returns 0 when successful; -1 otherwise.

SetSERVICE( )

Sets the SERVICE attribute in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::SetSERVICE(const char *v);`

Parameters The `SetSERVICE()` method has the following parameter:

`v`	the SERVICE value

Returns 0 when successful; -1 otherwise.

SetTIMEOUT( )

Sets the TIMEOUT attribute in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::SetTIMEOUT(long v);`

Parameters The `SetTIMEOUT()` method has the following parameter:

`v`	the TIMEOUT value

Returns 0 when successful; -1 otherwise.

SetRETRIES( )

Sets the RETRIES attribute in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::SetRETRIES(long v);`

Parameters The `SetRETRIES()` method has the following parameter:

`v`	the RETRIES value

Returns 0 when successful; -1 otherwise.

SetSTATUS( )

Sets the STATUS attribute in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::SetSTATUS(long v);`

Parameters The `SetSTATUS()` method has the following parameter:

`v`	the STATUS value

Returns 0 when successful; -1 otherwise.

SetPreDefinedMONITOR( )

Sets the specified attribute in the PREDEFINED MONITOR section for a CXIP message.

Syntax `int CXxsMSG::SetPreDefinedMONITOR(const char *n, const char *v);`

Parameters The `SetPreDefinedMONITOR()` method has the following parameters:

`n`	the name of the attribute
`v`	the attribute value

Returns 0 when successful; -1 otherwise.

SetSENDER( )

Sets the SENDER attribute in the PREDEFINED MONITOR section for a CXIP message.

Syntax `int CXxsMSG::SetSENDER(const char *v);`

Parameters The `SetSENDER()` method has the following parameter:

`v`	the SENDER attribute value

Returns 0 when successful; -1 otherwise.

SetRECEIVER( )

Sets the RECEIVER attribute in the PREDEFINED MONITOR section for a CXIP message.

Syntax `int CXxsMSG::SetRECEIVER(const char *v);`

Parameters The `SetRECEIVER()` method has the following parameter:

`v`	the RECEIVER attribute value

Returns 0 when successful; -1 otherwise.

SetTIMESTAMP( )

Sets the TIMESTAMP attribute in the PREDEFINED MONITOR section for a CXIP message.

Syntax `int CXxsMSG::SetTIMESTAMP(const char *v);`

Parameters The `SetTIMESTAMP()` method has the following parameter:

`v`	the TIMESTAMP attribute value

Returns 0 when successful; -1 otherwise.

SetUsrDefinedMONITOR( )

Sets the specified attribute in the USRDEFINED MONITOR section for a CXIP message.

Syntax

```
int CXxsMSG::SetUsrDefinedMONITOR(const char *n, const char *v);
```

Parameters The `SetUsrDefinedMONITOR()` method has the following parameters:

`n`	the name of the attribute
`v`	the attribute value

Returns 0 when successful; -1 otherwise.

SetINPUT( )

Sets the specified input variable in the DATA section for a CXIP message.

Syntax

```
int CXxsMSG::SetINPUT(const char *n, const char *v);
```

Parameters The `SetINPUT()` method has the following parameters:

`n`	the name of the input variable
`v`	the variable value

Sets the specified input attribute in the DATA section for a CXIP message.

Syntax

```
int CXxsMSG::SetINPUT(const char *n, const char *g, long v);
```

Parameters The `SetINPUT()` method has the following parameters:

`n`	the name of the input variable
`g`	the attribute name
`v`	the attribute value

Sets the specified input attribute in the DATA section for a CXIP message.

Syntax

```
int CXxsMSG::SetINPUT(const char *n, const char *g, const char
*v);
```

Parameters The `SetINPUT()` method has the following parameters:

`n`	the name of the input variable
`g`	the attribute name
`v`	the attribute value

Returns 0 when successful; -1 otherwise.

SetOUTPUT()

Sets the specified output attribute in the DATA section for a CXIP message.

Syntax

```
int CXxsMSG::SetOUTPUT(const char *n, const char *g, long v);
```

Parameters The `SetOUTPUT()` method has the following parameters:

`n`	the name of the output variable
`g`	the attribute name
`v`	the attribute value

Sets the specified output attribute in the DATA section for a CXIP message.

Syntax

```
int CXxsMSG::SetOUTPUT(const char *n, const char *g, const char
*v);
```

Parameters The `SetOUTPUT()` method has the following parameters:

`n`	the name of the output variable
`g`	the attribute name
`v`	the attribute value

Returns 0 when successful; -1 otherwise.

CreateMSG()

Starts creating a CXIP message.

Syntax

```
int CXxsMSG::CreateMSG(const char *n, const char *v);
```

Parameters The `CreateMSG()` method has the following parameters:

`n`	the name of the message; must be `CXIP_MSG`
`v`	the version of the message; must be `1.0`

Returns 0 when successful; -1 otherwise.

CreateCONTROL( )

Creates the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::CreateCONTROL(const char *m, const char *s);`

Parameters The `CreateCONTROL()` method has the following parameters:

`m`	the value of MSGTYPE attribute
`s`	the value of SERVICE attribute

Returns 0 when successful; -1 otherwise.

CreateTIMEOUT( )

Creates the TIMEOUT attribute value in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::CreateTIMEOUT(long v);`

Parameters The `CreateTIMEOUT()` method has the following parameter:

`v`	the value of TIMEOUT attribute

Returns 0 when successful; -1 otherwise.

CreateRETRIES( )

Creates the RETRIES attribute value in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::CreateRETRIES(long v);`

Parameters The `CreateRETRIES()` method has the following parameter:

`v`	the value of RETRIES attribute

Returns 0 when successful; -1 otherwise.

CreateSTATUS( )

Creates the STATUS attribute value in the CONTROL section for a CXIP message.

Syntax `int CXxsMSG::CreateSTATUS(long v);`

Parameters The `CreateSTATUS()` method has the following parameter:

`v`	the value of STATUS attribute

Returns 0 when successful; -1 otherwise.

CreatePreDefinedMONITOR( )

Creates the PREDEFINED MONITOR section for a CXIP message.

Syntax
```
int CXxsMSG::CreatePreDefinedMONITOR(const char *s, const char
*r, const char *t = 0);
```

Parameters The `CreatePreDefinedMONITOR()` method has the following parameters:

`s`	the value of SENDER attribute
`r`	the value of RECEIVER attribute
`t`	the value of TIMESTAMP attribute; passing zero value causes it to be created internally using current time

Returns 0 when successful; -1 otherwise.

CreateUsrDefinedMONITOR( )

Creates create the USRDEFINED MONITOR section for a CXIP message.

Syntax `int CXxsMSG::CreateUsrDefinedMONITOR(const char *n, const char *t, const char *v);`

Parameters The `CreateUsrDefinedMONITOR()` method has the following parameters:

`n`	the value of NAME attribute
`t`	the value of TYPE attribute
`v`	the value of the data

Returns 0 when successful; -1 otherwise.

CreateINPUT()

Creates the INPUT variable in the DATA section for a CXIP message.

Syntax `int CXxsMSG::CreateINPUT(const char *n, const char *t, const char *v, int opt = 0);`

Parameters The `CreateINPUT()` method has the following parameters:

`n`	the value of NAME attribute
`t`	the value of TYPE attribute
`v`	the value of the data
`opt`	the option, which can be OR'ed from the following options: • CXXS_OPT_KEEPIT - use the string directly; do not duplicate another copy internally • CXXS_OPT_FREE - use `free()` instead of `delete` to release the string

Returns 0 when successful; -1 otherwise.

Creates the INPUT variable in the DATA section for a CXIP message.

Syntax `int CXxsMSG::CreateINPUT(const char *n, const char *t, const char *v, const char *charset, const char *encoding, *v, int opt = 0);`

Parameters The `CreateINPUT()` method has the following parameters:

`n`	the value of NAME attribute
`t`	the value of TYPE attribute
`v`	the value of the data
`charset`	the value of CHARSET attribute
`encoding`	the value of ENCODING attribute
`opt`	the option, which can be OR'ed from the following options: • CXXS_OPT_KEEPIT - use the string directly; do not duplicate another copy internally • CXXS_OPT_FREE - use `free()` instead of `delete` to release the string

Returns 0 when successful; -1 otherwise.

CreateOUTPUT()

Creates the OUTPUT variable in the DATA section for a CXIP message.

Syntax

```
int CXxsMSG::CreateOUTPUT(const char *n, const char *t, const
char *v, int opt = 0);
```

Parameters The `CreateOUTPUT()` method has the following parameters:

`n`	the value of NAME attribute
`t`	the value of TYPE attribute
`v`	the value of the data
`opt`	the option, which can be OR'ed from the following options: • CXXS_OPT_KEEPIT - use the string directly; do not duplicate another copy internally • CXXS_OPT_FREE - use `free()` instead of `delete` to release the string

Returns 0 when successful; -1 otherwise.

Creates the OUTPUT variable in the DATA section for a CXIP message.

Syntax `int CXxsMSG::CreateOUTPUT(const char *n, const char *t, const char *v, const char *charset, const char *encoding, int opt = 0);`

Parameters The `CreateOUTPUT()` method has the following parameters:

`n`	the value of NAME attribute
`t`	the value of TYPE attribute
`v`	the value of the data
`charset`	the value of CHARSET attribute
`encoding`	the value of ENCODING attribute
`opt`	the option, which can be OR'ed from the following options: • CXXS_OPT_KEEPIT - use the string directly; do not duplicate another copy internally • CXXS_OPT_FREE - use `free()` instead of `delete` to release the string

Returns 0 when successful; -1 otherwise.

CXxsDOM Class Reference

Interface cxxsdom.h

Superclasses `Not applicable.`

Subclasses `CXxsMSG, CXIP_MSG`

Syntax `class CXxsDOM { ... };`

Constructor and Destructor

CXxsDOM( )

Creates a CXxsDOM object.

Syntax Not intended to be used directly.

~CXxsDOM( )

Destroys a CXxsDOM object.

Syntax Not intended to be used directly.

Methods

This section lists the methods of the `CXxsDOM` class.

Parse( )

Parses an XML-formatted message, which is passed to this object from the constructor.

Syntax

```
int CXxsDOM::Parse(int opt = 0);
```

Parameters The `Parse()` method has the following parameter:

`opt`	the option, which can be OR'ed from the following options: • CXXS_OPT_DELETEDOC - delete the XML message once the internal DOM object tree is formatted after the parsing

Returns 0 when successful; -1 otherwise.

Format( )

Formats an XML-formatted message from the internal DOM object tree created previously by the Create methods.

Syntax

```
int CXxsDOM::Format(int opt = 0);
```

Parameters The `Format()` method has the following parameter:

`opt`	the option, which can be OR'ed from the following options: • CXXS_OPT_DELETEDOM - delete the internal DOM object tree once the XML message is formatted/constructed

Returns 0 when successful; -1 otherwise.

GetErrors( )

Retrieves information about the parsing error.

Syntax

```
const char *CXxsDOM::GetErrors(int *ecode, int *eline, int
*ecol);
```

Parameters The `GetErrors()` method has the following parameters:

`ecode`	the error code
`eline`	the line number where error is detected
`ecol`	the column number where error is detected

Returns The error message, if available.

GetDTD( )

Gets the XML DTD from this object.

Syntax

```
inline const char *CXxsDOM::GetDTD();
```

Parameters None.

Returns The DTD string pointer.

GetDocument( )

Gets the XML document from this object.

Syntax

```
inline const char *CXxsDOM::GetDocument();
```

Parameters None.

Returns The document string pointer.

GetObjectName( )

Gets the object name from a CXxsDOM object.

Syntax `int CXxsDOM::GetObjectName(CXxsObj obj, char **v);`

Parameters The `GetObjectName()` method has the following parameters:

`obj`	the object
`v`	the value of the object name

Returns 0 when successful; -1 otherwise.

GetObjectData( )

Gets the object data from a CXxsDOM object.

Syntax `int CXxsDOM::GetObjectData(CXxsObj obj, char **v);`

Parameters The `GetObjectData()` method has the following parameters:

`obj`	the object
`v`	the value of the object data

Returns 0 when successful; -1 otherwise.

GetObjectAttribute( )

Gets the object attribute from a CXxsDOM object.

Syntax

```
int CXxsDOM::GetObjectAttribute(CXxsObj obj, const char *n, int
*v);
```

Parameters The `GetObjectAttribute()` method has the following parameters:

`obj`	the object
`n`	the name of the object attribute
`v`	the value of the object attribute

Syntax `int CXxsDOM::GetObjectAttribute(CXxsObj obj, const char *n, char **v);`

Parameters The `GetObjectAttribute()` method has the following parameters:

`obj`	the object
`n`	the name of the object attribute
`v`	the value of the object attribute

Returns 0 when successful; -1 otherwise.

CXIPInit Class Reference

Interface `cxipinit.h`

Superclasses Not applicable.

Subclasses None.

Syntax `class CXIPInit { ... };`

Constructor and Destructor

CXIPInit( )

Creates a CXIPInit object.

Syntax `CXIPInit::CXIPInit();`

Parameters None.

~CXIPInit( )

Destroys a CXIPInit object.

Syntax `virtual ~CXIPInit();`

Methods

This section lists the methods of the CXIPInit class.

Init( )

Initializes the XML SDK application.

Syntax `int CXIPInit::Init();`

Parameters None

Returns 0 when successful; -1 otherwise.

SetDebugMode( )

Sets debug mode of the application.

Syntax `void CXIPInit::SetDebugMode(int d);`

Parameters The `SetDebugMode()` method has the following parameter:

`d`	the debug mode - 1 when on, 0 when off

SetLogFiles( )

Sets output files for debug messages.

Syntax `void CXIPInit::SetLogFiles(const char *o, const char *e);`

Parameters The `SetLogFiles()` method has the following parameters:

`o`	the output file for stdout messages - stdout when nil
`e`	the output file for stderr messages - stderr when nil

Base64Decode( )

Performs a Base64 decoding.

Syntax `static void *CXIPInit::Base64Decode(char *src, long& srclen, long &declen);`

Parameters The `Base64Decode()` method has the following parameters:

`src`	the source of the (encoded) string to be decoded
`srclen`	the length of the (encoded) source length
`declen`	the length of the decoded string length

Returns The encoded string when successful; 0 otherwise.

Base64Encode( )

Performs a Base64 decoding.

Syntax `static char *CXIPInit::Base64Encode(void *src, long& srclen, long &enclen);`

Parameters The `Base64Encode()` method has the following parameters:

`src`	the source of the string to be encoded
`srclen`	the length of the source length
`enclen`	the length of the encoded string length

Returns The encoded string when successful; 0 otherwise.

CXIPConnection Class Reference

Interface `cxipconn.h`

Superclasses Not applicable.

Subclasses None.

Syntax `class CXIPConnection { ... };`

Constructor and Destructor

CXIPConnection( )

Creates a CXIPConnection object.

Syntax `CXIPConnection::CXIPConnection();`

Parameters None.

~CXIPConnection( )

Destroys a CXIPConnection object.

Syntax `virtual ~CXIPConnection();`

Methods

This section lists the methods of the CXIPConnection class.

Connect( )

Sonnects to a specified host and port.

Syntax `int CXIPConnection::Connect(const char *host, int port);`

Parameters The `Connect()` method has the following parameters:

`host`	the host name or IP address
`port`	the port number

Returns 0 when successful; -1 otherwise.

SendMessage( )

Sends a message through the connection.

Syntax `int CXIPConnection::SendMessage(const char *m);`

Parameters The `SendMessage()` method has the following parameter:

`m`	the null-terminated message string

Returns The number of bytes sent when successful; -1 otherwise.

ReceiveMessage( )

Receives a message from the connection.

Syntax `int CXIPConnection::ReceiveMessage(char **m);`

Parameters The `ReceiveMessage()` method has the following parameter:

`m`	the null-terminated message string - it is allocated inside the object and expected to be released by the caller

Returns The number of bytes received when successful; -1 otherwise.

CXIPListener Class Reference

Interface `cxiplsnr.h`

Superclasses Not applicable.

Subclasses None.

Syntax `class CXIPListener { ... };`

Constructor and Destructor

CXIPListener( )

Creates a CXIPListener object.

Syntax `CXIPListener::CXIPListener();`

Parameters None.

~CXIPListener( )

Destroys a CXIPListener object.

Syntax `virtual ~CXIPListener();`

Methods

This section lists the methods of the CXIPListener class.

Init( )

Initializes the listener.

Syntax

```
int CXIPListener::Init(const char *conf, const char *sec, const
char *sys = "system");
```

Parameters The `Init()` method has the following parameters:

`conf`	the (ini-formatted) configuration file name
`sec`	the section name in the configuration file
`sys`	the system section name in the configuration file - "system" is the default

Returns 0 when successful; -1 otherwise.

Run( )

Starts up (runs) the listener.

Syntax

```
virtual int CXIPListener::Run(int blocked = 0);
```

Parameters The `Run()` method has the following parameter:

`blocked`	the flag indicating whether to run the listener in blocking mode or not - 0 is non-blocking, any other value is blocking

Returns 0 when successful; -1 otherwise.

ProcessMessage( )

Processes a message received from a given conection.

Syntax

```
virtual int CXIPListener::ProcessMessage(CXIPConnection *conn,
const char *m);
```

Parameters The `ProcessMessage()` method has the following parameters:

`conn`	the connection from which the message is received
`m`	the null-terminated message string

Returns 0 when successful; -1 otherwise.

Syntax

```
virtual int CXIPListener::ProcessMessage(CXIPConnection *conn,
CXIP_MSG *m);
```

Parameters The `ProcessMessage()` method has the following parameters:

`conn`	the connection from which the message is received
`m`	the parsed XML message in CXIP_MSG format

Returns 0 when successful; -1 otherwise.

CXSubmit Class Reference

Interface `cxsbmt.h`

Superclasses Not applicable.

Subclasses None.

Syntax `class CXSubmit { ... };`

Constructor and Destructor

CXSubmit( )

Creates a CXSubmit object.

Syntax `CXSubmit::CXSubmit();`

Parameters None.

~CXSubmit( )

Destroys a CXSubmit object.

Syntax `virtual ~CXSubmit();`

Methods

This section lists the methods of the CXSubmit class.

Submit( )

Submits the document using related parameters specifed inside this object.

Syntax `int CXSubmit::Submit();`

Parameters None. Parameters are specified inside this object.

Returns 0 when successful; -1 otherwise.

SetHost( )

Sets the host name or IP address to submit to.

Syntax `int CXSubmit::SetHost(const char *host);`

Parameters The `CXSubmit()` method has the following parameter:

`host`	the host name or IP address to submit to

Returns 0 when successful; -1 otherwise.

SetPort( )

Sets the port number to submit to.

Syntax `int CXSubmit::SetPort(const char *host);`

Parameters The `SetPort()` method has the following parameter:

`port`	the port number to submit to

Returns 0 when successful; -1 otherwise.

SetSender( )

Sets the sender name.

Syntax `int CXSubmit::SetSender(const char *sender);`

Parameters The `SetSender()` method has the following parameter:

`sender`	the sender of the submission

Returns 0 when successful; -1 otherwise.

SetReceiver( )

Sets the receiver name.

Syntax `int CXSubmit::SetReceiver(const char *receiver);`

Parameters The `SetReceiver()` method has the following parameter:

`receiver`	the receiver of the submission

Returns 0 when successful; -1 otherwise.

SetDocType( )

Sets the document type.

Syntax `int CXSubmit::SetDocType(const char *doctype);`

Parameters The `SetDocType()` method has the following parameter:

`doctype`	the document type of the submission

Returns 0 when successful; -1 otherwise.

SetDocPath( )

Sets the document path.

Syntax `int CXSubmit::SetDocPath(const char *docpath);`

Parameters The `SetDocPath()` method has the following parameter:

`docpath`	the document path of the submission

Returns 0 when successful; -1 otherwise.

SetDocTransport( )

Sets the document transport method.

Syntax `int CXSubmit::SetDocTransport(const char *doctrans);`

Parameters The `SetDocTransport()` method has the following parameter:

`doctrans`	the transport method of the submission

Returns 0 when successful; -1 otherwise.

SetIDs( )

Sets the sender and receiver IDs/names for CXIP message.

Syntax `int CXSubmit::SetIDs(const char *s, const char *r);`

Parameters The `SetIDs()` method has the following parameters:

`s`	the sender id
`r`	the receiver id

Note These are *not* the same Sender/Receiver as in the partnership.

Examples

Makefile The *Makefile.{solaris|hpux}* under the example directory needs only minimal modifications to build the sample programs. The two steps are:

1. Change the `ECXpert = ${ECXPERT-INSTALLATION-LOCATION}` to the path of the installation. For example:

   ```
   /user/apps/ECX/NS-apps/ECXpert
   ```

2. Change the `CC = ${YOUR_CPP_COMPILER}` to the path of the C++ compiler.

Source Code See the source files under the *xmlsdk/example* directory.

Configuration File See *xmlsdk/config/xmlserver.ini* for a configuration example.

Chapter

6

The EcxBase Class

This chapter describes the EcxBase class, which is the base class for all APIs in ECXpert. This chapter contains the following sections:

- About the EcxBase Class
- EcxBase Class Reference

About the EcxBase Class

The `EcxBase` class defines the class from which all ECXpert API classes are derived. For example, ECXpert's `EcxSubmit` class is derived from the `EcxBase` class. You may define a subclass derived from the `EcxBase` class. The `EcxBase` class is intended to be used as an abstract class. You should never need to create `EcxBase` objects.

The `EcxBase` class defines methods that are common to the ECXpert API classes you use to interact programmatically with the ECXpert System. The class provides methods that allow you to get, set, and clear the error number corresponding to the last error reported by ECXpert.

Methods Summary list:

Constructor and destructor	
`EcxBase()`	Creates an `EcxBase` object.
`~EcxSBase()`	Destroys an `EcxBase` object.
Error handling	
`Errnum()`	Retrieves or sets the last error.
`ClearErr()`	Clears the last error that occurred.
`ErrMsg`	Returns error message string.

EcxBase Class Reference

Interface `ecxbase.h`

Superclasses `None`

Subclasses `EcxAddresses, EcxDocument, EcxFTPClient, EcxInit, EcxLog, EcxLogin, EcxMember, EcxPartnership, ECXService, ECXServiceList, EcxSubmit, EcxTracking`

Friend Classes `None`

Syntax `class EcxBase { ... };`

Constants and Data Types

The following definitions, which are defined at file scope, allow you to specify boolean values as integers:

Syntax

```
#define TRUE   1
#define FALSE  0
```

`TRUE`	A true value, which is represented as 1.
`FALSE`	A false value, which is represented as 0.

Constructor and Destructor

EcxBase( )

Creates an `EcxBase` object.

Syntax

```
EcxBase(void);
```

~EcxBase( )

Destroys an `EcxBase` object.

Syntax

```
virtual ~EcxBase();
```

Methods

This section lists the methods of the `EcxBase` class.

ClearErr( )

Clears the last error that occurred.

Syntax

```
virtual void ClearErr(void);
```

Discussion The last error that occurred as a result of calling a method in the ECXpert API is available until it is explicitly cleared by calling this method or until it has been reset by calling the `Errnum()` method. The `ClearErr()` method sets the error number to 0.

Example

```
pSubmitObj->ClearErr();
```

See also The `Errnum()` method on page 104.

Errnum( )

Retrieves or sets the last error.

Syntax

```
virtual long Errnum(void);
virtual void Errnum(long ErrNum);
```

Parameters The `Errnum()` method has the following parameters:

`ErrNum`	A long integer that specifies the error number.

Returns A long integer that contains the last error that occurred.

Discussion The first form of the `Errnum()` method returns the last error that occurred. The second form sets the value of the error number. The second form is protected.

Note When you use the API, ECXpert sets the error number.ECXpert

Example

```
if ( pSubmitObj->Errnum() )
    printf("Error: %ld occurred\n", pSubmitObj->Errnum();
```

See also Call the `ClearErr()` method on page 103 to reset the error number to 0.

Errmsg( )

Returns error message string.

Syntax

```
virtual const char * Errmsg(void);
```

Returns Pointer to a character string containing the last error message that occurred.

Discussion This value could be null, because not every object gets the error message. Refer to the code examples for each class in this book to determine whether it will return an error message. For example, the `ECXLogin` class will return an error message if it fails.

Example

```
if((pLogin = new EcxLogin())->Errnum()) {
      cout << "EcxLogin Object Error:" << endl;
      cout << "\tErrnum: " << pLogin->Errnum() << endl;
      cout << "\tErrmsg: " << pLogin->Errmsg() << endl;
      cout << endl;
      return(NULL);}
```

See Also The `EcxLogin()` class on page 127.

Chapter

7

The EcxInit Class

This chapter describes the `EcxInit` class, whose objects initialize your application to for ECXpert database access. This chapter contains the following sections:

- About the EcxInit Class
- Using the EcxInit Class
- EcxInit Class Reference

About the EcxInit Class

You must create an `EcxInit` object before using any other class in the SDK.

Methods Summary list:

Constructor and destructor

`EcxInit()`	Creates an `EcxInit` object.
`~EcxInit()`	Destroys an `EcxInit` object.

Using the EcxInit Class

You must create a single `EcxInit` object within your application. You can call the class's `Errnum()` method to determine whether initialization succeeded.

```
int main(int argc, char * argv[])
{
   ...
   EcxInit EcxInitObject;
   ...
   do // main processing loop
   {
      if ( EcxInitObject.Errnum() != 0 )
      {
         printf("Failed to initialize EcxInit object.\n");
         break;
      }
   ...
   }
   ...
}
```

EcxInit Class Reference

Interface	`ecxinit.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`

Syntax `class EcxInit : public EcxBase { ... };`

Constructor and Destructor

EcxInit( )

Creates an `EcxInit` object.

Syntax `EcxInit(void);`

Example See “Using the EcxInit Class” on page 108.

~EcxInit( )

Destroys an `EcxInit` object.

Syntax `virtual ~EcxInit();`

Chapter

8

The EcxSubmit Class

This chapter describes the `EcxSubmit` class, which defines methods that you use to submit files to ECXpert. This chapter contains the following sections:

- About the EcxSubmit Class
- Using the EcxSubmit Class
- EcxSubmit Class Reference

About the EcxSubmit Class

The `EcxSubmit` class defines methods that you use to submit a file to ECXpert. You can use these methods to provide a file submission capability within your application instead of requiring the user to execute a command or use ECXpert's HTML interface to submit an object.

You may create objects from the `EcxSubmit` class and use them directly or you may define a subclass of the `EcxSubmit` class and create objects from the derived class. For example, you might define a subclass that handles much of the application logic associated with files to be submitted to ECXpert. Objects derived from your subclass would inherit the ability to submit files to ECXpert.

Before you create an `EcxSubmit` object, you must first create an `EcxInit` object. You then can create an `EcxSubmit` object and specify the following information:

- Member ID of the sender
- Member ID of the recipient
- Sender's password, which is optional for trusted members
- Full path of ECXpert's configuration file
- Map name (optional)
- Delivery method (optional)
- File name
- File type

You call methods to specify this information. For example, you call the object's `SetSender` method (page 125) to specify the sender's member ID.

You must specify the files that you wish to submit to ECXpert. You build a submission list by calling the object's `AddFile()` method (page 118) to add a file to the list. You specify the following information when you add a file:

- Document name
- Document type, such as EDIFACT or EDIX12, or a non-EDI type

You can add as many files as you want. If you add more than one file, the files become part of a single multi-part file. When you finish adding the files to the submission list, you can call the object's `Submit()` method (page 125) to submit the files.

If the file being submitted is in the local file system, ECXpert moves the file being submitted to the directory specified by the `repository` entry in the configuration file's `tcpip-connector` section.

You can also submit files to ECXpert using a TCP/IP connection. You specify whether or not to use a TCP/IP connection when you call the object's `Submit()` method. Using a TCP/IP connection causes ECXpert to stream the contents of the files through a socket to the server. This is a useful technique if your application runs on a remote computer and the files being submitted are relatively small. If you want to submit large files from a remote computer, you should consider using a protocol such as FTP to copy the files to the server and then submit them from the server.

Note If you stream data through a TCP/IP connection, the source file is not deleted after the data has been streamed to the server.

After you submit a file, you should check for errors. If no error occurred, you can call the object's `GetFirstTrackingID()` method (page 119) to determine the tracking ID of the first file submitted and the object's `GetNextTrack-ingID()` method (page 121) to determine the tracking ID for each additional file in the list.

When you no longer need references to these files, you can call the object's `ClearFileList()` method (page 119) to remove the files from the list. You could then add new file(s) by calling the `AddFile()` method and then submit the new file by calling the `Submit()` method.

Methods Summary list:

Constructor and destructor	
`EcxSubmit()`	Creates a submission object.
`~EcxSubmit()`	Destroys a submission object.
Retrieving submission information	
GetDeliveryMethod	Gets the delivery method.
GetEcxIniFileName	Gets the full pathname of ECXpert's configuration file.
GetMapName	Gets the map name.
GetPassword	Gets the sender's password

GetSender	Gets the sender's member ID.
Setting submission information	
`SetSender()`	Sets the sender's member ID.
`SetRecipient()`	Sets the recipient's member ID.
`SetPassword()`	Sets the sender's password.
`SetEcxIniFileName()`	Sets the full pathname of ECXpert's configuration file.
`SetMapName()`	Sets the map name.
`SetDeliveryMethod()`	Sets the delivery method.
Manipulating the submission list	
`AddFile()`	Adds a file to the submission list.
`ClearFileList()`	Clears the submission list.
`GetFirstTrackingID()`	Retrieves the tracking ID for the first file in the object's submission list.
`GetNextTrackingID()`	Retrieves the tracking ID for the next file in the object's submission list.
Submitting files	
`Submit()`	Submits objects to ECXpert for processing.

Using the EcxSubmit Class

The following program shows how to use the `EcxSubmit` class. The program creates an `EcxSubmit` object and sets the sender, receiver, password, map name, and initialization file. It then adds three files to the submission list and submits them to ECXpert for processing. After submitting the files, the program retrieves the tracking IDs of these files.

```
#include <stdio.h>

#include "ecxsubmit.h"

int main(int argc, char * argv[])
{
   int  retval = -1;

   EcxInit     EcxInitObject;    // must instantiate this
```

```
                              // before calling sdk

EcxSubmit * pSubmitObj = 0;

do
{
    if ( EcxInitObject.Errnum() != 0 )
    {
        printf("Failed to initialize EcxInit object.\n");
        break;
    }

    if ( (pSubmitObj = new EcxSubmit) == 0 )
    {
        printf("No memory to create Ecxpert submission object.\n");
        break;
    }

    if ( pSubmitObj->SetSender("jim1").Errnum()            ||
         pSubmitObj->SetRecipient("smani1").Errnum()       ||
         pSubmitObj->SetPassword("jim1").Errnum()          ||
         pSubmitObj->SetMapName("mymap").Errnum()          ||
         pSubmitObj->SetEcxIniFileName("ecx.ini").Errnum() ||
         pSubmitObj->SetDeliveryMethod("via-my-app").Errnum() )
    {
        printf("Failed to set submission parameters.\n");
        break;
    }

    if ( pSubmitObj->AddFile("input1.dat", "edi850").Errnum() ||
         pSubmitObj->AddFile("input2.dat", "edi850").Errnum() ||
         pSubmitObj->AddFile("input3.dat", "edi850").Errnum() )
    {
        printf("Failed to add files to the submission object.\n");
        break;
    }

    printf("Submission parameters are as follows:\n"
           "ECXpert configuration file = %s\n"
           "Sender name = %s\n"
           "Recipient name = %s\n"
           "Password = %s\n"
```

```
                "Delivery method = %s\n"
                "Map name = %s\n",
                pSubmitObj->GetEcxIniFileName(),pSubmitObj->GetSender(),
                pSubmitObj->GetRecipient(), pSubmitObj->GetPassword(),
               pSubmitObj->GetDeliveryMethod(),pSubmitObj->GetMapName());

        printf("Submitting files now......\n");

        if ( pSubmitObj->Submit().Errnum() )
        {
            printf("Submission failed.\n");
            break;
        }

        long TrackingID = pSubmitObj->GetFirstTrackingID();

        for ( int LoopCount = 1; TrackingID != 0; ++LoopCount )
        {
            printf("Registered file input%d with Tracking ID %ld\n",
                                             LoopCount, TrackingID);
            TrackingID = pSubmitObj->GetNextTrackingID();
        }

        retval = 0; // set return code to success
    }
    while( 0 );

    if ( pSubmitObj )
    {
        if ( pSubmitObj->Errnum() )
        {
            printf("Error: %ld\n", pSubmitObj->Errnum());
        }

        delete pSubmitObj;
    }

    return(retval);
```

EcxSubmit Class Reference

Interface	`ecxsubmit.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`
Syntax	`class EcxSubmit : public EcxBase { ... };`

Constructor and Destructor

EcxSubmit( )

Creates a submission object.

Syntax	`EcxSubmit(void);`
Discussion	The constructor creates a submission object.
Example	See “Using the EcxSubmit Class” on page 114.

~EcxSubmit( )

Destroys a submission object.

Syntax	`~EcxSubmit(void);`
Discussion	The destructor destroys a submission object.
Example	See “Using the EcxSubmit Class” on page 114.
See Also	The `Submit()` method on page 125.

Methods

This section lists the methods of the `EcxSubmit` class.

AddFile( )

Adds a file to the submission list.

Syntax

```
EcxSubmit& AddFile(const char * pFileName,
                   const char * pFileType);
```

Parameters The `AddFile()` method has the following parameters:

`pFileName`	A pointer to the path and file name of the file you want to include with this submission.
`pFileType`	A pointer to the data type of the file you want to include with this submission.

Returns A reference to this submission object.

Discussion The `AddFile()` method adds the specified file to the submission list. You can add as many files to the submission list as you wish. If you add more than one file, the files become part of a single multi-part file.

If you do not specify the path name, ECXpert looks for the file in the directory where the `tcpip-connector` server is executing. You can avoid errors locating the file by specifying the full path name as part of the file name.

After you add the files and specify the other information associated with the submission object, you can call the object's `Submit()` method to submit the files to ECXpert for processing. You should immediately check for errors after calling the `Submit()` method. If an error occurs, none of the files are submitted. They are either all submitted successfully or none of them are submitted.

Example See “Using the EcxSubmit Class” on page 114.

See Also The `Submit()` method on page 125.

ClearFileList( )

Clears the file list.

Syntax `void ClearFileList(void);`

Discussion All files associated with this submission instance can no longer be referenced.

See Also The `AddFile()` method on page 118.

GetDeliveryMethod( )

Retrieves the delivery method set by the `SetDeliveryMethod()` method.

Syntax `virtual const char* GetDeliveryMethod(void) const;`

Returns A pointer to a character string that contains the delivery method set by the `SetDeliveryMethod()` method.

Discussion The `GetDeliveryMethod()` method will return a NULL (zero) value if the delivery method has not already been set by the `SetDeliveryMethod()` method.

Example See “Using the EcxSubmit Class” on page 114.

See Also The `SetDeliveryMethod()` method on page 122.

GetEcxIniFileName( )

Retrieves the full pathname of ECXpert’s configuration file set by the `SetEcx-IniFileName()` method.

Syntax `virtual const char* GetEcxIniFileName(void) const;`

Returns A pointer to a character string that contains the full pathname of ECXpert’s configuration file set by the `SetEcxIniFileName()` method.

Discussion The `GetEcxIniFileName()` method will return a NULL (zero) value if the file name has not already been set by the `SetEcxIniFileName()` method.

Example See “Using the EcxSubmit Class” on page 114.

See Also The `SetEcxIniFileName()` method on page 123.

GetFirstTrackingID( )

Retrieves the tracking ID for the first file in the object's submission list.

Syntax `long GetFirstTrackingID(void);`

Returns A long integer that contains the tracking ID of the first file in the submission list or returns 0 if there are no files in the list.

Discussion The submission list contains references to all the files since you created the object or since the last time you called the object's `ClearFileList()` method. You should only call the `GetFirstTrackingID()` method after you call the `Submit()` method. If you do not first call the `Submit()` method or if it fails, the value returned by calling the `GetFirstTrackingID()` method is undefined.

After you call the object's `GetFirstTrackingID()` method, the tracking ID for the second file in the list will be the next ID to be returned, if the file exists.

Example See "Using the EcxSubmit Class" on page 114.

See Also The `GetNextTrackingID()` method on page 121. The `Submit()` method on page 125.

GetMapName ( )

Retrieves the map name set by the `SetMapName()` method.

Syntax `virtual const char* GetMapName(void) const;`

Returns A pointer to a character string that contains the map name set by the `SetMapName()` method.

Discussion The `GetMapName()` method will return a NULL (zero) value if the map name has not already been set by the `SetMapName()` method.

Example See "Using the EcxSubmit Class" on page 114.

See Also The `SetMapName()` method on page 123.

GetNextTrackingID( )

Retrieves the tracking ID for the next file in the object's submission list.

Syntax `long GetNextTrackingID(void);`

Returns A long integer that contains the tracking ID of the next file in the submission list or returns 0 if there are no more files in the list.

Discussion The submission list contains references to all the files since you created the object or since the last time you called the object's `ClearFileList()` method. You can call the `GetNextTrackingID`() method repeatedly to retrieve the tracking IDs of each file in the list, in the order that you added them.

You should only call the `GetNextTrackingID()` method after you call the `Submit()` method. If you do not first call the `Submit()` method or if it fails, the value returned by calling the `GetNextTrackingID()` method is undefined.

After you call the `GetFirstTrackingID()` method, the `GetNextTrack-ingID()` method returns the tracking ID for the second file in the list, if it exists. If you call the `GetNextTrackingID()` method after creating the object or after clearing the file list without first calling the object's `GetFirstTrack-ingID()` method, the `GetNextTrackingID()` method returns the tracking ID of the first file in the list or returns 0 if the list is empty.

Example See "Using the EcxSubmit Class" on page 114.

See Also The `GetFirstTrackingID()` method on page 121. The `Submit()` method on page 125.

GetPassword( )

Retrives the sender's password set by the `SetPassword()` method.

Syntax `virtual const char* GetPassword(void) const;`

Returns A pointer to a character string that contains the sender's password set by the `SetPassword()` method.

Discussion The `GetPassword()` method will return a NULL (zero) value if the sender's password has not already been set by the `SetPassword()` method.

Example See "Using the EcxSubmit Class" on page 114.

See Also The `SetPassword()` method on page 124.

GetRecipient( )

Retrieves the recipient's member ID set by the `SetRecipient()` method..

Syntax

```
virtual const char* GetRecipient(void) const;
```

Returns A pointer to a character string that contains the recipient's member ID set by the `SetRecipient()` method.

Discussion The `GetRecipient()` method will return a NULL (zero) value if the recipient's password has not already been set by the `SetRecipient()` method.

See Also The `SetRecipient()` method on page 124.

GetSender( )

Retrieves the sender's member ID set by the `SetSender()` method.

Syntax

```
virtual const char* GetSender(void) const;
```

Returns A pointer to a character string that contains the sender's member ID set by the `SetSender()` method.

Discussion The `GetSender()` method will return a NULL (zero) value if the sender's password has not already been set by the `SetSender()` method.

Example See "Using the EcxSubmit Class" on page 114.

See Also The `SetSender()` method on page 125.

SetDeliveryMethod( )

Sets the delivery method.

Syntax

```
virtual EcxSubmit& SetDeliveryMethod(const char *
pDeliveryMethod);
```

Parameters The `SetDeliveryMethod()` method has the following parameters:

`pDeliveryMethod`	A pointer to a character string that specifies the delivery method.

Returns A reference to this submission object.

Discussion Call this method if you want to specify the way in which the file was submitted to ECXpert. If you do not call this method, the transport type for this submission is NULL in the database.

Example See “Using the EcxSubmit Class” on page 114.

See Also “Tracking-related Tables” on page 379.

SetEcxIniFileName( )

Sets the full pathname of ECXpert’s configuration file.

Syntax `EcxSubmit& SetEcxIniFileName(const char * pIniFileName);`

Parameters The `SetEcxIniFileName()` method has the following parameters:

`pIniFileName`	A pointer to a character string that specifies the configuration file.

Returns A reference to this submission object.

Discussion The configuration file is typically found in the `config` subdirectory from the directory where ECXpert was installed. You must call the `SetEcxIni-FileName()` method before you call the `Submit()` method.

Example See “Using the EcxSubmit Class” on page 114.

See Also The `Submit()` method on page 125.

SetMapName( )

Sets the map name.

Syntax `EcxSubmit& SetMapName(const char * pMapName);`

Parameters The `SetMapName()` method has the following parameters:

`pMapName`	A pointer to a character string that contains the map name.

Returns A reference to this submission object.

Discussion Call this method if you want to override the partnership document map name for this submission with the specified map name.

Example See "Using the EcxSubmit Class" on page 114.

SetPassword( )

Sets the sender's password.

Syntax `EcxSubmit& SetPassword(const char * pPassword);`

Parameters The `SetPassword()` method has the following parameters:

`pPassword`	A pointer to a character string that contains the password.

Returns A reference to this submission object.

Discussion A password can contain as many as 60 characters. It can contain letters, numbers, and special characters, and is case sensitive. You must call the `SetPassword()` method before you call the `Submit()` method, unless the sender is trusted member.

Example See "Using the EcxSubmit Class" on page 114.

See Also The `Submit()` method on page 125.

SetRecipient( )

Sets the recipient's member ID.

Syntax `EcxSubmit& SetRecipient(const char * pRecipient);`

Parameters The `SetRecipient()` method has the following parameters:

`pRecipient`	A pointer to a character string that contains the member ID.

Returns A reference to this submission object.

Discussion A member ID can contain as many as 60 characters. It can contain letters, numbers, and special characters, and is case sensitive. You must call the `SetRecipient()` method before you call the `Submit()` method.

Example See “Using the EcxSubmit Class” on page 114.

See Also The `Submit()` method on page 125.

SetSender( )

Sets the sender’s member ID.

Syntax `EcxSubmit& SetSender(const char * pSender);`

Parameters The `SetSender()` method has the following parameters:

`pSender`	A pointer to a character string that contains the member ID.

Returns A reference to this submission object.

Discussion A member ID can contain as many as 60 characters. It can contain letters, numbers, and special characters, and is case sensitive. You must call the `SetSender()` method before you call the `Submit()` method.

Example See “Using the EcxSubmit Class” on page 114.

See Also The `Submit()` method on page 125.

Submit( )

Submits objects to ECXpert for processing.

Syntax `EcxSubmit& Submit(int bDataStreaming = FALSE);`

Parameters The `Submit()` method has the following parameters:

`bDataStreaming`	Specify `TRUE` if you want to stream data through a TCP/IP connection; the default is `FALSE`.

Returns A reference to this submission object.

Discussion This method submits one or more files to ECXpert. Before you can submit a file, you must specify the sender and recipient, the sender's password if the sender is not a trusted member, and the ECXpert configuration file.

You must call the methods described on page 113 to set the submission information for the EcxSubmit object.

The `bDataStreaming` parameter specifies whether to use a TCP/IP connection to submit the files; set it to `TRUE` to use this kind of connection. The default is `FALSE`, which specifies moving the files after they are on the server. See "About the EcxSubmit Class" on page 112 for more information about streaming versus moving files.

Note If you stream data through a TCP/IP connection, the source file is not deleted after the data has been streamed to the server.

If you call the `Submit()` method again, you only need to specify the values that have changed. For example, to submit additional files without changing the sender and receiver, you only need to call the `ClearFileList()` method to remove the current files from the list, call the `AddFile()` method for each file you want to add, and then call the `Submit()` method again to submit the new files.

After you call the object's `Submit()` method, you should immediately check for errors. If an error occurred, none of the files were submitted. The files in the submission list are either all submitted successfully or none of them are submitted.

Example See "Using the EcxSubmit Class" on page 114.

See Also To specify the sender, call the `SetSender()` method on page 125. To specify the recipient, call the `SetRecipient()` method on page 124. To specify the sender's password, call the `SetPassword()` method on page 124. To specify the map file, call the `SetMapName()` method on page 123. To specify the configuration file, call the `SetEcxIniFileName()` method on page 123. To add files, call the `AddFile()` method on page 118. To remove files from the list, call the `ClearFileList()` method on page 119.

Chapter

9

The EcxLogin Class

This chapter describes the `EcxLogin` class, which allows a user to access the database. This chapter contains the following sections:

- About the EcxLogin Class
- Using the EcxLogin Class
- EcxLogin Class Reference

About the EcxLogin Class

Objects of the `EcxLogin` class represent connections to the database. To log into the database, you can create an `EcxLogin` object and call the object's `Login` method. When you no longer need the connection to the database, you can call the object's `Logout` method.

Methods Summary list:

Constructor and destructor	
`EcxLogin()`	Creates an `EcxLogin` object.
`~EcxLogin()`	Destroys an `EcxLogin` object.
Logging in and out	
`Login()`	Logs into the database.
`Logout()`	Logs out of the database.
Determining the type of member	
`MemberType()`	Determines the type of member currently logged in.

Using the EcxLogin Class

The following example shows how to create an `EcxLogin` object and call the object's `Login` method to create a connection to the database.

```
EcxLogin * login(const char *name, const char *password) {

   EcxLogin *pLogin = NULL;

   if((pLogin = new EcxLogin())->Errnum()) {
      cout << "EcxLogin Object Error:" << endl;
      cout << "\tErrnum: " << pLogin->Errnum() << endl;
      cout << "\tErrmsg: " << pLogin->Errmsg() << endl;
      cout << endl;
      return(NULL);
   }

   if((pLogin->Login(name, password)).Errnum()) {
      cout << "EcxLogin.Login() Failed for user: " << name << endl;
      cout << "\tErrnum: " << pLogin->Errnum() << endl;
      cout << "\tErrmsg: " << pLogin->Errmsg() << endl;
      cout << endl;
      delete pLogin;
```

```
        return(NULL);
    }
    return(pLogin);
}
```

EcxLogin Class Reference

Interface `ecxlogin.h`

Superclasses `None`

Subclasses `EcxBase`

Friend Classes `None`

Syntax `class EcxLogin : public EcxBase { ... };`

Constructor and Destructor

EcxLogin( )

Creates an `EcxLogin` object.

Syntax `EcxLogin(void);`

Example See “Using the EcxLogin Class” on page 128.

~EcxLogin( )

Destroys an `EcxLogin` object.

Syntax `virtual ~EcxLogin();`

Methods

This section describes the methods of the `EcxLogin` class.

Login()

Logs into the database.

Syntax `virtual EcxLogin& Login(const char *username, const char *password);`

Parameters The `Login()` method has the following parameters:

`username`	A pointer to a character string that represents the user name.
`password`	A pointer to a character string that represents the password.

Returns A pointer to this `EcxLogin` object.

Discussion The user name must match that of a member in the database. If the member is a trusted member, the password in not checked.

Example See "Using the EcxLogin Class" on page 128.

Logout( )

Logs out of the database.

Syntax `virtual EcxLogin& Logout(void);`

Returns A pointer to this `EcxLogin` object.

MemberType( )

Determines the type of member currently logged in.

Syntax `unsigned int MemberType();`

Parameters The `MemberType()` method has the following parameters:

`type`	An unsigned integer that specifies whether the member is an administrator.

Returns An unsigned integer that contains the type of member.

Discussion A type of `ADMINISTRATOR` indicates that the member is an administrator. A type of `MEMBER` indicates that the member is not an administrator. If no member is currently logged in, the `MemberType()` method returns a type of `MEMBER`. The `MemberType()` method does not modify the database.

See also "Class Variables" on page 140.

Chapter

10

The EcxMember Class

This chapter describes the `EcxMember` class, which represents member records in an ECXpert database. This chapter contains the following sections:

- About the EcxMember Class
- Using the EcxMember Class
- EcxMember Class Reference

About the EcxMember Class

The `EcxMember` class represents member records in an ECXpert database. Administrators can manipulate any member record for their trading partnerships; non-administrators can only change contact information in their own record. A user must be logged in to the database before accessing a record.

Methods Summary list:

Constructor and destructor	
`EcxMember()`	Creates an `EcxMember` object.
`~EcxMember()`	Destroys an `EcxMember` object.
Allowing database access	
`SetLogin()`	Allows the object to access the database.
Adding, retrieving, changing and deleting member records	
`Add()`	Adds a member record to the database.
`Get()`	Retrieves a member record from the database.
`Change()`	Changes a member record in the database.
`Delete()`	Deletes a member from the database.
Listing member records	
`List()`	Retrieves a list of member records from the database.
`More()`	Determines whether more records are left in the list.
`Next()`	Associates the object with the next record in the list.
Resetting an object's state	
`Clear()`	Clears the state associated with an object, including its list.
Accessing key fields	
`Name()`	Determines or specifies the name of the member.
Accessing contact information	
`ContactName()`	Determines or specifies the name of the contact person for this member.
`ContactCompany()`	Determines or specifies the contact's company.
`ContactAddress1()`	Determines or specifies the first line of the contact's address.
`ContactAddress2()`	Determines or specifies the second line of the contact's address.
`ContactCity()`	Determines or specifies the contact's city.
`ContactState()`	Determines or specifies the contact's state.

