

TIBCO® API Exchange Manager Getting Started

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TIBCO Documentation and Support Services

Documentation for this and other TIBCO products is available on the TIBCO Documentation site. This site is updated more frequently than any documentation that might be included with the product. To ensure that you are accessing the latest available help topics, please visit:

<https://docs.tibco.com>

Product-Specific Documentation

Documentation for TIBCO products is not bundled with the software. Instead, it is available on the TIBCO Documentation site. To directly access documentation for this product, double-click the following file:

`TIBCO_HOME/asg/2.3/doc/manager/index.html`

where `TIBCO_HOME` is the top-level directory in which TIBCO products are installed. On Windows, the default `TIBCO_HOME` is `C:\tibco`. On UNIX systems, the default `TIBCO_HOME` is `/opt/tibco`.

The following documents for this product can be found on the TIBCO Documentation site:

- *TIBCO API Exchange Manager Installation*
- *TIBCO API Exchange Manager Administration*
- *TIBCO API Exchange Manager Release Notes*
- *TIBCO API Exchange Concepts*
- *TIBCO API Exchange Getting Started*

How to Contact TIBCO Support

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- 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.

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<https://www.tibcommunity.com>

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.

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.

You can use TIBCO API Exchange Manager to perform the following actions:

- 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 application developers can use 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 *Concepts* guide for TIBCO API Exchange Manager.

<http://docs.tibco.com>

User Roles

Four types of users use the application:

Portal Administrators

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

Partner administrators create organizations and users, as well as manage subscriptions.

Product Managers

Product managers add APIs and operations, create products and plans, as well as run analytical tests on APIs.

Application Developers

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

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

All relevant sections in their respective guides can be found at <http://docs.tibco.com>.

Figure Overview of Getting Started

Step	See Section
Deploy TIBCO API Exchange	"Deploying the Product Components" in <i>TIBCO® API Exchange Manager Getting Started</i> guide.
Set Up a Gateway (using the TIBCO API Exchange component)	"Setting Up TIBCO API Exchange Gateway" in
Install TIBCO API Exchange Manager	"Installing the Product Components" in <i>TIBCO® API Exchange Manager Getting Started</i> guide.
Configure the portal engine and the TIBCO API Exchange engine.	Configuring the API Exchange Gateway Engine and the Portal Engine
Install the Developer Portal	Installing the Developer Portal
Developer Portal: Administrative Setup Steps	
Creating an Organization and a Manager Role	Creating an Organization and a Manger Role
Creating an Environment and Adding Gateway to It	Creating an Environment
Creating Subscriptions	Creating a Product and Product Plans
Creating Scopes	Managing Scopes
Creating an API and API Operations	The following guide: <i>Adapter Code for TIBCO® API Exchange and Joomla! Administration</i> http://github.com/API-Exchange/JoomlaAdapter/wiki
Developer Portal: Product Setup Steps	
Creating a Product and Product Plans	<ul style="list-style-type: none"> • Creating a Product Page • Creating a Product Plan
Creating an Application and Adding a Product	Registering an Application
Subscribing to a Product	Subscribing to a Product

Product Components Deployment

TIBCO API Exchange Manager includes installing and setting up the TIBCO® API Exchange Gateway component along with TIBCO API Exchange Manager.

General Deployment

For setting up a user interface to create APIs and products and associating them with applications:

- Use the Joomla portal, which is available after you install the Adapter Code for TIBCO API Exchange and Joomla!.

See the "Installing the Developing Portal" section for more details regarding installing and setting up a Joomla-based portal.

