TIBCO iProcess® COM Plugin

User Guide

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Contents

Creating Your COM Application

This section describes how to create your COM application. After creating your application, you can call it from your EAI COM step in your iProcess procedure. Before creating your application, you must refer to Understanding the EAI COM Step Process to get an overview of the EAI COM step architecture.

To create a COM application, you can perform one of the following steps:

- base your application on the example COM application supplied - see Using the Example1 COM Application or Using the Example2 COM Application.
- create a new COM application - see Example of Creating a C++ COM Application.

Understanding the EAI COM Step Process

Before creating your COM application, it is useful to understand how iProcess and the COM application communicates with each other.

When you install the iProcess COM Plug-in, the **TIBCO iProcess EAI Bridge** COM application is also installed. This application acts as the interface between a user defined COM application and the TIBCO iProcess Engine.

The user application gets a unique reference from the Bridge application so that an instance of the applications is started. Your COM application can then call the methods on the Bridge application such as **GetField()** and **SetField()**. The Bridge application calls the **Process()** method in your COM application to process the data and update the values on the TIBCO iProcess Engine.

Note: Microsoft Distributed Transaction Coordinator (MSDTC) is not supported on Azure environment. Therefore, EAICOM plug-in does not work in Azure.

Using the Example1 COM Application

> **Note:** If you want to use the VB example COM application on a different machine from the one where the TIBCO iProcess Engine is installed, you must copy the `SWDIR\mscluster\comdll\SWEAICOMBridge.DLL` and the example COM application project files. This is because the example COM application references the `SWEAICOMBridge.DLL` file.

The example COM application (`SWDIR\examples\eaicom\SWEAICOMExample`) sets values for the following iProcess fields that are used in the **comtest1** procedure (`SWDIR\examples\EAICOM\SWEAICOMExample.vc\comtest1.xfr`):

- EAITESTDATA1 = 1
- EAITESTDATA2 = 2
- EAITESTDATA3 = 3

The **comtest** procedure contains a COM EAI step that references the **SWEAICOMExample** application and makes the iProcess fields available to it. The COM application sets values for the fields and passes them back to the TIBCO iProcess Engine. The **Check Run** step enables you to see if the return values have been processed correctly.

The example application is provided in Visual Basic and Visual C++ so you can develop on the platform of your choice.

Editing the Example1 COM Application

You can examine the source code (VB or VC) for the example COM application to see how the application has been designed. You can use this as the basis for your application or you can create your own COM application and then implement the methods from the **IEAIObject** interface. For more information, see Example of Creating a C++ COM Application.

You can use the sample source code to customize the process that the EAI COM step performs. A set of methods are provided so that you can manipulate case data such as getting field values or setting field values.

Using the Example2 COM Application

Note: If you want to use the VB example COM application on a different machine from the one where the TIBCO iProcess Engine is installed, you must copy the `SWDIR\mscluster\comdll\SWEAICOMBridge.DLL` and the example COM application project files including `ScriptEngine.tlb`. This is because the example COM application references the `SWEAICOMBridge.DLL` file.

The example COM application (`SWDIR\examples\EAICOM\SWEAICOMVBExecExample.vc`) sets values for the following iProcess fields that are used in the **comtest2** procedure (`SWDIR\examples\EAICOM\SWEAICOMVBExecExample.vc\comtest2.xfr`):

- USCRIPTNAME

The **comtest2** procedure contains a COM EAI step that references the **SWEAICOMVBExecExample** application and makes the iProcess fields available to it. The COM application sets values for the fields and passes them back to the TIBCO iProcess Engine. You can use the **Check Run** step to see if the return values have been processed correctly.

The example application is provided in Visual Basic and Visual C++ so you can develop on the platform of your choice.

The following features have been introduced in the **SWEAICOMVBExecExample** example:

- script engine executes Visual Basic in EAICOM
- the **getFieldValue** and **setFieldValue** functions help in getting and setting iProcess Fields. These methods can also be used in VBScript.
- dependency on output of the **executeVBScript** method to commit or rollback the transaction
- propagate the error (Error number and Error Description) from the VBScript on to the audit if the **executeVBScript** method fails
- The `ENABLE_EAICOMLOGS` environment variable, if set, generates logs. You can customize logs and modify according to your business needs.

Editing the Example2 COM Application

You can examine the source code (VC) for the example COM application to see how the application has been designed. You can use this as the basis for your application or you can create your own COM application and then implement the methods from the **IEAIObject** interface. For more information, see Example of Creating a C++ COM Application.