`ContactZip()`	Determines or specifies the contact's zip or postal code.
`ContactCountry()`	Determines or specifies the contact's country.
`ContactPhone()`	Determines or specifies the contact's phone number.
`ContactFax()`	Determines or specifies the contact's fax number.
`ContactEmailId()`	Determines or specifies the contact's e-mail address.
Accessing other fields	
`Description()`	Determines or specifies the member's description.
`Type()`	Determines or specifies the type of member.
`ParentName()`	Determines the name of the parent member.
`IsGroup()`	Determines or specifies whether the member is a group or individual.
`Active()`	Determines or specifies whether the member is active.
`Password()`	Determines or specifies the member's password.
`Trusted()`	Determines or specifies whether the member is trusted.
`ObjPerm()`	Determines or specifies the record's access permissions.
`ModByGroup()`	Determines the group that last modified the record.
`ModByUser()`	Determines the user that last modified the record.
`ModDt()`	Determines the date the record was last modified.

Using the EcxMember Class

The following sections show how to

- create member objects
- add members to the database
- change members' records in the database
- list members in the database
- delete members from the database

Creating Member Objects

The following example shows how to create an `EcxMember` object and how to allow access to the database by calling the object's `SetLogin()` method:

```
EcxMember * make_memberobj(EcxLogin * pLogin) {

   EcxMember * pMember = NULL;

   if((pMember = new EcxMember())->Errnum()) {
      cout << "EcxMember Object Error:" << endl;
      cout << "\tErrnum: " << pMember->Errnum() << endl;
      cout << "\tErrmsg: " << pMember->Errmsg() << endl;
      cout << endl;
      return(NULL);
   }

   if((pMember->SetLogin(*pLogin)).Errnum()) {
      cout << "EcxMember.SetLogin() Failed:" << endl;
      cout << "\tErrnum: " << pMember->Errnum() << endl;
      cout << "\tErrmsg: " << pMember->Errmsg() << endl;
      cout << endl;
      delete pMember;
      return(NULL);
   }

   return(pMember);
}
```

Alternatively, you can pass the login object to the `EcxMember` constructor without having to call `SetLogin()`.

Adding Members

The following example shows how to add a member record to the database. An administrator's login must be associated with the object you want to add.

```
int add_member(EcxMember *pMember, const char *name) {

  pMember->Clear();

  pMember->Name(name);
  pMember->Description("This is the description");
  pMember->Type(pMember->MEMBER);
  pMember->IsGroup(FALSE);
  pMember->Active(TRUE);
  pMember->Password(name);
  pMember->Trusted(FALSE);
  pMember->ContactName("Jack Flack");
  pMember->ContactCompany("Company AAA");
  pMember->ContactAddress1("109 Short Stack St.");
  pMember->ContactAddress2("Apt. #12");
  pMember->ContactCity("Big City");
  pMember->ContactState("New California");
  pMember->ContactZip("12666");
  pMember->ContactCountry("AUFD");
  pMember->ContactPhone("123 456-7890");
  pMember->ContactFax("123 456-7899");
  pMember->ContactEmailId("crank@flipant.org");
  pMember->ObjPerm(755);

  if((pMember->Add()).Errnum()) {
    cout << "EcxMember.add() Failed for user: " << name << endl;
    cout << "\tErrnum: " << pMember->Errnum() << endl;
    cout << "\tErrmsg: " << pMember->Errmsg() << endl;
    return(pMember->Errnum());
  }

  cout << "*** Added member: " << name << endl;

  return(0);
}
```

Changing Members' Fields

The following example shows how to change the contact's e-mail address. The `Get()` method retrieves the record to modify using the key field, which is specified by calling the object's `Name()` method.

Note Non-administrators can only retrieve their own record and, thus, change only their own record.

```
int change_email(EcxMember * pMember, const char * name) {

  char email[1024];

  pMember->Clear();
  pMember->Name(name);

  if((pMember->Get()).Errnum()) {
    cout << "EcxMember.Get() Failed for user: " << name << endl;
    cout << "\tErrnum: " << pMember->Errnum() << endl;
    cout << "\tErrmsg: " << pMember->Errmsg() << endl;
    return(pMember->Errnum());
  }

  strcpy(email, name);
  strcat(email, "@heaven.org");

  pMember->ContactEmailId(email);

  if((pMember->Change()).Errnum()) {
    cout << "EcxMember.Change() Failed for user: " << name << endl;
    cout << "\tErrnum: " << pMember->Errnum() << endl;
    cout << "\tErrmsg: " << pMember->Errmsg() << endl;
    return(pMember->Errnum());
  }

  return(0);
}
```

Listing Members

The following example shows how to create a list of all members.

Note If the login object specifies a non-administrator, this example returns only that member's record.

```
int list(EcxMember *pMember) {

  pMember->Clear();

  if((pMember->List()).Errnum()) {
    cout << "EcxMember.List() Failed:" << endl;
    cout << "\tErrnum: " << pMember->Errnum() << endl;
    cout << "\tErrmsg: " << pMember->Errmsg() << endl;
    return(pMember->Errnum());
  }

  cout << "*** Listing members" << pMember->More();
  cout << " records found. ***" << endl;

  while(pMember->More()) {
    cout << pMember->Name()            << ":";
    cout << pMember->Type()            << ":";
    cout << pMember->ContactName()     << ":";
    cout << pMember->ContactAddress1() << ":";
    cout << pMember->ContactAddress2() << ":";
    cout << pMember->ContactEmailId()  << endl;
    pMember->Next();
  }

  return(0);
}
```

Deleting Members

The following example shows how to delete a member record from the database. An administrator's login must be associated with the object you want to delete.

```
int delete_member(EcxMember *pMember, const char * name) {

  pMember->Clear();
  pMember->Name(name);

  if((pMember->Delete()).Errnum()) {
    cout << "EcxMember.Delete() Failed for user: " << name << endl;
    cout << "\tErrnum: " << pMember->Errnum() << endl;
    cout << "\tErrmsg: " << pMember->Errmsg() << endl;
    return(pMember->Errnum());
  }

  cout << "*** Deleted member: " << name << endl;

  return(0);
}
```

EcxMember Class Reference

Interface	`ecxmember.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`
Syntax	`class EcxMember : public EcxBase { ... };`

Class Variables

The following class variables allow you to identify the member as either an administrator or an ordinary member:

Syntax

```
static int ADMINISTRATOR;
static int MEMBER;
```

`ADMINISTRATOR`	Administrator
`MEMBER`	Member (non-administrator)

Constructor and Destructor

EcxMember( )

Creates an `EcxMember` object.

Syntax

```
EcxMember(void);
EcxMember(EcxLogin& login);
```

Parameters The constructor has the following parameters:

`login`	The login object to associate with this member object.

Discussion The first form of the constructor allows you to create a stack-based object. The second form of the constructor requires that you create an `EcxLogin` object before you create this object.

Example See “Creating Member Objects” on page 136.

See also The `SetLogin()` method on page 154. The `EcxLogin` class on page 127.

~EcxMember( )

Destroys an `EcxMember` object.

Syntax

```
virtual ~EcxMember(void);
```

Discussion The destructor is called when you delete the object. You can reuse an object instead of deleting it by calling the object's `Clear()` method. The destructor does not destroy the associated `EcxLogin` object.

See also The `Clear()` method on page 142.

Methods

This section describes the methods of the `EcxMember` class.

Active( )

Determines or specifies whether the member is active.

Syntax

```
unsigned int Active() const;
void Active(const unsigned int status);
```

Parameters The `Active()` method has the following parameters:

`status`	An unsigned integer that specifies whether the member is active.

Returns The first form of the method returns an unsigned integer that contains the status.

Discussion Use the first form of the method to determine whether the member is active. Use the second form to specify whether the member is active. A status of TRUE (1) indicates that the member is active. A status of FALSE (0) indicates that the member is inactive. The `Active()` method does not modify the database.

Example See "Adding Members" on page 136.

Add( )

Adds a member record to the database.

Syntax

```
EcxMember& Add(void);
```

Returns A reference to this member object.

Discussion You must be an administrator and be logged in before calling this method. You must specify the member's name in the object, by calling the `Name()` method, before calling the `Add()` method.

The parent name and the group-modified-by fields are set to the parent name of the logged-in user; by default, this is 'rootgroup'. The user-modified-by field is set to the name of the logged-in user. Any other fields not specified in the object will become 0 or NULL in the database.

Example See "Adding Members" on page 136.

See also The `Name()` method on page 152.

Change( )

Changes a member record in the database.

Syntax `EcxMember& Change(void);`

Returns A reference to this member object.

Discussion This method updates the last record retrieved by calling the object's `Get()`, `List()`, or `Next()` method. Administrators may change any field for which a mutator method is provided. Non-administrators can only change the contact information in their own record. Specifically, a non-administrator cannot change the contents of the trusted, active, parent name, or isGroup fields.

Warning If you do not call the object's `Get()`, `List()`, or `Next()` method first, the object's name field, which is set by calling the `Name()` method, specifies the record that is changed. In this case, the record is completely overwritten using the object's fields. Any fields not set in the object will be replaced by 0 or NULL in the database.

Example See "Changing Members' Fields" on page 137.

See also The `Get()` method on page 149. The `List()` method on page 150. The `Next()` method on page 152. The `Name()` method on page 152.

Clear( )

Clears the state associated with an object, including its list.

Syntax `void Clear(void);`

Discussion The parent name is set to ‘rootgroup’. Other fields of the object are reset to 0 or NULL. A list contains no records.

Example See “Listing Members” on page 138.

ContactAddress1( )

Determines or specifies the first line of the contact’s address.

Syntax

```
const char* ContactAddress1() const;
void ContactAddress1(const char* addr1);
```

Parameters The `ContactAddress1()` method has the following parameters:

`addr1`	A pointer to a character string that contains the address line.

Returns The first form of the method returns a pointer to a character string that contains the address line.

Discussion Use the first form of the method to determine the first line of the address. Use the second form to specify the address line. The `ContactAddress1()` method does not modify the database.

Example See “Adding Members” on page 136.

ContactAddress2( )

Determines or specifies the second line of the contact’s address.

Syntax

```
const char* ContactAddress2() const;
void ContactAddress2(const char* addr2);
```

Parameters The `ContactAddress2()` method has the following parameters:

`addr2`	A pointer to a character string that contains the address line.

Returns The first form of the method returns a pointer to a character string that contains the address line.

Discussion Use the first form of the method to determine the second line of the address. Use the second form to specify the address line. The `ContactAddress2()` method does not modify the database.

Example See "Adding Members" on page 136.

ContactCity( )

Determines or specifies the second line of the contact's city.

Syntax

```
const char* ContactCity() const;
void ContactCity(const char* city);
```

Parameters The `ContactCity()` method has the following parameters:

`city`	A pointer to a character string that contains the city.

Returns The first form of the method returns a pointer to a character string that contains the city.

Discussion Use the first form of the method to determine the city. Use the second form to specify the city. The `ContactCity()` method does not modify the database.

Example See "Adding Members" on page 136.

ContactCompany( )

Determines or specifies the contact's company.

Syntax

```
const char* ContactCompany() const;
void ContactCompany(const char * company);
```

Parameters The `ContactCompany()` method has the following parameters:

`company`	A pointer to a character string that contains the company name.

Returns The first form of the method returns a pointer to a character string that contains the company name.

Discussion Use the first form of the method to determine the company name. Use the second form to specify the company name. The `ContactCompany()` method does not modify the database.

Example See “Adding Members” on page 136.

ContactCountry( )

Determines or specifies the contact’s country.

Syntax

```
const char* ContactCountry() const;
void ContactCountry(const char* country);
```

Parameters The `ContactCountry()` method has the following parameters:

`country`	A pointer to a character string that contains the country name.

Returns The first form of the method returns a pointer to a character string that contains the country name.

Discussion Use the first form of the method to determine the country. Use the second form to specify the country. The `ContactCountry()` method does not modify the database.

Example See “Adding Members” on page 136.

ContactEmailId( )

Determines or specifies the contact’s e-mail address.

Syntax

```
const char* ContactEmailId() const;
void ContactEmailId(const char* emailID);
```

Parameters The `ContactEmailId()` method has the following parameters:

`emailID`	A pointer to a character string that contains the e-mail address.

Returns The first form of the method returns a pointer to a character string that contains the e-mail address.

Discussion Use the first form of the method to determine the e-mail address. Use the second form to specify the e-mail address. The `ContactEmailId()` method does not modify the database.

Example See "Adding Members" on page 136.

ContactFax( )

Determines or specifies the contact's fax number.

Syntax

```
const char* ContactFax() const;
void ContactFax(const char* fax);
```

Parameters The `ContactFax()` method has the following parameters:

`fax`	A pointer to a character string that contains the fax number.

Returns The first form of the method returns a pointer to a character string that contains the fax number.

Discussion Use the first form of the method to determine the fax number. Use the second form to specify the fax number. The `ContactFax()` method does not modify the database.

Example See "Adding Members" on page 136.

ContactName( )

Determines or specifies the name of the contact person for this member.

Syntax

```
const char* ContactName() const;
void ContactName(const char* name);
```

Parameters The `ContactName()` method has the following parameters:

`name`	A pointer to a character string that contains the contact's name.

Returns The first form of the method returns a pointer to a character string that contains the name.

Discussion Use the first form of the method to determine the contact's name. Use the second form to specify the name. The `ContactName()` method does not modify the database.

Example See "Adding Members" on page 136.

ContactPhone( )

Determines or specifies the contact's phone number.

Syntax

```
const char* ContactPhone() const;
void ContactPhone(const char* phone);
```

Parameters The `ContactPhone()` method has the following parameters:

`phone`	A pointer to a character string that contains the phone number.

Returns The first form of the method returns a pointer to a character string that contains the phone number.

Discussion Use the first form of the method to determine the phone number. Use the second form to specify the phone number. The `ContactPhone()` method does not modify the database.

Example See "Adding Members" on page 136.

ContactState( )

Determines or specifies the contact's state.

Syntax

```
const char* ContactState() const;
void ContactState(const char* state);
```

Parameters The `ContactState()` method has the following parameters:

`state`	A pointer to a character string that contains the state.

Returns The first form of the method returns a pointer to a character string that contains the state.

Discussion Use the first form of the method to determine the state. Use the second form to specify the state. The `ContactState()` method does not modify the database.

Example See "Adding Members" on page 136.

ContactZip( )

Determines or specifies the contact's zip or postal code.

Syntax

```
const char* ContactZip() const;
void ContactZip(const char* zip);
```

Parameters The `ContactZip()` method has the following parameters:

`zip`	A pointer to a character string that contains the zip or postal code.

Returns The first form of the method returns a pointer to a character string that contains the zip or postal code.

Discussion Use the first form of the method to determine the zip or postal code. Use the second form to specify the zip or postal code. The `ContactZip()` method does not modify the database.

Example See "Adding Members" on page 136.

Delete( )

Deletes a member from the database.

Syntax

```
EcxMember& Delete(void);
```

Returns A reference to this member object.

Discussion You must be an administrator and be logged in before calling this method. You must specify the member's name in the object by calling the `Name()` method before you call the `Delete()` method. After this method executes, the object is reset; the parent name is set to 'rootgroup' and other fields of the object are reset to 0 or NULL. A list contains no records.

Warning In addition to deleting the membership record, the `Delete()` method also deletes the partnerships and services associated with the member.

Example See “Deleting Members” on page 139.

See also The `Name()` method on page 152.

Description( )

Determines or specifies the member’s description.

Syntax

```
const char* Description() const;
void Description(const char* desc);
```

Parameters The `Description()` method has the following parameters:

`desc`	A pointer to a character string that contains the description.

Returns The first form of the method returns a pointer to a character string that contains the description.

Discussion Use the first form of the method to determine the description. Use the second form to specify the description. The `Description()` method does not modify the database.

Example See “Adding Members” on page 136.

Get( )

Retrieves a member record from the database.

Syntax

```
EcxMember& Get(void);
```

Returns A reference to this member object.

Discussion Administrators may retrieve any membership record. Non-administrators can only retrieve their own record. You must specify the member’s name in the object by calling the `Name()` method before you call the `Get()` method.

Example See “Changing Members’ Fields” on page 137.

See also The `Name()` method on page 152.

IsGroup( )

Determines or specifies whether the member is a group or individual.

Syntax

```
unsigned int IsGroup() const;
void IsGroup(const unsigned int status);
```

Parameters The `IsGroup()` method has the following parameters:

`status`	An unsigned integer that specifies whether the member is a group.

Returns The first form of the method returns an unsigned integer that contains the status.

Discussion Use the first form of the method to determine whether the member is a group. Use the second form to specify whether the member is a group. A status of TRUE (1) indicates that the member is a group. A status of FALSE (0) indicates that the member is an individual. The `IsGroup()` method does not modify the database.

Example See "Adding Members" on page 136.

List( )

Retrieves a list of member records from the database.

Syntax

```
EcxMember& List(void);
```

Returns A reference to this member object.

Discussion If you specify the member's name in the object by calling the `Name()` method first, only the record matching with the specified name will be retrieved. After calling the `List()` method, the member object contains fields from the first record from the list.

Example See "Listing Members" on page 138.

See also The `Name()` method on page 152.

ModByGroup( )

Determines the group that last modified the record.

Syntax `const char* ModByGroup() const;`

Returns A pointer to a character string that contains the group.

ModByUser( )

Determines the user that last modified the record.

Syntax `const char* ModByUser() const;`

Returns A pointer to a character string that contains the user name.

ModDt( )

Determines the date the record was last modified.

Syntax `const char* ModDt() const;`

Returns A pointer to a character string that contains the date.

More( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Example See “Listing Members” on page 138.

See also The `List()` method on page 150. The `Next()` method on page 152.

Name( )

Determines or specifies the name of the member.

Syntax

```
const char* Name() const;
void Name(const char* name);
```

Parameters The `Name()` method has the following parameters:

`name`	A pointer to a character string that contains the member's name.

Returns The first form of the method returns a pointer to a character string that contains the name.

Discussion Use the first form of the method to determine the member's name. Use the second form to specify the name. The `Name()` method does not modify the database.

Example See "Adding Members" on page 136.

Next( )

Associates the object with the next record in the list.

Syntax

```
EcxMember& Next(void);
```

Returns A reference to this member object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

Example See "Listing Members" on page 138.

See also The `More()` method on page 151.

ObjPerm( )

Determines or specifies the record's access permissions.

Syntax

```
unsigned int ObjPerm() const;
void ObjPerm(const unsigned int permissions);
```

Parameters The `ObjPerm()` method has the following parameters:

`permissions`	An unsigned integer that specifies the access permissions.

Returns The first form of the method returns an unsigned integer that contains the permissions.

Discussion Use the first form of the method to determine the record's access permissions. Use the second form to specify the permissions. The `ObjPerm()` method does not modify the database.

Example See "Adding Members" on page 136.

ParentName( )

Determines the name of the parent member.

Syntax

```
const char* ParentName() const;
```

Returns A pointer to a character string that contains the name.

Password( )

Determines or specifies the member's password.

Syntax

```
const char* Password() const;
void Password(const char* passwd);
```

Parameters The `Password()` method has the following parameters:

`passwd`	A pointer to a character string that contains the password.

Returns The first form of the method returns a pointer to a character string that contains the password.

Discussion Use the first form of the method to determine the member's password. Use the second form to specify the password. The `Password()` method does not modify the database.

Example See "Adding Members" on page 136.

SetLogin( )

Allows the object to access the database.

Syntax

```
EcxMember& SetLogin(EcxLogin& login);
```

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this member object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before using this object.

Example See "Creating Member Objects" on page 136.

See also The `EcxMember` constructor on page 140. The `EcxLogin` class on page 127.

Trusted( )

Determines or specifies whether the member is trusted.

Syntax

```
unsigned int Trusted() const;
void Trusted(const unsigned int status);
```

Parameters The `Trusted()` method has the following parameters:

`status`	An unsigned integer that specifies whether the member is a trusted member.

Returns The first form of the method returns an unsigned integer that contains the status.

Discussion Use the first form of the method to determine whether the member is a trusted member. Use the second form to specify whether the member is a trusted member. A status of TRUE (1) indicates that the member is a trusted member. A status of FALSE (0) indicates that the member is not a trusted member. The `Trusted()` method does not modify the database.

Example See "Adding Members" on page 136.

Type( )

Determines or specifies the type of member.

Syntax

```
unsigned int Type() const;
void Type(const unsigned int type);
```

Parameters The `Type()` method has the following parameters:

`type`	An unsigned integer that specifies whether the member is an administrator.

Returns The first form of the method returns an unsigned integer that contains the type.

Discussion Use the first form of the method to determine whether the member is an administrator. Use the second form to specify whether the member is an administrator. A type of `ADMINISTRATOR` indicates that the member is an administrator. A type of `MEMBER` indicates that the member is not an administrator. The `Type()` method does not modify the database.

Example See "Adding Members" on page 136.

See also "Class Variables" on page 140.

Chapter

11

The EcxAddresses Class

This chapter describes the `EcxAddresses` class, which defines objects that represent trading addresses. This chapter contains the following sections:

- About the EcxAddresses Class
- Using the EcxAddresses Class
- EcxAddresses Class Reference

About the EcxAddresses Class

The `EcxAddresses` class represents trading address records in an ECXpert database. Administrators can manipulate any address record; non-administrators can only add and delete their own address records. A user must be logged in to the database before accessing a record.

Methods Summary list:

Constructor and destructor	
`EcxAddresses()`	Creates an `EcxAddresses` object.
`~EcxAddresses()`	Destroys an `EcxAddresses` object.
Allowing database access	
`SetLogin()`	Allows the object to access the database.
Adding and deleting address records	
`Add()`	Adds an address record to the database.
`Delete()`	Deletes an address record from the database.
Listing address records	
`List()`	Retrieves a list of address records from the database.
`More()`	Determines whether more records are left in the list.
`Next()`	Associates the object with the next record in the list.
Resetting an object's state	
`Clear()`	Clears the state associated with an object, including its list.
Accessing key fields	
`Member()`	Determines or specifies a member.
`Qual()`	Determines or specifies a member's trading address qualifier.
`QualId()`	Determines or specifies a member's trading address.

Using the EcxAddresses Class

The following example shows how to create an `EcxAddresses` object and set the login to provide database access for the object.

```
BOOL ImportMad::MakeAddressObj()
{
   m_pLogin = new EcxLogin();
```

```
    if (m_pLogin == NULL)
    {
       SetGeneralError(INSUFFICIENT_MEMORY, m_fdiscard);
       return FALSE;
    }
    else if (m_pLogin->Errnum())
    {
       PrintEcxMessage("EcxLogin()", m_pLogin, 0, 0);
       m_pLogin = NULL;
       return FALSE;
    }
    if ((m_pLogin->Login(GetUserName(), GetPassword())).Errnum())
    {
       PrintEcxMessage("EcxLogin()", m_pLogin, 0, 0);
       return FALSE;
    }

    m_pAddress = new EcxAddresses();
    if (m_pAddress == NULL)
    {
       SetGeneralError(INSUFFICIENT_MEMORY, m_fdiscard);
       return FALSE;
    }
    else if (m_pAddress ->Errnum())
    {
       PrintEcxMessage("EcxAddresses()", m_pAddress, 0, 0);
       m_pAddress = NULL;
       return FALSE;
    }

    if ((m_pAddress ->SetLogin(*m_pLogin)).Errnum())
    {
       PrintEcxMessage("EcxAddresses()", m_pAddress, 0, 0);
       return FALSE;
    }
    return TRUE;
}
```

EcxAddresses Class Reference

Interface	`ecxaddresses.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`

Syntax `class EcxAddresses : public EcxBase { ... };`

Constructor and Destructor

EcxAddresses( )

Creates an `EcxAddresses` object.

Syntax

```
EcxAddresses(void);
EcxAddresses(EcxLogin& login);
```

Discussion The first form of the constructor allows you to create a stack-based object. The second form of the constructor requires that you create an `EcxLogin` object before you create this object.

Example See “Using the EcxAddresses Class” on page 158.

See also The `SetLogin()` method on page 164. The `EcxLogin` class on page 127.

~EcxAddresses( )

Destroys an `EcxAddresses` object.

Syntax

```
~EcxAddresses(void);
```

Discussion The destructor is called when you delete the object. You can reuse an object instead of deleting it by calling the object’s `Clear()` method. The destructor does not destroy the associated `EcxLogin` object.

See also The `Clear()` method on page 161.

Methods

This section describes the methods of the `EcxAddresses` class.

Add( )

Adds an address record to the database.

Syntax `EcxAddresses& Add(void);`

Returns A reference to this member object.

Discussion Non-administrators can only add addresses for themselves. Administrators can add addresses for any member. You must specify the member's name in the object, by calling the `Member()` method, before calling the `Add()` method. The combination of qualifier and qualifier ID must be unique for the member.

The parent name and the group-modified-by fields are set to the parent name of the logged-in user; by default, this is 'rootgroup'. The user-modified-by field is set to the name of the logged-in user. Any other fields not specified in the object will become 0 or NULL in the database.

See also The `Member()` method on page 162.

Clear( )

Clears the state associated with an object, including its list.

Syntax `void Clear(void);`

Delete( )

Deletes an address from the database.

Syntax `EcxAddresses& Delete(void);`

Returns A reference to this member object.

Discussion You must be an administrator and be logged in before calling this method.

Warning All records whose qualifiers and qualifier IDs match the fields of this object are deleted; the member name is not used.

List( )

Retrieves a list of address records from the database.

Syntax `EcxAddresses& List(void);`

Returns A reference to this member object.

Discussion After calling the `List()` method, the address object contains fields from the first record from the list.

Member( )

Determines or specifies the name of the member.

Syntax

```
const char* Member() const;
void Member(const char* name);
```

Parameters The `Member()` method has the following parameters:

`name`	A pointer to a character string that contains the member's name.

Returns The first form of the method returns a pointer to a character string that contains the name.

Discussion Use the first form of the method to determine the member's name. Use the second form to specify the name. The `Member()` method does not modify the database.

More( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Next( )

Associates the object with the next record in the list.

Syntax

```
EcxAddresses& Next(void);
```

Returns A reference to this member object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

See also The `More()` method on page 162.

Qual( )

Determines or specifies a member's trading address qualifier.

Syntax

```
const char* Qual() const;
void Qual(const char* qualifier);
```

Parameters The `Qual()` method has the following parameters:

`qualifier`	A pointer to the character string that contains the qualifier.

Returns The first form of the method returns a pointer to a character string that contains the qualifier.

Discussion Use the first form of the method to determine the qualifier. Use the second form to specify the qualifier. The `Qual()` method does not modify the database.

QualId( )

Determines or specifies a member’s trading address.

Syntax

```
const char* QualId() const;
void QualId(const char* id);
```

Parameters The `QualId()` method has the following parameters:

`id`	A pointer to the character string that contains the trading address.

Returns The first form of the method returns a pointer to a character string that contains the trading address.

Discussion Use the first form of the method to determine the trading address. Use the second form to specify the trading address. The `QualId()` method does not modify the database.

SetLogin( )

Allows the object to access the database.

Syntax

```
EcxAddresses& SetLogin(EcxLogin& login);
```

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this member object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before accessing this object.

See also The `EcxAddresses` constructor on page 160. The `EcxLogin` class on page 127.

Chapter

12

Partnership-Related Classes

This chapter describes the `EcxPartnership` class, which represents a view of partnership records and related standards information, group, and document information records in an ECXpert database. This chapter also describes the `EcxPartnerId` class, which represents key values for `EcxPartnership` objects. This chapter contains the following sections:

- About the EcxPartnership Class
- Using the EcxPartnership Class
- EcxPartnership Class Reference
- About the EcxPartnerID Class
- EcxPartnerID Class Reference

About the EcxPartnership Class

The `EcxPartnership` class represents a view on the following kinds of records in an ECXpert database:

- partnerships
- EDI standards information
- partnership groups
- document types

A record in the view represents a partnership record whose ID matches a standards information ID, a group ID and a document type ID and whose group type matches the document type.

Only administrators can add, change, or delete records using this view. An administrator can retrieve any record from the view; a non-administrator can only retrieve records from the view that includes the user as either a sender or receiver. A user must be logged in to the database before accessing a record through the view.

Methods Summary list:

Constructor and destructor	
`EcxPartnership()`	Creates an `EcxPartnership` object.
`~EcxPartnership()`	Destroys an `EcxPartnership` object.
Allowing database access	
`SetLogin()`	Allows the object to access the database.
Adding, retrieving, changing and deleting partnership view-related records	
`Add()`	Adds partnership view-related records to the database.
`Get()`	Retrieves partnership view-related records from the database.
`Change()`	Changes partnership view-related records in the database.
`Delete()`	Deletes partnership view-related records from the database.
Listing partnership records	

`List()`	Retrieves a list of partnership view-related records from the database.
`More()`	Determines whether more records are left in the list.
`Next()`	Associates the object with the next record in the list.
Resetting an object's state	
`Clear()`	Clears the state associated with an object, including its list.
Accessing key fields	
`PartnerId()`	Determines or specifies the partnership ID.
`DocType()`	Determines or specifies the kind of EDI document.
`GroupType()`	Determines or specifies the kind of EDI documents in the group.
Accessing partnership information	
`SenderName()`	Determines or specifies the sender's member name.
`SenderQual()`	Determines or specifies the sender's trading address qualifier.
`SenderQualId()`	Determines or specifies the sender's trading address.
`SenderCertificateType()`	Determines or specifies the sender's certificate type.
`ReceiverName()`	Determines or specifies the receiver's member name.
`ReceiverQual()`	Determines or specifies the receiver's trading address qualifier.
`ReceiverQualId()`	Determines or specifies the receiver's trading address
`ReceiverCertificateType()`	Determines or specifies the receiver's certificate type.
`Active()`	Determines or specifies whether the partnership is active.
`Security()`	Determines or specifies the kind of security.
`Description()`	Determines or specifies the partnership's description.
Accessing standards information	
`StandardName()`	Determines or specifies the name of the EDI standard.
`StandardVersion()`	Determines or specifies the standard's version number.
`StandardRelease()`	Determines or specifies the standard's release number.
`IntchngLastControlNumber()`	Determines or specifies the last interchange control number generated.

`IntchngLock()`	Determines or specifies whether the document has been read at the interchange level.
`IntchngGenerateAck()`	Determines or specifies whether to generate interchange acknowledgments flags.
`IntchngAckWaitPeriod()`	Determines or specifies the number of minutes to wait before the acknowledgment becomes overdue.
`TestProductionFlag()`	Determines or specifies whether the partnership is used for testing or production.
`SegmentTerminator()`	Determines or specifies the segment terminator character.
`ElementSeparator()`	Determines or specifies the data element terminator character.
`SubElementSeparator()`	Determines or specifies the data subelement terminator character.
`DecimalPointCharacter()`	Determines or specifies the decimal point character.
`ReleaseCharacter()`	Determines or specifies the release character.
`OutStandard()`	Determines or specifies the interchange standard user wishes to appear in bundled EDI documents.
`OutVersion()`	Determines or specifies the interchange version user wishes to appear in bundled EDI documents
`OutRelease()`	Determines or specifies the interchange release user wishes to appear in bundled EDI documents.
`GenOptEnv()`	Determines or specifies the enveloping options.
Accessing group information	
`GroupLastControlNumber()`	Determines or specifies the last group control number generated.
`GroupLock()`	Determines or specifies whether the document has been read at the group level.
`GroupGenerateDocAck()`	Determines or specifies the to generate group acknowledgments flags
`SndrAppQual()`	Determines or specifies the sending member main trading address.
`SndrAppCode()`	Determines or specifies the application sender code.
`RcvrAppQual()`	Determines or specifies the receiving member main trading address.
`RcvrAppCode()`	Determines or specifies the application receiver code.
Accessing document type specific information	

`DocPriority()`	Determines or specifies the document processing priority.
`MapName()`	Determines or specifies the map file name.
`MapDirection()`	Determines or specifies the document translation type.
`AckExpected()`	Determines or specifies the number of minutes to wait before an acknowledgment becomes overdue.
`DocLastControlNumber()`	Determines or specifies the last document control number generated.
`DocLock()`	Determines or specifies whether the document has been read.
`PrimaryXportType()`	Determines or specifies the primary transport protocol.
`PrimaryXportParam()`	Determines or specifies the primary transport protocol parameter.
`SecondaryXportType()`	Determines or specifies the secondary transport protocol.
`SecondaryXportParam()`	Determines or specifies the secondary transport protocol parameter.
`SendType()`	Determines or specifies when the document is to be sent.
`DeleteWaitPeriod()`	Determines or specifies the number of days to retain documents before deleting them.
`ArchiveWaitPeriod()`	Determines or specifies the number of days to retain documents before archiving them.
`PreEnveloped()`	Determines or specifies whether documents are preenveloped.

Using the EcxPartnership Class

The following sections show how to

- create partnership objects
- add partnerships to the database
- list partnerships in the database

- delete partnerships from the database

Creating Partnership Objects

The following example shows how to create an `EcxPartnership` object and how to allow access to the database by calling the object's `SetLogin()` method:

```
EcxPartnership * make_partnershipobj(EcxLogin * pLogin) {

  EcxPartnership * pPartnership = NULL;

  if((pPartnership = new EcxPartnership())->Errnum()) {
    cout << "EcxPartnership Object Error:" << endl;
    cout << "\tErrnum: " << pPartnership->Errnum() << endl;
    cout << "\tErrmsg: " << pPartnership->Errmsg() << endl;
    cout << endl;
    return(NULL);
  }

  if((pPartnership->SetLogin(*pLogin)).Errnum()) {
    cout << "EcxPartnership.SetLogin() Failed:" << endl;
    cout << "\tErrnum: " << pPartnership->Errnum() << endl;
    cout << "\tErrmsg: " << pPartnership->Errmsg() << endl;
    cout << endl;
    delete pPartnership;
    return(NULL);
  }

  return(pPartnership);
}
```

Alternatively, you can pass the login object to the `EcxPartnership` constructor without having to call `SetLogin()`.

Adding Partnerships

The following example shows how to add records associated with a partnership view to the database. An administrator's login must be associated with the object you want to add.

```
int add_partnership(EcxPartnership *pPartnership,
          const char *name1,
          const char *name2,
        const char *doctype) {

    pPartnership->Clear();
    pPartnership->SenderName(name1);
    pPartnership->SenderQual("NONE");
    pPartnership->SenderQualId(name1);
    pPartnership->ReceiverName(name2);
    pPartnership->ReceiverQual("NONE");
    pPartnership->ReceiverQualId(name2);
    pPartnership->StandardName("X");
    pPartnership->StandardVersion("3");
    pPartnership->StandardRelease("0");
    pPartnership->GroupType("FF");
    pPartnership->DocType(doctype);
    pPartnership->Active(TRUE);

    if((pPartnership->Add()).Errnum()) {
       cout << "EcxPartnership.add() Failed for :";
       cout << name1 << ":" << name2 << ":" << doctype << ":" << endl;
       cout << "\tErrnum: " << pPartnership->Errnum() << endl;
       cout << "\tErrmsg: " << pPartnership->Errmsg() << endl;
       return(pPartnership->Errnum());
    }

    cout << "*** Added partnership :";
    cout << name1 << ":" << name2 << ":" << doctype << ":" << endl;

    return(0);
}
```

Listing Partnerships

The following example shows how to retrieve records for a list of views. In this example, all view-related records are retrieved for administrators. For non-administrators, this example retrieves all view-related records for views in which the user is either the sender or receiver. The following rules apply to the `List()` method, as well:

- If neither the sender or receiver is specified, the `List()` method retrieves all view-related records for views in which the user is either the sender or receiver.
- If only the sender is specified, the `List()` method retrieves all view-related records for views in which the user is the sender.

- If only the receiver is specified, the `List()` method retrieves all view-related records for views in which the user is the receiver.
- If both the sender and receiver are specified, the `List()` method retrieves all view-related records for views that match both the sender and receiver; in which case, the user must be either the receiver or sender.

```
int list(EcxPartnership *pPartnership) {

  pPartnership->Clear();

  if((pPartnership->List()).Errnum()) {
    cout << "EcxPartnership.List() Failed:" << endl;
    cout << "\tErrnum: " << pPartnership->Errnum() << endl;
    cout << "\tErrmsg: " << pPartnership->Errmsg() << endl;
    return(pPartnership->Errnum());
  }

  cout << "*** Listing partnerships" << pPartnership->More();
  cout << " records found. ***" << endl;

  while(pPartnership->More()) {
    cout << pPartnership->SenderName()      << ":";
    cout << pPartnership->ReceiverName()    << ":";
    cout << pPartnership->DocType()         << ":";
    cout << pPartnership->StandardName()    << ":";
    cout << pPartnership->StandardVersion() << ":";
    cout << pPartnership->GroupType()       << endl;

    pPartnership->Next();
  }

  return(0);
}
```

The following example shows how to retrieve records for two lists of views. The sender is used to filter the first list. The receiver is used to filter the second list. For administrators, the example shows how to retrieve all view-related records that match the respective sender and receiver. For non-administrators, the example shows how to retrieve these records as long as the user is the sender in the first list and the receiver in the second list.

Warning For non-administrators, calling the `List()` method in this example mutates the sender or receiver name to match the user name if the names do not already match.

```
int list_member(EcxPartnership *pPartnership, const char *uname) {

  pPartnership->Clear();

  pPartnership->SenderName(uname);

  if((pPartnership->List()).Errnum()) {
    cout << "EcxPartnership.List(" << uname << ",NULL) Failed:" << endl;
    cout << "\tErrnum: " << pPartnership->Errnum() << endl;
    cout << "\tErrmsg: " << pPartnership->Errmsg() << endl;
    return(pPartnership->Errnum());
  }

  cout << "*** Listing partnerships where sender is " << uname;
  cout << ". " << pPartnership->More() << " records found. ***" << endl;

  while(pPartnership->More()) {
    cout << pPartnership->SenderName()      << ":";
    cout << pPartnership->ReceiverName()    << ":";
    cout << pPartnership->DocType()         << ":";
    cout << pPartnership->StandardName()    << ":";
    cout << pPartnership->StandardVersion() << ":";
    cout << pPartnership->GroupType()       << endl;

    pPartnership->Next();
  }

  pPartnership->Clear();

  pPartnership->ReceiverName(uname);

  if((pPartnership->List()).Errnum()) {
    cout << "EcxPartnership.List(NULL," << uname << ") Failed:" << endl;
    cout << "\tErrnum: " << pPartnership->Errnum() << endl;
    cout << "\tErrmsg: " << pPartnership->Errmsg() << endl;
    return(pPartnership->Errnum());
  }

  cout << "*** Listing partnerships where receiver is " << uname;
  cout << ". " << pPartnership->More() << " records found. ***" << endl;

  while(pPartnership->More()) {
    cout << pPartnership->SenderName()      << ":";
    cout << pPartnership->ReceiverName()    << ":";
    cout << pPartnership->DocType()         << ":";
    cout << pPartnership->StandardName()    << ":";
    cout << pPartnership->StandardVersion() << ":";
    cout << pPartnership->GroupType()       << endl;

    pPartnership->Next();
  }

  cout << endl;

  return(0);
}
```

Deleting Partnerships

The following example shows how to delete the records associated with a partnership view from the database. All records matching the specified sender name, receiver name, and document type are deleted. An administrator's login must be associated with the object you want to delete.

```
int del_partnership(EcxPartnership *pPartnership,
          const char *name1,
          const char *name2,
          const char *doctype) {

  pPartnership->Clear();
  pPartnership->SenderName(name1);
  pPartnership->ReceiverName(name2);
  pPartnership->DocType(doctype);

  if((pPartnership->Delete()).Errnum()) {
    cout << "EcxPartnership.Delete() Failed for : ";
    cout << name1 << ":" << name2 << ":" << doctype << ":" << endl;
    cout << "\tErrnum: " << pPartnership->Errnum() << endl;
    cout << "\tErrmsg: " << pPartnership->Errmsg() << endl;
    return(pPartnership->Errnum());
  }

  cout << "*** Deleted partnership :";
  cout << name1 << ":" << name2 << ":" << doctype << ":" << endl;

  return(0);
}
```

EcxPartnership Class Reference

Interface	`ecxpartnership.h`
Superclasses	`EcxBase`

Subclasses None

Friend Classes None

Syntax `class EcxPartnership : public EcxBase { ... };`

Class Variables

The following class variables allow you to identify the member as either an administrator or an ordinary member:

Syntax

```
static int SENDTYPE_UNKNOWN;
static int SENDTYPE_IMMEDIATE;
static int SENDTYPE_ONETIME;
static int SENDTYPE_PERIODIC;
static int SECURITY_PLAIN;
static int SECURITY_ENCRYPTED;
static int SECURITY_SIGNED;
static int SECURITY_SIGNEDANDENCRYPTED;
static int PRIORITY_UNKNOWN;
static int PRIORITY_HIGH;
static int PRIORITY_MEDIUM;
static int PRIORITY_LOW;
static int CERTTYPE_UNKNOWN;
static int CERTTYPE_SELF;
static int CERTTYPE_VERISIGN1;
static int CERTTYPE_VERISIGN2;
static int CERTTYPE_VERISIGN3;
static int ENVELOPE_UNKNOWN;
static int ENVELOPE_NONE;
static int ENVELOPE_REGULAR;
static int ENVELOPE_EDI;
static int XLATTYPE_UNKNOWN;
static int XLATTYPE_INBOUND;
static int XLATTYPE_OUTBOUND;
static int XLATTYPE_EDI2EDI;
static int XLATTYPE_APP2APP;
static int XLATTYPE_NONE;
```

`SENDTYPE_UNKNOWN`	Unknown send type.
`SENDTYPE_IMMEDIATE`	Send immediately.
`SENDTYPE_ONETIME`	Send once.
`SENDTYPE_PERIODIC`	Send periodically.
`SECURITY_PLAIN`	No security; base-64 encoding only.
`SECURITY_ENCRYPTED`	Encrypted with receiver's public key.
`SECURITY_SIGNED`	Signed with sender's private key.
`SECURITY_SIGNEDANDENCRYPTED`	Signed with sender's private key, then encrypted with receiver's public key.
`PRIORITY_UNKNOWN`	Unknown priority.
`PRIORITY_HIGH`	High priority.
`PRIORITY_MEDIUM`	Medium priority.
`PRIORITY_LOW`	Low priority.
`CERTTYPE_UNKNOWN`	Unknown certificate type.
`CERTTYPE_SELF`	Self-signed certificate type.
`CERTTYPE_VERISIGN1`	VeriSign class-1 certificate type.
`CERTTYPE_VERISIGN2`	VeriSign class-2 certificate type.
`CERTTYPE_VERISIGN3`	VeriSign class-3 certificate type.
`ENVELOPE_UNKNOWN`	Unknown envelope status for document.
`ENVELOPE_NONE`	No envelope for document.
`ENVELOPE_REGULAR`	Enveloped document.

`ENVELOPE_EDI`	Preenveloped EDI document.
`XLATTYPE_UNKNOWN`	Unknown translation.
`XLATTYPE_INBOUND`	EDI-to-application translation.
`XLATTYPE_OUTBOUND`	Application-to-EDI translation
`XLATTYPE_EDI2EDI`	EDI-to-EDI translation.
`XLATTYPE_APP2APP`	Application-to-application translation.
`XLATTYPE_NONE`	No translation; passthrough mode.

Constructor and Destructor

EcxPartnership( )

Creates an `EcxPartnership` object.

Syntax

```
EcxPartnership(void);
EcxPartnership(EcxLogin& login);
```

Parameters The constructor has the following parameters:

`login`	The login object to associate with this partnership object.

Discussion The first form of the constructor allows you to create a stack-based object. The second form of the constructor requires that you create an `EcxLogin` object before you create this object.

Example See “Creating Partnership Objects” on page 170.

See also The `SetLogin()` method on page 205. The `EcxLogin` class on page 127.

~EcxPartnership( )

Destroys an `EcxPartnership` object.

Syntax
```
virtual ~EcxPartnership(void);
```

Discussion The destructor is called when you delete the object. You can reuse an object instead of deleting it by calling the object's `Clear()` method. The destructor does not destroy the associated `EcxLogin` object.

See also The `Clear()` method on page 181.

Methods

This section describes the methods of the `EcxPartnership` class.

AckExpected( )

Determines or specifies the number of minutes to wait before an acknowledgment becomes overdue.

Syntax
```
unsigned int AckExpected() const;
void AckExpected ( const unsigned int& minutes );
```

Parameters The `AckExpected()` method has the following parameters:

`minutes`	An unsigned integer that specifies the number of minutes.

Returns The first form of the method returns an unsigned integer that contains the number of minutes to wait before an acknowledgment becomes overdue.

Discussion Use the first form of the method to determine the number of minutes to wait before an acknowledgment becomes overdue. Use the second form to specify the number of minutes. The `AckExpected()` method does not modify the database.

Active( )

Determines or specifies whether the partnership is active.

Syntax
```
unsigned int Active() const;
void Active(const unsigned int status);
```

Parameters The `Active()` method has the following parameters:

`status`	An unsigned integer that specifies whether the partnership is active.

Returns The first form of the method returns an unsigned integer that contains the status.

Discussion Use the first form of the method to determine whether the partnership is active. Use the second form to specify whether the partnership is active. A status of TRUE (1) indicates that the partnership is active. A status of FALSE (0) indicates that the partnership is inactive. The `Active()` method does not modify the database.

Example “Adding Partnerships” on page 170.

Add( )

Adds partnership view-related records to the database.

Syntax `EcxPartnership& Add(void);`

Returns A reference to this partnership object.

Discussion The `Add()` method adds a partnership record and its related standards information, group, and document information records to the database. The `Add()` method sets the partnership ID in the database and the partnership object.

You must be an administrator and be logged in before calling this method. You must specify the sender name, receiver name, qualifier, qualifier ID, group type, document type, EDI standard, and the standard’s release and version numbers in the object, before calling the `Add()` method.

The group-modified-by and user-modified-by fields are set to the group and name of the logged-in user, respectively. Acknowledgment wait periods are set to MINUTES_IN_10_YEARS. Any other fields not specified in the object will become 0 or NULL in the database.

Example “Adding Partnerships” on page 170.

See also The `SenderName()` method on page 203. The `SenderQual()` method on page 204. The `SenderQualID()` method on page 204. The `ReceiverName()` method on page 197. The `ReceiverQual()` method on page 198. The `ReceiverQualID()` method on page 198. The `GroupType()` method on page 187. The `DocType()` method on page 185.

ArchiveWaitPeriod( )

Determines or specifies the number of days to retain documents before archiving them.

Syntax

```
unsigned int ArchiveWaitPeriod() const;
void ArchiveWaitPeriod ( const unsigned int& days );
```

Parameters The `ArchiveWaitPeriod()` method has the following parameters:

`days`	An unsigned integer that specifies the number of days.

Returns The first form of the method returns an unsigned integer that contains the number of days to retain documents before archiving them.

Discussion Use the first form of the method to determine the number of days to retain documents before archiving them. Use the second form to specify the number of days. The `ArchiveWaitPeriod()` method does not modify the database.

Change( )

Changes partnership view-related records in the database.

Syntax

```
EcxPartnership& Change(void);
```

Returns A reference to this partnership object.

Discussion You must be an administrator and be logged in before calling this method. This method updates the last record retrieved by calling the object's `Get()`, `List()`, or `Next()` method. Only administrators may call the `Change()` method. The group-modified-by and user-modified-by fields are set to the group and name of the logged-in user, respectively. Acknowledgment wait periods are set to MINUTES_IN_10_YEARS. Any other fields not specified in the object will become 0 or NULL in the database.

Warning If you do not call the object's `Get()`, `List()`, or `Next()` method first, the object's Partnership ID field, which is set by calling the `PartnerID()` method, specifies the records to change. In this case, the records are completely overwritten using the object's fields. Any fields not set in the object will be replaced by 0 or NULL in the database.

See also The `Get()` method on page 186. The `List()` method on page 190. The `Next()` method on page 192. The `PartnerID()` method on page 193.

Clear( )

Clears the state associated with an object, including its list.

Syntax

```
void Clear(void);
```

Discussion All fields in the object are reset to 0 or NULL. A list contains no records.

Example "Listing Partnerships" on page 171.

DecimalPointCharacter( )

Determines or specifies the decimal point character.