See *Adapter Code for TIBCO API Exchange and Joomla! Installation* for more details regarding installing Developer Portal, which is available at the following website:

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

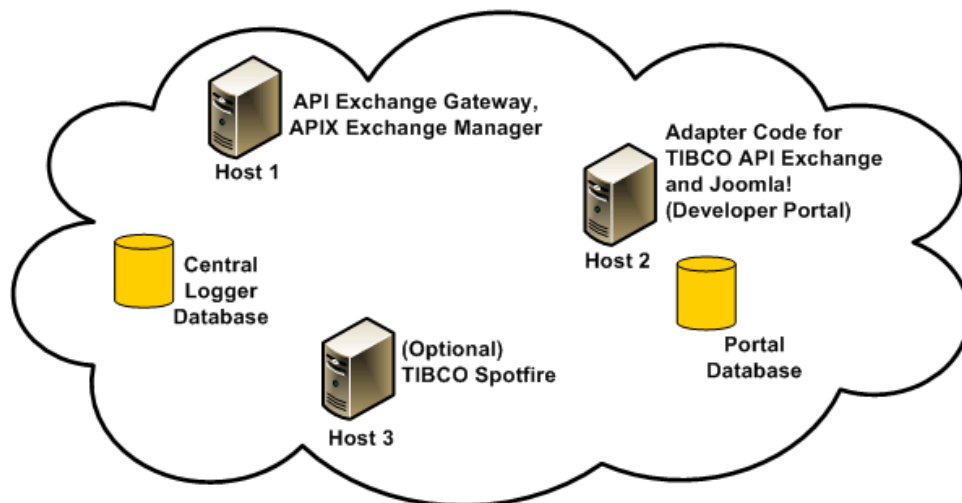
Typical Deployment Topology

A typical deployment topology includes all of the product components from the following products:

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

Topology Diagram

TIBCO API Exchange Deployment Topology



Main Deployment Steps

The following table summarizes that main deployment steps for API Exchange Manager.

Table Main Deployment Steps

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

Product Components Installation

It is good practice to install the API Exchange Gateway, API Exchange Manager, and TIBCO Rendezvous (optional) on one or more hosts, and the Developer Portal or your own application development interface on another host.

Installing TIBCO Rendezvous TIBCO API Exchange Gateway and TIBCO API Exchange Manager on Host 1

On host 1, install TIBCO Rendezvous, TIBCO API Exchange Gateway 2.3.0, TIBCO API Exchange Manager 2.3.0, and MySQL Connector.

Procedure

1. Install TIBCO Rendezvous into a *TIBCO_HOME* directory (optional).
You must install TIBCO Rendezvous Version 8.3.2 or higher. See the documentation of TIBCO Rendezvous for detailed steps, which can be found at <http://docs.tibco.com>.
2. In the same *TIBCO_HOME* directory, install TIBCO API Exchange Gateway from the product distribution.
See the documentation of *TIBCO API Exchange Gateway Installation* for detailed steps, which can be found at <http://docs.tibco.com>.
3. Install TIBCO API Exchange Manager from the product distribution.
See the document of *TIBCO API Exchange Manager Installation* for detailed steps, which can be found at <http://docs.tibco.com>.
4. Install MySQL.

- a) If you do not have MySQL installed, download the JDBC version of the connector from the following website:

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

5. Copy the MySQL Connector .jar file from the MySQL installation directory to the `TIBCO_HOME/asg/2.3/lib/` directory.

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

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

Installing the Developer Portal on Host 2

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 document *Adapter Code for TIBCO API Exchange and Joomla! Installation*. This document is available on GitHub at the following location:

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

Installing TIBCO Spotfire on Host 3 (Optional)

If you use TIBCO Spotfire for analytical data output on APIs distributed by using TIBCO API Exchange Manager, install TIBCO Spotfire Server on a stand-alone host.

See *TIBCO Spotfire Server Installation and Configuration* for more details regarding installing TIBCO Spotfire, which can be found at <http://docs.tibco.com>.

Configuring the API Exchange Gateway Engine and the Portal Engine

The configuration steps consist of configuring the `asg.properties` file on the API Exchange Gateway host and the `asg_portal.properties` file on the host that is running the management portal.

Configuring the `asg_portal.properties` File on Host 1

Edit the following properties in `TIBCO_CONF/tibco/cfgmgmt/asg/asg_portal.properties` file:

- `asg.portal.engine.db.username = root`
- `asg.portal.engine.db.password = root`



The credentials above grants access to only specific MYSQL permissions such as SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, INDEX, ALTER, CREATE TEMPORARY TABLES, LOCK TABLES.

