SeeBeyond™ eBusiness Integration Suite

e*Way Intelligent Adapter for COM/DCOM User's Guide

Release 4.5.4

Java Version

SEEBEYOND™

Version 20030113122058.

Contents

Chapter 1

Introduction

The e*Way Intelligent Adapter for COM/DCOM enables the e*Gate system to exchange data with server side COM/DCOM-enabled applications and components. This document describes how the Java™-enabled COM/DCOM e*Way is installed, configured, and implemented.

1.1 COM/DCOM Overview

The Microsoft™ *Component Object Model* (COM) is a component software architecture that allows applications and systems to be built using separate components. COM is the underlying architecture that forms the foundation for higher-level software services, like those provided by OLE (Object Linking and Embedding). OLE services span various aspects of component software, including compound documents, custom controls, inter-application scripting, data transfer, and other software interactions. Using COM allows software objects to be reused for a variety of applications. Because of its binary standard, COM allows any two components to communicate regardless of the language in which they were written.

The Microsoft *Distributed Component Object Model* (DCOM) is an extension of COM, and supports communication among objects residing on different computers; LANs, WANs, and the Internet. With DCOM, these software objects can be reused over a distributed environment.

COM objects or components are individual modular software routines that can be reused within applications. COM objects are reusable compiled binary objects, as opposed to reusable sections of code. The COM objects create *handles* that provide access to the COM-enabled applications.

The COM/DCOM e*Way enables configurable transparent data exchange with COM/DCOM enabled applications and components.

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 a working knowledge of Windows NT™ or Windows 2000™ operations and administration.
- to be thoroughly familiar with COM/DCOM, Java, and Windows-style GUI operations.

1.3 Supported Operating Systems

The Java-enabled COM/DCOM e*Way is available on the following operating systems:

- Windows 2000, Windows 2000 SP1, Windows 2000 SP2, and Windows 2000 SP3
- Windows NT 4 SP6a

Note: *If you intend to install e*Gate onto a totally clean Windows NT computer, you must first download a patch from Microsoft. If you do not perform the download, the installation of the SeeBeyond Editors (MSI Installer) fails. Download the patch from:* **http://www.microsoft.com/data/download_250rtm.htm**

To confirm that Windows NT SP6a is installed

1. At the command prompt, type **Winver**.
2. The **About Window NT (R)** window appears (this is the same window that appears when you choose **Help** on the Menu bar and click **About Windows NT** with Microsoft Explorer open). However, by using the command prompt, a line with **Revised Service Pack** displays on the window with the correct version listed.

1.4 System Requirements

To use the COM/DCOM e*Way, you need the following:

- An e*Gate Participating Host, version 4.5.1 or later.
- A TCP/IP network connection
- Additional disk space for e*Way executable, configuration, library, and script files. The disk space is required on both the Participating and the Registry Host. Additional disk space is required to process and queue the data that this e*Way processes; the amount necessary varies based on the type and size of the data being processed, and any external applications performing the processing.

The client components of the external systems with which the e*Way interfaces, have their own requirements; see those systems' documentation for more details.

Note: *Open and review the* ***Readme.txt*** *for the COM/DCOM e*Way regarding any additional requirements prior to installation. The Readme.txt is located on the Installation CD_ROM at setup\addons\ewims.*

1.4.1. External Application Requirements

The COM/DCOM e*Way requires an existing COM/DCOM-compliant application or component.

Chapter 2

Installation

This chapter contains pre-installation requirements and the procedures for installing the Java-enabled COM/DCOM e*Way. In addition, a list of installed files is provided, along with the directories where these files are located.

2.1 Windows NT and Windows 2000 Installation

2.1.1. Pre-installation

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

2.1.2. Installation Procedure

To install the COM/DCOM e*Way on Windows

1. Log in as an Administrator to the workstation on which you are installing the e*Way.
2. Insert the e*Way installation CD-ROM into the CD-ROM drive.
3. If the CD-ROM drive's Autorun feature is enabled, the setup application launches automatically; skip ahead to step 4. Otherwise, use Windows Explorer or the Control Panel's **Add/Remove Applications** feature to launch the file **setup.exe** on the CD-ROM drive.
4. The InstallShield setup application launches. Follow the installation instructions until you come to the **Please choose the product to install** dialog box.
5. Select **e*Gate Integrator**, then click **Next**.
6. Follow the on-screen instructions until you come to the second **Please choose the product to install** dialog box.
7. Clear the check boxes for all selections except **Add-ons**, and then click **Next**.
8. Follow the on-screen instructions until you come to the **Select Components** dialog box.

9 Highlight (but do not check) **e*Ways**, and then click the **Change** button. The **SelectSub-components** dialog box appears.

10 Select the **COM/DCOM e*Way**. Click the continue button to return to the **Select Components** dialog box, then click **Next**.

11 Follow the rest of the on-screen instructions to install the Java-enabled COM/DCOM 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. ***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, IQs, and Event Types before this e*Way can perform its intended functions. For more information about any of these procedures, please see the online Help.

Note: *For more information about configuring e*Ways or how to use the e*Way Editor, see the **e*Gate Integrator User's Guide**.*

2.2 Files/Directories Created by the Installation

The Java-enabled COM/DCOM e*Way installation process installs the following files within the e*Gate "client" directory tree. Files are installed within the "egate/client" tree on the Participating Host and committed to the "default" schema on the Registry Host.

Table 1 Files Created by the Installation

e*Gate Directory	File(s)
bin\	stccombuilder.exe stccomjavabuilder.exe stccomutil.dll COMWizard.dll
bin\WizardIcons	COM_Wizard.bmp
classes\	ewmscom.jar
configs\MSCOM\	com.def
etd\	com.ctl comwizard.ctl
Server\registry\repository\default	stcewmscom.ctl

Chapter 3

Multi-Mode e*Way Configuration

This chapter describes how to configure the Multi-Mode e*Way.

3.1 Multi-Mode e*Way

Multi-Mode e*Way properties are set using the Enterprise Manager.

To create and configure a New Multi-Mode e*Way

1. Select the Navigator's Components tab.
2. Open the host on which you want to create the e*Way.
3. On the Palette, click on the **Create a New e*Way** button.
4. The New e*Way Component window opens. Enter the name of the new e*Way, then click **OK**.
5. Right-click the new e*Way and select **Properties** to open the Properties dialog box.
6. The **Executable File** field defaults to **stceway.exe**. (stceway.exe is located in the "bin\" directory).
7. Under the **Configuration File** field, click on the **New** button. When the Settings page opens, set the configuration parameters for this configuration file.
8. After selecting the desired parameters, save the configuration file. Close the **.cfg** file and select **OK** to close the e*Way Properties Window.

Multi-Mode e*Way Configuration Parameters

The Multi-Mode e*Way configuration parameters are arranged in the following sections:

- **JVM Settings** on page 12
- **General Settings** on page 16

3.1.1. JVM Settings

The JVM Settings control basic Java Virtual Machine settings.

- **JNI DLL Absolute Pathname** on page 13
- **CLASSPATH Prepend** on page 14

JNI DLL Absolute Pathname

Description

Specifies the absolute pathname to where the JNI DLL installed by the *Java 2 SDK* 1.3.1_02 is located on the Participating Host.

Required Values

A valid pathname.

Additional Information

The JNI dll name varies on different O/S platforms:

OS	Java 2 JNI DLL Name
Windows NT 4.0/ Windows 2000	jvm.dll

The value assigned may contain a reference to an environment variable. To do this, enclose the variable name within a pair of % symbols. For example:

```
%MY_JNIDLL%
```

Such variables are used when multiple Participating Hosts are used on different platforms.

Note: *To ensure that the JNI DLL loads successfully, the Dynamic Load Library search path environment variable must be set appropriately to include all the directories under the Java 2 SDK (or JDK) installation directory that contain shared libraries (UNIX) or DLLs (NT).*

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 % signs. 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 be used.*

Required Values

An absolute path or an environmental 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 % signs. 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 set to 0 (zero), the preferred value for the initial heap size of the JVM is used.

Required Values

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

Maximum Heap Size

Description

Specifies the value of the maximum heap size in bytes. If 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.

Maximum Stack Size for Native Threads

Description

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

Required Values

An integer between 0 and 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 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**.

Note: *This parameter is not supported for Java Release 1.*

Remote Debugging port number

Description

Specifies the port number by which the e*Gate Java Debugger can connect with the JVM to allow remote debugging.

Required Values

An unused port number in the range 2000 through 65535. If not specified, the e*Gate Java Debugger is not able to connect to this e*Way.

Suspend option for debugging

Description

Allows you to specify that the e*Way should do no processing until an e*Gate Java Debugger has successfully connected to it.

Required Values

YES or **No**. YES suspends e*Way processing until a Debugger connects to it. NO enables e*Way processing immediately upon startup.

Auxiliary JVM Configuration File

Description

Specifies an auxiliary JVM configuration file for additional parameters.

Required Values

The location of the auxiliary JVM configuration file.

3.1.2. General Settings

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

- **Rollback Wait Interval** on page 16
- **Standard IQ FIFO** on page 17

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.

Standard IQ FIFO

Description

Specifies whether the highest priority messages from all STC_Standard IQs will be delivered in the first-in-first-out (FIFO) order.

Required Values

Select **YES** or **NO**. YES indicates that the e*Way will retrieve messages from all STC_Standard IQs in the first-in-first-out (FIFO) order. NO indicates that this feature is disabled. NO is the configured default.

Chapter 4

e*Way Connection Configuration

This chapter describes how to configure the COM/DCOM e*Way Connection.

4.1 Configuring e*Way Connections

e*Way Connections are set using the Enterprise Manager.

To create and configure e*Way Connections

1. In the Enterprise Manager's Component editor, select the **e*Way Connections** folder.
2. On the palette, click on the icon to create a new **e*Way Connection**.
3. The **New e*Way Connection Component** dialog box opens, enter a name for the **e*Way Connection**. Click **OK**.
4. Double-click on the new **e*Way Connection**. For this example, the connection has been defined as **com_connector**.
5. The **e*Way Connection Properties** dialog box opens.
6. From the **e*Way Connection Type** drop-down box, select **COM/DCOM**.
7. Enter the **Event Type "get"** interval in the dialog box provided. The configured default is 100 milliseconds. The "get interval is the intervening period at which the e*Way connection is polled.
8. From the **e*Way Connection Configuration File**, click **New** to create a new Configuration File for this e*Way Connection. (To use an existing file, click **Find**.)

The COM/DCOM e*Way Connection configuration parameters are organized into the following sections:

- **Connector** on page 18
- **COM/DCOM Configuration** on page 19

4.1.1. Connector

This section contains a set of top level parameters.

- **Type** on page 19
- **Class** on page 19

Type

Description

String-set. Specifies the connector type. Retain the default (COM) value for COM connections.

Required Values

COM. The value defaults to **COM**.

Class

Description

String-set. Specifies the class name of the COM/DCOM connector object.

Required Values

Retain the default value. The default is **com.stc.eways.com.ComEWayConnector**.

4.1.2. COM/DCOM Configuration

This section contains a set of top level parameters.

- **ProgID** on page 19
- **Hostname** on page 20

ProgID

Description

String-set. Specifies the programmatic ID that identifies the component to be used (for example: Excel.Application). Changes to this parameter in the ETD Editor Properties take presidence over the e*Way Connection parameter.

The ProgID is a Windows registry entry that uniquely identifies a program or a COM object. Unlike a Globally Unique Identifier (GUID), the ProgID is a humanly-readable alphanumeric string. The ProgID consists of three parts in this format:

```
vendor.component.version
```

The *vendor* parameter is the control's library, the *component*, it's class, and the *version* number, which is optional. If no version is given, the latest version of the application object is assumed. Each parameter is separated by periods and no spaces; for example the Visual Basic Command Button object's ProgID is:

```
VB.CommandButton
```

The ProgID for most objects can be determined by checking, for example, the Visual Basic Object Browser. The Windows registry entry reads as follows:

`HKEY_LOCAL_MACHINE\SOFTWARE\Classes\`*ProgID* =

Required Values

A valid programmatic ID to be used by the component.

Hostname

Description

String-set. Specifies the name the remote server on which the DCOM object resides. Changes to this parameter in the ETD Editor Properties take presidence over the e*Way Connection parameter.

Required Values

A valid host name.

Note: *Hostname is only relevant to DCOM components (that is .EXEs). Do not use the Hostname value for .DLLs.*

Chapter 5

Implementation

This chapter includes information pertinent to implementing the Java-enabled COM/DCOM e*Way in a production environment. Information on implementing the sample schema is included.

The following assumptions are applicable to this implementation:

- The COM/DCOM e*Way has been successfully installed.
- The executable and the configuration files have been appropriately assigned.
- All necessary .jar files are accessible.
- The user has a working understanding of COM/DCOM concepts.

5.1 Implementation Notes

The COM/DCOM e*Way supports the following data types:

Table 2 Supported Data Types

OLE Data Types	Description
VT_I2	2-byte signed int
VT_I4	4-byte signed int
VT_R4	4-byte real
VT_R8	8-byte real
VT_BSTR	Binary string
VT_DISPATCH	IDispatch (1 dimentional array only)
VT_ERROR	4-byte error code
VT_BOOL	Boolean
VT_UI1	Unsigned char
VT_DATE	The standard COM DATE data type (8-byte real).

Table 2 Supported Data Types (Continued)

OLE Data Types	Description
VT_SAFEARRAY VT_I2 VT_I4 VT_R4 VT_R8 VT_BSTR VT_DISPATCH VT_ERROR VT_BOOL VT_UI1 VT_DATE VT_VARIANT	1 dimensional array (VT_VARIANT can support a 2 dimensional array)

All of the above types are supported for In and Out parameters.

The COM/DCOM e*Way does not supports the following data types:

Table 3 Non-Supported Data Types

OLE Data Types	Description
VT_CY	currency

Important: ***The code processes one dimensional SAFEARRAYs only.*** *The number of elements in all rows are expected to be equal. VT_SAFEARRAY has specific, limited functionality as used in the COM/DCOM e*Way.*

5.2 Considerations

- Currently the Java e*Way Intelligent Adapter for COM/DCOM does not support accessing a range of cells from Excel. Each cells must be accessed one by one.
- The method names used for created custom Com objects, must not match a method name on the Java Object class. Duplicate names will result in compile-time errors indicating that a name collision has occurred. It is also recommended that you avoid methods names that are similar to those of any other Java object that may be used in your Collaboration.