Syntax

```
const char* DecimalPointCharacter() const;
void DecimalPointCharacter ( const char* decPt );
```

Parameters The `DecimalPointCharacter()` method has the following parameters:

`decPt`	A pointer to a character string that contains the decimal point character.

Returns The first form of the method returns a pointer to a character string that contains the decimal point character.

Discussion Use the first form of the method to determine the decimal point character. Use the second form to specify the decimal point character. The `DecimalPoint-Character()` method does not modify the database.

Delete( )

Deletes partnership view-related records from the database.

Syntax `EcxPartnership& Delete(void);`

Returns A reference to this partnership object.

Discussion You must be an administrator and be logged in before calling this method. After this method executes, the object is reset; fields of the object are reset to 0 or NULL. A list contains no records. The partnership record is deleted from the database. Dangling standards information, group, and document information records, which are those records that no longer reference other records in the database, are also deleted.

Warning You should call the object's `Get()`, `List()`, or `Next()` method before calling the `Delete()` method to ensure that the intended records are deleted.

Example "Deleting Partnerships" on page 174.

See also The `Get()` method on page 186. The `List()` method on page 190. The `Next()` method on page 192.

DeleteWaitPeriod( )

Determines or specifies the number of days to retain documents before deleting them.

Syntax

```
unsigned int DeleteWaitPeriod() const;
void DeleteWaitPeriod ( const unsigned int& flag );
```

Parameters The `DeleteWaitPeriod()` method has the following parameters:

`days`	An unsigned integer that specifies the number of days.

Returns The first form of the method returns an unsigned integer that contains the number of days to retain documents before deleting them.

Discussion Use the first form of the method to determine the number of days to retain documents before deleting them. Use the second form to specify the number of days. The `DeleteWaitPeriod()` method does not modify the database.

Description( )

Determines or specifies the partnership's description.

Syntax

```
const char* Description() const;
void Description ( const char* description );
```

Parameters The `Description()` method has the following parameters:

`desc`	A pointer to a character string that contains the description.

Returns The first form of the method returns a pointer to a character string that contains the description.

Discussion Use the first form of the method to determine the description. Use the second form to specify the description. The `Description()` method does not modify the database.

DocLastControlNumber( )

Determines or specifies the last document control number generated.

Syntax

```
const char* DocLastControlNumber() const;
void DocLastControlNumber ( const char* controlNumber );
```

Parameters The `DocLastControlNumber()` method has the following parameters:

`controlNumber`	A pointer to a character string that contains the control number.

Returns The first form of the method returns a pointer to a character string that contains the control number.

Discussion Use the first form of the method to determine the control number. Use the second form to specify the control number. The `DocLastControlNumber()` method does not modify the database.

DocLock( )

Determines or specifies whether or not the document has been read at the document level.

Syntax

```
unsigned int DocLock() const;
void DocLock( const unsigned int& );
```

Returns The first form of the method returns an unsigned integer that specifies whether or not the submission has been read at the document level.

Example See “Using the EcxPartnership Class” on page 169.

DocPriority( )

Determines or specifies the document processing priority.

Syntax

```
unsigned int  DocPriority() const;
void DocPriority ( const unsigned int& priority );
```

Parameters The `DocPriority()` method has the following parameters:

`priority`	An unsigned integer that specifies the priority.

Returns The first form of the method returns an unsigned integer that contains the priority.

Discussion Use the first form of the method to determine the priority. Use the second form to specify the priority. The `DocPriority()` method does not modify the database.

You can use any of the following values:

Constant	Value
`PRIORITY_UNKNOWN`	0
`PRIORITY_HIGH`	1
`PRIORITY_MEDIUM`	2
`PRIORITY_LOW`	3

See also “Class Variables” on page 175.

DocType( )

Determines or specifies the kind of EDI document.

Syntax

```
const char* DocType() const;
void DocType ( const char* type );
```

Parameters The `DocType()` method has the following parameters:

`type`	A pointer to a character string that contains the document type.

Returns The first form of the method returns a pointer to a character string that contains the document type.

Discussion Use the first form of the method to determine the type. Use the second form to specify the type. The `DocType()` method does not modify the database.

Example “Adding Partnerships” on page 170. “Listing Partnerships” on page 171.

ElementSeparator( )

Determines or specifies the data element terminator character.

Syntax

```
const char* ElementSeparator() const;
void ElementSeparator ( const char* separator );
```

Parameters The `ElementSeparator()` method has the following parameters:

`separator`	A pointer to a character string that contains the terminator character.

Returns The first form of the method returns a pointer to a character string that contains the terminator character.

Discussion Use the first form of the method to determine the terminator character. Use the second form to specify the terminator character. The `ElementSeparator()` method does not modify the database.

GenOptEnv ( )

Determines or specifies the enveloping options.

Syntax

```
unsigned int GenOptEnv() const;
void GenOptEnv(const unsigned int& );
```

Returns The first form of the method returns an unsigned integer that specifies the enveloping options.

Discussion You can use any of the following values:

Constant	Value
`No UNA, No UNG`	0
`UNA only`	1
`UNG only`	2
`UNA and UNG`	3

Example See "Using the EcxPartnership Class" on page 169.

Get( )

Retrieves partnership view-related records from the database.

Syntax

```
EcxPartnership& Get(EcxPartnerId& prntnrid);
```

Parameters The `Get()` method has the following parameters:

`prntnrid`	A reference to an `EcxPartnerId` that specifies the partnership.

Returns A reference to this partnership object.

Discussion Administrators may retrieve records for any view. Non-administrators can only retrieve records for views in which either the sender or receiver member name matches the user's login name. You call the partnership ID object's `SetValues()` method to specify the view whose records you wish to retrieve.

If you wish use the `Get()` method to retrieve a specific partnership, you must first construct an instance of `EcxPartnerId()` with the proper keys, such as partner ID, standard ID, etc. An easier way to retrieve a partnership would be to use the `List()` method. You may use the `List()` method to list the partnership by sender name and receiver name. If the user is logged in as an administrator, the user can list any partnership by setting the sender name and receiver name. If the user is not logged in as an administrator, the user can only list the partnership that the user belongs to, meaning the partnership with the logged in user either as the sender or receiver.

See also The `EcxPartnerId::SetValues()` method on page 211. The `List()` method on page page 190.

GroupGenerateDocAck( )

Specifies whether to generate an acknowledgement for the submission at the group level.

Syntax

```
unsigned int GroupGenerateDocAck() const;
void GroupGenerateDocAck( const unsigned int& );
```

Returns The first form of the method returns an unsigned integer that indicates whether or not to generate an acknowledgement for the submission at the group level.

Example See “Using the EcxPartnership Class” on page 169.

GroupLastControlNumber( )

Determines or specifies the last group control number generated.

Syntax

```
const char* GroupLastControlNumber() const;
void GroupLastControlNumber ( const char* controlNumber );
```

Parameters The `GroupLastControlNumber()` method has the following parameters:

`controlNumber`	A pointer to a character string that contains the control number.

Returns The first form of the method returns a pointer to a character string that contains the control number.

Discussion Use the first form of the method to determine the control number. Use the second form to specify the control number. The `GroupLastControl-Number()` method does not modify the database.

GroupLock( )

Determines or specifies whether the document has been read at the group level.

Syntax

```
unsigned int GroupLock() const;
void GroupLock (const unsigned int& )
```

Returns The first form of the method returns an unsigned integer that indicates whether or not the document has been read at the group level.

Example See "Using the EcxPartnership Class" on page 169.

GroupType( )

Determines or specifies the kind of EDI documents in the group.

Syntax

```
const char* GroupType() const;
void GroupType ( const char* type );
```

Parameters The `GroupType()` method has the following parameters:

`type`	A pointer to a character string that contains the group type.

Returns The first form of the method returns a pointer to a character string that contains the group type.

Discussion Use the first form of the method to determine the type. Use the second form to specify the type. The `GroupType()` method does not modify the database.

Example "Adding Partnerships" on page 170. "Listing Partnerships" on page 171.

IntchngAckWaitPeriod( )

Determines or specifies the number of minutes to wait before the acknowledgment becomes overdue.

Syntax

```
unsigned int IntchngAckWaitPeriod() const;
void IntchngAckWaitPeriod ( const unsigned int& period );
```

Parameters The `IntchngAckWaitPeriod()` method has the following parameters:

`period`	An unsigned integer that specifies the number of minutes to wait.

Returns The first form of the method returns an unsigned integer that contains the number of minutes to wait before an acknowledgment becomes overdue.

Discussion Use the first form of the method to determine the number of minutes to wait before an acknowledgment becomes overdue. Use the second form to specify the number of minutes. The `IntchngAckWaitPeriod()` method does not modify the database.

IntchngLastControlNumber( )

Determines or specifies the last interchange control number generated.

Syntax

```
const char* IntchngLastControlNumber() const;
void IntchngLastControlNumber ( const char* controlNumber );
```

Parameters The `IntchngLastControlNumber()` method has the following parameters:

`controlNumber`	A pointer to a character string that contains the control number.

Returns The first form of the method returns a pointer to a character string that contains the control number.

Discussion Use the first form of the method to determine the control number. Use the second form to specify the control number. The `IntchngLastControlNumber()` method does not modify the database.

IntchngGenerateAck( )

Specifies whether to generate an acknowledgement at the interchange level.

Syntax

```
unsigned int IntchngGenerateAck() const;
void IntchngGenerateAck (const unsigned int& )
```

Returns An unsigned integer that specifies whether to generate an acknowledgement at the interchange level.

Example See “Using the EcxPartnership Class” on page 169.

IntchngLock( )

Determines or specifies whether the document has ben read at the interchange level.

Syntax

```
unsigned int IntchngLock() const;
void IntchngLock (const unsigned int& )
```

Returns An unsigned integer that specifies whether the document has been read at the interchange level.

Example See “Using the EcxPartnership Class” on page 169.

List( )

Retrieves a list of partnership view-related records from the database.

Syntax

```
EcxPartnership& List(const char* partner = NULL);
```

Parameters The `List()` method has the following parameters:

`partner`	A pointer to a character string that contains the name of the receiving member or NULL if not specified.

Returns A reference to this partnership object.

Discussion Administrators may retrieve records for any view. Non-administrators can only retrieve records for views in which either the sender or receiver member name matches the user’s login name. The views retrieved for non-administrators depend on whether the sender or receiver member names are specified in the partnership object:

- If neither the sender or receiver is specified, the `List()` method retrieves all view-related records for views in which the user is either the sender or receiver.

- If only the sender is specified, the `List()` method retrieves all view-related records for views in which the user is the sender.
- If only the receiver is specified, the `List()` method retrieves all view-related records for views in which the user is the receiver.
- If both the sender and receiver are specified, the `List()` method retrieves all view-related records for views that match both the sender and receiver; in which case, the user must be either the receiver or sender.

You can restrict the views, and thus the records that are retrieved, by specifying a partnership in the `partner` parameter. In this case, the `List()` method uses only views that match both the specified partner and user as either the sender or receiver.

If you wish use the `Get()` method to retrieve a specific partnership, you must first construct an instance of `EcxPartnerId()` with the proper keys, such as partner ID, standard ID, etc. An easier way to retrieve a partnership would be to use the `List()` method. You may use the `List()` method to list the partnership by sender name and receiver name. If the user is logged in as an administrator, the user can list any partnership by setting the sender name and receiver name. If the user is not logged in as an administrator, the user can only list the partnership that the user belongs to, meaning the partnership with the logged in user either as the sender or receiver.

Warning If only the sender or receiver is specified for a non-administrator, the `List()` method mutates the sender or receiver name to match the user name if the respective name (sender or receiver) does not match the user name.

After calling the `List()` method, the partnership object's fields contain values from the records related to the first partnership view in the list.

Example "Listing Partnerships" on page 171.

See Also The `Get()` method on page page 186.

MapName( )

Determines or specifies the map file name.

Syntax

```
const char* MapName() const;
void MapName ( const char* map );
```

Parameters The `MapName()` method has the following parameters:

`map`	A pointer to a character string that contains the map name.

Returns The first form of the method returns a pointer to a character string that contains the map name.

Discussion Use the first form of the method to determine the map name. Use the second form to specify the map name. The `MapName()` method does not modify the database.

More( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Example "Listing Partnerships" on page 171.

See also The `List()` method on page 190. The `Next()` method on page 192.

Next( )

Associates the object with the next record in the list.

Syntax `EcxPartnership& Next(void);`

Returns A reference to this partnership object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

Example “Listing Partnerships” on page 171.

See also The `More()` method on page 191.

OutRelease( )

Determines or specifies the interchange release the user wishes to appear in bundled EDI documents.

Syntax

```
const char* OutVersion() const;
void OutVersion (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the interchange release the user wishes to appear in bundled EDI documents.

Discussion Use the first form of the method to determine interchange release the user wishes to appear in bundled EDI documents. Use the second form to specify the interchange release the user wishes to appear in bundled EDI documents.

OutStandard( )

Determines or specifies the interchange standard the user wishes to appear in bundled EDI documents.

Syntax

```
const char* OutVersion() const;
void OutVersion (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the interchange standard the user wishes to appear in bundled EDI documents.

Discussion Use the first form of the method to determine interchange standard the user wishes to appear in bundled EDI documents. Use the second form to specify the interchange standard the user wishes to appear in bundled EDI documents.

OutVersion( )

Determines or specifies the interchange version the user wishes to appear in bundled EDI documents.

Syntax

```
const char* OutVersion() const;
```

```
void OutVersion (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the interchange version the user wishes to appear in bundled EDI documents.

Discussion Use the first form of the method to determine interchange version the user wishes to appear in bundled EDI documents. Use the second form to specify the interchange version the user wishes to appear in bundled EDI documents.

PartnerId( )

Determines or specifies the partnership ID.

Syntax

```
EcxPartnerId& PartnerId();
void PartnerId ( const EcxPartnerId& id );
```

Parameters The `PartnerID()` method has the following parameters:

`id`	A reference to an `EcxPartnerId` that specifies the partnership.

Returns The first form of the method returns a reference to an `EcxPartnerId` object that contains the ID.

Discussion Use the first form of the method to determine the partnership ID. Use the second form to specify the partnership ID. The `PartnerID()` method does not modify the database.

See also The `EcxPartnerId` class on page 209.

PreEnveloped( )

Determines or specifies whether documents are preenveloped.

Syntax

```
unsigned int PreEnveloped() const;
void PreEnveloped ( const unsigned int& type );
```

Parameters The `PreEnveloped()` method has the following parameters:

`type`	An unsigned integer that specifies the envelope type.

Returns The first form of the method returns an unsigned integer that contains the envelope type.

Discussion Use the first form of the method to determine the envelope type. Use the second form to specify the envelope type. The `PreEnveloped()` method does not modify the database.

You can use any of the following values:

Constant	Value
`ENVELOPE_UNKNOWN`	0
`ENVELOPE_REGULAR`	1
`ENVELOPE_NONE`	2
`ENVELOPE_EDI`	3

See also "Class Variables" on page 175.

PrimaryXportParam( )

Determines or specifies the primary transport protocol parameter.

Syntax

```
const char* PrimaryXportParam() const;
void PrimaryXportParam ( const char* param );
```

Parameters The `PrimaryXportParam()` method has the following parameters:

`param`	A pointer to a character string that contains the protocol parameter.

Returns The first form of the method returns a pointer to a character string that contains the protocol parameter.

Discussion Use the first form of the method to determine the protocol parameter. Use the second form to specify the protocol parameter. The `PrimaryXportParam()` method does not modify the database.

PrimaryXportType( )

Determines or specifies the primary transport protocol.

Syntax

```
const char* PrimaryXportType() const;
void PrimaryXportType ( const char* protocol );
```

Parameters The `PrimaryXportType()` method has the following parameters:

`protocol`	A pointer to a character string that contains the protocol.

Returns The first form of the method returns a pointer to a character string that contains the protocol.

Discussion Use the first form of the method to determine the protocol. Use the second form to specify the protocol. The `PrimaryXportType()` method does not modify the database.

RcvrAppCode( )

Determines or specifies the application receiver code.

Syntax

```
const char* RcvrAppCode() const;
void RcvrAppCode ( const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the application receiver code.

Discussion Use the first form of the method to determine the application receiver code. Use the second form to specify the application receiver code.

RcvrAppQual( )

Determines or specifies the receiving member main trading address.

Syntax

```
const char* RcvrAppQual() const;
void RcvrAppQual ( const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the receiving member main trading address.

Discussion Use the first form of the method to determine the receiving member main trading address. Use the second form to specify the receiving member main trading address.

ReceiverCertificateType( )

Determines or specifies the receiver's certificate type

Syntax

```
unsigned int ReceiverCertificateType() const;
void ReceiverCertificateType ( const unsigned int& type );
```

Parameters The `ReceiverCertificateType()` method has the following parameters:

`type`	An unsigned integer that specifies the certificate type.

Returns The first form of the method returns an unsigned integer that contains the certificate type.

Discussion Use the first form of the method to determine the certificate type. Use the second form to specify the certificate type. The `ReceiverCertificateType()` method does not modify the database.

You can use any of the following values:

Constant	Value
`CERTTYPE_UNKNOWN`	0
`CERTTYPE_SELF`	1
`CERTTYPE_VERISIGN1`	2
`CERTTYPE_VERISIGN2`	3
`CERTTYPE_VERISIGN3`	4

See also "Class Variables" on page 175.

ReceiverName( )

Determines or specifies the receiver's member name.

Syntax

```
const char* ReceiverName() const;
void ReceiverName ( const char* name );
```

Parameters The `ReceiverName()` method has the following parameters:

`name`	A pointer to a character string that contains the member name.

Returns The first form of the method returns a pointer to a character string that contains the member name.

Discussion Use the first form of the method to determine the member name. Use the second form to specify the member name. The `ReceiverName()` method does not modify the database.

Example "Adding Partnerships" on page 170. "Listing Partnerships" on page 171.

ReceiverQual( )

Determines or specifies the receiver's trading address qualifier.

Syntax

```
const char* ReceiverQual() const;
void ReceiverQual ( const char* qualifier );
```

Parameters The `ReceiverQual()` method has the following parameters:

`qualifier`	A pointer to a character string that contains the qualifier.

Returns The first form of the method returns a pointer to a character string that contains the qualifier.

Discussion Use the first form of the method to determine the qualifier. Use the second form to specify the qualifier. The `ReceiverQual()` method does not modify the database.

Example "Adding Partnerships" on page 170.

ReceiverQualId( )

Determines or specifies the receiver's trading address

Syntax

```
const char* ReceiverQualId() const;
```

```
void ReceiverQualId ( const char* id );
```

Parameters The `ReceiverQualId()` method has the following parameters:

`id`	A pointer to a character string that contains the trading address.

Returns The first form of the method returns a pointer to a character string that contains the trading address.

Discussion Use the first form of the method to determine the trading address. Use the second form to specify the trading address. The `ReceiverQualId()` method does not modify the database.

Example “Adding Partnerships” on page 170.

ReleaseCharacter( )

Determines or specifies the release character.

Syntax

```
const char* ReleaseCharacter() const;
void ReleaseCharacter ( const char* relChar );
```

Parameters The `ReleaseCharacter()` method has the following parameters:

`relChar`	A pointer to a character string that contains the release character.

Returns The first form of the method returns a pointer to a character string that contains the release character.

Discussion Use the first form of the method to determine the release character. Use the second form to specify the release character. The `ReleaseCharacter()` method does not modify the database.

SecondaryXportParam( )

Determines or specifies the secondary transport protocol parameter.

Syntax

```
const char* SecondaryXportParam() const;
void SecondaryXportParam ( const char* param );
```

Parameters The `SecondaryXportParam()` method has the following parameters:

`param`	A pointer to a character string that contains the protocol parameter.

Returns The first form of the method returns a pointer to a character string that contains the protocol parameter.

Discussion Use the first form of the method to determine the protocol parameter. Use the second form to specify the protocol parameter. The `SecondaryXport-Param()` method does not modify the database.

SecondaryXportType( )

Determines or specifies the secondary transport protocol.

Syntax

```
const char* SecondaryXportParam() const;
void SecondaryXportType ( const char* protocol );
```

Parameters The `SecondaryXportType()` method has the following parameters:

`protocol`	A pointer to a character string that contains the protocol.

Returns The first form of the method returns a pointer to a character string that contains the protocol.

Discussion Use the first form of the method to determine the protocol. Use the second form to specify the protocol. The `SecondaryXportType()` method does not modify the database.

Security( )

Determines or specifies the kind of security.

Syntax

```
unsigned int Security() const;
void Security ( const unsigned int& security );
```

Parameters The `Security()` method has the following parameters:

`security`	An unsigned integer that specifies the security.

Returns The first form of the method returns an unsigned integer that contains the certificate type.

Discussion Use the first form of the method to determine the security. Use the second form to specify the security. The `Security()` method does not modify the database.

You can use any of the following values:

Constant	Value
`SECURITY_PLAIN`	0
`CERTTYPE_SELF`	1
`SECURITY_ENCRYPTED`	2
`SECURITY_SIGNEDANDENCRYPTED`	3

See also “Class Variables” on page 175.

SegmentTerminator( )

Determines or specifies the segment terminator character.

Syntax

```
const char* SegmentTerminator() const;
void SegmentTerminator ( const char* terminator );
```

Parameters The `SegmentTerminator()` method has the following parameters:

`terminator`	A pointer to a character string that contains the terminator character.

Returns The first form of the method returns a pointer to a character string that contains the terminator character.

Discussion Use the first form of the method to determine the terminator character. Use the second form to specify the terminator character. The `SegmentTerminator()` method does not modify the database.

SndrAppCode( )

Determines or specifies the application sender code.

Syntax

```
const char* SndrAppCode() const;
void SndrAppCode ( const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the application sender code.

Discussion Use the first form of the method to determine the application sender code. Use the second form to specify the application sender code.

SndrAppQual( )

Determines or specifies the sending member main trading address.

Syntax

```
const char* SndrAppQual() const;
void SndrAppQual ( const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the sending member main trading address.

Discussion Use the first form of the method to determine the sending member main trading address. Use the second form to specify the sending member main trading address.

SenderCertificateType( )

Determines or specifies the sender’s certificate type.

Syntax

```
unsigned int SenderCertificateType() const;
void SenderCertificateType ( const unsigned int& type );
```

Parameters The `SenderCertificateType()` method has the following parameters:

`type`	An unsigned integer that specifies the certificate type.

Returns The first form of the method returns an unsigned integer that contains the certificate type.

Discussion Use the first form of the method to determine the certificate type. Use the second form to specify the certificate type. The `SenderCertificateType()` method does not modify the database.

You can use any of the following values:

Constant	Value
`CERTTYPE_UNKNOWN`	0
`CERTTYPE_SELF`	1
`CERTTYPE_VERISIGN1`	2
`CERTTYPE_VERISIGN2`	3
`CERTTYPE_VERISIGN3`	4

See also "Class Variables" on page 175.

SenderName()

Determines or specifies the sender's member name.

Syntax

```
const char* SenderName() const;
void SenderName ( const char* name );
```

Parameters The `SenderName()` method has the following parameters:

`name`	A pointer to a character string that contains the member name.

Returns The first form of the method returns a pointer to a character string that contains the member name.

Discussion Use the first form of the method to determine the member name. Use the second form to specify the member name. The `SenderName()` method does not modify the database.

Example "Adding Partnerships" on page 170. "Listing Partnerships" on page 171.

SenderQual( )

Determines or specifies the sender's trading address qualifier.

Syntax

```
const char* SenderQual() const;
void SenderQual ( const char* qualifier );
```

Parameters The `SenderQual()` method has the following parameters:

`qualifier`	A pointer to a character string that contains the qualifier.

Returns The first form of the method returns a pointer to a character string that contains the qualifier.

Discussion Use the first form of the method to determine the qualifier. Use the second form to specify the qualifier. The `SenderQual()` method does not modify the database.

Example "Adding Partnerships" on page 170.

SenderQualId( )

Determines or specifies the sender's trading address.

Syntax

```
const char* SenderQualId() const;
void SenderQualId ( const char* id );
```

Parameters The `SenderQualId()` method has the following parameters:

`id`	A pointer to a character string that contains the trading address.

Returns The first form of the method returns a pointer to a character string that contains the trading address.

Discussion Use the first form of the method to determine the trading address. Use the second form to specify the trading address. The `SenderQualId()` method does not modify the database.

Example "Adding Partnerships" on page 170.

SendType( )

Determines or specifies when the document is to be sent.

Syntax

```
unsigned int SendType() const;
void SendType ( const unsigned int& type );
```

Parameters The `SendType()` method has the following parameters:

`type`	An unsigned integer that specifies the send type.

Returns The first form of the method returns an unsigned integer that contains the send type.

Discussion Use the first form of the method to determine the send type. Use the second form to specify the send type. The `SendType()` method does not modify the database.

You can use any of the following values:

Constant	Value
`SENDTYPE_UNKNOWN`	0
`SENDTYPE_IMMEDIATE`	1
`SENDTYPE_ONETIME`	2
`SENDTYPE_PERIODIC`	3

See also "Class Variables" on page 175.

SetLogin( )

Allows the object to access the database.

Syntax

```
EcxPartnership& SetLogin(EcxLogin& login);
```

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this partnership object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before accessing this object.

Example See “Creating Partnership Objects” on page 170.

See also The `EcxPartnership` constructor on page 177. The `EcxLogin` class on page 127.

StandardName( )

Determines or specifies the name of the EDI standard.

Syntax

```
const char* StandardName() const;
void StandardName ( const char* name );
```

Parameters The `StandardName()` method has the following parameters:

`name`	A pointer to a character string that contains the standard name.

Returns The first form of the method returns a pointer to a character string that contains the standard name.

Discussion Use the first form of the method to determine the standard name. Use the second form to specify the standard name. The `StandardName()` method does not modify the database.

Example See “Adding Partnerships” on page 170. See “Listing Partnerships” on page 171.

StandardRelease( )

Determines or specifies the standard’s release number.

Syntax

```
const char* StandardRelease() const;
void StandardRelease ( const char* release );
```

Parameters The `StandardRelease()` method has the following parameters:

`release`	A pointer to a character string that contains the release number.

Returns The first form of the method returns a pointer to a character string that contains the release number.

Discussion Use the first form of the method to determine the release number. Use the second form to specify the release number. The `StandardRelease()` method does not modify the database.

Example See “Adding Partnerships” on page 170.

StandardVersion( )

Determines or specifies the standard’s version number.

Syntax

```
const char* StandardVersion() const;
void StandardVersion ( const char* version );
```

Parameters The `StandardVersion()` method has the following parameters:

`version`	A pointer to a character string that contains the version number.

Returns The first form of the method returns a pointer to a character string that contains the version number.

Discussion Use the first form of the method to determine the version number. Use the second form to specify the version number. The `StandardRelease()` method does not modify the database.

Example See “Adding Partnerships” on page 170. See “Listing Partnerships” on page 171.

SubElementSeparator( )

Determines or specifies the data subelement terminator character.

Syntax

```
const char* SubElementSeparator() const;
void SubElementSeparator ( const char* separator );
```

Parameters The `SubElementSeparator()` method has the following parameters:

`separator`	A pointer to a character string that contains the terminator character.

Returns The first form of the method returns a pointer to a character string that contains the terminator character.

Discussion Use the first form of the method to determine the terminator character. Use the second form to specify the terminator character. The `SubElementSeparator()` method does not modify the database.

TestProductionFlag( )

Determines or specifies whether the partnership is used for testing or production.

Syntax

```
unsigned int TestProductionFlag() const;
void TestProductionFlag ( const unsigned int& flag );
```

Parameters The `TestProductionFlag()` method has the following parameters:

`flag`	An unsigned integer that specifies the flag value.

Returns The first form of the method returns an unsigned integer that contains the flag value.

Discussion Use the first form of the method to determine the flag value. Use the second form to specify the flag value. The `TestProductionFlag()` method does not modify the database.

You can set or receive any of the following values:

Description	Value
Unknown	0
Production	1
Test	2

See also “Class Variables” on page 175.

MapDirection( )

Determines or specifies the document translation type.

Syntax
```
unsigned int MapDirection() const;
void MapDirection ( const unsigned int& type );
```

Parameters The `MapDirection()` method has the following parameters:

`type`	An unsigned integer that specifies the translation type.

Returns The first form of the method returns an unsigned integer that contains the translation type.

Discussion Use the first form of the method to determine the translation type. Use the second form to specify the translation type. The `MapDirection()` method does not modify the database.

You can use any of the following values:

Constant	Value
`XLATTYPE_UNKNOWN`	**0**
`XLATTYPE_INBOUND`	1
`XLATTYPE_OUTBOUND`	2
`XLATTYPE_EDI2EDI`	3
`XLATTYPE_APP2APP`	4
`XLATTYPE_NONE`	5

See also "Class Variables" on page 175.

About the EcxPartnerID Class

The `EcxPartnerID` class represents a key from which partnership views can be retrieved from the database. You must create an `EcxPartnerID` object before you can call the partnership's `Get()` and `PartnerID()` methods. A partner ID key consists of the following values:

- partnership ID

- standard ID
- document type

In general, values for a partnership ID and a standard ID are the same for each record in the view.

Methods Summary list:

Constructor and destructor	
`EcxPartnerID()`	Creates an `EcxPartnerID` object.
`~EcxPartnerID()`	Destroys an `EcxPartnerID` object.
Setting key values	
`SetValues()`	Sets the values associated with a partnership view key.
Determining key values	
`DocType()`	Determines the document type in the key.
`PartnershipID()`	Determines the partnership ID in the key.
`StandardID()`	Determines the standard ID in the key.

EcxPartnerID Class Reference

Interface `ecxpartnership.h`

Superclasses `None`

Subclasses `None`

Friend Classes `None`

Syntax `class DLL_ecxsdk EcxPartnerId { ... };`

Constructor and Destructor

EcxPartnerId( )

Creates an `EcxPartnerId` object.

Syntax
```
EcxPartnerId(void);
```

~EcxPartnerId( )

Destroys an `EcxPartnerId` object.

Syntax
```
virtual ~EcxPartnerId(void);
```

Methods

This section describes the methods of the `EcxPartnerId` class.

DocType( )

Determines the document type in the key.

Syntax
```
const char* DocType(void) const;
```

Returns A pointer to a character string that contains the document type.

PartnershipId( )

Determines the partnership ID in the key.

Syntax
```
long PartnershipId(void) const;
```

Returns A long integer that contains the partnership ID.

SetValues( )

Sets the values associated with a partnership view key.

Syntax
```
void SetValues( long partnership_id,
               long standard_id,
               const char* doctype);
```

Parameters The `SetValues()` method has the following parameters:

`partnership_id`	A long integer that specifies the partnership ID.
`standard_id`	A long integer that specifies the standard ID.
`doctype`	A pointer to a character string that specifies the document type.

Example

```
EcxPartnerId ecxpartner;
...
ecxpartner.SetValues(m_partnership_id, m_partnership_id, m_doctype);
m_pPartnership->PartnerId(ecxpartner);
```

StandardId( )

Determines the standard ID in the key.

Syntax `long StandardId(void) const;`

Returns A long integer that contains the standard ID.

Chapter

13

Document-Related Classes

This chapter describes the `EcxDocument` class, which represents documents sent to the logged-in user via ECXpert. This chapter also describes the `EcxDocId` class, which represents key values for `EcxDocument` objects. This chapter contains the following sections:

- About the EcxDocument Class
- Using the EcxDocument Class
- EcxDocument Class Reference
- About the EcxDocID Class
- EcxDocID Class Reference

About the EcxDocument Class

The `EcxDocument` class represents documents sent to the logged-in user via ECXpert. You can retrieve these document records and access information that identifies them, such as the filename that contains the document's content.

Methods Summary list:

Constructor and destructor	
`EcxDocument()`	Creates an `EcxDocument` object.
`~EcxDocument()`	Destroys an `EcxDocument` object.
Allowing database access	
`SetLogin()`	Allows the object to access the database.
Retrieving and listing document records	
`Get()`	Retrieves a document record from the database.
`List()`	Retrieves a list of document records from the database.
`More()`	Determines whether more records are left in the list.
`Next()`	Associates the object with the next record in the list.
`Delete`	Deletes document records from the database.
Resetting an object's state	
`Clear()`	Clears the state associated with an object, including its list.
Accessing key fields	
`DocId()`	Determines the document ID.
Accessing document information	
`FileName()`	Determines the name of the file associated with the document.
`SecondaryTitle()`	Determines the secondary title.
`SecondaryValue()`	Determines the secondary value.
`SenderName()`	Determines or specifies the sender's member name.
`State()`	Determines the document's state.
`Title()`	Determines the document's title.
`Value()`	Determines the document's value.
`XportParam()`	Determines the transport parameter.
`XportType()`	Determines the transport protocol.

`Filename()`	Determines the name of the file associated with the document.
`CreationDate()`	Determines the date the document was created.
`ModifyDate()`	Determines the most recent document modification date.
`DocType()`	Determines the document type.
`Standard()`	Determines the document's EDI standard.
`Version()`	Determines the document's EDI version.
`Release()`	Determines the document's EDI standard release number.
`CardCount()`	Determines the number of cards associated with the document.
`DataState()`	Determines the state the document data is in.
`Read()`	Determines whether the document has been read.
Accessing card-level information	
`CardIOType()`	Determines the card input/output type.
`CardFlags()`	Accesses information about what card flags have been set.
`TrackState()`	Determines the document's tracking state.
`TranslatedFileName()`	Accesses the name of the translated file.
`SetReadyForPurge()`	Sets the document to "ready to be purged" state.

Using the EcxDocument Class

The following example shows how to create an `EcxDocument` object and use it to list the tracking records for incoming documents in the database. Records received by the "ECXSDK" transport type are listed first, followed by those from the specified sender by the "ECXSDK" transport type.

```
#include <stdio.h>
#include <fstream.h>

#include "ecxsdk.h"

int main(int argc, char * argv[]) {
  int  retval = -1;

  EcxInit ecxinit;
```

```
EcxLogin * pLogin;
EcxDocument * pDocument;
EcxDocId id;

if(argc != 3) {
  usage(argv);
  return(retval);
}

if((pLogin = new EcxLogin())->Errnum()) {
  cout << "EcxLogin Object Error:" << endl;
  cout << "\tErrnum: " << pLogin->Errnum() << endl;
  cout << "\tErrmsg: " << pLogin->Errmsg() << endl;
  cout << endl;
  return(pLogin->Errnum());
}

if((pLogin->Login(argv[1], argv[2])).Errnum()) {
  cout << "EcxLogin.Login() Failed:" << endl;
  cout << "\tErrnum: " << pLogin->Errnum() << endl;
  cout << "\tErrmsg: " << pLogin->Errmsg() << endl;
  cout << endl;
  return(pLogin->Errnum());
}

cout << "Successful login for user: " << argv[1] << endl;

if((pDocument = new EcxDocument())->Errnum()) {
  cout << "EcxDocument Object Error:" << endl;
  cout << "\tErrnum: " << pDocument->Errnum() << endl;
  cout << "\tErrmsg: " << pDocument->Errmsg() << endl;
  cout << endl;
  return(pDocument->Errnum());
}

if((pDocument->SetLogin(*pLogin)).Errnum()) {
  cout << "EcxDocument.SetLogin() Failed:" << endl;
  cout << "\tErrnum: " << pDocument->Errnum() << endl;
  cout << "\tErrmsg: " << pDocument->Errmsg() << endl;
  cout << endl;
  return(pDocument->Errnum());
}

cout << "Created EcxDocument object!" << endl;

pDocument->XportType("ECXSDK");

if((pDocument->List()).Errnum()) {
  cout << "EcxDocument.List() Failed:" << endl;
  cout << "\tErrnum: " << pDocument->Errnum() << endl;
  cout << "\tErrmsg: " << pDocument->Errmsg() << endl;
  return(pDocument->Errnum());
}

cout << "*** " << pDocument->More() << " records found. ***" << endl;

while(pDocument->More()) {
  cout << "---" << endl;
  cout << "SenderName:     " << pDocument->SenderName() << endl;
  cout << "State:          " << pDocument->State() << endl;
  cout << "Title:          " << pDocument->Title() << endl;
  cout << "Value:          " << pDocument->Value() << endl;
  cout << "SecondaryTitle: " << pDocument->SecondaryTitle() << endl;
  cout << "SecondaryValue: " << pDocument->SecondaryValue() << endl;
  cout << "FileName(1):    " << pDocument->FileName(1) << endl;
  cout << "FileName(2):    " << pDocument->FileName(2) << endl;
  cout << "FileName(3):    " << pDocument->FileName(3) << endl;
  cout << endl;
  id = pDocument->DocId();
  pDocument->Next();
}

pDocument->Clear();
pDocument->SenderName(argv[1]);
pDocument->XportType("ECXSDK");

if((pDocument->List()).Errnum()) {
  cout << "EcxDocument.List(" << argv[1] << ") Failed:" << endl;
  cout << "\tErrnum: " << pDocument->Errnum() << endl;
  cout << "\tErrmsg: " << pDocument->Errmsg() << endl;
  return(pDocument->Errnum());
}

cout << "*** " << pDocument->More() << " records found. ***" << endl;

while(pDocument->More()) {
  cout << "---" << endl;
  cout << "SenderName:     " << pDocument->SenderName() << endl;
  cout << "State:          " << pDocument->State() << endl;
  cout << "Title:          " << pDocument->Title() << endl;
  cout << "Value:          " << pDocument->Value() << endl;
  cout << "SecondaryTitle: " << pDocument->SecondaryTitle() << endl;
  cout << "SecondaryValue: " << pDocument->SecondaryValue() << endl;
  cout << "FileName(1):    " << pDocument->FileName(1) << endl;
  cout << "FileName(2):    " << pDocument->FileName(2) << endl;
  cout << "FileName(3):    " << pDocument->FileName(3) << endl;
  cout << endl;
  id = pDocument->DocId();
  pDocument->Next();
}
```

```
  cout << "*** EcxDocument test complete ***" << endl;

  retval = 0;
  return(retval);
}
```

EcxDocument Class Reference

Interface	`ecxdocument.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`
Syntax	`class EcxDocument : public EcxBase { ... };`

Constants and Data Types

The following definitions, which are defined at file scope, allow you to specify the kind of list you want to create:

Syntax

```
#define ECXDOCUMENT_GET_READ   1
#define ECXDOCUMENT_GET_UNREAD 2
```

`ECXDOCUMENT_GET_READ`	Include documents that have been accessed.
`ECXDOCUMENT_GET_UNREAD`	Include documents that have not been accessed.

Constructor and Destructor

EcxDocument( )

Creates an `EcxDocument` object.

Syntax

```
EcxDocument(void);
EcxDocument(EcxLogin& login);
```

Parameters The constructor has the following parameters:

`login`	The login object to associate with this member object.

Discussion The first form of the constructor allows you to create a stack-based object. The second form of the constructor requires that you create an `EcxLogin` object before you create this object.

Example See “Using the EcxDocument Class” on page 215.

See also The `SetLogin()` method on page 227. The `EcxLogin` class on page 127.

~EcxDocument( )

Destroys an `EcxDocument` object.

Syntax

```
virtual ~EcxDocument(void);
```

Discussion The destructor is called when you delete the object. You can reuse an object instead of deleting it by calling the object’s `Clear()` method. The destructor does not destroy the associated `EcxLogin` object.

See also The `Clear()` method on page 220.

Methods

This section describes the methods of the `EcxDocument` class.

CardCount( )

Determines the number of cards associated with the document.

Syntax

```
const int* CardCount(void) const;
```

Returns An integer that contains the number of cards associated with the document.

Example See “Using the EcxDocument Class” on page 215.

CardFlags( )

Accesses information about what card flags have been set.

Syntax `short CardFlags(int cardnum)`

Parameters The `CardFlags()` method has the following parameters:

`cardnum`	An integer that contains the card number.

Returns A short integer that indicates what card flags have been set.

Example See "Using the EcxDocument Class" on page 215.

CardIOType( )

Determines the card input/output type.

Syntax `short CardIOType(int cardnum)`

Parameters The `CardIOType()` method has the following parameters:

`cardnum`	An integer that contains the card number.

Returns A short integer that indicates the card input/output type.

Example See "Using the EcxDocument Class" on page 215.

Clear( )

Clears the state associated with an object, including its list.

Syntax `void Clear(void);`

Discussion All fields in the object are reset to 0 or NULL. A list contains no records.

Example See "Using the EcxDocument Class" on page 215.

CreationDate( )

Determines the date the document was created.

Syntax `const long CreationDate(void) const;`

Returns A long integer that indicates the date the document was created.

Example See “Using the EcxDocument Class” on page 215.

DataState( )

Determines the state the document data is in.

Syntax `short DataState(void) const;`

Returns A short integer that indicates what state the document data is in.

Discussion You can receive any of the following values:

Description	Value
DSunknown	0
DSready for purge	1
DSpurged	2
DSready for archive	3
DSarchived	4
DSready for restore	5
DSrestored	6

Example See “Using the EcxDocument Class” on page 215.

Delete( )

Deletes document records from the database.

Syntax `EcxDocument& Delete(void);`

Returns A reference to this document object.

Discussion You must be an administrator and be logged in before calling this method.

DocId( )

Determines the document ID.

Syntax `EcxDocId& DocId(void);`

Returns A reference to an `EcxDocId` object that contains the document ID.

Example See “Using the EcxDocument Class” on page 215.

See also The `EcxDocId` class on page 231.

DocType( )

Determines the document type.

Syntax `const char* DocType(void) const;`

Returns A pointer to a character string that contains the document type.

Example See “Using the EcxDocument Class” on page 215.

FileName( )

Determines the name of the file associated with the document.

Syntax `const char* FileName(int cardnum = 1);`

Parameters The `FileName()` method has the following parameters:

`cardnum`	An integer that contains the card number.

Returns A pointer to a character string that contains the full path name of the file.

Example See "Using the EcxDocument Class" on page 215.

Discussion If you do not specify a card number, the file name associated with the first card is returned. Typically, the first card is an input card.

Get( )

Retrieves a document record from the database.

Syntax `EcxDocument& Get(EcxDocId& docid, const int mark_read = TRUE);`

Parameters The `Get()` method has the following parameters:

`docid`	A reference to the `EcxDocId` object that specifies the retrieval criteria.
`mark_read`	An integer value that specifies whether to mark the document as having been read.

Returns A reference to this document object.

Discussion You call the document ID object's `SetValues()` method to specify the document you wish to retrieve. The logged-in user's name must match the receiver's name for the retrieved document and the values for the document ID, tracking ID, group ID, and interchange ID in the `docid` parameter must match the corresponding values for the retrieved document. You can specify that the document has not been read by setting the `mark_read` parameter to FALSE before calling the `Get()` method; otherwise, the `Get()` method marks the document as having been read.

See also The `EcxDocId::SetValues()` method on page 234.

List( )

Retrieves a list of document records from the database..

Syntax `EcxDocument& List(const int flags = ECXDOCUMENT_GET_UNREAD);`

Parameters The `List()` method has the following parameters:

`flags`	An integer that specifies which documents to retrieve.

Returns A reference to this document object.

Discussion The logged-in user's name must match the receiver's name for the retrieved document. By default, only unread documents are retrieved. You can further control the records that are retrieved by specifying a value in the `flags` parameter or by calling the `SenderName()` method:

- Set the `flags` parameter to `ECXDOCUMENT_GET_READ` to specify retrieval of only documents that have been read.
- Set the flags parameter to both ECXDOCUMENT_GET_READ and ECXDOCUMENT_GET_UNREAD (ECXDOCUMENT_GET_READ | ECXDOCUMENT_GET_UNREAD) to specify retrieval of all document records.
- Call the `SenderName()` method first to restrict the list to include only documents with the specified sender.

After calling the `List()` method, the document object's fields contain values from the record related to the first document in the list.

If you are trying to use this method to retrieve tracking IDs to enable you to retrieve a particular value, but no value is being returned, simply skip to the next tracking ID. For example, if you are using this method to get tracking IDs to retrieve the translated file name from the database, not every tracking ID has a corresponding translated file, because some tracking IDs are generated by bundle.

Example See "Using the EcxDocument Class" on page 215.

See also The `SenderName()` method on page 227. The `XportType()` method on page 231. "Constants and Data Types" on page 218.

ModifyDate( )

Determines the most recent document modification date.

Syntax `const long ModifyDate(void) const;`

Returns A long integer that indicates the most recent document modification date.

Example See "Using the EcxDocument Class" on page 215.

More( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Example See “Using the EcxDocument Class” on page 215.

See also The `List()` method on page 223. The `Next()` method on page 225.

Next( )

Associates the object with the next record in the list.

Syntax `EcxDocument& Next(void);`

Returns A reference to this document object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

Example See “Using the EcxDocument Class” on page 215.

See also The `More()` method on page 225.

Read( )

Determines whether the document has been read.

Syntax `short Lock(void)const;`

Returns A short integer that indicates whether the document has been read.

Discussion This method will set a document's state to read (pass in 1 or true) or unread (pass in 0 or false).

Example See "Using the EcxDocument Class" on page 215.

Release( )

Determines the document's EDI standard release number.

Syntax `const char* Release(void) const;`

Returns A pointer to a character string that contains the document's EDI standard release number.

Example See "Using the EcxDocument Class" on page 215.

SecondaryTitle( )

Determines the secondary title.

Syntax `const char* SecondaryTitle(void) const;`

Returns A pointer to a character string that contains the title.

Example See "Using the EcxDocument Class" on page 215.

SecondaryValue( )

Determines the secondary value.

Syntax `const char*  SecondaryValue(void) const;`

Returns A pointer to a character string that contains the value.

Example See "Using the EcxDocument Class" on page 215.

SenderName( )

Determines or specifies the sender's member name.

Syntax

```
const char* SenderName(void) const;
void SenderName(const char * name);
```

Parameters The `SenderName()` method has the following parameters:

`name`	A pointer to a character string that specifies the name.

Returns The first form of the method returns a pointer to a character string that contains the name.

Discussion Use the first form of the method to determine the sender's member name. Use the second form to specify the name before calling the `List()` method. The `SenderName()` method does not modify the database.

Example See "Using the EcxDocument Class" on page 215.

See also The `List()` method on page 223.

SetLogin( )

Allows the object to access the database.

Syntax

```
EcxDocument& SetLogin(EcxLogin& login);
```

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this document object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before accessing this object.

Example See "Using the EcxDocument Class" on page 215.

See also The `EcxDocument` constructor on page 218. The `EcxLogin` class on page 127.

SetReadyForPurge( )

Sets document to “ready to be purged” state.

Syntax `EcxDocument& SetReadyForPurge(EcxDocId& docid)`

Parameters The `SetReadyForPurge()` method has the following parameters:

`docid`	A reference to the document’s ID number

Returns A reference to this document object.

Example See “Using the EcxDocument Class” on page 215.

Standard( )

Determines the document’s EDI standard.

Syntax `const char* Standard(void) const;`

Returns A pointer to a character string that contains the document’s EDI standard.

Example See “Using the EcxDocument Class” on page 215.

State( )

Determines the document’s state.

Syntax `short State(void) const;`

Returns A short integer that specifies the document’s state.

Discussion You can receive any of the following values:

Description	Value
Unknown	0
Ready	1
In progress	2

Done okay	3
Done bad	4
All done okay	5
Bundled	6

Example See "Using the EcxDocument Class" on page 215.

Title( )

Determines the document's title.

Syntax `const char* Title(void) const;`

Returns A pointer to a character string that contains the title.

TrackState( )

Determines the document's tracking state.

Syntax `void TrackState(const short state);`

Parameters The `TrackState()` method has the following parameters:

`state`	A bitmap that specifies the document's state

Returns A reference to this document object.

Discussion To retrieve a list of docs with a specific state, specify the state before you call the `List()` method. You can receive any of the following states:

Description	Value
Unknown	0

Complete	1
In progress	2
Warning	4
Failed	8

TranslatedFileName( )

Accesses the name of the translated file.

Syntax `const char* TranslatedFileName(void);`

Returns A pointer to a character string that contains the name of the translated file.

Discussion If you are trying to use this method to retrieve tracking IDs to enable you to retrieve a particular value, but no value is being returned, simply skip to the next tracking ID. For example, if you are using this method to get tracking IDs to retrieve the translated file name from the database, not every tracking ID has a corresponding translated file, because some tracking IDs are generated by bundle.

Value( )

Determines the document's value.

Syntax `const char* Value(void) const;`

Returns A pointer to a character string that contains the value.

Version( )

Determines the document's EDI standard version number.

Syntax `const char* version(void) const;`

Returns A pointer to a character string that contains the document's EDI standard version number.

Example See "Using the EcxDocument Class" on page 215.

XportParam( )

Determines the transport parameter.

Syntax `const char* XportParam(void) const;`

Returns A pointer to a character string that contains the parameter.

XportType( )

Determines the transport protocol.

Syntax
```
const char* XportType(void) const;
void XportType(const char * protocol);
```

Parameters The `XportType()` method has the following parameters:

`protocol`	A pointer to a character string that specifies the protocol.

Returns The first form of the method returns a pointer to a character string that contains the protocol.

Discussion Use the first form of the method to determine the protocol. Use the second form to specify the protocol before calling the `List()` method. The `XportType()` method does not modify the database.

Example See "Using the EcxDocument Class" on page 215.

See also The `List()` method on page 223.

About the EcxDocID Class

The `EcxDocID` class represents a key from which documents can be retrieved from the database. You must create an `EcxDocID` object before you can call the partnership's `Get()` and `DocID()` methods. A document ID key consists of the following values:

- tracking ID
- interchange ID
- group ID
- document ID

Methods Summary list:

Constructor and destructor	
`EcxDocID()`	Creates an `EcxDocID` object.
`~EcxDocID()`	Destroys an `EcxDocID` object.
Setting key values	
`SetValues()`	Sets the values associated with a document's key.
Determining key values	
`DocumentID()`	Determines the document ID in the key.
`TrackingID()`	Determines the tracking ID in the key.
`InterchangeID()`	Determines the interchange ID in the key.
`GroupID()`	Determines the group ID in the key.

EcxDocID Class Reference

Interface `ecxdocument.h`

Superclasses `None`

Subclasses `None`

Friend Classes `None`

Syntax `class EcxDocId { ... };`

Constructor and Destructor

EcxDocID( )

Creates an `EcxDocID` object.

Syntax `EcxDocID(void);`

~EcxDocID( )

Destroys an `EcxDocID` object.

Syntax `virtual ~EcxDocID(void);`

Methods

This section describes the methods of the `EcxDocID` class.

DocumentId( )

Determines the document ID in the key.

Syntax `long DocumentId(void);`

Returns A long integer that contains the document ID.

GroupId( )

Determines the group ID in the key.

Syntax `long GroupId(void);`

Returns A long integer that contains the group ID.

InterchangeId( )

Determines the interchange ID in the key.

Syntax

