

Galigeo for WebI Installation Guide - G23.0 - eXperience

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Introduction

In this chapter:

Public concerned by this guide

Document goal

Reading conventions

About this document

PUBLIC CONCERNED BY THIS GUIDE

This document is aimed at technical persons in charge of the preparation and execution of the Galigeo platform installation as well as persons doing the exploitation.

DOCUMENT GOAL

This document presents the technical architecture of the Galigeo Solution. It describes the technical pre-requisites and the installation steps.

Galigeo application is a web service used as a WebIntelligence Custom element service, a new feature of the SAP BI 4.2 SP3 platform and above.

READING CONVENTIONS



Steps to follow



Notice



Advice



Carefull



Example

Chapter 1: Pre-requisites

In this chapter:

[Architecture Schema](#)

[BOE Server](#)

[Network](#)

[Client Machine](#)

1.1 Architecture Schema

GENERAL ARCHITECTURE

Galigeo is designed as an n-tiers, client-server, architecture deployed on Intranet/Internet:

- The top most layer is the “**presentation tier**” or the user interface. The Galigeo user interface is a thin Internet remote client.
- The “**application tier**” or the business logic tier consists of the WebIntelligence BI server, Galigeo server, and optionally: Galigeo Print Server (and/or ArcGIS Server). This tier controls the data exchange and connections between the presentation tier and the data tier (described below). **Note that the** WebIntelligence server also controls the authentication/access through BusinessObjects security model.
- The last layer is the “**data tier**” with database servers where information is stored in and retrieved from DBMS.

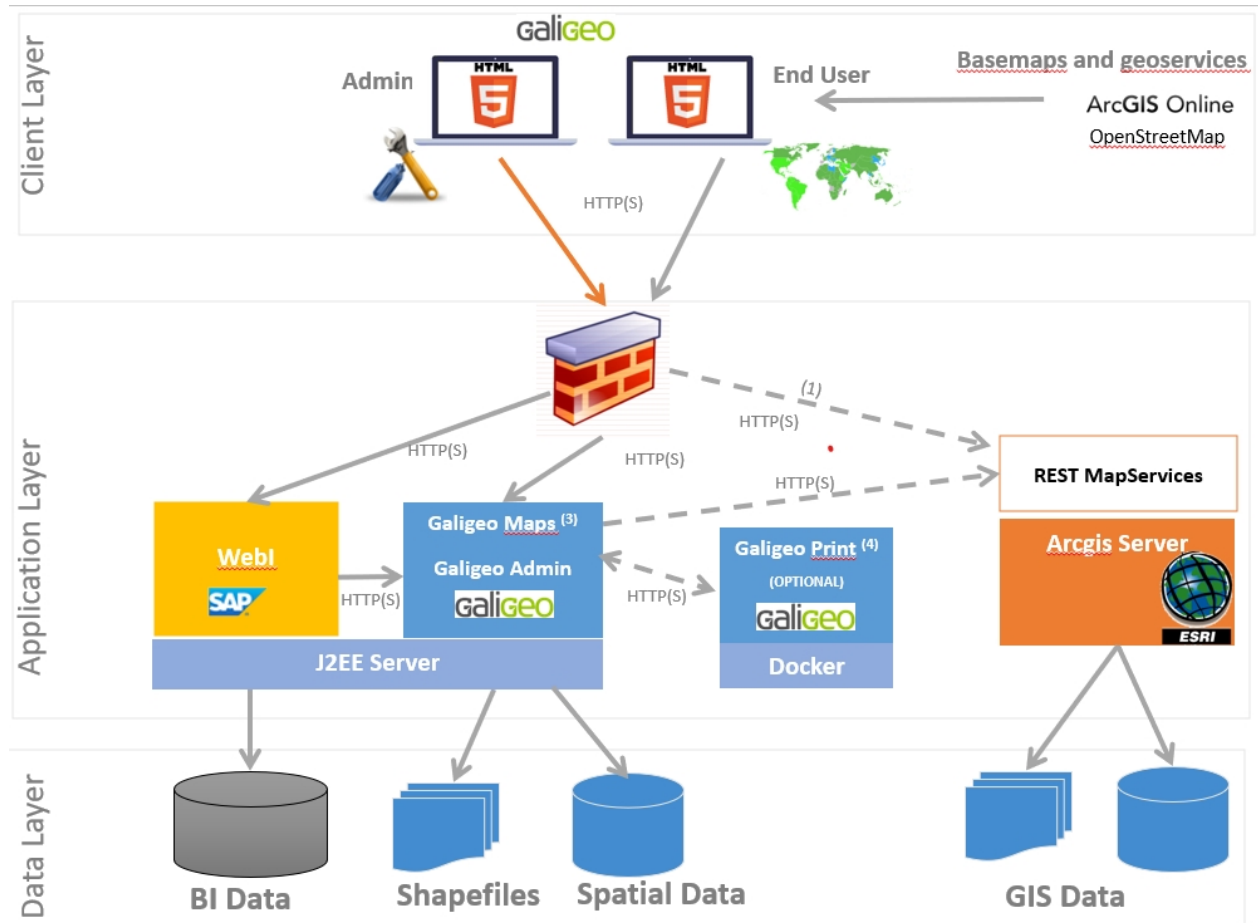
The complete architecture includes the tools for managing and administering this system: The Galigeo Administration console, BusinessObjects Central Management Console and Designer.

