

# Install guide - Galigeo G26

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*Galigeo*

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# 1. Introduction

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## 1.1 About this document

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### 1.1.1 Public concerned by this guide

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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.

### 1.1.2 Document Goal

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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.

### 1.1.3 Reading conventions

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 Note

 Advice

## 1.2 Description

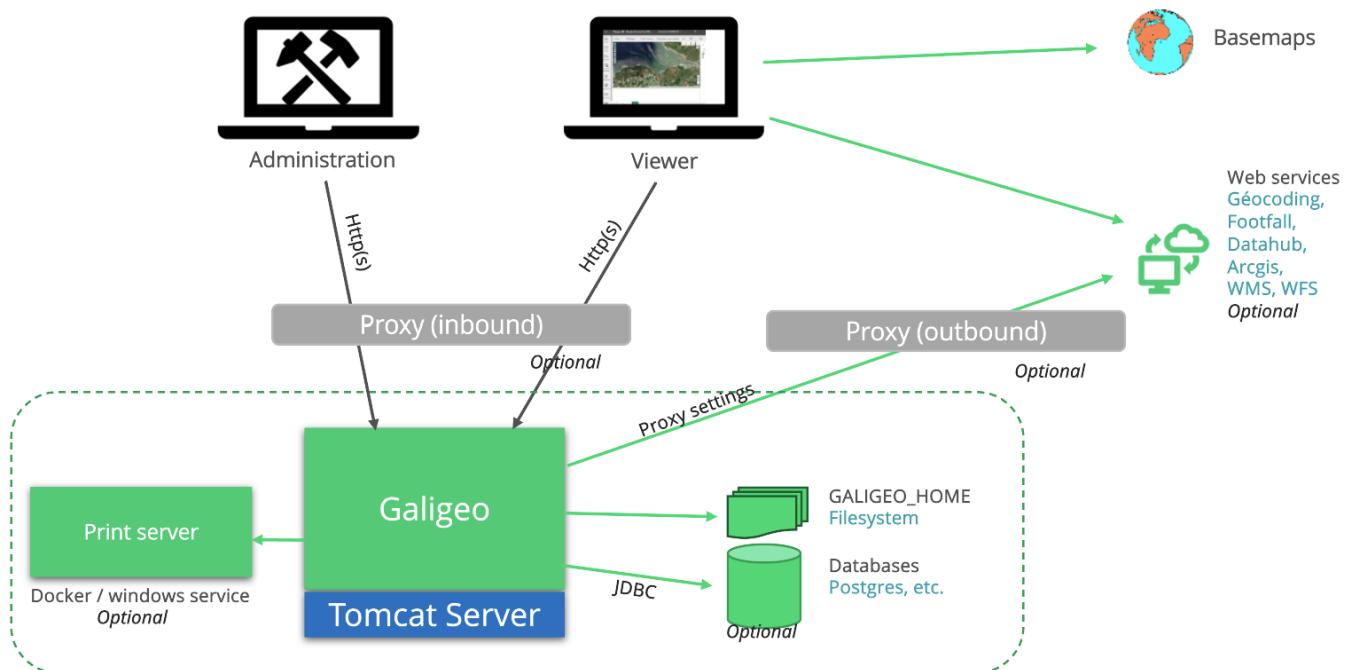
Galigeo is a Java web application designed to be deployed on a Tomcat Server.

All the configuration is stored in a folder `<GALIGEO_HOME>`.

- We provide a file Galigeo.war which needs to be deployed in Tomcat
- Galigeo is designed to run on a server environment without Internet
- Optionnaly, the administrator can configure some proxy settings to access additional features :
  - Ready to use data (Datahub)
  - Mobility data

 Galigeo Print Server is needed for WebI PDF scheduling.

## 1.3 Diagram



## 2. Pre-requisites

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### 2.1 Supported browsers

Browser	Recommended
Chrome	137 to 142
Edge	137 to 142
Firefox	139, 140 (ESR)

Workstation sizing:

For optimal use on your workstation, Windows 10 or 11 with 4 to 8 GB of RAM is recommended.

