SeeBeyond ICAN Suite

e*Way Intelligent Adapter for CORBA (Client) User's Guide

Release 5.0.5 for Schema Run-time Environment (SRE)

Java Version

Version 20050405222304.

Contents

Chapter 1

Introduction

This guide explains the SeeBeyond™ Technology Corporation's (SeeBeyond™) e*Way™ Intelligent Adapter for CORBA (Client). This chapter provides an introduction to the guide and the e*Way.

1.1 CORBA Client e*Way: Overview

This guide provides a general introduction to the CORBA Client e*Way then explains how to install, configure, and operate it. The guide also explains how to implement the e*Way in a sample e*Gate Integrator environment. The rest of this section provides an overview of the e*Way and how it operates.

Note: *CORBA stands for Common Object Request Broker Architecture, a standard for creating, distributing, and managing software objects.*

1.2 Intended Reader

The reader of this guide is presumed:

- To be a developer or system administrator with responsibility for maintaining the e*Gate system
- To have high-level knowledge of Windows and UNIX operations and administration
- To be thoroughly familiar with CORBA and types of Object Request Brokers (ORBs)
- To be experienced with Windows-style window operations

1.3 General e*Way Operation

The CORBA Client e*Way allows you to integrate non-CORBA systems with CORBA server applications without the need for custom coding. The e*Way enables e*Gate to make requests to a CORBA-compliant object from within a Collaboration.

CORBA Services and ORBs

A service is an implementation of one or more interfaces managed by an ORB. ORBs generally contain many services consisting of applications, custom components written in-house, and/or services installed with the ORB.

Each service in an ORB is described by an Interface Definition Language (**.idl**) file. These files are readable text files and usually consist of a module declaration and one or more interfaces.

1.3.1 Event Type Definitions and Collaborations

You can select any **.idl** file (that you provide) containing the interface that represents your desired service. The e*Gate Schema Designer allows you to create a corresponding e*Gate Event Type Definition (ETD). This feature is a convenient wizard window that compiles and generates an **.xsc** file that makes up the ETD.

This ETD represents a CORBA interface and all the types and other interfaces referenced by the interface. One or more of these ETDs are then used in a Collaboration to enable it to make requests to the corresponding CORBA service.

The ETD represents the methods and attributes on the CORBA service. The e*Way's operation in e*Gate allows it to act as a client to a CORBA server, using the services of a CORBA object from within the Collaboration.

Note: *For more information on ETDs and their use in e*Gate, see the* ***e*Gate Integrator User's Guide****.*

1.3.2 ORB Implementation

The e*Way operates in conjunction with a default client ORB. Therefore, the e*Way's use and correct implementation require that an ORB run-time environment is installed and properly configured on at least one e*Gate Participating Host. This process is automatic when you install the e*Way.

Additionally, the ETD creation (via the wizard window; see **"ETD Wizard" on page 8**) uses its own **.idl** file-to-java compiler.

1.3.3 e*Way Configuration

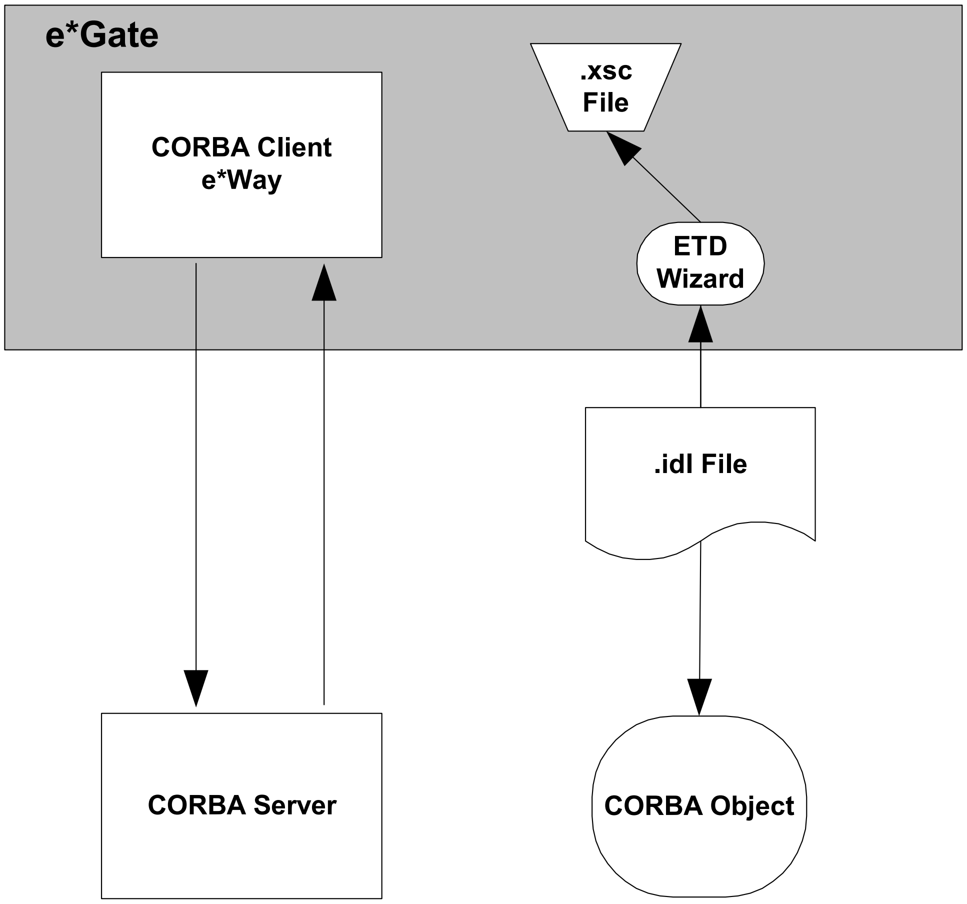
The configuration parameters for the CORBA Client e*Way, for convenience, allow you to set necessary parameters of operation. In turn, these e*Way parameters are adopted into the ETD's configuration.

See **Chapter 4** for details on how to set the CORBA Client e*Way configuration parameters.

1.3.4 e*Way Design Overview

Figure 1 on page 8 shows a general diagram of how the CORBA Client e*Way operates.

Figure 1 CORBA Client e*Way Operation



1.3.5 ETD Configuration and e*Way Operation

The CORBA Client ETD contains Java methods that allow you to control the CORBA server. The e*Gate Schema Designer via its ETD Editor contains a wizard feature that allows you an easy way to create an ETD from your **.idl** file.

ETD Wizard

Using the e*Gate ETD wizard, you select the **.idl** file containing the interface that represents the desired service. The wizard guides you through the steps of creating the ETD and handles all necessary operations required for creating the ETD.

Using the ETD generated by the wizard eliminates the need for manual coding. Using the Collaboration Rules Editor, you can drag and drop ETD nodes to transfer the business logic into the appropriate e*Gate Collaboration Rules.

Note: *For complete information on how to use the wizard, see* **"Using the CORBA Client ETD Wizard" on page 34**.

1.3.6 e*Way Components

The CORBA Client e*Way is made up of the following components:

- Uses the Multi-Mode e*Way (core e*Gate component) executable file, **stceway.exe** (see **Chapter 3**)
- The file **stccorbaclient.jar**, the executable component
- The file **stccorbaclientbuilder.jar** used by the ETD wizard
- The file **stccommonbuilder.jar**, also used by the ETD wizard
- Configuration files that the e*Gate Schema Designer's e*Way Editor window uses to define configuration parameters
- Additional files necessary for operation, as shown in **Table 1 on page 14** (provides a complete list of installed files)

1.3.7 Supported CORBA Types

The CORBA Client e*Way supports the following CORBA types:

- **short**
- **long**
- **unsigned short**
- **unsigned long**
- **unsigned long**
- **float**
- **double**
- **char**
- **octet**
- **boolean**
- **string**
- **enum**
- **union**
- **sequence**
- **struct**
- **typedef** (modifier)
- **const** (modifier)
- **array**
- **interface** (construct)
- **module** (construct)
- **exception**

Types Not Supported

The e*Way does *not* support the following types:

- **object by value**
- **long double**
- **fixed**
- **wchar**
- **wstring**
- **any**

Note: *The e*Way does not support* ***.idl*** *files with a* ***#pragma*** *prefix preprocessor directive.*

1.4 Supported Operating Systems

The CORBA Client e*Way is available on the following operating systems:

- Windows 2000, Windows XP, and Windows Server 2003
- IBM AIX 5.1L and 5.2
- Sun Solaris 8 and 9

1.5 System Requirements

To use the CORBA Client e*Way, you need to meet the following requirements:

- An e*Gate Participating Host
- TCP/IP network connection
- Machine running Windows, to allow you to use the e*Gate Schema Designer and ETD Editor
- Java SDK version 1.3.1_02

Note: *The ETD Builder wizard depends on the correct Java version being on the* ***classpath*** *as well as on the* ***system*** *path. If there is another Java version (specifically, in the* ***/bin*** *directory), besides the one recommended for e*Gate, on the system path before the right one, the ETD Builder can fail. In such cases, you get an error message to that effect. To correct this problem, you must ensure the correct version is on the system path, then shut down and restart the e*Gate Schema Designer.*

The e*Way must be configured and administered using the Schema Designer.

Note: *Additional disk space can be required to process and queue the data that this e*Way processes. The amount necessary can vary based on the type and size of the data being processed and any external applications doing the processing.*

1.6 External System Requirements

To use the CORBA Client e*Way, you need to meet the following external system requirement:

- An ORB supporting CORBA version 2.3 specifications; the e*Way comes with a default ORB

Chapter 2

Installation

This chapter explains how to install the e*Way Intelligent Adapter for CORBA (Client).

2.1 Installation on Windows Systems

2.1.1 Pre-installation

- Exit all Windows programs before running the setup program, including any antivirus applications.
- You must have Administrator privileges to install this e*Way.

2.1.2 e*Way Installation Procedure

To install the CORBA Client e*Way on Windows systems

1. Log in as an Administrator on the workstation where you want to install the e*Way.
2. Insert the e*Way installation CD-ROM into the CD-ROM drive.
3. If the CD-ROM drive's **Auto-run** feature is enabled, the setup application should launch automatically; skip ahead to step 4. Otherwise, use Windows Explorer or the Control Panel's **Add/Remove Applications** feature to launch the **setup.exe** file on the CD-ROM drive.
4. After the **InstallShield** setup application launches, follow the on-screen instructions to install the e*Way.

Be sure to install the e*Way files in the suggested **\client** installation directory. The installation utility detects and suggests the appropriate installation directory.

Caution: *Unless you are directed to do so by SeeBeyond support personnel, do not change the suggested installation directory setting.*

Once you have installed and configured this e*Way, you must incorporate it into a schema by defining and associating the appropriate Collaborations, Collaboration Rules, Intelligent Queues (IQs), and Event Types before this e*Way can perform its intended functions.

2.2 UNIX Installation

2.2.1 Pre-installation

You do not require root privileges to install this e*Way. Log in under your name with which you wish to own the e*Way files. Be sure that this user has sufficient privileges to create files in the e*Gate directory tree.

