

TIBCO® API Exchange

Getting Started

*Software Release 2.1.1
November 2014*

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Preface

TIBCO® API Exchange allows service providers and product managers to create service gateways and application environments that enable development of software products and associated APIs.

Topics

- [Related Documentation, page viii](#)
- [Typographical Conventions, page x](#)
- [Connecting with TIBCO Resources, page xii](#)

Related Documentation

This section lists documentation resources you may find useful.

TIBCO API Exchange Documentation

In addition to this document, the TIBCO API Exchange documentation contains *TIBCO API Exchange Concepts*. This document (Getting Started) and the *TIBCO API Exchange Concepts* document are included as part of the TIBCO API Exchange documentation. Read this document to get an overview of TIBCO API Exchange concepts, workflow, and deployment.

TIBCO API Exchange Gateway Documentation

The following documents form the TIBCO API Exchange Gateway documentation set:

- *TIBCO API Exchange Gateway Installation*. Read this manual for instructions on site preparation and installation.
- *TIBCO API Exchange Gateway User's Guide*. Read this manual for instructions on how to configure and use this product.
- *TIBCO API Exchange Gateway 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 API Exchange Manager Documentation

- *TIBCO API Exchange Manager Installation*. Read this manual for instructions on site preparation and installation.
- *TIBCO API Exchange Manager Administration*. Read this manual for information on how to set up users and user groups, add APIs, and manage products and plans.
- *TIBCO API Exchange Manager 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.

Adapter Code for TIBCO® API Exchange and Joomla! 2.1.1 Documentation

The documentation set for Adapter Code for TIBCO API Exchange and Joomla! includes:

- *Adapter Code for TIBCO® API Exchange and Joomla! Installation*
- *Adapter Code for TIBCO® API Exchange and Joomla! Administration*
- *Adapter Code for TIBCO® API Exchange and Joomla! User's Guide*

Other Documentation

You might find it useful to read the documentation for the following:

- TIBCO® API Exchange – see docs.tibco.com
- Joomla! – see [Joomla.org](https://joomla.org)

Other TIBCO Product Documentation

You may find it useful to read the documentation for the following example project hosted on GitHub: Adapter Code for TIBCO API Exchange and Joomla!




Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
<code>ENV_NAME</code> <code>TIBCO_HOME</code> <code>ASG_HOME</code> <code>ASG_CONFIG_HOME</code>	<p>TIBCO products are installed into an installation environment. A product installed into an installation environment does not access components in other installation environments. Incompatible products and multiple instances of the same product must be installed into different installation environments.</p> <p>An installation environment consists of the following properties:</p> <ul style="list-style-type: none">• Name Identifies the installation environment. This name is referenced in documentation as <code>ENV_NAME</code>. On Microsoft Windows, the name is appended to the name of Windows services created by the installer and is a component of the path to the product shortcut in the Windows Start > All Programs menu.• Path The folder into which the product is installed. This folder is referenced in documentation as <code>TIBCO_HOME</code>. <p>TIBCO API Exchange installs into a directory within a <code>TIBCO_HOME</code>. This directory is referenced in documentation as <code>ASG_HOME</code>. The default value of <code>ASG_HOME</code> depends on the operating system. For example on linux platform, the value of <code>ASG_HOME</code> is <code>/home/asg/tibcoasg/asg/2.1</code>.</p> <p>TIBCO API Exchange stores the configuration files in a directory which is separate from the installation directory. This directory is referenced in documentation as <code>ASG_CONFIG_HOME</code>. For example on linux platform, the value of <code>ASG_CONFIG_HOME</code> is: <code>/home/asg/tibcoasgconfig/tibco/cfgmgmt</code>.</p>
<code>code font</code>	<p>Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example:</p> <p>Use <code>MyCommand</code> to start the foo process.</p>
bold code font	<p>Bold code font is used in the following ways:</p> <ul style="list-style-type: none">• In procedures, to indicate what a user types. For example: Type admin.• In large code samples, to indicate the parts of the sample that are of particular interest.• In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, <code>MyCommand</code> is enabled: <code>MyCommand [enable disable]</code>

Table 1 General Typographical Conventions (Cont'd)

Convention	Use
<i>italic font</i>	<p>Italic font is used in the following ways:</p> <ul style="list-style-type: none"> To indicate a document title. For example: See <i>TIBCO ActiveMatrix BusinessWorks Concepts</i>. To introduce new terms For example: A portal page may contain several portlets. <i>Portlets</i> are mini-applications that run in a portal. To indicate a variable in a command or code syntax that you must replace. For example: <code>MyCommand <i>PathName</i></code>
Key combinations	<p>Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C.</p> <p>Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.</p>
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Connecting with TIBCO Resources

How to Join TIBCOCommunity

TIBCOCommunity is an online destination for TIBCO customers, partners, and resident experts. It is a place to share and access the collective experience of the TIBCO community. TIBCOCommunity offers forums, blogs, and access to a variety of resources. To register, go to <http://www.tibcommunity.com>.

How to Access TIBCO Documentation

You can access TIBCO documentation here:

<http://docs.tibco.com>

How to Contact TIBCO Support

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

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

<http://www.tibco.com/services/support>

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

<https://support.tibco.com>

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

Chapter 1 **Overview**

This document provides an end-to-end tutorial about how to install and configure TIBCO® API Exchange and the Developer Portal, test an API, and build an application.

Topics

- [Product Overview, page 2](#)
- [Tutorial Overview, page 3](#)

Product Overview

TIBCO® API Exchange makes it possible to build integrated online marketplaces, where service providers and consumers come together to create, host, manage, learn about, and use open APIs. It is designed to meet the security and web scale requirements of organizations moving into the API economy.