Galigeo webapp is deployed in BOE Tomcat Server.

The installation of Galigeo Print Server component is optional (and described in a separate installation guide):

- Galigeo Print Server is needed for WebI PDF scheduling with Galigeo maps.
- It is not needed for Galigeo PDF printing or WebI PDF export with Galigeo maps.

ARCHITECTURE SCHEMA FOR THE HTML CLIENT



(1) Optional - Used by the user if the basemaps are stored on a local Arcgis Server
 (3) Optional - Galigeo Maps needs to access arcgis.com for isochrones calculations
 (4) The optional Print Server is used for PDF report scheduling. It needs to have access to the basemap server.

1.2 BOE Server

The Business Objects server delivers the data from the Webi reports that will be visualized and analyzed in the Galigeo maps. The maps are embedded into the InfoView / WebIntelligence reports.

The BOE Tomcat server hosts the Galigeo webapp.

Item	Pre-requisite	Notices	Check test
OS (see BO supported W2K8 operating systems)	Windows Server 2012, 2016, 2019, 2022 all editions RedHat Enterprise Linux 6, 7 SUSE Linux Enterprise 12	NA	NA
Java Environment	Java 1.8.0_xx (JRE or JDK)		<p>1st test (basic): in a shell command prompt, type : java -version</p> <p>Example of expected result: java version "1.8.0_72" ...</p> <p>2nd test: in the application server configuration console, check what Java version is used.</p> <p>Ex Tomcat - Check the parameter « Java Virtual Machine » in the tab « Java » of the configuration console:</p> <p>C:\jdk1.8.0_72\jre\bin\server\jvm.dll</p>
Applications Server	Tomcat 8.0.x (Java 1.8) Tomcat 8.5.x (Java 1.8) Tomcat 9.0.x (Java 1.8)	<p>Tomcat is installed by default with the server products BOE.</p> <p>The documentation describes the installation only for Tomcat.</p>	<p>Launch the welcome page of the J2EE application server. The version can usually be displayed:</p> <p>Ex Tomcat: http://boe-srv:8080</p>
BOE BI 4.2 SP3, SP4, SP5, SP6, SP7, SP8, SP9 BI 4.3 SP1, BI 4.3 SP2, BI 4.3 SP3	Server Components: Core Services Web Intelligence Services CMC access BI Launchpad access	<p>CMC access is used to declare Galigeo web service as a WebIntelligence Custom element service.</p> <p>BI Launchpad is used to design / visualize WebI documents with</p>	<p>1st test - Launch the BI Launch Pad url:</p> <p>Ex:</p> <p>http://boe-srv:8080/BOE/BI</p> <ul style="list-style-type: none"> - The BI Launch Pad login screen should appear. - If a BO account is available, Open and refresh a Webi document

		Galigeo Maps BI 4.3 SP1: the support of this version is still in Beta because of limitations in SAP BI 4.3 APIs (vs. 4.2). We are collaborating with SAP to overcome those limitations.	<i>2nd test</i> – CMC available: Ex: http://boe-srv:8080/ BOE/CMC
BOE User Account	A Business Objects user account with the rights ad hoc is necessary to run the tests.	The BO user must have the following rights: General: Read/write the objects Documents Web Intelligence : Refresh report, Refresh prompts, Use prompts, Export report data Universe: Data access	<i>See the first test above:</i> Open and refresh a Webi document.