2.2.2 Installation Procedure

To install the CORBA Client e*Way on a UNIX system

1. Log in on the workstation containing the CD-ROM drive, and insert the CD-ROM into the drive.
2. If necessary, mount the CD-ROM drive.
3. At the shell prompt, type:

   cd /cdrom/setup
4. Start the installation script by typing:

   setup.sh
5. A menu of options appears. Select the **e*Gate Add-on Applications** option. Then, follow any additional on-screen directions.

Be sure to install the e*Way files in the suggested **\client** installation directory. The installation utility detects and suggests the appropriate installation directory.

Caution: *Unless you are directed to do so by SeeBeyond support personnel, do not change the suggested installation directory setting.*

Once you have installed and configured this e*Way, you must incorporate it into a schema by defining and associating the appropriate Collaborations, Collaboration Rules, Intelligent Queues (IQs), and Event Types before this e*Way can perform its intended functions.

2.3 Files/Directories Created by the Installation

Whether for Windows or UNIX, the CORBA Client e*Way installation installs the files shown in Table 1. Files are installed within the **eGate** directory on the Participating Host and committed to the "default" schema on the Registry Host.

Table 1 Files Created by Installation

Directories	Files
client\classes\	stccorbaclient.jar stccorbaclientbuilder.jar stccommonbuilder.jar jacorb.properties
client\etd	corbaclient.ctl corbaclientwizard.ctl
client\bin	idl.bat
server\registry\repository\default\configs\corbaclient\	corbaclient.def
server\registry\repository\default	addonconnpt.ini ewcorbaclient.ctl
ThirdParty\jacorb\	idl.jar jacorb.jar JacORB1_4_beta4-full.tar.gz LICENSE

Chapter 3

Multi-Mode e*Way Configuration

This chapter describes how to configure the e*Gate Integrator's Multi-Mode e*Way Intelligent Adapter.

3.1 Multi-Mode e*Way Properties

Set the Multi-Mode e*Way properties using the e*Gate Schema Designer.

To set properties for a new Multi-Mode e*Way

1. Select the Navigator pane's Components tab in the Main window of the Schema Designer.
2. Open the host and Control Broker where you want to create the e*Way.
3. On the Palette, click on the icon to create a new e*Way.
4. Enter the name of the new e*Way, then click **OK**.
5. Select the new component, then click the Properties icon to edit its properties.

   The **e*Way Properties** dialog box appears.
6. Click **Find** beneath the **Executable File** field, and select an executable file (**stceway.exe** is located in the **bin** directory).
7. Under the **Configuration File** field, click **New**.

   The e*Way Configuration Editor window opens.
8. When the **Settings** page opens, set the configuration parameters for this e*Way's configuration file (see **"JVM Settings" on page 16** and **"General Settings" on page 19** for details).
9. After selecting the desired parameters, click **Save** on the **File** menu to save the configuration (**.cfg**) file.
10. Close the **.cfg** file and e*Way Configuration Editor.
11. Set the properties for the e*Way in the **e*Way Properties** dialog box.
12. Click **OK** to close the dialog box and save the properties.

3.2 JVM Settings

To correctly configure the e*Way Intelligent Adapter for CORBA (Client), you must configure the Java Virtual Machine (JVM) settings. This section explains the configuration parameters in the e*Way Configuration Editor window, which control these settings.

JNI DLL Absolute Pathname

Description

Specifies the absolute path name to where the JNI **.dll** (Windows) or shared library (UNIX) file is installed by the Java SDK on the Participating Host.

Required Values

A valid path name.

Additional Information

The JNI **.dll** or shared library file name varies, depending on the current operating system (OS). The following table lists the file names by OS:

Operating System	Java 2 JNI .dll or Shared Library Name
Windows systems	jvm.dll
Solaris	libjvm.so
AIX	libjvm.a

The value assigned can contain a reference to an environment variable, by enclosing the variable name within a pair of “%” symbols, for example:

```
%MY_JNIDLL%
```

Such variables can be used when multiple Participating Hosts are used on different OS/platforms.

Caution: *To ensure that the JNI .**dll** file loads successfully, the Dynamic Load Library search path environment variable must be set appropriately to include all the directories under the Java SDK installation directory, which contain shared library or .**dll** files.*

CLASSPATH Prepend

Description

Specifies the paths to be prepended to the CLASSPATH environment variable for the JVM.

Required Values

An absolute path or an environmental variable. This parameter is optional.

Additional Information

If left unset, no paths are prepended to the CLASSPATH environment variable.

Existing environment variables may be referenced in this parameter by enclosing the variable name in a pair of "%" symbols, for example:

```
%MY_PRECLASSPATH%
```

CLASSPATH Override

Description

Specifies the complete CLASSPATH variable to be used by the JVM. This parameter is optional. If left unset, an appropriate CLASSPATH environment variable (consisting of required e*Gate components concatenated with the system version of CLASSPATH) is set.

Note: *All necessary **.jar** and **.zip** files needed by both e*Gate and the JVM must be included. It is advised that the **CLASSPATH Prepend** parameter should be used.*

Required Values

An absolute path or an environment variable. This parameter is optional.

Additional Information

Existing environment variables may be referenced in this parameter by enclosing the variable name in a pair of "%" symbols, for example:

```
%MY_CLASSPATH%
```

CLASSPATH Append From Environment Variable

Description

Specifies whether the path is appended for the CLASSPATH environmental variable to **.jar** and **.zip** files needed by the JVM.

Required Values

YES or **NO**. The configured default is **YES**.

Initial Heap Size

Description

Specifies the value for the initial heap size in bytes. If this value is set to 0 (zero), the preferred value for the initial heap size of the JVM is used.

Required Values

An integer from **0** to **2147483647**. This parameter is optional.

Maximum Heap Size

Description

Specifies the value of the maximum heap size in bytes. If this value is set to 0 (zero), the preferred value for the maximum heap size of the JVM is used.

Required Values

An integer from **0** to **2147483647**. This parameter is optional.

Maximum Stack Size for Native Threads

Description

Specifies the value of the maximum stack size in bytes for native threads. If this value is set to 0 (zero), the default value is used.

Required Values

An integer from **0** to **2147483647**. This parameter is optional.

Maximum Stack Size for JVM Threads

Description

Specifies the value of the maximum stack size in bytes for JVM threads. If this value is set to 0 (zero), the preferred value for the maximum heap size of the JVM is used.

Required Values

An integer between 0 and 2147483647. This parameter is optional.

Disable JIT

Description

Specifies whether the Just-In-Time (JIT) compiler is disabled.

Required Values

YES or **NO**.

Remote debugging port number

Description

Specifies whether to allow remote debugging of the JVM.

Required Values

YES or **NO**.

Suspend Option for Debugging

Description

Indicates whether to suspend the Option for Debugging on JVM startup.

Required Values

YES or **NO**.

3.3 General Settings

This section contains the parameters for rollback wait and IQ messaging priority.

Note: *For more information on the **General Settings** configuration parameters see the **e*Gate Integrator User's Guide**.*

3.3.1 Rollback Wait Interval

Description

Specifies the time interval to wait before rolling back the transaction.

Required Values

A number within the range of 0 to 99999999, representing the time interval in milliseconds.

3.3.2 Standard IQ FIFO

Description

Specifies whether the highest priority messages from all SeeBeyond Standard IQs are delivered in the first-in-first-out (FIFO) order.

Required Values

Select **Yes** or **No**. **Yes** indicates that the e*Way retrieves messages from all SeeBeyond Standard IQs in the first-in-first-out (FIFO) order. **No** indicates that this feature is disabled; **No** is the default.

Chapter 4

e*Way Connection Configuration

This chapter explains how to configure e*Way Connections for the e*Way Intelligent Adapter for CORBA (Client).

4.1 Configuring e*Way Connections

Set up e*Way Connections using the e*Gate Schema Designer.

To create and configure e*Way Connections

1. Using the Schema Designer**,** select the **Component** tab.
2. Select the **e*Way Connections** folder.
3. On the palette, click on the icon to create a new **e*Way Connection**.

   The **New e*Way Connection Component** dialog box appears.
4. Enter a name for the **e*Way Connection**, then click **OK**.

   An icon for your new e*Way Connection appears in the Component pane.
5. Double-click on the new **e*Way Connection** icon.

   The **e*Way Connection Properties** dialog box appears.
6. From the **e*Way Connection Type** drop-down box, select CORBA Client.
7. Enter the appropriate **Event Type "get" interval** in the dialog box provided.
8. From the **e*Way Connection Configuration File**, click **New** to open the e*Way Editor window.

Note: *To use an existing file, click **Find**.*

9. Use the e*Way Editor window to create a new configuration file for this e*Way Connection. Do this operation by selecting the appropriate configuration parameters available in the window.
10. When you are finished, close the e*Way Editor and save the new configuration file.

The rest of this chapter explains the e*Way Connection configuration parameters as follows:

- **"Object Configuration" on page 21**
- **"Advanced Configuration" on page 29**
- **"Connector Configuration" on page 32**

Note: *These parameters can be overridden in the Event Type Definition (ETD). For more information, see* **"ETD Structure" on page 48***.*

4.2 Configuration Parameters

This section explains the configuration parameters for the CORBA Client e*Way Connection.

4.2.1 Object Configuration

This section allows you to configure the CORBA object parameters.

You must tell the e*Way where to access the CORBA object by providing a *stringified* Interoperable Object References (IOR) or an Interoperable Name Service (INS), which provides a Uniform Resource Identifier (URI).

Note: *The INS is an extension to the CORBA* ***CosName Service****. An object reference contains at least three pieces of information: an address, the name of the Portable Object Adapter (POA) that created an object reference, and an Object ID. The URI identifies the object.*

Interoperable Object References (IOR)

An IOR is an object reference understood by ORBs, which can interoperate using the OMG-defined protocols General Inter-ORB Protocol (GIOP) and Internet Inter-ORB Protocol (IIOP). A client can obtain an object reference using **orb.string_to_object(objRef)** or as a result of an invocation on another object reference.

The *stringified* IOR is the string representation of an object reference and can be obtained by calling:

orb.object_to_string(objRef)

URI Formats for CORBA Object References

The **corbaloc** and **corbaname** are readable formats that enable you to provide a URI to access CORBA objects.

corbaloc

The **corbaloc** format is typically used to resolve the reference using the GIOP **LocateRequest** or **Request** message. Use this format to resolve to a particular CORBA Service without going through a Name Service.

The following **corbaloc** object reference example shows how to get an object reference for **TraderService** from the host **myBank.com** on port 2050:

corbaloc:iiop:1.2@MyBank.com:2050/TraderService

Note: *The "1.2" in the sample URI refers to GIOP version 1.2 for the IOR that corresponds to that corbaloc URI. GIOP 1.2 is the default value for the default ORB. It is shown in this example in order to demonstrate how you can plug in a different version.*

corbaname

The **corbaname** format provides a mechanism for a client to bootstrap directly and is typically used to resolve the *stringified* name from the root naming context. Use this format to resolve to a *stringified* name from a specific naming context.