Using TIBCO API Exchange Manager, you can:

- Manage Partners and define users for the application.
- Log into a Developer Portal with privileges supported by your user role.
- Create products by packaging APIs for sale.
- Manage product subscriptions, which allow application developers to subscribe to specified products.
- Test and analyze operation of managed applications.
- Create subscriptions for partners, who can then subscribe to products they use to develop applications.

Functional Overview

For a functional overview of TIBCO API Exchange, see the *TIBCO API Exchange Concepts* guide.

User Roles

Four types of users use the application:

- **Portal Administrators** Maintain Developer Portals, create application environments and add gateways to them, create organizations and user groups, and have access to full system functionality.
- **Partner Administrators** Create organizations and users, and manage subscriptions.
- **Product Managers** Add APIs and operations, create products and plans, and run analytical tests on APIs.
- **Application Developers** Register applications, test and learn about APIs, and request subscriptions and keys for applications. They also request replacement keys, for example, if the existing key has been compromised.

Tutorial Overview

This tutorial walks you through the general steps for deploying, installing, and configuring the TIBCO API Exchange product components.

Table 2 Overview of Getting Started

Step	See
Deploy TIBCO API Exchange	Chapter 2, Deploying the Product Components
Set Up a Gateway (using the TIBCO API Exchange component)	Chapter 3, Setting Up the TIBCO API Exchange Gateway
Install TIBCO API Exchange Manager	Installing the Product Components, page 9
Configure the portal engine and the TIBCO API Exchange engine.	Configuring the API Exchange Gateway Engine and the Portal Engine, page 12
Install the Developer Portal	Chapter 4, Installing the Developer Portal
Developer Portal: Administrative Setup Steps	See
Creating an Organization and a Manager Role	Creating an Organization and a Manager Role, page 25
Creating an Environment and Adding Gateway to It	Creating an Environment, page 28
Creating Subscriptions	Creating a Product and Product Plans, page 35
Creating Scopes	Managing Scopes, page 30
Creating an API and API Operations	See the following sections: <ul style="list-style-type: none"> • Creating an API, page 28 • Adding an Operation, page 30
Developer Portal: Product Setup Steps	See
Creating a Product and Product Plans	See the following sections: <ul style="list-style-type: none"> • Creating a Product, page 35 • Creating a Product Plan, page 35

Table 2 Overview of Getting Started

Step	See
Creating an Application and Adding a Product	Registering an Application, page 38
Subscribing to a Product	Subscribing to a Product, page 40

Chapter 2

Deploying the Product Components

This chapter provides an overview of deployment for TIBCO® API Exchange Manager. This includes installing and setting up the TIBCO® API Exchange Gateway component and the TIBCO API Exchange Manager.

Topics

- [General Deployment Options, page 6](#)
- [Main Deployment Steps, page 8](#)
- [Installing the Product Components, page 9](#)
- [Configuring the API Exchange Gateway Engine and the Portal Engine, page 12](#)

General Deployment Options

There are two options for setting up a user interface to create APIs and products and associating them with applications:

- If you install the Adapter Code for TIBCO API Exchange and Joomla!, this is a Joomla portal.
- If you do not install the Adapter Code for TIBCO API Exchange and Joomla!, you can use a portal that you develop using a method that you choose.

For general information on the steps required for installing and setting up a Joomla-based portal, see [Chapter 4, Installing the Developer Portal](#).

For detailed information on installing the Developer Portal, see the *Adapter Code for TIBCO API Exchange and Joomla! Installation* document. This document is available at the following URL:

<https://github.com/API-Exchange/JoomlaAdapter/wiki>

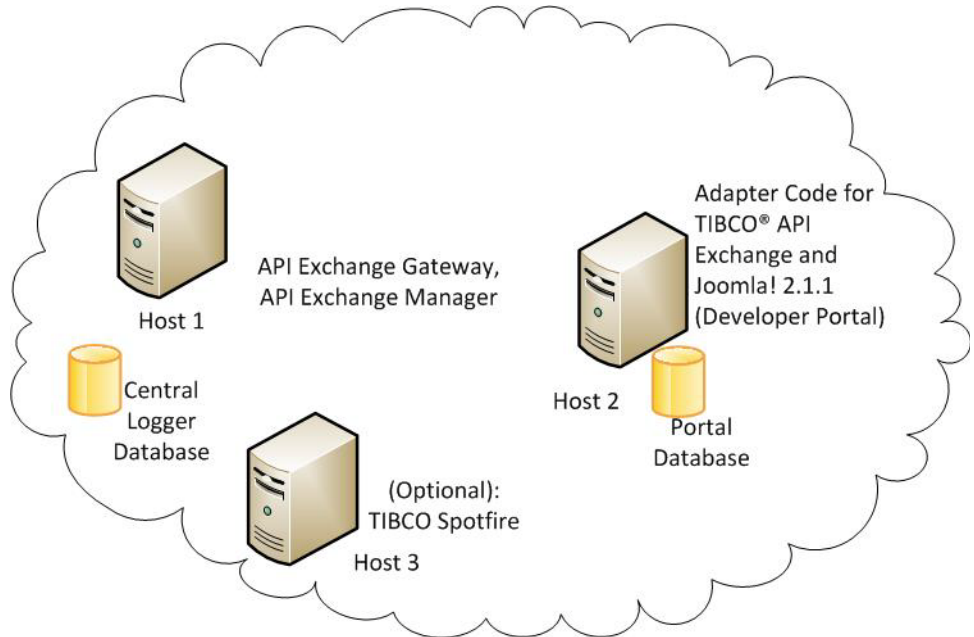
Typical Deployment Topology

This section describes a typical deployment topology in which all of the product components are installed:

- TIBCO API Exchange Manage (Host 1)
- TIBCO API Exchange Gateway 2.1.0 (Host 1)
- Adapter Code for TIBCO API Exchange and Joomla! (Host 2)
- (Optional) TIBCO Spotfire® (Host 3)

Topology Diagram

Figure 1 TIBCO API Exchange Deployment Topology



Main Deployment Steps

Table 3 summarizes that main deployment steps for API Exchange Manager.