### 2.2 Tomcat / J2EE environment

#### 2.2.1 Tomcat / Java versions

Galigeo is J2EE application designed to run on a Tomcat server.

Item	Pre-requisite	Notices	Check test
Operatin systems	Windows / Linux		
Java	Java 1.8.0, Java 17.0, Java 21.0		To check the Java version on your server, type from a shell command prompt : <code>java -version</code>
Tomcat	Tomcat 8.5.x, Tomcat 9.0.x, Tomcat 10.0.x	We provide 2 different packages for Tomcat 8/9 and Tomcat 10.	You can check the version on the welcome page. By default: <a href="http://localhost:8080">http://localhost:8080</a>

#### 2.2.2 Tomcat Memory sizing

Component	Minimum	Recommended
Tomcat memory	2 Go	4 Go
Disk space	2 Go	10 Go SSD

## 2.3 SAP BI Platform

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Galigeo is designed to be compatible with the SAP Tomcat and Java versions. It is not necessary to install a separate Tomcat server for Galigeo.

Item	Pre-requisite
Supported versions	BI 4.3 SP4 (until Patch 15), BI 4.3 SP5 (until Patch 2), BI 2025 (until Patch 6)
Server components	Core Services, Web Intelligence
Available access	The installation requires an access to the CMC and the BI launchpad. CMC access is used to declare Galigeo web service as a WebIntelligence Custom element service. BI Launchpad is used to design / visualize WebI documents with Galigeo.

## 2.4 Cognos Analytics

The Cognos server delivers the data for the Cognos reports that will be visualized and analyzed in the Galigeo maps. The maps are embedded into the Cognos reports. Galigeo does not require to install any additional component on the Cognos server.

Item	Pre-requisite	How to check
Supported versions	BM Cognos Analytics: 11.2.3, 11.2.4, 12.0.2, 12.0.3, 12.0.4	
Server components	Cognos Analytics HTML5 Portal: Cognos Viewer, Report Studio, Cognos Administration	<p><b>1st test</b> - Cognos Portal present launch Cognos Portal URL: Ex : C11: `http://cog-srv:9300/bi` . The Cognos login screen should appear.</p> <p><b>2nd test</b> - Access to Cognos Viewer - connect to Cognos Portal, open and refresh a Cognos report.</p> <p><b>3rd test</b> - Access to Report Studio - Cognos Portal &gt; Launch Menu &gt; Report Studio. 4th test - Access to Cognos Administration - Cognos Portal &gt; Launch Menu &gt; Cognos Administration.</p>
User account	A Cognos user account with the following rights on reports: Read - Write - Execute - "Specification Execution" (used for the PDF export)	

 The old cognos HTML4 portal is not supported as the new Cognos analytics Custom Control Tool is not supported

## 2.5 Database servers

Galigeo is compatible with the following database servers.

Database	Versions	Spatial	Territory Manager	Memory/CPU requirements
Postgres	v12 up to v18	Yes, Postgis	Supported	Minimum: 512 MB RAM, Recommended: 2 GB RAM, 1 core @ 2 GHz (x86_64)
SQL Server	2017, 2019, 2022	Not supported	Supported	Minimum: 1 GB RAM, Recommended: 2 GB RAM, 1 core @ 2 GHz (x86_64)
Oracle	10g, 11g, 12c	Yes, Oracle Spatial		Minimum: 1 GB RAM, Recommended: 2 GB RAM, 1 core @ 2 GHz (x86_64)
SAP IQ (Sybase)	16.1	Not supported		Minimum: 512 MB RAM, Recommended: 2 GB RAM, 1 core @ 2 GHz (x86_64)

## 2.6 Esri Arcgis

Galigeo can consume Arcgis services in various ways. The table below list the supported services and where they can be used in Galigeo.

The latest supported version is 10.8.2.

Service	Operation	Component
MapServer	Query	Catalog (vector data)
	WFS Server	Catalog (vector data)
	Export Map	Basemaps (raster data)
FeatureServer	Query	Catalog (vector data)

 Currently, vector tiles are not supported.