1.3 ArcGIS - Optional

Galigeo application that embeds its own geographical data is fully independent and does not need any GIS server.

However, the Galigeo application is able to use data from ArcGIS Server.

ArcGIS Server

The ArcGIS server can be used as a map service and feature service for the WebI / Galigeo documents.

Galigeo does not require to install any additional component on the ArcGIS server.

Item	Prerequisite	Notices	Check tests
<p>ESRI Products ArcGIS Server</p>	<p>ArcGIS Server 10.1x, 10.2x, 10.3x, 10.4x, 10.5x, 10.6x, 10.7x, 10.8x, 10.9x</p> <p>With the following tools:</p> <ul style="list-style-type: none"> • ArcMap/ArcGIS for Desktop: for creating map projects • ArcGIS Manager to publish and manage map services 	<p>The ArcSDE version is independent with Galigeo.</p>	<p><u>1st test</u> – Check ArcGIS Manager - launch its url:</p> <p>Example:</p> <p>http://esri-srv:6080/arcgis/manager</p> <ul style="list-style-type: none"> - The login screen should display. - Connect with an arcgismanager account and access the map services page
<p>Map Service</p>	<p>ArcGIS Server Map service published from a MXD or a MSD with in particular the options "Export Map" and "Query" (to set during the publishing)</p> <p>The ArcGIS MapServices used by Galigeo must be available via REST from the Galigeo Server machine</p>	<p>The use of MSD format is recommended.</p> <p>Following secured MapServices are supported:</p> <ul style="list-style-type: none"> - ArcGIS Server: GenerateToken - Portal & ArcGIS Online: App Login 	<p><u>1st test</u> – Open the REST url:</p> <p>Example:</p> <p>http://esri-srv:6080/arcgis/rest/services</p> <p>The list of available mapservices should be displayed.</p> <p><u>2nd test</u> – Mapservice access via REST - click on a mapservice:</p> <p>Ex of mapservice REST URL:</p> <p>http://esri-gis:6080/arcgis/rest/services/ggoMapService/MapServer</p> <p>The mapservice properties and layers displays.</p>

GIS Database	Not important for Galigeo Galigeo neither accesses directly to the GIS database	All ArcGIS supported formats	NA
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The connection to ArcGIS Server is done both through Galigeo Server and the client. **This means that the application server, e.g. Tomcat, and the client (web browser) must see ArcGIS Server.**

ArcGIS Online

Galigeo offers the possibility to connect automatically to ArcGIS Online (AGOL) to use the Drive Time service, for example. The credentials are activated as soon as the appropriate license key is declared in Galigeo Administration console.



The connection to ArcGIS Online is done through Galigeo Server, the one that hosts Galigeo cartographic viewer. **This means that the application server, e.g. Tomcat, must see arcgis.com without any proxy authentication.**

1.4 WFS - Optional

The Open Geospatial Consortium (OGC) **Web Feature Service** (WFS) Interface Standard provides an interface allowing requests for geographical features across the web using platform-independent calls

The OGC membership defined and maintains the WFS specification. Numerous commercial and open-source implementations of the WFS interface standard exist, including the open-source reference implementations GeoServer and deegree.

The WFS support comes has an extension to the product. Only versions 1.0.0 and 2.0.0 are supported. The supported output formats are GML3 or GeoJson.