You can use the sample source code to customize the process that the EAI COM step performs. A set of methods are provided so that you can manipulate case data such as getting field values or setting field values.

Example of Creating a C++ COM Application

The following examples help to demonstrate how to create a new COM application and how to implement the methods contained in the `SWEAICOMBridge.tlb` file.

1. In MS Visual C++ click **File** > **New**. On the **Projects** tab, select **ATL COM ApWizard**.
2. Enter a project name and location. Click **OK**.
3. Choose the type of server you want to create such as a DLL or EXE and click **Finish**.
4. The **New Project Information** dialog box displays the files that will be created for your project. Click **OK**.

   You can now add your application code and implement the required methods from the `SWEAICOMBridge.tlb` file.
5. To implement the required methods, click **Insert** > **New ATL Object**. Choose the **Simple Object** and click **Next**.
6. Enter a name for the new object and click **OK**. The new object is created in your workspace.
7. Click your new object, right-click and click **Implement Interface**.

   A warning message may appear about not finding any type libraries for this project. Click **OK**.
8. In the **Browse Type Libraries** dialog box, click **Browse** and open the `SWEAICOMBridge.tlb` file.

   The **Implement Interface** dialog box displays two interfaces that are available to use: **IEAIBridge** and **IEAIObject**.

9. Click **IEAIBridge** and click **OK**. The following methods are added to your project:

```
// IEAIBridge
STDMETHOD(Initialise)()
{
return E_NOTIMPL;
}
STDMETHOD(get_ErrorNum)(LONG * __MIDL_0011)
{
if (__MIDL_0011 == NULL)
return E_POINTER;
return E_NOTIMPL;
}
STDMETHOD(SetField)(BSTR * sName, BSTR * sNewValue, VARIANT_BOOL * _
_MIDL_0012)
{
if (sName == NULL)
return E_POINTER;
if (sNewValue == NULL)
return E_POINTER;
if (__MIDL_0012 == NULL)
return E_POINTER;
return E_NOTIMPL;
}
STDMETHOD(GetField)(BSTR * sName, BSTR * __MIDL_0013)
{
if (sName == NULL)
return E_POINTER;
if (__MIDL_0013 == NULL)
return E_POINTER;
return E_NOTIMPL;
}
STDMETHOD(Process)(BSTR * sClassID, BSTR * sServerName, VARIANT_BOOL
* __MIDL_0014)
{
if (sClassID == NULL)
return E_POINTER;
if (sServerName == NULL)
return E_POINTER;
if (__MIDL_0014 == NULL)
return E_POINTER;
return E_NOTIMPL;
}
STDMETHOD(Terminate)()
{
return E_NOTIMPL;
}
STDMETHOD(get_ErrorText)(BSTR * __MIDL_0015)
```

```
{
if (__MIDL_0015 == NULL)
return E_POINTER;
return E_NOTIMPL;
}
```

10. Edit the code to your requirements such as setting values for iProcess fields or implementing the code to read iProcess fields.
11. Compile and save your COM application.
12. Create your EAI COM step using the TIBCO iProcess Modeler and reference your COM application by providing the name of your application in the **ClassID** field. For more information, see Creating an EAI COM Step.

Creating EAI COM Steps

This section describes how to define EAI COM steps in your iProcess procedures. EAI COM steps provide an open interface for you to create custom EAI COM steps that perform the tasks you require in your process.

Before you can define your step, you need to create a COM application that can be called from the EAI COM step. The COM application is the component that performs the task you require from the step such as interfacing with a legacy system to retrieve some account information. For more information, see Creating Your COM Application.

What is the Transaction Scope of EAI COM Steps?

The EAI COM step can only be part of the same transaction that is controlled by the iProcess background process. When you customize the code for the EAI COM step, you must handle the transaction ID if you want to include the steps in a transaction.

When a COM plug-in is called to perform an operation, the background waits for the operation to complete before processing any further work. Therefore, you should consider how long the EAI COM step takes to process its work so that the iProcess background is not paused for too long.

Prerequisites for Using EAI COM Steps

Before using EAI COM steps in your business process, you must ensure to meet the following prerequisites:

- You must install the client and server EAI COM plug-ins. For more information, see the *TIBCO iProcess® Engine Installation Guide*.

Note: If you are only running EAI COM steps on your server, you must only install the server plug-in. The client plug-in is only required if you are defining EAI COM steps.