The following **corbaname** object reference example shows that **myBank.com** is the host and **2050** is the port:

corbaname::myBank.com:2050#Personal/schedule

In the previous example, the portion of the reference up to the hash mark (**corbaname::myBank.com:2050**) is the URI that returns the root naming context. The example provides the URI to use to:

- Locate the Name Service
- Resolve the name **Personal/schedule** from the Name Service

Correct Parameters

Use the **Object** parameters to specify whether to use a *stringified* IOR or INS URI for locating and obtaining an object reference for the CORBA interface. Observe the following rules:

- If you use an IOR, you must enter the IOR in full (**IOR** parameter) or specify a file containing it as a URL (**http URL** or **ftp URL** parameter) or via a path (**file** parameter).
- If you use an INS URI, you must specify whether it is in the **corbaname** or **corbaloc** format and enter the information required by the format.

You must know how to correctly enter the parameter precisely according to the type of object reference format (bootstrapping mechanism) you use. You must use one of the formats/mechanisms listed in Table 2. The table also explains how to enter the e*Way Connection configuration parameters for each one.

Table 2 Supported Bootstrapping Mechanisms

Bootstrapping Mechanism	Description	Correct Entry
IOR	An unreadable (by a person) unique identifier for an object. Each IOR contains all the information necessary to find and call the desired object.	You must specify the correct IOR identifier. The IOR can change for each run of the server.
corbaloc	Contacts a published object reference on a server, for example, a Name Service.	Enter parameters as required by the e*Way Editor window and explained later in this section.
corbaname	Makes a query against a Name Service. The corbaname: (an extension of corbaloc) contains the stringified name that identifies the right binding in a naming context.	Enter parameters as required by the e*Way Editor window and explained later in this section.
File, HTTP, and FTP	These formats are supported by this e*Way, allowing you to save an IOR or URI in a file, then specify that file via: ▪ File and path name, if it is in a reachable system. ▪ HTTP URL if it is published on a Web server. ▪ FTP URL if it is published in an FTP server.	Enter the appropriate character string, as follows: ▪ If **file://**, enter the complete path and file name. ▪ If **http://**, enter the complete URL. ▪ If **ftp://**, enter in the following format: ftp://<username>:<password>@<host>:<port>/<file>
Manual URI	Allows you to specify the URI for the IOR in whatever format the underlying client ORB uses.	Enter the URI in the specific format the current client ORB understands.

The rest of this section explains the e*Way Connection's **Object** configuration parameters.

Locate Object Using

Description

Allows you to select the parameters for locating the object to use with the ETD generated for a CORBA interface.

Required Values

Select one of the following parameters:

- **IOR**: Specifies the full *stringified* IOR; be sure to use the IOR for the exact object you want to call. Be aware that, with some ORBs, the IOR changes each time the server is started up.
- **file**, **http URL**, or **ftp URL**: Specify the IOR saved in a file; enter under the appropriate format.
- **corbaname**: Queries a Name Service for the IOR of a registered object. The Name Service has to support INS specifications.
- **corbaloc**: Use if your object is published as a remote service.
- **Manual URI**: Specifies the URI for the IOR in any format that the underlying client ORB understands. You can use any value that is understood by the **string_to_object** implementation of the underlying ORB.

Note: *This parameter is the recommended setting when you are configuring a different client ORB than the default ORB listed under* **"Advanced Configuration" on page 29**.

To specify the URI at run time instead of the e*Way Connection configuration, use the **Manual URI** setting, which allows you to enter an empty value. This parameter is the default.

Note: *The additional parameters under* ***Object****, which you need to configure, depend upon your choice from the previous list, as noted under each of the parameter sections.*

IOR

Description

Specifies a IOR stringified object reference used to locate the object for the CORBA interface, for example:

**IOR:000000000000001B49444C3A64656D6F2F68656C6C6F2F476F6F644461793A312
E3000000000000001000000000000000600010200000000D31302E312E3139302E3234360
00004EE0000001C5374616E64617264496D706C4E616D652F001041403C0A1604013
D010000000100000001000001C00000000000100010000000105010001000101090000000
00105010001**

Note: *Only use this parameter if you specified* ***IOR*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid IOR stringified object reference.

corbaname host

Description

Specifies the host to use for **corbaname**. This parameter is used in combination with other fields in this configuration to construct:

```
corbaname::corbaname_host:corbaname_port/
    corbaname_naming_service#corbaname_stringified_name
```

Note: *See the appropriate vendor documentation of the server ORB regarding the port and object key for the INS, as well as for the procedures to run/enable the INS.*

To specify a more complex **corbaname** URI use the **Manual URI** parameter. The host selected has to be for the INS.

Note: *Only use this parameter if you specified* ***corbaname*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid host name.

corbaname port

Description

Specifies the port to use for corbaname. This parameter is used in combination with other fields in this configuration to construct:

```
corbaname::corbaname_host:corbaname_port/
    corbaname_naming_service#corbaname_stringified_name
```

Note: *See the appropriate vendor documentation of the server ORB regarding the port and object key for the INS, as well as for the procedures to run/enable the INS.*

To specify a more complex **corbaname** URI use the **Manual URI** parameter. The port key selected has to be for the INS.

Note: *Only use this parameter if you specified* ***corbaname*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid host port number.

corbaname name service

Description

Specifies the name of the object key for the Name Service to use for **corbaname**. This parameter is used in combination with other fields in this configuration to construct:

```
corbaname::corbaname_host:corbaname_port/
    corbaname_naming_service#corbaname_stringified_name
```

Note: *See the appropriate vendor documentation of the server ORB regarding the port and object key for the INS, as well as for the procedures to run/enable the INS.*

To specify a more complex **corbaname** URI use the **Manual URI** parameter. The object key selected has to be for the INS.

Note: *Only use this parameter if you specified* ***corbaname*** *under* **"Locate Object Using" on page 24**.

Required Values

The name of a valid object key for a CORBA Name Service, for example, **NameService**.

corbaname stringified name

Description

Specifies the stringified name of the object to use for **corbaname**. This parameter is used in combination with other fields in this configuration to construct:

```
corbaname::corbaname_host:corbaname_port/
    corbaname_naming_service#corbaname_stringified_name
```

The stringified name specified has to be the name the object was bound to in the INS, for example:

/myApp/MyObject1

Note: *See the appropriate vendor documentation of the server ORB regarding the port and object key for the INS, as well as for the procedures to run/enable the INS. Consult the vendor documentation of the server ORB, as well as the server documentation/ implementation regarding the stringified name the server object was bound to.*

To specify a more complex **corbaname** URI use the **Manual URI** parameter.

Note: *Only use this parameter if you specified* ***corbaname*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid stringified name of the object to use for **corbaname**.

corbaloc host

Description

Specifies the host to use for **corbaloc**. This parameter is used in combination with other fields in this configuration to construct:

```
corbaloc::corbaloc_host:corbaloc_port/corbaloc_object_key
```

To specify a more complex **corbaloc** URI use the **Manual URI** parameter.

Note: *Only use this parameter if you specified* ***corbaloc*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid host name.

corbaloc port

Description

Specifies the port to use for **corbaloc**. This parameter is used in combination with other fields in this configuration to construct:

```
corbaloc::corbaloc_host:corbaloc_port/corbaloc_object_key
```

To specify a more complex **corbaloc** URI use the **Manual URI** parameter.

Note: *Only use this parameter if you specified* ***corbaloc*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid host port number.

corbaloc object key

Description

Specifies the object key to use for **corbaloc**. This parameter is used in combination with other fields in this configuration to construct:

```
corbaloc::corbaloc_host:corbaloc_port/corbaloc_object_key
```

To specify a more complex **corbaloc** URI use the **Manual URI** parameter.

Note: *Only use this parameter if you specified* ***corbaloc*** *under* **"Locate Object Using" on page 24**.

Required Values

The name of a valid **corbaloc** object key.

file

Description

Specifies the fully qualified file containing the stringified IOR. The file must be reachable via the file system of an e*Gate Participating Host, using the specified file name, for example:

C:/tmp/myiorfile.txt

You must ensure that the file is reachable via the specified file name from all Participating Hosts this e*Way Connection configuration is used from. It is recommended that you use one of the other bootstrapping options, for example, HTTP or FTP instead, if possible.

Note: *Only use this parameter if you specified **file** under* **"Locate Object Using" on page 24**.

Required Values

A valid path and file name reachable by a Participating Host.

Note: *This option is not supported by all client ORBs.*

http URL

Description

Specifies the HTTP URL where the e*Way can find the file containing the stringified IOR, for example:

http://myhost.com:8080/myiorfile.txt

The Web server hosting the file must be reachable via HTTP from an e*Gate Participating Host.

Note: *Only use this parameter if you specified **http URL** under* **"Locate Object Using" on page 24**.

Required Values

A valid HTTP URL reachable by a Participating Host.

Note: *This option is not supported by all client ORBs.*

ftp URL

Description

Specifies the FTP URL where the e*Way can find the file containing the stringified IOR, for example:

ftp://myhost.com:8080/myiorfile.txt

The FTP server hosting the file must be reachable via FTP from an e*Gate Participating Host. If the FTP server does not allow for an anonymous log-in, you must enter a user name and password, according to the following format:

ftp://<username>:<password>@<host>:<port>/<file>
ftp://user:pass@myhost.com:9090/tmp/myiorfile.txt

Note: *Only use this parameter if you specified* ***ftp URL*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid FTP URL reachable by a Participating Host.

Note: *This option is not supported by all client ORBs.*

Manual URI

Description

Specifies a full, manually set INS URI used to obtain an IOR for the CORBA interface. This parameter allows you to configure URI formats not supported by the preceding options, such as specifying **corbaloc** and **corbaname** with multiple hosts. The exact format and features supported are dependent on the underlying client ORB used.

The string entered is passed without reformatting directly to the underlying ORB. For example, to specify further **corbaname** options, such as protocol versions and multiple hosts, use the format shown in the following example:

corbaname:iiop:1.2@host1.com,iiop:host2.com/NameService/MyObject

Note: *For the exact format supported, as well as further details see the appropriate documentation of the client ORB vendor.*

This field can be left empty if you want to specify the URI used at run time, before accessing the CORBA interface functionality.

Note: *Only use this parameter if you specified* ***Manual URI*** *under* **"Locate Object Using" on page 24**.

Required Values

A valid INS-compliant URI.

4.2.2 Advanced Configuration

This section allows you to reconfigure the e*Way's client ORB parameters. Setting these parameters is optional, and you only need to change or enter parameters in this section if you are using a client ORB other than the e*Way's default client ORB.

Note: *The e*Way communicates with other ORBs via IIOP. You only need to change or enter parameters in this section if you want to change the e*Way's default client ORB (not the server ORB). If you change the client ORB, you must copy any necessary ORB implementation **.jar** files to the **stceway.exe** file's **classpath** prepend.*

Additional Information

You only need to edit or enter the **Advanced** configuration parameters for the e*Way Connection if you are using a client ORB different from the CORBA Client e*Way's default ORB. Because many types of client ORBS exist in the CORBA world, no list here can explain how to configure them all. Refer to the documentation for your ORB for complete information.

Note: *The JacORB client ORB product is used in this e*Way. JacORB and the use of JacORB are covered by the GNU Library General Public License, Version 2. For complete information about JacORB, see the JacORB documentation.*

Setting ORB Properties

You can use the following ways to set ORB properties:

- In the e*Way Connection's configuration
- By manually editing the following file installed with the e*Way:

  eGate/client/classes/jacorb.properties

The format to use for entering all e*Way Connection configuration parameters is:

propertyname=value

Each value must be separated by a space. If the value itself contains a space, you must surround the value by quotation marks.