```
long InterchangeId(void);
```

Returns A long integer that contains the interchange ID.

SetValues( )

Sets the values associated with a document's key.

Syntax

```
void SetValues(long trackID,
               long interchangeID,
               long groupID,
               long documentID);
```

Parameters The `SetValues()` method has the following parameters:

`trackID`	A long integer that specifies the tracking ID.
`interchangeID`	A long integer that specifies the interchange ID.
`groupID`	A long integer that specifies the group ID.
`documentID`	A long integer that specifies the document ID.

TrackingId( )

Determines the tracking ID in the key.

Syntax

```
long TrackingId(void);
```

Returns A long integer that contains the tracking ID.

Chapter

14

The EcxTracking Class

This chapter describes the `EcxTracking` class, which represents documents sent from the logged-in user via ECXpert. This chapter contains the following sections:

- About the EcxTracking Class
- Using the EcxTracking Class
- EcxTracking Class Reference

About the EcxTracking Class

The `EcxTracking` class represents documents sent from the logged-in user via ECXpert. You can retrieve the tracking status of a document using an `EcxTracking` object.

Methods Summary list:

Constructor and destructor	
`EcxTracking()`	Creates an `EcxTracking` object.
`~EcxTracking()`	Destroys an `EcxTracking` object.
Allowing database access	
`SetLogin()`	Allows the object to access the database.
Listing document records	
`List()`	Retrieves a list of document records from the database.
`More()`	Determines whether more records are left in the list.
`Next()`	Associates the object with the next record in the list.
`Get()`	Retrieves document ID records from the database.
`Delete()`	Deletes a document record.
Resetting an object's state	
`Clear()`	Clears the state associated with an object, including its list.
Accessing document information	
`SecondaryTitle()`	Determines the secondary title.
`SecondaryValue()`	Determines the secondary value.
`ReceiverName()`	Determines receiver's member name.
`State()`	Determines the document's state.
`Title()`	Determines the document's title.
`Value()`	Determines the document's value.
`Progress()`	Determines the document's progress.
`FileName()`	Accesses the file name of the document.
`Standard()`	Determines the document's EDI standard.
`Version()`	Determines the document's EDI standard version number.

`Release()`	Determines the document's EDI standard release number.
`TranslatedFileName()`	Accesses the name of the translated file.
`CreationDate()`	Accesses the date the document was created.
`ModifyDate()`	Accesses the date the document was last modified.
`DocType()`	Determines the document type.
`DataState()`	Determines what state the data is in.
`SetReadyForPurge()`	Specifies whether the document is ready to be purged.

Using the EcxTracking Class

The following example shows how to create an `EcxTracking` object and use it to list the tracking-related records in the database:

```
#include <stdio.h>
#include <fstream.h>

#include "ecxsdk.h"
int main(int argc, char * argv[]) {
  int  retval = -1;

  EcxInit ecxinit;
  EcxLogin * pLogin;
  EcxTracking * pTracking;

  if((pLogin = new EcxLogin())->Errnum()) {
    cout << "EcxLogin Object Error:" << endl;
    cout << "\tErrnum: " << pLogin->Errnum() << endl;
    cout << "\tErrmsg: " << pLogin->Errmsg() << endl;
    cout << endl;
    return(pLogin->Errnum());
  }

  if((pLogin->Login(argv[1], argv[2])).Errnum()) {
    cout << "EcxLogin.Login() Failed:" << endl;
    cout << "\tErrnum: " << pLogin->Errnum() << endl;
    cout << "\tErrmsg: " << pLogin->Errmsg() << endl;
    cout << endl;
    return(pLogin->Errnum());
  }

  cout << "Successful login for user: " << argv[1] << endl;
  if((pTracking = new EcxTracking())->Errnum()) {
    cout << "EcxTracking Object Error:" << endl;
    cout << "\tErrnum: " << pTracking->Errnum() << endl;
    cout << "\tErrmsg: " << pTracking->Errmsg() << endl;
    cout << endl;
    return(pTracking->Errnum());
  }

  if((pTracking->SetLogin(*pLogin)).Errnum()) {
    cout << "EcxTracking.SetLogin() Failed:" << endl;
    cout << "\tErrnum: " << pTracking->Errnum() << endl;
    cout << "\tErrmsg: " << pTracking->Errmsg() << endl;
    cout << endl;
    return(pTracking->Errnum());
  }

  cout << "Created EcxTracking object!" << endl;

  if((pTracking->List()).Errnum()) {
    cout << "EcxTracking.List() Failed:" << endl;
    cout << "\tErrnum: " << pTracking->Errnum() << endl;
    cout << "\tErrmsg: " << pTracking->Errmsg() << endl;
    return(pTracking->Errnum());
  }

  cout << "*** " << pTracking->More() << " records found. ***" << endl;

  while(pTracking->More()) {
    cout << "---" << endl;
    cout << "ReceiverName:   " << pTracking->ReceiverName() << endl;
    cout << "State:          " << pTracking->State() << endl;
    cout << "Title:          " << pTracking->Title() << endl;
    cout << "Value:          " << pTracking->Value() << endl;
    cout << "SecondaryTitle: " << pTracking->SecondaryTitle() << endl;
    cout << "SecondaryValue: " << pTracking->SecondaryValue() << endl;
    cout << endl;
    pTracking->Next();
  }

  cout << "*** EcxTracking test complete ***" << endl;

  retval = 0;
  return(retval);
}
```

EcxTracking Class Reference

Interface	`ecxtracking.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`
Syntax	`class EcxTracking : public EcxBase { ... };`

Class Variables

The following class variables allow you to identify the state of the documents you want to list:

Syntax

```
static int COMPLETE;
static int INPROGRESS;
static int WARNING;
static int FAILED
static int UNKNOWN;
```

`COMPLETE`	Document processing is complete.
`INPROGRESS`	Document is being processed.
`WARNING`	Document was processed with a warning.
`FAILED`	Document could not be processed due to errors.
`UNKNOWN`	Document is unknown.

Constructor and Destructor

EcxTracking( )

Creates an `EcxTracking` object.

Syntax

```
EcxTracking(void);
EcxTracking(EcxLogin& login);
```

Parameters The constructor has the following parameters:

`login`	The login object to associate with this tracking object.

Discussion The first form of the constructor allows you to create a stack-based object. The second form of the constructor requires that you create an `EcxLogin` object before you create this object.

Example See “Using the EcxTracking Class” on page 237.

See also The `SetLogin()` method on page 247. The `EcxLogin` class on page 127.

~EcxTracking( )

Destroys an `EcxTracking` object.

Syntax

```
virtual ~EcxTracking(void);
```

Discussion The destructor is called when you delete the object. You can reuse an object instead of deleting it by calling the object’s `Clear()` method. The destructor does not destroy the associated `EcxLogin` object.

See also The `Clear()` method on page 240.

Methods

This section describes the methods of the `EcxTracking` class.

Clear( )

Clears the state associated with an object, including its list.

Syntax

```
void Clear(void);
```

Discussion All fields in the object are reset to 0 or NULL. A list contains no records.

CreationDate( )

Accesses the date the document was created.

Syntax `const long CreationDate(void)`

Returns A long integer that contains the date the document record was created.

Example See “Using the EcxTracking Class” on page 237.

Delete( )

Deletes a document record.

Syntax `EcxTracking& Delete`

Returns A reference to this tracking object.

Example See “Using the EcxTracking Class” on page 237.

DataState( )

Determines what state the document data is in.

Syntax `short DataState(void) const;`

Returns A short integer that indicates what state the record data is in.

Discussion You can receive any of the following values:

Description	Value
DSunknown	0
DSready for purge	1
DSpurged	2

DSready for archive	3
DSarchived	4
DSready for restore	5
DSrestored	6

Example See “Using the EcxTracking Class” on page 237.

DocType( )

Determines the document type.

Syntax `const char* DocType(void) const;`

Returns A pointer to a character string that indicates the document type.

Example See “Using the EcxTracking Class” on page 237.

FileName( )

Accesses the file name of the document.

Syntax `const char* FileName(void) const;`

Returns A pointer to a character string that contains the document’s file name.

Example See “Using the EcxTracking Class” on page 237.

Get( )

Retrieves document ID records from the database.

Syntax `EcxTracking& Get(EcxDocId& docid, const inst mark_read = TRUE);`

Parameters The `Get()` method has the following parameters:

`docid`	A reference to an `EcxDocId` that specifies the document.

Returns A reference to this tracking object.

List( )

Retrieves a list of document records from the database.

Syntax

```
EcxTracking& List( CStr receiver = NULL,
                   const struct tm* fromdate = NULL,
                   const struct tm* todate = NULL,
                   const int state_flag = 0,
                   CStr sender = NULL);
```

Parameters The `List()` method has the following parameters:

`receiver`	A `CStr` structure that specifies the receiver’s member name.
`fromdate`	A pointer to a `tm` structure that specifies the starting date.
`todate`	A pointer to a `tm` structure that specifies the ending date.
`state_flag`	An integer that contains the state flags.
`sender`	A `CStr` structure that specifies the sender’s member name.

Returns A reference to this tracking object.

Discussion An administrator can specify any sender’s member name in the `sender` parameter. A non-administrator can specify only his or her user login name as the sender’s member name. If an administrator specifies NULL for the `sender` parameter, which is the default, the sender’s member name is not used to select records; all records matching the other criteria are retrieved. If a non-administrator specifies NULL for the `sender` parameter, only document records whose sender’s member name match the user’s login name and match the other criteria are retrieved.

Values for the remaining criteria, if specified, are ANDed together:

- Specify a value for the `receiver` parameter to restrict retrieval to records for a specific recipient. If you do not specify a value for the `receiver` parameter, all recipients will be considered for retrieval.
- Specify a value for the `fromdate` parameter to restrict retrieval from the specified starting date, inclusive. If you do not specify a value for the `fromdate` parameter, all records will be considered.

- Specify a value for the `todate` parameter to restrict retrieval to the specified ending date, inclusive. If you do not specify a value for the `todate` parameter, all records will be considered.
- Specify one or more flags for the `state_flag` parameter to restrict retrieval to document records that match the specified state. If you do not specify a value for the `state_flag` parameter, all records will be considered. Valid flags are `COMPLETE`, `INPROGRESS`, `WARNING`, and `FAILED`. The flags are ORed together before being ANDed with the other criteria.

After calling the `List()` method, the document object's fields contain values from the record related to the first document that matches the criteria.

If you are trying to use this method to retrieve tracking IDs to enable you to retrieve a particular value, but no value is being returned, simply skip to the next tracking ID. For example, if you are using this method to get tracking IDs to retrieve the translated file name from the database, not every tracking ID has a corresponding translated file, because some tracking IDs are generated by bundle.

Example See "Using the EcxTracking Class" on page 237.

See also "Class Variables" on page 239.

ModifyDate( )

Accesses the date the document was last modified.

Syntax `const long ModifyDate(void) const;`

Returns A long integer that indicates the date the document was last modified

Example See "Using the EcxTracking Class" on page 237.

More( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Example See “Using the EcxTracking Class” on page 237.

See also The `List()` method on page 243. The `Next()` method on page 245.

Next( )

Associates the object with the next record in the list.

Syntax `EcxTracking& Next(void);`

Returns A reference to this tracking object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

Example See “Using the EcxTracking Class” on page 237.

See also The `More()` method on page 244.

Progress( )

Determines the document’s progress.

Syntax `const int Progress(void) const;`

Returns An integer that indicates the document’s progress.

Example See “Using the EcxTracking Class” on page 237.

ReceiverName( )

Determines the receiver’s member name.

Syntax `const char* ReceiverName(void) const;`

Returns A pointer to a character string that contains the name.

Example See “Using the EcxTracking Class” on page 237.

Release( )

Determines the document’s EDI standard release number.

Syntax `const char* Release(void) const;`

Returns A pointer to a character string that indicates the document’s EDI standard release number.

Example See “Using the EcxTracking Class” on page 237.

SecondaryTitle( )

Determines the secondary title.

Syntax `const char* SecondaryTitle(void) const;`

Returns A pointer to a character string that contains the title.

Example See “Using the EcxTracking Class” on page 237.

SecondaryValue( )

Determines the secondary value.

Syntax `const char*  SecondaryValue(void) const;`

Returns A pointer to a character string that contains the value.

Example See “Using the EcxTracking Class” on page 237.

SetLogin( )

Allows the object to access the database.

Syntax `EcxTracking& SetLogin(EcxLogin& login);`

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this tracking object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before accessing this object.

Example See “Using the EcxTracking Class” on page 237.

See also The `EcxTracking` constructor on page 239. The `EcxLogin` class on page 127.

SetReadyForPurge( )

Specifies whether the document is ready to be purged.

Syntax `EcxTracking& SetReadyForPurge(EcxDocId& docid)`

Parameters The `SetReadyForPurge()` method has the following parameters:

`docid`	A reference to the document’s ID number

Returns A reference to this tracking object.

Example See “Using the EcxTracking Class” on page 237.

Standard( )

Determines the document’s EDI standard.

Syntax `const char* Standard(void) const;`

Returns A pointer to a character string that contains the document’s EDI standard.

Example See “Using the EcxTracking Class” on page 237.

State( )

Determines the document’s state.

Syntax
```
short State(void) const;
```

Returns A short integer that specifies the document’s state.

Discussion You can receive any of the following values:

Description	Value
TSunknown - indicates NULL value	0
TSready - indicates service has yet to be invoked	1
TSinProgress - indicates service has been invoked	2
STSdoneOK - indicates service is done with no errors	3
TSdoneBad - indicates service is done with errors	4
TSalldoneOK - indicates last service on service list is done and TRKState is TSdoneOK	5
TSbundled - identifies bundle generated trackings	6

Example See “Using the EcxTracking Class” on page 237.

Title( )

Determines the document’s title.

Syntax
```
const char* Title(void) const;
```

Returns A pointer to a character string that contains the title.

Example See “Using the EcxTracking Class” on page 237.

TranslatedFileName( )

Accesses the name of the translated file.

Syntax `const char* TranslatedFileName(void);`

Returns A pointer to a character string that contains the name of the translated file.

Discussion If you are trying to use this method to retrieve tracking IDs to enable you to retrieve a particular value, but no value is being returned, simply skip to the next tracking ID. For example, if you are using this method to get tracking IDs to retrieve the translated file name from the database, not every tracking ID has a corresponding translated file, because some tracking IDs are generated by bundle.

Value( )

Determines the document's value.

Syntax `const char* Value(void) const;`

Returns A pointer to a character string that contains the value.

Example See “Using the EcxTracking Class” on page 237.

Version( )

Determines the document's EDI standard version number.

Syntax `const char* version(void) const;`

Returns A pointer to a character string that contains the document's EDI strandard version number.

Example See “Using the EcxTracking Class” on page 237.

Chapter

15

The EcxLog Class

This chapter describes the `EcxLog` class, which represents entries in the ECXpert log. This chapter contains the following sections:

- About the EcxLog Class
- Using the EcxLog Class
- EcxLog Class Reference

About the EcxLog Class

The `EcxLog` class represents entries in the ECXpert log. You can use an `EcxLog` object to add an entry to the log.

Methods Summary list:

Constructor and destructor	
`EcxLog()`	Creates an `EcxLog` object.
`~EcxLog()`	Destroys an `EcxLog` object.
Allowing database access	
`SetLogin()`	Allows the object to access the database.
Logging an event	
`LogEvent()`	Adds an entry to the log.
Resetting an object's state	
`Clear()`	Clears the state associated with an object.
Accessing log information	
`Next`	Associates the object with the next record in the list.
`More`	Determines whether more records are left in the list.
`RetrieveLog`	Retrieves log information.
`ELId`	Determines the ID number of the event in the event log.
`ELEventId`	Determines the ID number of the event in the event log.
`ELCategory`	Determines the category of the event in the event log.
`ELSeverity`	Determines the severity of the event in the event log.
`ELEventShortMsg`	Determines the short message associated with the event in the event log.
`ElTrkId`	Determines the tracking ID of the event in the event log.

`ElIntgId`	Determines the interchange identifier.
`ELGrpId`	Determines the group ID of the event in the event log.
`ElDocId`	Determines the ID number of the document in the event log.
`ElTDId`	Determines the document-level internal tracking ID associated with the event.

Using the EcxLog Class

The following example shows how to write infromational messages, warning messages, and fatal error messages to the ECXpert log:

```
int main(int argc, char * argv[]) {
...
if((pLog = new EcxLog())->Errnum()) {
    cout << "EcxLog Object Error:" << endl;
    cout << "\tErrnum: " << pLog->Errnum() << endl;
    cout << "\tErrmsg: " << pLog->Errmsg() << endl;
    cout << endl;
    return(pLog->Errnum());
  }

  if((pLog->SetLogin(*pLogin)).Errnum()) {
    cout << "EcxLog.SetLogin() Failed:" << endl;
    cout << "\tErrnum: " << pLog->Errnum() << endl;
    cout << "\tErrmsg: " << pLog->Errmsg() << endl;
    cout << endl;
    return(pLog->Errnum());
  }

  cout << "Created EcxLog object!" << endl;

  if((pLog->LogEvent(99,
           pLog->informational,
           "This is a informational TEST message")).Errnum()) {
    cout << "EcxLog.LogEvent() Failed:" << endl;
    cout << "\tErrnum: " << pLog->Errnum() << endl;
    cout << "\tErrmsg: " << pLog->Errmsg() << endl;
    return(pLog->Errnum());
  }

  cout << "WROTE: This is a informational TEST message" << endl;

  if((pLog->LogEvent(99,
           pLog->warning,
           "This is a warning TEST message")).Errnum()) {
    cout << "EcxLog.LogEvent() Failed:" << endl;
    cout << "\tErrnum: " << pLog->Errnum() << endl;
    cout << "\tErrmsg: " << pLog->Errmsg() << endl;
    return(pLog->Errnum());
  }

  cout << "WROTE: This is a warning TEST message" << endl;

  if((pLog->LogEvent(99,
           pLog->error,
           "This is a error TEST message")).Errnum()) {
    cout << "EcxLog.LogEvent() Failed:" << endl;
    cout << "\tErrnum: " << pLog->Errnum() << endl;
    cout << "\tErrmsg: " << pLog->Errmsg() << endl;
    return(pLog->Errnum());
  }

  cout << "WROTE: This is an error TEST message" << endl;

  cout << "*** EcxLog test complete ***" << endl;

  retval = 0;
  return(retval);
}
```

EcxLog Class Reference

Interface	`ecxlog.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`
Syntax	`class EcxLog : public EcxBase { ... };`

Class Variables

The following class variables allow you to identify the kind of message being written to the database:

Syntax

```
const int informational;
const int warning;
const int error;
```

`informational`	Informational message.
`warning`	Warning message.
`error`	Fatal error message.

Constructor and Destructor

EcxLog( )

Creates an `EcxLog` object.

Syntax

```
EcxLog(void);
EcxLog(EcxLogin& login);
```

Parameters The constructor has the following parameters:

`login`	The login object to associate with this tracking object.

Discussion The first form of the constructor allows you to create a stack-based object. The second form of the constructor requires that you create an `EcxLogin` object before you create this object.

Example See “Using the EcxLog Class” on page 253.

See also The `SetLogin()` method on page 261. The `EcxLogin` class on page 127.

~EcxLog( )

Destroys an `EcxLog` object.

Syntax

```
virtual ~EcxLog(void);
```

Discussion The destructor is called when you delete the object. The destructor does not destroy the associated `EcxLogin` object.

Methods

This section describes the methods of the `EcxLog` class.

Clear( )

Clears the state associated with an object, including its list.

Syntax `void Clear()`

Discussion All fields in the object are reset to 0 or NULL. A list contains no records.

ELCategory( )

Determines the functional area the event took place in.

Syntax `const char* ELCategory() const;`

Returns A pointer to a character string that contains the functional area the event took place in (e.g. bundle, dispatcher, parse, etc.).

Example See “Using the EcxLog Class” on page 253.

ELDocId( )

Determines the ID number of the document in event log.

Syntax `const char* ELDocId`

Returns A pointer to a character string that contains the document ID number.

Example See “Using the EcxLog Class” on page 253.

ELEventId( )

Determines ID number associated with event in event log.

Syntax `unsigned ELEventId() const;`

Returns An unsigned integer that contains the ID number associated with event in event log.

Example See “Using the EcxLog Class” on page 253.

ELEventShortMsg( )

Determines the short message associated with the event in the event log.

Syntax `const char* ELEventShortMsg() const;`

Returns A pointer to a character string that contains the short message associated with event in event log.

Example See “Using the EcxLog Class” on page 253.

ELGrpId( )

Determines the group ID of the event in the event log.

Syntax `unsigned ELGrpId() const;`

Returns Unsigned integer that contains the group ID of event in event log.

Example See “Using the EcxLog Class” on page 253.

ELId( )

Determines the ID number of the event in the event log.

Syntax `unsigned ELId () const;`

Returns Unsigned integer that contains the ID number of event in event log.

Example See “Using the EcxLog Class” on page 253.

ELIntgId( )

Determines the interchange identifier.

Syntax `unsigned ELIntgId () const;`

Returns Unsigned integer that contains the interchange identifier.

Example See “Using the EcxLog Class” on page 253.

ELSeverity( )

Severity associated with the event in the event log.

Syntax `unsigned ELSeverity () const;`

Returns Unsigned integer that contains the severity associated with event in event log.

Discussion The level of severity can be informational, warning, or error.

Example See “Using the EcxLog Class” on page 253.

ELTDId( )

Determines the document-level internal tracking ID associated with the event.

Syntax `const char* ELTDId() const;`

Returns A pointer to a character string that contains the document-level internal tracking ID associated with an event.

Example See “Using the EcxLog Class” on page 253

ELTrkId( )

Track ID of the event in the event log.

Syntax `unsigned ELTrkId`

Returns Unsigned integer that contains the tracking ID of event in event log.

Example See “Using the EcxLog Class” on page 253.

LogEvent( )

Adds an entry to the event log.

Syntax `EcxLog& LogEvent(long errnum, int severity, const char * message);`

Parameters The `LogEvent()` method has the following parameters:

`errnum`	A long integer that specifies the error number you want to associate with the entry.
`severity`	An integer that specifies the kind of entry.
`message`	A pointer to a character string that specifies the messge to write to the log.

Returns A reference to this log object.

Discussion You can specify one of the following constant for the kind of entry: `informa-tional`, `warning`, or `fatal`. The user name of the logged-in user is also written to the log.

Note The tracking ID written to the log is always 0.

Example See “Using the EcxLog Class” on page 253.

See also “Class Variables” on page 254.

More( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Example See “Using the EcxLog Class” on page 253.

See also The `Next()` method on page 260.

Next( )

Associates the object with the next record in the list.

Syntax

```
EcxDocument& Next(void);
```

Returns A reference to this document object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

Example See “Using the EcxLog Class” on page 253.

See also The `More()` method on page 259.

RetrieveLog( )

Retrieves log information.

Syntax

```
EcxLog& RetrieveLog(const unsigned&trkId,
                    const char* sndrMBName,
                    const char* rcvrMBName,
                    const long fromdt,
                    const long todt,
                    const short stateBitmap);
```

Parameters The `RetrieveLog()` method has the following parameters:

`sndrMBName`	A pointer to a character string that specifies the sender member name.

`rcvrMBName`	A pointer to a character string that specifies the receiver name.
`fromdt`	A long integer that specifies the initial (“from”) date.
`todt`	A long integer that specifies the final (“to”) date
`stateBitmap`	Data state. Valid values: 0 = unknown 1 = readyForPurge 2 = purged 3 = readyForArchive 4 = archived 5 = readyForRestore 6 = restored

Returns A pointer to this `RetrieveLog` object.

Example See “Using the EcxLog Class” on page 253

SetLogin( )

Allows the object to access the database.

Syntax `EcxTracking& SetLogin(EcxLogin& login);`

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this tracking object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before accessing this object.

Example See “Using the EcxLog Class” on page 253.

See also The `EcxLog` constructor on page 255. The `EcxLogin` class on page 127.

Chapter

16

The EcxFtpClient Class

This chapter describes the `EcxFtpClient` class. The `EcxFtpClient` is an FTP Client API. The `EcxFtpClient` class defines methods you can use to send and receive files via FTP.

. This chapter contains the following sections:

- About the EcxFtpClient Class
- Using the EcxFtpClient Class
- }EcxFtpClient Class Reference

About the EcxFtpClient Class

The `EcxFtpClient`() class is an FTP Client API which defines methods you can use to send and receive files via FTP. The `EcxFtpClient`() class is based on the RFC 959 FTP protocol.

Before you will be able to perform any FTP operations, you must first create the `EcxFtpClient()` object and call the `init()` method. You can then run FTP commands using the `RunCommand()` method.

Methods Summary list:

Constructor and destructor	
`EcxFtpClient(void)`	Creates an `EcxFtpClient` object.
`virtual ~EcxFtpClient()`	Destroys an `EcxFtpClient` object.
Initializing the FTP Client API	
`Init`	Initializes the FTP client API
Accessing Entry Information	
`GetListCount()`	Retrieves the number of files in the current directory listing
`GetFirstListEntry()`	Retrieves the first file in the directory listing
`GetNextListEntry()`	Retrieves the next file in the directory listing
Accessing FTP Replies	
`GetReplyCode()`	Retrieves the last reply code
`GetReplyMsg()`	Retrieves the last reply message
`IsReplyGood`	Indicates whether the last FTP command executed was successful or not
Running Commands	
`RunCommand`	Runs a command

Using the EcxFtpClient Class

The following sections show how to:

- List files in the current directory
- Retrieve the names of files in the current directory listing

- Send and receive files

Listing Files in the Current Directory

The following example shows how to list all of the files in the current directory. The `RunCommand()` method runs the `ls` and `dir` commands to generate a directory listing.

```
int main(int argc, char * argv[])
{
   int  retval = -1;

   //
   // List of ftp commands that we would be running using the Ecxpert
   // ftp client API. We basically login to the remote machine, run
   // ’ls’ and ’dir’ commands and dump the output on the console.
   //
   char *          FtpCommands[] =
                   {
                      "open myhost.myserver.com",
                      "user actraadm actraadm",
                      "ls /tmp",
                      "dir /tmp",
                      "quit",
                      ""
                   };

   const char *    pListEntry = 0;

   EcxInit         EcxInitObj;

   EcxFtpClient *  pFtpClientObj = 0;


   do
   {
       if ( EcxInitObj.Errnum() != 0 )
       {
           printf("Failed to initialize EcxInit object.\n");
           break;
       }

       if ( (pFtpClientObj = new EcxFtpClient) == 0 )
       {
           printf("No memory to create Ecxpert ftp client object.\n");
           break;
       }

       if ( pFtpClientObj->Init("ecx.ini").Errnum() )
       {
           printf("Failed to setup Ecxpert ftp client object.\n");
           break;
       }

       for ( int i = 0; strlen(FtpCommands[i]) != 0; ++i )
       {
           printf("\nExecuting Ftp command - %s\n", FtpCommands[i]);

           if ( pFtpClientObj->RunCommand(FtpCommands[i]).Errnum() )
           {
               printf("Error: %ld - Could not execute command.\n",
                      pFtpClientObj->Errnum());
               break;
           }

           printf("Ftp reply code = %d\n", pFtpClientObj->GetReplyCode());
           printf("Ftp reply message = %s\n", pFtpClientObj->GetReplyMsg());

           if ( pFtpClientObj->IsReplyGood() != TRUE )
           {
               printf("Command could not be executed successfully.\n");
           }
           else
           {
               //
               // Display the output of the ls/dir command
               //
               printf("Remote directory consists of %d entries.\n\n",
                      pFtpClientObj->GetListCount());

               pListEntry = pFtpClientObj->GetFirstListEntry();

               while( pListEntry != 0 )
               {
                   printf("%s\n", pListEntry);
                   pListEntry = pFtpClientObj->GetNextListEntry();
               }
           }
       }

       retval = pFtpClientObj->Errnum();
   }
   while( 0 );

   if ( pFtpClientObj )
       delete pFtpClientObj;

   return(retval);
}
```

Retrieving File Names

The following example shows how to retrieve file names from the directory listing. The `GetFirstListEntry()` and `GetNextListEntry()` methods retrieve retrieve the first and all subsequent file names from the directory listing.

```
int main(int argc, char * argv[])
{
   long    retval = -1;

   char    szTmpBuff[2048];

   const char *    pListEntry = 0;

   EcxInit         EcxInitObj;

   EcxFtpClient *  pFtpClientObj = 0;


   do
   {
       if ( EcxInitObj.Errnum() != 0 )
       {
           printf("Failed to initialize EcxInit object.\n");
           break;
       }

       if ( (pFtpClientObj = new EcxFtpClient) == 0 )
       {
           printf("No memory to create Ecxpert ftp client object.\n");
           break;
       }

       if ( pFtpClientObj->Init("ecx.ini").Errnum() )
       {
           printf("Failed to setup Ecxpert ftp client object.\n");
           break;
       }

       do
       {
           printf("ecxftp> ");

           gets(szTmpBuff);

           if ( pFtpClientObj->RunCommand(szTmpBuff).Errnum() )
           {
               printf("Error: %ld - Could not execute command.\n",
                      pFtpClientObj->Errnum());
               break;
           }

           printf("Ftp reply code = %d\n", pFtpClientObj->GetReplyCode());
```

```
            printf("Ftp reply message = %s\n", pFtpClientObj->GetReplyMsg());

            if ( pFtpClientObj->IsReplyGood() != TRUE )
            {
                printf("Command could not be executed successfully.\n");
            }
            else if ( pFtpClientObj->GetListCount() > 0 )
            {
                pListEntry = pFtpClientObj->GetFirstListEntry();

                while( pListEntry != 0 )
                {
                    printf("%s\n", pListEntry);
                    pListEntry = pFtpClientObj->GetNextListEntry();
                }
            }
        }
        while( strcmp(szTmpBuff, "quit") != 0 );

        retval = pFtpClientObj->Errnum();
    }
    while( 0 );

    if ( pFtpClientObj )
        delete pFtpClientObj;

    return(retval);
}
```

Transferring Files

The following example shows how to send and receive files using the EcxFtp-Client API. The `RunCommand()` method runs the FTP `get` and `put` commands to transfer an ascii file and a binary file.

```
int main(int argc, char * argv[])
{
   long    retval = -1;

   //
   // List of ftp commands that we would be running using the Ecxpert
   // ftp client API. We basically login to the remote machine and
   // run get and put commands to transfer an ascii file and a binary file.
   //
   char *          FtpCommands[] =
                   {
                      "open flatline.mcom.com",
                      "user smani2 smani2",
                      "get remote-ascii-file local-ascii-file",
                      "put local-ascii-file remote-ascii-file.bak",
                      "binary",
                      "get remote-binary-file local-binary-file",
                      "put local-binary-file remote-binary-file.bak",
                      "quit",
                      ""
                   };

   EcxInit         EcxInitObj;

   EcxFtpClient *  pFtpClientObj = 0;


   do
   {
       if ( EcxInitObj.Errnum() != 0 )
       {
           printf("Failed to initialize EcxInit object.\n");
           break;
       }

       if ( (pFtpClientObj = new EcxFtpClient) == 0 )
       {
           printf("No memory to create Ecxpert ftp client object.\n");
           break;
       }

       if ( pFtpClientObj->Init("ecx.ini").Errnum() )
       {
           printf("Failed to setup Ecxpert ftp client object.\n");
           break;
       }

       for ( int i = 0; strlen(FtpCommands[i]) != 0; ++i )
       {
           printf("\nExecuting Ftp command - %s\n", FtpCommands[i]);

           if ( pFtpClientObj->RunCommand(FtpCommands[i]).Errnum() )
           {
               printf("Error: %ld - Could not execute command.\n",
                      pFtpClientObj->Errnum());
               break;
           }

           printf("Ftp reply code = %d\n", pFtpClientObj->GetReplyCode());
           printf("Ftp reply message = %s\n", pFtpClientObj->GetReplyMsg());

           if ( pFtpClientObj->IsReplyGood() != TRUE )
           {
               printf("Command could not be executed successfully.\n");
           }
       }

       retval = pFtpClientObj->Errnum();
   }
   while( 0 );

   if ( pFtpClientObj )
       delete pFtpClientObj;
```

```
        return(retval);
```

}EcxFtpClient Class Reference

Interface `ecxftpclient.h`

Superclasses `EcxBase`

Subclasses `None`

Friend Classes `None`

Syntax `class EcxFtpClient : public EcxBase { ... };`

Constructor and Destructor

EcxFtpClient( )

Creates an `EcxFtpClient` object.

Syntax `EcxFtpClient(void);`

Example See “Using the EcxFtpClient Class” on page 264.

~EcxFtpClient( )

Destroys an `EcxFtpClient` object.

Syntax `virtual ~EcxFtpClient();`

Example See “Using the EcxFtpClient Class” on page 264.

Methods

This section describes the methods of the `EcxFtpClient` class.

GetListCount ( )

Retrieves the number of files in the current directory.

Syntax `virtual int GetListCount(void)`

Returns The number of files in the current directory.

Discussion After running the `ls` or `dir` command, this method retrieves the number of files in the directory listing.

Example See "Listing Files in the Current Directory" on page 265.

GetFirstListEntry ( )

Retrieves the name of the first file in the directory listing.

Syntax `virtual const char* GetFirstListEntry(void)`

Returns A pointer to a character string that contains the name of the first file in the directory listing.

Discussion After running the `ls` or `dir` command, this method retrieves the first file in the directory listing.

Example See "Listing Files in the Current Directory" on page 265.

GetNextListEntry ( )

Retrieves the name of the next file in the directory listing.

Syntax `virtual const char* GetNextListEntry(void)`

Returns A pointer to a character string that contains the name of the next file in the directory listing.

Example See "Listing Files in the Current Directory" on page 265.

GetReplyCode ( )

Retrives the reply code for the last command executed.

Syntax `virtual int GetReplyCode(void)`

Returns A pointer to an integer representing the reply code for the last command executed.

Example See "Using the EcxFtpClient Class" on page 264.

GetReplyMsg ( )

Retrieves the reply message for the last command executed.

Syntax `virtual const char* GetReplyMsg(void)`

Returns A pointer to a character string that contains the reply message for the last command executed.

Example See "Using the EcxFtpClient Class" on page 264.

Init ( )

Initializes the FTP client API.

Syntax `virtual EcxFtpClient& Init(const char* pEcxIniFileName)`

Parameters The `Init()` method has the following parameters:

`pEcxIniFileName`	A pointer to a character string that contains the full path to the ECXpert initialization file

Returns A reference to this `EcxFtpClient` object.

Discussion This method must be called before you can call the `RunCommand()` method.

Example See "Using the EcxFtpClient Class" on page 264.

IsReplyGood ( )

Indicates whether the last FTP command executed was successful or not.

Syntax `virtual int IsReplyGood(void)`

Returns Returns a 0 or 1. A value of 0 indicates that the last FTP command failed, and a value of 1 indicates that the last FTP command executed successfully.

Example See “Using the EcxFtpClient Class” on page 264.

RunCommand ( )

Runs a command.

Syntax `virtual EcxFtpClient& RunCommand(const char* pCmdString)`

Parameters The `RunCommand()` method has the following parameters:

`pCmdString`	A character string that contains the FTP client command to be run

Returns A reference to this `EcxFtpClient` object.

Example See “Using the EcxFtpClient Class” on page 264.

Chapter

17

The EcxService Class

This chapter describes the `EcxService` class, which represents service records in an ECXpert database. This chapter contains the following sections:

- About the EcxService Class
- Using the EcxService Class
- EcxServiceClass Reference

About the EcxService Class

The `EcxService()` class represents service records in an ECXpert database. Only administrators can add, change, or delete a service record. A user must be logged in to the database before accessing a record.

Methods Summary list:

Constructor and destructor	
`EcxService(void)`	Creates an `EcxService` object.
`virtual ~EcxService(void)`	Destroys an `EcxService` object.
Allowing database access	
`SetLogin`	Allows the object to access the database.
Adding, retrieving, changing and deleting service records	
`Add`	Adds a service record to the database.
`Change`	Changes a service record in the database.
`Delete`	Deletes a service from the database.
`Get`	Retrieves a service record from the database.
Listing service records	
`List`	Retrieves a list of service records from the database
`More`	Determines whether more records are left in the list.
`Next`	Associates the object with the next record in the list.
Resetting an object's state	
`Clear`	Clears the state associated with an object, including its list
Accessing key fields	
`Id`	Determines or specifies the ID number of the service.
Accessing other fields	
`Name`	Determines or specifies the name of the service.
`Type`	Determines or specifies the service type.
`PathName`	Determines or specifies the path name to the service code file.
`EntryName`	Determines or specifies the entry name of the service.
`MaxThread`	Determines or specifies the maximum number of threads the service can have.
`Param`	Determines or specifies the service description.

`ObjPerm`	Determines or specifies the record's access permissions.
`ModByGroup`	Determines the group that last modified the record.
`ModByUser`	Determines the user that last modified the record.
`ModDt`	Determines the date the record was last modified.

Using the EcxService Class

The following sections show how to:

- Create a service object
- Add a service
- List all services
- Modify a service
- Delete a service

Creating a Service Object

The following example shows how to create a Service object.

```
ECXService * pService = NULL;

if((pService = new EcxService())->Errnum())  {
  cout << “EcxServiceObjectError:” << endl;
  cout << “\tErrnum: “ << pService->Errnum() << endl;
  cout << “\tErrmsg: “ << pService->Errmsg() << endl;
  return(NULL);

}

if((pService->SetLogin(*pLogin)).Errnum())  {
  cout << “EcxService.SetLogin() Failed:” << endl;
  cout << “\tErrnum: “ << pService->Errnum() << endl;
  cout << “\tErrmsg: “ << pService->Errmsg() << endl;
  return(NULL);

return (pService);
```

Adding a Service

The following example shows how to add a service.

```
pService->Clear();

pService->Name("Test service");
pService->Type(10);
pService->PathName("TestPathName");
pService->EntryName("TestEntryName");
pService->MaxThread(5);
pService->Param("Test param");
pService->ObjPerm(755);

if((pService->Add()).Errnum())  {
  cout << "EcxService.add() Failed" << endl;
  cout << "\tErrnum: " << pService->Errnum() << endl;
  cout << "\tErrmsg: " << pService->Errmsg() << endl;
  return(NULL);
}

id = pService->Id();

cout << "*** Added service: " << id << endl;

return(0);
```

Listing All Services

The following example shows how to generate a list of all services.

```
pService->Clear();

If((pService->List()).Errnum())  [
  cout << "EcxService.List() Failed:" << endl;
  cout << "\tErrnum: " << pService->Errnum() << endl;
  cout << "\tErrmsg: " << pService->Errmsg() << endl;
  return (pService->Errnum());
}

cout << "*** Listing Services" << pService ->More();
cout << " records found. ***" << endl;

while (pService->More())  {
  cout << pService->Id()      << ":";
  cout << pService->Name()    << ":";
  cout << pService->Type()    << ":";
  cout << pService->PathName()   << “:”;
  cout << pService->EntryName()  << “:”;
  cout << pService->MaxThread()  << “:”;
  cout << pService->Param()      << “:”;
  cout << pService->ObjPerm()    << “:”;
  cout << pService->ModByGroup() << “:”;
  cout << pService->ModByUser()  << “:”;
  cout << pService->ModDt()      << “:”;
  pService->Next(;
}

return(0);
```

Modifying a Service

The following example shows how to modify a service.

```
pService->Clear();
pService->Id(id);

if((pService->Get()).Errnum())  {
  cout << “EcxService.Get() Failed” << endl;
  cout << “\tErrnum: “ << pService->Errnum() << endl;
  cout << “\tErrmsg: “ << pService->Errmsg() << endl;
  return(pService->Errnum());
}

pservice->Type(20);

if((pService->Change()).Errnum())  {
  cout << “EcxService.Change() Failed:” << endl;
  cout << “\tErrnum: “ << pService->Errnum() << endl;
  cout << “\tErrmsg: “ << pService->Errmsg() << endl;
  return(pService->Errnum());
}

return(0);
```

Deleting a Service

The following example shows how to delete a service.

```
pService->Clear();
pService->Id(id);

if((pService->Delete()).Errnum())  {
  cout << “EcxService.Delete() Failed” << endl;
  cout << “\tErrnum: “ << pService->Errnum() << endl;
  cout << “\tErrmsg: “ << pService->Errmsg() << endl;
  return(pService->Errnum());
}

cout << “*** Deleted service: “ << id << endl;

return(0);
```

EcxServiceClass Reference

Interface	`ecxservice.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`
Syntax	`class EcxService : public EcxBase { ... };`

Class Variables

The following class variables allow you to identify the member as an administrator:

Syntax `static int ADMINISTRATOR;`

`ADMINISTRATOR`	Administrator

Constructor and Destructor

EcxService(void)

Creates an `EcxService` object.

Syntax

```
EcxService(void);
EcxService(EcxLogin&login)
```

Example See “Using the EcxService Class” on page 277.

~EcxService(void)

Destroys an `EcxService` object.

Syntax

```
virtual ~EcxService(void);
```

Example See “Using the EcxService Class” on page 277.

Methods

This section describes the methods of the `EcxService` class.

Add ( )

Adds a service record to the database.

Syntax

```
Ecxservice& Add(void);
```

Returns A reference to this service object.

Discussion You must be an administrator and be logged in before calling this method. You must specify the service’s ID number in the object, by calling the `Id()` method, before calling this method.

Example See “Adding a Service” on page 278.

See also The `Id()` method on page 283.

Change( )

Changes a service record in the database.

Syntax `EcxService& Change(void);`

Returns A reference to this service object.

Discussion You must be an administrator and be logged in before calling this method. This method updates the last record retrieved by calling the object's `Get()`, `List()`, or `Next()` method. You must specify the service's ID number in the object, by calling the `Id()` method, before calling this method.

Warning If you do not call the object's `Get()`, `List()`, or `Next()` method first, the object's ID number field, which is set by calling the `Id()` method, specifies the record that is changed. In this case, the record is completely overwritten using the object's fields. Any fields not set in the object will be replaced by 0 or NULL in the database.

Example See "Modifying a Service" on page 279.

See also The `Get()` method on page 283. The `List()` method on page 284. The `Next()` method on page 286. The `Id()` method on page 283.

Clear( )

Clears the state associated with an object, including its list.

Syntax `void Clear(void);`

Example See "Adding a Service" on page 278.

Delete( )

Deletes a service from the database.

Syntax `EcxService& Delete(void);`

Returns A reference to this service object.

Discussion You must be an administrator and be logged in before calling this method. You must specify the service's ID number in the object, by calling the `Id()` method, before calling this method.

Example See "Deleting a Service" on page 279.

See also The `Id()` method on page 283.

EntryName ( )

Determines or specifies the entry name of the service.

Syntax

```
const char * Name() const;
void EntryName(const char*);
```

Returns The first form of the method returns a pointer to a character string that contains the entry name of the service.

Discussion Use the first form of the method to determine the service entry name. Use the second form to specify the service entry name.

Example See "Adding a Service" on page 278.

Get( )

Retrieves a service record from the database.

Syntax

```
EcxService& Get(void);
```

Returns A reference to this service object.

Discussion You must specify the service's ID number in the object, by calling the `Id()` method, before calling this method.

Example See "Adding a Service" on page 278.

See also The `Id()` method on page 283.

Id ( )

Determines or specifies the ID number of the service.

Syntax
```
unsigned int Id()const;
void Id(const unsigned int)
```

Returns The first form of the method returns an unsigned integer that contains the ID number of the service.

Discussion Before you call the `Add()`, `Change()`, `Delete()`, or `Get()` methods, you must first specify the service's ID number in the object by calling the `Id()` method. Use the first form of the method to determine the service's ID number. Use the second form to specify the service's ID number.

Example See "Adding a Service" on page 278.

List( )

Retrieves a list of service records from the database.

Syntax
```
EcxService& List(void);
```

Returns A reference to this service object.

Example See "Listing All Services" on page 278.

MaxThread ( )

Determines or specifies the maximum number of threads the service can have.

Syntax
```
unsigned int MaxThread() const;
void MaxThread(const unsigned int);
```

Returns The first form of the method returns an unsigned integer that contains the maximum number of threads.

Discussion Use the first form of the method to determine the maximum number of threads. Use the second form to specify the maximum number of threads.

Example See "Adding a Service" on page 278.

ModByGroup( )

Determines the group that last modified the record.

Syntax `const char* ModByGroup() const;`

Returns A pointer to a character string that contains the group.

ModByUser( )

Determines the user that last modified the record.

Syntax `const char* ModByUser() const;`

Returns A pointer to a character string that contains the user name.

ModDt( )

Determines the date the record was last modified.

Syntax `const char* ModDt() const;`

Returns A pointer to a character string that contains the date.

More ( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Example See “Listing All Services” on page 278.

See also The `List()` method on page 284. The `Next()` method on page 284.

Name( )

Determines or specifies the name of the service.

Syntax
```
const char* Name() const;
void Name(const char* name);
```

Parameters The `Name()` method has the following parameters:

`name`	A pointer to a character string that contains the service's name.

Returns The first form of the method returns a pointer to a character string that contains the name.

Discussion Use the first form of the method to determine the service's name. Use the second form to specify the name.

Example See "Adding a Service" on page 278.

Next( )

Associates the object with the next record in the list.

Syntax
```
EcxService& Next(void);
```

Returns A reference to this member object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

Example See "Listing All Services" on page 278.

See also The `More()` method on page 285.

ObjPerm( )

Determines or specifies the record's access permissions.

Syntax
```
unsigned int ObjPerm() const;
void ObjPerm(const unsigned int permissions);
```

Parameters The `ObjPerm()` method has the following parameters:

`permissions`	An unsigned integer that specifies the access permissions.

Returns The first form of the method returns an unsigned integer that contains the permissions.

Discussion Use the first form of the method to determine the record’s access permissions. Use the second form to specify the permissions. The `ObjPerm()` method does not modify the database.

Example See “Adding a Service” on page 278.

Param ( )

Determines or specifies the service description.

Syntax

```
const char * Param() const;
void Param(const char*);
```

Returns The first form of the method returns a pointer to a character string that contains the service description.

Discussion Use the first form of the method to determine the service description. Use the second form to specify the service description.

PathName ( )

Determines or specifies the path name to the service code file.

Syntax

```
const char * Name() const;
void PathName(const char*);
```

Returns The first form of the method returns a pointer to a character string that contains the path name.

Discussion Use the first form of the method to determine the path name to the service code file. Use the second form to specify the path name to the service code file.

SetLogin( )

Allows the object to access the database.

Syntax `EcxService& SetLogin(EcxLogin& login);`

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this service object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before using this object.

Example See “Creating a Service Object” on page 277.

See also The `EcxService` constructor on page 281. The `EcxLogin` class on page 127.

Type( )

Determines or specifies the type of service.

Syntax

```
unsigned int Type() const;
void Type(const unsigned int type);
```

Parameters The `Type()` method has the following parameters:

`type`	An unsigned integer that specifies whether the member is an administrator.

Returns The first form of the method returns an unsigned integer that contains the type.

Discussion You can use any of the following values:

Constant	Value	Description
STunknown	0	unknown
STinternal	1	internal service (e.g. parse, translate)
STscript	2	external script file
STexe	3	external executable file
STdll	4	a function in a shared library (i.e. DLL or .so)

Example See “Adding a Service” on page 278.

See also “Class Variables” on page 280.

Chapter
18

The EcxServiceList Class

This chapter describes the `EcxServiceList` class, which represents service list records in an ECXpert database. This chapter contains the following sections:

- About the EcxServiceList Class
- Using the EcxServiceList Class
- EcxServiceList Class Reference

About the EcxServiceList Class

The `EcxServiceList()` class defines methods you can use to

Methods Summary list:

Constructor and destructor	
`EcxServiceList(void)`	Creates an `EcxServiceList` object.
`virtual ~EcxServiceList(void)`	Destroys an `EcxServiceList` object.
Allowing database access	
`SetLogin`	Allows the object to access the database.
Adding, retrieving, changing and deleting service list records	
`Add`	Adds a service list record to the database.
`Change`	Changes a service list record in the database.
`Delete`	Deletes a service list from the database.
`Get`	Retrieves a service list record from the database.
Listing service list records	
`List`	Retrieves a list of service list records from the database
`More`	Determines whether more records are left in the list.
`Next`	Associates the object with the next record in the list.
Resetting an object's state	
`Clear`	Clears the state associated with an object, including its list.
Accessing key fields	
`ServiceListName`	Determines or specifies the service list name
`SeqNum`	Determines or specifies the sequence number of the service in the service list.
Accessing other fields	
`SndrMBName`	Determines or specifies the sending member name.
`RcvrMBName`	Determines or specifies the receiving member name.
`TypeName`	Determines or specifies the service file type name OR service data object type name.
`SVRId`	Determines or specifies the service ID.
`SVRName`	Determines or specifies the service name.

`ServiceParams`	Determines or specifies the service parameters.
`ErrorHandler`	Determines the name of user-specified service for error handler.
`Desc`	Determines or specifies the service description.
`ObjPerm`	Determines or specifies the record's access permissions.
`ModByGroup`	Determines the group that last modified the record.
`ModByUser`	Determines the user that last modified the record.
`ModDt`	Determines the date the record was last modified.

Using the EcxServiceList Class

The following sections show how to:

- Create a service list object
- Add a service list
- List all service lists
- Modify a service list
- Delete a service list

Creating a Service List Object

The following example shows how to create a ServiceList object.

