TIBCO Adapter™ for COM

Examples Guide

Software Release 5.3
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This software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. Please see the readme.txt file for the availability of this software version on a specific operating system platform.

Contents

Preface

TIBCO Adapter™ for COM ships with pre configured examples. This manual describes how to run these examples.

Topics

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Product Documentation

The following documents form the TIBCO Adapter for COM documentation set:

- *TIBCO Adapter Concepts* — Read this manual to gain an understanding of adapters in general that you can apply to the various tasks you may undertake.
- *TIBCO Adapter for COM User's Guide* — This manual explains concepts relating to the adapter and the application with which it interacts. Installation, configuration and deployment information is included in this manual.
- *TIBCO Adapter for COM Examples Guide* — This manual provides hands-on examples that demonstrate use of the adapter.
- *TIBCO Adapter for COM Release Notes* — Read this document for information about new features, deprecated features, and open and closed issues.
- *README for TIBCO Adapter for COM* — Read this document to check the current release number and see a summary of software and hardware requirements for installing and running the adapter.

Other TIBCO Product Documentation

You may find it useful to read the documentation for the following TIBCO products. Note that only books that relate to adapters are listed. Each of the books is available from the `doc` directory in the product's installation area.

- TIBCO ActiveEnterprise™ software:
  — *TIBCO ActiveEnterprise Concepts*
- TIBCO Designer™ software:
  — *TIBCO Designer User's Guide*
  — *TIBCO Designer Palette Reference*
  — *TIBCO Designer Release Notes*

- TIBCO Administrator™ software:
  - *TIBCO Administrator User's Guide*
  - *TIBCO Administrator Server Configuration Guide*
  - *TIBCO Administrator Release Notes*
- TIBCO BusinessWorks software:
  - *TIBCO BusinessWorks Concepts*
  - *TIBCO BusinessWorks Quick Start*
  - *TIBCO BusinessWorks Process Design Guide*
  - *TIBCO BusinessWorks Palette Reference*
  - *TIBCO BusinessWorks Installation*
  - *TIBCO BusinessWorks Release Notes*
- TIBCO IntegrationManager™ software:
  - *TIBCO IntegrationManager Concepts*
  - *TIBCO IntegrationManager Administrator's Guide*
  - *TIBCO IntegrationManager Process Design Guide*
  - *TIBCO IntegrationManager Reference*
  - *TIBCO IntegrationManager Release Notes*
- TIBCO Rendezvous™ software:
  - *TIBCO Rendezvous Concepts*
  - *TIBCO Rendezvous Administration*
  - *TIBCO Rendezvous Configuration Tools*
- TIBCO Enterprise™ for JMS software:
  - *TIBCO Enterprise for JMS User's Guide*
  - *TIBCO Enterprise for JMS Release Notes*
- TIBCO Hawk™ software:
  - *TIBCO Hawk Installation and Configuration*
  - *TIBCO Hawk Administrator's Guide*
- TIBCO Adapter SDK
  - *TIBCO Adapter SDK Concepts*

- TIBCO Runtime Agent
  - — *TIBCO Runtime Agent Release Notes*
  - — *TIBCO Runtime Agent Administrator's Guide*
  - — *TIBCO Runtime Agent Installation*
  - — *TIBCO ActiveEnterprise Features, Migration and Compatibility*

How to Contact TIBCO Customer Support

For comments or problems with this manual or the software it addresses, please contact TIBCO Support Services as follows.

- For an overview of TIBCO Support Services, and information about getting started with TIBCO Product Support, visit this site:

  http://www.tibco.com/services/support/default.jsp

- If you already have a valid maintenance or support contract, visit this site:

  http://support.tibco.com

  Entry to this site requires a username and password. If you do not have a username, you can request one.

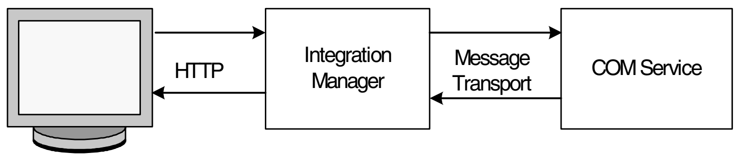
Chapter 1 Introduction

The examples in this manual demonstrate how the adapter interacts with TIBCO IntegrationManager and TIBCO BusinessWorks. The TIBCO BusinessWorks examples are available in the `examples\TEAKExamples\BusinessWorks\Html` subdirectory of the adapter installation directory and the TIBCO IntegrationManager examples are available in the `examples\TEAKExamples\IntegrationManager\Html` subdirectory of the adapter installation directory.