5.3 COM/DCOM Sample Implementation Overview

During installation, the host and Control Broker are automatically created and configured. The default name of each is the name of the host on which you are installing the e*Gate Enterprise Manager GUI. To complete the implementation of the Java-enabled COM/DCOM e*Way, do the following:

- Make sure that the Control Broker is activated.

- In the e*Gate Enterprise Manager, define and configure the following as necessary:
  - Trigger e*Way using **stcewfile.exe**.
  - The Multi-Mode e*Way component as described in **Chapter 3**.
  - Event Type Definitions used to package the data to be exchanged with the external system.
  - Collaboration Rules to process Events.
  - The e*Way Connection as described in **Chapter 4**.
  - Collaborations, to be associated with each e*Way component, to apply the required Collaboration Rules.
  - The destination to which data is published prior to being sent to the external system.

The following sections describe how to define and associate each of the above components, and **Sample Schema** on page 49, provides the details necessary to create the components of a sample schema consisting of three e*Ways, three Event Types, one Collaboration Rule, one Intelligent Queue and three Collaborations.

The sample schema provided on the Installation CD-ROM is, for the most part, complete, once it is imported. The e*Way component implementation is provided for the purpose of explaining how each of these components are created manually.

5.3.1. Importing the Sample Schema

The first task in deploying the sample implementation is to create a new schema name. While it is possible to use the default schema for the sample implementation, it is recommended that you create a separate schema for testing purposes. After you install the COM/DCOM e*Way, do the following:

1. Start the e*Gate Enterprise Manager GUI.
2. When prompted to log in, select the host specified during installation, and enter the password.
3. When prompted to select a schema, click **New**.
4. Enter a name for the new schema. In this case, enter **COMtest**, or any appropriate name as desired.
5. Select **Create from export**, locate the **ExcelSample.zip** on the CD, and click **Open**.

The e*Gate Enterprise Manager opens to the new schema. It is also necessary to create the file **test.xls** in C:\temp. To create this file do the following:

1. Open Microsoft Excel.
2. Create a new worksheet called **test.xls**.
3. Save this file to the **c:\temp** directory and close **Excel**.

5.4 Creating the Sample Schema Manually

The following sections explain how to manually configure the e*Way components to create the same sample schema that is created when the sample is imported.

5.5 Creating Event Type Definitions

An ETD is a structural representation of an Event (that is, the blueprint of an Event).The COM/DCOM e*Way installation includes the COM Event Type Definition Wizard to assist in the quick creation for COM specific ETDs. In addition, if you have imported the sample schema, you have existing .xsc files that can be opened in the ETD Editor.

In COM, the Event Type corresponds to the object being used (it's methods). These methods are exposed in the Collaboration to allow the user to get and set the properties or call one or more methods. In addition, methods are made available to get and set the objects properties.

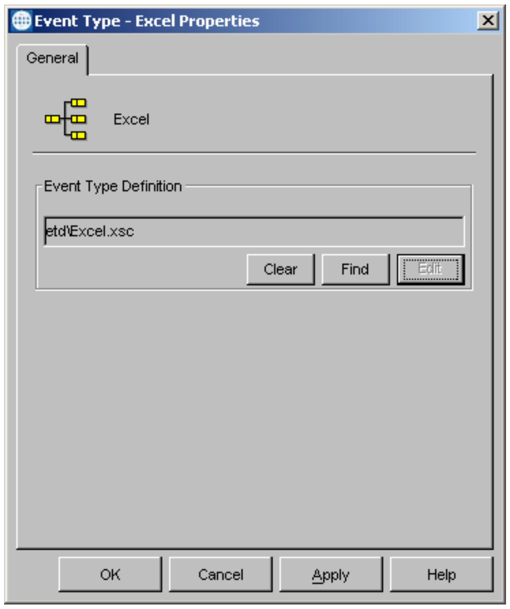
5.5.1. Creating an Event Type Definition Using an Existing .xsc

For the purpose of this example, the following procedure shows how to edit an **Event Type** from an existing **.**xsc file using **com.xsc** as the input file.

1. Select the **Event Types** folder on the **Components** tab of the e*Gate Navigator.
2. On the palette, click the **Create a New Event Type** button.
3. Enter the name of the **Event Type** in the **New Event Type Component** window, then click **OK** (for this sample, the Event Type is defined as **Excel**).

4 Double-click the new **Event Type** to edit its properties. The Event Type Properties window opens (see Figure 1).

Figure 1 Event Type - Properties

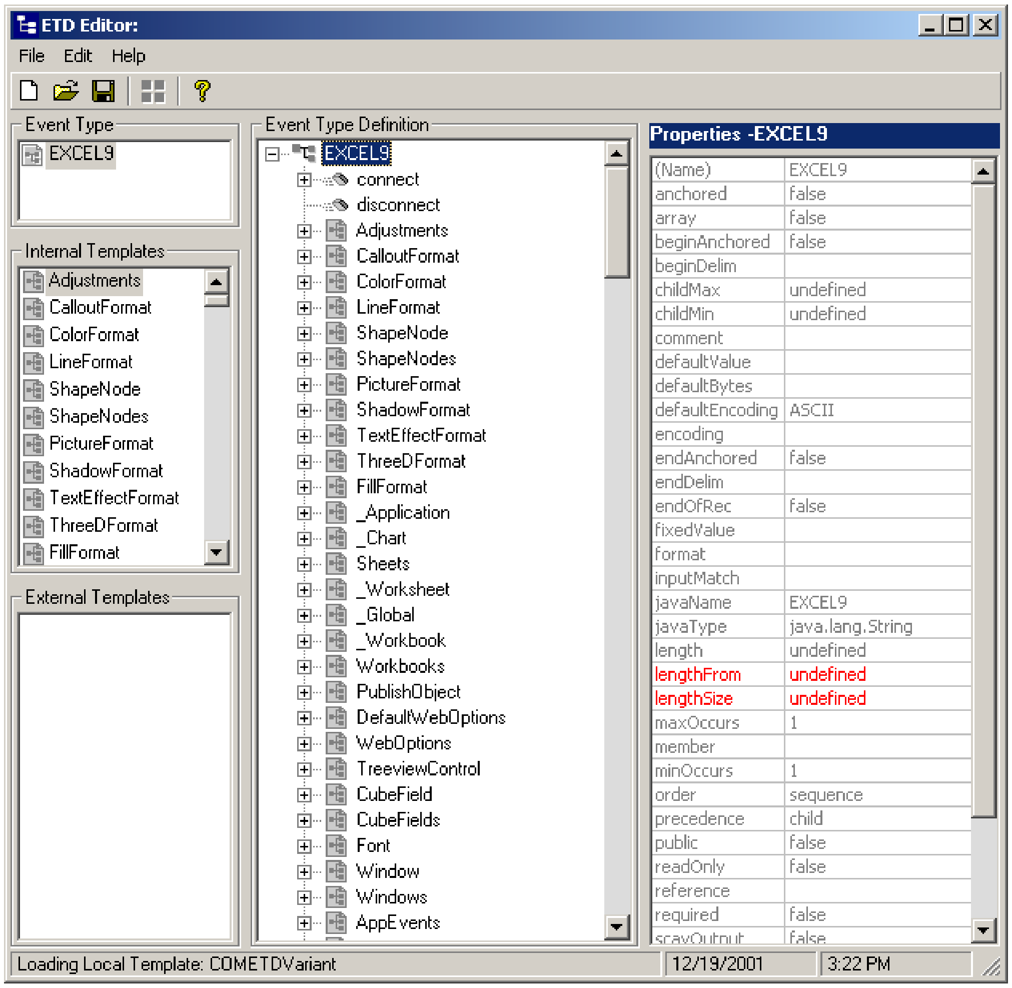


etd\Excel.xsc

5 Click **Find** under the Event Type Definition field. Find and select **Excel.xsc**.

6 Click the **Edit** button to open the xsc file in the ETD Editor (see Figure 2). This is a large file and may take more than a few minutes to open.

Figure 2 Event Type Definition Editor - Excel



Event Type: EXCEL9

Internal Templates: Adjustments, CalloutFormat, ColorFormat, LineFormat, ShapeNode, ShapeNodes, PictureFormat, ShadowFormat, TextEffectFormat, ThreeDFormat, FillFormat

Event Type Definition:

```
EXCEL9
    connect
    disconnect
    Adjustments
    CalloutFormat
    ColorFormat
    LineFormat
    ShapeNode
    ShapeNodes
    PictureFormat
    ShadowFormat
    TextEffectFormat
    ThreeDFormat
    FillFormat
    _Application
    _Chart
    Sheets
    _Worksheet
    _Global
    _Workbook
    Workbooks
    PublishObject
    DefaultWebOptions
    WebOptions
    TreeviewControl
    CubeField
    CubeFields
    Font
    Window
    Windows
    AppEvents
```

(Name)	EXCEL9
anchored	false
array	false
beginAnchored	false
beginDelim	
childMax	undefined
childMin	undefined
comment	
defaultValue	
defaultBytes	
defaultEncoding	ASCII
encoding	
endAnchored	false
endDelim	
endOfRec	false
fixedValue	
format	
inputMatch	
javaName	EXCEL9
javaType	java.lang.String
length	undefined
lengthFrom	undefined
lengthSize	undefined
maxOccurs	1
member	
minOccurs	1
order	sequence
precedence	child
public	false
readOnly	false
reference	
required	false
scavOutput	false

Loading Local Template: COMETDVariant | 12/19/2001 | 3:22 PM

7 On the File menu, click **Compile and Save**. This should be done after any modifications are made to the file.

8 On the **File** menu, click **Promote to Run Time** to promote the file from the **sandbox** to run time. A dialog box opens listing the files that have been successfully promoted.

9 Close the ETD Editor. Click **OK** to close the Event Type Properties Dialog box.

5.5.2. Creating an Event Type Definition Using the COM ETD Wizard

The COM ETD Wizard is used to create a ETD structure specific to the COM, with corresponding nodes and methods. For the purpose of this example, the following procedure shows how to create an **Event Type Definition** (**ETD**) using the **COM ETD Wizard**. This ETD is not used in the sample schema included with the CD.

1 Select the **Event Types** folder on the **Components** tab of the e*Gate Navigator.

2 On the palette, click the **Create a New Event Type** button.

3 Enter the name of the **Event Type** in the **New Event Type Component** window, then click **OK** (for this sample, the Event Type is defined as **Excel**).

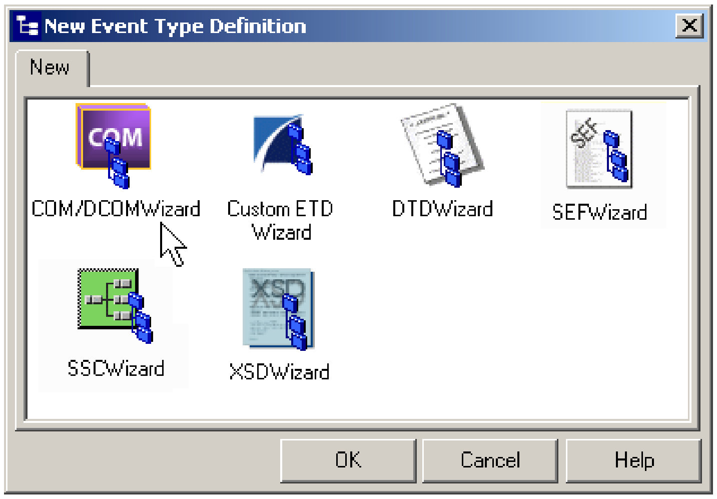
4 Double-click the new **Event Type** to edit its properties.

5 When the **Properties** window opens, click the **New** button. The ETD Editor opens.

6 Select **File**, **New** to open the New Event Type Definition window (see Figure 3).

7 Select the **COM/DCOMWizard**.

Figure 3 New Event Type Definition - COM/DCOMWizard



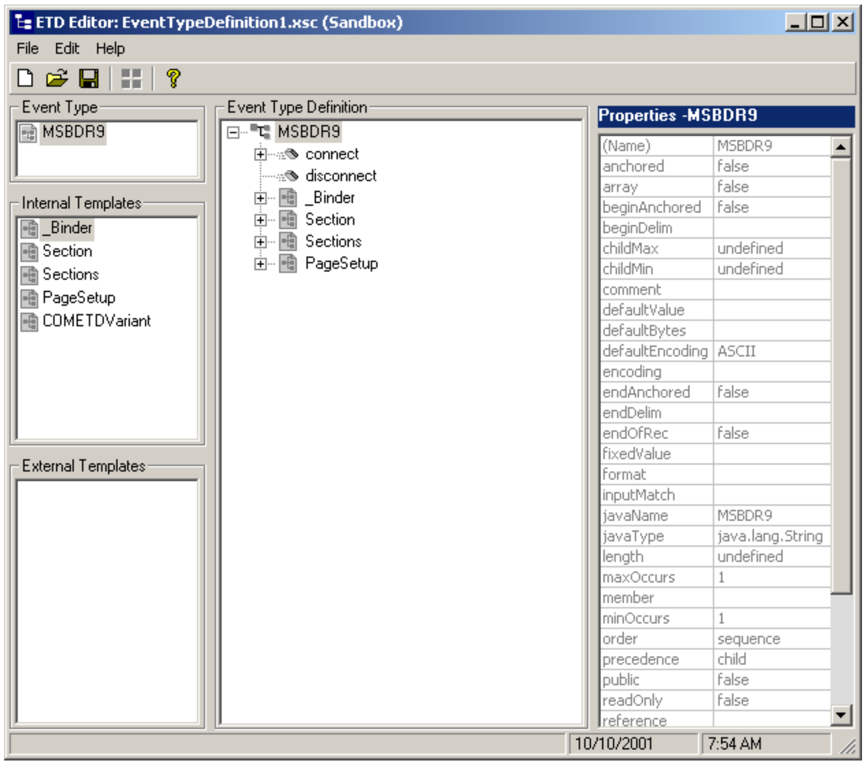
8 Enter a Package Name where the ETD builder can place all the generated Java classes associated with the created ETD (for this sample, **com.stc.COMtest**).