Table 3 Main Deployment Steps

Step	Description	See...
Step 1	Install the product components/ Host 1: There are several deployment options: <ul style="list-style-type: none">• Install API Exchange Gateway, or• Install API Exchange Gateway and API Exchange Manager	On Host 1: Install TIBCO Rendezvous, TIBCO API Exchange Gateway, and TIBCO API Exchange Manager, page 9
Step 2	Host 2: Install Adapter Code for TIBCO API Exchange and Joomla!	On Host 2: Install the Developer Portal, page 10
Step 3 (optional)	Host 3: Install TIBCO Spotfire® Server 5.5.0	<i>See TIBCO Spotfire® Server 5.5.0 Installation and Configuration</i>
Step 4	Configure the portal engine and the API Exchange Engine.	Configuring the API Exchange Gateway Engine and the Portal Engine, page 12

Installing the Product Components

It is recommended that you install the API Exchange Gateway and API Exchange Manager on one or more hosts, and the Developer Portal or your own application development interface on another host.

On Host 1: Install TIBCO Rendezvous, TIBCO API Exchange Gateway, and TIBCO API Exchange Manager

On host 1, install:

- TIBCO Rendezvous®
- TIBCO API Exchange Gateway 2.1.1
- TIBCO API Exchange Manager 2.1.1



Installation of TIBCO API Exchange 2.1.1 requires a previous installation of Release 2.0.0.

- MySQL Connector

Complete these steps to install the required software components:

1. Install TIBCO Rendezvous into a `TIBCO_HOME` directory.
You must install TIBCO Rendezvous Version 8.3.2 or higher.
2. In the same `TIBCO_HOME` directory, install TIBCO API Exchange Gateway from the product distribution.
See the *TIBCO API Exchange Gateway Installation* document for detailed steps.
3. Install TIBCO API Exchange Manager from the product distribution.
See the *TIBCO API Exchange Manager Installation* document for detailed steps.
4. Install MySQL.
 - a. If you do not have MySQL installed, download the JDBC version of the connector it from the following URL:

<http://www.mysql.com/products/connector/>

5. Copy the MySQL Connector .jar file from the MySQL installation directory to the \$TIBCO_HOME/asg/2.1/lib/ directory.

This .jar file is located in the MySQL/MySQL Connector J/ directory. The filename is similar to the following:

`mysql-connector-java-5.1.26-bin.jar`

On Host 2: Install the Developer Portal

Install the Adapter Code for TIBCO API Exchange and Joomla! component on the host that will run the Developer Portal (if you want to use the Adapter Code for TIBCO API Exchange and Joomla! for your Developer Portal).

Installation of the Developer Portal is described in the *Adapter Code for TIBCO API Exchange and Joomla! Installation* document. This document is available on GitHub at the following location.

<https://github.com/API-Exchange/JoomlaAdapter/wiki>

1. Install the prerequisite software for the Adapter Code for TIBCO API Exchange and Joomla!:
 - Apache 2.4
 - PHP
 - MySQL



The Adapter Code for TIBCO API Exchange and Joomla installation installs Joomla 3.3. Refer to the following URL for Joomla requirements for the supported versions of Apache, PHP, and MySQL for Joomla 3.3:

<http://www.joomla.org/technical-requirements.html>

For detailed instructions, see the *Adapter Code for TIBCO API Exchange and Joomla! Installation* document. This document is available on GitHub at the following location.

<https://github.com/API-Exchange/JoomlaAdapter/wiki>

For Linux installation instructions, see [Chapter 2, Linux Installation](#).

For Windows installation instructions, see [Chapter 3, Windows Installation](#).

2. Download the Adapter Code for TIBCO API Exchange and Joomla!

The Adapter Code for TIBCO API exchange and Joomla! distribution is available at the following location on GitHub:

<https://github.com/API-Exchange/JoomlaAdapter/wiki>

3. Install the Adapter code for TIBCO API Exchange and Joomla! component. See the *Adapter Code for TIBCO API Exchange and Joomla! Installation* document for detailed instructions.
4. Install the Cobalt extensions provided with the Adapter code
Installation of this code is described in the *Adapter Code for TIBCO API Exchange and Joomla! Installation* document.

On Host 3 (optional): Install TIBCO Spotfire

If you will use TIBCO Spotfire to output analytical data on APIs distributed using TIBCO API Exchange Manager, install TIBCO Spotfire Server 5.5.0 on a standalone host.

For information on installing Spotfire, see *TIBCO Spotfire® Server 5.5.0 Installation and Configuration*.

Configuring the API Exchange Gateway Engine and the Portal Engine

The configuration steps consist of configuring the following:

1. The `asg.properties` file on the API Exchange Gateway host
2. The `asg-portal.properties` file on the host that is running the management portal.

(On Host 1) Configure the `asg.properties` File

1. Go to the `TIBCO_HOME/asg/2.1/templates/asg` directory and edit the `asg.properties` file.
2. Check the port number for the `tibco.clientVar.DefaultImplementation/Connections/HTTP/FacadeHTTPTPConnection/Port` property
3. Ensure that the port number specified is different than the port number specified for the `tibco.clientVar.DefaultImplementation/Connections/HTTP/FacadeHTTPTPConnection/Port=` property that is specified in the `asg-portal.properties` file.