- You must have the **TIBCO iProcess EAI Bridge** COM component installed. The EAI COM server installation process does this for you. This application is the interface between your custom COM application and the TIBCO iProcess Engine.

Note: You can open the **Component Services** console and look under **Component Services** > **Computers** > **My Computer** > **COM Applications** to see if the EAI Bridge application is installed.

- Create your ATL COM application (in C++ or VB) and implement the methods available in the **IEAIObject** interface. For more information, see Creating Your COM Application.

Creating an EAI COM Step

To create an EAI COM step in your procedure, you must perform the following steps:

1. Define Basic EAI Step Information (name, description, step type, deadline, and audit trail information.)
2. Specify the iProcess Fields Available To the COM Plug-in. You must specify the name of the COM application, the name of the server it resides on, and which fields you want to make available to it.

When you have done this, the EAI step type is defined as an EAI COM step and the icon is displayed as  .

Define Basic EAI Step Information

1. Start the **TIBCO iProcess Modeler**, click the EAI Step tool  and click in the window where you want to place the EAI Step.
2. In the Properties pane, enter the **Name** and **Description** for the step.
3. In the **EAI Step Type** drop-down list, select **EAICOM - Generic COM EAI step plug-in**.

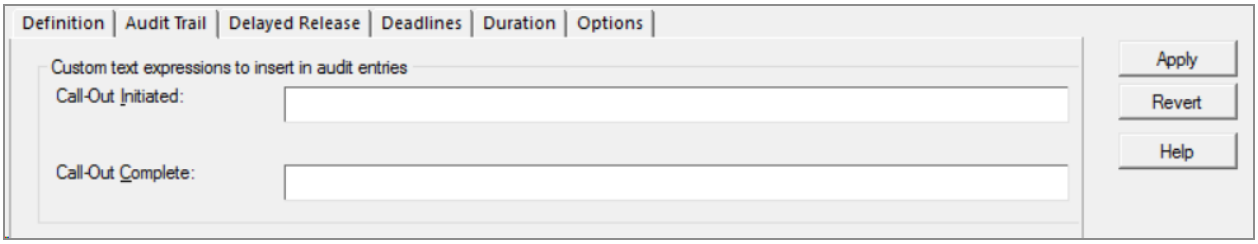
You must enter this when you first create the step; it cannot be changed later. The list box displays EAI step types that have been installed as client EAI plug-ins.

4. Click the **Deadlines** button if you want to enter deadline information for this step. For more information about defining deadlines, see “Using Deadlines” in the *TIBCO iProcess® COM Plugin Basic Design* guide.
5. Click the **Ignore Case Suspend** check box if you want the step to still be processed as normal while a case is suspended by an TIBCO iProcess™ Objects or SAL application.

   If **Ignore Case Suspend** is not checked (the default option), the step is not processed while the case is suspended.

Note: Cases can only be suspended and re-activated from an TIBCO iProcess Objects or SAL application. Audit trail messages indicate whether a case is active or suspended. For more information about suspending cases, see the *TIBCO iProcess Objects documentation*.

6. Click the **Audit Trail** tab to define custom audit trail entry expressions. You can define text expressions that are evaluated when the step is processed and inserted as the %USER value in the audit trail entries.

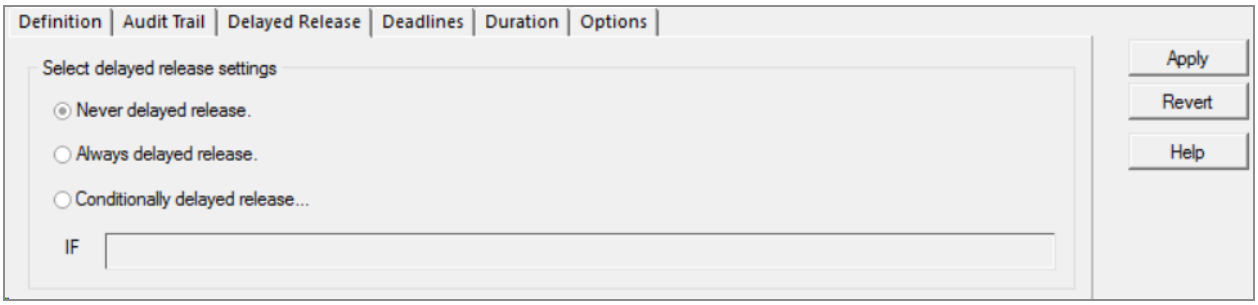


   You must enter a value in both fields or leave them both empty:

   — In the **Call-Out Initiated** field, enter a valid text expression that replaces the %USER value in the audit trail when the call out is initiated.