9 Enter the **COM Type** library file from which the .**xsc** file is created. TypeLib files are *.tlb, *.olb, *.dll, *.ocx, and *.exe files. For the purpose of this sample the selected file is Excel9.olb at C:\Program Files\Microsoft Office\Office. Click **OK** and **Finish**.

Note: COM type library files describe the methods exposed from an automation compatible component. Com type library typically have the file extension .tlb or .olb. However, most components embed the type library file in the DLL, OCX or EXE that houses the component.

10 The **EDT Editor** generates an Event Type structured for the specific COM/DCOM application file. The ETD is read-only, allowing for no further configuration from the ETD Editor (see Figure 4).

Figure 4 Event Type Definition Editor



(Name)	MSBDR9
anchored	false
array	false
beginAnchored	false
beginDelim	
childMax	undefined
childMin	undefined
comment	
defaultValue	
defaultBytes	
defaultEncoding	ASCII
encoding	
endAnchored	false
endDelim	
endOfRec	false
fixedValue	
format	
inputMatch	
javaName	MSBDR9
javaType	java.lang.String
length	undefined
maxOccurs	1
member	
minOccurs	1
order	sequence
precedence	child
public	false
readOnly	false
reference	

11 From the File menu click **Compile and Save**.

12 Once the file has compiled, from the **File** menu, click **Promote to Run Time**. The file is promoted to the run time environment.

13 Close the ETD Editor.

5.6 Creating and Configuring the Component e*Ways

e*Ways connect with external systems to poll or send data. They also transform and route data. Multi-Mode e*Ways are used to run Java Collaborations that utilize e*Way Connections to send and receive Events to and from multiple external systems.

To Create the Trigger e*Way

1 Select the Navigator's **Components** tab.

2 Open the host on which you want to create the e*Ways.

3 Select the **Control Broker** that manages the new e*Ways.

4 On the palette, click the **Create a New e*Way** button.

5 Enter the name of the new e*Way (in this case “**trigger**”), then click **OK**.

6 Right-click the new e*Way and select **Properties** to edit its properties.

7 The e*Way Properties window opens. Click the **Find** button beneath the **Executable File** field, and select **stcewfile.exe** as the executable file.

8 Under the **Configuration File** field, click the **New** button. The Edit Settings window opens. Select the settings as displayed in Table 4 for this configuration file.

Table 4 Configuration Parameters for the trigger e*Way

Parameter	Value
General Settings (unless otherwise stated, leave settings as default)	
AllowIncoming	YES
AllowOutgoing	NO
Outbound Settings	Default
Poller Inbound Settings	
PollDirectory	C:\Indata (input file folder)
InputFileExtension	*.fin (input file extension)
PollMilliseconds	1000
Remove EOL	YES
MultipleRecordsPerFile	YES
MaxBytesPerLine	4096
BytesPerLineIsFixed	NO
File Records Per eGate Event	1
Performance Testing	Default

9 After selecting the desired parameters, save the **configuration** file (as "**trigger.cfg**").

10 From the **File** menu, click **Promote to Run Time**. This closes the .cfg file.

11 In the e*Way - Properties window, use the **Startup**, **Advanced**, and **Security** tabs to modify the default settings for each e*Way you configure.

A Use the **Startup** tab to specify whether the e*Way starts automatically, or restarts after abnormal termination or due to scheduling, and so forth.

B Use the **Advanced** tab to specify or view the activity and error logging levels, as well as the Event threshold information.

C Use **Security** to view or set privilege assignments.

12 Select **OK** to close the e*Way Properties window.

To Create the COM/DCOM e*Way (Multi-Mode)

1 Select the Navigator's **Components** tab.

2 Open the host on which you want to create the e*Way.

3 Select the **Control Broker** that manages the new e*Way.

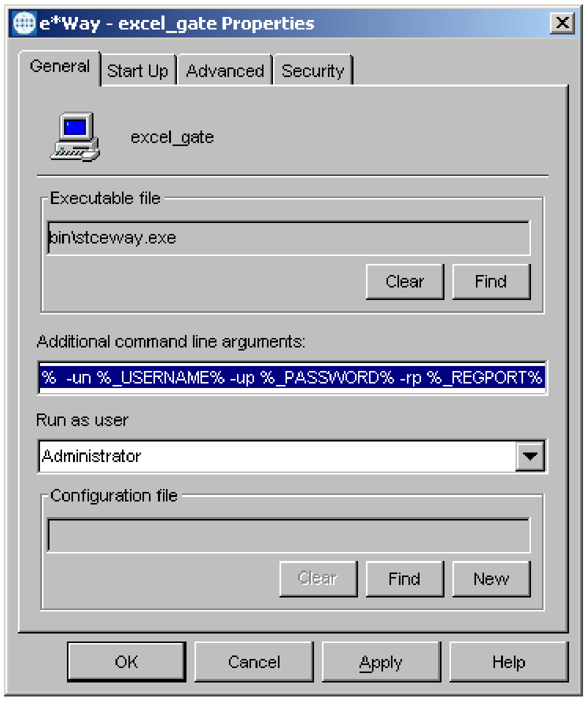
4 On the palette, click the **Create a New e*Way** button.

5 Enter the name of the new e*Way (in this case, "**excel_gate**"), then click **OK**.

6 Right-click the new e*Way and select **Properties** to edit its properties.

7 When the e*Way Properties window opens, click the **Find** button beneath the **Executable File** field, and select **stceway.exe** as the executable file (see Figure 5).

Figure 5 Multi-Mode e*Way Properties



excel_gate

Executable file: bin\stceway.exe

Additional command line arguments: % -un %_USERNAME% -up %_PASSWORD% -rp %_REGPORT%

Run as user: Administrator

Configuration file:

8 To edit the JVM Settings, select **New** under Configuration file. For information on setting the parameters for the Multi-Mode e*Way see **Multi-Mode e*Way Configuration** on page 11.

9 Save the **.cfg** file, and promote to run time to close the Edit Settings window.

10 In the e*Way Properties window, use the **Startup**, **Advanced**, and **Security** tabs to modify the default settings for each.

A Use the **Startup** tab to specify whether the e*Way starts automatically, restarts after abnormal termination or due to scheduling, etc.

B Use the **Advanced** tab to specify or view the activity and error logging levels, as well as the Event threshold information.

C Use **Security** to view or set privilege assignments.

11 Click **OK** to close e*Way Properties window.

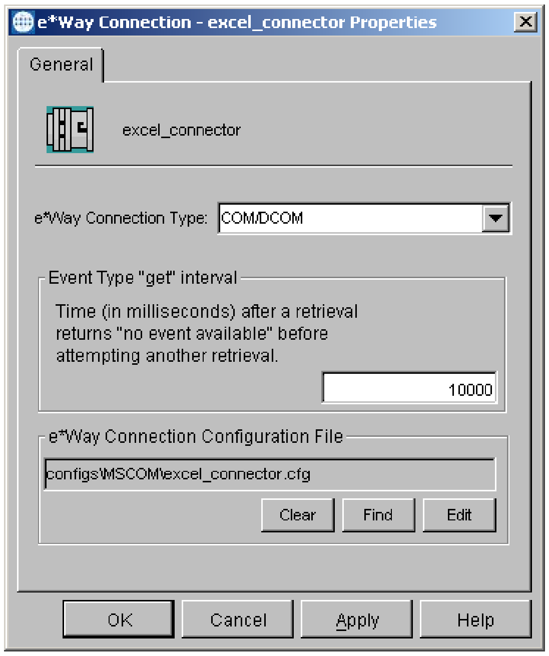
5.7 Creating the e*Way Connection

The e*Way Connection configuration file contains connection information along with the information needed to communicate using COM/DCOM.

5.7.1. To Create and Configure a New e*Way Connection

1. Select the **e*Way Connection** folder on the **Components** tab of the e*Gate Navigator.
2. On the palette, click the **Create a New e*Way Connection** button.
3. Enter the name of the e*Way Connection (for this sample, "**excel_connector**"), then click **OK.**
4. Double-click the new e*Way Connection to edit its properties.
5. The e*Way Connection Properties window opens. Select **COM/DCOM** from the **e*Way Connection Type** drop-down menu (see Figure 6).
6. Enter the **Event Type "get" interval** in the dialog box provided. 10000 milliseconds is the configured default. The "get interval is the intervening period at which, when subscribed to, the e*Way connection is polled.

Figure 6 e*Way Connection Properties



e*Way Connection Type: COM/DCOM

Event Type "get" interval
Time (in milliseconds) after a retrieval returns "no event available" before attempting another retrieval.
10000

e*Way Connection Configuration File
configs\MSCOM\excel_connector.cfg

7. Under e*Way Connection Configuration File, click the **New** button.
8. The e*Way Connection editor opens. Select the necessary parameters. For information on the COM/DCOM e*Way Connection parameters, see **Configuring e*Way Connections** on page 17.
9. Save the .cfg file. From the **File** menu, click **Promote to Run Time**. The Settings Editor closes.
10. Close the e*Way Connection Properties dialog box.

5.8 Creating Intelligent Queues (IQs)

The next step is to create and associate Intelligent Queues (IQs). IQs manage the exchange of information between components within the e*Gate system, providing non-volatile storage for data as it passes from one component to another. IQs use IQ Services to transport data. IQ Services provide the mechanism for moving Events between IQs, handling the low-level implementation of data exchange (such as system calls to initialize or reorganize a database).

To Create and Modify an Intelligent Queue for the COM/DCOM e*Way

1. Select the Navigator's **Components** tab.
2. Open the host on which you want to create the IQ.
3. Open a **Control Broker**.
4. Select an **IQ Manager**.
5. On the palette, click the **Create a New IQ** button.
6. Enter the name of the new **IQ** (in this case "**test_iq**"), then click **OK.**
7. Double-click the new **IQ** to edit its properties.
8. On the **General** tab, specify the **Service** and the **Event Type Get Interval**.

   The **STC_Standard** IQ Service provides sufficient functionality for most applications. If specialized services are required, custom IQ Service DLLs may be created.

   The default **Event Type Get Interval** of 100 Milliseconds is satisfactory for the purposes of this initial implementation.
9. On the **Advanced** tab, make sure that **Simple publish/subscribe** is checked under the **IQ behavior** section.
10. Click **OK** to close the **IQ Properties** window

5.9 Creating the Collaboration Rules

The next step is to create the Collaboration Rules that extract and process selected information from the source Event Type defined above, according to its associated Collaboration Service. The Default Editor can be set to either **Monk** or **Java**.

From the Enterprise Manager Task Bar**,** select **Options** and click **Default Editor**. Make sure editor is set to **Java**.

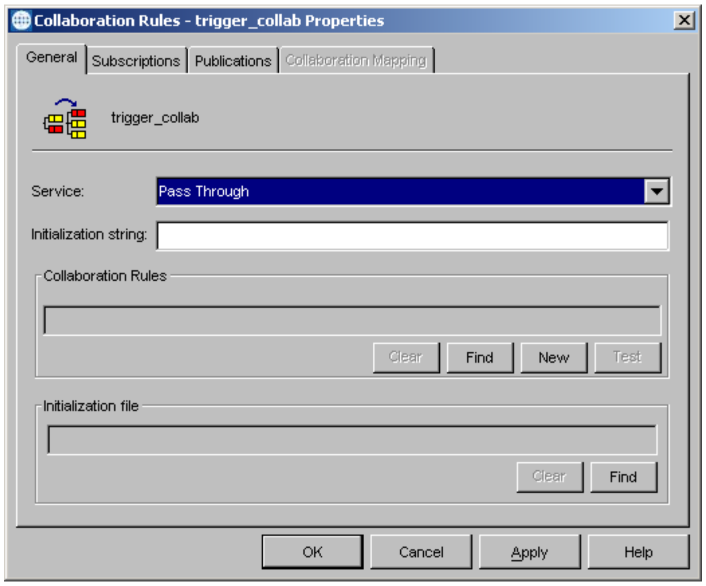
The sample schema calls for the creation of two Collaboration Rules files.

- **trigger_collab** (Pass Through)
- **excel_gate_collab** (Java)

To Create the Pass Through Collaboration Rules

1. Select the Navigator's **Components** tab in the e*Gate Enterprise Manager.
2. In the Navigator, select the **Collaboration Rules** folder.
3. On the palette, click the **Create New Collaboration Rules** button.
4. Enter the name of the new Collaboration Rule Component (for this case “**trigger_collab**”), then click **OK**.
5. Double-click the new Collaboration Rules Component. The **Collaboration Rules Properties** dialog box opens (seeFigure 7).

Figure 7 Collaboration Properties - Pass Through



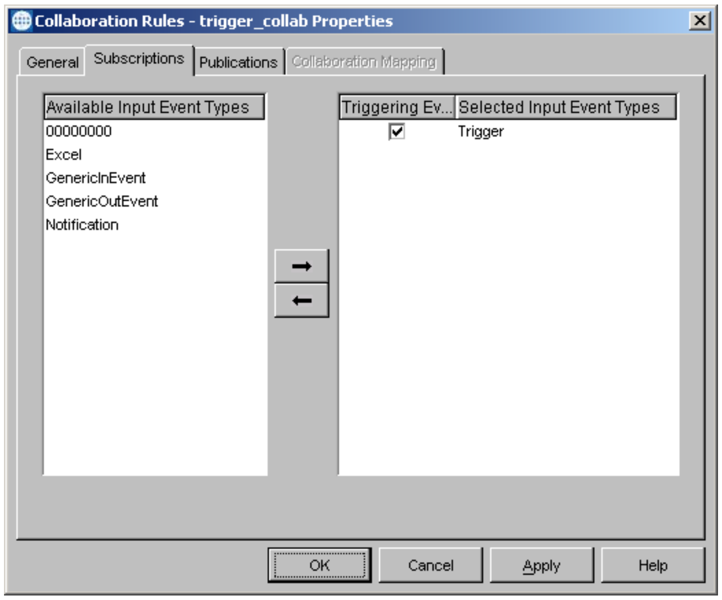
trigger_collab

Service: Pass Through

Initialization string:

6. The **Service** field defaults to **Pass Through**.
7. Go to the **Publications** tab. Select **Trigger** under **Available Output Event Types**, and click the right arrow to move it to **Selected Output Event Types**. Make sure the **Default** option is be enabled.
8. Go to the **Subscriptions** tab. Select **Trigger** under **Available Input Event Types**, and click the right arrow to move it to **Selected Input Event Types**. Make sure the checkbox under **Triggering Event** is selected (see Figure 8).