Adding a WFS layer is done through the Galigeo Administration > Catalog tab > Add a layer then select an url. The specified url must a WFS request of type GetFeature. The returned entities must use the reference system EPSG:4326. For example:

https://data.gov.au/geoserver/ballarat-heritage-area-gutter-rails/wfs?request=GetFeature&typeName=ballarat-heritage-area-gutter-rails:ckan_04fdff50_c07d_4611_8871_2b4a5787de28&outputFormat=application/json&version=1.0.0

Some WFS servers become unstable when they return a large number of result. The maximum number of records can be limited by adding the url the parameter "maxFeatures" for versions 1.0.0 or "count" for versions 2.0.0. The parameter WFSmaxRecordCount in <GALIGEО_HOME>/config/gaia.properties defines the default limit of features at a time on the map.

1.5 Network

This table lists the ports used for all the modules involved with Galigeo webapp. The ports must be available from the calling application, which might in some cases require some firewall adjustment.



The default port values might be different in the real situation.

Port	Protocol	Opened on	Used by	Default Value	Firewall rule
BI Tomcat port (Business	HTTP(S)	BI Server +	- BI Server (from BI server to GGO server as a WebI	8080	If Galigeo Print Server is deployed, open in

Intelligence)		Galigeo Server	<i>Custom Element</i> - Galigeo Client <i>(from client to BI server)</i> - Optional: Galigeo Print Server <i>(to Galigeo Server)</i>		the direction Galigeo Print Server → Galigeo Server
Galigeo Print Server http port - Optional	HTTP(S)	Galigeo Print Server	Galigeo Server <i>(to Galigeo Print Server)</i>	3000	Open in the direction Galigeo Server → Galigeo Print Server
http Port used by the ArcGIS REST services - Optional	HTTP(S)	GIS Server	- Galigeo Admin <i>(from BI server to ArcGIS server)</i> - Galigeo Server to query ArcGIS server mapservice <i>(from Galigeo server to ArcGIS server)</i> - Galigeo client: to query ArcGIS server basemaps if any	6080	Open in the direction Client → GIS The BI connector and Galigeo Server must have access to the REST services with the same url as the client.
Access to ArcGIS Online - Optional	HTTPS	arcgis.com	to query ArcGIS Online <i>(from Galigeo server to ArcGIS Online)</i>	443	Open in the direction Galigeo Server → AGOL

1.6 Client

The web browser on the client machine is used to access BO InfoView and the WebIntelligence documents / Galigeo maps.

Item	Recommended	Notices	Check tests
OS	Windows 10, 11 desktop	NA	NA
HTML5 Client Web browser	Microsoft: Edge Chromium 116, 117 FireFox: 102 ESR, 116, 117 Chrome: 116, 117	Javascript activated IE 11 is no more supported Edge Chromium IE 11 mode is not supported	Go to web browser Menu > About to know its version



For proper operation of Galigeo Application, it is important that the client browser has access to base maps, either on internet or intranet.



Sizing the client machine

- We recommend to use Windows 10 or 11 with 4 to 8 Go of RAM

Chapter 2: Installation of Galigeo web application

In this chapter :

[Global overview](#)

[Where the installation takes place?](#)

[Deploy the web application](#)

[Tomcat parameters and special characters](#)

[Font installation](#)

[Finalize installation](#)

[Declare the Galigeo service in the CMC](#)

[Enable WebI APIs \(BI4.2 SPs and Patches since 2019 September\)](#)

[Frontal Web Server](#)

[Cluster deployment](#)

- If not, set them to **true** (every modification server.xml file needs Tomcat to be restarted)
- Example: `<Host name="localhost" appBase="..." unpackWARs="true" autoDeploy="true">`
- Restart BOE Tomcat Service.
- This automatically deploys Galigeo.war file as Galigeo/ folder at the root of webapps/ folder.

2.4 Tomcat parameters and special characters

To display and print correctly special characters, you need to apply the following settings. Once changes are done, you need to restart Tomcat.