Topics

Overview

The examples shipped with TIBCO Adapter for COM are designed to help you become familiar with the basic interaction between the adapter, TIBCO Enterprise for JMS or TIBCO Rendezvous, and TIBCO IntegrationManager or TIBCO BusinessWorks. You can view the activity on the TIBCO IntegrationManager or TIBCO BusinessWorks console when the examples are run. For your convenience, an HTML page from which you can input data, and which displays the relevant output, has also been provided.



When you specify the information, for example, the employee ID on the html page, the browser posts the http request to TIBCO IntegrationManager or TIBCO BusinessWorks. TIBCO IntegrationManager or TIBCO BusinessWorks sends the information (employee ID) to the service component of the adapter. Depending on the specified operation, the adapter inserts a record or updates an existing one, fetches the details of a record, or deletes a record. The adapter sends this information back to TIBCO IntegrationManager or TIBCO BusinessWorks, which sends it to the browser. The browser displays the results or the appropriate message.

The examples demonstrate the Publication and Request Response scenarios. You can use the `Sync` operation to publish and the `Get`, `Insert-Update`, or `Delete` operations as request-response operations on a record. The publish operation is valid only for an active session of the adapter, as there is no database and nothing is stored. If you stop the adapter, restart, and then insert or modify records, only the operations performed in that session are published during a `Sync` operation.

The following examples are available:

- Employee Business Object Examples
- Customer Business Object Examples
- Sales Order Business Object Examples
- Purchase Order Business Object Examples
- Item Master Business Object Examples

Prerequisites

Before you can run the examples, you must install the required software and setup the examples, depending on whether you want to run the examples using TIBCO BusinessWorks or TIBCO IntegrationManager.

- To run the examples using TIBCO IntegrationManager, see Deploying the Examples to Run with TIBCO IntegrationManager.
- To run the examples using TIBCO BusinessWorks, see Deploying the Examples to Run with TIBCO BusinessWorks.

Chapter 2 Deploying the Examples to Run with TIBCO IntegrationManager

This chapter explains how to use the adapter with a TIBCO IntegrationManager process to get, insert, update, and delete customer, sales order, employee, item master, and purchase order records.

Topics

Before Starting

Before starting the pre configured examples, ensure that all required software has been installed and is operating correctly:

- TIBCO IntegrationManager 5.0.1
- TIBCO Administrator Repository Edition 5.2.1
- TIBCO Adapter for COM 5.3.0
- TIBCO Runtime Agent 5.2.1

  If you are using TIBCO Administrator Repository Edition, you deploy by editing the adapter's properties files and start and stop the adapter on the command line. The TIBCO IntegrationManager examples are deployed using this method.
- TIBCO Enterprise Message Service 4.2

To use the examples, you must make sure that TIBCO IntegrationManager, TIBCO Enterprise for JMS, and the adapter are running on the same machine.

The Business Objects of the TIBCO IntegrationManager examples sets the error and status message through the `IErrorInfo` interface. This exemplifies a standard error handling mechanism for the COM and .NET components.

The pre configured examples are located in the `examples\TEAKExamples\IntegrationManager\Html` subdirectory of the adapter installation directory. The project files, `RPCCOMService-RV.dat` or `RPCCOMService-JMS.dat`, contains configuration information for each example and is available in the `examples\TEAKExamples\IntegrationManager\Impp` subdirectory of the adapter installation directory.

Setting Up the Examples

To successfully run the examples, you must perform the following tasks:

1. Build the COM Components, as described in Task A on page 7.
2. If you are using TIBCO Enterprise for JMS, start the JMS server, as described in Task B on page 7.
3. Start the adapter with one of the following dat files:
   — `RPCCOMService-RV.dat`, if you are using TIBCO Rendezvous.
   — `RPCCOMService-JMS.dat`, if you are using TIBCO Enterprise for JMS.

   For details, see Task C on page 7.
4. Start TIBCO IntegrationManager with one of the following dat files:
   — `IMExample_JMS.dat` if you are using TIBCO Enterprise for JMS.
   — `IMExample_rv.dat` if you using TIBCO Rendezvous.

   For details, see Task D on page 8.
5. Execute the operations on the business objects. For details, see Task E on page 8.