Default ORB Connection Properties

There are many ORB properties that can be set for the default ORB. These settings range from, for example, debug logging to retry intervals. The following list provides some examples of the properties that can be set, to give you a general idea:

- The number of retries if the connection cannot be directly established:

  jacorb.retries=integer (default is 5)

- How many milliseconds the ORB waits between retries:

  jacorb.retry_interval=integer (default is 500)

- The client-side time-out, set to non-zero to stop blocking, after the specified number of milliseconds:

  jacorb.connection.client_timeout=integer (no default)

For more information, see the **jacorb.properties** file installed in **egate/client/classes**.

Debugging Information

Here is some basic debugging information to use for the default ORB:

- Do a hex dump of outgoing messages:

  jacorb.debug.dump_outgoing_messages=off

- Do a hex dump of incoming messages:

  jacorb.debug.dump_incoming_messages=off

- The output destination for the diagnostic log:

  jacorb.logfile=file name

The rest of this section explains the e*Way Connection's **Advanced** configuration parameters.

ORBClass

Description

Specifies the ORB class of the client ORB implementation to use. If you are using a custom client ORB instead of the default ORB, be sure the ORB implementation classes are prefixed to the **classpath** of the e*Way.

This parameter is passed as the **org.omg.CORBA.ORBClass** property in the **props** argument in the call to:

orb.omg.CORBA.ORB.init(java.lang.String[] args, java.util.Properties props)

Required Values

A valid ORB class name.

ORB Singleton Class

Description

Specifies the ORB singleton class of the client ORB implementation to use. When using a custom client ORB instead of the default ORB, be sure the ORB implementation classes are prefixed to the **classpath** of the e*Way.

This parameter is passed as the **org.omg.CORBA.ORBSingletonClass** property in the **props** argument in the call to:

orb.omg.CORBA.ORB.init(java.lang.String[] args, java.util.Properties props)

Required Values

A valid Java class name.

Additional ORB Properties

Description

Allows you to specify additional key/value pair properties, separated by a space, using the following format:

key1=value1 key2=value2 ...

These properties are used for the **props** argument (in addition to the **ORBClass** and **ORBSingletonClass** parameters specified for the e*Way configuration) in the call to:

orb.omg.CORBA.ORB.init(java.lang.String[] args, java.util.Properties props)

Required Values

One or more Java key/value pair properties, for example:

com.stc.aproperty.title="Example 1" com.stc.aproperty.amount=2 com.stc.aproperty.id=MyID

Note: *If the value itself contains a space, you must surround the value by quotation marks.*

ORB Arguments

Description

Use the following format:

value1 value2 ...

These values are used for the **args** argument in the call to **orb.omg.CORBA.ORB.init(java.lang.String[] args, java.util.Properties props)**.

Required Values

One or more Java values, for example:

ORBdomain_name test anotherArgument

Note: *If the value itself contains a space, you must surround the value by quotation marks.*

4.2.3 Connector Configuration

This section allows you to configure the Collaboration engine to identify the e*Way Connection.

Type

Description

Specifies the type of e*Way Connection.

Required Values

Corba Client ETD. The value defaults to **Corba Client ETD**.

Class

Description

Specifies the class name of the CORBA Client ETD connector object.

Required Values

A valid package name.

The default is **com.stc.eways.corbaclient.CorbaClientETDConnector**.

Property.Tag

Description

Identifies the data source. This parameter is required by the current **EBobConnectorFactory**.

Required Values

A valid data source package name.

Chapter 5

Implementation

This chapter explains a sample schema to help you understand how to implement the e*Way Intelligent Adapter for CORBA (Client) in a production environment, including procedures for using the CORBA Client ETD wizard to create an ETD from an **.idl** file.

5.1 Implementation Overview

This section explains how to implement the CORBA Client e*Way using e*Gate Integrator schema samples included on your installation CD-ROM. Find these samples on the CD-ROM at the following path location:

\samples\ewcorbaclient

These samples allow you to observe and/or create end-to-end data-exchange scenarios involving e*Gate, the e*Way, and CORBA interfaces. This chapter explains how to implement the CorbaHello and CorbaArrays schemas that use the CORBA Client e*Way.

The chapter also explains how to use the CORBA Client wizard, as well as the CORBA Event Type Definition (ETD) structure and additional information you need to know to implement this e*Way.

5.2 Using the CORBA Client ETD Wizard

The CORBA Client ETD wizard window allows you to create an ETD (**.xsc** file) from CORBA object interfaces (Interface Definition Language **.idl** files).

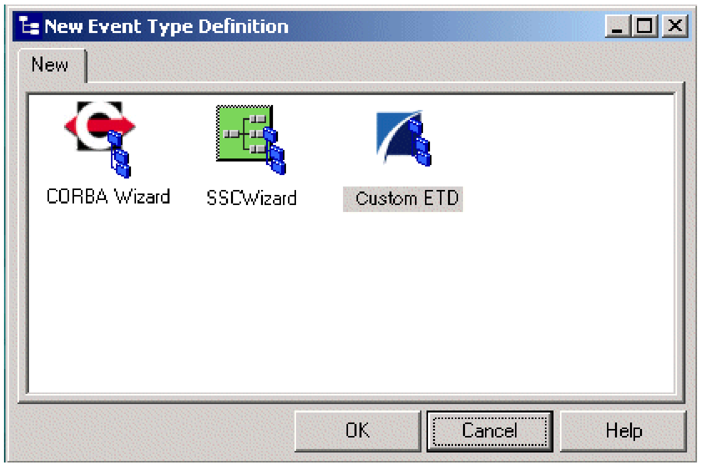
To create an ETD from a CORBA .idl file

1 From the e*Gate Schema Designer, display the ETD Editor. Be sure you have selected the Java editors as your default.

2 To access the CORBA Client ETD wizard, click **New** on the ETD Editor's **File** menu.

The New Event Type Definitions window appears, displaying all installed ETD wizards (see the example in Figure 2).

Figure 2 New Event Type Definition Window

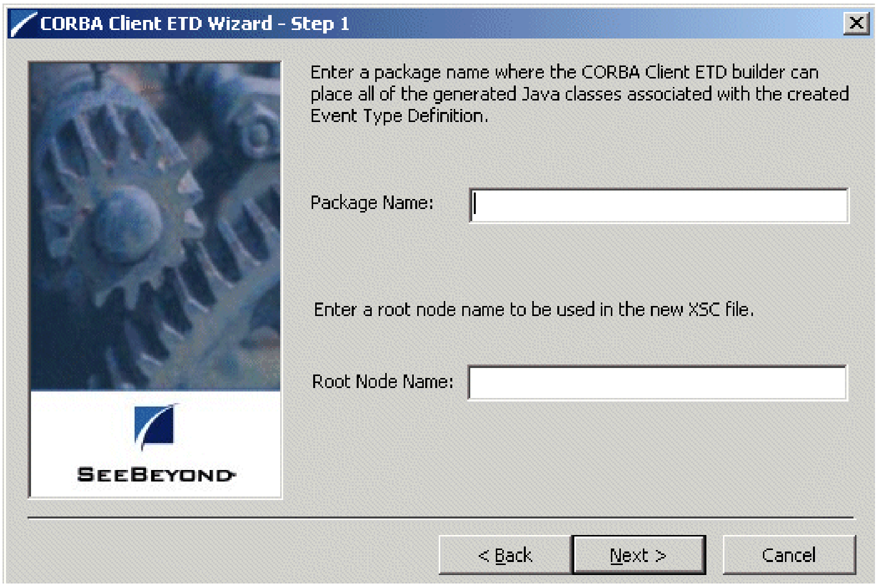


3 Double-click the **CORBA Wizard** icon.

4 Review the **CORBA Client ETD Wizard - Introduction** dialog box, then click **Next**. This dialog box gives you brief instructions on how to use the wizard.

The **CORBA Client ETD Wizard - Step 1** dialog box appears (see Figure 3).

Figure 3 CORBA Client ETD Wizard - Step 1 Dialog Box



CORBA Client ETD Wizard - Step 1

Enter a package name where the CORBA Client ETD builder can place all of the generated Java classes associated with the created Event Type Definition.

Package Name:

Enter a root node name to be used in the new XSC file.

Root Node Name:

5 In the **CORBA Client ETD Wizard - Step 1** do the following actions:

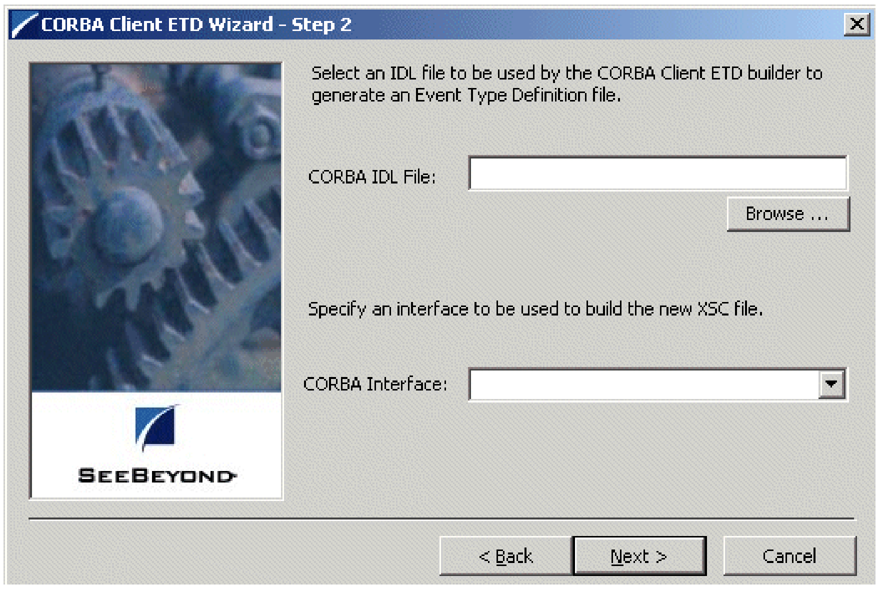
- Enter the desired package name for the container in which the wizard places the generated Java classes.
- Enter the desired root-node name of the ETD.

Note: *Be sure to observe the required naming rules in these entries. See the* ***e*Gate Integrator User's Guide*** *for details.*

6 Click **Next** to continue.

The **CORBA Client ETD Wizard - Step 2** dialog box appears (see Figure 4).

Figure 4 CORBA Client ETD Wizard- Step 2 Dialog Box: Initial



Select an IDL file to be used by the CORBA Client ETD builder to generate an Event Type Definition file.

CORBA IDL File:

Specify an interface to be used to build the new XSC file.

CORBA Interface:

7 In the **CORBA Client ETD Wizard - Step 2** do the following actions:

- Enter the name of the **.idl** file. If you do not know the file name, click **Browse** to navigate to the desired file.
- Select the desired interface (for the ETD) from the drop-down list.

CORBA Interfaces

A single **.idl** file can contain the description of one or more CORBA interfaces. These interfaces may or may not be contained within a module declaration in the **.idl** file.