```
ECXServiceList * pServiceList = NULL;

if((pServiceList = new EcxServiceList())->Errnum())  {
  cout << “EcxServiceListObjectError:” << endl;
  cout << “\tErrnum: “ << pServiceList->Errnum() << endl;
  cout << “\tErrmsg: “ << pServiceList->Errmsg() << endl;
  return(NULL);

}

if((pServiceList->SetLogin(*pLogin)).Errnum())  {
  cout << “EcxServiceList.SetLogin() Failed:” << endl;
  cout << “\tErrnum: “ << pServiceList->Errnum() << endl;
  cout << “\tErrmsg: “ << pServiceList->Errmsg() << endl;
  cout << endl;
  delete pServiceList;
  return(NULL);

return (pServiceList);
```

Adding a Service List

The following example shows how to add a service list.

```
pServiceList->Clear();

pService->ServiceListName(“slname”);
pService->SeqNum(seqNum);
pService->SndrMBName(“ectest1”);
pService->RcvrMBName(“ectest2”);
pService->TypeName(“Test Type”);
pService->SVRId(201);
pService->SVRName(Parse);
pService->ServiceParams(“Test Service Params”);
pService->ErrorHandler(“Test Error Handler”);
pService->Desc(“Test Desc”);
pService->ObjPerm(755);

if((pService->Add()).Errnum())  {
  cout << “EcxServiceList.add() Failed” << endl;
  cout << “\tErrnum: “ << pServiceList->Errnum() << endl;
  cout << “\tErrmsg: “ << pServiceList->Errmsg() << endl;
  return(NULL);
}

id = pService->Id();

cout << “*** Added serviceList: “ << slname << “, “ << seqNum << endl;

return(0);
```

Listing All Service Lists

The following example shows how to generate a list of all service lists.

```
pServiceList->Clear();

If((pServiceList->List()).Errnum())  [
  cout << “EcxServiceList.List() Failed:” << endl;
  cout << “\tErrnum: “ << pServiceList->Errnum() << endl;
  cout << “\tErrmsg: “ << pServiceList->Errmsg() << endl;
  return (pServiceList->Errnum());
}

cout << “*** Listing serviceLists” << pServiceList->More();
cout << “ records found. ***” << endl;

while (pServiceList->More())  {
  cout << pServiceList->ServiceListName()    << “:”;
  cout << pServiceList->SeqName()            << “:”;
  cout << pServiceList->SndrMBName()         << “:”;
  cout << pServiceList->RcvrMBName()         << “:”;
  cout << pServiceList->TypeName()           << “:”;
  cout << pServiceList->SVRId()              << “:”;
  cout << pServiceList->SVRName()            << “:”;
  cout << pServiceList->ServiceParams()      << “:”;
  cout << pServiceList->ErrorHandler()       << “:”;
  cout << pServiceList->Desc()               << “:”;
  cout << pServiceList->ObjPerm()            << “:”;
  cout << pServiceList->ModByGroup()         << “:”;
  cout << pServiceList->ModByUser()          << “:”;
  cout << pServiceList->ModDt()              << “:”;
  pService->Next(;
}

return(0);
```

Modifying a Service List

The following example shows how to modify a service list.

```
pServiceList->Clear();
pServiceList->ServiceListName(slname);
pServiceList->SeqNum(seqNum);

if((pServiceList->Get()).Errnum())  {
  cout << “EcxServiceList.Get() Failed” << endl;
  cout << “\tErrnum: “ << pServiceList->Errnum() << endl;
  cout << “\tErrmsg: “ << pServiceList->Errmsg() << endl;
  return(pServiceList->Errnum());
}

pServiceList->TypeName(“Changed Type”);
```

```
if((pServiceList->Change()).Errnum())  {
  cout << “EcxServiceList.Change() Failed:” << endl;
  cout << “\tErrnum: “ << pServiceList->Errnum() << endl;
  cout << “\tErrmsg: “ << pServiceList->Errmsg() << endl;
  return(pServiceList->Errnum());
}

cout << “*** Changed serviceList: “ << slname << “, “ << seqNum << endl;

return(0);
```

Deleting a Service List

The following example shows how to delete a list of all service lists.

```
pServiceList->Clear();
pServiceList->Id(id);
pServiceList->SeqNum(seqNum)

if((pServiceList->Delete()).Errnum())  {
  cout << “EcxServiceList.Delete() Failed” << endl;
  cout << “\tErrnum: “ << pServiceList->Errnum() << endl;
  cout << “\tErrmsg: “ << pServiceList->Errmsg() << endl;
  return(pServiceList->Errnum());
}

cout << “*** Deleted serviceList: “ << slname << “, “ << seqNum << endl;

return(0);
```

EcxServiceList Class Reference

Interface	`ecxservice.h`
Superclasses	`EcxBase`
Subclasses	`None`
Friend Classes	`None`

Syntax
```
class EcxFtpClient : public EcxBase { ... };
```

Class Variables

The following class variables allow you to identify the member as an administrator:

Syntax
```
static int ADMINISTRATOR;
```

`ADMINISTRATOR`	Administrator

Constructor and Destructor

EcxServiceList(void)

Creates an `EcxFtpClient` object.

Syntax
```
EcxServiceList(void);
EcxServiceList(EcxLogin&login)
```

Example See “Using the EcxServiceList Class” on page 293.

~EcxServiceList(void)

Destroys an `EcxFtpClient` object.

Syntax
```
virtual ~EcxServiceList(void);
```

Example See “Using the EcxServiceList Class” on page 293.

Methods

This section describes the methods of the `EcxFtpClient` class.

Add ( )

Adds a service list record to the database.

Syntax `EcxServiceList& Add(void);`

Returns A reference to this service list object.

Discussion You must be an administrator and be logged in before calling this method. You must specify the service list name in the object, by calling the `Service-ListName()` method, and specify the sequence number of the service in the service list, by calling the `SeqNum()` method, before calling this method.

Example See “Adding a Service List” on page 294.

See also The `ServiceListName()` method on page 304. The `SeqNum()` method on page 303.

Change( )

Changes a service list record in the database.

Syntax `EcxServiceList& Change(void);`

Returns A reference to this service list object.

Discussion This method updates the last record retrieved by calling the object’s `Get()`, `List()`, or `Next()` method. You must be an administrator and be logged in before calling this method. You must specify the service list name in the object, by calling the `ServiceListName()` method, and specify the sequence number of the service in the service list, by calling the `SeqNum()` method, before calling this method.

Warning If you do not call the object’s `Get()`, `List()`, or `Next()` method first, the object’s name and sequence number fields, which are set by calling the `ServiceListName()` method and the `SeqNum()` method, specify the record that is changed. In this case, the record is completely overwritten using the object’s fields. Any fields not set in the object will be replaced by 0 or NULL in the database.

Example See “Modifying a Service List” on page 295.

See also The `Get()` method on page 300. The `List()` method on page 300. The `Next()` method on page 302. The `ServiceListName()` method on page 304. The `SeqNum()` method on page 303.

Clear( )

Clears the state associated with an object, including its list.

Syntax `void Clear(void);`

Example See “Listing All Service Lists” on page 294.

Delete( )

Deletes a service list from the database.

Syntax `EcxServiceList& Delete(void);`

Returns A reference to this service list object.

Discussion You must be an administrator and be logged in before calling this method. You must specify the service list name in the object, by calling the `Service-ListName()` method, and specify the sequence number of the service in the service list, by calling the `SeqNum()` method, before calling this method.

Example See “Deleting a Service List” on page 296.

See also The `ServiceListName()` method on page 304. The `SeqNum()` method on page 303.

Desc ( )

Determines or specifies the service description.

Syntax

```
const char * Desc() const;
void Desc(const char*);
```

Returns The first form of the method returns a pointer to a character string that contains the service list description.

Discussion Use the first form of the method to determine the service list description. Use the second form to specify the service list description.

Example See “Adding a Service List” on page 294.

ErrorHandler ( )

Determines the name of user-specified service for error handler.

Syntax
```
const char * ErrorHandler() const;
void ErrorHandler (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the name of user-specified service for error handler.

Discussion Use the first form of the method to determine the name of user-specified service for error handler. Use the second form to specify the name of user-specified service for error handler.

Example See “Adding a Service List” on page 294.

Get( )

Retrieves a service list record from the database.

Syntax
```
EcxServiceList& Get(void);
```

Returns A reference to this service list object.

Discussion You must specify the service list name in the object, by calling the `Service-ListName()` method, and specify the sequence number of the service in the service list, by calling the `SeqNum()` method, before calling this method.

Example See “Modifying a Service List” on page 295.

See also The `ServiceListName()` method on page 304. The `SeqNum()` method on page 303.

List( )

Retrieves a list of service list records from the database.

Syntax `EcxServiceList& List(void);`

Returns A reference to this service list object.

Discussion If you specify the service list's name in the object by calling the `Service-ListName()` method first, only the record matching with the specified name will be retrieved. After calling the `List()` method, the member object contains fields from the first record from the list.

Example See "Listing All Service Lists" on page 294.

See also The `ServiceListName()` method on page 304.

ModByGroup( )

Determines the group that last modified the record.

Syntax `const char* ModByGroup() const;`

Returns A pointer to a character string that contains the group.

ModByUser( )

Determines the user that last modified the record.

Syntax `const char* ModByUser() const;`

Returns A pointer to a character string that contains the user name.

ModDt( )

Determines the date the record was last modified.

Syntax `const char* ModDt() const;`

Returns A pointer to a character string that contains the date.

More ( )

Determines whether more records are left in the list.

Syntax `long More(void);`

Returns A long integer that contains the number of records not yet accessed from the list.

Discussion After calling the `List()` method and before calling the `Next()` method, the `More()` method returns the total number of records in the list. All records have been accessed when the `More()` method returns 0.

Example See “Listing All Service Lists” on page 294.

See also The `List()` method on page 300. The `Next()` method on page 302.

Next( )

Associates the object with the next record in the list.

Syntax `EcxServiceList& Next(void);`

Returns A reference to this member object.

Discussion The `Next()` method sets the fields in the object to match those in the next record in the list. The `Next()` method decrements the number of records not yet accessed, which is returned by the `More()` method.

Warning Do not call the `Next()` method if the `More()` method returns a value less than 1; the results are unpredictable.

Example See “Listing All Service Lists” on page 294.

See also The `More()` method on page 301.

ObjPerm( )

Determines or specifies the record’s access permissions.

Syntax

```
unsigned int ObjPerm() const;
void ObjPerm(const unsigned int permissions);
```

Parameters The `ObjPerm()` method has the following parameters:

`permissions`	An unsigned integer that specifies the access permissions.

Returns The first form of the method returns an unsigned integer that contains the permissions.

Discussion Use the first form of the method to determine the record's access permissions. Use the second form to specify the permissions. The `ObjPerm()` method does not modify the database.

Example See "Adding a Service List" on page 294.

RcvrMBName ( )

Determines or specifies the receiving member name.

Syntax
```
const char * RcvrMBName() const;
void RcvrMBName (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the receiving member name.

Discussion Use the first form of the method to determine the receiving member name. Use the second form to specify the receiving member name. Because it is the foreign key, the receiving member name must exist in the database.

Example See "Listing All Service Lists" on page 294.

SeqNum

Determines or specifies the sequence number of the service in the service list.

Syntax
```
unsigned int SeqNum() const;
void SeqNum (const unsigned int);
```

Returns The first form of the method returns an unsigned integer that contains the sequence number of the service in the service list.

Discussion Before you call the `Add()`, `Change()`, `Delete()`, or `Get()` methods, you must first specify the service's sequence number within the service list in the object by calling the `SeqNum()` method. Use the first form of the method to determine the sequence number of the service in the service list. Use the second form to specify the sequence number of the service in the service list.

Example The `Add()` method on page 298. The `Change()` method on page 298. The `Delete()` method on page 299. The `Get()` method on page 300. The `ServiceListName()` method on page 304.

ServiceListName ( )

Determines or specifies the service list name.

Syntax

```
const char * ServiceListName() const;
void ServiceListName (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the service list name.

Discussion Before you call the `Add()`, `Change()`, `Delete()`, or `Get()` methods, you must first specify the service list name in the object by calling the `Service-ListName()` method. Use the first form of the method to determine the service list name. Use the second form to specify the service list name.

Example The `Add()` method on page 298. The `Change()` method on page 298. The `Delete()` method on page 299. The `Get()` method on page 300. The `SeqNum()` method on page 303.

ServiceParams ( )

Determines or specifies the service parameters.

Syntax

```
const char * ServiceParams() const;
void ServiceParams (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the service parameters.

Discussion Use the first form of the method to determine the service list name. Use the second form to specify the service parameters.

Example See “Listing All Service Lists” on page 294.

SetLogin( )

Allows the object to access the database.

Syntax `EcxServiceList& SetLogin(EcxLogin& login);`

Parameters The `SetLogin()` method has the following parameters:

`login`	A reference to a valid `EcxLogin` object

Returns A reference to this service list object.

Discussion If you do not use the form of the constructor that accepts a login object, you must call the `SetLogin()` method before using this object.

Example See “Creating a Service List Object” on page 293.

See also The `EcxServiceList` constructor on page 297. The `EcxLogin` class on page 127.

SndrMBName ( )

Determines or specifies the sending member name.

Syntax

```
const char * SndrMBName() const;
void SndrMBName (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the sending member name.

Discussion Use the first form of the method to determine the sending member name. Use the second form to specify the sending member name. Because it is the foreign key, the sending member name must exist in the database.

Example See “Listing All Service Lists” on page 294.

SVRId ( )

Determines or specifies the service ID.

Syntax `unsigned int SVRId() const;`

```
void SvrId (const unsigned int);
```

Returns The first form of the method returns an unsigned integer that contains the service ID.

Discussion Use the first form of the method to determine the sequence number of the service in the service list. Use the second form to specify the service ID.

Example See “Listing All Service Lists” on page 294.

SVRName ( )

Determines or specifies the service name.

Syntax

```
const char * SVRName() const;
void SVRName(const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the service name.

Discussion Use the first form of the method to determine the service name. Use the second form to specify the service name.

Example See “Listing All Service Lists” on page 294.

TypeName ( )

Determines or specifies the service file type name OR service data object type name.

Syntax

```
const char * TypeName() const;
void TypeName (const char* );
```

Returns The first form of the method returns a pointer to a character string that contains the service ID.

Discussion Use the first form of the method to determine the service ID. Use the second form to specify the service ID.

Example See “Listing All Service Lists” on page 294.

Chapter

19

Customizing Reports

This chapter describes how you can use the Actuate Report System to create custom reports for use with ECXpert. This chapter contains the following sections:

- Overview
- Starting a New Report
- Building a Query
- Laying Out a Report
- Adding Report Parameters
- Building Complex Queries
- Displaying Groups of Data
- Displaying Row-related Data

Overview

The Actuate Report System is a very powerful database reporting tool. Actuate comes with hundreds of pages of documentation. This chapter does not attempt to cover much of the information provided by Actuate; rather, this chapter provides just enough information to get started using Actuate with an ECXpert database. You should find Actuate easier to use after reading this chapter.

You will probably find that you need some knowledge of the SQL Select statement if you want to do anything complicated. Although Actuate builds a Select statement for you when you specify the fields you want to display in your report, you still need to know how to interpret the Select statement.

You will also need to refer to the ECXpert database schema presented in "ECXpert Database Schema" on page 347. The schema identifies the fields you can use to create the report and the relationships between tables.

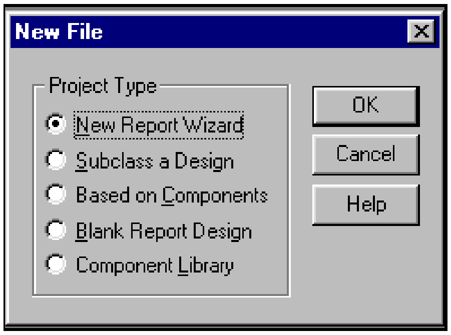
There are many strategies for creating reports and learning how to interpret the data in the ECXpert database. The strategy shown in this chapter is to first create a report that uses an individual table, then create a report that uses multiple tables and groups data. If you follow this strategy, you will learn how easy it is to use Actuate's basic features. You will also become familiar with the contents of the database tables that you are interested in. When you are ready to create your own multiple-table reports, you will be familiar with both Actuate and the data from which your report is prepared.

Warning The ECXpert release 3.0 database schema on which you build your reports is subject to change in future versions of the ECXpert System. You should consider the potential reimplementation effort associated with an upgrade to the database when deciding how much effort you want to invest creating custom reports.

Starting a New Report

You create reports with Actuate's Developer Workbench. After you start the Workbench, choose New from the File menu. You are prompted for the kind of project. Choose New Report Wizard to create your report, as shown in Figure 19.1.

Figure 19.1 Choosing the project type


New File

Project Type

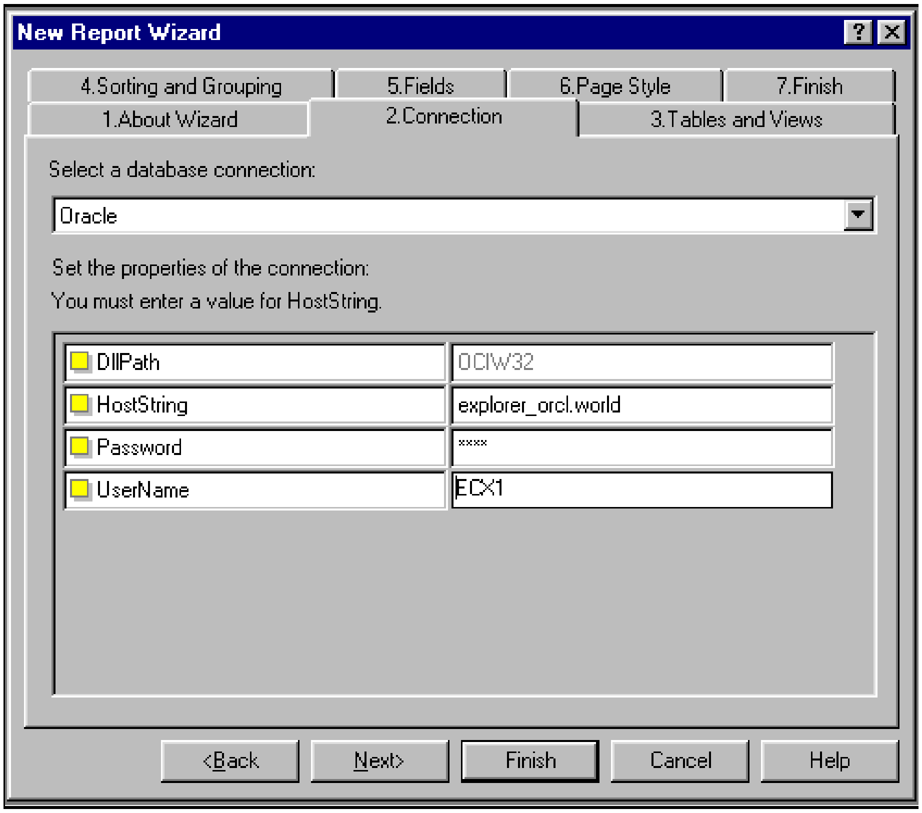
[● New Report Wizard]
○ Subclass a Design
○ Based on Components
○ Blank Report Design
○ Component Library

After you choose OK, the wizard specification box appears. You can fill in all of the sections; however, you need not fill in any. You may find it convenient to fill in Section 2, “Connection,” as shown in Figure 19.2. This section allows you to specify the kind of database connection (Oracle), the default user name, password, and host.

Note Filling in these connection parameters does not connect you to the database. To ensure that your configuration is correct, you can run Oracle’s SQL*Plus or a standard report provided with ECXpert using the connection parameters.

When you finish with the wizard specification, choose Finish.

Figure 19.2 New report wizard



Select a database connection:

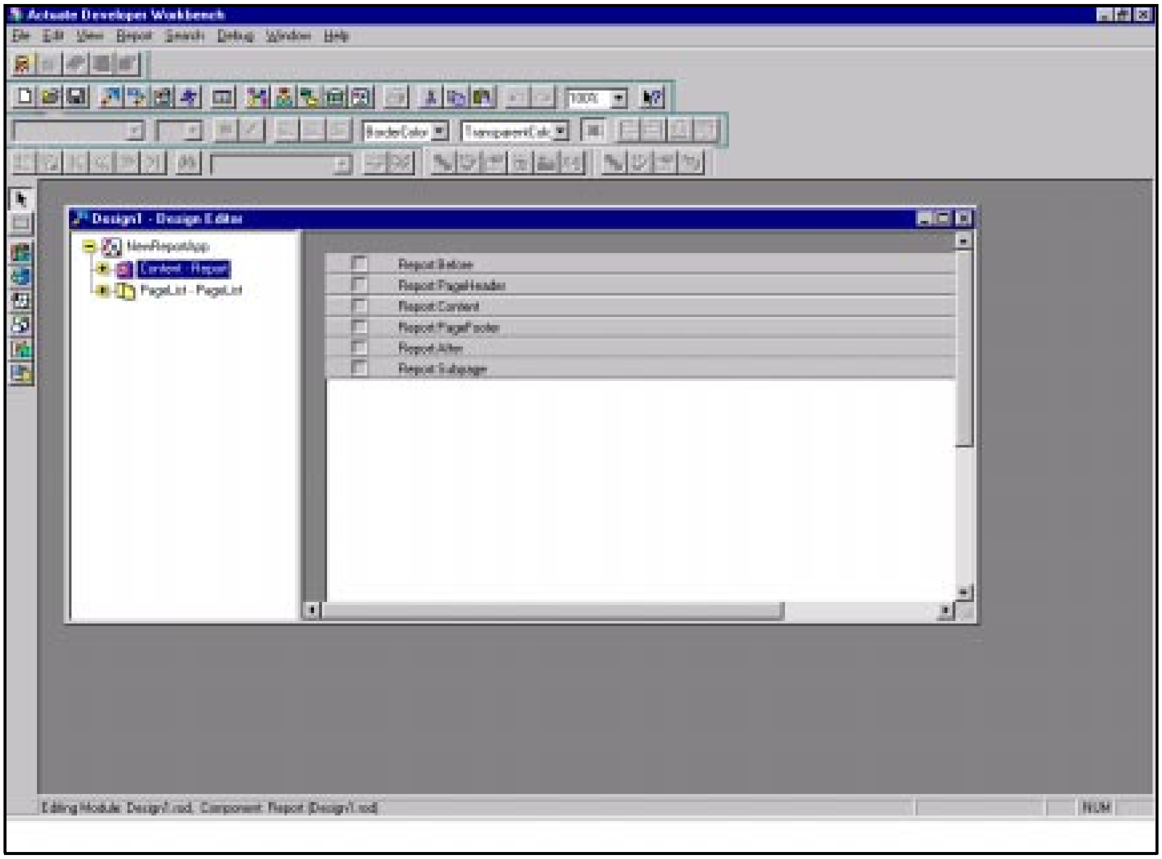
Oracle

Set the properties of the connection:
You must enter a value for HostString.

DllPath	OCIW32
HostString	explorer_orcl.world
Password	****
UserName	ECX1

When the New Report Wizard box closes, you are placed in the Design Editor, as shown in Figure 19.3. This editor has two parts; the structure pane on the left and the layout pane on the right. The structure pane shows all of the objects created by the New Report Wizard. You do not need to work with them yet. Just select one of them, such as NewReportApp, and then choose Data Source from the View menu to start describing the SQL Select statement you want your report to execute.

Figure 19.3 The design editor

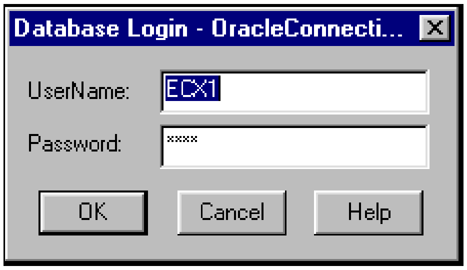


Editing Module: Design1.rod, Component: Report (Design1.rod)

Building a Query

You can build a SQL Select statement to drive your report in the Query Editor. If you are not logged into a database, Actuate prompts you for the user name and password using the default values that you specified in the New Report Wizard, as shown in Figure 19.4. You can change the values if you want. If you want to change the host, you must change the Connection object in the structure pane; see Figure 19.24 on page 332. Figure 19.4 shows the login dialog.

Figure 19.4 Login dialog for Oracle

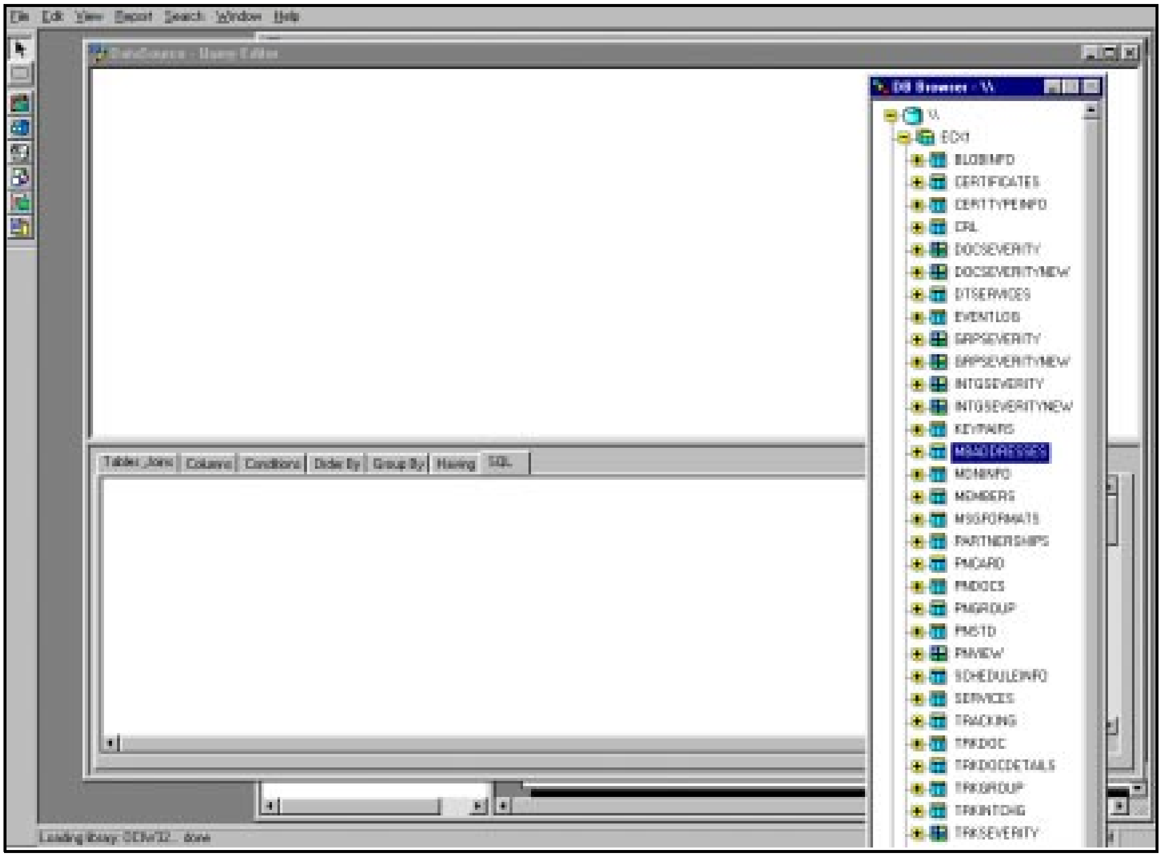

Database Login - OracleConnecti...

UserName: ECX1

Password: ****

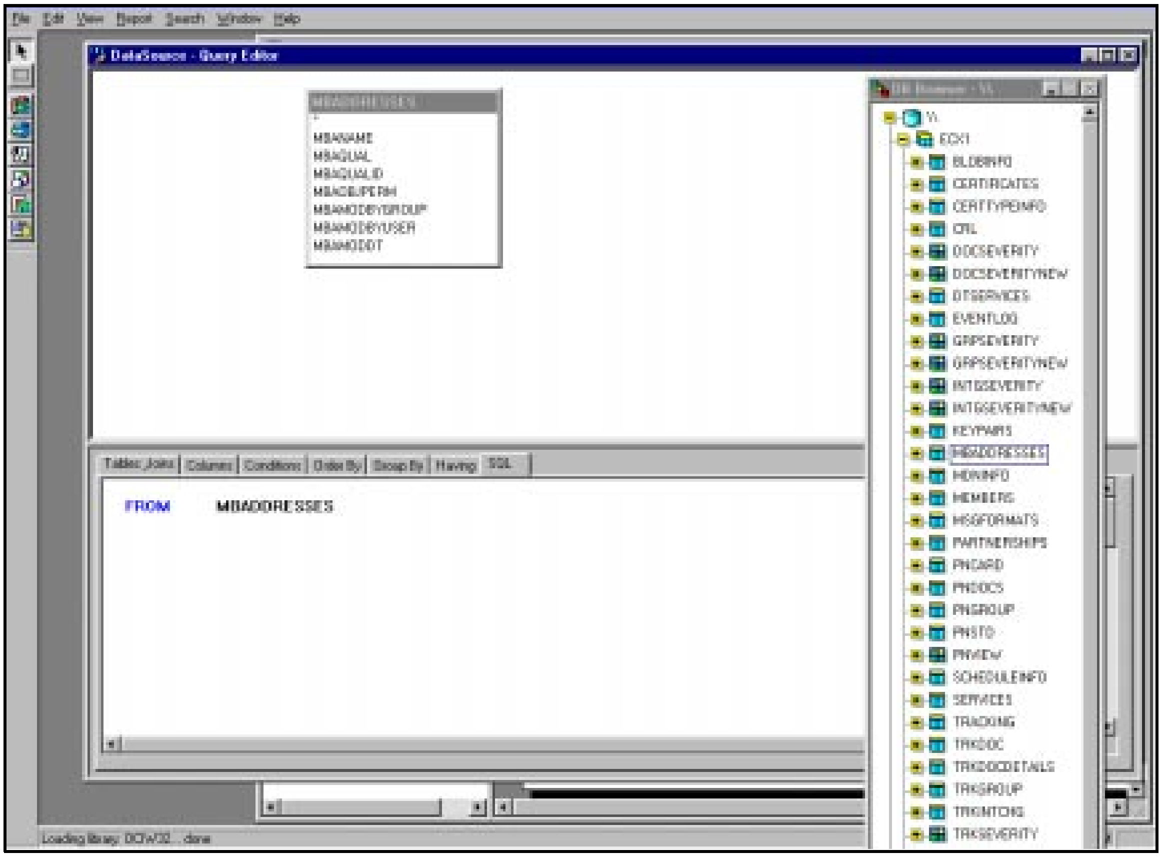
After you log in, the Query Editor appears, as shown in Figure 19.5. It consists of a pane on top for visually representing data and a tab-selected pane on the bottom for entering and viewing the SQL statement specification. A database browsing window is also available for selecting tables.

Figure 19.5 The query editor



You select the tables you want to use from the database browsing window and drag them into the upper pane. In this part of the example, only MBADDRESSES is used, as shown in Figure 19.6. Dragging a table into the upper pane modifies the From clause in the SQL-tab of the lower pane.

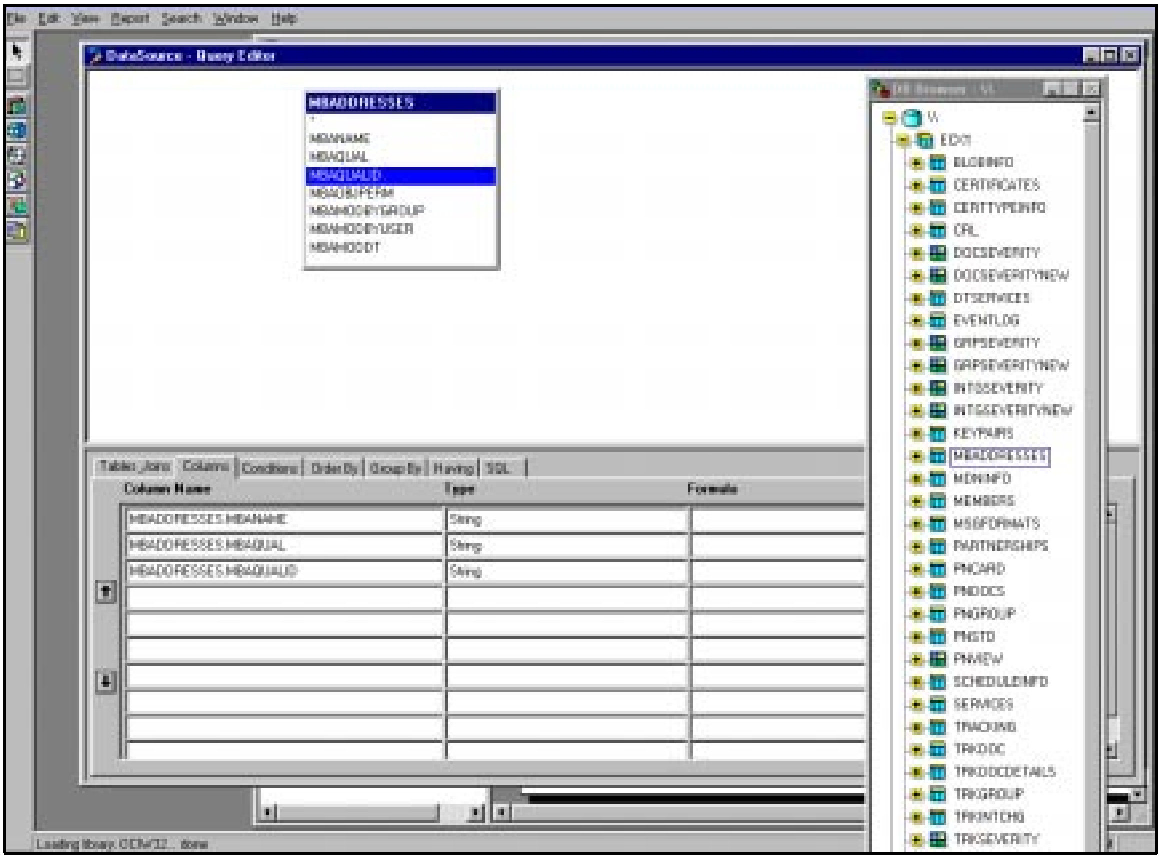
Figure 19.6 Dragging tables to the visual pane



```
FROM     MBADDRESSES
```

After you drag the tables to the upper pane, select the Columns tab from the lower pane. This allows you to drag columns from the table in the upper pane and drop them under Column Name in the lower pane. You can drag and drop the asterisk (*) if you want to quickly select all columns in the table. Figure 19.7 shows the Query Editor after MBANAME, MBAQUAL, and MBAQUALID have been selected.

Figure 19.7 Selecting columns

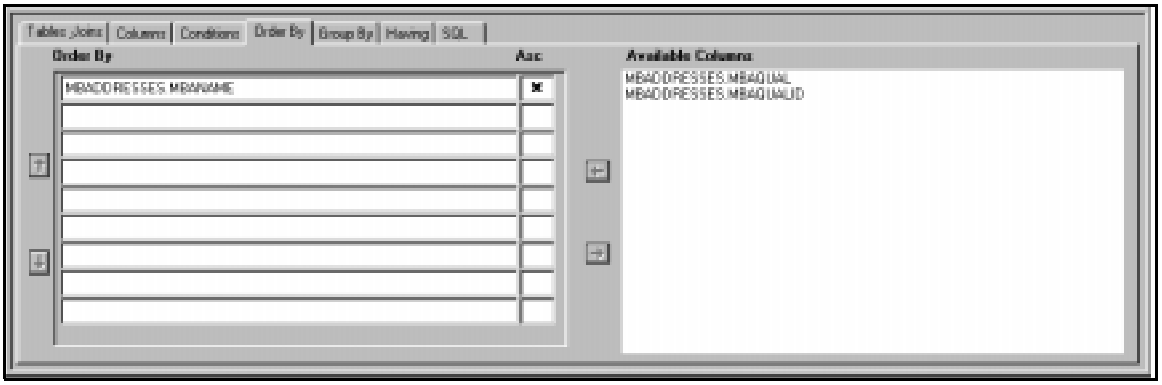


Column Name	Type	Formula
MBADDRESSES.MBANAME	String	
MBADDRESSES.MBAQUAL	String	
MBADDRESSES.MBAQUALID	String	

After you have selected your tables from the database browser window and your columns from the upper pane, you can refine your SQL statement by selecting tabs in the lower pane and making further specifications.

Figure 19.8 shows the lower pane after selecting the OrderBy tab. You can use the pane to specify the Order By clause in your Select statement. In this example, the Select statement is ordered by the MBANAME column.

Figure 19.8 Specifying the Order By clause

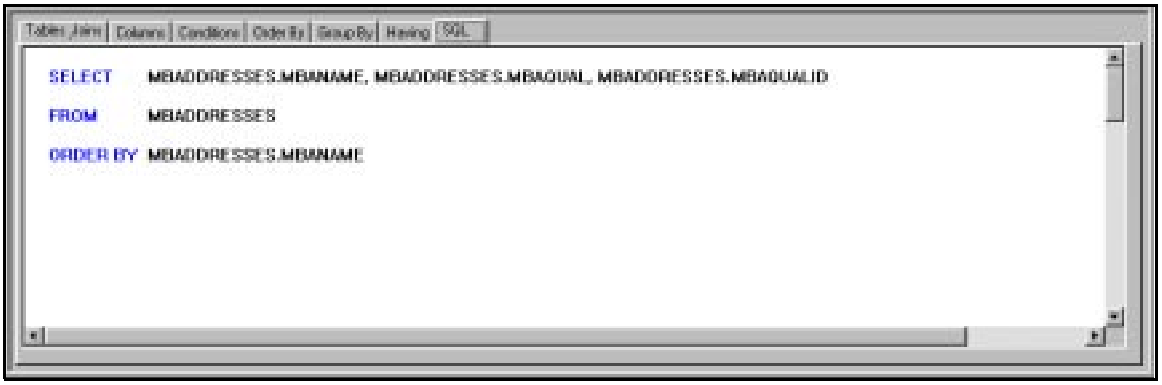


Order By	Asc
MBADDRESSES.MBANAME	✓

Available Columns:
MBADDRESSES.MBAQUAL
MBADDRESSES.MBAQUALID

When you are finished, you can choose the SQL tab to view the resulting Select statement. Figure 19.9 shows the Select statement that is used in this example.

Figure 19.9 A SQL Select statement