Task A Build the COM Components

- Build the COM Servers. To do so, start Microsoft Visual C++ and build the `ComAdapterService` and `ComAdapterSyncOperation` projects from the `tibco\adapter\adcom\5.3\examples\TEAKExamples\IntegrationManager\ComAdapterService` directory, using the `ComAdapterService.dsw` workspace.

Task B Start TIBCO Enterprise for JMS

1. At the command prompt, go to the *<JMS_HOME>*`\bin` directory.
2. Run the following command to start the TIBCO Enterprise for JMS Server:

   `tibjmsd.exe`

Task C Start the Adapter

1. Make sure that the repository URL and configuration URL properties are set in the `adcomService.tra` file.
   — The `tibco.repourl` property must point to the `RPCCOMService-RV.dat` or the `RPCCOMService-JMS.dat` file. For example, if you have installed the

adapter on the C: drive and are using `RPCCOMService-RV.dat`, the `tibco.repourl` property should be set as follows:

```
C:/tibco/adapter/adcom/5.3/examples/TEAKExamples/IntegrationManager/Impp/
RPCComService-RV.dat
```

— The `tibco.configurl` property should point to the adapter instance:
`Adapter for COM/Service Instances/AdComExamplesService`

2. At the command prompt, go to the *<ADCOM_HOME>*`\bin` directory.
3. Start the service component of the adapter using the `RPCCOMService-RV.dat` file:

   `adcomService`

Task D Start TIBCO IntegrationManager

1. To start TIBCO IntegrationManager, click **Start>Programs>TIBCO>TIBCO Integration Manager 5.0> IM Editor**.
2. Select one of the following from the Repository Instance drop-down:
   — `IMExample_JMS.dat`, if you are using TIBCO Enterprise for JMS.
   — `IMExample_rv.dat`, if you using TIBCO Rendezvous.
3. Click **Connect**.
4. Click `Debug`, then click `Start Debug Engine`.

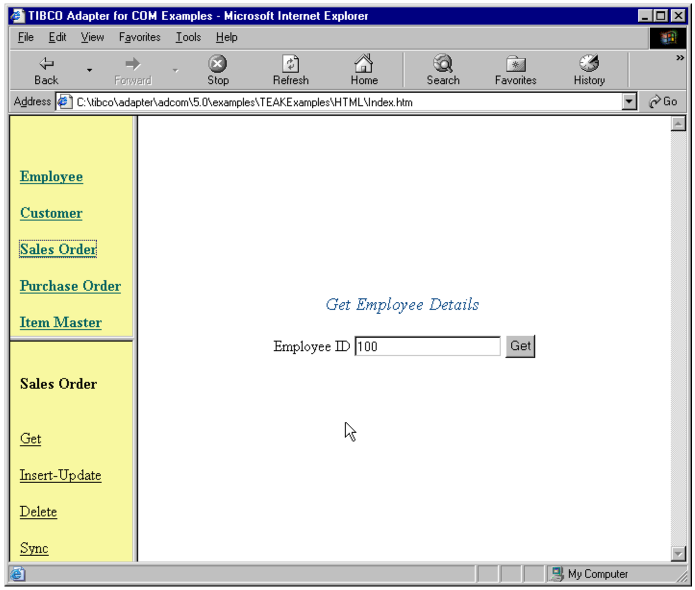
Alternatively, you can start the TIBCO IntegrationManager engine from the command prompt.

1. Copy the project file into the `bin` folder of the TIBCO IntegrationManager install directory:
   — `IMExample_JMS.dat`, if you are using TIBCO Enterprise for JMS.
   — `IMExample_rv.dat`, if you using TIBCO Rendezvous.
2. Open a command prompt for TIBCO IntegrationManager.
3. Navigate to the `bin` folder of the TIBCO IntegrationManager install directory.
4. In the command prompt window type **`imse -f <filename>.dat`**. This will start the IntegrationManager server and engine.

Task E Executing Operations for Business Objects

1. Open `Index.htm` from the *<ADCOM_HOME>*`\examples\TEAKExamples\IntegrationManager\Html` directory. The TIBCO Adapter for COM Examples page is displayed. The top

right panel displays the business objects, and the bottom-left panel displays the operations available for each business object.



2. Select a business object and run the operations against it:
   - Employee Business Object Examples
   - Customer Business Object Examples
   - Sales Order Business Object Examples
   - Purchase Order Business Object Examples
   - Item Master Business Object Examples

For the `Get`, `Insert-Update`, and `Delete` operations, the time out interval is set to 30 seconds. If a request is not received within 30 seconds, the application exits.