## 2.7 List of URLs used by Galigeo

### 2.7.1 External domains accessed by the browser

Type	Domain	Configurable
Basemap	openstreetmap.org	Yes
Basemap	openstreetmap.fr	Yes
Basemap	europa.eu (basemap.eea.europa.eu)	Yes
Geocoding	nominatim.org	Yes
Geocoding	arcgis.com	Yes

 The solution can be configured to use custom basemaps (Arcgis Server/Online, OSM tiling).

## 2.7.2 External domains accessed by the server

Type	Domain	Optional
API/Service	*.galigeo.com	Yes (Datahub, footfall data)
Geocoder	arcgis.com	Yes
Geocoder	datagouv.org	Yes

 Galigeo supports proxy configuration to access external URLs.

## 3. New Galigeo installation

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 If Galigeo is already installed on your server, go the section [Update installation](#)

### 3.1 Content of the download package

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- Galigeo.war: The Java web application
- Documentation: Directory containing the PDF version of this installation guide

### 3.2 Deploy Galigeo.war on Tomcat

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First make sure you have Tomcat server installed on your server.

 If SAP BI Platform is installed on the server, Galigeo can be deployed in the embeded SAP Tomcat.

1. Stop the Tomcat service
2. Copy Galigeo.war to /webapps
3. Start the Tomcat service. A folder /webapps/Galigeo will be created automatically

 If Galigeo is not deployed automatically, check that unpackWARs et autoDeploy Tomcat parameters from "<Host .." tag are set to true in "/conf/server.xml" file.

### 3.3 Tomcat configuration

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 **SAP BI Platform users**, you can skip this section.

For configuring the memory, please go to the section [Tomcat memory configuration](#)

#### 3.3.1 UTF-8 encoding

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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**

If Tomcat is installed as a service

- Open the Tomcat configuration console,
- Go to the tab "Java",
- In the area « Java Options » add the following lines: -Dfile.encoding=UTF-8

If Tomcat starts as a script "startup.bat"