Modules are sometimes used to convey the *scope* of interfaces. For example, there could be a module for **bank** with bank-related interfaces and there could be a **customer** module with customer-related interfaces. In this example, the bank-related interfaces can be considered *scoped* within the **bank** module, and the customer-related interfaces are *scoped* within the **customer** module.

Additionally, different modules can contain similarly named interfaces. For example, both the **bank** and **customer** modules could contain a **payment** interface. It is important to realize that each of the **payment** interfaces is totally unique. That is, the ETD for one interface cannot be used to access the other.

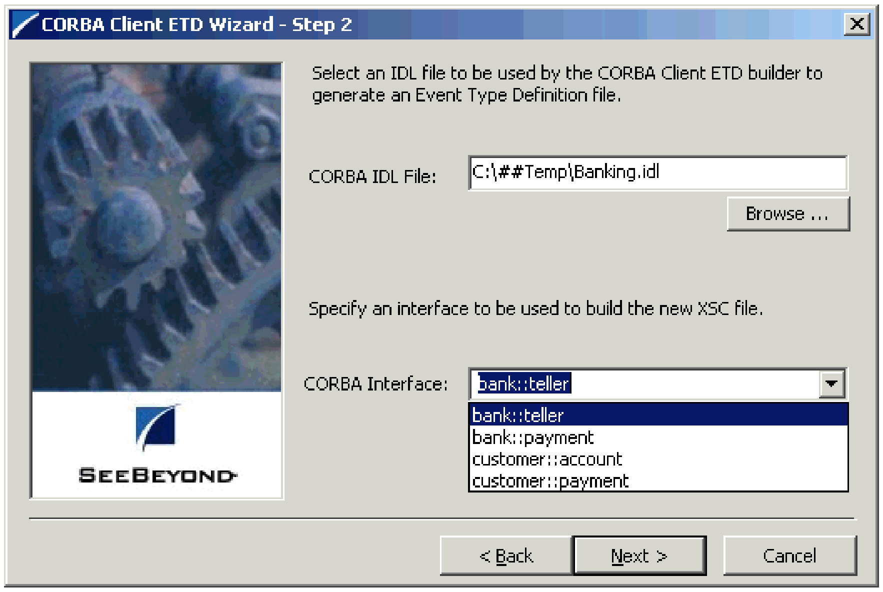
The wizard's drop-down list displays the interfaces with *scope* information, which are found in the **.idl** file, if there are any. Using the previous bank and customer example, the interfaces can then be presented as **bank::payment** and **customer::payment**. You must be sure to choose the correct interface.

See the following **.idl** file example:

```
// File banking.idl
module bank {
    interface teller {
    ...
    };
    interface payment {
    ...
    };
}; // end of bank module

module customer {
    interface account {
    ...
    };
    interface payment {
    ...
    };
}; // end of customer module

// end of banking.idl
```

Figure 5 shows The **CORBA Client ETD Wizard - Step 2** dialog box, using the previous sample **.idl** file. The **CORBA Interface** drop-down menu allows you to select the desired CORBA interface listed in the file.

Figure 5 CORBA Client ETD Wizard- Step 2 Dialog Box: With .idl File



Select an IDL file to be used by the CORBA Client ETD builder to generate an Event Type Definition file.

CORBA IDL File: C:\##Temp\Banking.idl

Specify an interface to be used to build the new XSC file.

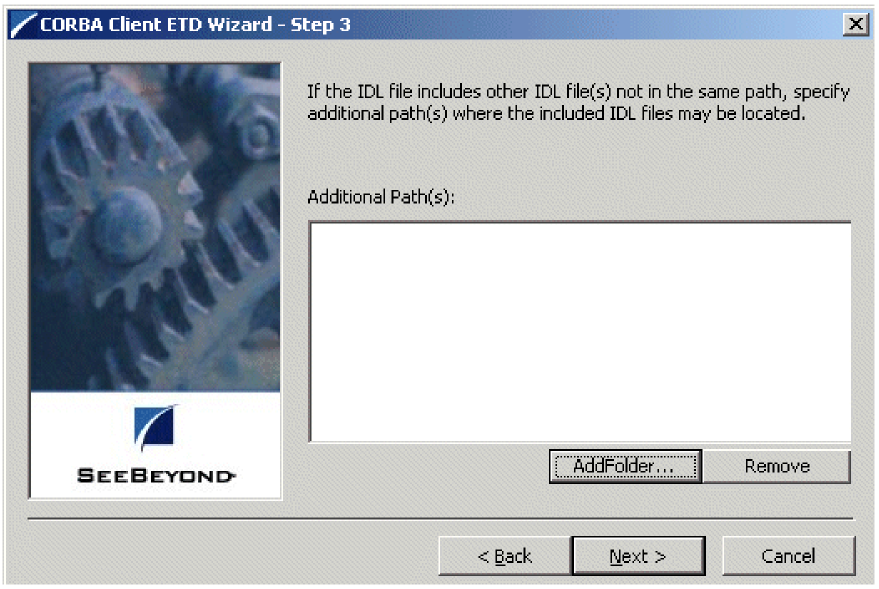
CORBA Interface: bank::teller

bank::teller
bank::payment
customer::account
customer::payment

8 When you are finished, click **Next** to continue.

The **CORBA Client ETD Wizard - Step 3** dialog box appears (see Figure 6).

Figure 6 CORBA Client ETD Wizard- Step 3 Dialog Box



If the IDL file includes other IDL file(s) not in the same path, specify additional path(s) where the included IDL files may be located.

Additional Path(s):

9 Use the **CORBA Client ETD Wizard - Step 3** to enter additional path information. This step is optional. If each interface referenced within the file you selected in step 7 is on the same path as that file (or no others are referenced), do nothing and go on to the next step.

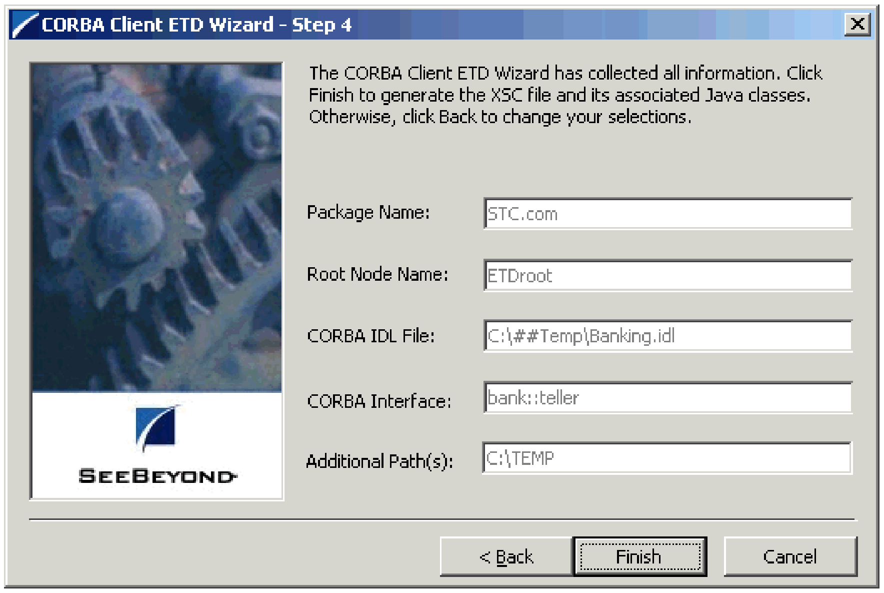
However, if your interface specifies the use of one or more other interfaces not on the path of the file you selected in step 7, you must enter the path information for each of these interfaces.

Note: *This additional step could be necessary because an* ***.idl*** *file can have an "include" directive. This directive instructs the* ***.idl*** *file-to-Java compiler to include the referenced* ***.idl*** *file during processing. If that included file is not on the same path as the selected* ***.idl*** *file, you must add that "include" path.*

10 When you are finished, click **Next** to continue.

The **CORBA Client ETD Wizard - Step 4** dialog box appears (see Figure 7).

Figure 7 CORBA Client ETD Wizard- Step 4 Dialog Box



The CORBA Client ETD Wizard has collected all information. Click Finish to generate the XSC file and its associated Java classes. Otherwise, click Back to change your selections.

Package Name: STC.com

Root Node Name: ETDroot

CORBA IDL File: C:\##Temp\Banking.idl

CORBA Interface: bank::teller

Additional Path(s): C:\TEMP

11 Use the **CORBA Client ETD Wizard - Step 4** to review all the information you have entered and be sure it is correct. You can click **Back** to change previously entered information, if you want.

12 Click **Finish** when you are done with the wizard.

The structure of the ETD you have created appears in the ETD Editor's Main window.

13 Close the ETD Editor and save the ETD under the your desired name. This is your new CORBA Client ETD (**.xsc**) file.

5.3 Schema Implementation

This section explains how to implement sample schemas for the CORBA Client e*Way. The schemas demonstrate how to configure the essential features of the e*Way in a typical e*Gate environment.

5.3.1 Before Schema Implementation

To use and implement a sample schema, the CORBA Client e*Way and sample schema must be installed, all of the necessary files and scripts must be located in the default location, and you must also have access to an CORBA-based network.

To import a sample schema

1 Copy the desired **.zip** file from the **Samples** directory in the install CD-ROM to your desktop or to a temporary directory, then unzip the file.

2 Start the e*Gate Schema Designer.

3 On the **Open Schema from Registry Host** dialog box, click **New**.

4 On the **New Schema** dialog box, click **Create from export**, and then click **Find**.

5 On the **Import from File** dialog box, browse to the directory that contains the sample schema.

6 Click the **.zip** file then click **Open**.

The sample schema is installed.

5.3.2 CorbaHello Sample Schema: Overview

This section provides an overview of how to configure a sample schema and how the schema operates. The name of this schema is CorbaHello, and it is contained in the schema import file **CorbaHello.zip**.