Chapter 3 Deploying the Examples to Run with TIBCO BusinessWorks

This chapter explains how to use the adapter with a TIBCO BusinessWorks process to get, insert, update, delete, and synchronize customer, sales order, employee, item master, and purchase order records. The examples are deployed and run using the TIBCO Administrator GUI or TIBCO BusinessWorks.

Topics

Before Starting

If you are using the adapter with TIBCO BusinessWorks, the following software must be installed to run the examples:

- TIBCO BusinessWorks 5.2.1
- TIBCO Administrator Enterprise Edition 5.2.1
- TIBCO Adapter for COM 5.3.0
- TIBCO Runtime Agent 5.2.1
- TIBCO Enterprise Message Service 4.2

The TIBCO BusinessWorks examples use TIBCO Designer to create an Enterprise Archive File (EAR) and TIBCO Administrator Enterprise Edition to deploy the EAR file.

In TIBCO Administrator, make sure all software components needed by the adapter instance is installed on one or more machines that are part of the TIBCO Administration Domain and that the software is registered in the domain.

- Use the TIBCO Domain Utility to add a machine to a TIBCO Administration Domain.
- In TIBCO Administrator, use the `Resource Management>Machines` console to register software.

These topics are explained in the TIBCO Administrator documentation set.

Example Description

This example shows how the adapter's publication and request-response services can be used in conjunction with a TIBCO BusinessWorks process. The example has four operations — `get`, `insert-update`, `delete`, and `sync`.

- The `get` operation uses the adapter's request-response service to fetch data from the COM server that you specify in an input HTML file.

  The get operation queries the COM server based on the given ID and fetches the data. The data is sent back by the adapter to TIBCO BusinessWorks and is written into an output file and displayed on the HTML page.

- The `insert-update` operation uses the adapter's request-response service to update the COM Server.

  The `insert-update` operation queries the COM server based on the given ID. If the record exists, the data in the record is updated. Information that the record has been updated is sent back by the adapter to TIBCO BusinessWorks and displayed on the HTML page. If the record does not exist, it is inserted and the information that the record has been inserted is sent back by the adapter to TIBCO BusinessWorks and displayed on the HTML page.

- The `delete` operation uses the adapter's request-response service to delete data that you specify in an input HTML file.

  The `delete` operation queries the COM server based on the given ID and then deletes the data. Information that the record has been deleted is sent back by the adapter to TIBCO BusinessWorks and is displayed on the HTML page.

- The `sync` operation uses the adapter's publication service to send a message from the COM Server whenever details in a business object record are modified or updated. Any change to the data in the COM server triggers the `sync` operation.

  On receiving the modified data, TIBCO BusinessWorks logs it to a `<business_process>sync.txt` file that is saved in the `%FileLocation%/sync` folder, where `%FileLocation%` is the global variable.

Setting Up the Examples

To successfully run the examples, you must perform the following tasks:

1. Build the COM Components, as described in Task A on page 14.
2. If you are using TIBCO Enterprise for JMS, start the JMS server, as described in Task B on page 14.
3. Do one of the following:
   — Start TIBCO BusinessWorks with any one of the following files:

     `BWExample-adcom-JMS.zip`, if you are using TIBCO Enterprise for JMS.

     `BWExample-adcom-RV.zip`, if you using TIBCO Rendezvous.

     For details, see Task C on page 15.

     OR

   — Generate an EAR file as described in Task D, and deploy the examples using TIBCO Administrator as described in Task E.
4. Start the adapter as described in Task F.
5. Execute the operations on the business objects. For details, see Task G on page 17.

Task A Build the COM Components

- Build the COM Servers. Open the `ExampleUtils.cpp` in the `ComAdapterService` project and update the `repo url` path with the location of the `BWExample-adcom-RV.dat` file. To do so, start Microsoft Visual C++ and build the `ComAdapterService` and `ComAdapterSyncOperation` projects from the `tibco\adapter\adcom\5.3\examples\TEAKExamples\BusinessWorks\ComAdapterService` directory, using the `ComAdapterService.dsw` workspace.