   — In the **Call-Out Complete** field, enter a valid text expression that replaces the %USER value in the audit trail when the call out is complete.

7. Click the **Delayed Release** tab to define the delayed release setting.



Select one of the following options:

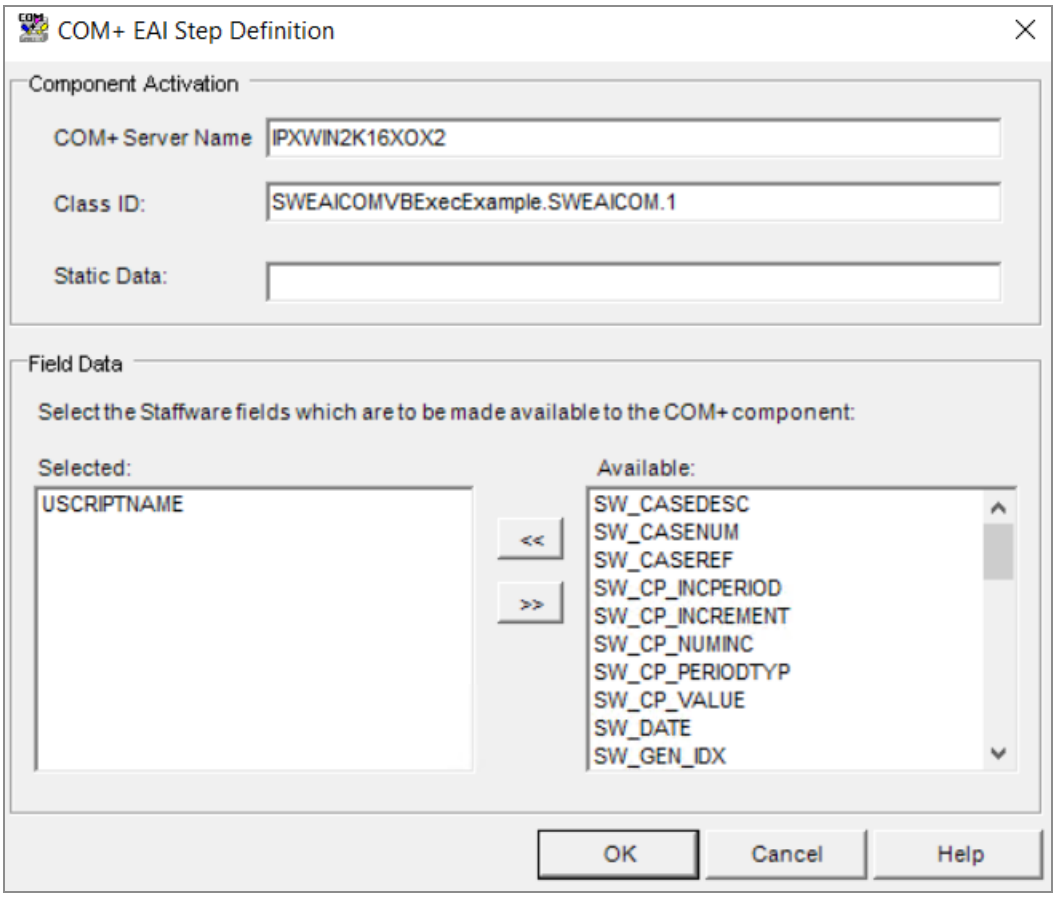
- **Never delayed release** - The step is never set to delayed release so it is released immediately.
- **Always delayed release** - The step is released by the external application.
- **Conditionally delayed release** - The step is delayed release if a specific condition expression evaluates to True. If you select this option, you need to enter a valid condition expression following the IF statement. For example, IF DO_DEL_REL= “Yes”.

Note: The run-time plug-in on the server can override these settings if it returns a status of Delayed Release when the step is processed.

8. Click the **Definition** tab, then click **Edit**. The Specify the iProcess Fields Available To the COM Plug-in Properties pane is displayed.

Specify the iProcess Fields Available To the COM Plug-in

The **COM+** Properties pane enables you to specify the details of your custom COM application and the available parameters for the COM Plug-in that are used when the step is executed.