Schema Operation

This sample schema does the following operations:

- Takes a file from an external CORBA system (as configured in the CORBA Client e*Way Connection), with the text "Hello World, from Somewhere"
- Outputs the file to an external directory; the file, named **Hellooutput0.dat,** contains the same text

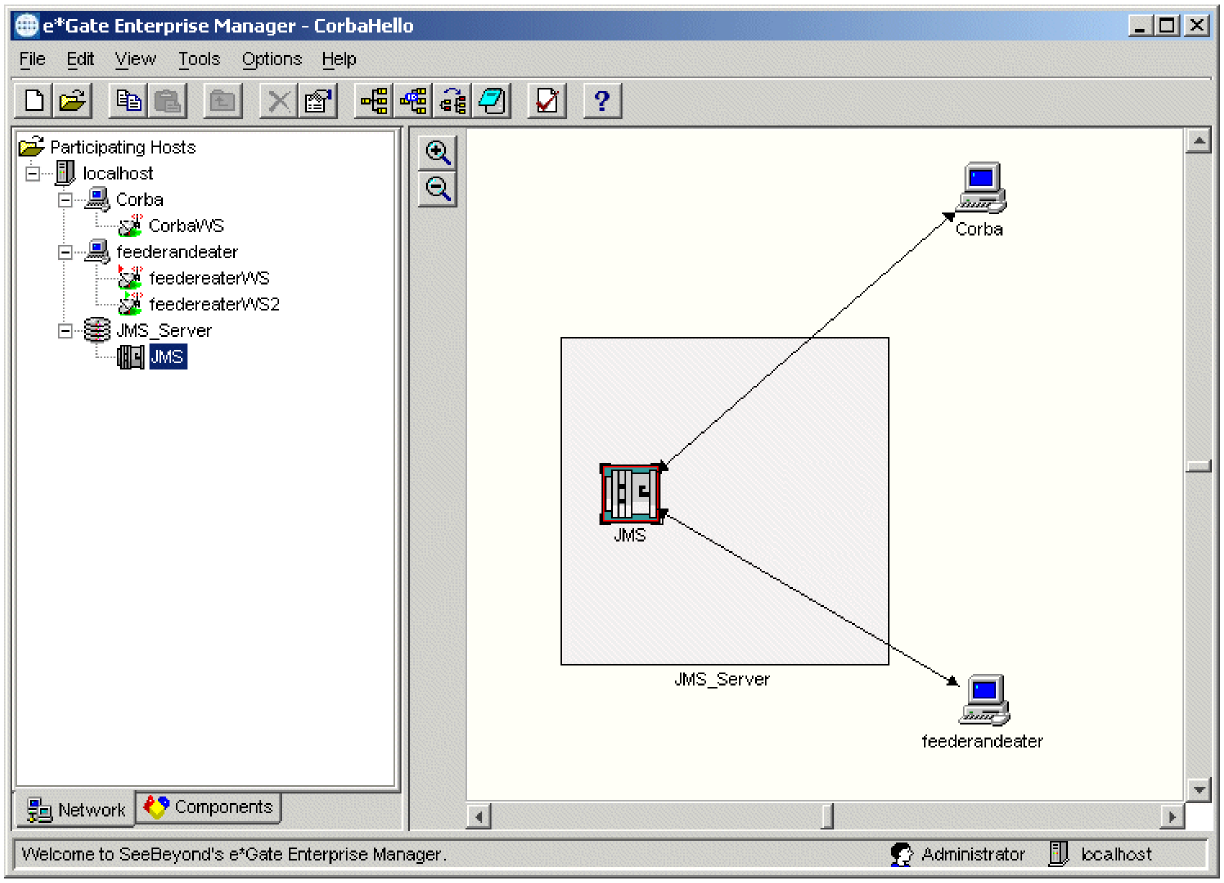
This schema uses the following **.idl** (**CorbaHello.idl**) file:

```
module demo
{
    module hello {

        interface GoodDay {

            string hello_simple();

        };

    };
};
```

Schema Setup

Figure 8 shows the schema's general architecture, using the e*Gate Schema Designer's Network View.

Figure 8 CorbaHello Schema in Network View



Welcome to SeeBeyond's e*Gate Enterprise Manager.

Schema Components

This sample schema implementation consists of the following basic components:

- **feederandeater**: Inbound and outbound file e*Way that brings CORBA data into e*Gate and sends the output file to an external directory.
- **Corba**: CORBA Client e*Way (Multi-Mode) that process the CORBA data.
- **feederandeaterWS**, **feederandeaterWS2**, and **CorbaWS**: Collaborations for their respective e*Ways.
- **JMS_Server**: Java Messaging Service (JMS) Intelligent Queue (IQ) Manager.
- **corba**: e*Way Connection for the CORBA Client e*Way.
- **JMS**: e*Way Connection for the JMS Server.

Table 3 lists all the components for the schema, along with their logical names and configuration settings.

Table 3 CorbaHello Schema Components

Component	Logical Name	Settings
Schema	CorbaHello	
Control Broker	localhost_cb	
IQ Manager	JMS_Server	▪ Start Up = Auto ▪ SeeBeyond JMS Service
Event Types	input	
	hello	
Java ETDs	input.xsc	▪ Package name = inputPackage
	hello.xsc	▪ Package name = com.stc.corbaclient.hellopackage
Collaboration Rules	c (for feedereaterWS)	▪ Service = Pass Through ▪ Subscription = input ▪ Publication = input
	c (for feedereaterWS2)	▪ Service = Pass Through ▪ Subscription = out ▪ Publication = input
	hello	▪ Service = Java ▪ Input/output = int1; input.xsc (Trigger) ▪ Output = int2; hello.xsc (Trigger N/A)
Collaborations	feedereaterWS	▪ Collaboration Rule = c ▪ Subscription = input Event from <EXTERNAL> ▪ Publication = input Event to JMS e*Way Connection
	feedereaterWS2	▪ Collaboration Rule = c ▪ Subscription = out Event from JMS e*Way Connection ▪ Publication = input Event to <EXTERNAL>
	CorbaWS	▪ Collaboration Rule = hello ▪ Subscription = input Event from JMS e*Way Connection ▪ Publication = ♦ hello Event to corba e*Way Connection ♦ out Event to JMS e*Way Connection
e*Way Connections	corba	▪ 100 for Event Type “get” interval
	JMS	▪ 100 for Event Type “get” interval

Table 3 CorbaHello Schema Components (Continued)

Component	Logical Name	Settings
Inbound and outbound e*Way	feederandeater	▪ Executable = stcewfile.exe ▪ Configuration file = feederandeater.cfg ▪ Start Up = Auto ▪ Collaborations = feedereaterWS and feedereaterWS2
Multi-Mode e*Way	Corba	▪ Executable = stceway.exe ▪ Configuration file = Corba.cfg ▪ Start Up = Auto ▪ Collaboration = CorbaWS

Running the Schema

To run a sample schema

- From the command line prompt, enter on a single line:

```
stccb -rh hostname -rs schemaname -un username
     -up user password -ln hostname_cb
```

Substitute ***hostname***, ***username, schemaname,*** and ***user password*** as appropriate.

The schema components start automatically. When there are no more run-time messages, check the output file. If the schema is operating correctly, the final output directory contains the payload data.

5.3.3 CorbaArrays Sample Schema: Overview

This section provides an overview of how to configure a sample schema and how the schema operates. The name of this schema is CorbaArrays, and it is contained in the schema import file **CorbaArrays.zip**.

Note: *For details on how to import the schema, see* **"Before Schema Implementation" on page 40**.

Schema Operation

This sample schema does the following operations:

- Takes a file from an external CORBA system (as configured in the CORBA Client e*Way Connection), which it uses to trigger the CORBA server
- Outputs the file to an external directory; the file, named **Arraysoutput0.dat,** contains the integers **42, 34, 13**

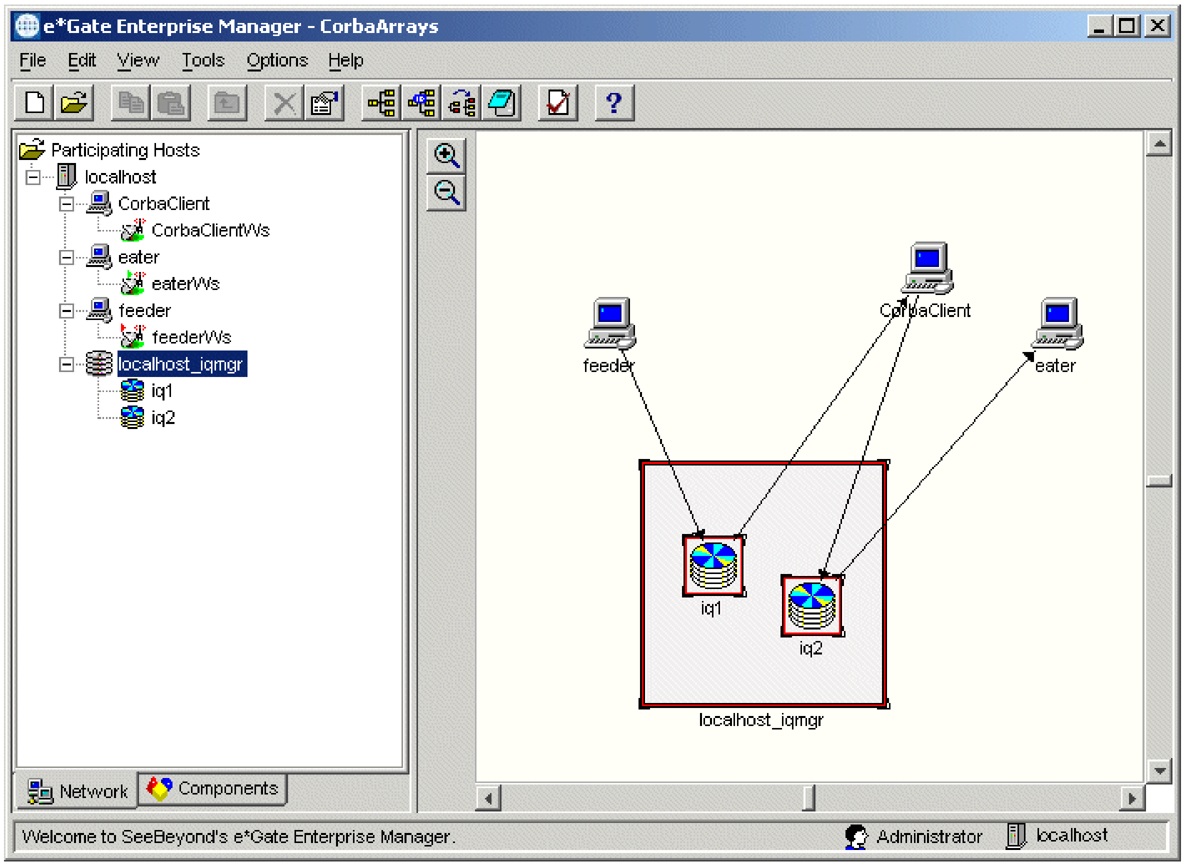
This schema uses the following **.idl** (**CorbaArrays.idl**) file:

```
module arrays
{
    interface MyServer
    {
    const short arrayBound = 3;

    typedef MyServer servers[2];
    typedef long numbers[arrayBound];
    typedef sequence <MyServer> serfs;
    typedef sequence <long,4> nos;
    typedef sequence <string> strings;

    struct arrayContainer {
        short shorty[7][arrayBound];
    };

    numbers write(in string s, in numbers n);
    nos write2(in string s, in nos n);

    // note that the following operation will be
    // renamed to _notify by the IDL compiler
    // because of the name clash with java.lang.Object's
notify()

    oneway void notify(in servers svs);
    oneway void notify2(in serfs svs);
    oneway void notify3(in arrayContainer ac);
    };
};
```

Schema Setup

Figure 9 shows the schema's general architecture, using the e*Gate Schema Designer's Network View.

Figure 9 CorbaArrays Schema in Network View



Schema Components

This sample schema implementation consists of the following basic components:

- **feeder** and **eater**: Inbound and outbound file e*Ways that bring CORBA data into e*Gate and send the output file to an external directory.
- **CorbaClient**: CORBA Client e*Way (Multi-Mode) that processes the CORBA data.
- **feederWs**, **eaterWs**, and **CorbaClientWs**: Collaborations for their respective e*Ways.
- **iq1** and **iq2**: Intelligent Queues (IQs) that the **feeder** e*Way publishes to (**iq1**) and the eater e*Way subscribes to (**iq2**).
- **localhost_iqmgr**: IQ Manager that manages **iq1** and **iq2**.
- **Corba**: e*Way Connection for the CORBA Client e*Way.

