



# Using the SAP Java Connector with Ensemble

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# About This Book

This book describes how to configure and use the SAP Java Connector with Ensemble. It contains the following sections:

- [Overview](#)
- [Setup Tasks](#)
- [Using the SAP Java Connector](#)

For a detailed outline, see the [table of contents](#).

For more information, try the following sources:

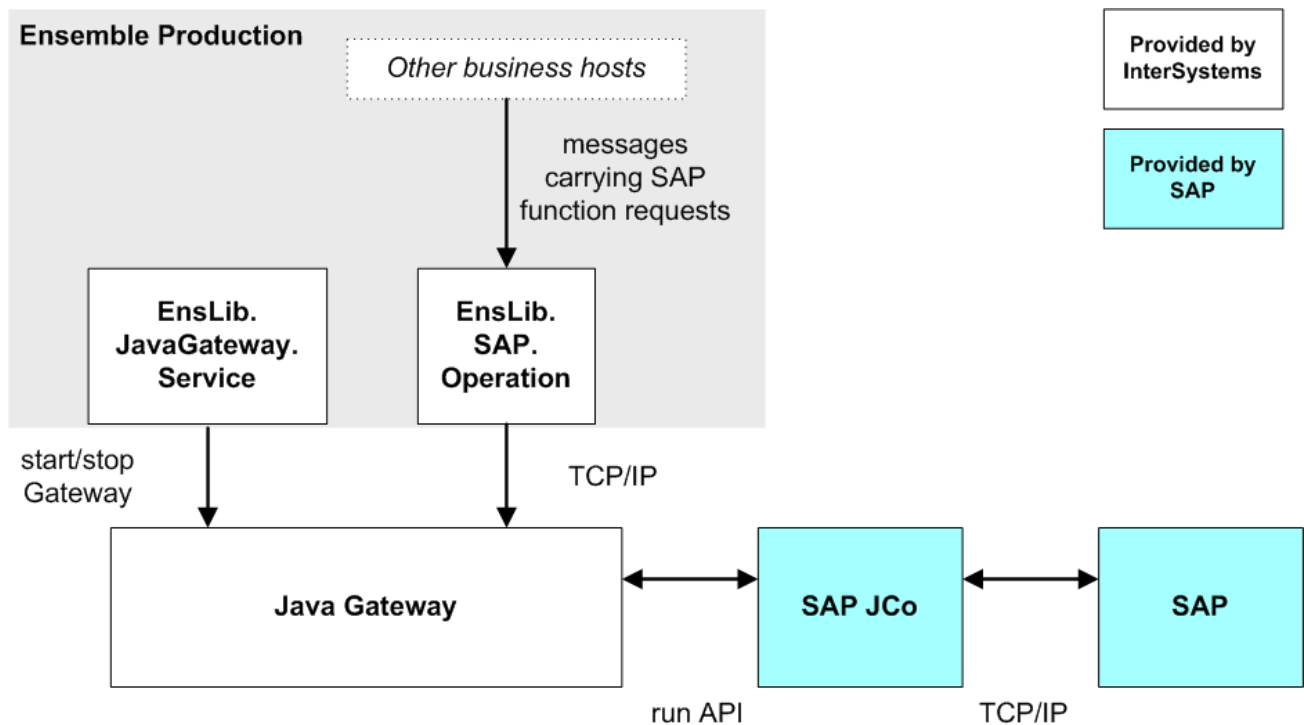
- [Ensemble Best Practices](#) describes best practices for organizing and developing Ensemble productions.
- [Developing Ensemble Productions](#) explains how to perform the development tasks related to creating an Ensemble production.
- [Configuring Ensemble Productions](#) describes how to configure the settings for Ensemble productions, business hosts, and adapters. It provides details on settings not discussed in this book.



# 1

## Overview

SAP Java Connector (SAP JCo) is a Java-based component that supports communication with an SAP Server in both directions. InterSystems provides components that you can add to a production to enable the production to communicate with SAP JCo, and thus with an SAP Server. The following picture shows the architecture:



The architecture includes the Java Gateway, which must be running.

To communicate with SAP JCo, the production must include the following items:

- EnLib.SAP.Operation, which communicates via TCP/IP with the Java Gateway.
- EnLib.JavaGateway.Service, which starts and stops the Java Gateway.

This business host performs an additional function: its settings indicate the location of the Java Gateway. When correctly configured, the EnLib.SAP.Operation business host retrieves those settings and uses them. Thus it is not necessary to set any environment variables.

Unlike most business hosts in an Ensemble production, EnLib.JavaGateway.Service does not handle any Ensemble messages.

It is not necessary to manually create message classes to carry the SAP requests within the production. InterSystems provides a CSP page that you can use to generate the message classes.



# 2

## Setup Tasks

Before you can use the SAP components in a production, you must perform several setup activities. This chapter discusses them:

- [Setting up the Java Gateway](#)
- [Installing the SAP JCo Files](#)
- [Generating proxy classes for SAP JCo](#)
- [Testing the SAP connection](#)
- [Generating message classes](#)

To access SAP, it is necessary to provide a username and password. This means that you must also create Ensemble credentials that contain an SAP username and password. For information on creating credentials, see [Configuring Ensemble Productions](#).