(On Host 1) Configure the Central Logger on the Gateway Engine

To enable display of usage statistics on the Organizations page of the Management Portal, you must configure Central Logger for the Gateway component and specify a quota usage checking interval.

For general information on configuring Central Logger, see the “Central Logger” section in Chapter 14 of the *TIBCO API Exchange Gateway User’s Guide*, “Gateway Management Features.”

To configure the Central Logger on the gateway host:

1. Enable central logging in the `asg.properties` file for the gateway.
For specific information, see “Enable Reporting to Central Logger” in Chapter 14 of the *TIBCO API Exchange Gateway User’s Guide*, “Gateway Management Features.”
2. Configure the `asg_cl.properties` file to specify the necessary database connection parameters for central logging.

For specific information, see “Setup the database connection parameters” in Chapter 14 of the *TIBCO API Exchange Gateway User’s Guide*, “Gateway Management Features.”

(On Host 1) Configure the `asg_portal.properties` File

Configure General Configuration Settings

On the host that will run the management portal, complete these steps to edit the `asg_portal.properties` file to specify general configuration to allow the portal to communicate with the API Exchange Gateway:

1. Set Reporting to Off. Make sure that the `reportingEnables` variable is set to `false`:

```
# Turn on or off reporting to CL
tibco.clientVar.ASG/Logging/reportingEnabled=false
```

2. Specify the driver and URL for MySQL:

```
# Portal Engine MySQL
asg.portal.engine.mysql.database.driver=com.mysql.jdbc.Driver
asg.portal.engine.mysql.database.url=jdbc:mysql://
<portal_engine_IP_address>:3306/asg_openapi?autoReconnect=true
```

where `portal_engine_IP_address` is the IP address of the host running the portal.

3. Specify the URL where Swagger specifications are located:

```
# Portal Engine Swagger specification document location URL prefix
asg.portal.engine.swagger.spec.url.prefix
=https://<portal_engine_IP_address>/joomlaUpgrade/uploads/swaggerSpecs/
```

where `portal_engine_IP_address` is the IP address of the host running the portal.



The URL might be `http://` or `https://`, depending on the Apache configuration for Joomla.

4. Specify the Portal Server URL prefix:

```
# Portal Server URL prefix
asg.portal.url.prefix=https://<portal_engine_IP_address>/joomlaUpgrade
```

where `portal_engine_IP_address` is the IP address of the host running the portal.



The URL might be `http://` or `https://`, depending on the Apache configuration for Joomla.

5. Save the `asg_portal.properties` file.

Set Properties for Central Logging

On the host that will run the management portal, edit the `asg_portal.properties` file to specify properties for the Central Logger:

1. Edit the `asg-portal.properties` file to specify database properties for the Central Logger:
 - Identify the Central Logger database. The following example identifies a MySQL database:


```
# Central Logger database
asg.portal.engine.cl.database.driver=com.mysql.jdbc.Driver
asg.portal.engine.cl.database.url=jdbc:mysql://localhost:3306/asgstat?autoReconnect=true
```
 - Configure the Central Logger database connection pool. The following example shows a sample configuration for the database connection pool:


```
# Central Logger database connection pool
asg.portal.engine.cl.db.connectionPool.initialConnections=3
asg.portal.engine.cl.db.connectionPool.maxConnections=10
asg.portal.engine.cl.db.connectionPool.waitForBusy=true
```
 - Specify the database username and password, as shown in the following example:


```
# Central Logger database username/password
asg.portal.engine.cl.db.username=root
asg.portal.engine.cl.db.password=root
```
2. Edit the `asg-portal.properties` file to specify the quota checking interval. The default usage check interval is 10 minutes. The following example sets the quota checking interval to 1 minute:


```
# Quota usage checking interval in minutes
asg.portal.engine.quotaUsageCheckInterval=1
```

Starting the Configuration

To start the configuration (for example, Book Query) issue the following command:

```
asg-engine.exe - -a BookQuery
```

To start the portal project, enter the following command:

```
asg-portal-engine -a PortalProject
```

Starting the asg-engine Configuration to Support Quota Notification

To support quota throttle notification (notification when usage for a particular application reaches a limit set for a specified environment), start each engine in the portal environment using the `-n EngineName` parameter for the **asg-engine** command:

```
asg-engine.exe -n EngineName
```

where *EngineName* specifies a unique engine name.

Chapter 3

Setting Up the TIBCO API Exchange Gateway

This chapter describes the steps for setting up TIBCO® API Exchange Gateway.

Topics

- [Overview of Gateway Setup Steps, page 18](#)

Overview of Gateway Setup Steps

Setting up the API Exchange Gateway includes these steps.

- **Configure an Endpoint Operation** See “Configuring an Endpoint Operation for API Exchange Gateway” in the *TIBCO API Exchange Gateway User’s Guide*.
- **Create a New Configuration** See “Create a New Configuration” in the *TIBCO API Exchange Gateway User’s Guide*.
- **Configure Partner Group** See “Configure Partner Group” in the *TIBCO API Exchange Gateway User’s Guide*.
- **Configure Partner Data** See “Configure Partner Data” in the *TIBCO API Exchange Gateway User’s Guide*.
- **Configure a Facade Operation** See “Configure a Facade Operation” in the *TIBCO API Exchange Gateway User’s Guide*.
- **Configure a Target Operation** See “Configure a Target Operation” in the *TIBCO API Exchange Gateway User’s Guide*.
- **Configure an Authorization Configuration** See “Configure an Authorization Configuration” in the *TIBCO API Exchange Gateway User’s Guide*.
- **Configure Routing Configuration** See “Configure Routing Configuration” in the *TIBCO API Exchange Gateway User’s Guide*.