```
SELECT     MBADDRESSES.MBANAME, MBADDRESSES.MBAQUAL, MBADDRESSES.MBAQUALID
FROM       MBADDRESSES
ORDER BY   MBADDRESSES.MBANAME
```

At this point, the Select statement used in the first report has been created. Close the Query Editor to return to the Design Editor.

Laying Out a Report

You use the Design Editor to lay out your report. The following sections show you how to

- create frames for the data you want to display
- set up fields in the frames to display the data
- add headers and footers to your report

Along the way, you will learn how to run the report and view the appearance of your layout.

Creating Frames

A report is divided into various sections. Initially, a report contains the following sections:

- Report:PageHeader for items you want to appear at the top of each page
- Report:Before for items you want to appear only on the first page
- Report:Content for the main content of your report
- Report:After for items you want to appear on the last page
- Report:PageFooter for items you want to appear at the bottom of each page
- Report:Subpage for items you want to appear as a section within a page

Before you can display anything in a report section, you must create a frame and drag it into the section. To create a frame, select the structure tool (third icon from the top) from the left of the structure pane. A structure palette appears. Select and drag a frame structure (fifth icon from the right) from the palette to either the box to the left of the section name in the layout pane or to the corresponding object in the structure pane.

Figure 19.10 shows the structure palette and the Class Name prompt that appears after dropping the form in the appropriate place. Each object is identified by its name; typically, you can accept the default. A discussion of the use of subclasses is beyond the scope of this chapter.

Figure 19.10 Creating a frame

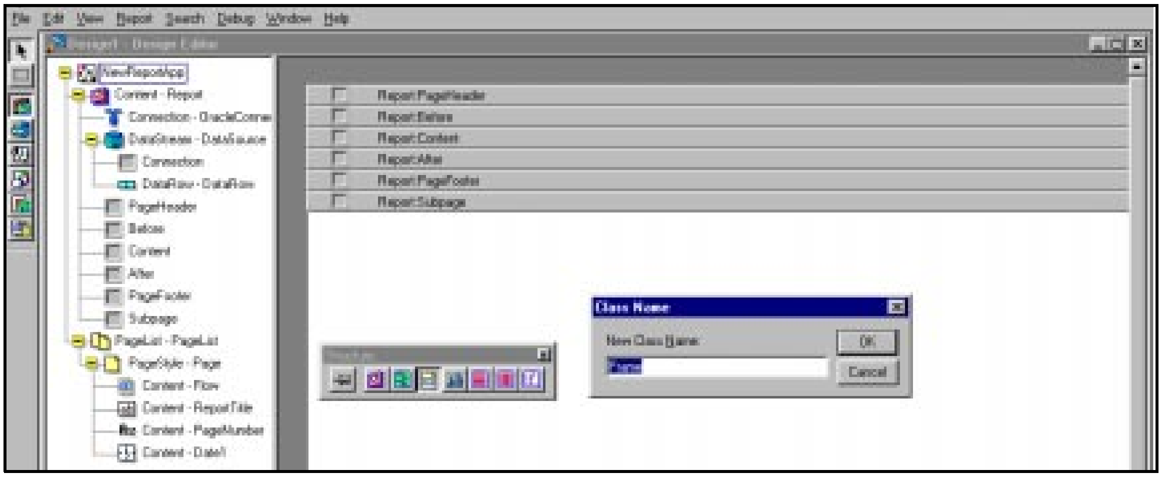
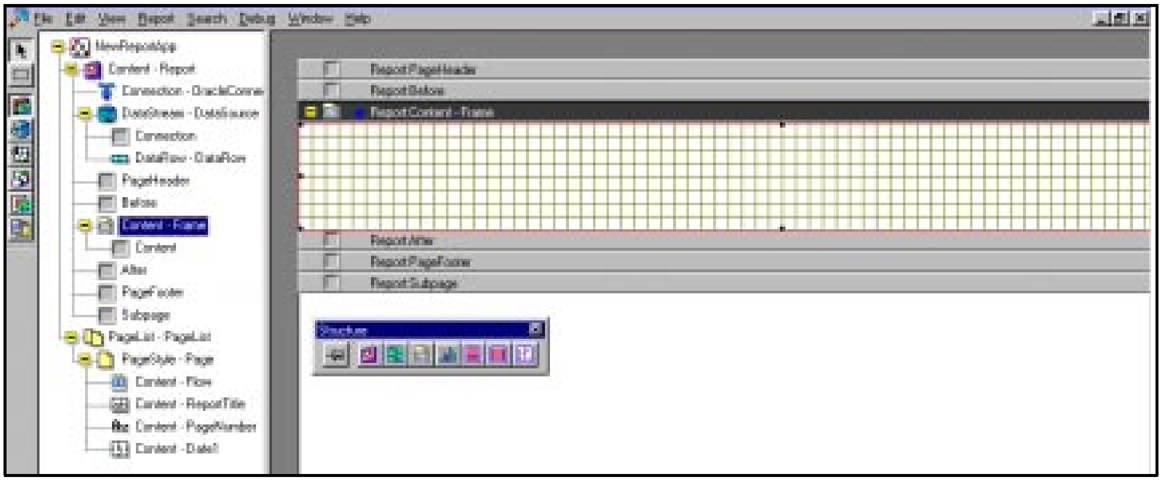


Figure 19.11 shows the frame in the layout pane. Notice that the frame also appears in the structure pane. Everything you place in the layout pane also appears in the structure pane. For any given operation, you can decide which pane is easier to work from.

Figure 19.11 A display frame



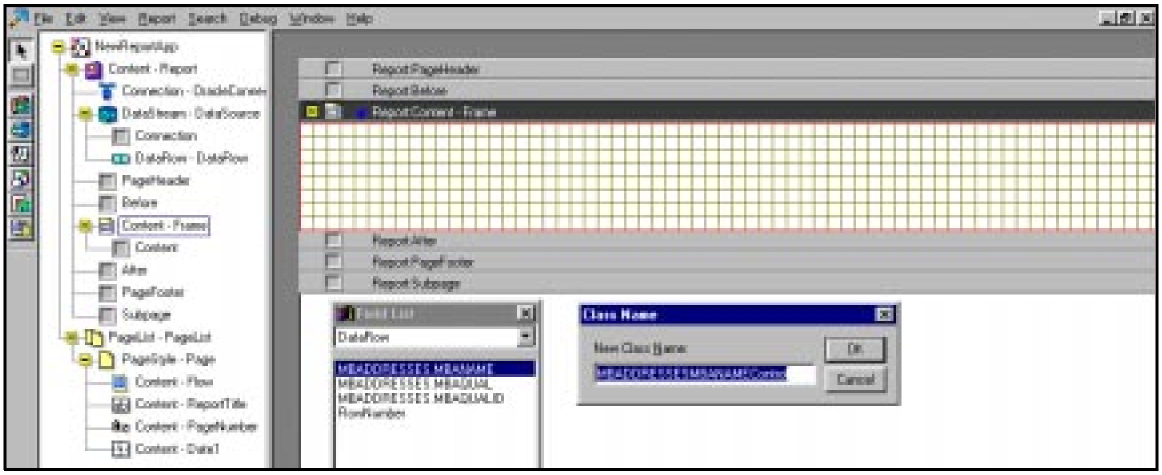
After you create a frame, you can add the items you want to display.

Displaying Data

You can display data in controls. There are several ways to create controls. One way is to use the Field List that Actuate creates when you build your query. To display the Field List, select Field List from the View menu. This menu option toggles whether or not to display the list. You can select one of the fields you specified in your SQL Select statement and drag it onto the frame.

Figure 19.12 shows the Field List and the Class Name prompt that appears after selecting MBADDRESSES.MBANAME from the Field List and dropping it into the frame. After you choose a class name, the control is created in the frame.

Figure 19.12 Using the field list



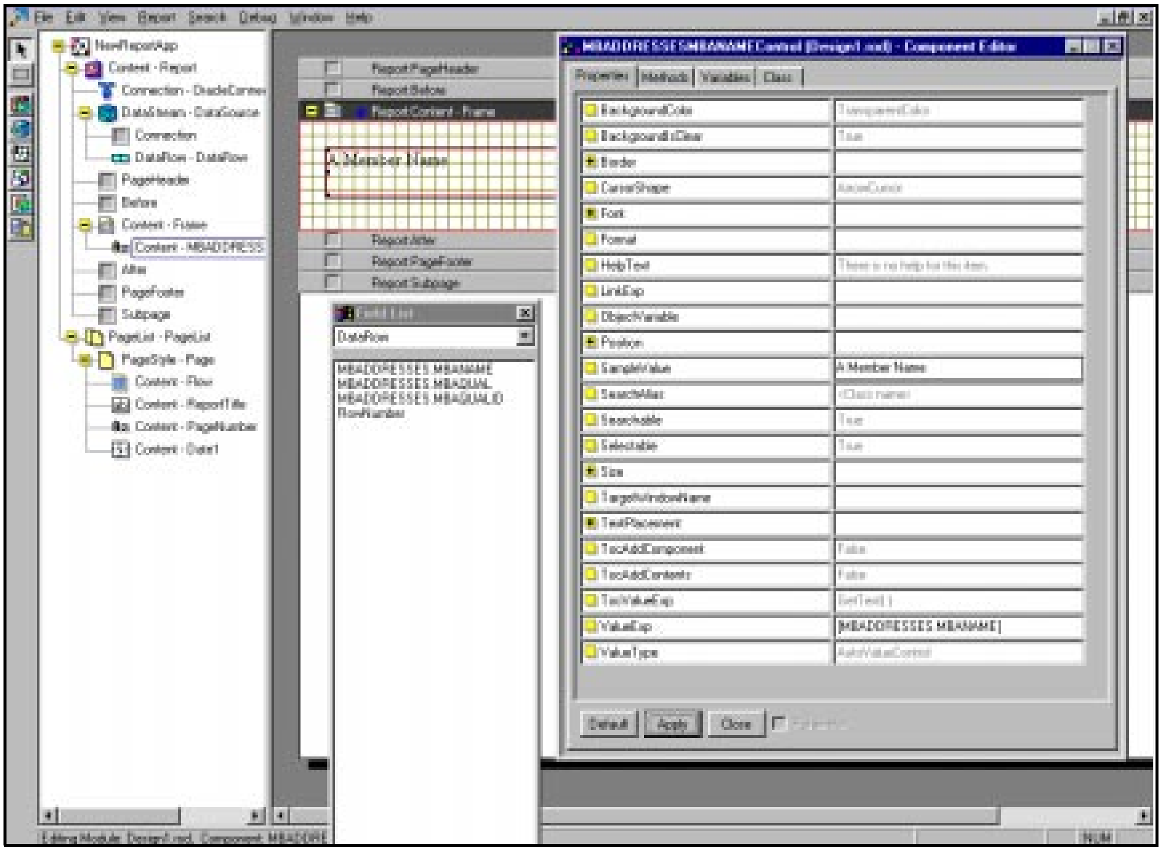
After you create a control, you can double-click on it to display its Component Editor. The editor shows all the properties of the component.

Note A Component Editor displays the properties and other attributes of any object, not just controls. Other sections in this chapter show uses of a Component Editor for other kinds of objects.

Figure 19.13 shows the Component Editor for the control. You specify the data to display in the ValueExp property; in this case, it is [MBADDRESSES.MBANAME]. The brackets identify the contents of the property as a column name. The SampleValue property displays a place holder value that appears in the layout pane; in this case, it is “A Member Name,” which appears in the field in the layout pane after you select Apply from the Component Editor. You can change other properties, such as the font charac- teristics and text-placement. You can also change the size and position of the control; however, you may find it easier to do this by selecting the control and sizing or moving it within the frame.

Note You can resize a frame in the same way you resize a control; either by changing the size and position in the frame's Component Editor or by selecting and resizing the frame in the layout pane.

Figure 19.13 The component editor



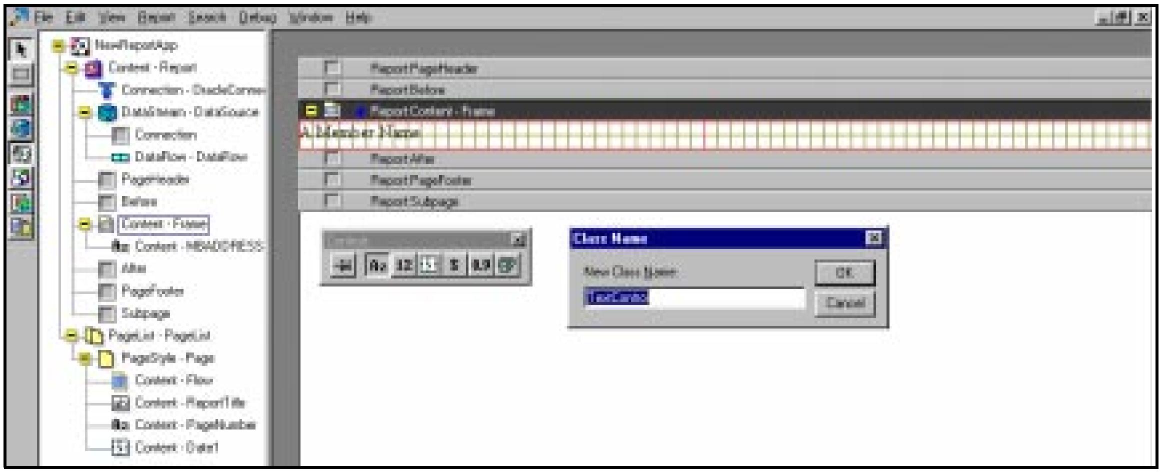
MBADDRESSESMBANAMEControl (Design1.rod) - Component Editor

BackgroundColor	TransparentColor
BackgroundIsClear	True
Border	
CursorShape	ArrowCursor
Font	
Format	
HelpText	There is no help for this item.
LinkExp	
ObjectVariable	
Position	
SampleValue	A Member Name
SearchAlias	<Class name>
Searchable	True
Selectable	True
Size	
TargetWindowName	
TextPlacement	
TocAddComponent	False
TocAddContents	False
TocValueExp	GetText( )
ValueExp	[MBADDRESSES.MBANAME]
ValueType	AutoValueControl

MBADDRESSES.MBANAME
MBADDRESSES.MBAQUAL
MBADDRESSES.MBAQUALID
RowNumber

Another way to create a control is to select the control tool (fifth icon from the top) from the left of the structure pane. A Control palette appears. You can select and drag the appropriate kind of control to the frame. Figure 19.14 shows the Control palette and the Class Name prompt after a text control has been selected.

Figure 19.14 Creating a display field

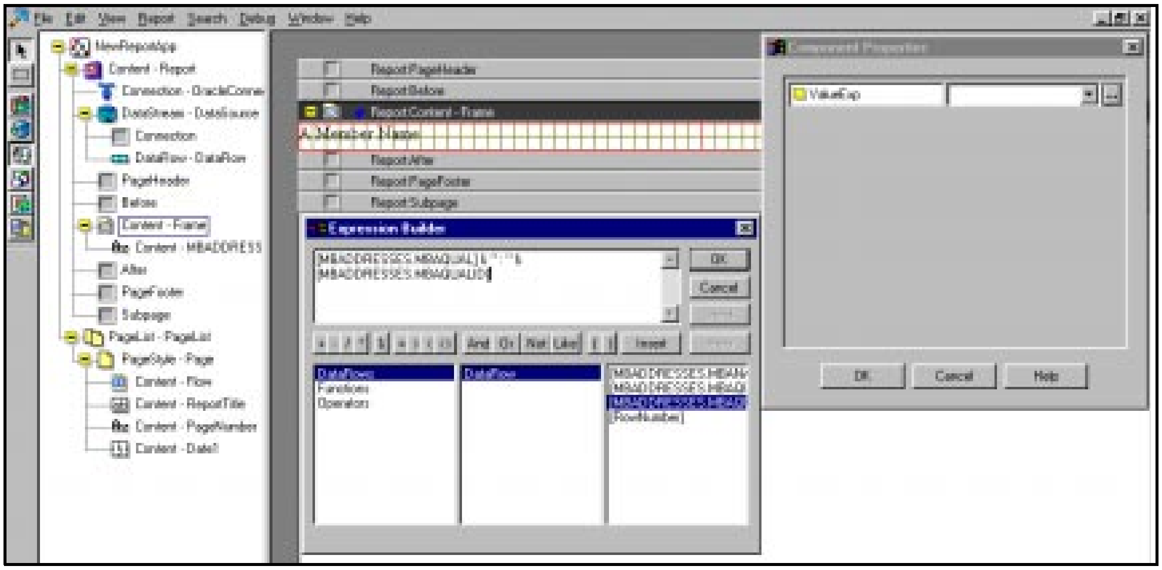


When you create a control using the palette, Actuate prompts you for the value expression. If you want to add static text, you can enter it here within double quotes (“My static text”). You can also choose items from the Field List by selecting the down-arrow icon.

You can create complex expressions, including a combination of text, column names, and functions. To create such an expression, click the ellipses (...) to the right of the down-arrow icon. The Expression Builder appears.

Figure 19.15 shows the Expression Builder after inserting two columns that are concatenated with an intervening colon (“ : “). If you decide to change your expression later, you can open the control’s Component Editor and click the ellipses (...) to the right of the ValExp property; it’s the same property you are prompted for here.

Figure 19.15 Using the expression builder



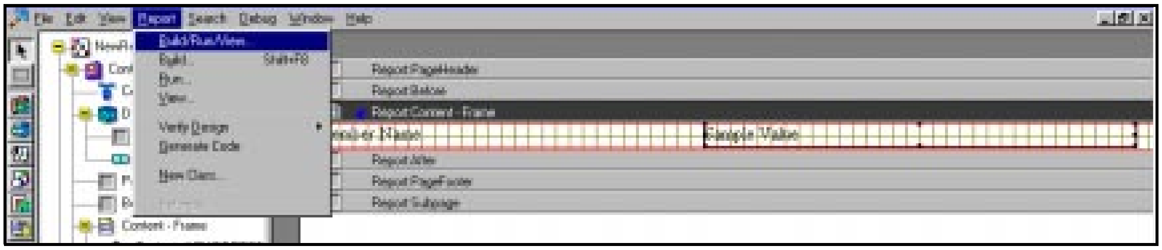
[MBADDRESSES.MBAQUAL] & " : " &
[MBADDRESSES.MBAQUALID]

Running a Report

After you have a frame that displays at least one column value from the database, you can run your report. If you want the report to display without data, you must provide additional code that is beyond the scope of this chapter.

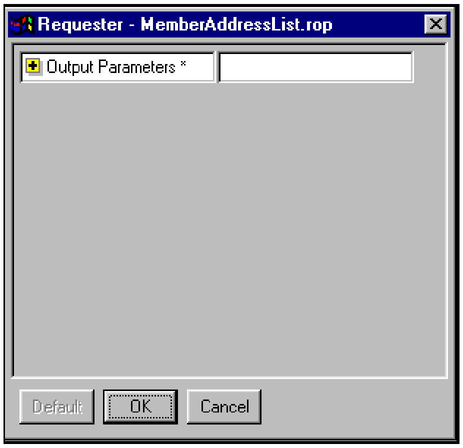
To run a report, you must build the report, execute it, and then view the resulting output. You can perform these steps individually from the Report menu, or you can select the Build/Run/View option to perform them all at once. Figure 19.16 shows the Report menu.

Figure 19.16 Building, running, and viewing a report



When you run a report, a Requester dialog appears to request values of parameters. Figure 19.17 shows the Requestor dialog. In general, you can ignore the Output Parameters requested by Actuate. For information about adding your own parameters, see “Adding Report Parameters” on page 330.

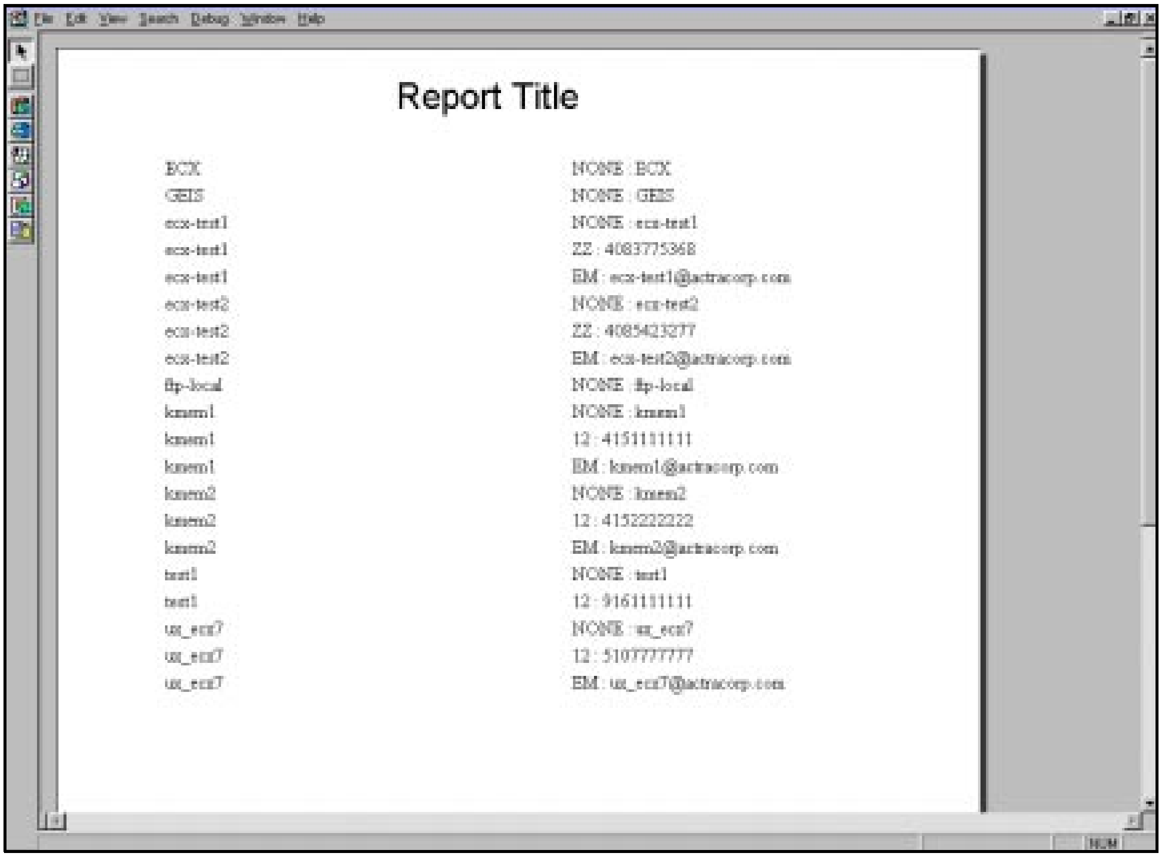
Figure 19.17 Requester dialog



After you respond with OK to the Requester dialog, the report runs. Figure 19.18 shows the report created thus far.

Along with one line for each row of data, the report shows a generic report title, which is one of the defaults provided by the New Report Wizard. The report also contains page numbers and today's date at the bottom of each page; these are not shown in the figure.

Figure 19.18 The first report



Report Title

ECX	NONE : ECX
GEIS	NONE : GEIS
ecx-test1	NONE : ecx-test1
ecx-test1	ZZ : 4083775368
ecx-test1	EM : ecx-test1@actracorp.com
ecx-test2	NONE : ecx-test2
ecx-test2	ZZ : 4085423277
ecx-test2	EM : ecx-test2@actracorp.com
ftp-local	NONE : ftp-local
kmem1	NONE : kmem1
kmem1	12 : 4151111111
kmem1	EM : kmem1@actracorp.com
kmem2	NONE : kmem2
kmem2	12 : 4152222222
kmem2	EM : kmem2@actracorp.com
test1	NONE : test1
test1	12 : 9161111111
ux_ecx7	NONE : ux_ecx7
ux_ecx7	12 : 5107777777
ux_ecx7	EM : ux_ecx7@actracorp.com

Adding Headers and Footers

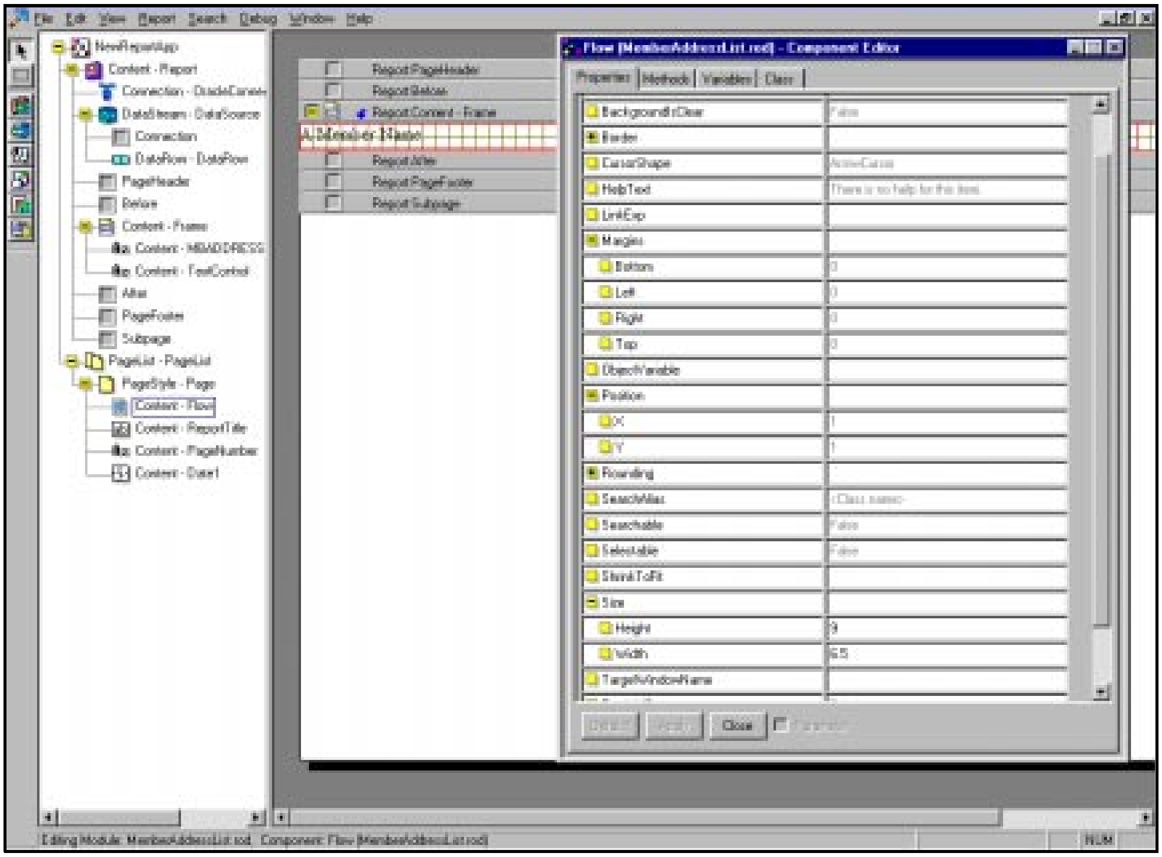
When you use the New Report Wizard to create a report, Actuate creates several objects for you:

- a PageList, which is the container for a page layout
- a Page, which specifies the page size
- a Flow, which defines the printable area of the page
- a text Label for the report title
- text Controls for the page number and the date

You can change the properties of any of these objects in their respective Component Editors; however, these objects are not visible in the layout pane. For example, you can adjust the size property of the flow to effectively change the margins on the page.

Figure 19.19 shows the page list-related objects and the flow's Component Editor.

Figure 19.19 Specifying page flow



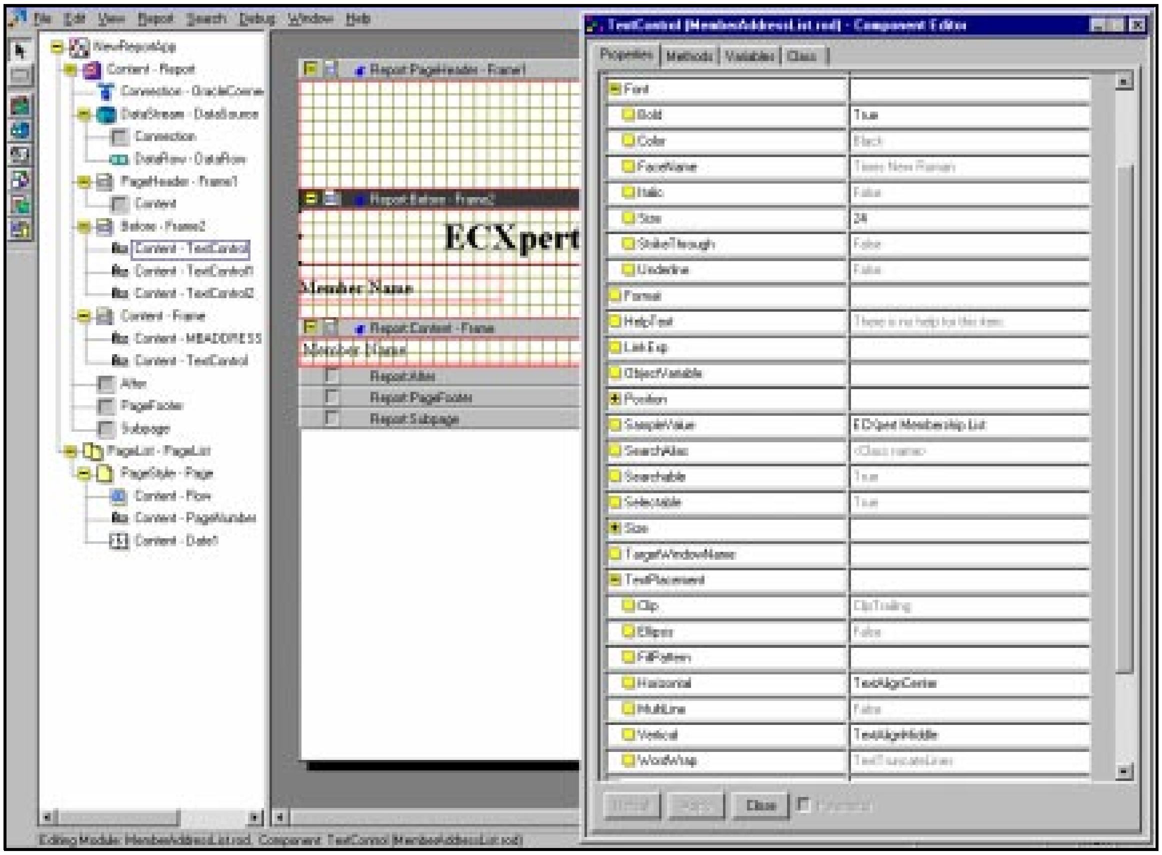
BackgroundIsClear	False
Border	
CursorShape	ActiveCursor
HelpText	There is no help for this item.
LinkExp	
Margins	
Bottom	0
Left	0
Right	0
Top	0
ObjectVariable	
Position	
X	1
Y	1
Rounding	
SearchAlias	<Class name>
Searchable	False
Selectable	False
ShrinkToFit	
Size	
Height	9
Width	6.5
TargetWindowName	

Editing Module: MemberAddressList.rod Component: Flow [MemberAddressList.rod]

You can simply modify each page list-object to specify the header and footer for your report; however, you will probably find it easier to create frames and use the layout pane to position them. You can delete an unneeded object by selecting it in either the structure or layout panes and pressing the Delete key.

This example deletes the report title control and replaces it with a frame and related controls in the Report:Before section. Figure 19.20 shows the new report control's Component Editor, in which the font as been changed to 24-point bold and the text has been placed in the center of the control.

Figure 19.20 Adding a report title



Font	
Bold	True
Color	Black
FaceName	Times New Roman
Italic	False
Size	24
StrikeThrough	False
Underline	False
Format	
HelpText	There is no help for this item
LinkExp	
ObjectVariable	
Position	
SampleValue	ECXpert Membership List
SearchAlias	<Class name>
Searchable	True
Selectable	True
Size	
TargetWindowName	
TextPlacement	
Clip	ClipTrailing
Ellipsis	False
FillPattern	
Horizontal	TextAlignCenter
MultiLine	False
Vertical	TextAlignMiddle
WordWrap	TextTruncateLines

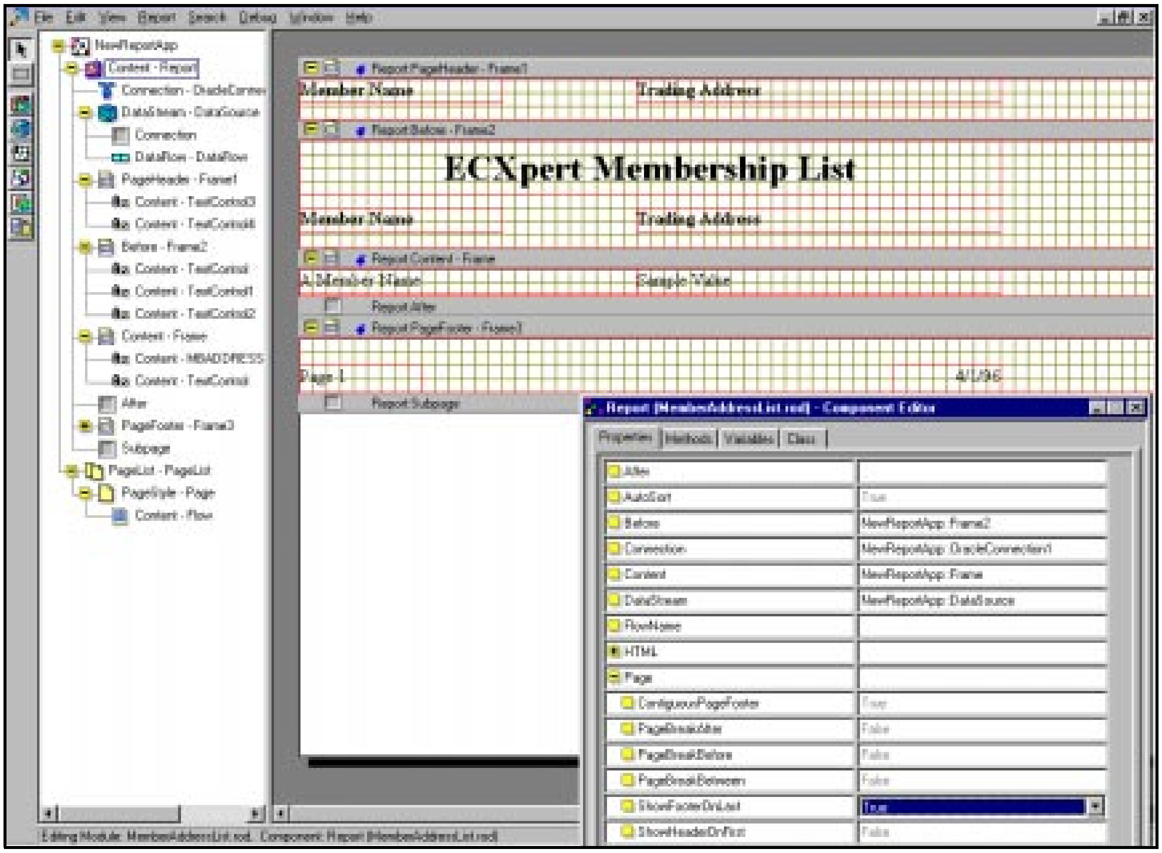
The Report:Before section only displays on the first page of the report. You must provide a frame and related controls in the Report:PageHeader section if you want to have a heading on each page. You can copy items from one frame to another by holding the Control key while dragging the object.

To add a footer, you must provide a frame and related controls in the Report:PageFooter section. One way to set up controls in this section, after you create the frame, is to drag the page number and date controls from the page to the frame.

By default, the page footer does not appear on the first page of the report. To change this situation, you must open the Content - Report object's Component Editor and change the Page property's ShowFooterOnLast field to True.

Figure 19.21 shows the layout pane after adding the Report:Before and Report:PageFooter sections. It also shows the Content - Report object's Component Editor after changing the Page property's ShowFooterOnLast field.

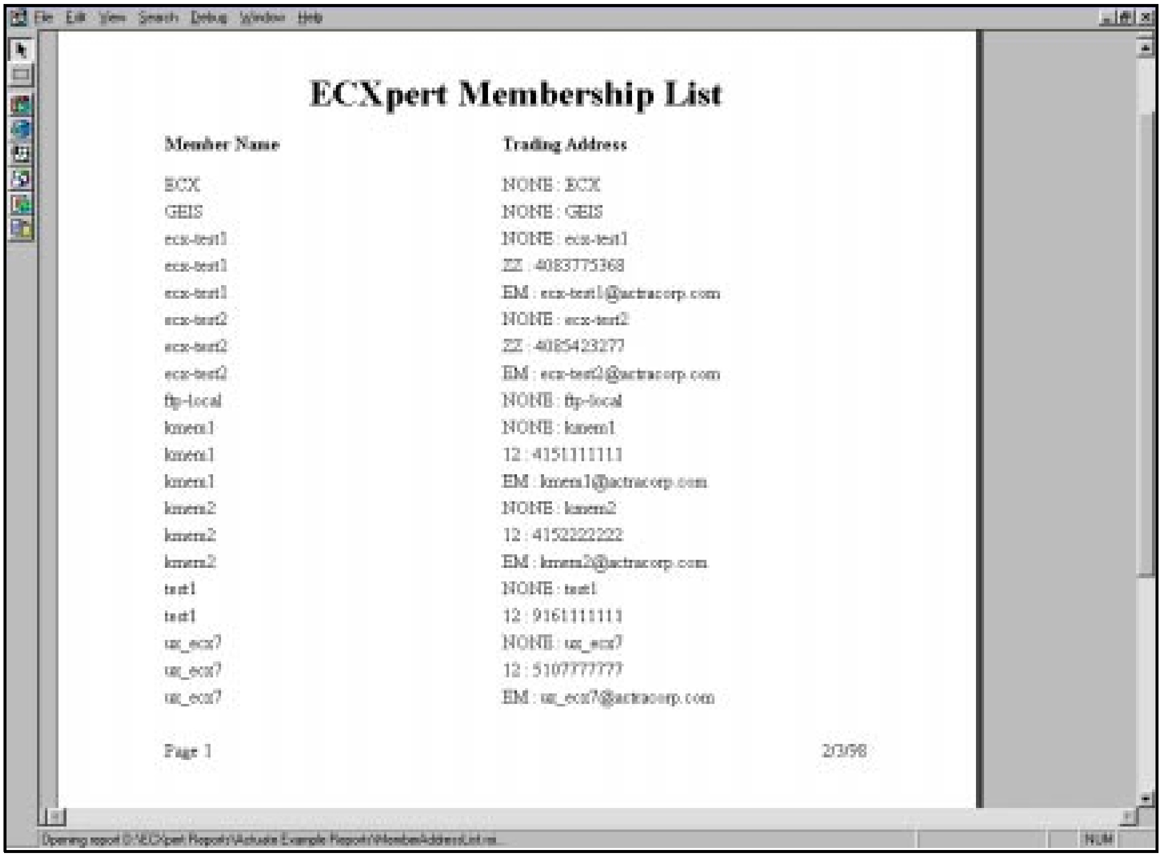
Figure 19.21 Adding a page footer



After	
AutoSort	True
Before	NewReportApp::Frame2
Connection	NewReportApp::OracleConnection1
Content	NewReportApp::Frame
DataStream	NewReportApp::DataSource
FlowName	
HTML	
Page	
ContiguousPageFooter	True
PageBreakAfter	False
PageBreakBefore	False
PageBreakBetween	False
ShowFooterOnLast	True
ShowHeaderOnFirst	False

Figure 19.22 shows the report after adding headers and footers. Note that the footer appears right after the last data line. You can set the Page property's ContiguousPageFooter field to False if you want the page footer to appear at the bottom of the last page.

Figure 19.22 A report with headers and footers



ECXpert Membership List

Member Name	Trading Address
ECX	NONE : ECX
GEIS	NONE : GEIS
ecx-test1	NONE : ecx-test1
ecx-test1	ZZ : 4083775368
ecx-test1	EM : ecx-test1@actracorp.com
ecx-test2	NONE : ecx-test2
ecx-test2	ZZ : 4085423277
ecx-test2	EM : ecx-test2@actracorp.com
ftp-local	NONE : ftp-local
kmem1	NONE : kmem1
kmem1	12 : 4151111111
kmem1	EM : kmem1@actracorp.com
kmem2	NONE : kmem2
kmem2	12 : 4152222222
kmem2	EM : kmem2@actracorp.com
test1	NONE : test1
test1	12 : 9161111111
ux_ecx7	NONE : ux_ecx7
ux_ecx7	12 : 5107777777
ux_ecx7	EM : ux_ecx7@actracorp.com

Page 1 2/3/98

Opening report D:\ECXpert Reports\Actuate Example Reports\MemberAddressList.ro...

Adding Report Parameters

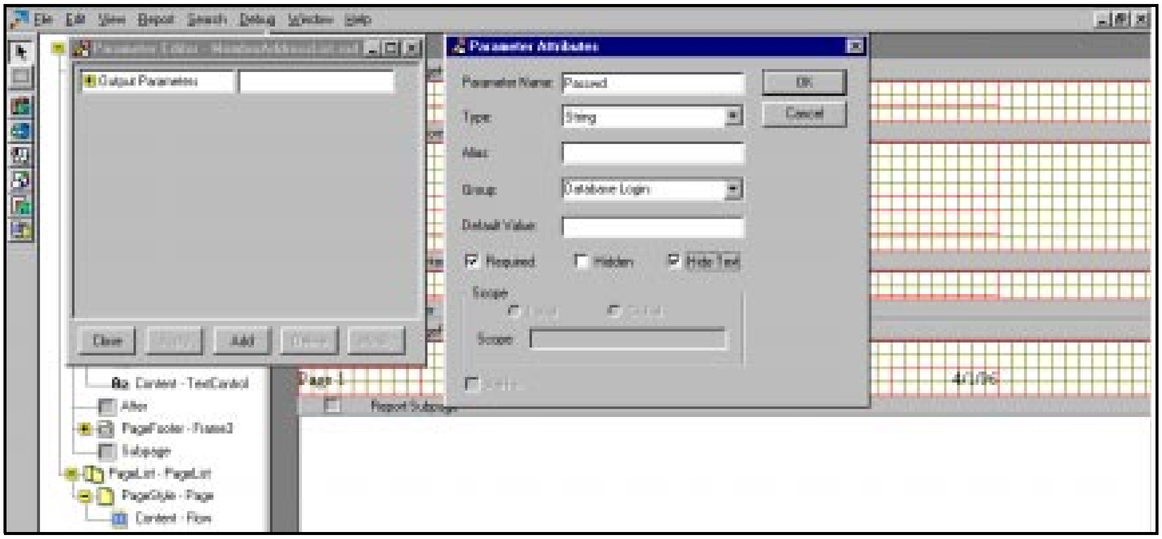
When running a report, the requester dialog appears to prompt for values of parameters that control the report's execution. You create a parameter by selecting Parameters from the View menu, which causes the Parameter Editor to appear. For each parameter, choose Add and fill in the attributes.

The parameter name must be a valid name for programming purposes; as you will see, parameters are used in very simple code you must write. You must provide a data type that represents the kind of data you want to use; for example, String for alphanumeric data, Integer for whole numbers, and Double for decimal numbers. You can provide a group name to display several parameters under the same heading. You can also specify whether a value is required, whether or not it will be displayed at all, and whether what the user types will be displayed.

Note The Requester dialog displays groups and non-grouped parameters in alphabetical order and displays grouped parameters in alphabetical order within each group. You can only control the placement of items in the Requester dialog by naming them appropriately.

Figure 19.23 shows the Parameter Editor while adding the Passwd field to the “Database Login:” group. A value is required and, because Hide Text is checked, characters typed into the Requester dialog for this parameter will be changed to asterisks (*) when the report is invoked. (Two other parameters created in this example are not shown; they are the LoginName and Server parameters.)

Figure 19.23 Adding a parameter



Parameter Attributes

Parameter Name: Passwd

Type: String

Alias:

Group: Database Login

Default Value:

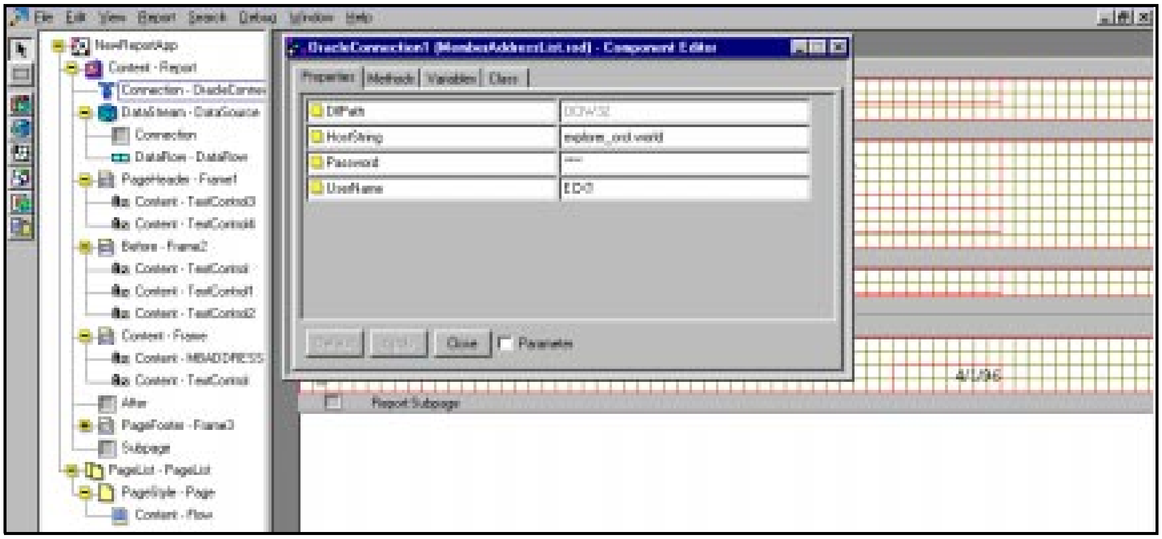
[✓] Required [ ] Hidden [✓] Hide Text

Scope

Scope:

After you create a parameter, you can use it to set the value of a property. The Passwd, LoginName, and Server parameters in this example are used to set properties of the Connection object, which is shown in Figure 19.24.

Figure 19.24   The connection component editor



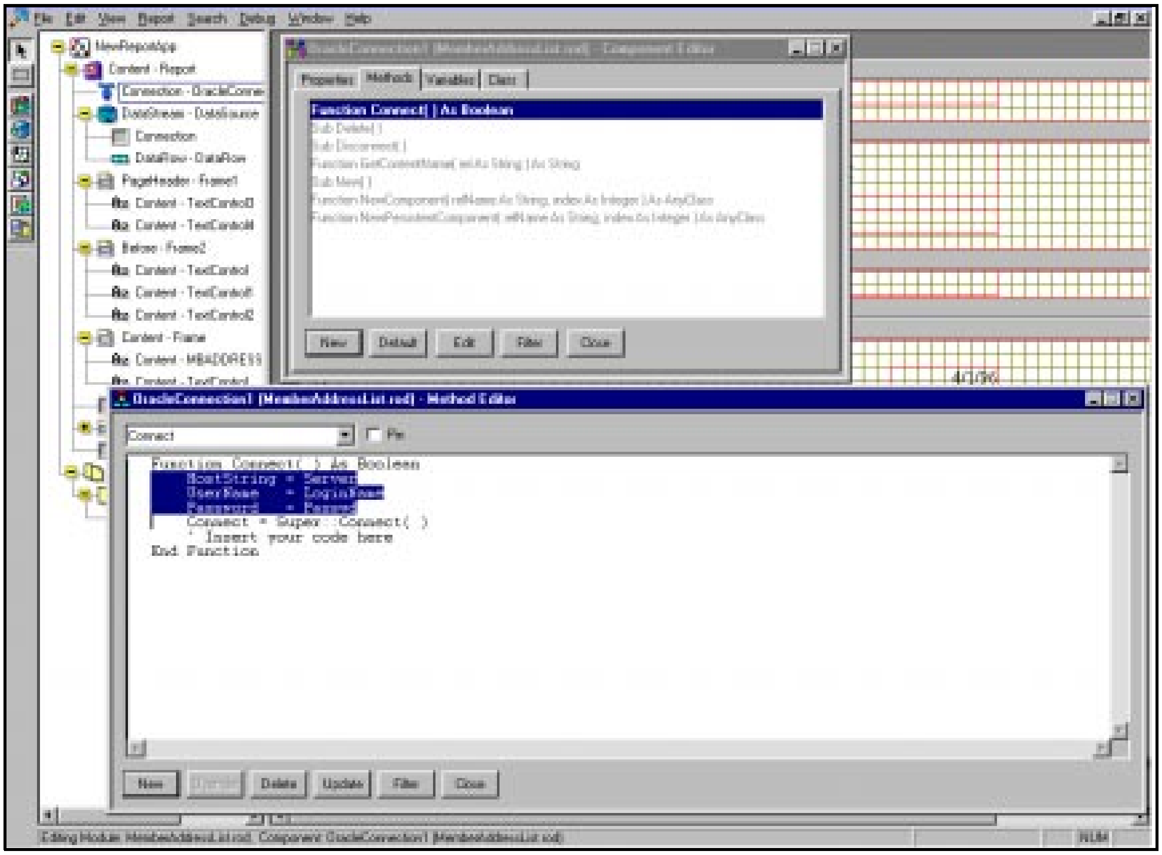
OracleConnection1 (MemberAddressList.rod) - Component Editor

DllPath	OCIW32
HostString	explore_ord.world
Password	****
UserName	[illegible]

One of the powerful features of Actuate is the ability to customize its operation by overriding various methods. You must override the Connection object's `Connect()` method, for example, to set its properties before Actuate establishes the connection with the database.

Figure 19.25 shows how to set the properties. The parameter values are assigned to the properties. The properties are specified on the left-hand side of the assignment.

Figure 19.25 Setting properties from parameters

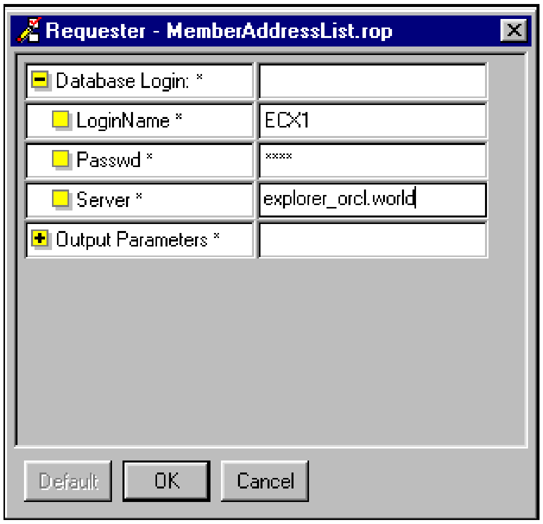


```
Function Connect( ) As Boolean
    HostString  = Server
    UserName    = LoginName
    Password    = Passwd
    Connect = Super::Connect( )
    ' Insert your code here
End Function
```

Note In general, you can assign value to a property in any object programmatically, allowing the property to be set or changed when the report executes. A description of the execution sequence of Actuate methods and when to override specific methods is beyond the scope of this chapter.

Figure 19.26 shows the Requester dialog after the newly added parameter values have been filled in.

Figure 19.26 Entering parameter values


Requester - MemberAddressList.rop

Database Login: *	
LoginName *	ECX1
Passwd *	****
Server *	explorer_orcl.world
Output Parameters *	

Building Complex Queries

The section “Building a Query” on page 312 describes how to build a query in the Query Editor. This section shows how you can join tables in the Query Editor and how you can create dynamic queries in which the Where clause of a select statement is created when the report executes.

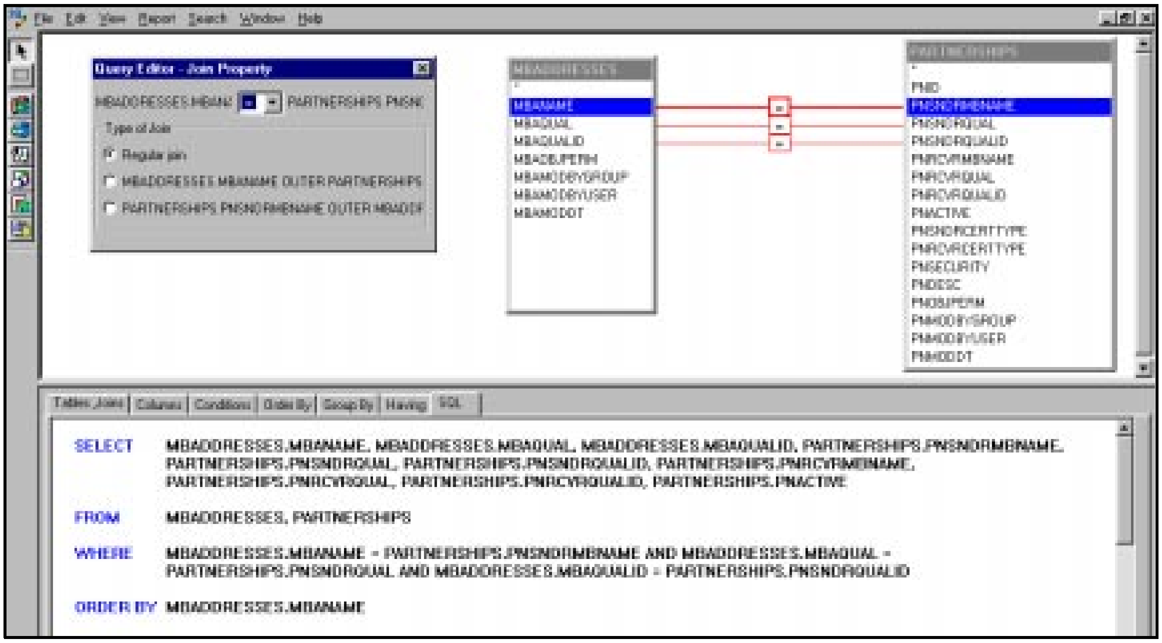
Joining Tables

To join tables, start the Query Editor and choose the column name you want to join in one table. Drag the name to the column you want joined in the other table. This action creates a join based on equality, which specifies selection where ever the column values for the rows are the same.

The action of dragging from one column to another causes a line to appear between the columns with a join icon in the middle. You can double-click the icon to display the join's Property Editor. The Property Editor allows you to specify other relationships between the tables. It also allows you to specify outer joins.

Figure 19.27 shows the MBADDRESSES table joined with the PARTNERSHIPS table on three fields. The Property Editor for the fist join is also shown. The SQL tab in the lower pane shows the resulting Where clause.

Figure 19.27 Joining tables



```
SELECT    MBADDRESSES.MBANAME, MBADDRESSES.MBAQUAL, MBADDRESSES.MBAQUALID, PARTNERSHIPS.PNSNDRMBNAME,
          PARTNERSHIPS.PNSNDRQUAL, PARTNERSHIPS.PNSNDRQUALID, PARTNERSHIPS.PNRCVRMBNAME,
          PARTNERSHIPS.PNRCVRQUAL, PARTNERSHIPS.PNRCVRQUALID, PARTNERSHIPS.PNACTIVE

FROM      MBADDRESSES, PARTNERSHIPS

WHERE     MBADDRESSES.MBANAME = PARTNERSHIPS.PNSNDRMBNAME AND MBADDRESSES.MBAQUAL =
          PARTNERSHIPS.PNSNDRQUAL AND MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNSNDRQUALID

ORDER BY  MBADDRESSES.MBANAME
```

In some cases it is not possible to describe the Where clause visually. For example, you cannot describe visually the Where clause in the following statement, which is used by the Partnership example being built here:

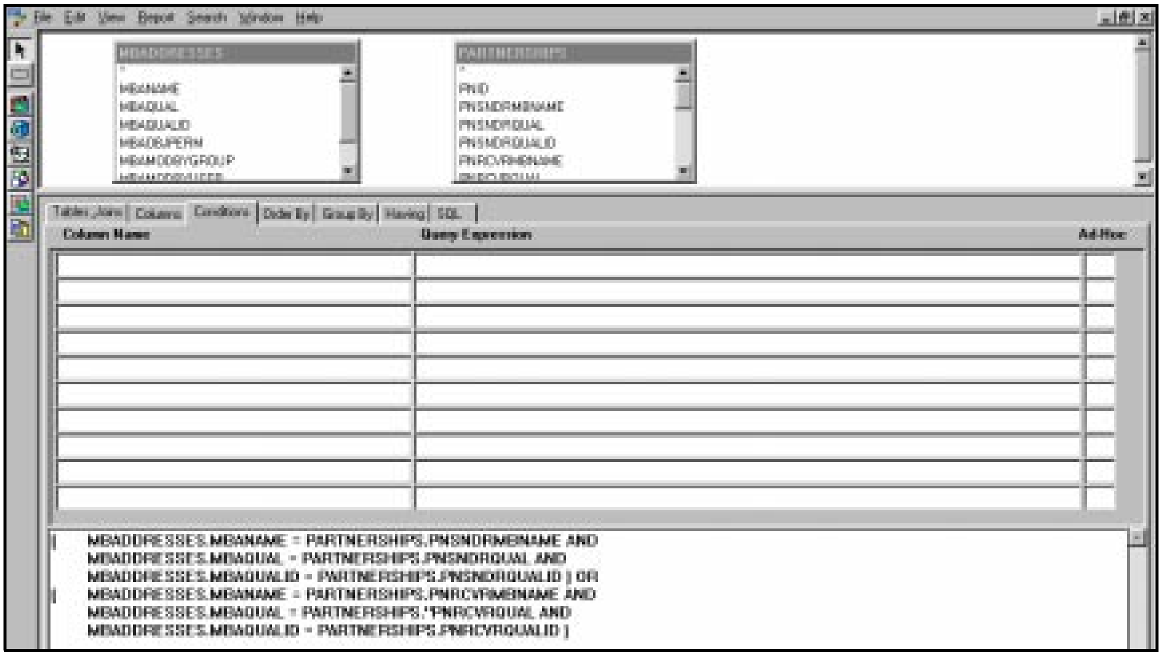
Figure 19.28 A complex Where clause

```
SELECT
        MBADDRESSES.MBANAME,
        PARTNERSHIPS.PNSNDRMBNAME, PARTNERSHIPS.PNSNDRQUAL,
        PARTNERSHIPS.PNSNDRQUALID, PARTNERSHIPS.PNRCVRMBNAME,
        PARTNERSHIPS.PNRCVRQUAL, PARTNERSHIPS.PNRCVRQUALID
FROM
```

```
        MBADDRESSES MBADDRESSES,
        PARTNERSHIPS PARTNERSHIPS
WHERE
(       MBADDRESSES.MBANAME = PARTNERSHIPS.PNSNDRMBNAME AND
        MBADDRESSES.MBAQUAL = PARTNERSHIPS.PNSNDRQUAL AND
        MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNSNDRQUALID ) OR
(       MBADDRESSES.MBANAME = PARTNERSHIPS.PNRCVRMBNAME AND
        MBADDRESSES.MBAQUAL = PARTNERSHIPS.PNRCVRQUAL AND
        MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNRCVRQUALID )
ORDER BY
        MBADDRESSES.MBANAME ASC
```

In cases such as this one, you can enter the Where clause in the lower part of the lower pane after you choose the Conditions tab. Enter the Where clause exactly as you want it to appear, without the WHERE keyword. Figure 19.29 shows the Where clause under the Conditions tab.

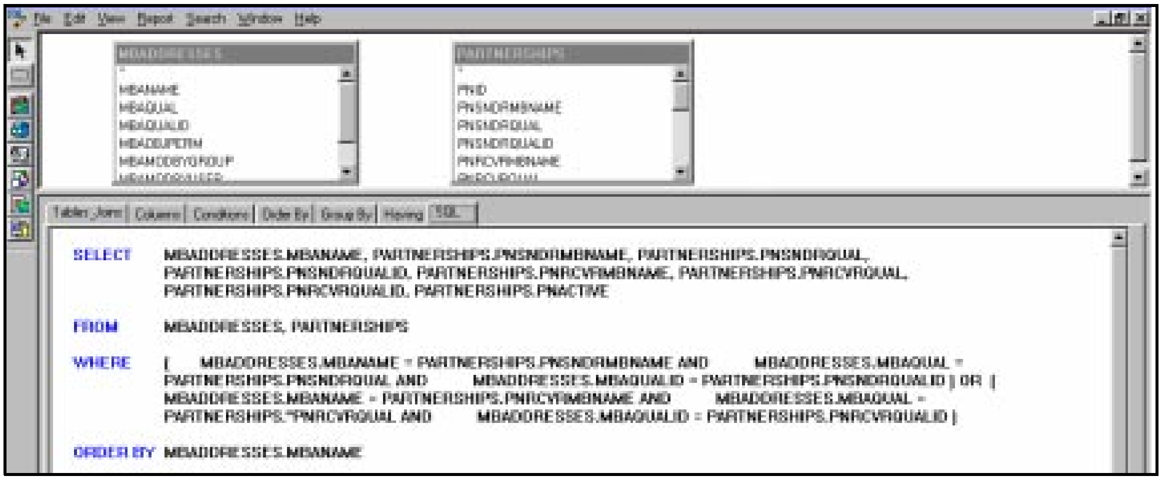
Figure 19.29 Entering a Where clause in the Query Editor



```
(    MBADDRESSES.MBANAME = PARTNERSHIPS.PNSNDRMBNAME AND
     MBADDRESSES.MBAQUAL = PARTNERSHIPS.PNSNDRQUAL AND
     MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNSNDRQUALID ) OR
(    MBADDRESSES.MBANAME = PARTNERSHIPS.PNRCVRMBNAME AND
     MBADDRESSES.MBAQUAL = PARTNERSHIPS.'PNRCVRQUAL AND
     MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNRCVRQUALID )
```

Figure 19.30 shows the resulting Select statement in the lower pane after choosing the SQL tab.

Figure 19.30   The revised Select statement



```
SELECT    MBADDRESSES.MBANAME, PARTNERSHIPS.PNSNDRMBNAME, PARTNERSHIPS.PNSNDRQUAL,
          PARTNERSHIPS.PNSNDRQUALID, PARTNERSHIPS.PNRCVRMBNAME, PARTNERSHIPS.PNRCVRQUAL,
          PARTNERSHIPS.PNRCVRQUALID, PARTNERSHIPS.PNACTIVE

FROM      MBADDRESSES, PARTNERSHIPS

WHERE     (     MBADDRESSES.MBANAME = PARTNERSHIPS.PNSNDRMBNAME AND       MBADDRESSES.MBAQUAL =
          PARTNERSHIPS.PNSNDRQUAL AND       MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNSNDRQUALID ) OR (
          MBADDRESSES.MBANAME = PARTNERSHIPS.PNRCVRMBNAME AND       MBADDRESSES.MBAQUAL =
          PARTNERSHIPS."PNRCVRQUAL AND       MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNRCVRQUALID )

ORDER BY  MBADDRESSES.MBANAME
```

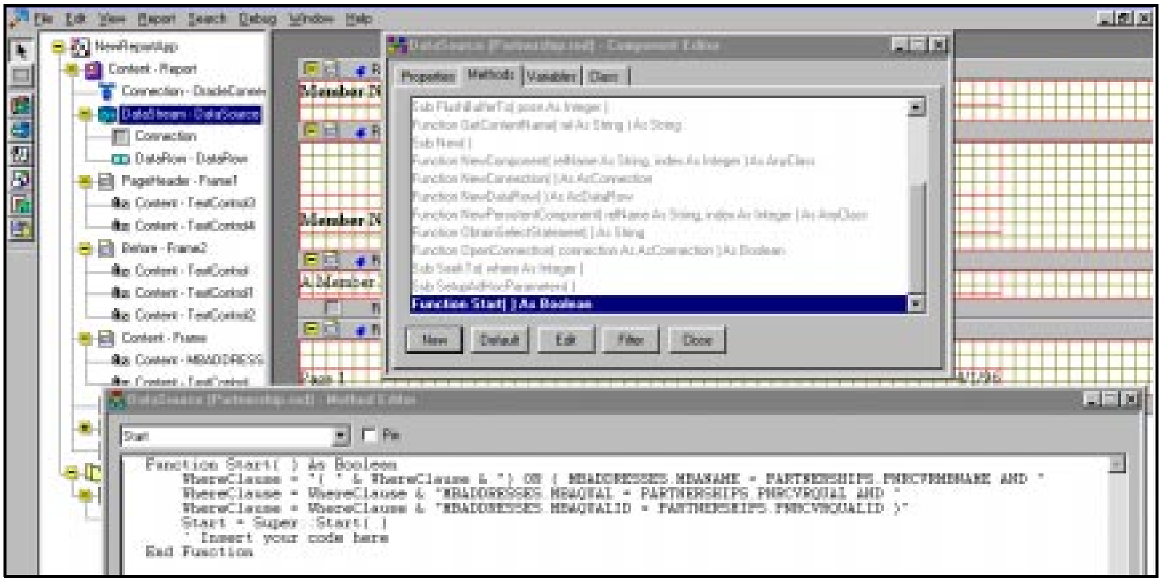
Creating Dynamic Queries

The following example shows an alternative way of specifying the Where clause of a Select statement that you can use to change the query when the report executes. This example dynamically modifies the Where clause shown in Figure 19.27 so that it performs the correct query for the Partnership, as shown in Figure 19.28. This Where clause in this example does not actually need to be dynamic because it does not require any parameters or control structures (such as “if then, else, end if”); however, this section shows how to set up the clause in a dynamic way.

To create a dynamic Where clause, you must override the DataStream’s object’s `Start()` method. The DataSteam object contains several variables, one of which is WhereClause. You set the WhereClause variable to contain the clause you want to use when you execute the report.

Figure 19.31 shows the WhereClause variable being set so that it modifies the clause in Figure 19.27 to become the one in Figure 19.28.

Figure 19.31 Specifying the Where clause at runtime



```
Sub FlushBufferTo( pos As Integer )
Function GetContentName( ref As String ) As String
Sub New( )
Function NewComponent( refName As String, index As Integer ) As AnyClass
Function NewConnection( ) As AcConnection
Function NewDataRow( ) As AcDataRow
Function NewPersistentComponent( refName As String, index As Integer ) As AnyClass
Function ObtainSelectStatement( ) As String
Function OpenConnection( connection As AcConnection ) As Boolean
Sub SeekTo( where As Integer )
Sub SetupAdHocParameters( )
Function Start( ) As Boolean
```

```
Function Start( ) As Boolean
    WhereClause = "( " & WhereClause & " ) OR ( MBADDRESSES.MBANAME = PARTNERSHIPS.PNRCVRMBNAME AND "
    WhereClause = WhereClause & "MBADDRESSES.MBAQUAL = PARTNERSHIPS.PNRCVRQUAL AND "
    WhereClause = WhereClause & "MBADDRESSES.MBAQUALID = PARTNERSHIPS.PNRCVRQUALID )"
    Start = Super::Start( )
    ' Insert your code here
End Function
```

Displaying Groups of Data

Often, you want your report to group data in some meaningful way. This example shows how to group partnerships by member—the member may be either a sender or a receiver. Thus, if member A forms a partnership with member B, the report displays the partnership in a group for member A as well as a group for member B. The Select statement in Figure 19.28 handles the join requirement. This section shows how to set up the report to display the partnerships grouped by member.

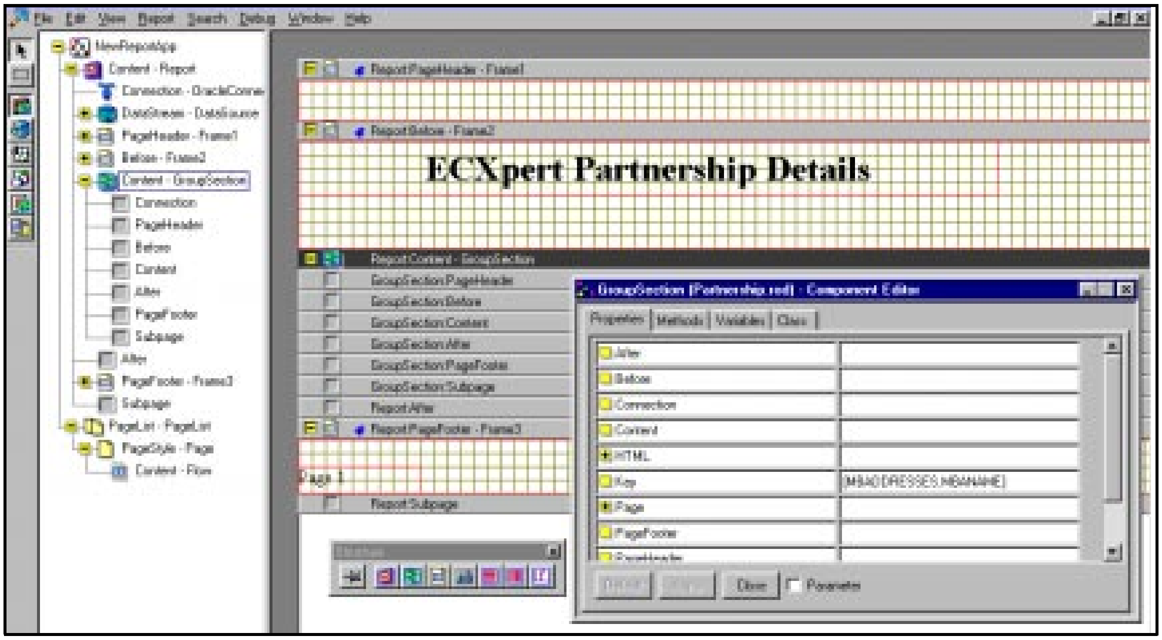
To create a group, you select the Group icon (third icon from the left) from the Structure palette and drag it to the Report:Content section.

Warning Unpredictable (and erroneous) results occur if you drop the group object in a Report section other than the Report:Content section.

You must specify a column or variable for the Group section's Key property. A change in the value of the key causes a new group to appear in the report. If you specify a variable for the key, it must be defined in the DataRow object. See "Displaying Row-related Data" on page 342 for more information.

Figure 19.32 shows a the group section's Component Editor in which the key is the member name.

Figure 19.32 Specifying a group key



Key [MBADDRESSES.MBANAME]

Within the group, you add frames and controls within the various sections:

- Group:Before contains items to display when the key value changes.
- Group:Content contains items to display as detail lines within the group.
- Group:After contains items to display after the key value has changed but before the next Group:Before section appears in the report.

Figure 19.33 shows a report that displays the member name in the Group:Before section, a partnership row consisting of two lines (one for the sender, the other for the receiver) in the Group:Content section, and a blank line in the Group:After section.

Figure 19.33 Reporting grouped data

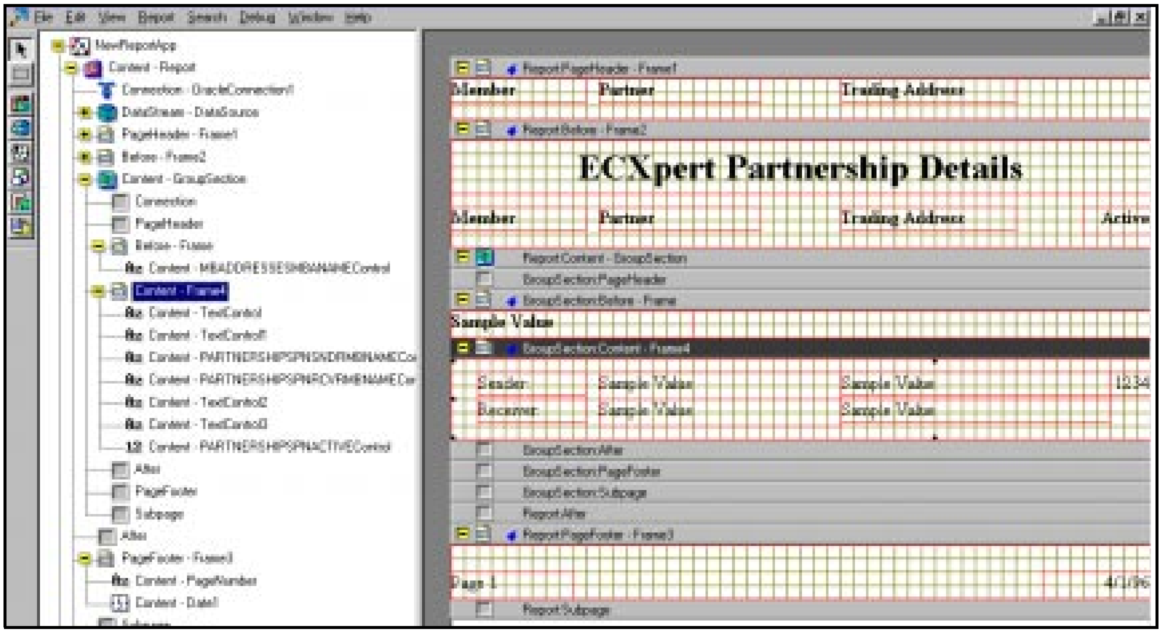
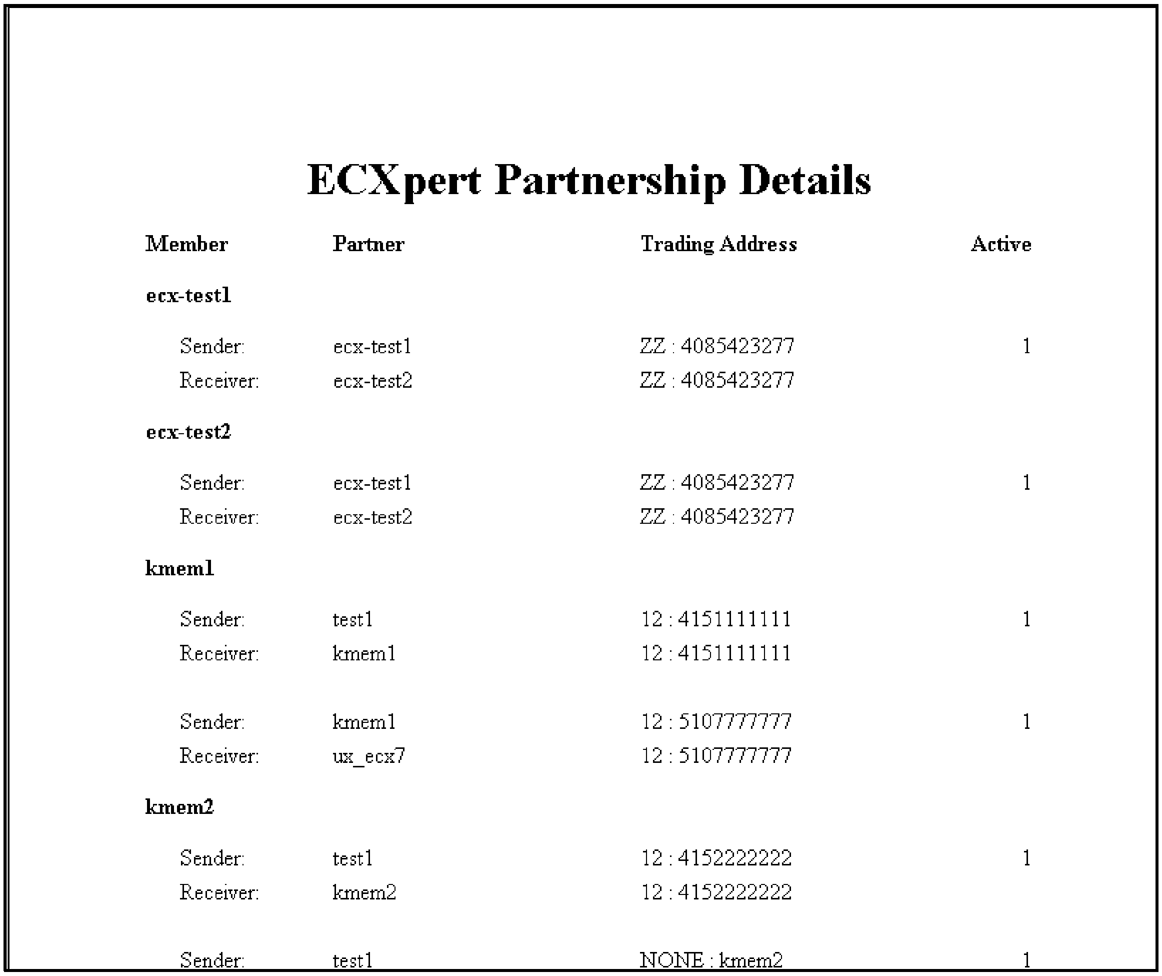


Figure 19.34 shows the output of this report.

Figure 19.34 Output from the grouped data



ECXpert Partnership Details

```
Member          Partner                      Trading Address            Active

ecx-test1

    Sender:     ecx-test1                    ZZ : 4085423277                 1
    Receiver:   ecx-test2                    ZZ : 4085423277

ecx-test2

    Sender:     ecx-test1                    ZZ : 4085423277                 1
    Receiver:   ecx-test2                    ZZ : 4085423277

kmem1

    Sender:     test1                        12 : 4151111111                 1
    Receiver:   kmem1                        12 : 4151111111

    Sender:     kmem1                        12 : 5107777777                 1
    Receiver:   ux_ecx7                      12 : 5107777777

kmem2

    Sender:     test1                        12 : 4152222222                 1
    Receiver:   kmem2                        12 : 4152222222

    Sender:     test1                        NONE : kmem2                    1
```

Displaying Row-related Data

The report shown in Figure 19.34 displays a 1 if the partnership is active because it simply displays the integer value stored in the database that represents an active partnership. This section shows how you can create a variable and set its value based on a value in the row. In this example, the variable is created to display a database value in a more meaningful way.

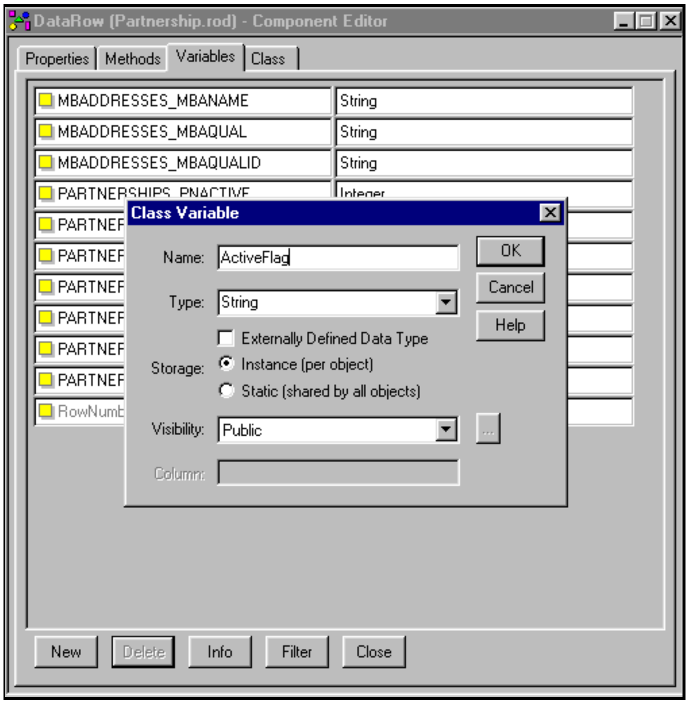
The DataRow object contains a per-instance variable for each column that you specified in your Select statement. These variables are named by concatenating the table name, an underscore character (_), and the column name; for example, PARTNERSHIPS_PNACTIVE is the variable associated with the PNACTIVE column of the PARTNERSHIPS table.

You can add other variables to display additional row-related data. To create a variable, open the DataRow object's Component Editor and choose the Variables tab. Choose New to add a new variable.

A Class Variable prompt appears. In it you specify the variable name, the data type, the kind of variable, and its visibility. (Visibility is beyond the scope of this chapter; choose the default.) For efficiency, specify the type if you know it. If you want Actuate to handle type conversion, specify Variant for the data type. You should specify Instance for a row-related variable; this kind of variable exists for the duration of the row.

Figure 19.35 shows the Class Variable prompt in which the ActiveFlag variable is being created.

Figure 19.35 Adding a class variable



MBADDRESSES_MBANAME	String
MBADDRESSES_MBAQUAL	String
MBADDRESSES_MBAQUALID	String
PARTNERSHIPS_PNACTIVE	Integer
PARTNEF	
PARTNEF	
PARTNEF	
PARTNEF	
PARTNEF	
PARTNEF	
RowNumb	

Name: ActiveFlag

Type: String

☐ Externally Defined Data Type

Storage: [● Instance (per object)] ○ Static (shared by all objects)

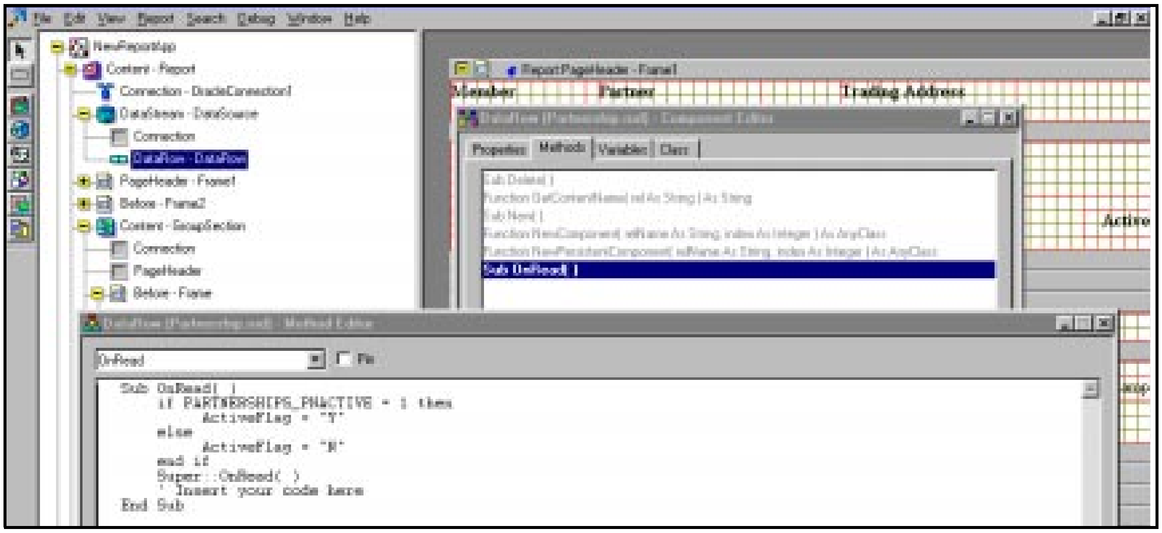
Visibility: Public

Column:

After you create a variable, you can use it with a column from the database. You specify the relationship between your variable and a column variable by overriding the DataRow object's `OnRead()` method.

Figure 19.36 shows an if-then-else-endif construct that sets ActiveFlag based on the value of the PARTNERSHIPS_PNACTIVE variable.

Figure 19.36 Setting a variable using a row's column value



```
Sub OnRead( )
    if PARTNERSHIPS_PNACTIVE = 1 then
        ActiveFlag = "Y"
    else
        ActiveFlag = "N"
    end if
    Super::OnRead( )
    ' Insert your code here
End Sub
```

After you define a variable in the DataRow object, you can use it in the same way as you use a database column. Figure 19.37 shows how to select a row-related variable to display in a text control.

Figure 19.37 Displaying a row-based variable

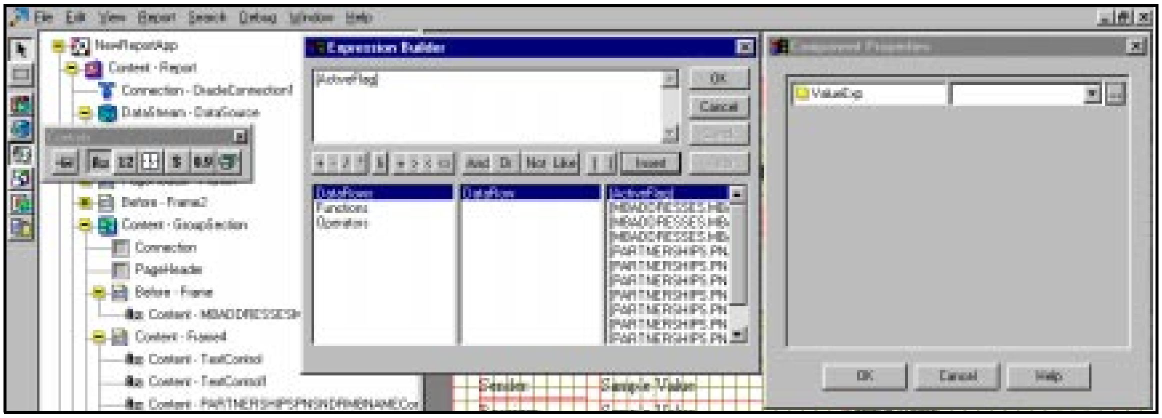
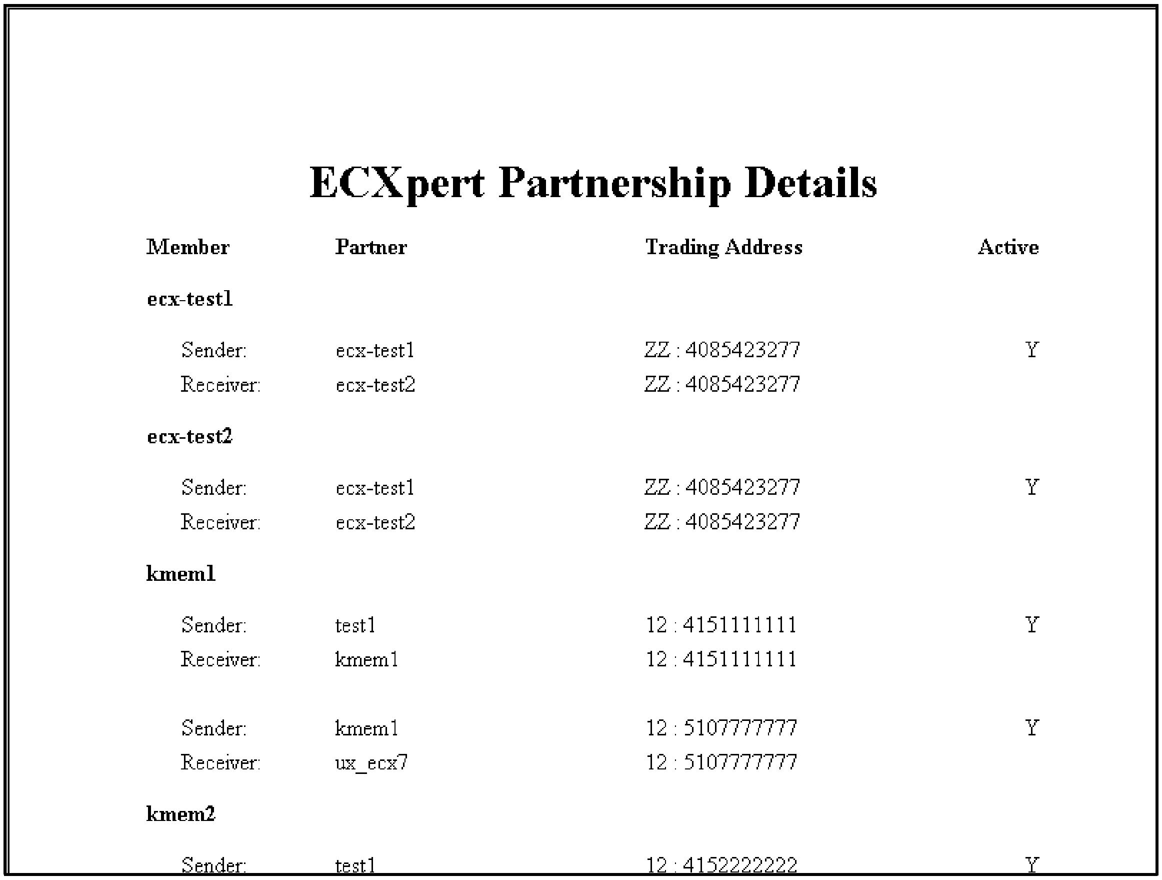


Figure 19.38 shows the report that displays this variable.

Figure 19.38 The second report



ECXpert Partnership Details

Member		Partner	Trading Address	Active
ecx-test1				
	Sender:	ecx-test1	ZZ : 4085423277	Y
	Receiver:	ecx-test2	ZZ : 4085423277	
ecx-test2				
	Sender:	ecx-test1	ZZ : 4085423277	Y
	Receiver:	ecx-test2	ZZ : 4085423277	
kmem1				
	Sender:	test1	12 : 4151111111	Y
	Receiver:	kmem1	12 : 4151111111	
	Sender:	kmem1	12 : 5107777777	Y
	Receiver:	ux_ecx7	12 : 5107777777	
kmem2				
	Sender:	test1	12 : 4152222222	Y

Appendix

A

ECXpert Database Schema

This appendix details the table structure of the database underlying the ECXpert System.

The following topics are presented:

- Cautions in Using the Database Schema
- Extending Table and Rollback Segment Space
- Values of AckState
- Alphabetical Listing of Tables
- Schema Overview
- System-wide Tables
- Membership-related Tables
- Partnership-related Tables
- Certificate-related Tables
- Tracking-related Tables

Cautions in Using the Database Schema

The database schema for Version 3.0 of the ECXpert System is subject to change in future versions of ECXpert. You should only use the API described in this manual to access the database outside of ECXpert. If you rely on the schema, you should consider the potential reimplementation effort that you could incur as the result of an upgrade to the database.

Extending Table and Rollback Segment Space

You can extend your tablespace size and rollback segment space by following the steps below:

1. **Log onto Solaris with your Oracle account. For example:**

   ```
   login: oracle
   password: oracle
   ```

2. **Launch the Oracle Server Manager utility.**

   ```
   # svrmgrl
   SVRMGR> connect system/manager
   ```

Note The default password is **manager**; yours may differ.

3. **Enlarge the USERS and SYSTEM default tablespaces.**

   For example, if the user default tablespace is USERS and the system default tablespace is SYSTEM:

```
SVRMGR> alter tablespace USERS
add datafile '/export/app/oracle/product/8.0.4/dbs/usrdataECX20-2.dbf' size 100M;
SVRMGR> alter tablespace SYSTEM
add datafile '/export/app/oracle/product/8.0.4/dbs/systECX20-2.dbf' size 50M;
```

   In the `datafile` command above, change “`size 50M`” to reflect the table space size you want to set. Netscape recommends you use the following formula to estimate the tablespace size needed for ECXpert:

   • 2.5kB * number of documents received daily * number of days retained

   For example, if you expect to process five documents per day and retain the document information for five days, you should set the table space size to at least 2.5 kB * 5 (documents) * 5 (days retained) = 625kB.

4. **Enlarge the rollback segment size.**

Note For the rollback segment size, estimate 1.5 - 2 times the largest tablespace.

For example, if the user default tablespace is USERS and the system default tablespace is SYSTEM:

```
SVRMGR> alter tablespace RBS
add datafile '/export/oracle/product/8.0.4/dbs/usrdataRBWG2.dbf' size 300M;