Figure 8 Collaboration Properties - Subscriptions



Available Input Event Types
00000000
Excel
GenericInEvent
GenericOutEvent
Notification

Triggering Ev...	Selected Input Event Types
✓	Trigger

9 Click **OK** to close the **Collaboration Rules Properties** dialog box.

To Create the Java Collaboration Rules

1 Select the Navigator's **Components** tab in the e*Gate Enterprise Manager.

2 In the **Navigator**, select the **Collaboration Rules** folder.

3 On the palette, click the **Create New Collaboration Rules** button.

4 Enter the name of the new Collaboration Rule, then click **OK** (for this case, “**excel_gate_collab**”).

5 Double-click the new Collaboration Rules Component to edit its properties. The **Collaboration Rules Properties** dialog box opens.

6 From the **Service** field drop-down list box, select **Java**. The **Collaboration Mapping** tab is now enabled, and the **Subscriptions** and **Publications** tabs are disabled.

7 In the **Initialization string** field, enter any required initialization string that the Collaboration Service may require. This field can be left blank.

8 Select the **Collaboration Mapping** tab.

9 Using the **Add Instance** button, create instances to coincide with the Event Types. For this sample, do the following:

A In the **Instance Name** column, enter **trigger** for the instance name.

B Click **Find**, navigate to **Trigger.xsc**, and double-click to select. **Input.xsc** is added to the **ETD** column for this instance.

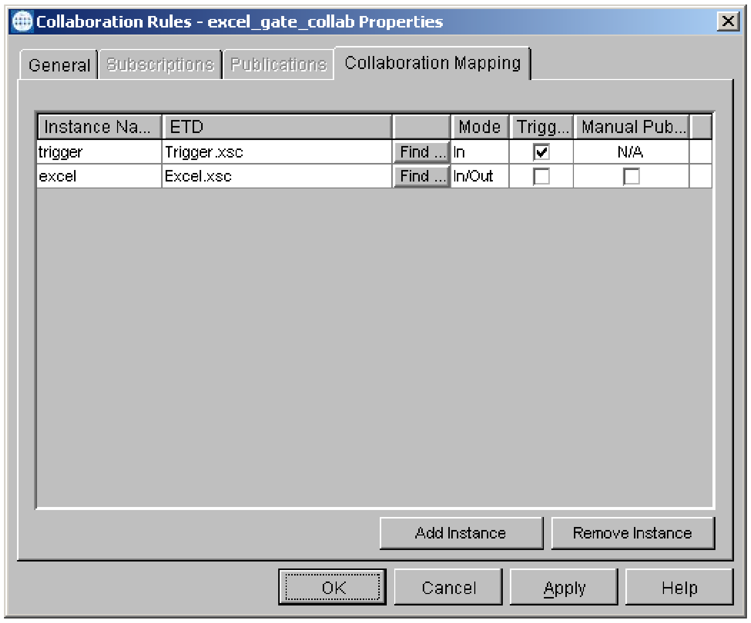
C In the **Mode** column, select **In** from the drop–down menu available.

D In the **Trigger** column, select the box to enable trigger mechanism.

10 Repeat steps 9–13 using the following values:

- Instance Name — **excel**
- ETD — **Excel.xsc**
- Mode — **In/Out**
- Trigger — clear
- Manual Publish – clear

Figure 9 Collaboration Rules - Collaboration Mapping Properties



Instance Na...	ETD		Mode	Trigg...	Manual Pub...
trigger	Trigger.xsc	Find ...	In	☑	N/A
excel	Excel.xsc	Find ...	In/Out	☐	☐

11 Select the **General** tab, under the Collaboration Rule box, select **New** to open the **Collaboration Rules Editor**. Click **OK** to close the **Collaboration Rules** dialog box or click **New** or **Edit** under the Collaboration Rules field to open the Collaboration Rules Editor.

5.9.1. Using the Collaboration Rules Editor

This section contains an example of how the business logic was defined for the sample schema using the Java Collaboration Rules Editor. The required logic is defined by selecting the desired command and dragging and dropping the nodes (Source or Event) into the corresponding Properties Box, or onto the corresponding node. The resulting code is displayed in the Business Rules pane of the Collaboration Rules Editor.

Each new rule is created by clicking the **rule** button on the Business Rules toolbar. For additional information on using the Java Collaboration Rules Editor, see the *e*Gate Integrator User's Guide*. The **excel_gate_collab** business rules are created as follows:

1 To open the Collaboration Rules Editor to the **excel_gate_collab** Collaboration Rules, click **New** or **Edit** under the **Collaboration Rules** field in the Properties dialog box (see above section.) The Collaboration Rules Editor opens. Expand the

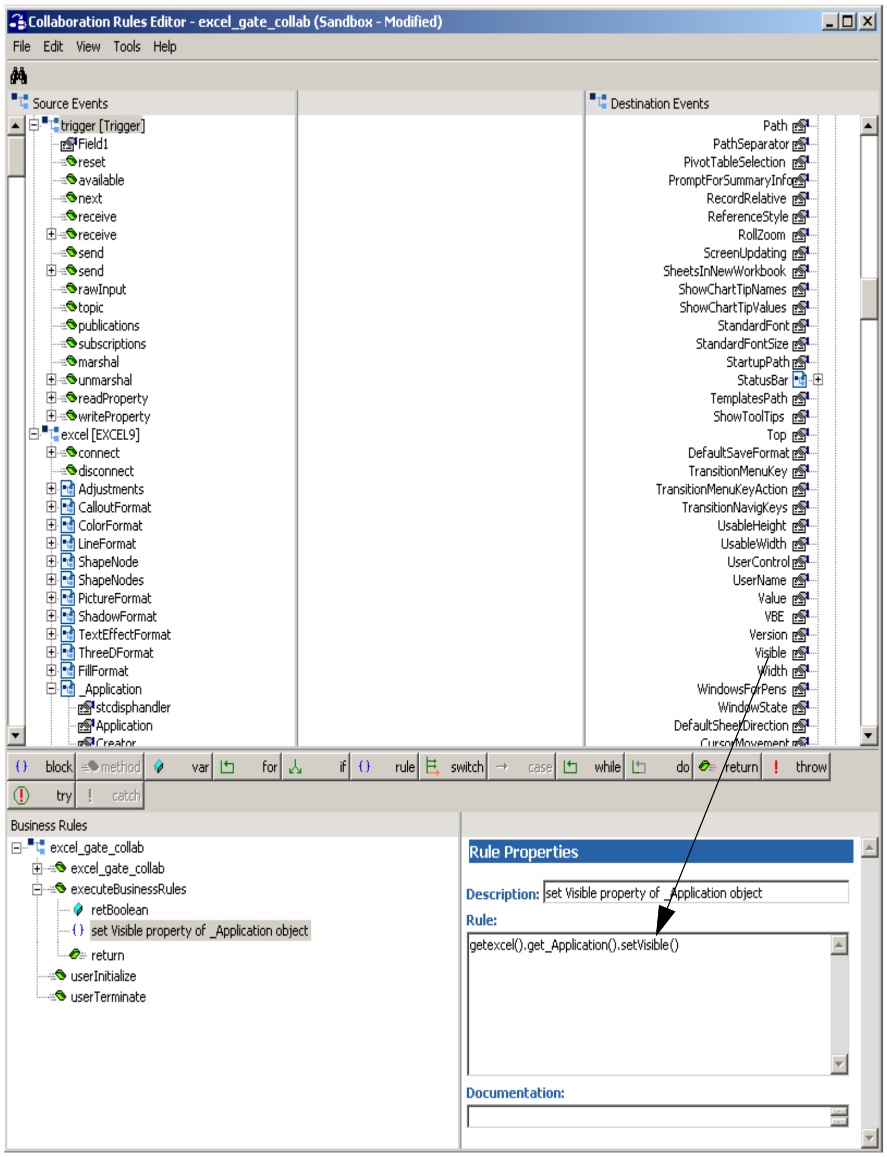
Editor to full size for optimum viewing and expand the **Source** and **Destination** Events as well.

2 Select **retBoolean** in the **Business Rules** pane. All of the user-defined business rules are added as part of this method.

3 The **set Visible property of _Application object** rule is created by dragging Visible, under excel, Application, on the Destination Events command node, into the Rule Properties, Rule field (see Figure 10). Place the curser in the last set of parentheses and enter **true** as the value. This creates the following code:

```
getexcel().get_Application().setVisible(true)
```

Figure 10 Collaboration Rules Editor



Description: set Visible property of _Application object

Rule: getexcel().get_Application().setVisible()

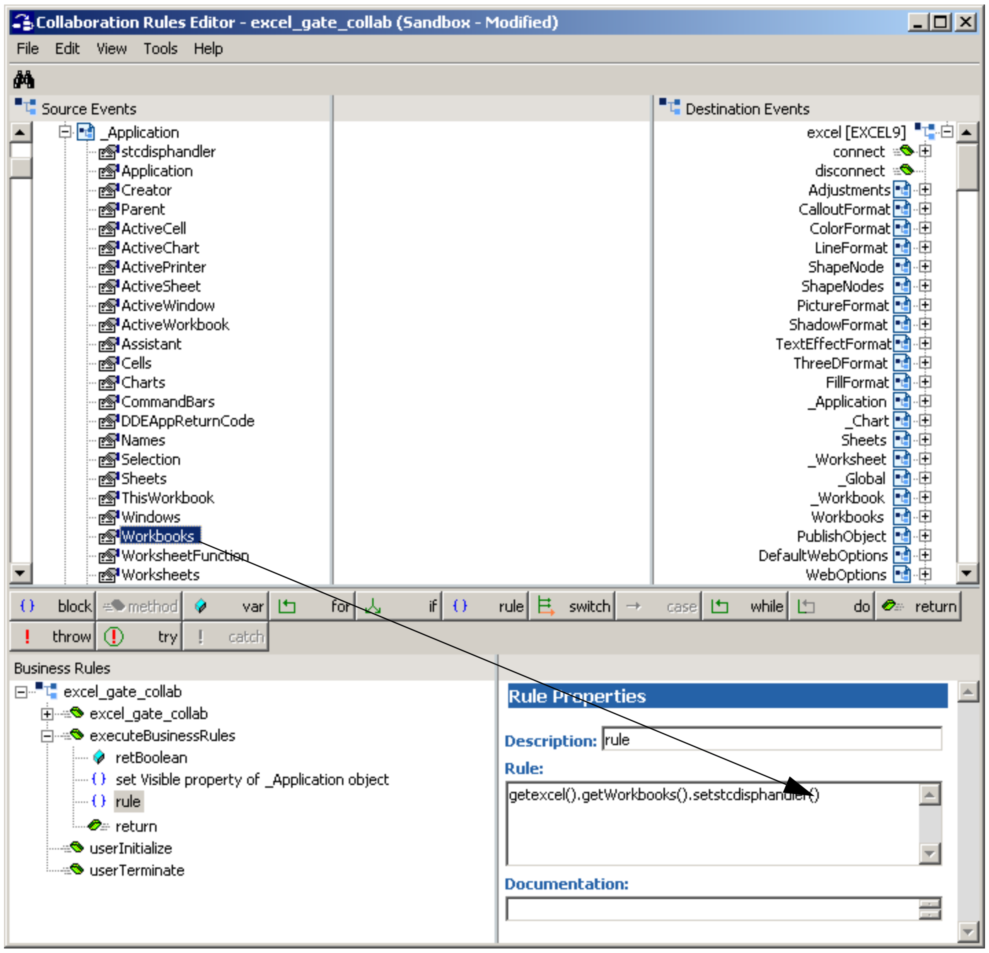
4 Type "**set Visible property of _Application object**" in the Rule Properties, Description field. This replaces "rule" as the expression for this rule in the Business Rules pane.

5 To create the **set 'Workbooks' handle** rule, drag **stcdisphandler** under excel, Workbooks, on the Destination Events command node into the Rule Properties, Rule field. From the Source Events command node, select **Workbooks** under excel, Application. Drag-and-drop it into the last set of parentheses in the Rule Properties, Rule field (see Figure 11), to create the following code:

```
getexcel().getWorkbooks().setstcdisphandler(getexcel().get_Applica
tion().getWorkbooks())
```

stcdisphandler is the node where dispatch handles are stored.