Chapter 4

Installing the Developer Portal

The Developer Portal is implemented using the Adapter Code for TIBCO API Exchange and Joomla! component of TIBCO API Exchange. Joomla is open-source software that enables development of web portals. Installation of Joomla requires that you install additional open source applications:

- **Apache Web Server** A public-domain open source Web server developed by a loosely-knit group of programmers (the Apache Software Foundation).
- **MySQL** An open-source relational database management system (RDBMS). The SQL phrase stands for Structured Query Language.
- **PHP** A server-side scripting language designed for web development but also used as a general-purpose programming language.
- **Cobalt Extensions** A library of programming extensions to Joomla that allows addition of pages with customized functionality. The Developer Portal requires installation of several Cobalt extensions.

Topics

- [Overview of Developer Portal Installation Steps, page 20](#)

Overview of Developer Portal Installation Steps

This chapter presents an overview of the installation steps for the Developer Portal.

Table 4 summarizes the installation steps.

Summary of Installation Steps

Table 4 Basic Installation Steps for the Developer Portal

Step	Description
Installing and Setting Up Apache	Download and configure Apache Web Server. Apache Web Server provides the basic web server for the Developer Portal.
Setting Up and Configuring MySQL	Installation and configuration of MySQL sets up the database that is used to store portal data.
Installing and Setting Up a PHP Environment	This step installs various scripts and applications that are required for the portal to function.
Installing Joomla	Installs the basic web interface for the Developer Portal.
Installing Cobalt extensions	Installs several customized packages that provide specialized functionality for the Developer Portal.
Installing on Windows	Option
Using a WAMP server.	By downloading a WAMP application, you can install Apache, MySQL, and PHP from a WAMP server, using an easy-to-use interface. See “Installing Required Software Using WAMP” in Chapter 2 of the <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> document, “Windows Installation.”

Table 4 Basic Installation Steps for the Developer Portal

Step	Description
Installing required components individually.	<p>You can download and install each required component individually.</p> <p>See the following sections in Chapter 2 of the <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> document, “Windows Installation.”</p> <ul style="list-style-type: none"> • “Installing and Setting Up Apache HTTP Server” • “Installing MySQL” • “Installing and Setting Up PHP”
Installing Joomla	See “Installing Joomla” in Chapter 2 of the <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> document, “Windows Installation.”
Installing Cobalt Extensions	See “Post-Installation Tasks” in Chapter 4 of the <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> document, “Setting Up Joomla.”
Installing on Linux	Option
Using a LAMP server.	By downloading a LAMP application, you can install Apache, MySQL, and PHP from a LAMP server.
Installing required components individually.	<p>You can download and install each required component individually</p> <p>See the following sections in Chapter 3 of the <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> document, “Linux Installation.”</p> <ul style="list-style-type: none"> • “Installing and Setting Up Apache HTTP Server” • “Installing and Configuring MySQL” • “Installing and Setting Up PHP” • “Installing the Adapter”
Installing Joomla	See “Installing Joomla” in Chapter 3 of the <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> document, “Linux Installation.”

Chapter 5

Configuring the Developer Portal

This chapter summarizes the steps for configuring the Developer Portal and setting up a product.

For additional details, see the following documents:

- *Adapter Code for TIBCO® API Exchange Manager and Joomla! Administration*
- *Adapter Code for TIBCO® APIExchange and Joomla! User's Guide*

These documents are available on GitHub at the following location:

<https://github.com/API-Exchange/JoomlaAdapter/wiki>

Topics

- [Overview of Product Setup Steps, page 24](#)
- [Overview of Product Setup Steps, page 24](#)
- [Creating an Organization and a Manager Role, page 25](#)
- [Creating a Gateway \(Using the API Exchange Component\), page 27](#)
- [Creating an Environment, page 28](#)
- [Managing Scopes, page 30](#)
- [Creating an API and API Operations, page 32](#)
- [Creating a Product and Product Plans, page 35](#)
- [Registering an Application, page 38](#)
- [Subscribing to a Product, page 40](#)

Overview of Product Setup Steps

Setting up a product using the Developer Portal includes these steps:

- [Creating an Organization and a Manager Role, page 25](#)
- [Creating an Organization and a Manager Role, page 25](#)
- [Creating an Environment, page 28](#)
- [Creating an API and API Operations, page 32](#)
- [Creating a Product and Product Plans, page 35](#)
- [Registering an Application, page 38](#)
- [Subscribing to a Product, page 40](#)

If you have installed the Adapter Code for TIBCO API Exchange and Joomla!, refer to the following documents for product setup steps:

- *Adapter Code for TIBCO API Exchange and Joomla! Administration Guide* Describes the steps for creating user roles and users for the Developer Portal.
- *Adapter Code for TIBCO API Exchange and Joomla! User's Guide* describes the steps for setting up a product using the Developer Portal.

These documents are available on GitHub at the following location:

<https://github.com/API-Exchange/JoomlaAdapter/wiki>

Creating an Organization and a Manager Role

Creating an Organization

Actor: Portal
Administrator

To create an organization, complete these steps:

1. Log in to the API Management Portal as a portal administrator.
2. Click the **Organizations** tab, and then click **Create New Organization**.
The Create New Organization interface appears.
3. Specify the following information to identify the organization:
 - **Title** Enter a short and unique name for the organization.
 - **Description** Enter a description for the organization.
 - **Organization Type** Choose the **partner** organization type from the options in the drop-down list.



Ensure that only one organization is defined as a host organization.

- **Email** Enter a contact email address for the organization contact person. This email is used for notifications and may represent a single user or a distribution group.
 - **Threshold** Enter a number between 0 and 100 that specifies a threshold usage percentage at which you will receive an alert notification.
 - **Contact Details**
 - Address Fields** Enter address details for the organization contact.
 - Instant Contacts** Enter a telephone number for the organization contact.
4. Click **Save** to create the organization.
An organization detail page appears for the organization.
The newly created organization is listed on the **Organizations** tab.