Add parameter `-Dfile.encoding=UTF-8`

Tomcat is installed as a service

- Open the Tomcat configuration console,
- Go to the tab "Java",
- In the area « Java Options » add the two following lines:

```
-Dfile.encoding=UTF-8
```

Tomcat starts as a script "startup.bat"

- Edit the file `<BOE_TOMCAT_HOME>/bin/catalina.bat`
- At the beginning of the script, add the line:

```
set JAVA_OPTS=%JAVA_OPTS% -Dfile.encoding=UTF-8
```

Add parameter `URIEncoding="UTF-8"`

- Edit file `<BOE_TOMCAT_HOME>/conf/server.xml`,
- Go to tag `<Connector port="8080" ..` corresponding to Tomcat port (by default 8080), and modify or add the parameter **`URIEncoding="UTF-8"`**

Example:

```
<Connector port="8080" protocol="HTTP/1.1" connectionTimeout="20000"
  redirectPort="8443" URIEncoding="UTF-8"/>>
```

2.5 Font installation

Installation of the ESRI fonts (*deprecated*)



- **The ESRI fonts are not used since Galigeo G19.5 and are not provided in the Galigeo package. It is useless to install them on a virgin platform.** They will be replaced by the Galigeo proper SVG symbols.
- **The only case when it is necessary to install the ESRI font is the following: the reinstallation of Galigeo on a new server with map transports that are using the ESRI fonts.** The following procedure is to be

followed afterwards.

- When updating a previous version to Galigeo G19.5 or greater, the maps, created with the previous version that are using the ESRI fonts will continue to work in G19.5 or greater. The ESRI font have actually been installed by the previous version Galigeo.

- Download ESRI fonts at: https://download.galigeo.com/download/fonts/font_esri.zip
- Unzip the zip file font_esri.zip in a folder on the Galigeo server
- On Windows, select all the .ttf file, right click then choose "Install"
- On Unix / Linux the font installation depends on the distribution

Installation of Windows fonts on Unix / Linux for print module

Windows fonts, by default "DejaVu Sans", are used by the HTML5 print module and may be missing on the Unix / Linux server. They need to be installed. This action can be easily accomplished via the native package installer for each Unix / Linux distribution.

For example, for a Red Hat distribution, the package to install is: *msttcorefonts-2.5-1.noarch.rpm*

2.6 Finalize installation

- The following operation takes place only once. This operation creates a <GALIGEO_HOME> folder that will be used to store the Galigeo resources. **BOE Tomcat user needs to have read/write access to <GALIGEO_HOME> folder.**
- In a browser, launch the following URL: **http(s)://<BOE_TOMCAT_SERVER>:<BOE_TOMCAT_PORT>/Galigeo/**
- Fill the text area with a valid path to <GALIGEO_HOME> folder at BOE Server, outside Tomcat directory. If the folder does not exist, it is created. Example:

C:\Program Files\Galigeo

- Click on [Continue]

2.7 Declare the Galigeo service in the CMC

- Connect to BOE CMC
- Go to Applications > double click on Web Intelligence > Custom Elements
- Add a new service with following parameters:
 - **Service Name: Galigeo**
 - **Service URL: http(s)://<BOE_TOMCAT_SERVER>:<BOE_TOMCAT_PORT>/Galigeo**
- Click on [Test], in "**Service Format**" keep "**text/html**"
- [OK] and check the service checkbox in the services list, then [Save]



Since BI 4.2 SP7 Patch7, before declaring Galigeo Service URL in "Custom elements" section, you have to declare it in the new CMC section "URL White List", just beneath "Custom Elements" and "Properties" sections.

Notice - SSL Service URL and failed test with message

"javax.net.ssl.SSLHandshakeException.." :

If the Tomcat Galigeo Service URL is SSL (**https://**
<BOE_TOMCAT_SERVER>:<BOE_TOMCAT_PORT>/Galigeo) and the test fails with the message "javax.net.ssl.SSLHandshakeException...", you need to do perform the following setup:

NB: this is a SAP BO setup required for any SSL Custom Element.

- Declare the SSL certificate used to authenticate the connection to BOE Portal in the SAP JVM keystore. This step will probably involves your IT Security expert. To help we give some guidelines in annex "**6.2 Declare an SSL certificate in SAP JVM - Guidelines**".

Notice: in case of BOE cluster deployment, the certificate needs to be declared on each node of the cluster.

- Restart the TOMCAT BOE service.

Notice: in case of BOE cluster deployment, restart Tomcat service of each Tomcat node of the cluster.