Figure 11 Collaboration Rules Editor



Description: rule

Rule:

```
getexcel().getWorkbooks().setstcdisphandler()
```

6 To create the **set Filename argument for 'Open'** rule, drag **Filename**, under excel, Workbooks, Open, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and type **"c\\temp\\test.xls"** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().setFilename(“c\\temp\\test.xls
”)
```

7 To create the **set UpdateLinks for 'Open'** rule, drag **error**, under excel, Workbooks, Open, UpdateLinks, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getUpdateLinks().seterror(-
2147352572)
```

Note: *A VT-error of -2147352572 indicates that the parameters of the function are unset.*

8 To create the **set ReadOnly for 'Open'** rule, drag **error**, under excel, Workbooks, Open, ReadOnly, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getReadOnly().seterror(-
2147352572)
```

9 To create the **set Format for 'Open'** rule, drag **error**, under excel, Workbooks, Open, Format, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getFormat().seterror(-
2147352572)
```

10 The **set Password for 'Open'** rule is created by dragging **error**, under excel, Workbooks, Open, Password, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getPassword().seterror(-
2147352572)
```

11 The **set WriteResPassword for 'Open'** rule is created by dragging **error**, under excel, Workbooks, Open, WriteResPassword, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getWriteResPassword().seterror
(-2147352572)
```

12 To create the **set IgnoreReadOnlyRecommended for 'Open'** rule, drag **error**, under excel, Workbooks, Open, IgnoreReadOnlyRecommended, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getIgnoreReadOnlyRecommended()
.seterror(-2147352572)
```

13 To create the **set Origin for 'Open'** rule, drag **error**, under excel, Workbooks, Open, Origin, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getOrigin().seterror(-
2147352572)
```

14 The **set Delimiter for 'Open'** rule is created by dragging **error**, under excel, Workbooks, Open, Delimiter, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getDelimiter().seterror(-
2147352572)
```

15 The **set Editable for 'Open'** rule is created by dragging **error**, under excel, Workbooks, Open, Editable, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getEditable().seterror(-
2147352572)
```

16 To create the **set Notify for 'Open'** rule, drag **error**, under excel, Workbooks, Open, Notify, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getNotify().seterror(-
2147352572)
```

17 To create the **set Converter for 'Open'** rule, drag **error**, under excel, Workbooks, Open, Converter, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getConverter().seterror(-
2147352572)
```

18 The **set AddToMru for 'Open'** rule is created by dragging **error**, under excel, Workbooks, Open, AddToMru, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **-2147352572** as the value. This creates the following code:

```
getexcel().getWorkbooks().getOpen().getAddToMru().seterror(-
2147352572)
```

19 The **invoke 'Open' to get _Workbook** rule is created by dragging **invoke**, under excel, Workbooks, Open, on the Source Events command node, into the Rule Properties, Rule field to create the following code:

```
getexcel().getWorkbooks().getOpen().invoke()
```

20 The **set _Workbook handle** rule is created by dragging **stcdisphandler**, under excel, Workbook, on the Source Events command node, into the Rule Properties, Rule field. Drag **retval**, under excel, Workbooks, Open, on the Source Events command node, into the last set of parentheses to create the following code:

```
getexcel().get_Workbook().setstcdisphandler(getexcel().getWorkbook
s().getOpen().getretval())
```

21 The **set Worksheets handle** rule is created by dragging **stcdisphandler**, under excel, Sheets, on the Source Events command node, into the Rule Properties, Rule field. Drag **Worksheets**, under excel, Workbook, on the Source Events command node, into the last set of parentheses to create the following code:

```
getexcel().getSheets().setstcdisphandler(getexcel().get_Workbook()
.getWorksheets())
```

22 To create the **set variant parameter of property 'Item' to 1** rule, drag **short**, under excel, Sheets, propget_Item, Index, on the Destination Events command node, into the Rule Properties, Rule field. Edit **setshort( )** in the Rule Properties, Rule field, to read **setint(1)**. This creates the following code:

```
getexcel().getSheets().getpropget_Item().getIndex().setint(1)
```

23 The **invoke PROPERTYGET of 'Item'** rule is created by dragging the **invoke** method, under excel, Sheets, propget_Item, on the Destination Events command node, into the Rule Properties, Rule field. This creates the following code:

```
getexcel().getSheets().getpropget_Item().invoke()
```

24 The **set _Worksheet handle** rule is created by dragging the **stcdisphandler**, under excel, Worksheet, on the Destination Events command node, into the Rule Properties, Rule field. Drag **retval**, under excel, Sheets, propget_Item, on the Source Events command node, into the last set of parentheses to create the following code:

```
getexcel().get_Worksheet().setstcdisphandler(getexcel().getSheets(
).getpropget_Item().getretval())
```

25 The **set 'Cell1' of Range** rule is created by dragging **String**, under excel, Worksheet, propget_Range, Cell1, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and enter **A1** as the value to create the following code:

```
getexcel().get_Worksheet().getpropget_Range().getCell1().setstring
("A1")
```

26 The **set 'Cell2' of Range** rule is created by dragging **String**, under excel, Worksheet, propget_Range, Cell2, on the Destination Events command node, into the Rule Properties, Rule field. Place the cursor in the last set of parentheses and type **A1** as the value to create the following code:

```
getexcel().get_Worksheet().getpropget_Range().getCell2().setstring
("A1")
```

27 To create the **invoke 'Range'** rule, drag the **invoke** method, under excel, Worksheet, propget_Range, on the Destination Events command node, into the Rule Properties, Rule field. This creates the following code:

```
getexcel().get_Worksheet().getpropget_Range().invoke()
```

28 To create the **set Range handle** rule, drag the **stcdisphandler** method, under excel, Range, on the Destination Events command node, into the Rule Properties, Rule field. Drag **retval**, under excel, Worksheet, propget_Range, on the Source Events command node, into the last set of parentheses to create the following code:

```
getexcel().getRange().setstcdisphandler(getexcel().get_Worksheet()
.getpropget_Range().getretval())
```

29 The **output value from cell A1** rule is created by typing the following code, into the Rule Properties, Rule field:

```
System.err.println("Cell(A1): " +
((COMETDVariant)getexcel().getRange().getValue()).getValue())
```

30 The **Variant** variable is created by clicking the variant (var) button on the Business Rules toolbar. A variable appears in the Business Rules under the last-selected rule. In the Variable Properties window, enter **Variant** as the description, **variant** as the name, select **com.stc.eways.com.COMETDVariant** as the type, and enter **new COMETDVariant("test value")** as the initial value.

31 To create the **change Cell 'A1'** rule, drag **Value**, under excel, Range, on the Destination Events command node, into the Rule Properties, Rule field. Place the

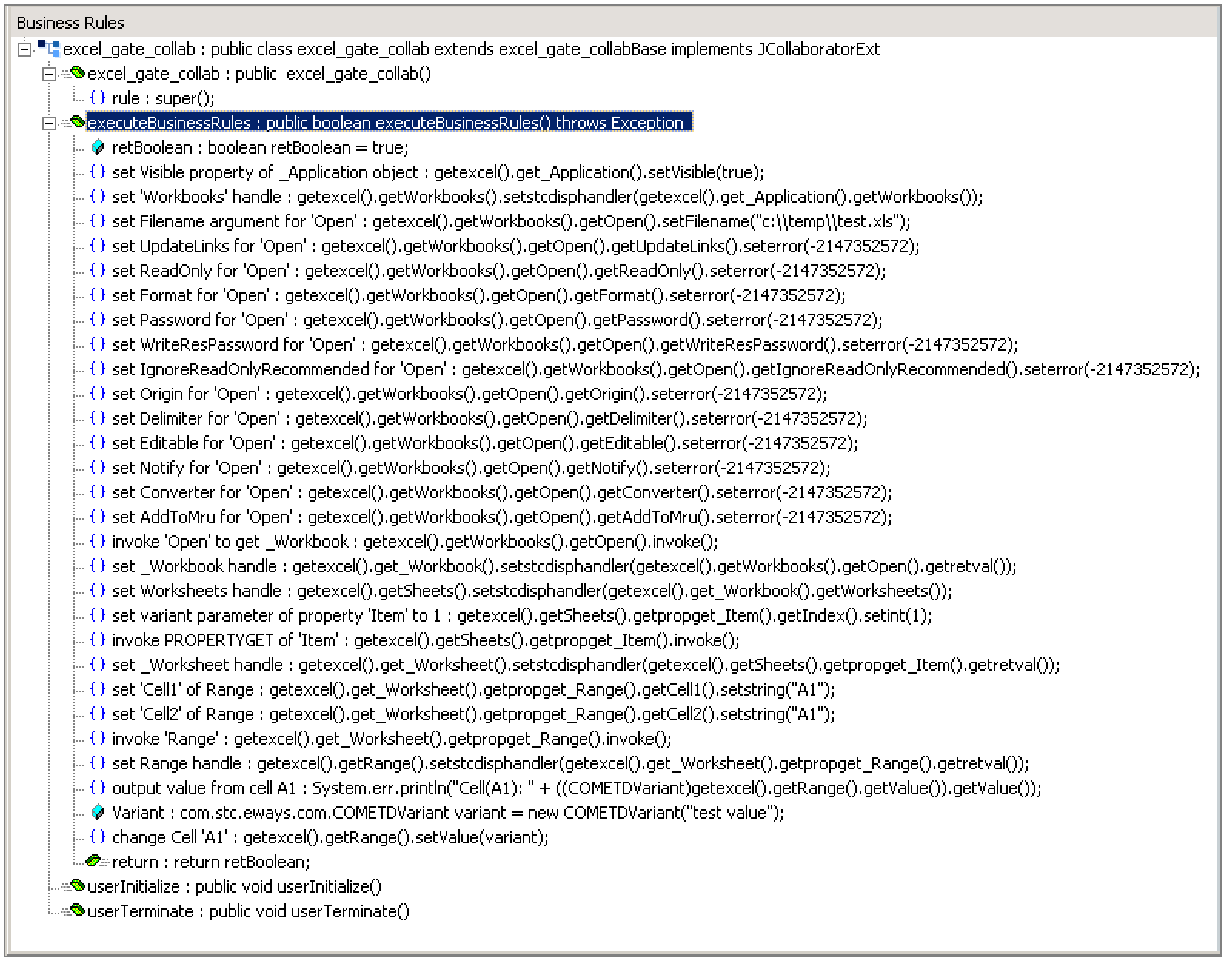
cursor in the last set of parentheses and type **variant** as the value to create the following code:

```
getexcel().getRange().setValue(variant)
```

32 When the business logic has been completed, as displayed in Figure 12, compile and save the Collaboration Rules. From the **File** menu, click **Compile**. The **Save** menu opens, provide a name for the .xpr file (for this sample, "**excel_gate_collab.xpr**").

Note: *The .xpr file, excel_gate_collab.xpr is included with the sample schema on the Installation CD-ROM, and contains the completed version of this sample.*

Figure 12 Collaboration Rules - Complete



Business Rules

```
excel_gate_collab : public class excel_gate_collab extends excel_gate_collabBase implements JCollaboratorExt
    excel_gate_collab : public  excel_gate_collab()
        rule : super();
    executeBusinessRules : public boolean executeBusinessRules() throws Exception
        retBoolean : boolean retBoolean = true;
        set Visible property of _Application object : getexcel().get_Application().setVisible(true);
        set 'Workbooks' handle : getexcel().getWorkbooks().setstcdisphandler(getexcel().get_Application().getWorkbooks());
        set Filename argument for 'Open' : getexcel().getWorkbooks().getOpen().setFilename("c:\\temp\\test.xls");
        set UpdateLinks for 'Open' : getexcel().getWorkbooks().getOpen().getUpdateLinks().seterror(-2147352572);
        set ReadOnly for 'Open' : getexcel().getWorkbooks().getOpen().getReadOnly().seterror(-2147352572);
        set Format for 'Open' : getexcel().getWorkbooks().getOpen().getFormat().seterror(-2147352572);
        set Password for 'Open' : getexcel().getWorkbooks().getOpen().getPassword().seterror(-2147352572);
        set WriteResPassword for 'Open' : getexcel().getWorkbooks().getOpen().getWriteResPassword().seterror(-2147352572);
        set IgnoreReadOnlyRecommended for 'Open' : getexcel().getWorkbooks().getOpen().getIgnoreReadOnlyRecommended().seterror(-2147352572);
        set Origin for 'Open' : getexcel().getWorkbooks().getOpen().getOrigin().seterror(-2147352572);
        set Delimiter for 'Open' : getexcel().getWorkbooks().getOpen().getDelimiter().seterror(-2147352572);
        set Editable for 'Open' : getexcel().getWorkbooks().getOpen().getEditable().seterror(-2147352572);
        set Notify for 'Open' : getexcel().getWorkbooks().getOpen().getNotify().seterror(-2147352572);
        set Converter for 'Open' : getexcel().getWorkbooks().getOpen().getConverter().seterror(-2147352572);
        set AddToMru for 'Open' : getexcel().getWorkbooks().getOpen().getAddToMru().seterror(-2147352572);
        invoke 'Open' to get _Workbook : getexcel().getWorkbooks().getOpen().invoke();
        set _Workbook handle : getexcel().get_Workbook().setstcdisphandler(getexcel().getWorkbooks().getOpen().getretval());
        set Worksheets handle : getexcel().getSheets().setstcdisphandler(getexcel().get_Workbook().getWorksheets());
        set variant parameter of property 'Item' to 1 : getexcel().getSheets().getpropget_Item().getIndex().setint(1);
        invoke PROPERTYGET of 'Item' : getexcel().getSheets().getpropget_Item().invoke();
        set _Worksheet handle : getexcel().get_Worksheet().setstcdisphandler(getexcel().getSheets().getpropget_Item().getretval());
        set 'Cell1' of Range : getexcel().get_Worksheet().getpropget_Range().getCell1().setstring("A1");
        set 'Cell2' of Range : getexcel().get_Worksheet().getpropget_Range().getCell2().setstring("A1");
        invoke 'Range' : getexcel().get_Worksheet().getpropget_Range().invoke();
        set Range handle : getexcel().getRange().setstcdisphandler(getexcel().get_Worksheet().getpropget_Range().getretval());
        output value from cell A1 : System.err.println("Cell(A1): " + ((COMETDVariant)getexcel().getRange().getValue()).getValue());
        Variant : com.stc.eways.com.COMETDVariant variant = new COMETDVariant("test value");
        change Cell 'A1' : getexcel().getRange().setValue(variant);
        return : return retBoolean;
    userInitialize : public void userInitialize()
    userTerminate : public void userTerminate()
```

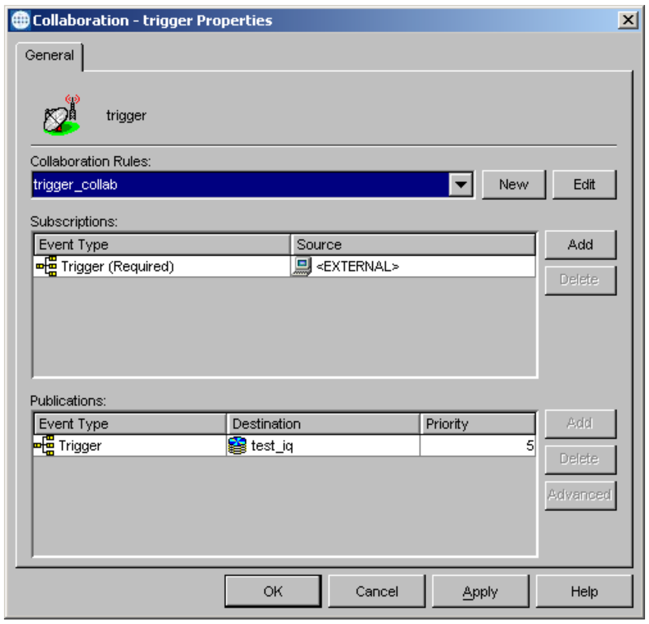
5.10 Creating Collaborations

Collaborations are the components that receive and process Event Types, and then forward the output to other e*Gate components or an external. Collaborations consist of the Subscriber, which "listens" for Events of a known type (sometimes from a given source), and the Publisher, which distributes the transformed Event to a specified recipient.