Creating a Manager Role

Actor: Portal
Administrator

After creating an organization, the portal administrator can add members and update additional information for the organization.

To create a Manager role, complete these steps:

1. Log in to the API Manager Portal as a portal administrator.
2. Click the **Organizations** tab and then click the name of the organization.
3. Click **New Member** under Members.

The Create a new user profile interface appears.

4. Specify the following information to identify the user:
 - **User profile title** Enter a name for the user profile. This name is used to display the user name on the UI.
 - **System User** Select an existing Joomla! (system) user to associate with this user profile. Use this field only when there is an existing Joomla! user in the system for which there is no user profile created.
 - **User type** From the options in the drop-down list, choose **Manager**.
 - **Email** Enter the email address for the Manager.
 - **First name** Enter the user's first name.
 - **Last name** Enter the user's last name.
 - **Contact phone number** Enter the user's contact phone number.
 - **Member of organizations** Displays the organization to which the user. This value is assigned automatically when a new user is created.
 - **Contact for organizations** Click **Choose**, and from the dialog that appears, select the organizations for which this user can be the contact person, and then click **Save**.
5. Click **Save** to create the user profile.

Creating a Gateway (Using the API Exchange Component)

For information on creating a gateway, see the *TIBCO API Exchange Gateway Installation* document.

Creating an Environment

Actor: Portal Administrator

To create an environment, complete these steps:

1. Log in to the API Manager Portal as portal administrator.
2. Choose the **Environments** tab and then click **Create New Environment**.
The Submit New Environment interface appears.
3. Enter the information to set up the new environment:
 - **Environment Name** Enter a short name for the environment. The name is displayed on the product page within the portal.
 - **Description** Enter a description for the environment.
 - **Type** Choose the environment type from the options in the drop-down list: Development, Production, Sandbox, Staging, or Testing. The type is for informational purposes only.
 - **Basepath** Enter a URL that represents the public endpoint for services running in the environment. Often this is an IP load balancer, For example, enter `http://localhost:8080/basepath`.
4. Click **Save** to save the environment.

An environment page for the new environment appears. From this page you can click **Add Gateway** to add a gateway to the environment or click **Configure** to specify additional environment configuration settings.

For information on adding a gateway to the environment, see [Adding a Gateway to an Environment, page 28](#).

Adding a Gateway to an Environment

After creating an environment, the portal administrator can add one or more gateways to the environment.

1. Log in to the API Manager Portal as Portal Administrator.
2. Choose the **Environments** tab and click on an environment name.
3. Click **Add Gateway** under Gateways.

The Create New Gateway interface appears.

4. Enter the information to identify the gateway:
 - **Gateway name** Enter a name for the gateway.
 - **Description** Enter a description for the gateway.
 - **Environment** Displays the name of the environment that the gateway is being added to.
 - **Management URL** Enter the URL to connect to the TIBCO API Exchange Gateway server. If the Management URL is to be accessed using Secure Sockets Layer (SSL), check the **SSL** check box.

To add additional URLs, click the Add URL button to display additional fields for adding URLs and enter the URL information for the URLs.
5. Click **Save** to add the gateway to the environment.

Managing Scopes

Actor: Portal
Administrator

Scopes are used to restrict access to the resources by applications when an application choose to use OAuth protected APIs. The portal administrator defines the scopes, which can then be used by application developers.



The **Scopes** tab appears only if OAuth authorization is enabled. For information on enabling OAuth authorization, see [Enabling OAuth and Scopes Configuration, page 12](#).

Creating a Scope

To create a new scop, complete these steps:

1. Log into the management portal as Portal Administrator.
2. Click the **Scopes** tab and then click **Create New Scope**.

The Create New Scope interface appears.

3. Specify the following information:
 - **Scope name** Name of the scope.
 - **Description** Description of the scope.
4. Click **Save & Close** to create the scope.

Summary of Application Development Steps

Application development steps are performed by developers. For detailed information on application development steps, see the *Adapter Code for TIBCO API Exchange and Joomla! User's Guide*.

To create applications, developers:

1. Request one or more products/plans, and specify the time range for which the product and plan will be subscribed to.

The Portal Administrator approves the requests and creates subscriptions for the developer's (subscribing) organization and marks the subscription as active for the requested time range.

2. Create an application:
 - Add a product
 - Add a plan
3. Request an API key
4. Use the API key and sends requests to the operations available for that product through API explorer.
5. In order to use the application in code, specify the application key associated with the application.



If necessary, the application developer can request replacement keys, for example, if the existing key has been compromised.

If you are using the Adapter Code for TIBCO API Exchange and Joomla!, for additional details, see the *Adapter Code for TIBCO API Exchange and Joomla! User's Guide*.

Creating an API and API Operations

Creating an API

Actor: Portal Administrator

To create an API:

1. Log in to the API Manager Portal as a portal administrator.
2. Select the **APIs** tab and click **Create New API**.

The Create New API page appears.

3. Enter the information to define the API:
 - **API name** Enter a name for the API.
 - **Description** Enter description for the API.
 - **API Type** Choose the API type from the options in the drop-down list: **REST** and **SOAP**. The default API type is **REST**.
4. Upload the API spec and documentation for the API:



Specification artifacts must be available for upload.

- a. **Upload REST API Spec** If the API is a REST API, to add a REST API specification, click **Add files**, and then browse for and select the Swagger specification files to be added. Ensure that the file format is JSON. Once the files are selected, click **Start upload** to upload the selected files.
- b. **Upload WSDL API Spec** If the API is a SOAP API, to add WSDL API specification, click **Add files**, and then browse for and select the WSDL specification files to be added. Once the files are selected, click **Start upload** to upload the selected files.
- c. **REST resource path** Enter the REST resource path for the REST API. This field is applicable to REST APIs and can be left empty for APIs of type SOAP.