- Retstart BOE Service Intelligence Agent (SIA).

Notice: in case of BOE cluster deployment, restart SIA on each node of the cluster.

- Declare the https url when creating Galigeo service as custom element. The test should now be OK.

2.8 Enable WebI APIs (BI4.2 SPs and Patches since 2019 September)

Galigeo for WebI eXperience relies on BOE APIs in order to display maps inside WebI reports.

Security rules to access the BOE APIs are continuously reinforced by SAP, which leads to changes in BI 4.2 SPs and/or patches released since 2019 September.

Examples :

- SAP BI 4.2 SP6 patch11 (10/23/2019), patch12 (12/09/2019), etc.
- SAP BI 4.2 SP7 patch5 (09/05/2019), patch6 (10/11/2019), etc.
- SAP BI 4.2 SP8 (02/24/2020), patch1 (04/10/04/2020), etc.

BOE APIs are no more available by default in those SPs and/or patches and need a specific procedure to get activated.



Enabling WebI APIs is not needed with SAP BI 4.3.

The procedure steps are given below.

Notice: There is a bug in BOE "Add External Extension" process that leads to a weird error message "HTTP Status 500". But it does the job, so don't worry if this weird error message appears.

- Connect to BOE CMC
- Go to Users and Groups > right click on Everyone Group > Customization menu > Extensions panel
- Click [Add...] to open "Add External Extension" popup and add "Galigeo Enable WebI APIs" extension, using the following parameters:
 - **Extension URL:** [http\(s\)://<SERVER>:<PORT>/Galigeo/extension/Galigeo/wiapi/wiapi.json](http(s)://<SERVER>:<PORT>/Galigeo/extension/Galigeo/wiapi/wiapi.json)
 - Leave the other parameters to their default value

Notice: The beginning of the URL (in green) is the one declared in the "Custom elements" section for Galigeo Service. Example:

If Galigeo Custom element URL is:

<https://my.organization.com/Galigeo>

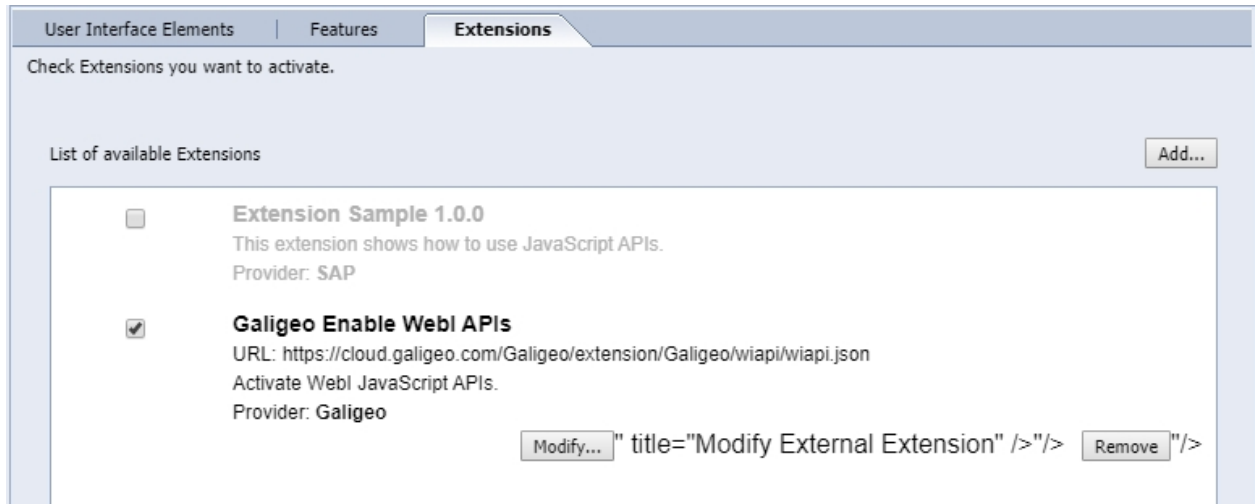
Then Extension URL is:

<https://my.organization.com/Galigeo/extension/Galigeo/wiapi/wiapi.json>

- Click [OK] (*the weird HTTP Status 500" error message should appear*),
- Click [Save] at the bottom right, the "Galigeo Enable WebI APIs" appears in the

extensions list

- Check "Galigeo Enable WebI APIs" extension and click [Save], access to BOE APIs is now granted to Everyone group.