Task B Start TIBCO Enterprise for JMS

1. At the command prompt, go to the *<JMS_HOME>*`\bin` directory.
2. Run the following command to start the TIBCO Enterprise for JMS Server:

   `tibjmsd.exe`

Task C Start TIBCO BusinessWorks Using TIBCO Designer

1. To start TIBCO BusinessWorks, click **Start>Programs>Tibco>TIBCO Designer 5.2> Designer 5.2** and click **New Empty Project**.
2. Click **Project > Import Full Project**. The Import Project dialog is displayed.
3. Click the `Zip Archive` tab and browse to the zip archive you want to import. Select one of the following from the `tibco\adapter\adcom\5.3\TEAKExamples\BusinessWorks` folder:
   - `BWExample-adcom-JMS.zip`, if you are using TIBCO Enterprise for JMS.
   - `BWExample-adcom-RV.zip`, if you using TIBCO Rendezvous.
4. Click **OK** to import the file. The Import Options dialog is displayed. Select `Overwrite on name conflict` and click **Apply**.
5. Select **Project>Export Full Project**. The Export Project dialog is displayed. Click the `Local Repository` tab, and specify a dat file name and directory. Click **OK**.

For the `Sync` operation to work correctly, you must save the local repository with the same name as the zip file, in the same directory.

6. Click the `Tester` tab and click the `Start testing viewed process` button or press `F9`. The Select Processes to Load dialog box is displayed.
7. Select the required TIBCO BusinessWorks process and click **Start Selected**. The TIBCO BusinessWorks process is started.

Task D Generate an EAR File

1. Complete step 1 to step 4 of Task C.
2. Click `Sample` in the project panel. The Sample (Enterprise Archive) configuration panel is displayed. You can specify a different folder or file name. Click **Apply** to save changes.
3. Click **Build Archive**. The `Enterprise Archive File has built correctly` message is displayed.

Task E Deploy the Examples Using TIBCO Administrator

To deploy the example using TIBCO Administrator, you must generate an EAR file as described in Task D on page 15.

In TIBCO Administrator:

1. Go to **Application Management**. Click **New Application**. Upload the EAR file created in the previous section and click **OK**. On the following screen, clear the **Quick Configure** check box and then click **Save**. The Configuration page is displayed.
2. Click the top level application name in the Configuration page.
   a. Go to the **Advanced** tab and provide the values for **User Name** and **Password** if it is not already provided.
   b. Click **Apply** and **Save**. The Configuration page is displayed. Expand the top-level application.
   c. Click the adapter archive (`COMAdapterService.aar`) and click **Add To Additional Machines**.
   d. Select the machine and click **OK**. In the following screen, click **Save**. In the Configuration screen click **Deploy**. Click **OK**.

Once the deployment is complete, click **Service Instances** under the application. The adapter and TIBCO BusinessWorks is listed. Select both and click **Start Selected**, if it is not running. The adapter service and the TIBCO BusinessWorks processes are started.

Task F Start the Adapter

1. Make sure that the repository URL and configuration URL properties are set in the `adcomService.tra` file.
   — The `tibco.repourl` property must point to the `BWExample-adcom-RV.dat` or to the `BWExample-adcom-JMS.dat` file. For example, if you have installed the adapter on the C: drive and are using `BWExample-adcom-RV.dat`, the `tibco.repourl` property should be set as follows:

```
C:/tibco/adapter/adcom/5.3/examples/TEAKExamples/BusinessWorks/
BWExample-adcom-RV.dat
```

   — The `tibco.configurl` property should point to the adapter instance:
   `COMAdapterService`
2. At the command prompt, go to the *<ADCOM_HOME>*`\bin` directory.
3. Start the service component of the adapter using the `BWExample-adcom-RV.dat` file:

   `adcomService`

Task G Executing Operations for Business Objects

1. Open `Index.htm` from the <*ADCOM_HOME*>`\examples\TEAKExamples\BusinessWorks\Html` directory. The TIBCO Adapter for COM Examples page is displayed. The top right panel displays the business objects, and the bottom-left panel displays the operations available for each business object.

2. Select a business object and run the operations against it:

   — Employee Business Object Examples

   — Customer Business Object Examples

   — Sales Order Business Object Examples

   — Purchase Order Business Object Examples

   — Item Master Business Object Examples.

Chapter 4 Running the Examples

This chapter explains how to execute the `sync`, `insert-update`, `delete`, and `get` operations for each business object. You can proceed with this chapter if you have completed setting up the examples to run with either TIBCO IntegrationManager as described in Chapter 2 or TIBCO BusinessWorks as described in Chapter 3.