Ensure that the port number specified for `tibco.clientVar.DefaultImplementation/Connections/HTTP/FacadeHTTPConnection/Port` property is different in the following two files:

- `TIBCO_CONF/tibco/cfgmgmt/asg/asg.properties`
- `TIBCO_CONF/tibco/cfgmgmt/asg/asg_portal.properties`

Configuring the Central Logger on the Gateway Engine on Host 1

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.

See the “Central Logger” section in *TIBCO API Exchange Gateway User’s Guide* for more information regarding configuring Central Logger, which is available at <http://docs.tibco.com>.

Procedure

- Enable central logging in the `asg.properties` file for the gateway.
See the “Enable Reporting to Central Logger” section in *TIBCO API Exchange Gateway User’s Guide* for more information.
Configure the `asg_cl.properties` file to specify the necessary database connection parameters for central logging.
See the “Setup The Database Connection Parameters” section in *TIBCO API Exchange Gateway User’s Guide* for more information,

Configuring the `asg_portal.properties` File on Host 1

When configuring the `asg_portal.properties` file on Host 1, you have to complete the following tasks:

- [Configuring General Configuration Settings](#)
- [Setting Properties for the Central Logger](#)
- [Starting the Configuration](#)

Configuring General Configuration Settings

On the host that will run the management portal, complete these steps to edit the `asg_portal.properties` file.

Procedure

1. Set Reporting to off. Make sure that the `reportingEnabled` 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 MySQL database user name and password:

```
# Portal Engine MySQL database username/password
asg.portal.engine.db.username=root
asg.portal.engine.db.password=root
```

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.

Setting Properties for the Central Logger

On the host that will run the management portal, edit the `asg_portal.properties` file.

Procedure

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.waitFor=true
```
 - Specify the database user name and password, as shown in the following example:


```
# Central Logger database username and password
asg.portal.engine.cl.db.username=asguser
asg.portal.engine.cl.db.password=asgpass
```
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

After setting properties for Central Logger, you can start the configuration.

Procedure

1. Enter the following command to start the BookQuery:


```
asg-engine -a BookQuery
```
2. Enter the following command to start the portal project:


```
asg-portal-engine
```

Starting the asg-engine Configuration to Support Quota Notification

A notification occurs when the usage for a particular application reaches a limit set for a specified environment.

To support quota throttle notification, start each engine in the portal environment using the `-n` parameter in the `asg-engine` command, for example:

```
asg-engine -n EngineName
```

where *EngineName* specifies a unique engine name.

Configuring API Exchange Gateway and ASG Configuration Using Embedded Config UI

Procedure

1. Log in to the Config UI.

By default, the Config UI copies the BookQueryBE project to the environment configuration folder. To specify the configuration that the Gateway is in the cluster environment and is running, modify

the `java.property.com.tibco.asg.designtime.configui.portal.master` property in the `asg-configui.tra` file.

2. Start the Config UI.
3. Click **Advanced Settings**.
4. Click the **Page** tab next to the **Environment** drop down menu.
This will turn the drop down menu into a text box.
5. Type the environment name, for example, 'Production Environment' and press **Enter**.
This will bring up a new drop down menu, called the **Cluster**.
6. Select the **Page** tab next to the **Cluster** drop down option.
This will bring up a pop-up window.
7. Select the **Page** tab next to the **Cluster** drop down option.
The drop-down will now appear as a text box.
8. Type the name of the cluster, for example, "Cluster 1".
9. In the **Engine URL** field, type the `http://localhost:9222` Gateway URL and click **Save**.
The **Cluster Saved Successfully** pop-up window will appear.
10. Select the environment created from the **Environment** drop down menu.
11. Select the cluster created from the **Cluster** drop down option.
12. Edit the configuration and make the necessary changes.
When you overwrite the configuration name, an **U** icon will appear, which will update the Gateway with the changes made.

TIBCO API Exchange Gateway Set Up

Follow these steps to set up TIBCO API Exchange Gateway.

Overview of Gateway Setup Steps

Setting up TIBCO API Exchange Gateway includes these steps.

The documentation for the following guides can be found at <http://docs.tibco.com>.

Configure an Endpoint Operation

See “Configuring an Endpoint Operation for API Exchange Gateway” in *TIBCO API Exchange Gateway User’s Guide*.

Create a New Configuration

See “Create a New Configuration” in *TIBCO API Exchange Gateway User’s Guide*.

Configure Partner Group

See “Create a New Configuration” in *TIBCO API Exchange Gateway User’s Guide*.

Configure Partner Data

See “Configure Partner Data” in *TIBCO API Exchange Gateway User’s Guide*.

Configure a Facade Operation

See “Configure a Facade Operation” in *TIBCO API Exchange Gateway User’s Guide*.

Configure a Target Operation

See “Configure a Target Operation” in *TIBCO API Exchange Gateway User’s Guide*.

Configure an Authorization Configuration

See “Configure an Authorization Configuration” in *TIBCO API Exchange Gateway User’s Guide*.

Configure Routing Configuration

See “Configure Routing Configuration” in *TIBCO API Exchange Gateway User’s Guide*.

Developer Portal Installation

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 the following 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 provides additional of pages with customized functionality. The Developer Portal requires installation of several Cobalt extensions.

Overview of Developer Portal Installation Steps

The following table summarizes the installation steps for the Developer Portal.

Summary of Installation Steps

The following table lists the steps required for installing 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

Step	Description
Using a WAMP server	<p>By downloading a WAMP application, you can install Apache, MySQL, and PHP from a WAMP server, which is an easy-to-use interface.</p> <p>See the “Installing Required Software Using WAMP” section in <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> for more details.</p>
Installing required components individually.	<p>You can download and install each required component individually.</p> <p>See the following sections in <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> for more details:</p> <ul style="list-style-type: none"> • “Installing and Setting Up Apache HTTP Server” • “Installing MySQL” • “Installing and Setting Up PHP”
Installing Joomla	See the “Installing Joomla” section in <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> for more details.
Installing Cobalt Extensions	See the “Post-Installation Tasks” section in <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> for more details.
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 <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> for more details:</p> <ul style="list-style-type: none"> • “Installing and Setting Up PHP” • “Installing the Adapter”
Installing Joomla	See the “Installing Joomla” section in <i>Adapter Code for TIBCO API Exchange and Joomla! Installation</i> for more details.

Developer Portal Configuration

To configure the Developer Portal and set up a product, see the following documents:

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

These documents are available on GitHub at the following location:

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

Overview of Product Setup Steps

Setting up a product using the Developer Portal involves the completion of these steps:

- Creating an Organization and a Manager Role
- Creating an Environment
- Creating an API and API Operations
- Creating a Product and Product Plans
- Registering an Application
- Subscribing to a Product

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 Joomla! Administration Guide*: this describes the steps for creating user roles and users for the Developer Portal.
- *Adapter Code for TIBCO API Exchange Joomla! User's Guide*: this 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

Actor: Portal Administrator

You can create an organization.

Procedure

1. Log in to the API Management Portal as a portal administrator.




In release 2.2.0, changes have been made to the password functionality. An additional security feature has been added where if you wish to change your password, you must now enter the current password along with the new password. This can be accomplished in the **Profile Page** by clicking on your name at the upper right corner of your screen where you can edit your profile information. Click **Current Password**, validate your old password once and your new password twice, and click **Save** to submit the new data.

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 might represent a single user or a distribution group.
 - Threshold
Enter a number in the range 1 - 100 that specifies a threshold usage percentage at which you will receive an alert notification.
 - Contact Details
 - a) Address Fields
Enter address details for the organization contact.
 - b) 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.

Procedure

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! 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 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.