1. In the **COM+ Server Name** field, enter the name of the server where your COM application resides. If the application is on the same server as your TIBCO iProcess Engine, you can leave this field blank.
2. In the **Class ID** field, enter the identification used for the COM application that has been derived from the TIBCO iProcess Bridge COM component, for example, **SWEAICOMVBExecExample.SWEAICOM.1**.
3. In the **Static Data** field, enter the static data that you want to pass for this step to EAICOM.
4. The **Available** fields list displays the iProcess fields that you can make available to your COM application. Select a field that you want to make available and click **<<** to make it available in the **Selected** list.
5. Click **OK** to complete the COM plug-in definition.

You can move fields from the **Selected** pane to the **Available** pane so that they are not made available to the COM plug-in.

Example 1 Procedure Using an EAI COM Step

When you install the EAI COM server plug-in, the example source code and procedure are installed in the `SWDIR\Examples\EAICOM` folder. The example procedure (`comtest1.xfr`) is included to provide a demonstration of how to create an EAI COM step. This procedure is configured to use the Visual C++ example COM DLL (**SWEAICOMExample.SWEAICOM.1**). If you want to use the VB example, you need to edit the **ClassID** field in the **COM** Properties pane to reference **SWEAICOMExample.SWEAICOM** instead.

The source code to create the example VB or C++ example COM applications are provided in the following folders:

- `SWDIR\examples\EAICOM\SWEAICOMExample.vb`
- `SWDIR\examples\EAICOM\SWEAICOMExample.vc`

For more information about creating a COM application, see Creating Your COM Application.

Example 2 Procedure Using an EAI COM Step

When you install the EAI COM server plug-in, the example source code and procedure are installed in the `SWDIR\Examples\EAICOM` folder. The example procedure (`comtest2.xfr`) is included to provide a demonstration of how to create an EAI COM step. This procedure is configured to use the Visual C++ example COM DLL (**SWEAICOMVBExecExample.SWEAICOM.1**). If you want to use the VB example, you need to edit the **ClassID** field in the **COM** Properties pane to reference **SWEAICOMVBExecExample.SWEAICOM** instead. The `ScriptEngine.tlb` file drives execution of the VB script.

The source code to create the example VB or C++ example COM applications are provided in the following folder:

- `$SWDIR\examples\EAICOM\SWEAICOMVBExecExample.vc`

For more information about creating a COM application, see Creating Your COM Application.

TIBCO Documentation and Support Services

For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website, mainly in HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The following documentation for this product is available on the TIBCO iProcess® Workspace (Windows) Product Documentation page:

- *TIBCO iProcess® Workspace (Windows) Release Notes*

  Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

- *TIBCO iProcess® Workspace (Windows) Installation*

  Read this manual for instructions on site preparation and installation.

- *TIBCO iProcess Suite Documentation Library*

  This library contains all the manuals for TIBCO iProcessWorkspace (Windows), TIBCO iProcess® Modeler, and other TIBCO products in TIBCO iProcess Suite. The manuals for TIBCO iProcess® COM Plugin and TIBCO iProcess® Modeler are the following:

  - *TIBCO iProcess Workspace (Windows) User Guide*
  - *TIBCO iProcess Modeler Getting Started*
  - *TIBCO iProcess Modeler Procedure Management*
  - *TIBCO iProcess Modeler Basic Design*
  - *TIBCO iProcess Modeler Advanced Design*

- *TIBCO iProcess Modeler Integration Techniques*
- *TIBCO iProcess Expressions and Functions Reference Guide*
- *TIBCO iProcess Workspace (Windows) Manager's Guide*
- *TIBCO iProcess COM Plug-in User Guide*
- *TIBCO iProcess Database Plug-in User Guide*
- *TIBCO iProcess Email Plug-in User Guide*
- *TIBCO iProcess Script Plug-in User Guide*
- *TIBCO iProcess Plug-in SDK User Guide*

Other TIBCO Product Documentation

When working with TIBCO iProcess® COM Plugin, you may find it useful to read the documentation of the following TIBCO products:

- TIBCO ActiveMatrix BusinessWorks™
- TIBCO Business Studio™
- TIBCO Enterprise Message Service™
- TIBCO Hawk®
- TIBCO Rendezvous®

How to Contact TIBCO Support

Get an overview of TIBCO Support. You can contact TIBCO Support in the following ways:

- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support website.
- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to TIBCO Support website. If you do not have a user name, you can request one by clicking **Register** on the website.

How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community

offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature requests from within the TIBCO Ideas Portal. For a free registration, go to TIBCO Community.

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