Table 4 lists all the components for the schema, along with their logical names and configuration settings.

Table 4 CorbaArrays Schema Components

Component	Logical Name	Settings
Schema	CorbaArrays	
Control Broker	localhost_cb	
IQ Manager	localhost_iqmgr	▪ SeeBeyond Standard Service ▪ Start Up = Auto ▪ iq1 and iq2 under this IQ Manager
Event Types	in	
	array	
Java ETDs	in.xsc	▪ Package name = inPackage
	arrays.xsc	▪ Package name = com.stc.corbaclient.arrayspackage
Collaboration Rules	CC (for feedWs)	▪ Service = Pass Through ▪ Subscription = in ▪ Publication = in
	CC (for eaterWs)	▪ Service = Pass Through ▪ Subscription = in ▪ Publication = in
	arraysCollab	▪ Service = Java ▪ Input/output = arrays1; in.xsc; (Trigger) ▪ Output = arrays2; arrays.xsc; (Trigger N/A)
Collaborations	feederWs	▪ Collaboration Rule = CC ▪ Subscription = in Event from <EXTERNAL> ▪ Publication = in Event to iq1
	eaterWs	▪ Collaboration Rule = CC ▪ Subscription = in Event from CorbaClientWs ▪ Publication = in Event to <EXTERNAL>
	CorbaClientWs	▪ Collaboration Rule = arraysCollab ▪ Subscription = ♦ in Event from feederWs ▪ Publication = ♦ array Event to Corba e*Way Connection ♦ in Event to iq2
IQs	iq1	▪ 100 for Event Type “get” interval
	iq2	▪ 100 for Event Type “get” interval
e*Way Connection	Corba	▪ 100 for Event Type “get” interval
Inbound e*Way	feeder	▪ Executable = stcewfile.exe ▪ Configuration file = feeder.cfg ▪ Start Up = Auto ▪ Collaboration = feederWs

Table 4 CorbaArrays Schema Components (Continued)

Component	Logical Name	Settings
Outbound e*Way	eater	▪ Executable = stcewfile.exe ▪ Configuration file = eater.cfg ▪ Start Up = Auto ▪ Collaboration = eaterWs
Multi-Mode e*Way	CorbaClient	▪ Executable = stceway.exe ▪ Configuration file = CorbaClient.cfg ▪ Start Up = Auto ▪ Collaboration = CorbaClientWs

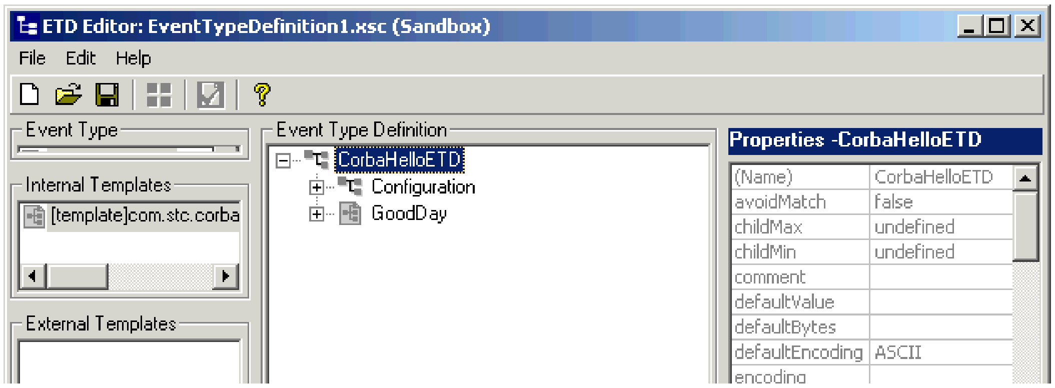
Running the Schema

For details, see **"Running the Schema" on page 44**.

5.4 ETD Structure

This section explains the structure and layout of the CORBA Client ETD (**.xsc** file). Figure 10 shows an example of this ETD in the e*Gate Schema Designer's ETD Editor Main window, with the two top-level sub-nodes.

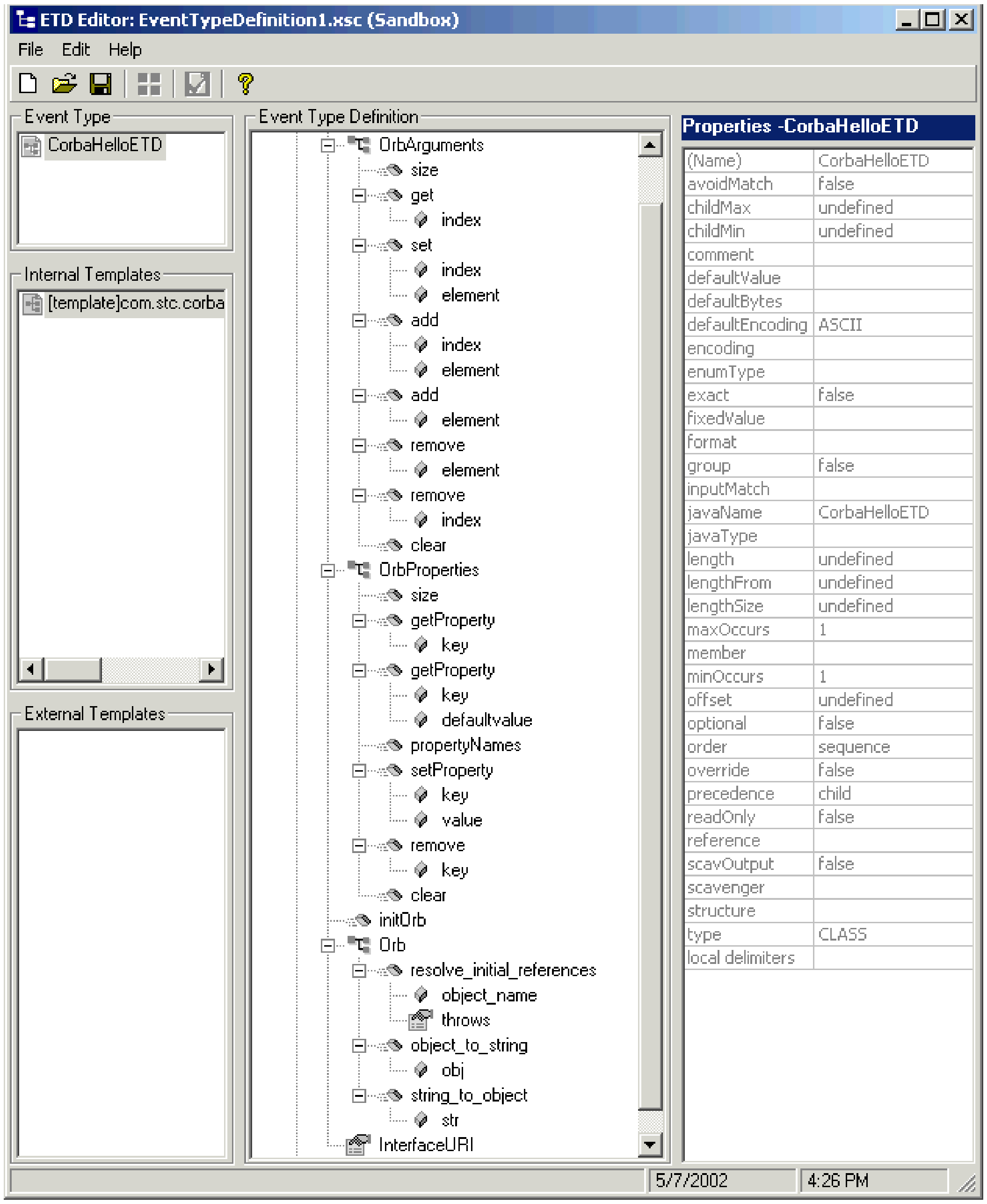
Figure 10 CORBA Client ETD in ETD Editor: Top-level Nodes



(Name)	CorbaHelloETD
avoidMatch	false
childMax	undefined
childMin	undefined
comment	
defaultValue	
defaultBytes	
defaultEncoding	ASCII
encoding	

Figure 11 shows the sub-nodes available under the **Configuration** node.

Figure 11 CORBA Client ETD in ETD Editor: Configuration Node



ETD Editor: EventTypeDefinition1.xsc (Sandbox)

File Edit Help

Event Type: CorbaHelloETD

Internal Templates: [template]com.stc.corba

External Templates

Event Type Definition

```
OrbArguments
    size
    get
        index
    set
        index
        element
    add
        index
        element
    add
        element
    remove
        element
    remove
        index
    clear
OrbProperties
    size
    getProperty
        key
    getProperty
        key
        defaultvalue
    propertyNames
    setProperty
        key
        value
    remove
        key
    clear
initOrb
Orb
    resolve_initial_references
        object_name
        throws
    object_to_string
        obj
    string_to_object
        str
InterfaceURI
```

Properties -CorbaHelloETD

(Name)	CorbaHelloETD
avoidMatch	false
childMax	undefined
childMin	undefined
comment	
defaultValue	
defaultBytes	
defaultEncoding	ASCII
encoding	
enumType	
exact	false
fixedValue	
format	
group	false
inputMatch	
javaName	CorbaHelloETD
javaType	
length	undefined
lengthFrom	undefined
lengthSize	undefined
maxOccurs	1
member	
minOccurs	1
offset	undefined
optional	false
order	sequence
override	false
precedence	child
readOnly	false
reference	
scavOutput	false
scavenger	
structure	
type	CLASS
local delimiters	

5/7/2002 4:26 PM

The rest of this section explains the general structure of this ETD. This structure (see Figure 11 on page 49) is divided into the following basic categories, represented by the top-level ETD sub-nodes:

- Configuration nodes
- Object nodes

5.4.1 Configuration Nodes

The **Configuration** node and its sub-nodes include all configuration parameters (see **Chapter 4** for details) for the ORB, as well as the ORB initialization methods. These nodes remain the same for every ETD you generate. What you enter under the **OrbArguments** and **OrbProperties** parameters depends on the type of client ORB you are using.

The **Configuration** node has the following sub-nodes:

- **GuestMgr node:** Contains the interface you selected in the wizard taken from the input interface (**.idl**) file (see **"Using the CORBA Client ETD Wizard" on page 34**).
- **Method nodes**: Are different depending on the input interface. Use the desired methods to meet the input interface's syntax requirements (see **"Building Collaboration Rules" on page 50** for more information).
- **Return value node**: If there is a return value for the method, a **ReturnValue** node contains the value that results after you call **execute**.

Note: *For more information on ETD nodes and methods, see the **e*Gate Integrator User's Guide**.*

5.4.2 Object Nodes

The exact name and structure of this node in the ETD is derived from the CORBA interface. In the example in **Figure 11 on page 49**, this node is named **GoodDay**.