The REST API resource paths specified must be unique for a product. Specifying duplicate resource paths may result in the swagger specifications being displayed incorrectly in the API explorer.

- d. **Environments** Click **Choose** and select one or more environments in which the APIs are provisioned and are usable.

5. Enter information for the API documentation:
 - **Attached Documentation Files** Click **Add files** to add one or more documentation files for the API and then click **Start upload** to upload the selected files.
 - **Inline documentation** Enter inline documentation text as required.
6. Click **Save**.
 An API detail page for the new API appears. This page shows the API specification, Description, API type, and resource path for the API.
7. Specify the following information.
 - **Contact** Contact for the API. Click **Create New** to create a new contact or click **Choose** and choose the contact for the API.
 - **Owner organization** Name of the organization that owns the API. The value is assigned automatically.
 - **Contained in products** Click **Choose**, and then from the list of products, choose the products that will use the API.
 - **Operations** Operations can be added to the API after the API is created. Depending on the type of the API, the portal administrator might need to add operations to the newly created API:
 For REST APIs, the operations are picked up from the specification and automatically added to the API. However, the operations are not picked up from the specification for SOAP APIs. The portal administrator must manually add operations to the SOAP APIs after creating them.

See [Adding an Operation, page 33](#) for details.

Adding an Operation

Actor: Portal
Administrator

To add an operation:

1. Log in to the API Manager Portal as a portal administrator.
2. Select the **APIs** tab and then select an existing API. The API details page appears.
3. Under the **Operations** section, click **Add Operation**.

The Create New Operation interface appears.

4. Enter the information to identify the operation:
 - **Operation name** Enter a name for the operation.
 - **Description** Enter description for the operation.
 - **URI path** Enter the REST operation's path or the endpoint URI for the WSDL.
 - **REST method** Select a method for the REST operation from the drop-down: DELETE, GET, POST, or PUT.
 - **SOAP Action** If the API is a SOAP API, enter the SOAP action for the SOAP operation.
5. Click **Save** to add the operation to the API.

Creating a Product and Product Plans

Creating a Product

Actor: Portal
Administrator,
Product Manager

To create a product:

1. Log in to the Management Portal as a portal administrator.
2. Click the **Products** tab and click **Create New Product**.
The Create New Product interface appears.
3. Enter information to identify the product:
 - **Name of the Product** Enter a name for the product.
 - **Description** Enter a description for the product.
 - **Product Category** Select a product category from the drop-down list.
 - **Upload product thumbnail** Upload an image to display the product thumbnail.
4. To associate the product with APIs, click **Choose** and from the list of APIs that appears, select one or more APIs for your product. Then click **Save**.
5. Enter information for the product documentation:
 - **Inline documentation** Enter the inline documentation text for the product, if any.
 - **Attached Documentation Files** Click **Add files** to add one or more documentation files for the product and then click **Start upload** to upload the selected files.
 - **Product-specific terms & conditions** Enter the text for product-specific terms and conditions, if any.
6. Click **Save** to create the product.

Creating a Product Plan

Actor: Portal
Administrator

To create a product plan:

1. Log in to the API Manager Portal as a partner administrator.
2. Click the **Products** tab and select an existing product from the list of products.
The product details page appears.
3. Click the **Plans** tab and then click **Add Plan**.

The Create new plan interface appears.

4. Specify the following information to set up the plan:

- **Plan name** Enter a name for the plan.
- **Level** Specifies the ordering of the plan in the list of product plans, where the plans are placed in the increasing order of the level. Choose a level from the drop-down menu: custom, Level 1, Level 2, Level 3, Level 4, and Level 5.



Once created, custom plans are not displayed on the UI. However, the custom plans can be selected when creating a subscription.

- **Subscriptions** After you create the plan, you can add a subscription to it.
 - **Price or keyword** Enter a price or a keyword to be highlighted for the plan.
 - **Contact** Contact for the plan.
 - **Product** Displays the product name for which the plan is to be created.
 - **Auto subscribed** Select **Yes** to create a plan that can be auto-provisioned.
 - **Plan details** Enter the details of the plan.
 - **Rate Limit** Specifies the number of requests to the API allowed per second.
 - **Quota Limit** Specifies the number of requests to the API allowed per day for products using the plan.
 - **Description** Enter a description for the plan.
5. Click **Save** to save the plan and add it to the selected product.

The newly created plan appears on the product page for the product.

After creating a product and adding a plan, you must associate an environment with the product. See [Associating a Basepath with a Product, page 37](#) for details.

Associating a Basepath with a Product

After you save a product definition, on the **Product** page for the product, follow these steps to associate a basepath with the product:

1. Click **Choose**.

The **Choose** dialog appears.

2. Do one of the following:
 - To search for an environment, enter all or part of an environment name in the search field and then click **Search**.
 - Click on an environment in the list of available environments.

The **Product** page appears and the IP address of the selected environment appears.

Registering an Application

Product managers can register applications and assign products to the applications.

To register an application:

1. Log into the Developer Portal.
2. Click the **Applications** tab.
3. Click **Register Application**.

An interface appears for defining the application.

4. Specify the following information to identify the application:

— **Application name** Enter a name for the application.

— **Icon** Optionally, associate an icon with your application by clicking **Choose file**, browsing for the file containing the image that you want, and then clicking **Open**.

The selected image appears on the configuration interface.

— **Description** Optionally, enter a description for the application.

The bottom of the page shows the products that you can associate with the application.