2.9 Frontal Web Server

If SAP BI Launch Pad portal is accessed from client web browsers through a frontal web server, it is then necessary that Galigeo web application is also accessed through this frontal web server.

If not, some Galigeo features - map print, georeports - could be blocked for cross-domain security reasons.

In such case, Galigeo frontal URL must be declared in Galigeo Administration console > Technical Settings > "Proxy" Menu > "External URL" parameter.



For example, if BI Launch Pad client URL is:

http(s)://my.organization.com/BOE/BI

Then Galigeo client URL must be:

http(s)://my.organization.com/Galigeo

that must be declared in Galigeo Administration console > "Proxy" Menu > "External URL" parameter

2.10 Cluster deployment

Galigeo can be deployed in a cluster of BO Tomcat servers that are visible through a unique frontal web server in charge of load balancing and fail-over.



The Territory Management tool, that needs a separate license, does not support cluster deployment.

In a cluster deployment, there is:

- **One Galigeo.war webapp per Tomcat Server**
- **A unique <GALIGEO_HOME> directory shared between all Galigeo webapps.**
 - This can be done, for example, by mounting the same Network Drive, for example "Z:", on each server
 - The path to <GALIGEO_HOME> directory must be the same on each server.
Example: Z:\applications\Galigeo
 - Each Tomcat user must have RW rights on the shared <GALIGEO_HOME> and its subfolders and files.

Installation / configuration steps are detailed below:

NB: We describe below the sharing of a unique <GALIGEO_HOME> directory between all Galigeo webapps by mounting the same Network Drive on each server. There are other ways to do this sharing by using, for example, symbolic links.

- **0 - Prerequisites: on each Tomcat server there is a mount of the same Network Drive**, referencing the same network server.
 - *Example: the network drive "Z:" referencing the same network path, \<NAS_SERVER>*
- **1 - A standard installation is done on each BOE Tomcat server** - see paragraphs 2.2 to 2.5 above - **with a point of attention when finalizing the installation**, see

paragraph "2.6 Finalize installation":

- **On each Tomcat server the same <GALIGEO_HOME> directory is defined using the network Drive.**
- *Example:* On each Tomcat server, the path to <GALIGEO_HOME> directory is defined to "Z:\applications\Galigeo"
- *Remark:* the "real" network path corresponding to the above path is "\<NAS_SERVER>\applications\Galigeo"

- **2 - Declare Galigeo Service in BO CMC: the URL of Galigeo Service is the client one, unique entry point accessed through frontal web server.** *Example:*
 - Service Name: Galigeo
 - **Service URL: http(s)://my.organization.com/Galigeo**
 - **Notice:** each BOE Tomcat server and each <SERVER>.AdaptiveProcessingServer (core and visualization for split APS) must have access to the Galigeo client URL defined above

- **3 - Declare Galigeo client / frontal URL** (ex: http(s)://my.organization.com/Galigeo) **in Galigeo Administration:** see paragraph "2.9 Frontal Web Server".

Chapter 3: Update an existing installation

The procedure takes place on the BOE server.

A Galigeo webapp is already deployed in the BOE Tomcat dedicated to BI Launchpad.

<BOE_TOMCAT_HOME> is the root directory of BO Tomcat Server.



Example of <BOE_TOMCAT_HOME> :

Windows: **D:\BOBI42\tomcat**

- Stop BOE Tomcat service
- Go to **<GALIGEO_HOME>/config** (ex: D:\products\galigeo\config), and **inactivate current config.json file by renaming it config.json.old**, for example. The new config.json file is automatically generated on the first display of a map. If the old file has been customized (ex: custom basemaps), the customization has to be transferred to the new file
- Go to **<BOE_TOMCAT_HOME>/webapps** (ex: D:\BOBI42\Tomcat\webapps\), **delete** or **move** in a backup directory outside tomcat the following elements:
 - **Galigeo** folder
 - **Galigeo.war** file
- Copy the new **Galigeo.war webapp** to **<BOE_TOMCAT_HOME>/webapps**
- **Empty Tomcat cache:** go to **<BOE_TOMCAT_HOME>/work/Catalina/localhost/** and remove **Galigeo** folder
- Restart BOE Tomcat service.