The following example shows the **.idl** file (**CorbaHello.idl**) used for the ETD:

```
module demo
{
    module hello {

        interface GoodDay {

            string hello_simple();

        };

    };
};
```

The purpose of the "Object" node is to provide a graphical representation of the interface. Expanding the node reveals all the methods and attributes on the interface, which themselves are represented as nodes. A node representing a method is normally expandable and reveals all the parameters for the method as sub-nodes, as well as the return value (if present) as a node.

5.4.3 Building Collaboration Rules

All methods of a particular interface are different because interfaces have varying syntax requirements. How you call certain methods depends on these requirements. Methods and attributes are exposed in the ETD to allow you to design its structure to meet the necessary requirements.

For example, using the drag-and-drop feature of the e*Gate Schema Designer's Collaboration Rules Editor, you can populate the parameter nodes as appropriate (if any) and call the **execute** method of the node.

These available methods enable you to build the Collaboration Rules using simple drag-and-drop actions. The rest of this section provides general procedures for how to create your desired CORBA Client Business Rules.

To use methods to build a Collaboration Rule

1. Using the Schema Designer, open the Collaboration Rules Editor.
2. From the Collaboration Rules Editor Main window, open the desired Collaboration Rule file.

   The window shows both ETD structures, the source and destination. Methods are available using the Business Rule toolbar.

Note: *For details on how to use the Collaboration Rules Editor window, see the **e*Gate Integrator User's Guide**.*

3. Using the Main window drag and drop methods from the source to the destination ETD to assign input parameters for the method.
4. Using the Business Rule toolbar, call and execute the method.
5. Drag and drop the return or out parameters, if applicable.
6. When you are finished, compile and save the Business Rule then exit the Collaboration Rules Editor.

Note: *If there is a return value for the method, a **ReturnValue** node contains that value. You can drag and drop it to a different node, if desired.*

5.4.4 Dynamic Configuration

For the dynamic configuration feature, the e*Way Connection configuration maps onto the **Configuration** node in the ETD as follows:

- **ORB Arguments** = **OrbArguments** node
- **ORB Properties** = **OrbProperties** node
- **ORBClass** = An entry in **OrbProperties** with the key **org.omg.CORBA.ORBClass**
- **ORBSingletonClass** = An entry in **OrbProperties** with the key **org.omg.CORBA.ORBSingletonClass**

Interface URI

The **InterfaceURI** node is not directly referenced in the e*Way Connection configuration. In the ETD, it is whatever mechanism you specified in that configuration (see **Chapter 4** for details on e*Way Connection configuration).

For example, if you chose the **Manual URI** parameter/mode, the **InterfaceURI** value is the string you entered. If you chose **file**, **InterfaceURI** is the path and file name entered. If you chose **corbaname**, it is the composite of your entries under the **corbaname** configuration parameters.

Dynamic Configuration Examples

OrbArguments is a part of **java.util.ArrayList,** and **OrbProperties** is a part of **java.util.Properties**. The rest of this section gives and explains some examples of their use.

To add a further ORB argument, use the **add** method on **OrbArguments**, for example:

```
getOrbArguments().add("-ORBprofile");
```

To add or override an ORB property, use the **setProperty** method on the **OrbProperties** node, for example:

```
getOrbProperties().setProperty("org.omg.CORBA.ORBClass",
"com.iona.corba.art.artimpl.ORBImpl");
```

You can use the **initOrb** method manually to initialize or re-initialize an ORB. Otherwise, if no initialized ORB is present upon the first use of the CORBA interface in the ETD, the ORB is initialized automatically. In such cases, all the settings in the **OrbArguments** and **OrbProperties** are used to initialize the ORB. The resulting ORB reference is **setProperty** in the **Orb** node.

The **Orb** node represents the client ORB instance. As described earlier in this section, this node is populated when the ORB is initialized automatically or manually in the ETD, or it can be set to a user-obtained instance of it. You can use this ORB reference to access the functionality exposed by the **org.omg.CORBA.ORB** class.

The value in the **InterfaceURI** node is used to find and resolve the CORBA object implementing the CORBA interface represented by the ETD. This process happens upon the first access to the interface functionality in the ETD.

Note: *For details on the e*Way's Java methods, see* **Chapter 6**.

5.4.5 In Case of a CORBA SystemException

Once a URI has been resolved, and an object's IOR has been narrowed, the ETD continues to use that same object. The ORB handles reconnecting if it becomes necessary.

However, your server could be set up in such a way that, if it is restarted, the existing IOR becomes invalid, and a new object with a different IOR must be used. In such cases, for example, if the Server restarts on a different port and no implementation repository is used, the ETD must be able to recognize the new IOR. If it does not, a CORBA **SystemException** error is thrown.

To enable this recognition, you must add code to the appropriate Collaboration Rule to make the ETD re-evaluate the URI. After this re-evaluation, the ETD then connects to the new object without your having to restart the e*Way.

The following code sample shows how to accomplish this operation when a CORBA **SystemException** is thrown (**MyServer** is the interface and **MyETD** is the ETD instance name):

```
try {
    // My collab code
} catch (org.omg.CORBA.SystemException ex) {
    // The following will force the interface to be looked up/
resolved again before the next time it is used
    getmyETD().setMyServer((com.stc.corbaclient.mypckg.stubs.a
rrays.MyServer)null);
    throw ex;
}
```

This work-around has the effect that, the next time the Collaboration is run and this interface is accessed, the IOR is retrieved/resolved from the start, according to the reset URI.

The null has to be typecast in this work-around because there are two **set** methods to choose from. If you compile without the typecast, the compiler gives you an error message. For the previous example, such an error could be:

reference to setMyServer is ambiguous ...

In addition, this error string includes the two argument types you must choose from, which are:

- Wrapper to support the ETD
- Type of the underlying stub for the interface

You can use either type. In the previous work-around example, the type of the underlying stub is used.

Chapter 6

e*Way Java Methods

This chapter explains the Java classes and methods contained in the e*Way Intelligent Adapter for CORBA (Client), which are used to extend the functionality of the e*Way.

6.1 CORBA Client e*Way Methods and Classes: Overview

For any e*Way, communication takes place both on the e*Gate system and the external system side. Communication between the e*Way and the e*Gate environment is common to all e*Ways, while the communication between the e*Way and the external system is different for each e*Way.

For the CORBA Client e*Way, the **stceway.exe** file (Multi-Mode e*Way, see **Chapter 3**) is used to communicate between the e*Way and e*Gate, and a Java Collaboration is utilized to keep the communication open between the e*Way and the CORBA client.

Using Java Methods

Java methods have been added to make it easier to set information in the CORBA Client e*Way Event Type Definition (ETD), as well as get information from it. The nature of this data transfer depends on the configuration parameters (see **Chapter 4**) you set for the e*Way in the e*Gate Schema Designer's e*Way Editor window. These parameters in turn must be compatible with those of the Object Request Broker (ORB) type you are using.

Note: *For more information on the CORBA Client ETD structure, its nodes, and attributes (within an e*Gate* ***.xsc*** *file), see* **"ETD Structure" on page 48**.

The Schema Designer's Collaboration Rules Editor window allows you to call Java methods by dragging and dropping an ETD node into the **Rules** scroll box of the **Rules Properties** window.

Note: *The node name can be different from the Java method name.*

After you drag and drop, the actual conversion takes place in the **.xsc** file. To view the **.xsc** file, use the Schema Designer's ETD Editor and Collaboration Rules Editor Main windows.

For example, if the node name is **Orb**, the associated **javaName** is **Orb**. If you want to get the node value, use the Java method called **getOrb**. If you want to set the node value, use the Java method called **setOrb**.

Java Classes

The Java methods for the CORBA Client e*Way are contained in the following classes:

- **"CorbaClientConfiguration Class" on page 55**
- **"CorbaClientETDBase Class" on page 59**

6.2 CorbaClientConfiguration Class

The **CorbaClientConfiguration** class is defined as:

```
public final class CorbaClientConfiguration
```

These methods handle the properties loaded from the e*Way Connection configuration and provide the implementation for the functionality exposed in the CORBA Client e*Way **Configuration** node to override/add to that node dynamically in a Collaboration Rule.

The **CorbaClientConfiguration** class extends **java.lang.Object**.

The **CorbaClientConfiguration** methods are:

getOrb

Description

Retrieves the reference to the ORB and initializes the ORB "on demand," if there is no ORB reference set yet.

Syntax

```
public org.omg.CORBA.ORB getOrb()
```

Parameters

None.

Returns

Object
The ORB reference.

Throws

None.

setOrb

Description

Sets the ORB reference to a user-obtained instance of that reference.

Syntax

```
public void setOrb(org.omg.CORBA.ORB anOrbReference)
```

Parameters

Name	Type	Description
anOrbReference	Object	The reference to an ORB.

Returns

None.

Throws

None.

getInterfaceURI

Description

Retrieves the currently set URI used to locate the CORBA object.

Syntax

```
public java.lang.String getInterfaceURI()
```

Parameters

None.

Returns

java.lang.String
The currently set URI, loaded from the e*Way Connection configuration or overridden in the current Collaboration Rule.

Throws

None.

setInterfaceURI

Description

Set the URI to a user-obtained instance that URI.

Syntax

```
public void setInterfaceURI(java.lang.String aURI)
```

Parameters

Name	Type	Description
aURI	java.lang.String	The URI to set. Supported formats depend on the client ORB used at run time; all must support IOR: , and if they support the INS, also corbaloc: and corbaname: .

Returns

None.

Throws

None.

getOrbArguments

Description

Retrieves the currently set ORB arguments used to initialize the ORB in **initOrb**. The settings are loaded from the e*Way Connection configuration or overridden in the current Collaboration Rule.

Syntax

```
public java.util.ArrayList getOrbArguments()
```

Parameters

None.

Returns

java.util.ArrayList
The currently set array list containing the ORB arguments. Updating the returned reference changes the instance in this class.

Throws

None.

setOrbArguments

Description

Sets the ORB arguments to a user-obtained instance those arguments.

Syntax

```
public void setOrbArguments(java.lang.String[] args)
```

Parameters

Name	Type	Description
args	java.lang.String	An array of arguments to pass to the ORB initialization.

Returns

None.

Throws

None.

getOrbProperties

Description

Retrieves the ORB properties.

Syntax

```
public java.util.Properties getOrbProperties()
```

Parameters

None.

Returns

java.util.Properties
The properties to be passed to the ORB initialization.

Throws

None.

setProperties

Description

Sets the ORB properties to a user-obtained instance those properties.

Syntax

```
public void setProperties(java.util.Properties props)
```

Parameters

Name	Type	Description
props	java.util.Properties	The properties to pass to the ORB initialization.

Returns

None.

Throws

None.

6.3 CorbaClientETDBase Class

The **CorbaClientETDBase** class is defined as:

```
public class CorbaClientETDBase
```

Provides the ETD implementation for the CORBA Client e*Way.

The **CorbaClientETDBase** class extends **com.stc.jcsre.SimpleETDImpl**.

The **CorbaClientETDBase** method is:

"getConfiguration" on page 59

getConfiguration

Description

The accessor to a configuration instance in the ETD field **Configuration**. Only the retrieving method is provided, because you cannot replace the configuration instance itself.

Syntax

```
public CorbaClientConfiguration getConfiguration()
```

Parameters

None.

Returns

Object
The Configuration instance used by this ETD implementation.

Throws

None.

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