To Create the trigger e*Way Collaboration

1. In the e*Gate Enterprise Manager, select the Navigator's **Components** tab.
2. Open the host on which you want to create the Collaboration.
3. Select a **Control Broker.**
4. Select the **trigger** e*Way to assign the Collaboration.
5. On the palette, click the **Create a New Collaboration** button.
6. Enter the name of the new Collaboration (for the sample, "**trigger**"), then click **OK.**
7. Double-click the new Collaboration to edit its properties. The Collaboration - trigger Properties dialog box appears (see Figure 13).

Figure 13 Collaboration Properties - trigger



Collaboration Rules: trigger_collab

Subscriptions:

Event Type	Source
Trigger (Required)	<EXTERNAL>

Publications:

Event Type	Destination	Priority
Trigger	test_iq	5

8. From the Collaboration Rules list, select the Collaboration Rules file that you created previously (for the sample, "**trigger_collab**").
9. In the **Subscriptions** area, click **Add** to define the input Event Types to which this Collaboration subscribes.
   A. From the **Event Type** list, select the **Event Type** that you previously defined "**Trigger**".
   B. Select the **Source** from the **Source** list. In this case, it should be **<External>**.
10. In the **Publications** area, click **Add** to define the output **Event Types** that this Collaboration publishes.

A From the **Event Type** list, select the **Event Type** that you previously defined "**Trigger**."

B Select the publication destination from the **Destination** list. In this case, it should be "**test_iq**".

C The Priority field defaults to **5**.

11 Click **OK** to close.

To Create the COM_Multi_Mode Collaboration

1 In the e*Gate Enterprise Manager, select the Navigators **Components** tab.

2 Open the host on which you want to create the Collaboration.

3 Select a **Control Broker.**

4 Select the e*Way to assign the Collaboration (for this case, "**excel_gate**").

5 On the palette, click the **Create a New Collaboration** button.

6 Enter the name of the new Collaboration, then click **OK.** (For the sample, "**excel_gate**")

7 Double-click the new Collaboration to edit its properties.

8 From the Collaboration Rules list, select the Collaboration Rules file that you created previously (for the sample, "**excel_gate_collab**").

9 In the **Subscriptions** area, click **Add** to define the input Event Types to which this Collaboration subscribes (see Figure 13).

A From the **Instance Name** list, select the Instance Name that you previously defined "**trigger**".

B From the **Event Type** list, select the **Event Type** that you previously defined "**Trigger**".

C Select the **Source** from the **Source** list (in this case, it should be "**trigger"**).

10 In the **Publications** area, click **Add** to define the output **Event Types** that this Collaboration publishes (see Figure 13).

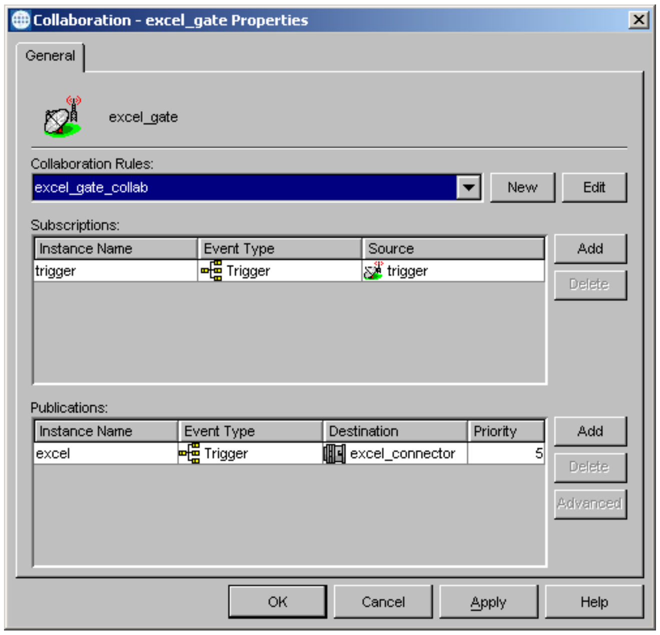
A From the **Instance Name** list, select the **Instance Name** that you previously defined "**excel**".

B From the **Event Types** list, select the **Event Type** that you previously defined "**Trigger**".

C Select the publication destination from the **Destination** list (in this case, "**excel_connector**").

D The Priority field defaults to **5**.

Figure 14 Collaboration Properties



excel_gate

Collaboration Rules: excel_gate_collab

Subscriptions:

Instance Name	Event Type	Source
trigger	Trigger	trigger

Publications:

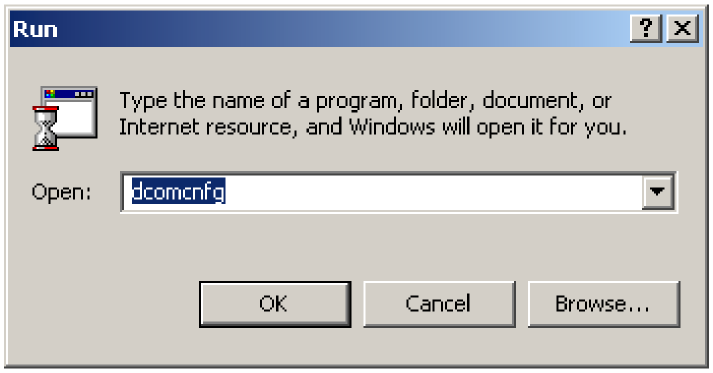
Instance Name	Event Type	Destination	Priority
excel	Trigger	excel_connector	5

11 Click **OK** to close.

5.11 Configuring the DCOM Server

1 To configure the DCOM Server, select the Windows **Run** option. When the Run dialog box opens, type **dcomcnfg** in the **Open** field, and click **OK** (see Figure 15).

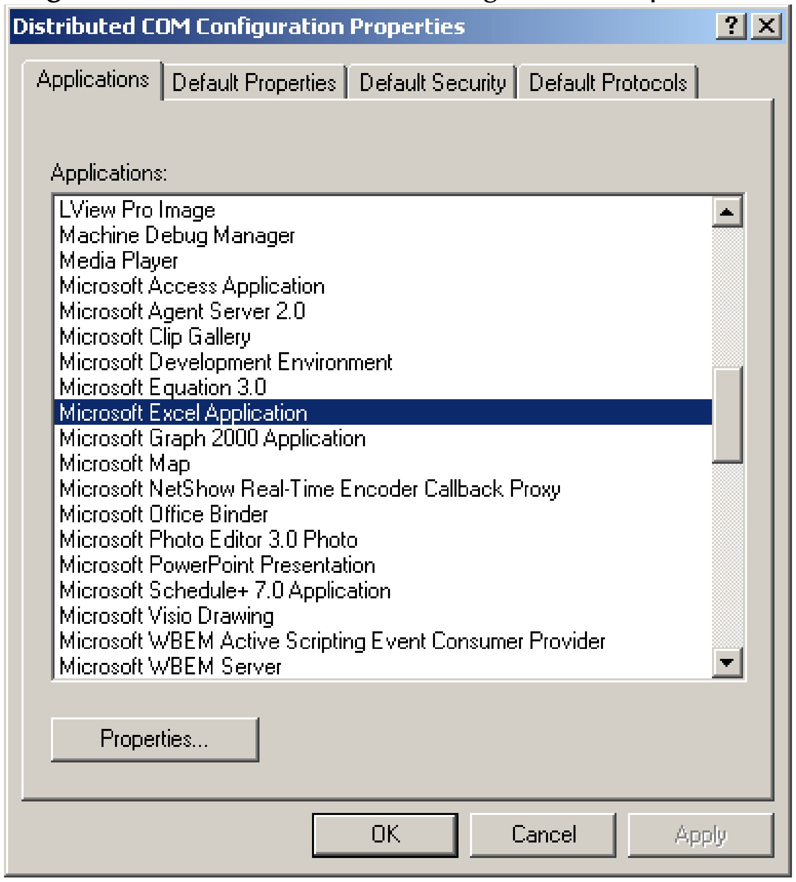
Figure 15 Run Dialog


Run
Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
OK
Cancel
Browse...

Open: dcomcnfg

2 The Distributed COM Configuration Properties lists the registered applications. Select the **Microsoft Excel** application (see Figure 16). Click **Properties**.

Figure 16 Distributed COM Configuration Properties

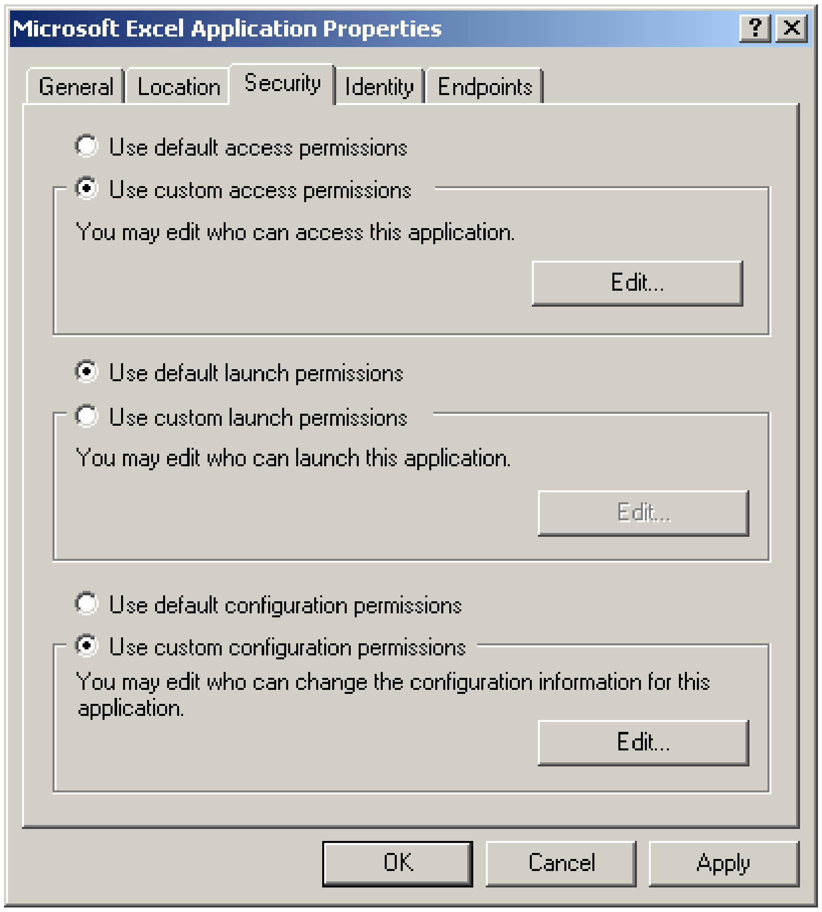


Applications:

LView Pro Image
Machine Debug Manager
Media Player
Microsoft Access Application
Microsoft Agent Server 2.0
Microsoft Clip Gallery
Microsoft Development Environment
Microsoft Equation 3.0
Microsoft Excel Application
Microsoft Graph 2000 Application
Microsoft Map
Microsoft NetShow Real-Time Encoder Callback Proxy
Microsoft Office Binder
Microsoft Photo Editor 3.0 Photo
Microsoft PowerPoint Presentation
Microsoft Schedule+ 7.0 Application
Microsoft Visio Drawing
Microsoft WBEM Active Scripting Event Consumer Provider
Microsoft WBEM Server

3 The Microsoft Excel Application Properties dialog box appears. Select the **Security** tab (see Figure 17).

Figure 17 Application Properties - Security Tab



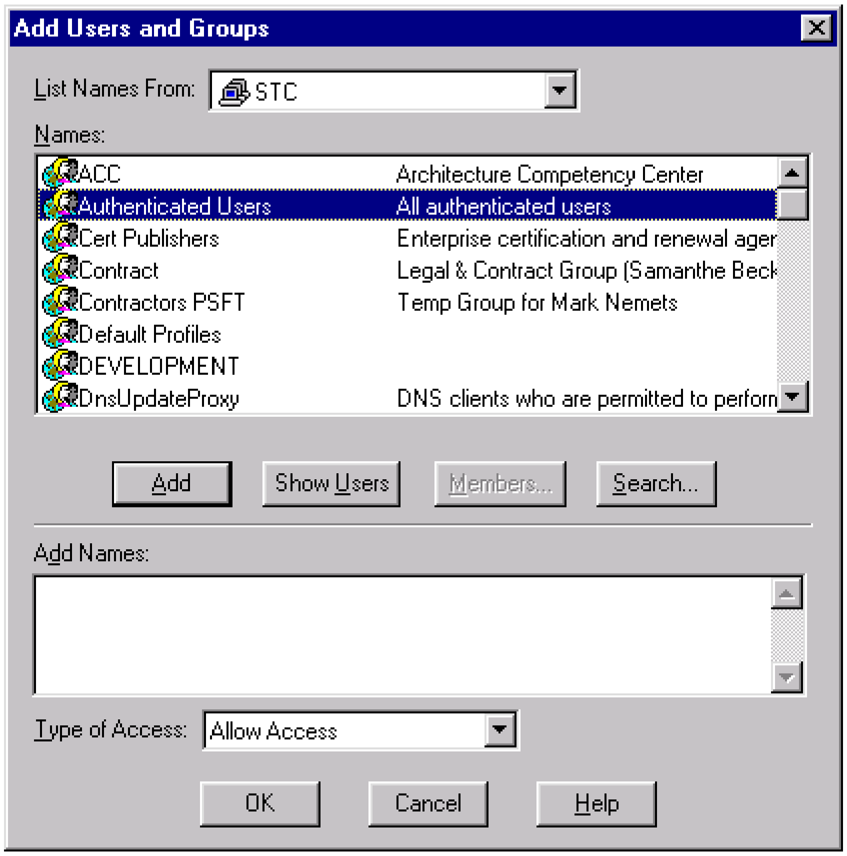
( ) Use default access permissions
(●) Use custom access permissions
You may edit who can access this application.

(●) Use default launch permissions
( ) Use custom launch permissions
You may edit who can launch this application.

( ) Use default configuration permissions
(●) Use custom configuration permissions
You may edit who can change the configuration information for this application.

4 Select the **Use custom access permission** option button and click **Edit**. The Add Users and Groups dialog box appears (see Figure 18).