SVRMGR> alter tablespace RBS
add datafile '/export/oracle/product/8.0.4/dbs/systRBWG5.dbf' size 300M;
```

Values of AckState

The AckState column stores the acknowledgment status when Functional Acknowledgments (FAs/997s) or CONTRL messages are requested. The column appears in the TrkIntchg (TIAckState), TrkGroup (TGAckState), and TrkDoc (TDAckState) tables. The actual value of AckState is computed by adding together the applicable combination of the following values:

Defined State	Value
ASunknown	0
ASwaiting	1
ASok	2
ASerror	4
ASreject	6
ASpreject	16
ASsent	32
ASsendFailed	64
ASreconciled	128

To understand the usage of these values, we can break the above definitions into three categories:

- **basic state** (Asunknown, ASwaiting)
- **acknowledgment status** (ASok, ASerror, ASreject, ASpreject)
- **acknowledgment flavor** (ASsent, ASsendFailed, ASreconciled)

The acknowledgment status can be added to the acknowledgment flavor to get a complete picture of a document record's corresponding acknowledgment state.

Examples Let's consider some scenarios and see how this would work.

Outbound EDI

In the case of outbound EDI, the map direction is Application to EDI or EDI to EDI. After successful translation, Translate assigns ASwaiting to the document record.

When the 997 or CONTRL is returned in response to this document, this is parsed and the AckState of the gets a flavour of ASreconciled added to the state extracted from the acknowledgment. Thus, if the trading partner rejects this document for whatever reason, the AckState for this document would be ASreconciled added to ASreject.

Inbound EDI

In this case, the map direction is EDI to application. FAgen generates the acknowledgment and assigns an initial status to the document (ASok, ASreject, etc.). When Gateway sends the acknowledgment out, the AckState of the original document is updated with the ASsent or ASsendFailed flavor. Thus, if we reject an inbound EDI document and Gateway succeeds in sending this out, the AckState of this document would be ASsent added to ASreject.

Messages Displayed Table A.1 lists the messages displayed in the Tracking tabs for various values of AckState.

Table A.1 Messages displayed for various values of AckState

If AckState has...	And...	Message Displayed is...
ASwaiting only added (AckState = ASwaiting)	acknowledgment Overdue Date > current date	Waiting
	acknowledgment Overdue Date <= current date	Overdue

Table A.1 Messages displayed for various values of AckState (Continued)

If AckState has...	And...	Message Displayed is...
ASreconciled added	ASok has been added to AckState	Reconciled (OK)
	ASerror has been added to AckState	Reconciled (Error)
	ASreject has been added to AckState	Reconciled (Reject)
	ASpreject has been added to AckState	Reconciled (Partial) Reject
	otherwise	Reconciled
ASsendFailed added	ASok has been added to AckState	Sent (OK)
	ASerror has been added to AckState	Sent (Error)
	ASreject has been added to AckState	Sent (Reject)
	ASpreject has been added to AckState	Sent (Partial) Reject
	otherwise	Sent
ASsent added	ASok has been added to AckState	Send Failed (OK)
	ASerror has been added to AckState	Send Failed (Error)
	ASreject has been added to AckState	Send Failed (Reject)
	ASpreject has been added to AckState	Send Failed (Partial) Reject
	otherwise	Send Failed

Table A.1 Messages displayed for various values of AckState (Continued)

If AckState has...	And...	Message Displayed is...
otherwise, if acknowledgment Overdue Date > current date	ASok has been added to AckState	Generated (OK)
	ASerror has been added to AckState	Generated (Error)
	ASreject has been added to AckState	Generated (Reject)
	ASpreject has been added to AckState	Generated (Partial) Reject
otherwise, if acknowledgment Overdue Date <= current date	ASok has been added to AckState	Send-Overdue (OK)
	ASerror has been added to AckState	Send-Overdue (Error)
	ASreject has been added to AckState	Send-Overdue (Reject)
	ASpreject has been added to AckState	Send-Overdue (Partial) Reject

Alphabetical Listing of Tables

The tables in this appendix are in order by functional groupings. When you know the name of a particular table, you can use the alphabetical listing below to locate it quickly, without reference to the functional groupings.

Table Name	Functional Grouping	Contents	Page No.
BlobInfo	System	Information about blobs	362
Certificates	Keys	Certificate information	375
CertTypeInfo	Keys	Certificate information for UI display.	377
CRL	Keys	Certificate revocation list	376
DTServices	System	Service list definitions	360
EventLog	Tracking	Log of processing events	398

Table Name	Functional Grouping	Contents	Page No.
Job	System	Information about scheduled jobs	357
KeyPairs	Keys	Public/private key pair information	378
MBAddresses	Membership	Member trading addresses	365
MsgFormats	System	Text strings for EventLog	400
MDNInfo	Tracking	Message Disposition Notification information	396
MsgFormats	Tracking	Text strings for EventLog	400
Oftp	Tracking	OFTP EERP reconciliation information	397
Partnerships	Partnerships	Partnership definitions	366
PNCard	Partnerships	Mercator card information	371
PNDocs	Partnerships	Partnership document definitions	368
PNGroup	Partnerships	Partnership group definitions	372
PNStd	Partnerships	EDI standards for partnerships	373
Services	System	Service definitions	359
Tracking	Tracking	Basic information for submission units (same tracking ID)	379
TrkDoc	Tracking	Document-level information	388
TrkDocDetails	Tracking	Document card-level information	394
TrkGroup	Tracking	Group-level information	386
TrkIntchg	Tracking	Interchange-level information	383
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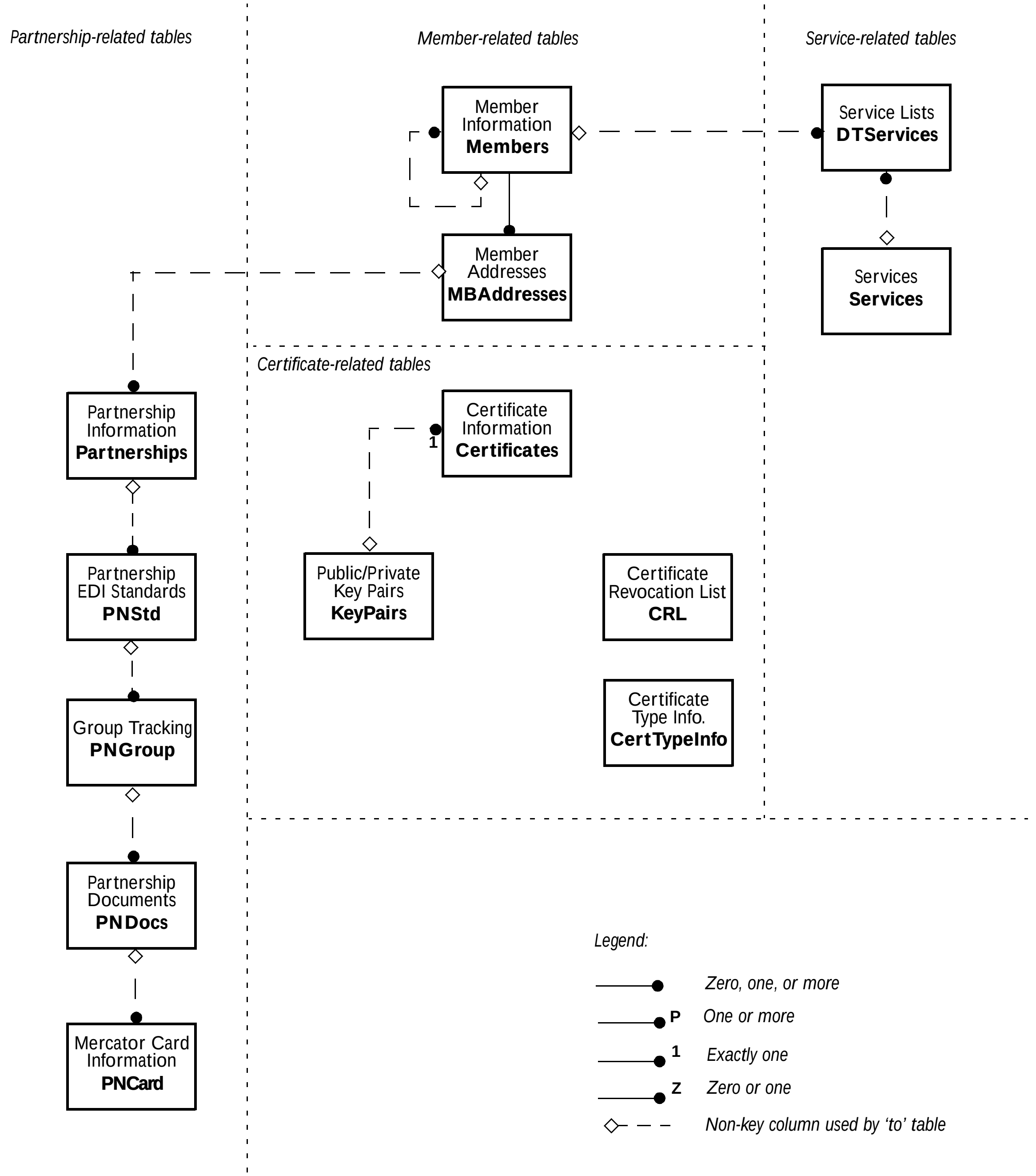
Schema Overview

Figure A.1 shows the relationship between the membership, partnership, services, and key-related tables in the ECXpert database schema.

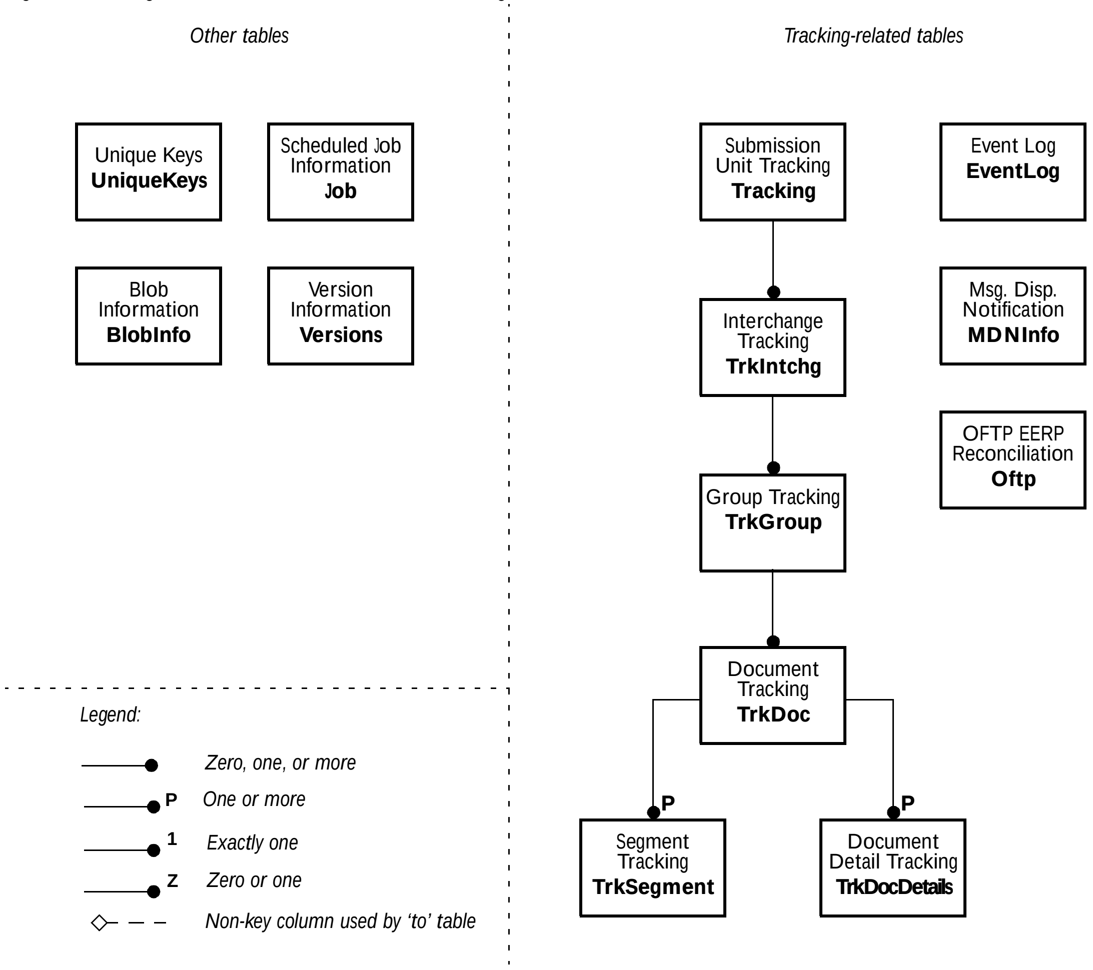
Figure A.1 Diagram of database schema for membership, partnerships, services, and certificates



Partnership-related tables
Member-related tables
Service-related tables
Member Information Members
Service Lists DTServices
Member Addresses MBAddresses
Services Services
Certificate-related tables
Partnership Information Partnerships
Certificate Information Certificates
1
Partnership EDI Standards PNStd
Public/Private Key Pairs KeyPairs
Certificate Revocation List CRL
Group Tracking PNGroup
Certificate Type Info. CertTypeInfo
Partnership Documents PNDocs
Mercator Card Information PNCard
Legend:
Zero, one, or more
P One or more
1 Exactly one
Z Zero or one
Non-key column used by 'to' table

Figure A.2 shows the relationship between the tracking-related tables in the ECXpert database schema. It also shows other tables in the ECXpert database schema.

Figure A.2 Diagram of database schema for tracking and other tables


Other tables
Tracking-related tables
Unique Keys UniqueKeys
Scheduled Job Information Job
Blob Information BlobInfo
Version Information Versions
Submission Unit Tracking Tracking
Event Log EventLog
Interchange Tracking TrkIntchg
Msg. Disp. Notification MDNInfo
OFTP EERP Reconciliation Oftp
Group Tracking TrkGroup
Document Tracking TrkDoc
P
P
Segment Tracking TrkSegment
Document Detail Tracking TrkDocDetails
Legend:
Zero, one, or more
P One or more
1 Exactly one
Z Zero or one
Non-key column used by 'to' table

System-wide Tables

The system-wide group of tables store information that is used throughout the ECXpert System.

Job

The Job table stores information about scheduled jobs.

Table A.1 Job

Name	Req	Type (Len)	Description
JBId^P	Y	varchar2(60)	Unique ID of scheduled job
JBDescription		varchar2(255)	Description of scheduled job
JBExecType		integer	Type of scheduled job (e.g. script, daemon, etc.)
JBExecName		varchar2(60)	Pathname to an executable or a script, or the section name of an ECXpert server
JBExecArgs		long	Arguments passed to scheduled job
JBExecCfgFile		varchar2(60)	Used internally for daemon
JBExecPktId		integer	Used internally for daemon
JBCriterionId		integer	Blob ID for job running criteria
JBBlkoutId		integer	Blob ID for blackout criteria
JBRepeatFrequency		integer	Seconds between each time the job is to be run
JBRunTotal		integer	Total number of times job is to be run
JBIteration		integer (default 0)	Current iteration of the scheduled job

Table A.1 Job

Name	Req	Type (Len)	Description
JBState		integer (default 0)	Current state of the scheduled job. Valid states are: 0 - Job is submitted 1 - Job is waiting for the evaluation of its criteria 2 - Job is ready to run 3 - Job is running 4 - The previous run is done 5 - Job is all done 6 - Job is held (suspended) by user 7 - Job is aborted due to non-recoverable error
JBLastRunRetCode		integer	Return code from last iteration of scheduled job
JBLastRunErrno		integer	Error number from last iteration of scheduled job
JBLastRunErrMsg		varchar2(255)	Error message from last iteration of scheduled job
JBLastRunTime		date	Starting time of last iteration of scheduled job
JBPrevEvalTime		date	Time of most recent evaluation of criteria
JBNextEvalTime		date	Time of next evaluation of criteria
JBLogLevel		integer	Indicates logging level (e.g. warning, error, etc. Valid logging levels are: Lower than 10 - informational 10 - 20 - warning ('(' means exclude while ']' means include) 20 - 30 - error Higher than 30 - no logging
JBModByGroup		varchar2(60)	ID of group modified by
JBModByUser		varchar2(60)	ID of user modified by
JBModDt		date	Modification date. Default: system date.

^{P} Primary key

Versions

The Versions table stores information about the current version of ECXpert and the current version of the database schema.

Table A.2 Versions

Name	Req	Type (Len)	Description
Product		varchar2(30)	Product name (ECXpert).
ProductVersion		varchar2(20)	Version number of the product
SchemaVersion		varchar2(20)	Version number of the database schema
MBModDt		date	Modification date

P Primary key: OFFileName + OFTimeStamp + OFDateStamp

Services

The Services table stores definitions of individual services that can be combined into service lists in the DTServices table.

Table A.3 Services

Name	Req	Type (Len)	Description
SVRId P	Y	integer	Service ID
SVRName		varchar2(60)	Service name
SVRType		integer	Service type. Valid values: 0 = STunknown 1 = STinternal (ECXpert internal service, e.g. parse, xlat) 2 = STscript (ECXpert external script file) 3 = STexe (ECXpert external executable file) 4 = STdll (function in a shared library, e.g. DLL)
SVRPathName		varchar2(255)	Path name to service code file
SVREntryName		varchar2(60)	Entry name

Table A.3 Services (Continued)

Name	Req	Type (Len)	Description
SVRMaxThread		integer	Maximum number of threads
SVRParam		varchar2(255)	Service description
SVRObjPerm		integer	Object permission
SVRModByGroup		varchar2(60)	ID of group modified by
SVRModByUser		varchar2(60)	ID of user modified by
SVRModDt		date	Modification date. Default: system date.

^{P} Primary key

DTServices

The DTServices table stores definitions of service lists, built from individual services stored in the Services table.

Table A.4 DTServices

Name	Req	Type (Len)	Description
DTSServiceListName ^{P}	Y	varchar2(60)	Service list name
DTSSeqNum $^{P, U}$	Y	integer	Sequence number
DTSSchedType	N	Integer	Indicates whether service list is scheduled
DTSSndrMBName $^{U, F}$	Y	varchar2(60)	Sending member name
DTSRcvrMBName $^{U, F}$	Y	varchar2(60)	Receiving member name
DTSTypeName $^{U, F}$	Y	varchar2(60)	Service file type name OR service data object type name
DTSSVRId ^{F}		integer	Service ID
DTSSVRName		varchar2(60)	Service name
DTSServiceParams		varchar2(255)	Service parameters
DTSErrorHandler		varchar2(60)	Name of user-specified service for error handler

Table A.4 DTServices (Continued)

Name	Req	Type (Len)	Description
DTSDesc		varchar2(255)	Service description
DTSObjPerm		integer	Object permission
DTSModByGroup		varchar2(60)	ID of group modified by
DTSModByUser		varchar2(60)	ID of user modified by
DTSModDt		date	Modification date. Default: system date.

P Primary key: `DTSServiceListName` + `DTSSeqNum`

U Unique key: `DTSSeqNum` + `DTSSndrMBName` + `DTSRcvrMBName` + `DTSTypeName`

F Foreign keys: `DTSTypeName` into *Services* (`SVRName`);
`DTSSVRId` into *Services* (`SVRId`);
`DTSSndrMBName` and `DTSRcvrMBName` into *Members* (`MBName`);

UniqueKeys

The UniqueKeys table stores control information for all unique keys that are generated by the ECXpert System.

Table A.5 UniqueKeys

Name	Req	Type (Len)	Description
UKName P	Y	varchar2(60)	Unique key name
UKLastValue		integer	Last value assigned to this key
UKModDt		date	Modification date. Default: system date.

P Primary key

BlobInfo

The BlobInfo table stores blobs used by the ECXpert System.

Table A.6 BlobInfo

Name	Req	Type (Len)	Description
BLOBId [P]	Y	integer	Blob ID
BLOBType		integer	Kind of blob. Valid values are: 0 = BTunknown 1 = BTcertificate 2 = BTsubject 3 = BTtrackfile 4 = BTjob
BLOBValue		long raw	Contents of blob
BLOBValueLen		integer	Length of contents
BLOBObjPerm		integer	Object permission
BLOBModByGroup		varchar2(60)	ID of group modified by
BLOBModByUser		varchar2(60)	ID of user modified by
BLOBModDt		date	Modification date. Default: system date.

[P] Primary key

Membership-related Tables

The membership-related group of tables store information related to members in the ECXpert System.

Members

The Members table stores the basic definitions of individual members within the ECXpert System.

Table A.7 Members

Name	Req	Type (Len)	Description
MBName [P]	Y	varchar2(60)	Member name.
MBType		integer	Member type. LDAP name: BusinessCategory Valid values: 0 = MBTunknown 1 = MBTsysAdmin 2 = MBTmembershipAdmin (not used in release 3.0) 3 = MBTgroupAdmin (not used in release 3.0) 4 = MBTinternalMember (not used in release 3.0) 5 = MBTtradingPartner (external member)
MBParentName [F]	Y	varchar2(60)	Member parent name
MBIsGroup		integer	Is member a group?
MBActive		integer	Is member active? LDAP name: EmployeeType, bit 0x01
MBPassword		varchar2(255)	Member password
MBPKPwd		varchar2(255)	(internal use) LDAP name: SeeAlso
MBInfoSource		varchar2(255)	Not used in release 3.0 LDAP name: LabeledURI
MBTrusted		integer	Is member trusted? LDAP name: EmployeeType, bit 0x02
MBOftpFlag		Integer	Not used in release 3.0 Indicates whether an ECX member is allowed to change passward at beginning of OFTP session.

Table A.7 Members (Continued)

Name	Req	Type (Len)	Description
MBReadSpan		Integer	The number of days back that TradingXpert shows documents to this member in TradingXpert inbound and outbound document lists.
MBContactName		varchar2(60)	Member contact's name LDAP name: FullName
MBContactAddress1		varchar2(60)	Contact's address line 1 LDAP name: Address, bytes 0-59
MBContactAddress2		varchar2(60)	Contact's address line 2 LDAP name: Address, bytes 60-119
MBContactCity		varchar2(60)	Contact's city LDAP name: Locality
MBContactState		varchar2(60)	Contact's state or province LDAP name: State
MBContactZip		varchar2(60)	Contact's zip or postal code LDAP name: PostalCode
MBContactCountry		varchar2(60)	Contact's country LDAP name: Address, bytes 120-179
MBContactPhone		varchar2(60)	Contact's phone number LDAP name: PhoneNo
MBContactFax		varchar2(60)	Contact's fax number LDAP name: Fax
MBContactDesc		varchar2(255)	Contact's description LDAP name: Description
MBContactEmailId		varchar2(255)	Contact's email. LDAP name: Email
MBObjPerm		integer	Object permission
MBModByGroup		varchar2(60)	ID of group modified by
MBModByUser		varchar2(60)	ID of user modified by
MBModDt		date	Modification date. Default: system date.

^{P} Primary key

F Foreign key: `MBParentName` into *Members* (MBName)

MBAddresses

The MBAddresses table stores trading addresses for members. Each member defined in Members table may have multiple trading addresses stored in MBAddresses table.

Table A.8 MBAddresses

Name	Req	Type (Len)	Description
MBAName F	Y	varchar2(60)	Member name
MBAQual P, U	Y	varchar2(60)	Qualifier for trading address
MBAQualId P, U	Y	varchar2(60)	Main trading address
MBAObjPerm		integer	Object permission
MBAModByGroup		varchar2(60)	ID of group modified by
MBAModByUser		varchar2(60)	ID of user modified by
MBAModDt		date	Modification date. Default: system date.

P Primary key: MBAQual + MBAQualId
F Foreign keys: MBAName into *Members* (`MBName`)
U Unique key: MBAQual + MBAQualId

Partnership-related Tables

The partnership-related group of tables store information on trading partnerships.

Partnerships

The Partnerships table stores the basic information defining a trading partnership.

Table A.9 Partnerships

Name	Req	Type (Len)	Description
PNId ^{P}	Y	integer	Partnership ID
PNSndrMBName ^{F}		varchar2(60)	Sending member name
PNSndrQual $^{U, F}$	Y	varchar2(60)	Qualifier for sending member's trading address
PNSndrQualId $^{U, F}$	Y	varchar2(60)	Sending member's main trading address
PNRcvrMBName ^{F}		varchar2(60)	Receiving member name
PNRcvrQual $^{U, F}$	Y	varchar2(60)	Qualifier for receiving member's trading address
PNRcvrQualId $^{U, F}$	Y	varchar2(60)	Receiving member's main trading address
PNActive		integer	Is partnership active?
PNSndrCertType		integer	Certificate type. Valid values: 0 = CTUnknown 1 = CTSelf 2 = CTVerisignC3 3 = CTVerisignC2 4 = CTVerisignC1 5+ Other CA root(s) user imports

Table A.9 Partnerships (Continued)

Name	Req	Type (Len)	Description
PNRcvrCertType		integer	Certificate type. Valid values: 0 = CTUnknown 1 = CTSelf 2 = CTVerisignC3 3 = CTVerisignC2 4 = CTVerisignC1 5+ Other CA root(s) user imports
PNSecurity		integer	SMTP security. Valid values: 0 = Plain MIME (send as base64 encoding only) 1 = Encrypted (encrypted with receiver's public key) 2 = Signed (signed with sender's private key) 3 = SignedAndEncrypted (signed first, then encrypted)
PNGenOptEnv		integer	Enveloping Options: 0 = No UNA, No UNG 1 = UNA only 2 = UNG only 3 = UNA and UNG
PNGenIntgAckFlags		integer	Generate interchange acknowledgments flags (internal use)
PNIntgAckWait		integer	The number of minutes to wait before the acknowledgment becomes overdue. Default: 525600.
PNDesc		varchar2(255)	Partnership description
PNObjPerm		integer	Object permission
PNModByGroup		varchar2(60)	ID of group modified by
PNModByUser		varchar2(60)	ID of user modified by
PNModDt		date	Modification date. Default: system date.

P Primary key

U Unique key: `PNSndrQual` + `PNSndrQualId` + `PNRcvrQual` + `PNRcvrQualId`

F Foreign keys: `PNSndrMBName` into *Members* (`MBName`); `PNSndrQual` into *MBAddresses* (`MBAQual`); `PNSndrQualId` into *MBAddresses* (`MBAQualId`); `PNRcvrMBName` into *Members* (`MBName`); `PNRcvrQual` into *MBAddresses* (`MBAQual`); `PNRcvrQualId` into *MBAddresses* (`MBAQualId`)

PNDocs

The PNDocs table stores partnership document information.

Table A.10 PNDocs

Name	Req	Type (Len)	Description
PDPGId [P, F]	Y	integer	Partnership ID
PDDocType [P]	Y	varchar2(60)	Document type
PDActive		integer	1 if active
PDPriority		integer	Processing priority. Valid values: 0 = PDunknown 1 = PDhigh 2 = PDmedium 3 = PDlow
PDAppDOTName		varchar2(60)	Application data object type name
PDMapName		varchar2(60)	Map file name
PDMapDirection		integer	Translation type. Valid values: 0 = XLTunknown 1= XLTinbound (EDI-to-Application) 2 = XLToutbound (Application-to-EDI) 3 = XLTedi2edi (EDI-to-EDI) 4 = XLTapp2app (Application-to-Application) 5 = XLTnoxlat (None; pass-through mode)
PDMapComment-SegId		varchar2 (8)	The segment ID used as "comment" type in the *Mercator* map. Default is NTE.
PDAckExpected		integer	Is functional acknowledgment expected?
PDAckWait		integer	The number of minutes to wait before the acknowledgment becomes overdue. Default: 5259600.
PDLastCtrlNum		varchar2(60)	Last control number generated

Table A.10 PNDocs (Continued)

Name	Req	Type (Len)	Description
PDLock		integer	(internal use)
PD1stXportType		varchar2(60)	Primary transport protocol. Valid values include: “submit” for submit utility “comm_ftp_geis” for GEIS FTP “ftp-local-application” for local FTP (application) “ftp-local-edi” for local FTP (EDI) “commhttp-aiag” for HTTP AIAG “commhttp-gisb” for HTTP GISB “commsmtp-receive-plain” for SMTP receive server (plain) “commsmtp-receive-smime” for SMTP receive server (S/MIME)
PD1stXportParam		long	Primary transport protocol parame-ter
PD2ndXportType		varchar2(60)	Alternate transport protocol. Valid values include: “submit” for submit utility “comm_ftp_geis” for GEIS FTP “ftp-local-application” for local FTP (application) “ftp-local-edi” for local FTP (EDI) “commhttp-aiag” for HTTP AIAG “commhttp-gisb” for HTTP GISB “commsmtp-receive-plain” for SMTP receive server (plain) “commsmtp-receive-smime” for SMTP receive server (S/MIME)
PD2ndXportParam		varchar2(255)	Alternate transport protocol param-eter
PDSendType		integer	Immediate or scheduled
PDDeleteWait		integer	Retention period (days) before delete
PDArchiveWait		integer	Retention period (days) before archiving (not used in release 3.0)

Table A.10 PNDocs (Continued)

Name	Req	Type (Len)	Description
PDPreEnveloped		integer	Is data pre-enveloped? Valid values: 0 = PEunknown 1 = PEenveloped (bundle preserves all envelopes) 2 = PEnonenveloped (bundle generates and/or replaces all envelopes) 3 = PEpreenvelopedEDI(not used) 4 = PEGetCtrlNo (Bundle only supplies the control number and preserves everything else in envelope) 5 = PEPreserveCtrlNo (Bundle only preserves the envelope control number)
PNPreCommSVRId		integer	Service ID of service to execute before sending to a communications agent
PDDesc		varchar2(255)	Document description
PDObjPerm		integer	Object permission
PDModByGroup		varchar2(60)	ID of group modified by
PDModByUser		varchar2(60)	ID of user modified by
PDModDt		date	Modification date. Default: system date.

P Primary key: `PDPGId` + `PDDocType`
F Foreign keys: `PDPGId` into *PNStd* (`PSId`)

PNCard

The PNCard table stores information about the Mercator input and output cards associated with a partnership document.

Table A.11 PNCard

Name	Req	Type (Len)	Description
PDDPGId [P,F]	Y	integer	Partnership ID
PDDDocType [P,F]	Y	varchar2(60)	Document type
PDDCardNum [P]	Y	integer	Card number
PDDSndrMBName		varchar2(60)	Sending member name
PDDRcvrMBName		varchar2(60)	Receiving member name
PDDCardDocType		varchar2(60)	Card document type
PDDObjPerm		integer	Object permission
PDDModByGroup		varchar2(60)	ID of group modified by
PDDModByUser		varchar2(60)	ID of user modified by
PDDModDt		date	Modification date. Default: system date.

[P] Primary key: `PDDPGId` + `PDDDocType` + `PDDCardNum`

[F] Foreign keys: `PDDPSId` into *PNDocs* (?); `PDDDocType` into `PNDocs`(?)

PNGroup

The PNGroup table stores information on expected document groups, especially of the GS/GE and UNG/UNE segments, of incoming files for a given partnership.

Table A.12 PNGroup

Name	Req	Type (Len)	Description
PGId	Y	integer	Unique ID number of partnership group.
PGPSId [P, F]	Y	integer	Standard associated with partnership group.
PGGroupType [P]	Y	varchar2(60)	Partnership group
PGSndrQual [P]	Y	varchar2(60)	Qualifier for the application sender code. Used only in EDIFACT.
PGSndrAppCode	Y	varchar2(60)	Application sender code.
PGRcvrQual	Y	varchar2(60)	Qualifier for the application receiver code.
PGRcvrAppCode	Y	varchar2(60)	Application receiver code.
PGLastGroupCtrlNum		varchar2(60)	Last group control number generated
PGLockGroup		integer	(internal use)
PGGenDocAck		integer	Generate document acknowledgments flags (internal use)
PGGrpAckWait		integer	The number of minutes to wait before the acknowledgment becomes overdue. Default: 525600.
PGObjPerm		integer	Object permission
PGModByGroup		varchar2(60)	ID of group modified by
PGModByUser		varchar2(60)	ID of user modified by
PGModDt		date	Modification date. Default: system date.

[P] Primary key: `PGPSId` + `PGGroupType` + `PGSndrQual` + `PGSndrAppCode` + `PGRcvrQual` + `PGRcvrApp-Code`
[F] Foreign key: `PGPSId` into *PNStd* (`PSId`)

PNStd

The PNStd table stores EDI standard information for a partnership defined in the Partnership table.

Table A.13 PNStd

Name	Req	Type (Len)	Description
PSId ^{P}	Y	integer	Standards ID
PSPNId $^{U, F}$	Y	integer	Partnership ID
PSStandard ^{U}	Y	varchar2(60)	EDI standard
PSVersion ^{U}	Y	varchar2(60)	EDI standard version number
PSRelease ^{U}	Y	varchar2(60)	EDI standard release number
PSLastIntgCtrlNum		varchar2(60)	Last interchange control number generated
PSLockIntg		integer	(internal use)
PSTestProdFlag		integer	Test vs. production data flag. Valid values: 0 = TPFunknown 1 = TPFproduction (production data) 2 = TPFtest (test data)
PSSegTerm		varchar2(6)	Segment terminator character
PSElmtSep		varchar2(6)	Data element separator character
PSSubElmtSep		varchar2(6)	Data sub-element separator charac-ter
PSDecPtChar		varchar2(6)	Decimal point character
PSRelChar		varchar2(6)	Release character
PSOutStandard		varchar2(60)	Interchange standard user wishes to appear in bundled EDI docu-ments
PSOutVersion		varchar2(60)	Interchange version user wishes to appear in bundled EDI documents
PSOutRelease		varchar2(60)	Interchange release user wishes to appear in bundled EDI documents

Table A.13 PNStd (Continued)

Name	Req	Type (Len)	Description
PSObjPerm		integer	Object permission
PSModByGroup		varchar2(60)	ID of group modified by
PSModByUser		varchar2(60)	ID of user modified by
PSModDt		date	Modification date. Default: system date.

P Primary key: `PSId`

F Foreign key: `PSPNId` into *Partnerships* (`PNId`)

U Unique key: `PSPNId` + `PSStandard` + `PSVersion` + `PSRelease`

Certificate-related Tables

The certificate-related group of tables store information supporting public key encryption in the ECXpert System.

Certificates

The Certificates table stores information on certificates.

Table A.14 Certificates

Name	Req	Type (Len)	Description
CRTDigest [P, U]	Y	varchar2(60)	Certificate issuer name and serial number digest
CRTCertType [P, U]	Y	integer	Certificate type. Valid values: 0 = CTUnknown 1 = CTSelf 2 = CTVerisignC3 3 = CTVerisignC2 4 = CTVerisignC1 5+ Other CA root(s) user imports
CRTCertUsage	Y	integer	Indicates how the certificate is being used (i.e. to digitally sign, encrypt, or both)
CRTSubjectDigest	Y	varchar2(60)	Subject named digest
CRTPublicKeyDigest [F]	Y	varchar2(30)	Public key digest
CRTBlobId		integer	(internal use)
CRTSubjectBlobId		integer	(internal use)
CRTExpireDt	Y	integer	Certificate expiration date
CRTName		varchar2(60)	Name of issuing certificate authority
CRTIsRoot		integer	Indicates if certificate is a root certificate
CRTMBName [U, F]	Y	varchar2(60)	Member name
CRTMBEmailId		varchar2(60)	Member’s e-mail address

Table A.14 Certificates (Continued)

Name	Req	Type (Len)	Description
CRTDesc		varchar2(255)	Certificate description
CRTObjPerm		integer	Object permission
CRTModByGroup		varchar2(60)	ID of group modified by
CRTModByUser		varchar2(60)	ID of user modified by
CRTModDt		date	Modification date. Default: system date.

P Primary key: `CRTDigest` + `CRTCertType`

F Foreign key: `CRTPublicKeyDigest` into *KeyPairs* (`KPDigest`); `CRTMBName` into *Members* (`MBName`)

U Unique key: `CRTCertType` + `CRTDigest` + `CRTMBName`

CRL

The CRL table stores the certificate revocation list.

Table A.15 CRL

Name	Req	Type (Len)	Description
CRLIssuerDigest P	Y	varchar2(60)	Certificate issuer digest
CRLTime		integer	Time stamp
CRLValue		long raw	Certificate revolution list
CRLValueLen		integer	Length of certificate (bytes)
CRLDesc		varchar2(255)	Description
CRLObjPerm		integer	Object permission
CRLModByGroup		varchar2(60)	ID of group modified by
CRLModByUser		varchar2(60)	ID of user modified by
CRLModDt		date	Modification date. Default: system date.

P Primary key

CertTypeInfo

The CertTypeInfo table stores information on certificates for display through the user interface.

Table A.16 CertTypeInfo

Name	Req	Type (Len)	Description
CTICertType [P]	Y	integer	Certificate type. Valid values: 0 = CTUnknown 1 = CTSelf 2 = CTVerisignC3 3 = CTVerisignC2 4 = CTVerisignC1 5+ Other CA root(s) user imports
CTICertTypeName	Y	varchar2(60)	Name of certificate authority
CTICertTypeDesc		varchar2(60)	Certificate authority description
CTIObjPerm		integer	Object permission
CTIModByGroup		varchar2(60)	ID of group modified by
CTIModByUser		varchar2(60)	ID of user modified by
CTIModDt		date	Modification date. Default: system date.

[P] Primary key

KeyPairs

The KeyPairs table stores public/private key pair information.

Table A.17 KeyPairs

Name	Req	Type (Len)	Description
KPDigest [P, F]	Y	varchar2(30)	Public key digest
KPPrivateKey		long raw	Private key (encrypted)
KPPrivateKeyLen		integer	Private key length
KPDesc		varchar2(255)	Key pair description
KPObjPerm		integer	Object permission
KPModByGroup		varchar2(60)	ID of group modified by
KPModByUser		varchar2(60)	ID of user modified by
KPModDt		date	Modification date. Default: system date.

[P] Primary key

[F] Foreign key: `KPDigest` into *Certificates* (`CRTPublicKeyDigest`)

Tracking-related Tables

The tracking-related group of tables supports document tracking in the ECXpert System.

Tracking

The Tracking table stores information associated with tracking IDs.

Table A.18 Tracking

Name	Req	Type (Len)	Description
TRKId P	Y	integer	Tracking ID - ECXpert internal tracking number for the submission unit
TRKServiceListName		varchar2(60)	Service list name associated with tracking ID
TRKDOTName		varchar2(60)	Data object type name (e.g. the document type specified in the partnership)
TRKSndrMBName		varchar2(60)	Sending member name
TRKRcvrMBName		varchar2(60)	Receiving member name
TRKCurServiceIdx		integer	Current service index, , which indicates which service is currently running: either 1 for submission or the offset corresponding to the service in the service list -1
TRKCurServiceName		varchar2(60)	Current service name
TRKCurServiceParam-File		varchar2(255)	Stores the custom service parameter file name

Table A.18 Tracking (Continued)

Name	Req	Type (Len)	Description
TRKPrimaryState		integer	Primary tracking state. Valid values: 0 = TSunknown - indicates NULL value 1 = TSready - indicates service has yet to be invoked 2 = TSinProgress - indicates service has been invoked 3 = TSdoneOK - indicates service is done with no errors 4 = TSdoneBad - indicates service is done with errors 5 = TSalldoneOK - indicates last service on service list is done and TRKState is TSdoneOK 6 = TSbundled - identifies bundle generated trackings
TRKState		integer	Tracking state. Valid values: 0 = TSunknown - indicates NULL value 1 = TSready - indicates service has yet to be invoked 2 = TSinProgress - indicates service has been invoked 3 = TSdoneOK - indicates service is done with no errors 4 = TSdoneBad - indicates service is done with errors 5 = TSalldoneOK - indicates last service on service list is done and TRKState is TSdoneOK 6 = TSbundled - identifies bundle generated trackings
TRKErrnum		integer	Tracking error number. Default: 0.
TRKPriority		integer	Processing priority. Valid values: 0 = PDunknown 1 = PDhigh 2 = PDmedium 3 = PDlow

Table A.18 Tracking (Continued)

Name	Req	Type (Len)	Description
TRKCreationDt		date	Tracking ID creation date. Default: system date.
TRKLock		integer	Is Tracking ID locked?
TRKMapDirection		integer	Translation type. Valid values: 0 = XLTunknown 1= XLTinbound (EDI-to-Application) 2 = XLToutbound (Application-to-EDI) 3 = XLTedi2edi (EDI-to-EDI) 4 = XLTapp2app (Application-to-Application) 5 = XLTnoxlat (None; pass-through mode)
TRKXportType		varchar2(60)	Transport protocol. Valid values include: “submit” for submit utility “comm_ftp_geis” for GEIS FTP “ftp-local-application” for local FTP (application) “ftp-local-edi” for local FTP (EDI) “commhttp-aiag” for HTTP AIAG “commhttp-gisb” for HTTP GISB “commsmtp-receive-plain” for SMTP receive server (plain) “commsmtp-receive-smime” for SMTP receive server (S/MIME)
TRKMDNState		integer	Message disposition notification state. Valid values: 0 = MSunknown 1 = MSready (MDN generated and ready to send) 2 = MSsent (MDN is sent) 3 = MSwaiting (email is sent and is waiting for an incoming MDN) 4 = MSreconciled (Received MDN and reconciled it with original email)

Table A.18 Tracking (Continued)

Name	Req	Type (Len)	Description
TRKMDNOverDueDt		date	The date after which the message disposition notification becomes over due. Default: system date + 3652.
TRKExtReference		varchar2(60)	External reference
TRKExtPathName		varchar2(255)	External pathname
TRKPartNum		integer	Current part number
TRKPartTotal		integer	Part total
TRKPartType		integer	Attachment or parts
TRKCustomInfo		varchar2(255)	(internal use)
TRKMisc		varchar2(255)	(internal use)
TRKFullPathName		varchar2(255)	Full path name
TRKSize		integer	Submission Unit file size (bytes)
TRKBlobId		integer	(internal use)
TRKObjPerm		integer	Object permission
TRKModByGroup		varchar2(60)	ID of group modified by
TRKModByUser		varchar2(60)	ID of user modified by
TRKModDt		date	Modification date. Default: system date.

P Primary key

TrkIntchg

The TrkIntchg table stores information on the interchange level of the EDI envelope.

Table A.19 TrkIntchg

Name	Req	Type (Len)	Description
TITrkId $^{P, F}$	Y	integer	ECXpert internal tracking number for the submission unit
TIId ^{P}	Y	integer	Interchange identifier
TICurServiceIdx		integer	Current service index
TIState		integer	Tracking state. Valid values: 0 = TSunknown 1 = TSready 2 = TSinProgress 3 = TSdoneOK 4 = TSdoneBad 5 = TSalldoneOK 6 = TSbundled
TIErrnum		integer	Interchange error number. Default: 0.
TIParseErrnum		integer	(internal use)
TIPriority		integer	Processing priority. Valid values: 0 = PDunknown 1 = PDhigh 2 = PDmedium 3 = PDlow
TIPSId		integer	Partnership ID
TISndrQual		varchar2(60)	Sending member qualifier for trading address
TISndrQualId		varchar2(60)	Sending member main trading address
TIRcvrQual		varchar2(60)	Receiving member qualifier for trading address
TIRcvrQualId		varchar2(60)	Receiving member main trading address

Table A.19 TrkIntchg (Continued)

Name	Req	Type (Len)	Description
TIStandard		varchar2(60)	EDI standard used
TIVersion		varchar2(60)	Version number of EDI standard used
TIRelease		varchar2(60)	Release number of EDI standard used
TITestProdFlag		integer	Test vs. production data flag. Valid values: 0 = TPFunknown 1 = TPFproduction (production data) 2 = TPFtest (test data)
TIAckState		integer	Functional acknowledgment state. A single value is computed by adding the following component values as events occur: 0 = ASunknown 1 = ASwaiting 2 = ASok 4 = ASerror 8 = ASreject 16 = ASpreject 32 = ASsent 64 = ASsendFailed 128 = ASreconciled For detailed breakdown of actual values and messages displayed, see “Values of AckState” on page 349.
TIAckOverDueDt		date	The number of minutes to wait before the acknowledgment becomes overdue. Default: system date + 3652.
TIGenIntgAckFlags		integer	Generate functional acknowledgment? Valid values: 0 = GAunknown 1 = GAnoack (none) 2 = GAgroup (group level) 3 = GAdoc (document level)

Table A.19 TrkIntchg (Continued)

Name	Req	Type (Len)	Description
TICtrlNum		varchar2(60)	EDI standard control number, determined by trading partner relationship
TIFileName		varchar2(255)	Submission Unit file name
TICreationDt		date	Submission Unit file creation date
TISize		integer	Interchange size (bytes)
TIHdrStartOff		integer	Interchange header start offset (bytes)
TIHdrSize		integer	Interchange header size (bytes)
TITlrStartOff		integer	Interchange trailer start offset (bytes)
TITlrSize		integer	Interchange trailer size (bytes)
TISegTerm		varchar2(6)	Segment terminator
TIElmtSep		varchar2(6)	Element separator
TISubElmtSep		varchar2(6)	Sub-element separator
TIDecPtChar		varchar2(6)	Decimal point character
TIRelChar		varchar2(6)	Release character
TIObjPerm		integer	Object permission
TIModByGroup		varchar2(60)	ID of group modified by
TIModByUser		varchar2(60)	ID of user modified by
TIModDt		date	Modification date. Default: system date.

P Primary key: `TITrkId` + `TIId`

F Foreign key: `TITrkId` into *Tracking* (`TRKId`)

TrkGroup

The TrkGroup table stores information on the group level of the EDI envelope.

Table A.20 TrkGroup

Name	Req	Type (Len)	Description
TGTrkId $^{P, F}$	Y	integer	BDG internal tracking number for the submission unit
TGIntgId ^{P}	Y	integer	Interchange identifier
TGId ^{P}	Y	integer	Group identifier
TGType		varchar2(10)	Group document type.
TGCurServiceIdx		integer	Current service index
TGState		integer	Tracking state. Valid values: 0 = TSunknown 1 = TSready 2 = TSinProgress 3 = TSdoneOK 4 = TSdoneBad 5 = TSalldoneOK 6 = TSbundled
TGErrnum		integer	Tracking error number. Default: 0.
TGParseErrnum		integer	Parse error number. Default: 0.
TGPriority		integer	Processing priority. Valid values: 0 = PDunknown 1 = PDhigh 2 = PDmedium 3 = PDlow
TGSndrQual		varchar2(60)	Sending member main trading address
TGSndrAppCode		varchar2(60)	Application sender code.
TGRcvrQual		varchar2(60)	Receiving member main trading address
TGRcvrAppCode		varchar2(60)	Application receiver code.
TGStandard		varchar2(60)	EDI standard used

Table A.20 TrkGroup (Continued)

Name	Req	Type (Len)	Description
TGVersion		varchar2(60)	Version number of EDI standard used
TGRelease		varchar2(60)	EDI standard release number
TGCtrlNum		varchar2(60)	EDI standard control number, determined by trading partner relationship
TGIncludedSets		integer	The number of transaction sets (documents) included in the group.
TGAckState		integer	Functional acknowledgment state. A single value is computed by adding the following component values as events occur: 0 = ASunknown 1 = ASwaiting 2 = ASok 4 = ASerror 8 = ASreject 16 = ASpreject 32 = ASsent 64 = ASsendFailed 128 = ASreconciled For detailed breakdown of actual values and messages displayed, see "Values of AckState" on page 349.
TGAckOverDueDt		date	The number of minutes to wait before the acknowledgment becomes overdue. Default: system date + 3652.
TGCreationDt		date	Submission Unit file creation date. Default: system date.
TGSize		integer	Submission Unit file size
TGHdrStartOff		integer	Header start offset (bytes)
TGHdrSize		integer	Header size (bytes)
TGTlrStartOff		integer	Trailer start offset (bytes)
TGTlrSize		integer	Trailer size (bytes)

Table A.20 TrkGroup (Continued)

Name	Req	Type (Len)	Description
TGObjPerm		integer	Object permission
TGModByGroup		varchar2(60)	ID of group modified by
TGModByUser		varchar2(60)	ID of user modified by
TGModDt		date	Modification date. Default: system date.

P Primary key: `TGTrkId` + `TGIntgId` + `TGId`

F Foreign key: `TGTrkId` into *Tracking* (`TRKId`); `TGIntgId` into *TrkIngchg* (`TITrkId`)

TrkDoc

The TrkDoc table stores information on the document level of the EDI envelope.

Table A.21 TrkDoc

Name	Req	Type (Len)	Description
TDId P	Y	varchar(30)	Document-level internal tracking ID
TDTrkId F		integer	Tracking ID - internal tracking number for the submission unit
TDIntgId		integer	Interchange identifier
TDGrpId		integer	Group identifier
TDDocId		integer	Document identifier
TDCurServiceIdx		integer	Current service index
TDCurServiceName		varchar2(60)	Current service name
TDState		integer	Tracking state. Valid values: 0 = TSunknown 1 = TSready 2 = TSinProgress 3 = TSdoneOK 4 = TSdoneBad 5 = TSalldoneOK 6 = TSbundled

Table A.21 TrkDoc (Continued)

Name	Req	Type (Len)	Description
TDErrnum		integer	Tracking error number. Default: 0.
TDParseErrnum		integer	Parse error number. Default: 0.
TDXlatState		integer	Translation state
TDXlatErrnum		integer	Translation error number. Default: 0.
TDPriority		integer	Processing priority. Valid values: 0 = PDunknown 1 = PDhigh 2 = PDmedium 3 = PDlow
TDStartXlatDt		date	Date translation started. Default: system date.
TDEndXlatDt		date	Date translation ended. Default: system date.
TDLock		integer	(internal use)
TDPSId		integer	Partnership standard ID
TDDocType		varchar2(60)	Document type
TDTestProdFlag		integer	Test vs. production data flag. Valid values: 0 = TPFunknown 1 = TPFproduction (production data) 2 = TPFtest (test data)
TDSndrMBName		varchar2(60)	Sender member's name
TDSndrQual		varchar2(60)	Sender EDI qualifier
TDSndrQualId		varchar2(60)	Sender EDI qualifier ID
TDRcvrMBName		varchar2(60)	Receiver member's name
TDRcvrQual		varchar2(60)	Receiver EDI qualifier
TDRcvrQualId		varchar2(60)	Receiver EDI qualifier ID
TDSndrAppQual		varchar2(60)	Qualifier for the application sender code. Used only in EDIFACT.
TDSndrAppCode		varchar2(60)	Application sender code.

Table A.21 TrkDoc (Continued)

Name	Req	Type (Len)	Description
TDRcvrAppQual		varchar2(60)	Qualifier for the application receiver code.
TDRcvrAppCode		varchar2(60)	Application receiver code. Provides for defining trading partnerships at the functional group level.
TDMapName		varchar2(60)	Name of map for translation
TDStandard		varchar2(60)	EDI standard for translation
TDVersion		varchar2(60)	Version of EDI standard
TDRelease		varchar2(60)	Release of EDI standard
TDMapDirection		integer	Translation type. Valid values: 0 = XLTunknown 1= XLTinbound (EDI-to-Application) 2 = XLToutbound (Application-to-EDI) 3 = XLTedi2edi (EDI-to-EDI) 4 = XLTapp2app (Application-to-Application) 5 = XLTnoxlat (None; pass-through mode)
TD1stXportType		varchar2(60)	Primary transport protocol. Valid values include: “submit” for submit utility “comm_ftp_geis” for GEIS FTP “ftp-local-application” for local FTP (application) “ftp-local-edi” for local FTP (EDI) “commhttp-aiag” for HTTP AIAG “commhttp-gisb” for HTTP GISB “commsmtp-receive-plain” for SMTP receive server (plain) “commsmtp-receive-smime” for SMTP receive server (S/MIME)
TD1stXportParam		long	Transport parameter

Table A.21 TrkDoc (Continued)

Name	Req	Type (Len)	Description
TD2ndXportType		varchar2(60)	Alternate transport protocol. Valid values include: “submit” for submit utility “comm_ftp_geis” for GEIS FTP “ftp-local-application” for local FTP (application) “ftp-local-edi” for local FTP (EDI) “commhttp-aiag” for HTTP AIAG “commhttp-gisb” for HTTP GISB “commsmtp-receive-plain” for SMTP receive server (plain) “commsmtp-receive-smime” for SMTP receive server (S/MIME)
TD2ndXportParam		varchar2(255)	Transport parameter
TDSendType		integer	Sender type: immediate or scheduled
TDSourceDocId		char(30)	Source document ID
TDAckDocId		char(30)	Functional acknowledgment document ID
TDAckState		integer	Functional acknowledgment state. A single value is computed by adding the following component values as events occur: 0 = ASunknown 1 = ASwaiting 2 = ASok 4 = ASerror 8 = ASreject 16 = ASpreject 32 = ASsent 64 = ASsendFailed 128 = ASreconciled For detailed breakdown of actual values and messages displayed, see “Values of AckState” on page 349.

Table A.21 TrkDoc (Continued)

Name	Req	Type (Len)	Description
TDAckOverDueDt		date	The number of minutes to wait before the acknowledgment becomes overdue. Default: system date + 3652.
TDCreationDt		date	Document creation date. Default: system date + 3652.
TDCtrlNum		varchar2(60)	Control number
TDMapRestrictFlags		integer	Map restriction flags
TDFileName		varchar2(255)	Map file name
TDSize		integer	Document size (bytes)
TDHdrStartOff		integer	Document header start offset (bytes)
TDHdrSize		integer	Document header size (bytes)
TDTlrStartOff		integer	Document trailer start offset (bytes)
TDTlrSize		integer	Document trailer size (bytes)
TDUserLink1Name		varchar2(60)	User link 1 name
TDUserLink1Value		varchar2(60)	User link 1 value
TDUserLink2Name		varchar2(60)	User link 2 name
TDUserLink2Value		varchar2(60)	User link 2 value
TDArchiveWait		integer	Wait time to archive
TDDeleteWait		integer	Wait time to delete
TDDataState		integer	Data state. Valid values: 0 = DSunknown 1 = DSreadyForPurge 2 = DSpurged 3 = DSreadyForArchive 4 = DSarchived 5 = DSreadyForRestore 6 = DSrestored

Table A.21 TrkDoc (Continued)

Name	Req	Type (Len)	Description
TDPreEnveloped		integer	Is data pre-enveloped? Valid values: 0 = PEunknown 1 = PEenveloped (bundle preserves all envelopes) 2 = PEnonenveloped (bundle generates and/or replaces all envelopes) 3 = PEpreenvelopedEDI(not used) 4 = PEGetCtrlNo (Bundle only supplies the control number and preserves everything else in envelope) 5 = PEPreserveCtrlNo (Bundle only preserves the envelope control number) 6 = PEFill (Bundle fills in the missing envelope information - not used in this release)
TDBundleState		integer	Bundle state. Valid values: 0 = BSunknown 1 = BSreadyForBundle 2 = BSbundleed 3 = BSdeliveredToComm 4 = BSsecondarySubmitted 5 = BSsecondaryError
TDBundleTrkId		integer	Bundle tracking ID
TDPreCommSVRId		integer	Service ID of service to execute before sending to a communications agent
TDObjPerm		integer	Object permission
TDModByGroup		varchar2(60)	ID of group modified by
TDModByUser		varchar2(60)	ID of user modified by
TDModDt		date	Modification date. Default: system date.

P Primary key

F Foreign key: `TDTrkId` into *Tracking* (`TRKId`)

TrkSegment

The TrkSegment table stores document segment-level information.

Table A.22 TrkSegment

Name	Req	Type (Len)	Description
TSDocId [F]	Y	varchar (30)	Document-level internal tracking ID
TSSegmentId	Y	varchar (30)	ID of segment within document
TSSegmentPosition		integer	Segment sequence number within the document
TSSegmentErrnum		integer	EDI error code. Valid values: 2 = unexpected segment 3 = mandatory segment missing 8 = segment has data elements in error
TSElementPosition		integer	Data element sequence number within the segment (only used when error is in data element)
TSElementCopy		varchar2 (128)	Copy of data elment data (only used when error is in data element)

TrkDocDetails

The TrkDocDetails table stores document card-level information.

Table A.23 TrkDocDetails

Name	Req	Type (Len)	Description
TDDId [P, F]	Y	varchar(30)	Detail ID
TDDCardNum [P]	Y	integer	Detail card number
TDDCreationDt		date	Detail creation date. Default: sys-tem date.
TDDFullPathName		varchar2(255)	Full pathname
TDDIOType		integer	I/O type
TDDXlatFlags		integer	Translation flags

Table A.23 TrkDocDetails (Continued)

Name	Req	Type (Len)	Description
TDDTrkId		integer	Tracking ID - internal tracking number for the submission unit.
TDDIntgId		integer	Interchange identifier
TDDGrpId		integer	Group identifier
TDDState		integer	Tracking state. Valid values: 0 = TSunknown 1 = TSready 2 = TSinProgress 3 = TSdoneOK 4 = TSdoneBad 5 = TSalldoneOK 6 = TSbundled
TDDErrnum		integer	Tracking error number. Default: 0.
TDDSndrMBName		varchar2(60)	Sender member's name
TDDRcvrMBName		varchar2(60)	Receiver member's name
TDDDocType		varchar2(60)	Document type
TDDSubmittedTRKId		integer	Tracking ID of the submitter
TDDObjPerm		integer	Object permission
TDDModByGroup		varchar2(60)	ID of group modified by
TDDModByUser		varchar2(60)	ID of user modified by
TDDModDt		date	Modification date

[P] Primary key: `TDDId` + `TDDCardNum`

[F] Foreign key: `TDDId` into *TrkDoc* (`TDId`)

[F] Foreign key: `TSDocId` into *TrkDoc* (`TDId`)

MDNInfo

The MDNInfo table stores message disposition notification information used by the ECXpert System.

Table A.24 MDNInfo

Name	Req	Type (Len)	Description
MDNId ^{P}	Y	integer	Message disposition notification ID
MDNSndrMBName		varchar2(60)	Sender's member name
MDNRcvrMBName		varchar2(60)	Receiver's member name
MDNReceiveDt		varchar2(60)	Date received
MDNOrigMsgId		varchar2(128)	Original message ID
MDNOrigMsgDigest		varchar2(60)	Original message digest
MDNMicAlg		integer	(internal use) MDN digest algorithm
MDNObjPerm		integer	Object permission
MDNModByGroup		varchar2(60)	ID of group modified by
MDNModByUser		varchar2(60)	ID of user modified by
MDNModDt		date	Modification date. Default: system date.

^{P} Primary key

Oftp

The Oftp table stores OFTP EERP (end-to-end-response) reconciliation information used by the ECXpert System.

Table A.25 Oftp

Name	Req	Type (Len)	Description
OFFileName P	Y	varchar2(255)	The Virtual File Dataset Name. SFIDSN field in the SFID Start File OFTP command. Maximum length is 26 characters.
OFTimeStamp P		varchar2(16)	The Virtual File Time Stamp. The SFIDTIME field in the SFID Start File OFTP command. It is exactly 6 characters long, and has the format HHMMSS.
OFDateStamp P		varchar2(16)	The Virtual File Date Stamp. The SFIDDATE field in the SFID Start File OFTP command. Exactly 6 characters long, and has the format YYMMDD.
OFTrkId		number	The tracking ID assigned to the submitted file by the ECXpert system.
OFSndrMBName		varchar2(60)	The OFTP Sender ID of the file.
OFRcvrMBName		varchar2(60)	The OFTP Receiver ID of the file.
OFDocType		varchar2(60)	The Document Type of the submitted file.
OFEERPExpected		number	Count of the number of EERP's expected before this node can return an EERP to the originator. Who to return the EERP to is specified in the corresponding EERP relationship. This value is incremented whenever a file is sent outbound that is a descendant of the original file.

Table A.25 Oftp

Name	Req	Type (Len)	Description
OFEERPReceived		number	Count of the number of EERP's received by this OFTP node for this particular OFTP file. Incremented when EERP's corrsponding to this unit of work are received by the ECXpert OFTP server.
OFEERPSchedType		number	Is the file for scheduled or immediate transmission? 0 = immediate 1 = scheduled
OFEERPState		number	Current state of the EERP entry: 0 = AWAITING_FINAL_EERP 1 = READY_TO_SEND 2 = SENT_OK 3 = FAILED_TO_SEND

P Primary key

EventLog

The EventLog table stores a log of processing events, including error conditions.

Table A.26 EventLog

Name	Req	Type (Len)	Description
ELId P	Y	integer	Event log ID
ELEventId F		integer	Event ID
ELCategory		varchar2(60)	Functional area in which event took place (e.g. bundle, dispatcher, smtp, etc.)
ELSeverity		integer	Severity of the event: 0 = unknown 10 = informational 20 = warning 30 = error
ELEventShortMsg		varchar2(255)	Short message describing event

Table A.26 EventLog (Continued)

Name	Req	Type (Len)	Description
ELTrkId		integer	Tracking ID associated with event
ELIntgId		integer	Interchange ID associated with event if applicable
ELGrpId		integer	Group ID associated with event if applicable
ELDocId		integer	Document ID associated with event if applicable
ELTDId		varchar2(30)	Non-numeric document identifier. Combination of numeric integers according to following syntax: TrackingID-InterchangeID-GroupID-DocID
ELPercolate		integer	Flag to indicate whether severity of event log has been percolated to tracking tables
ELModByGroup		varchar2(60)	ID of last user to modify the data-base row. (not used)
ELModByUser		varchar2(60)	Functional area in which event took place (e.g. bundle, dispatcher, smtp, etc.)
ELModDt		date	Date the row was last modified Default: system date.

[P] Primary key

[F] Foreign key: `ELId` into *MsgFormats* (`MFId`)

MsgFormats

The MsgFormats table stores text strings describing processing events, including error conditions, that are entered into the EventLog table during processing.

Table A.27 MsgFormats

Name	Req	Type (Len)	Description
MFId [P]	Y	integer	Message format ID
MFCategory		varchar2(60)	Event category
MFSeverity		integer	Event severity
MFShortMsgFmt		varchar2(255)	Short message format
MFLongMsgFmt		long varchar	Long message format
MFObjPerm		integer	Object permission
MFModByGroup		varchar2(60)	ID of group modified by
MFModByUser		varchar2(60)	ID of user modified by
MFModDt		date	Modification date. Default: system date.

[P] Primary key

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