### 2.1 Setting Up the Java Gateway

For information on setting up the Java Gateway, see “[Prerequisites](#)” in *Using the Java Gateway*.

### 2.2 Installing the SAP JCo Jar File

Obtain, from SAP, the SAP Java Connector 3.x, as appropriate for your operating system. Generally, this is provided as a compressed file. Uncompress it and place the contents in a convenient location. The directory should contain the following items:

- examples subdirectory
- javadoc subdirectory
- Readme.txt file
- sapjco3.dll file
- sapjco3.jar file
- sapjcomanifest.mf file

## 2.3 Generating Proxy Classes for SAP JCo

To communicate with SAP JCo, your Ensemble namespace must contain proxy classes that represent SAP JCo. To generate these classes, do the following:

1. Start the Java Gateway.

The easiest way to do this is as follows:

- a. Create a simple production that contains only one business host: `EnsLib.JavaGateway.Service`. (For an example, see `Demo.SAP.Production.Bootstrap` in `ENSDEMO`.)

Configure the settings for this business host so that it can find the Java Gateway. For information, see “[Using the Java Gateway in a Production](#)” in *Using the Java Gateway*.

- b. Start the production, which starts the Java Gateway.

For other ways to start the Java Gateway, see [Using the Java Gateway](#).

2. In the Terminal, change to your Ensemble namespace and use the **ImportSAP()** method of `EnsLib.SAP.BootStrap`, as follows:

```
do ##class(EnsLib.SAP.BootStrap).ImportSAP(pFullPathToSAPJarFile,pPort,pAddress)
```

Where:

- *pFullPathToSAPJarFile* is the full path to the SAP Jar file.
- *pPort* is the port used by the Java Gateway.
- *pAddress* is the IP address used by the Java Gateway.

## 2.4 Testing the SAP Connection

To test the SAP connection, do the following in the Terminal (or in code):

1. Create an instance of `EnsLib.SAP.Utils`.
2. Set the following properties of that instance. These are string properties unless otherwise noted.
  - `SAPClient` — SAP Client e.g 000.
  - `SAPUser` — Username that has access to the SAP server.
  - `SAPPassword` — Password for the user.
  - `SAPLanguage`
  - `SAPHost` — Host name or IP address of the SAP server.
  - `SAPSystemNumber` — SAP SystemNumber e.g 00.
  - `JavaGatewayAddress` — IP address or name of the machine where the JVM to be used by the Java Gateway server is located.
  - `JavaGatewayPort` — Port used by the Java Gateway.

- `SAPTransactionAutoCommit` — Specifies whether to execute the BAPI "BAPI\_TRANSACTION\_COMMIT" after a successful BAPI/RFC-call. This property is `%Boolean`.
3. Call the `PingSAP()` method of your instance. This method connects to SAP and performs a dynamic invocation of the `STFC_CONNECTION` function. It returns a `%Status`.

## 2.5 Generating Message Classes

Ensemble provides sample CSP pages to enable you to generate message classes that carry requests for SAP functions. These are available in the `ENSDEMO` namespace. To use these pages:

1. Use the page `/csp/ensdemo/sap/Index.csp` to search for all the BAPIs and RFCs on the SAP system to which you are currently connected.

You can also search by complete or partial name.

2. Click a BAPI or RFC.

The page now provides a link.

3. Click this link.

This displays a new page with details on that BAPI or RFC.

This page provides a link you can use to generate messages for that BAPI or RFC.

4. Click the link to generate messages.



# 3

## Using the SAP Java Connector

This chapter describes how to add the required components to your production so that it can send requests to SAP. It discusses the following topics:

- [Basic configuration tasks](#)
- [Settings for EnsLib.SAP.Operation](#)

Also see “[Using the Java Gateway in a Production](#)” in *Using the Java Gateway*.

### 3.1 Basics

Add the following business hosts to your production.

- The business service EnsLib.JavaGateway.Service.  
Configure this business host as described in “[Using the Java Gateway in a Production](#)” in *Using the Java Gateway*.
- The business operation EnsLib.SAP.Operation.  
Configure this business host as described in the [later in this chapter](#).
- One or more business hosts that send SAP request messages to EnsLib.SAP.Operation, as needed.  
Use the message classes that you generated [previously](#). Your business hosts should create instances of these classes, set properties as applicable, and send the messages to the instance of EnsLib.SAP.Operation.

### 3.2 Settings for EnsLib.SAP.Operation

EnsLib.SAP.Operation sends requests to SAP JCo, via the Java Gateway. For this business host, specify the following settings:

#### **SAPClient**

SAP Client e.g 000.

#### **SAPCredentials**

This is the name of the set of Ensemble credentials to use when accessing the SAP server.

**SAPLanguage****SAPHost**

Host name or IP address of the SAP server.

**SAPSystemNumber**

SAP SystemNumber e.g 00.

**SAPTransactionAutoCommit**

Specifies whether to execute the BAPI "BAPI\_TRANSACTION\_COMMIT" after a successful BAPI/RFC-call.

**SAPResponseHandler**

Configuration item in this production that should receive the SAP response.

**JavaGatewayConfigItemName**

Name of the (required) configuration item that hosts the Java Gateway.

For settings not listed in this book, see “[Settings in All Productions](#)” in *Managing Ensemble Productions*.