Gateway Creation (Using the API Exchange Component)

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

<http://docs.tibco.com>

Creating an Environment

Actor: Portal Administrator

You can create an environment.

Procedure

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 the section "Adding a Gateway to an Environment."

Adding a Gateway to an Environment

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

Procedure

1. Log in to the API Manager Portal as Portal Administrator.
2. Choose the **Environments** tab and click 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), select the **SSL** check box.

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

Scopes Management

Actor: Portal Administrator

Scopes are used to restrict access to the resources by applications when an application uses 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 the document *Adapter Code for TIBCO® API Exchange and Joomla! Administration*: <https://github.com/API-Exchange/JoomlaAdapter/wiki>.

Creating a Scope

Procedure

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 and Close** to create the scope.

Application Development

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

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

Developing An Application

Procedure

1. Request one or more products and 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 send 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 *Adapter Code for TIBCO API Exchange and Joomla! User's Guide*: <https://github.com/API-Exchange/JoomlaAdapter/wiki>.

API and API Operations

You can create an API as well as add an API operation.

Creating an API

Actor: Portal Administrator

Procedure

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 specifications 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. After 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. After the files are selected, click **Start Upload** to upload the selected files.



Prior to release 2.2.0, WSDL files could not be supported by the operations created. PHP extensions of SOAP are parse to WSDL files so that the SOAP data are saved and realized.

- 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 might 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 file.

- 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** to 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. Note the following mechanisms:

Result

For SOAP APIs and REST APIs, the operations are picked up from the specification and automatically added to the API.

Actor: API Explorer

You can use the API Explorer for SOAP APIs in the same as a REST API.

Procedure

1. Attach the SOAP API to a product.
2. Navigate to the Product Details page, and then click the **API Explorer** tab.
Now you have access to the SOAP operations of the API and you can test them by providing valid parameters based on the specification of API.

Product and Product Plans

You can create a product as well as product plans.

Creating a Product

Actor: Portal Administrator, Product Manager

Procedure

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**. From the list of APIs that appears, select one or more APIs for your product. 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

Procedure

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.



After Plan name and Level are 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. Prior to release 2.2.0, entering a rate limit was mandatory. Now, this field is optional.
 - Quota Limit
Specifies the number of requests to the API allowed per day for products using the plan.
Count Failure is a new check box to the right of the Quota Limit which specifies the number of failure calls. To activate this feature, select the checkbox.
 - 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 the section "Associating a Basepath with a Product" for more details.

HWM Throttle for Portal Engine

The HWM throttle is a new throttle type introduced in release 2.2.0 for the configuration for plans. It is a new field in the plan details page that controls how many concurrent users, or users there are at the same time. The plan enables for access to its APIS.

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:

Procedure

1. Click **Choose**.
The Choose dialog appears.
2. Complete one of the following steps:
 - 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.

Procedure

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**

Click **Choose file**, browse for the file containing the image that you want, and then click **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, complete these steps:
 - 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 check box appears in the Enabled column.
6. If your system administrator has enabled OAuth authentication for your environment, and you want to use OAuth, click **Yes** in the OAuth section.
7. If you clicked **Yes** to specify OAuth authentication, complete these steps to apply scopes:
 - a) Click **Set Parent**.
 - 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 are redirected to when accessing the application.
You might 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.
8. Click **Save** to save your application.

An Applications window for your application appears. This window enables 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.

9. Click **Request Key**.

Result

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.

Procedure

1. Go to the Getting Started page.
2. Log into the Management Portal.
3. Click on a product in the list of **Featured Products**.
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. Select the **Agree to the Product-Specific Terms & conditions** check box.
7. If the information for the plan is correct, click **PLACE REQUEST**.

Result

A subscription request is sent to the host administrator for your organization.

BookQueryBE Example

You can run the BookQueryBE sample application that is provided along with TIBCO API Exchange Manager.

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 you can use to look up book titles stored in an XML file by querying 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

Back-End BookQueryBE REST Service

Start the BookQueryBE service from the asg-engine command prompt.

Procedure

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 file path to the BookQueryCDD.cdd file is `$TIBCO_HOME/asg/2.3/examples/BookQueryBE/BookQuery`

and the path to the BookQuery.ear file is `$TIBCO_HOME/asg/2.3/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"}`
- 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/Books/BookOperations/Author/Vivek Ranadive`

Starting BookQueryBE

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

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