- Edit the file `<GGO_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 `<GGO_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" redirectPort="8443" URIEncoding="UTF-8"/>
```

### 3.3.2 Finalize the installation

- The following operation takes place only once. This operation creates a folder that will be used to store the Galigeo resources. Galigeo Tomcat user needs to have read/write access to folder.
- In a browser, launch the following URL: `http(s)://:/Galigeo/`
- Fill the text area with a valid path to folder at Galigeo Server, outside Tomcat directory. If the folder does not exist, it is created. Example: `C:\Program Files\Galigeo`
- Click on [Continue]

### 3.4 Cluster deployment

You can have **multiple instances of Galigeo running behind a load balancer**. However, make sure that the directory refers to the same location for each instance.

This is usually done using a mount point (NFS, Samba) accross the existing instances.

## 4. Memory configuration

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### 4.1 Tomcat 9 (or older)

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For Tomcat 9, you need to adjust the memory parameters for optimal performance:

We recommend using a 64-bit Tomcat application server and Java machine.

If Tomcat is installed as a service:

- Open the Tomcat configuration console
- Go to the tab "Java"
- In the area "Java Options" add the following lines: `-Xrs -XX:MaxPermSize=256m`
- Set the parameter `Initial memory pool` to 128
- Set the parameter `Maximum memory pool` according to recommendations given in the pre-requisites
  - 64-bit Tomcat+JVM example: 4096 (no limit for a 64-bit JVM)
  - 32-bit Tomcat+JVM example: 1024 (32-bit JVM is limited to 1536)

If Tomcat starts as a script (for example "startup.bat"):

- Edit the file `<GGO_TOMCAT_HOME>/bin/catalina.bat`
- At the beginning of the script, add the line:
  - 64-bit Tomcat+JVM example: `set JAVA_OPTS=%JAVA_OPTS% -Xmx4096m -Xrs -XX:MaxPermSize=256m`
  - 32-bit Tomcat+JVM example: `set JAVA_OPTS=%JAVA_OPTS% -Xmx1024m -Xrs -XX:MaxPermSize=256m`

### 4.2 Tomcat 10 / Tomcat 11

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For Tomcat 10, the memory configuration is simplified (Java 17+ does not use `MaxPermSize`):

If Tomcat is installed as a service:

- Open the Tomcat configuration console
- Go to the tab "Java"
- In the area "Java Options" add the following line: `-Xrs`
- Set the parameter `Initial memory pool` to 128
- Set the parameter `Maximum memory pool` according to recommendations given in the pre-requisites
  - 64-bit Tomcat+JVM example: 4096 (no limit for a 64-bit JVM)
  - 32-bit Tomcat+JVM example: 1024 (32-bit JVM is limited to 1536)

If Tomcat starts as a script (for example "startup.bat"):

- Edit the file `<GO_TOMCAT_HOME>/bin/catalina.bat`
- At the beginning of the script, add the line:
  - 64-bit Tomcat+JVM example: `set JAVA_OPTS=%JAVA_OPTS% -Xmx4096m -Xrs`
  - 32-bit Tomcat+JVM example: `set JAVA_OPTS=%JAVA_OPTS% -Xmx1024m -Xrs`

## 5. Configure Galigeo with SAP Business Objects

### 5.1 External Galigeo URL

When using a proxy between the browser and the BI server, you need to declare the external URL in the Galigeo administration > Proxy > External Url

Use an external client URL to access the application

External URL

`https://[My proxy url]/Galigeo`

If BI portal is accessed from client web browsers trough a frontal web server, you may want that Galigeo web application is also accessed trough this frontal web server

### 5.2 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]

### 5.3 Authorized URLs

 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.



## 5.4 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 (04/10/2020), 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.

 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.

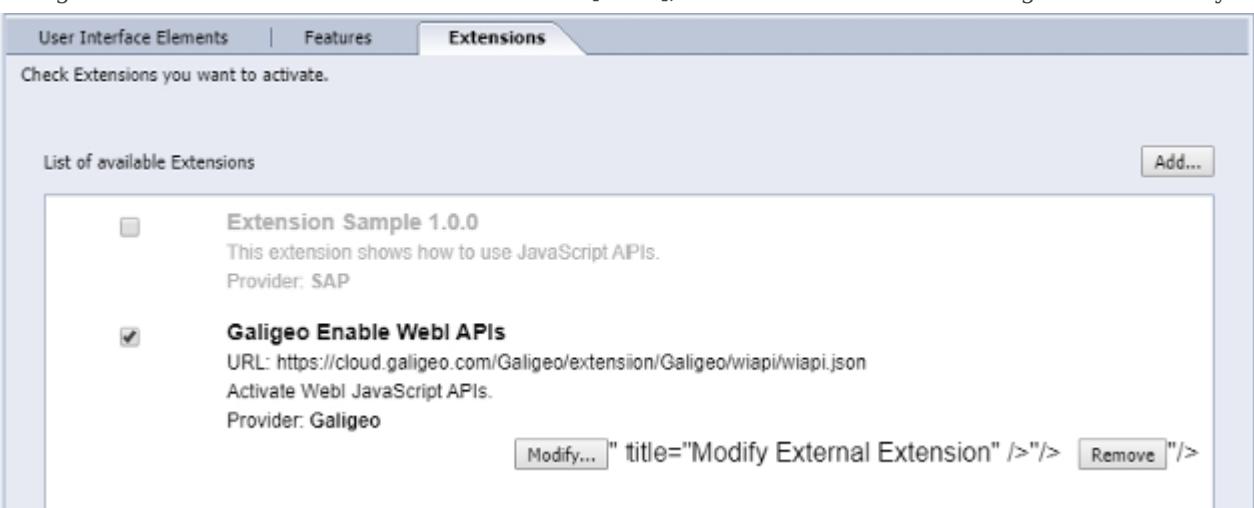
- Connect to BOE CMC
- Go to Users and Groups > right click on Everyone Group > Customization menu > Extensions panel
- Click [Add...] to open "Add External Extension" popup and add "Galigeo Enable WebI APIs" extension, using the following parameters:
  - Extension URL: `http(s)://<SERVER>:<PORT>/Galigeo/extension/Galigeo/wiapi/wiapi.json`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

 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
- 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



The screenshot shows the SAP BI 4.3 'Extensions' panel. The 'Extensions' tab is selected. A message says 'Check Extensions you want to activate.' Below is a table titled 'List of available Extensions'.

	Extension Sample 1.0.0	Galigeo Enable WebI APIs
<input type="checkbox"/>	This extension shows how to use JavaScript APIs. Provider: SAP	<input checked="" type="checkbox"/> URL: <a href="https://cloud.galigeo.com/Galigeo/extension/Galigeo/wiapi/wiapi.json">https://cloud.galigeo.com/Galigeo/extension/Galigeo/wiapi/wiapi.json</a> Activate WebI JavaScript APIs. Provider: Galigeo

Buttons at the bottom right of the table are 'Modify...' and 'Remove'.

## 5.5 Certificate error SSLHandshakeException

If you get an error "**javax.net.ssl.SSLHandshakeException**", then you need to install the required certificate on Tomcat.

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>).

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 is E:\SAP BusinessObjects

- Copy "bo4-my.organization.com\_CER.pem" into the 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 cert>
```