Figure 18 Add Users and Groups - Access



ACC	Architecture Competency Center
Authenticated Users	All authenticated users
Cert Publishers	Enterprise certification and renewal ager
Contract	Legal & Contract Group (Samanthe Beck
Contractors PSFT	Temp Group for Mark Nemets
Default Profiles	
DEVELOPMENT	
DnsUpdateProxy	DNS clients who are permitted to perforn

5 Select the appropriate users to whom access is granted (for example, **Authenticated Users**), and click **Add**.

6 In the **Type of Access** field, select **Allow Access**, and click **OK**.

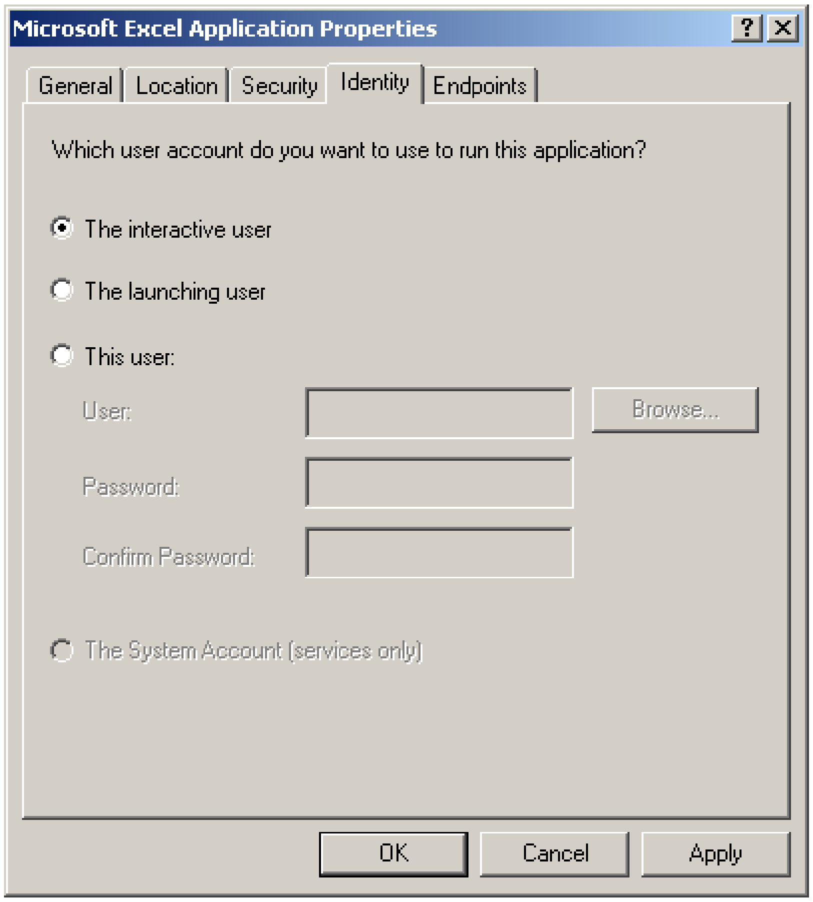
7 In the Application Properties window (see Figure 17), select the **Use custom launch permission** option button and click **Edit**.

8 Select the appropriate users to whom launch permission is granted (for example, **Authenticated Users**), and click **Add**.

9 In the **Type of Access** field, select **Allow Launch**, and click **OK**.

10 In the Application Properties window (see Figure 17), select the **Identity** tab (see Figure 19).

Figure 19 Application Properties - Identity Tab



Which user account do you want to use to run this application?

[✓ The interactive user]

The launching user

This user:

User:

Password:

Confirm Password:

The System Account (services only)

11 Select **The interactive user** as the user account to use to run the application.

12 Click **OK**. The DCOM server is now configured for the sample schema.

5.12 Sample Schema

A sample of the COM/DCOM e*Way is included on the Installation CD. The sample demonstrates e*Gate's interaction with a COM/DCOM enabled application. The previous sections provided the basics for implementing the COM/DCOM e*Way. This section describes how to implement the COM/DCOM e*Way within a sample schema.

This implementation consists of one file-based e*Way, one Multi-Mode e*Way, two Event Types, two Collaboration Rules, one Intelligent Queues and two Collaborations, as follows:

- **trigger –** This e*Way receives input from an external source, applies pass through Collaboration Rules, and publish the information to an Intelligent Queue.
- **excel_gate** – This Multi-Mode e*Way applies extended Java Collaboration Rules to an inbound Event to perform the desired business logic.
- **Excel** – This Event Type contains the methods and properties to be used to perform the necessary transformation.
- **Trigger** – This Event Type describes an Event that is input to the extended Java Collaboration Service.
- **trigger_collab** – This Collaboration Rule is associated with the **trigger** e*Way, and is used for receiving the input Event.
- **excel_gate_collab** – The Collaboration Rule is associated with the **excel_gate** Multi-Mode e*Way, and is used to perform the transformation process.
- **test_iq** – This Intelligent Queue is a STC_Standard IQ, and forwards data to the *ewMultiSME* Multi-Mode e*Way.

5.12.1. Completing the Configuration of the COMtest Schema

The sample schema is nearly ready to use as it is presently configured. Check the e*Way Connection settings to make sure that they are appropriate for your specific system. Also do the following:

1. In the **Multi-Mode e*Way configuration**, **mscom config**, enter the ProgID for the host (see "ProgID" on page 18). For DCOM the Host name also needs to be entered (see "Hostname" on page 19).
2. Create two folders on the C: drive named DATA and INDATA.

5.12.2. Executing the Schema

To execute the COM/DCOM sample schema

1. Go to the command line prompt, and enter the following:

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

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

2. Start the e*Gate Monitor. Specify the server that contains the Control Broker you started in Step 1 above.
3. Select the COM/DCOM sample schema.
4. Verify that the Control Broker is connected. To do this, select and right-click the Control Broker in the e*Gate Monitor, and select **Status**. (The message in the Control tab of the console will indicate command *succeeded* and status as *up*.)
5. Select the IQ Manager, ***hostname***_igmgr, then right-click and select **Start**. (This will already be started if **Start automatically** is selected in the IQ Manager properties.)
6. Select each of the e*Ways, right-click select **Start**. (These will already be started if **Start automatically** is selected in the e*Way's properties.)
7. To view the output, copy the output file (specified in the Outbound e*Way configuration file). Save to a convenient location, open.

Note: *Opening the destination file while the schema is running will cause errors.*

5.13 COM/DCOM Run-Time Exceptions

The e*Way Intelligent Adapter for COM/DCOM can be conceptually divided into two layers. The low-level JNI code that wraps the COM IDispatch interface and the higher-level ETD code that is generated by the builder.

At the lower level, all methods accessed via the IDispatch interface return an HRESULT error code. In C Programming Language, this type is a long. In Java, it is an integer. In general, a value of zero indicates success, greater than zero indicates a warning, and less than zero indicates an error.

The low level JNI code has always returned this HRESULT to the builder-generated code. However, the builder-generated ETD code does nothing with the HRESULT. It was possible, then, that the Collaboration could fail to create an instance of the component or a method on the component could fail, and the error may never be caught.

To provide the user with more control over this type of situation, an exception type, STCComException, has been added to the low level JNI code. This exception class is derived from the **java.lang.RuntimeException**. If a method fails on the component (or if the creation of the component fails) an exception of this type is thrown. The exception is passed up through the builder generated ETD code (because the ETD code does not catch it), up to the Collaboration code where the user can catch the exception if desired. Access to the underlying HRESULT is provided. The **getMessage** method has been overridden and provides a brief contextual string indicating the operation that failed.

For more information on the methods of the STCComException Class see **The STCComException Class** on page 77.

Chapter 6

Java Methods

A number of Java methods have been added to make it easier to set information in the e*Way ETD Editor and to get information from it. These methods are contained in classes:

- **The COMETDVariant Class** on page 51
- **The COMETDWrapper Class** on page 61
- **The STCComException Class** on page 77

6.1 The COMETDVariant Class

```
interface com.stc.eways.com.COMETDVariant
```

public class **COMETDVariant**

```
Java.lang.Object
    |
    + -- com.stc.eways.com.COMETDVariant
```

The COMETDVariant Class allows passing variant information in the Collaboration via an opaque object wrapper. It is similar to the COM Variant and includes methods for getting and setting the "contained" data. The COMETDVariant Class extends java.lang.Object.

Methods of the COMETDVariant Class

These methods are described in detail on the following pages:

COMETDVariant on page 52
getType on page 53
getValue on page 53
setbool on page 54
getbool on page 54
setshort on page 54
getshort on page 55
setbyte on page 55
seterror on page 57
geterror on page 57
setstring on page 58
getstring on page 58
setfloat on page 58
getfloat on page 59
setdouble on page 59
getdouble on page 60

getbyte on page 56

setint on page 56

getint on page 56

getarray on page 60

setarray on page 60

COMETDVariant

Description

Constructor. Constructs the COMETDVariant.

Syntax

```
public COMETDVariant()
public COMETDVariant(java.lang.Object obj)
public COMETDVariant(boolean b)
public COMETDVariant(java.lang.String s)
public COMETDVariant(int i)
public COMETDVariant(byte b)
public COMETDVariant(short s)
public COMETDVariant(float f)
public COMETDVariant(double d)
```

Parameters

Name	Type	Description
obj	java.lang.Object	An object of Boolean, integer, short, byte, double, or string.
b	Boolean	Java Boolean type value.
s	java.lang.String	Java string type value.
i	int	Java integer type value.
b	byte	Java byte type value.
s	short	Java short type value.
f	float	Java float type value.
d	double	Java double type value.

Return Values

None.

Throws

None.

getType

Description

Returns the type of the variant as an integer.

Syntax

```
public int getType()
```

Parameters

None.

Return Values

int

Returns the type of the variant as follows:

0: COMETD_EVARIENT_UNKNOWN
1: ISBOOLVALUE
2: ISSHORTVALUE
3: ISINTVALUE
4: ISSTRINGVALUE
5: ISFLOATVALUE
6: ISDOUBLEVALUE
7: ISVARIANTVALUE
8: ISERRORVALUE
9: ISBYTEVALUE

Throws

None.

getValue

Description

Returns a **java.lang.Object** as the value of the variant.

Syntax

```
public java.lang.Object getValue()
```

Parameters

None.

Return Values

java.lang.Object

Throws

None.

setbool

Description

Sets the variant's value to the passed Boolean value and sets the type to Boolean.

Syntax

```
public void **setbool**(boolean b)
```

Parameters

Name	Type	Description
b	Boolean	Java Boolean value.

Return Values

None.

Throws

None.

getbool

Description

Returns the Boolean value of the variant.

Syntax

```
public boolean getbool()
```

Parameters

None.

Return Values

Boolean

Throws

None.

setshort

Description

Sets the variant's value to the passed short and sets the type to short.

Syntax

```
public void setshort(short s)
```

Parameters

Name	Type	Description
s	short	Java short value.

Return Values

None.

Throws

None.

getshort

Description

Returns the short value of the variant.

Syntax

```
public short getshort()
```

Parameters

None.

Return Values

short

Throws

None.

setbyte

Description

Sets the variant's value to the passed byte and sets the type to byte.

Syntax

```
public void setbyte(byte b)
```

Parameters

Name	Type	Description
b	byte	Java byte value.

Return Values

None.

Throws

None.

getbyte

Description

Returns the byte value of the variant.

Syntax

```
public byte getbyte()
```

Parameters

None.

Return Values

byte

Throws

None.

setint

Description

Sets the variant's value to the passed integer and sets the type to int.

Syntax

```
public void setint(int i)
```

Parameters

Name	Type	Description
i	int	Java integer value.

Return Values

None.

Throws

None.

getint

Description

Returns the integer value of the variant.

Syntax

```
public int getint()
```

Parameters

None.

Return Values

int

Throws

None.

seterror

Description

Sets the variant's value to the passed error value and sets the type to integer.

Syntax

```
public void seterror(int i)
```

Parameters

Name	Type	Description
i	int	Java (error) integer value.

Return Values

None.

Throws

None.

geterror

Description

Returns the error integer value of the variant.

Syntax

```
public int geterror()
```

Parameters

None.

Return Values

int

Throws

None.

setstring

Description

Sets the variant’s value to the passed string and sets the type to java.lang.String.

Syntax

```
public void setstring(java.lang.String s)
```

Parameters

Name	Type	Description
s	java.lang.String	java.land.String value.

Return Values

None.

Throws

None.

getstring

Description

Returns the string value of the variant.

Syntax

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

Parameters

None.

Return Values

java.lang.String

Throws

None.

setfloat

Description

Sets the variant’s value to the passed float value and sets the type to float.

Syntax

```
public void setfloat(float f)
```

Parameters

Name	Type	Description
f	float	Java float value.

Return Values

None.

Throws

None.

getfloat

Description

Returns the float value of the variant.

Syntax

```
public float getfloat()
```

Parameters

None.

Return Values

float

Throws

None.

setdouble

Description

Sets the variant's value to the passed double value and sets the type to double.

Syntax

```
public void setdouble(double d)
```

Parameters

Name	Type	Description
d	double	Java double value.

Return Values

None.

Throws

None.

getdouble

Description

Returns the double value of the variant.

Syntax

```
public double getdouble()
```

Parameters

None.

Return Values

double

Throws

None.

getarray

Description

Returs the specified item on the array.

Syntax

```
public COMETDVariant getarray(int index)
```

Parameters

Name	Type	Description
index	int	Java int value.

Return Values

COMETDVariant

Throws

None.

setarray

Description

Set the specified item on the array to passed byte, Boolean, short, int, java.lang.String, float, or double value.

Syntax

```
public void setarray(int index, byte b)
```

```
public void setarray(int index, boolean b)
public void setarray(int index, short s)

public void setarray(int index, int i)

public void setarray(int index, java.lang.String s)

public void setarray(int index, float f)

public void setarray(int index, double d)
```

Parameters

Name	Type	Description
index	int	Java integer value.
b	byte	Java byte value.
b	Boolean	Java Boolean value.
s	short	Java short value.
i	int	Java integer value.
s	java.lang.String	Java string value.
f	float	Java float value.
d	double	Java double value.

Return Values

None.

Throws

None.