Topics

Employee Business Object Examples

The schema used in the examples for the employee business object is shown next:

```
EmployeeClass
{
  int EmpID;
  EmpData
  {
      Name
      {
            BSTR FirstName;
            BSTR LastName;
      }
      BSTR Gender;
      BSTR DOB;
      BSTR Phone;
  }
  ContactDetails
  {
      BSTR Adderess1;
      BSTR City;
      BSTR State;
      BSTR Country;
      BSTR PIN;
      BSTR Email;
  }
}
```

Get an Employee Record

The `get` operation demonstrates a Request-Response scenario.

To retrieve an employee record:

1. Click `Employee`.
2. Click `Get`. The Get Employee Details page is displayed.
3. Type the employee code in the `Employee ID` field or use the default.
4. Click **Get**. The details of the specified employee are displayed on the html page. If the specified employee record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Insert or Update an Employee Record

The `Insert-Update` operation demonstrates a Request-Response scenario.

To insert or update an employee record:

1. Click `Employee`.
2. Click `Insert-Update`. The Employee Insert_Update page is displayed.
3. Type the employee code in the `Employee ID` field or use the default value.
4. Click **Add**. If the record does not exist, it is created and the status, `INSERTED ENTRY`, is displayed on the html page. If the record exists, it is updated and the status `UPDATED ENTRY` is displayed on the html page.

Delete an Employee Record

The `delete` operation demonstrates a Request-Response scenario.

To delete an employee record:

1. Click `Employee`.
2. Click `Delete`. The Delete Employee Details page is displayed.
3. Type the employee code in the `Employee ID` field or use the default value.
4. Click **Delete**. The employee record is deleted and the status `DELETED ENTRY` is displayed on the html page. If the employee record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Publish an Employee Record

The `Sync` operation demonstrates a Publication scenario. TIBCO BusinessWorks listens to the publish events related to the Employee business object, and displays this information on the browser when you use the `Sync` operation.

The `Sync` operation is only available for the TIBCO BusinessWorks examples.

To publish an employee record:

1. Click `Employee`.
2. Click `Sync`. The Sync Operation page displays.
3. Click **Start**.

   The employee details for all the employee IDs you had specified until now are displayed on the html page.

Customer Business Object Examples

The schema used in the examples for the customer business object is shown next:

```
CustomerClass
{
        int CustomerID;
        BSTR Name;
        BSTR Remarks;
        ContactDetails
        {
                BSTR Adderess1;
                BSTR City;
                BSTR State;
                BSTR Country;
                BSTR PIN;
                BSTR Email;
        }
        BusinessContact
        {
                BSTR Organization;
                BSTR URI;
                BSTR Phone;
                BSTR FAX;
        }
        DomainIdentities
        {
                BSTR Domain;
                BSTR Identities;
        }
}
```

Get a Customer Record

The `Get` operation demonstrates a Request-Response scenario.

To retrieve a customer record:

1. Click `Customer`.
2. Click `Get`. The Get Customer Details page is displayed.
3. Type the customer code in the `Customer ID` field or use the default.
4. Click **Get**. The details of the specified customer code are displayed on the html page. If the specified customer record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Insert or Update a Customer Record

The `Insert-Update` operation demonstrates a Request-Response scenario.

To insert or update a customer record:

1. Click `Customer`.
2. Click `Insert-Update`. The Customer Insert_Update page is displayed.
3. Type the customer code in the `Customer ID` field or use the default.
4. Click **Add**. If the record does not exist, it is created and the status, `INSERTED ENTRY`, is displayed on the html page. If the record exists, it is updated and the status `UPDATED ENTRY` is displayed on the html page.

Delete a Customer Record

The `delete` operation demonstrates a Request-Response scenario.

To delete a customer record:

1. Click `Customer`.
2. Click `Delete`. The Delete Customer Details page is displayed.
3. Type the customer code in the `Customer ID` field or use the default.
4. Click **Delete**. The customer record is deleted and the status `DELETED ENTRY` is displayed on the html page. If the customer record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Publish a Customer Record

The `Sync` operation demonstrates a Publication scenario. TIBCO BusinessWorks listens to the publish events related to the customer business object, and displays this information on the browser when you use the `Sync` operation.

The `Sync` operation is only available for the TIBCO BusinessWorks examples.

To publish a customer record:

1. Click `Customer`.
2. Click `Sync`. The Sync Operation page displays.
3. Click **Start**.

   The customer details for all the customer IDs you had specified until now are displayed on the html page.