5. To choose a product:

- a. In the list of products, click on the name of a product.

A list of plans that have been enabled for the product appears.

- b. To enable a plan, click **Use** (in the Enabled column).

A checkbox appears in the Enabled column.

If your system administrator has enabled OAuth authentication for your environment, and you want to use OAuth, click **Yes** in the OAuth section.

6. If you clicked **Yes** to specify OAuth authentication, complete these steps to apply scopes:

- a. Click the **Set Parent** button.
- b. From the Attach Existing dialog, select one or more scopes to apply and then click **Save**.
- c. In the Redirect URL field, enter a URL that users will be redirected to when accessing the application.

Users may be prompted to enter a user ID and password to access a partner service referenced by the redirect URL.

If a label has been associated with the specified URL, the label appears in the Label field.

- d. If no label has been associated with the URL, enter a label.
- e. If you want to specify additional redirect URLs and labels, click **Add URL** to display additional fields for specifying redirect URLs and labels.

You can specify up to 10 redirect URLs.

7. Click **Save** to save your application.

An Applications window for your application appears. This window allows you to request an application key for the application.

When you call an API associated with a product that has been assigned to your application, you must specify the application key in order to invoke the API.

8. Click the **Request Key** button.

An application key is generated and appears in the API Key field.

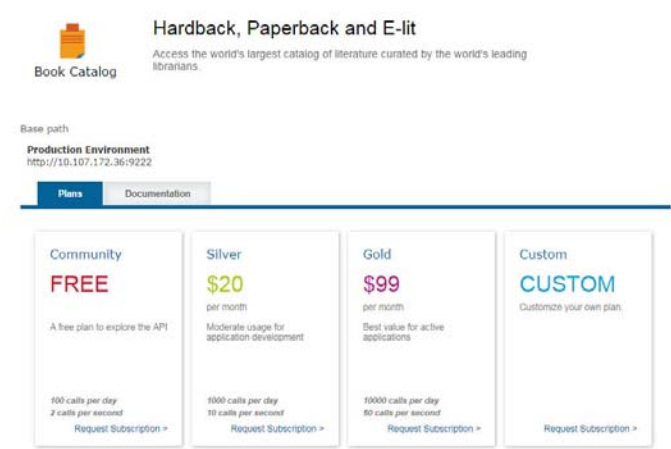
Subscribing to a Product

When an application developer requests a product plan for a product, the application developer also requests a subscription, which is included in the product plan.

To request a product plan and a subscription:

1. Go to the Getting Started page.
2. Log into the Management Portal.
3. Click on a product in the list of Featured Products.

A group of product plans appears.



4. To request a plan, click **REQUEST PLAN** in the plan display.
- A dialog appears asking you to confirm the plan and your contact details.
5. Review the information on the confirmation dialog.
 6. Check the Agree to the Product-specific terms & conditions check box.
 7. If the information for the plan is correct, click **PLACE REQUEST**.
- A subscription request is sent to the host administrator for your organization.

Chapter 6 **Running the BookQueryBE Example**

This chapter describes how to run the BookQueryBE sample application that is provided with TIBCO API Exchange Manager.

Topics

- [Overview of BookQueryBE, page 42](#)
- [Setting Up the Back-End BookQueryBE REST Service, page 43](#)
- [Starting BookQueryBE, page 44](#)

Overview of BookQueryBE

TIBCO API Exchange provides a BookQueryBE example that shows how to set up a bookstore application. BookQueryBE is a REST service that allows users to look up book titles stored in an XML file by querying on the author name, title, publisher, or ISBN number.

The bookstore example also implements several types of API Exchange throttles:

- Rate throttles
- Quota throttles
- High water mark throttles
- Error throttles

Setting Up the Back-End BookQueryBE REST Service

Starting the BookQueryBE Service

You start the BookQueryBE service from the asg-engine command prompt.

To start the BookQueryBE service, complete these steps:

1. Go to `ASG_HOME/bin`.
2. Enter the following command:

```
asg-engine - u default -c {filepath to BookQueryCDD.cdd file}  
{path to the BookQuery.ear file}
```

where the filepath to the BookQueryCDD.cdd file is

```
$TIBCO_HOME/asg/2.1/examples/BookQueryBE/BookQuery
```

and the path to the BookQuery.ear file is

```
$TIBCO_HOME/asg/2.1/examples/BookQueryBE
```

This starts the BookQueryBE service on port 7909.

The Localhost URLs for the services for operations are:

- GET: `http://localhost:7909/Books/BookOperations/{Title}/{Title_Name}`.
(Title can be replaced by Author, Publisher or ISBN).
- POST: <http://localhost:7909/Books/BookOperations>
Body Example: {"Title": "ASG", "Author": "Neel", "ISBN": "123-6578-29329",
"Date": "1997", "Publisher": "Tata-Mc-Grawhill"}
- DELETE: `http://localhost:7909/Books/BookOperations/Title/{Title_Name}`
Here, the book with title name should be deleted.
- PUT: `http://localhost:7909/Books/BookOperations/{Title}/{Title_Name}`
Body Example: {"Title": "ASG", "Author": "Neel", "ISBN": "123-6578-29329",
"Date": "1997", "Publisher": "Tata-Mc-Grawhill"}

Here, the book with the title name will be replaced with the book supplied in the body of the PUT request.

- For GET, `getbooksbyauthor`, the URL is
`http://$host:$port/Books/BookOperations/Author/Vivek Ranadive`
- If the request comes via the API Exchange Gateway, the URL should be
`http://$hostofasg:$portofasg/Channels/Books/BookOperations/Author/Vivek Ranadive`

Starting BookQueryBE

Start the configuration (for example, Book Query) by entering the following command:

```
asg-engine -a BookQueryBE
```


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