6.2 The COMETDWrapper Class

```
class com.stc.eways.com.COMETDWrapper
```

public class **COMETDWrapper**

```
Java.lang.Object
      |
      + -- com.stc.eways.com.COMETDWrapper
```

The COMETDWrapper Class extends java.lang.Object

Methods of the COMETDWrapper Class

These methods are described in detail on the following pages:

- **COMETDWrapper** on page 62
- **COMETDWrapper_Init** on page 62
- **setParam** on page 63
- **getFloatArray** on page 72
- **getFloat2DArray** on page 73
- **getDoubleArray** on page 73

COMETDWrapper

Description

Constructor. Constructs the COMETDWrapper.

Syntax

```
public COMETDWrapper()
```

Parameters

None.

Return Values

None.

Throws

None.

COMETDWrapper_Init

Description

Initializes the COMETD_Wrapper instance, sets the default STCDispatchDriver instance, sets the invoke type, sets the parameter matrix and sets the method name.

Syntax

```
public void COMETDWrapper_Init(com.stc.eways.com.STCDispatchDriver
                               driver, int invoke_type,
                               java.lang.String func_name,
                               java.util.ArrayList param_name,
                               java.util.ArrayList param_type
                               java.util.ArrayList param_direction,
                               java.lang.String ret_type)
```

Parameters

Name	Type	Description
driver	com.stc.eways.com.STCDispatchDriver	An instance of STCDispatchDriver object.

Name	Type	Description
invoke_type	int	int
func_name	java.lang.String	String function name.
param_name	java.util.ArrayList	An array of strings for parameter names.
param_type	java.util.ArrayList	An array of strings for parameter type.
param_direction	java.util.ArrayList	An array of strings for parameter direction.
ret_type	java.lang.String	String value for the returned value type.

Return Values

None.

Throws

None.

setParam

Description

Sets the parameter's values.

Syntax

```
public void setParam(java.lang.String name,
                     com.stc.eways.com.COMETDVariant value)

public void setParam(java.lang.String name, int value)

public void setParam(java.lang.String name, int index, int value)

public void setParam(java.lang.String name, int[] value)

public void setParam(java.lang.String name, int[][] value)

public void setParam(java.lang.String name, java.lang.String value)

public void setParam(java.lang.String name, int index,
                     java.lang.String value)

public void setParam(java.lang.String name,java.lang.String[] value)

public void setParam(java.lang.String name, java.lang.String[][]
                     value)

public void setParam(java.lang.String name, boolean value)

public void setParam(java.lang.String name, int index, boolean value)

public void setParam(java.lang.String name, boolean[] value)

public void setParam(java.lang.String name, boolean[][] value)
public void setParam(java.lang.String name, byte value)

public void setParam(java.lang.String name, int index, byte value)

public void setParam(java.lang.String name, byte[] value)

public void setParam(java.lang.String name, byte[][] value)

public void setParam(java.lang.String name, short value)

public void setParam(java.lang.String name, int index, short value)

public void setParam(java.lang.String name, short[] value)

public void setParam(java.lang.String name, short[][] value)

public void setParam(java.lang.String name, float value)

public void setParam(java.lang.String name, int index, float value)

public void setParam(java.lang.String name, float[] value)

public void setParam(java.lang.String name, float[][] value)

public void setParam(java.lang.String name, double value)

public void setParam(java.lang.String name, int index, double value)

public void setParam(java.lang.String name, double[] value)

public void setParam(java.lang.String name, double[][] value)

public void setParam(java.lang.String name, java.lang.Object value)

public void setParam(java.lang.String name, int index,
                     java.lang.Object value)
```

Parameters

Name	Type	Description
name	java.lang.String	String name.
value	com.stc.eways.com.COMETDVariant	An instance of the COMETDVariant object.

Name	Type	Description
name	java.lang.String	String name.
value	int	Java int value

Name	Type	Description
name	java.lang.String	String name.
index	int	Int
value	int	Java int value

Name	Type	Description
name	java.lang.String	String name.
value	int[]	One-dimensional array of the integer.

Name	Type	Description
name	java.lang.String	String name.
value	int[][]	Two-dimensional array of the integer.

Name	Type	Description
name	java.lang.String	String name.
value	java.lang.String	Java java.lang.String value.

Name	Type	Description
name	java.lang.String	String name.
index	int	Int
value	java.lang.String	Java java.lang.String value.

Name	Type	Description
name	java.lang.String	String name.
value	java.lang.String[]	One-dimensional array of the java.lang.String.

Name	Type	Description
name	java.lang.String	String name.
value	java.lang.String[][]	Two-dimensional array of the java.lang.String.

Name	Type	Description
name	java.lang.String	String name.
value	Boolean	Java Boolean value.

Name	Type	Description
name	java.lang.String	String name.
index	int	Int

Name	Type	Description
value	Boolean	Java Boolean value.

Name	Type	Description
name	java.lang.String	String name.
value	Boolean[]	One-dimensional array of the Boolean.

Name	Type	Description
name	java.lang.String	String name.
value	Boolean[][]	Two-dimensional array of the Boolean.

Name	Type	Description
name	java.lang.String	String name.
value	byte	Java byte value.

Name	Type	Description
name	java.lang.String	String name.
value	int	Java int value
value	byte	Java byte value.

Name	Type	Description
name	java.lang.String	String name.
value	byte[]	One-dimensional array of the byte.

Name	Type	Description
name	java.lang.String	String name.
value	byte[][]	Two-dimensional array of the byte.

Name	Type	Description
name	java.lang.String	String name.
value	short	Java short value.

Name	Type	Description
name	java.lang.String	String name.
value	int	Java int value
value	short	Java short value.

Name	Type	Description
name	java.lang.String	String name.
value	short[]	One-dimensional array of the short.

Name	Type	Description
name	java.lang.String	String name.
value	short[][]	Two-dimensional array of the short.

Name	Type	Description
name	java.lang.String	String name.
value	float	Java float value.

Name	Type	Description
name	java.lang.String	String name.
value	int	Java int value
value	float	Java float value.

Name	Type	Description
name	java.lang.String	String name.
value	float[]	One-dimensional array of the float.

Name	Type	Description
name	java.lang.String	String name.
value	float[][]	Two-dimensional array of the float.

Name	Type	Description
name	java.lang.String	String name.
value	double	Java double value.

Name	Type	Description
name	java.lang.String	String name.
value	int	Java int value
value	double	Java double value.

Name	Type	Description
name	java.lang.String	String name.
value	double[]	One-dimensional array of the double.

Name	Type	Description
name	java.lang.String	String name.
value	double[][]	Two-dimensional array of the double.

Name	Type	Description
name	java.lang.String	String name.
value	java.lang.Object	java.lang.object value.

Name	Type	Description
name	java.lang.String	String name
index	int	Int
value	java.lang.Object	java.lang.object value.

Return Values

None.

Throws

None.

getByteArray

Description

If the passed object is of the ArrayList type, the method converts the array to a byte array. It returns a byte if an index is specified.

Syntax

```
public byte[] getByteArray(java.lang.Object obj)
public byte getByteArray(int index, java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.
index	int	Java integer value.

Return Values

byte[]
byte

Throws

None.

getByte2DArray

Description

If the object contains a two-dimensional ArrayList the method converts the array to a byte[ ][ ].

Syntax

```
public byte[][] getByte2DArray(java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.

Return Values

byte[ ][ ]

Throws

None.

getBooleanArray

Description

If the passed object is of the ArrayList type, the method converts the array to a Boolean array. It returns a Boolean if an index is specified.

Syntax

```
public boolean[] getBooleanArray(java.lang.Object obj)

public boolean getBooleanArray(int index, java.lang.Object obj)
```

Parameters

Name	Type	Description
index	int	Java integer value.
obj	java.lang.Object	java.lang.Object value.

Return Values

Boolean

Throws

None.

getBoolean2DArray

Description

If the object contains a two-dimensional ArrayList the method converts the array to a byte[ ][ ].

Syntax

```
public boolean[][] getBoolean2DArray(java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.util.Object	java.lang.Object value.

Return Values

Boolean[ ][ ]

Throws

None.

getShortArray

Description

If the passed object is of the ArrayList type, the method converts the array to a short array. It returns short if an index is specified.

Syntax

```
public short[] getShortArray(java.lang.Object obj)

public short getShortArray(int index, java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.

Name	Type	Description
index	int	Java integer value.

Return Values

short

Throws

None.

getShort2DArray

Description

If the object contains a two-dimensional ArrayList the method converts the array to a short[ ][ ].

Syntax

```
public short[][] getShort2DArray(java.lang.Object obj)
```

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.

Return Values

short[][]

Throws

None.

getIntArray

Description

If the passed object is of the ArrayList type, the method converts the array to an int array. It returns an int if an index is specified.

Syntax

```
public int[] getIntArray(java.lang.Object obj)

public int getIntArray(int index, java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.
index	int	Java integer value.

Return Values

int[]
int
Returns an integer for the array if an index is specified.

Throws

None.

getInt2DArray

Description

If the object contains a two-dimensional ArrayList the method converts the array to an int[ ][ ].

Syntax

```
public int[][] getInt2DArray(java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.

Return Values

int[][]

Throws

None.

getFloatArray

Description

If the passed object is of the ArrayList type, the method converts the array to a float array. It returns a float if an index is specified.

Syntax

```
public float[] getFloatArray(java.lang.Object obj)
```

```
public float getFloatArray(int index, java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.
index	int	Java integer value.

Return Values

float[]
float

Throws

None.

getFloat2DArray

Description

If the object contains a two-dimensional ArrayList the method converts the array to a float[ ][ ].

Syntax

```
public float[][] getFloat2DArray(java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.

Return Values

float[][]

Throws

None.

getDoubleArray

Description

If the passed object is of the ArrayList type, the method converts the array to a double array. It returns a double if an index is specified.

Syntax

```
public double[] getDoubleArray(java.lang.Object obj)
```

```
public double getDoubleArray(int index, java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.
index	int	Java integer value.

Return Values

double[]
double

Throws

None.

getDouble2DArray

Description

If the object contains a two-dimensional ArrayList the method converts the array to a double[ ][ ].

Syntax

```
public double[][] getDouble2DArray(java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.

Return Values

double[][]

Throws

None.

getStringArray

Description

If the passed object is of the ArrayList type, the method converts the array to a string array. It returns a string if an index is specified.

Syntax

```
public java.lang.String[] getStringArray(java.lang.Object obj)

public java.lang.String getStringArray(int index,
                                       java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.
index	int	Java integer value.

Return Values

java.lang.String[]

Throws

None.

getString2DArray

Description

If the object contains a two-dimensional ArrayList the method converts the array to a java.lang.String[ ][ ].

Syntax

```
public java.lang.String[][] getString2DArray(java.lang.Object obj)
```

Parameters

Name	Type	Description
obj	java.lang.Object	java.lang.Object value.

Return Values

java.lang.String[][]

Throws

None.

getVariantParam

Description

When given the field name the method returns a COMETDVariant object.

Syntax

```
public java.lang.Object getParam(java.lang.String name)
```

Parameters

Name	Type	Description
name	java.lang.String	java.lang.String value.

Return Values

java.lang.Object
Represents COMETDVariant.

Throws

None.

getRetVal

Description

After invoking the method, this method returns the result of the COM call in the form of a java.lang.Object.

Syntax

```
public java.lang.Object getRetVal()
```

Parameters

None.

Return Values

java.lang.Object
Represents COMETDVariant.

Throws

None.

setdisphandler

Description

Sets the STCDispatchDriver instance.

Syntax

```
public void setdisphandler(java.lang.Object disp)
```

Parameters

Name	Type	Description
disp	java.lang.Object	java.lang.Object value.

Return Values

None.

Throws

None.

invoke

Description

Once the parameters are prepared these two methods invoke the COM call.

Syntax

```
public void invoke()
```

```
public void invoke(java.lang.Object disp)
```

Parameters

Name	Type	Description
disp	java.lang.Object	java.lang.Object value.

Return Values

None.

Throws

None.

6.3 The STCComException Class

```
class com.stc.eways.com.STCComException
```

public class **STCComException**

```
java.lang.Object
   |
   + -- java.lang.Throwable
           |
           + -- java.lang.Exception
                   |
                   + -- java.lang.RuntimeException
                           |
                           + -- com.stc.eways.STCComException
```

The STCComException Class is a part of the low-level JNI layer of the COM/DCOM e*Way. If one of the methods (invoke, getProp, or setProp) fails on the STCDispatchDriver class, an exception of this type is thrown. Exceptions is not caught by the builder-generated code. It is up to the user to catch an exception if desired.

This operation provides a mechanism for the Collaboration code to detect when and why a failure occurs at the lower level. Access to the COM HRESULT is provided, as well as a description of the HRESULT from the operating system if available. The STCComException Class extends **java.lang.RuntimeException**.

Methods of the STCComException Class

These methods are described in detail on the following pages:

- **STCComException** on page 78
- **getMessage** on page 78
- **getErrorCode** on page 79
- **getSystemErrorText** on page 79

Fields of the STCComException Class

Name	Type	Description
m_nHR	protected int m_nHR	The HRESULT passed to the constructor.
m_sOp	protected java.lang.String m_sOp	The context string passed to the c'tor.

STCComException

Description

Constructor. Pass in the HRESULT and a context string. The context string can be null, but must be a string that indicates what is causing the exception to be thrown, for example, invoking foo or getting property bar.

Syntax

```
public STCComException (int hr, java.lang.String sOp)
```

Parameters

Name	Type	Description
hr	int	The COM error code.
sOp	java.lang.String	The content string.

Return Values

None.

Throws

None.

getMessage

Description

Overrides the base method. This method must be called for the e*Way to attempt to get available error text from the OS.

Syntax

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

Parameters

None.

Return Values

`java.lang.String`.
Returns a string formatted like the following: **COM Exception: 0x8004002E - Creating component of progid Some.Class: class not registered**.

Throws

None.

Overrides

getMessage in class java.lang.Throwable

getErrorCode

Description

Provides access to the HRESULT passed to the constructor.

Syntax

```
public int getErrorCode()
```

Parameters

None.

Return Values

int
Returns the error code.

Throws

None.

getSystemErrorText

Description

A convenience method exposed to allow the user to get the error text for an HRESULT.

Syntax

```
public java.lang.String getSystemErrorText(int hr)
```

Parameters

Name	Type	Description
hr	int	HRESULT error code.

Return Values

java.lang.String
Returns the error text.

Throws

None.

Index