Sales Order Business Object Examples

The schema used in the examples for the sales order business object is shown next:

```
SalesOrderClass
{
  SOHeader
  {
      int SalesOrderNo;
      BSTR SalesPersonName;
      BSTR SalesOrganizationName;
      float CommitionAmount;
  }
  SOLineItems1
  {
      int SerialNumber;
      BSTR ItemName;
      float QTY;
      float Discount;
  }
  SOLineItems2
  {
      int SerialNumber;
      BSTR ItemName;
      float QTY;
      float Discount;
  }
  SOLineItems3
  {
      int SerialNumber;
      BSTR ItemName;
      float QTY;
      float Discount;
  }
  SOLineItems4
  {
      int SerialNumber;
      BSTR ItemName;
      float QTY;
      float Discount;
  }
}
```

Get a Sales Order Record

The `get` operation demonstrates a Request-Response scenario.

To retrieve a sales order record:

1. Click `Sales Order`.
2. Click `Get`. The Get SO Details page is displayed.

3. Type the sales order code in the `SO Number` field or use the default.
4. Click **Get**. The details of the specified sales order are displayed on the html page. If the specified sales order record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Insert or Update a Sales Order Record

The `Insert-Update` operation demonstrates a Request-Response scenario.

To insert or update a sales order record:

1. Click `Sales Order`.
2. Click `Insert-Update`. The Sales Order Insert_Update page is displayed.
3. Type the sales order code in the `Sales Order Number` field or use the default.
4. Click **Add**. If the record does not exist, it is created and the status, `INSERTED ENTRY`, is displayed on the html page. If the record exists, it is updated and the status `UPDATED ENTRY` is displayed on the html page.

Delete a Sales Order Record

The `delete` operation demonstrates a Request-Response scenario.

To delete a sales order record:

1. Click `Sales Order`.
2. Click `Delete`. The Delete SO Details page is displayed.
3. Type the sales order code in the `SO Number` field or use the default.
4. Click **Delete**. The sales order record is deleted and the status `DELETED ENTRY` is displayed on the html page. If the sales order record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Publish a Sales Order Record

The `Sync` operation demonstrates a Publication scenario. TIBCO BusinessWorks listens to the publish events related to the sales order business object, and displays this information on the browser when you use the `Sync` operation.

The `Sync` operation is only available for the TIBCO BusinessWorks examples.

To publish a sales order record:

1. Click `Sales Order`.

2. Click `Sync`. The Sync Operation page displays.
3. Click **Start**.

   The sales order details for all the sales order numbers you had specified until now are displayed on the html page.

Purchase Order Business Object Examples

The schema used in the examples for the purchase order business object is shown next:

```
PurchaseOrder
{
  POHeader
  {
      int DocumentID;
      BSTR DocumentDateTime;
      PartnerInformationFrom
      {
            BSTR Organization;
            BSTR URI;
            BSTR Country;
            DomainIdentities
            {
                  BSTR Domain;
                  BSTR Identities;
            }
      }
      PartnerInformationTo
      {
            BSTR Organization;
            BSTR URI;
            BSTR Country;
            DomainIdentities
            {
                  BSTR Domain;
                  BSTR Identities;
            }
      }
  }
}
  Amount
  {
      int flag;
      ActualAmount
      {
            BSTR Currrency;
            float ActualAmount;
      }
      ConvertedAmount
      {
            float ConvertedAmount;
            float ConversionFactor;
      }
  }
  LineItem1
  {
      int SerialNumber;
      BSTR ItemType;
      float Quantity;
```

```
            Amount
            {
                  int flag;
                  ActualAmount
                  {
                        BSTR Currrency;
                        float ActualAmount;
                  }
            ConvertedAmount
            {
                  float ConvertedAmount;
                  float ConversionFactor;
            }
        }
      }
        LineItem2
        {
            int SerialNumber;
            BSTR ItemType;
            float Quantity;
            Amount
            {
                  int flag;
                  ActualAmount
                  {
                        BSTR Currrency;
                        float ActualAmount;
                  }
                  ConvertedAmount
                  {
                        float ConvertedAmount;
                        float ConversionFactor;
                  }
            }
        }
      }
        LineItem3
        {
            int SerialNumber;
            BSTR ItemType;
            float Quantity;
            Amount
            {
                  int flag;
                  ActualAmount
                  {
                        BSTR Currrency;
                        float ActualAmount;
                  }
            ConvertedAmount
            {
                  float ConvertedAmount;
                  float ConversionFactor;
            }
        }
      }
        LineItem4
```

```
    {
        int SerialNumber;
        BSTR ItemType;
        float Quantity;
        Amount
        {
              int flag;
              ActualAmount
              {
                    BSTR Currrency;
                    float ActualAmount;
              }
        ConvertedAmount
        {
                    float ConvertedAmount;
                    float ConversionFactor;
        }
    }
}
```

Get a Purchase Order Record

The `get` operation demonstrates a Request-Response scenario.