Chapter 4: Uninstall Galigeo

The procedure takes place on Galigeo Sever.

<GALIGEO_HOME> is the Galigeo installation directory.



Example of <GALIGEO_HOME> :

Windows: **D:\products\galigeo**

Unix / Linux : **/products/galigeo**

<BOE_TOMCAT_HOME> is the root directory of BO Tomcat Server.



Example of <BOE_TOMCAT_HOME> :

Windows: **D:\BOBI42\tomcat**

- Stop BOE Tomcat service
- **Backup <GALIGEO_HOME> directory and all its content**
- Delete <GALIGEO_HOME> directory
- Go to <BOE_TOMCAT_HOME>/webapps (ex: D:\BOBI42\tomcat\webapps\, **delete** the following elements:
 - **Galigeo** folder
 - **Galigeo.war** file
- **Empty Tomcat cache:** remove the directory **Galigeo** located at <BOE_TOMCAT_HOME>/work/Catalina/localhost
- Restart BOE Tomcat Service
- Delete or uncheck Galigeo service in BOE CMC

Chapter 5: Galigeo Administration

Managing Galigeo application ; users, geographical data catalog, license, etc ; is done in Galigeo web administration console. A full description of these steps is found in "Chapter 2 - Galigeo Administration" of the user guide.

Galigeo Administration URL is the following:

`http://<BOE_TOMCAT_SERVER>:<BOE_TOMCAT_PORT>/Galigeo/`



`http://boe-srv:8080/Galigeo/`

Chapter 6 : Annexes

In this chapter:

[Backup of Galigeo Home](#)

[Declare an SSL certificate in SAP JVM - Guidelines](#)

6.1 Backup of Galigeo Home

The procedure takes place on BOE server.

<GALIGEO_HOME> is the Galigeo installation directory.



Example of <GALIGEO_HOME> :

Windows: **D:\products\galigeo**

Unix / Linux : **/products/galigeo**



Tomcat service is stopped and restarted during backup procedure.

- Stop BOE Tomcat service
- **Backup <GALIGEO_HOME> directory and all its content**
- Restart BOE Tomcat service

6.2 Declare an SSL certificate in SAP JVM - Guidelines

The best way to declare an SSL certificate in the SAP JVM is to involve the security team of the organization as they have the knowledge of the different kind of certificates they have generated for a given server or domain.

To help we give here some guidelines (adapted from <https://help.sap.com/viewer/8b89e8119e044fb09357906b154afaf1/8.0/en-US/cb2aca0358bb41899386a3cbe676dea6.html>).

Your Security Authority should have provide you an intermediary certificate file usually with the ".pem" extension (distinct from the one declared in Tomcat).

Example : bo4-my.organization.com_CER.pem

In the following guidelines we assume that <SAP_BOE_HOME> is E:\SAP BusinessObjects

- Copy "bo4-my.organization.com_CER.pem" into folder "E:\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64\sapjvm\jre\lib\security"
- Open a DOS Command Prompt window
- Move to "E:\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64\sapjvm\jre\lib\security" :
> cd "E:\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64\sapjvm\jre\lib\security"
- Backup the default JVM keystore cacerts:

> copy cacerts cacerts.original

- Declare the certificate into the JVM keystore:

```
> "E:\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64\sapjvm\jre\bin\keytool" -import -alias <local certificate name> -file <certificate file> -keystore cacerts
```

Example:

```
"E:\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64\sapjvm\jre\bin\keytool" -import -alias my.organization.com_CER -file bo4-my.organization.com_CER.pem -keystore cacerts
```

You will be prompted for the keystore password. The default password is:

changeit

You will be prompted to trust the certificate. Answer is:

yes

If adding the certificate is successful, you will get something like:

Certificate was added to keystore