- Example:

```
"E:\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64\sapjvm\jre\bin\keytool" -import -alias my.organization
```

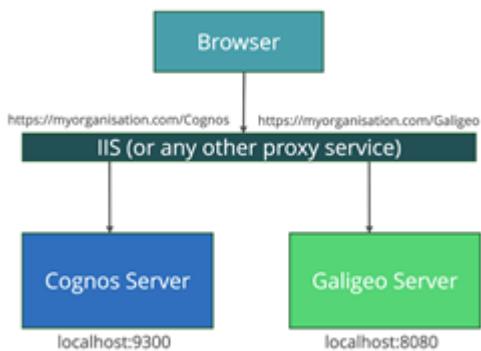
- You will be prompted for the keystore password. The default password is: **changeit** You will be prompted to trust the certificate. Answer is: **yes** If adding the certificate is successful, you will get something like:

**Certificate was added to keystore**

## 6. Configure Galigeo with IBM Cognos Analytics

### 6.1 Cross-domain configuration

The Cognos report URL and the Galigeo URL must have the same domain to avoid cross domain issues. CORS can block some features in Galigeo. On Windows servers, we recommend to configure an IIS proxy to serve both Cognos and Galigeo.



You also need to declare the external URL in the Galigeo administration > Proxy > External Url

Use an external client URL to access the application  
 External URL  
[https://\[My proxy url\]/Galigeo](https://[My proxy url]/Galigeo)
UPDATE

### 6.2 Insert a Galigeo map into a report

The steps to insert Galigeo Maps in Cognos Reports, using Cognos Custom Control Tool, is found in the UserGuide.Galigeo4eXperience\_G2x\_en > Chapter 3: [Map Reports](#)

## 7. Update an existing installation

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### 7.1 Update Galigeo.war

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If you update an existing installation, then you need to update the Galigeo.war web application to your Tomcat.

 Before doing the update, we advice you do a backup of the `<GALIGEO_HOME>` directory.

1. Stop the Tomcat service
2. Remove the folder `<TOMCAT_HOME>/webapps/Galigeo`
3. Override the new Galigeo.war on `<TOMCAT_HOME>/webapps/Galigeo.war`
4. Restart Tomcat

### 7.2 Reset the config

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Updating the installation does not change the configuration of the application.

If you want to use the default panels and basemaps configuration, delete the file `<GALIGEO_HOME>/config/config.json`

## 8. Uninstall Galigeo

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To uninstall Galigeo completely :

1. Stop Tomcat
2. Remove the directory `<GALIGEO_HOME>`
3. Remove the Galigeo web application from Tomcat
  - The file `<TOMCAT_HOME>/webapps/Galigeo.war`
  - The directory `<TOMCAT_HOME>/webapps/Galigeo`
  - The cache `<TOMCAT_HOME>/work.Catalina/localhost/Galigeo`
4. Start Tomcat

## 9. Contacting Galigeo Technical Support

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If you have a question or encounter a problem with the product, we suggest you contact your administrator.

If you are the administrator and you confirm a problem with the software, please contact our support team.

Contact: [support@galigeo.com](mailto:support@galigeo.com)