To retrieve a purchase order record:

1. Click `Purchase Order`.
2. Click `Get`. The Get PO Details page is displayed.
3. Type the purchase order code in the `Purchase Order ID` field or use the default.
4. Click **Get**. The details of the specified purchase order are displayed on the html page. If the specified purchase order record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Insert or Update a Purchase Order Record

The `Insert-Update` operation demonstrates a Request-Response scenario.

To insert or update a purchase order record:

1. Click `Purchase Order`.
2. Click `Insert-Update`. The Purchase Order Insert_Update page is displayed.
3. Type the purchase order code in the `Document` field or use the default.
4. Click **Add**. If the record does not exist, it is created and the status, `INSERTED ENTRY`, is displayed on the html page. If the record exists, it is updated and the status `UPDATED ENTRY` is displayed on the html page.

Delete a Purchase Order Record

The `delete` operation demonstrates a Request-Response scenario.

To delete a purchase order record:

1. Click `Purchase Order`.
2. Click `Delete`. The Delete PO Details page is displayed.
3. Type the purchase order code in the `Purchase Order ID` field or use the default.
4. Click **Delete**. The purchase order record is deleted and the status `DELETED ENTRY` is displayed on the html page. If the purchase order record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Publish a Purchase Order Record

The `Sync` operation demonstrates a Publication scenario. TIBCO BusinessWorks listens to the publish events related to the purchase order business object, and displays this information on the browser when you use the `Sync` operation.

The `Sync` operation is only available for the TIBCO BusinessWorks examples.

To publish a purchase order record:

1. Click `Purchase Order`.
2. Click `Sync`. The Sync Operation page displays.
3. Click **Start**.

   The purchase order details for all the purchase order IDs you had specified until now are displayed on the html page.

Item Master Business Object Examples

The schema used in the examples for the item master business object is shown next:

```
ItemMaster
{
  ItemMasterHeader
  {
      int ItemNo;
      BSTR ItemType;
      BSTR ComodityCode;
      float Qty;
      float ItemCost;
  }
  ItemMasterLineItem1
  {
      BSTR Name;
      BSTR LocationCode;
      BSTR Description;
  }
  ItemMasterLineItem2
  {
      BSTR Name;
      BSTR LocationCode;
      BSTR Description;
  }
  ItemMasterLineItem3
  {
      BSTR Name;
      BSTR LocationCode;
      BSTR Description;
  }
}
```

Get an Item Record

The `get` operation demonstrates a Request-Response scenario.

To retrieve an item record:

1. Click `Item Master`.
2. Click `Get`. The Get Item Details page is displayed.
3. Type the item ID in the `Item ID` field or use the default.
4. Click **Get**. The details of the specified item are displayed on the html page. If the specified purchase order record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Insert or Update an Item Record

The `Insert-Update` operation demonstrates a Request-Response scenario.

To insert or update an item record:

1. Click `Item Master`.
2. Click `Insert-Update`. The Item Details Insert_Update page is displayed.
3. Type the item ID in the `Item No.` field or use the default.
4. Click **Add**. If the record does not exist, it is created and the status, `INSERTED ENTRY`, is displayed on the html page. If the record exists, it is updated and the status `UPDATED ENTRY` is displayed on the html page.

Delete an Item Record

The `delete` operation demonstrates a Request-Response scenario.

To delete an item record:

1. Click `Item Master`.
2. Click `Delete`. The Delete Item Details page is displayed.
3. Type the item ID in the `Item ID` field or use the default.
4. Click **Delete**. The item order record is deleted and the status `DELETED ENTRY` is displayed on the html page. If the item record does not exist, the status `ENTRY NOT FOUND` is displayed on the html page.

Publish an Item Record

The `Sync` operation demonstrates a Publication scenario. TIBCO BusinessWorks listens to the publish events related to the item master business object, and displays this information on the browser when you use the `Sync` operation.

The `Sync` operation is only available for the TIBCO BusinessWorks examples.

To publish a purchase order record:

1. Click `Item Master`.
2. Click `Sync`. The Sync Operation page displays.
3. Click **Start**.

   The item details for all the item IDs you had specified until now are displayed on the html page.

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