BSI Worldwide Map Server

Quick Start Guide

30 JUN 25

If you have questions or comments, please contact us at support@bssim.com

Contents

VERSION INFORMATION

Date	Author	Notes
30 Jun 25	Tom Ball	New Release for new OSM application

Introduction

The BSI worldwide map server is an application that can be run offline to provide MACE with worldwide:

- Open Street map tiles
- Road vectors (including residential level roads)
- Building footprints

The application can be run on the same PC as a MACE installation and/or it can be accessed by other MACE installations on a network. The application needs to be both: running, and the terrain server started for a MACE to access the data.

It is possible to configure the application to auto-start when opened and/or to open and start as part of windows startup.

Network Configuration

MACE communicates with the BSI worldwide map server over a network connection, even if it is installed on the same PC as MACE.

Single PC installations

For installations of MACE and the worldwide map server on the same PC where only the MACE on the same PC is accessing the server, the PC does not have to be plugged into a network switch.

MACE and the worldwide map server make use of the network localhost 'Loopback' address (127.0.0.1) to allow network traffic to flow between the 2 applications (the loopback address like a mirror: when a computer sends data to this address, it's just sending it to itself).

Allowing Network Traffic Through Network Firewalls

If 'External MACEs', installed on other PCs, are to communicate with the worldwide map server, the following network ports must be **OPEN** and **NOT IN USE** by other applications:

- **Port 5432** – allows the serving of vector database

Default Ports for the server:

- **Port 8080 –** serving map tiles as HTTP traffic
- **Port 8081** – serving map tiles at HTTPS traffic

The default ports above can be changed if required, when the server is not running.

Starting the BSI Worldwide Map Server

The BSI worldwide map server is usually delivered on the GIS Data drive included with a MACE purchase. The application bsimap.exe itself is usually located in a folder named like:

\BSI_Worldwide_Maps\bsimap\bsimap.exe

To start the application:

1. Double click bsimap.exe icon to start the application

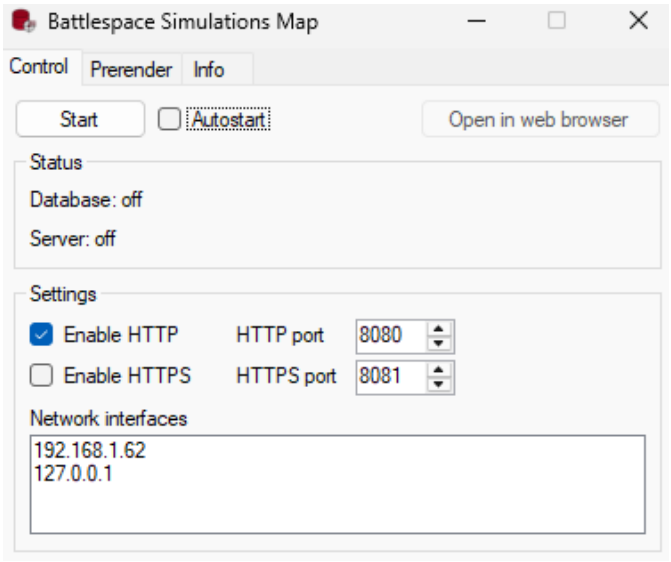

Figure 1: BSI Worldwide Map Server Control Panel at Startup

2. Initially the **Autostart** checkbox will be unchecked – checking this box will start the server automatically once the application starts.
3. If the server is not started (or not using Autostart) – then press the **Start** button; it will show a status change to running for both **Server** and **Database**.
4. Make a note of the IP address in the **Network Interfaces** window for MACE configuration (see next section)

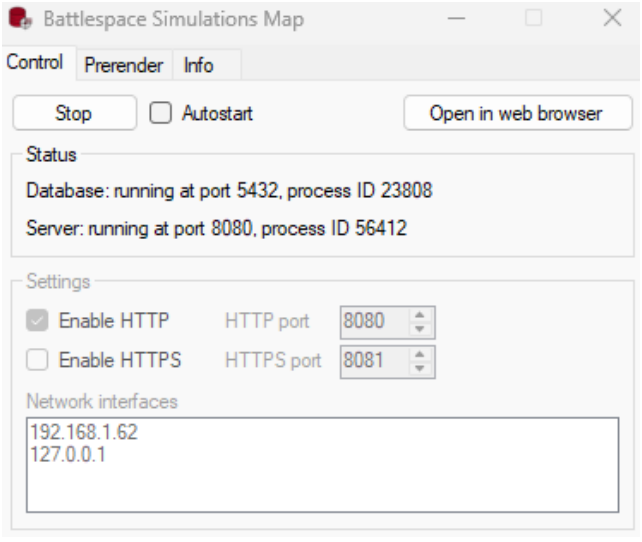

Figure 2: BSI Worldwide Map Server Control Status: Running

If the server fails to start. MACE will not be able to make a successful connection. In this event, please contact us (support@bssim.com) for help.

Connecting MACE to the Worldwide Map Database

MACE Configuration

MACE is a separate application and requires configuration before it can connect to the BSI Worldwide Database.

To configure MACE to connect to BSI Worldwide Maps:

1. Open MACE **System Settings → Communication Tab**
2. In the '**BSI Worldwide Map Database**' section enter the IP address and port for the Worldwide Map Server (separated by a colon)
    a. If running standalone on the same machine the address will likely be the localhost loopback address: e.g. "127.0.0.1:8080" for HTTP using the default port
    b. If accessing the worldwide map server from another PC it will be a network ip address: e.g.
        i. "192.168.1.62:8080" if using HTTP with the default port
        ii. "192.168.1.62:8081" if using HTTPS with the default port –
    c. **Note:** to use HTTPS you must click the **Enable SSL** checkbox in MACE **and** click the **Enable HTTPS** checkbox on BSI Worldwide Map Server control panel

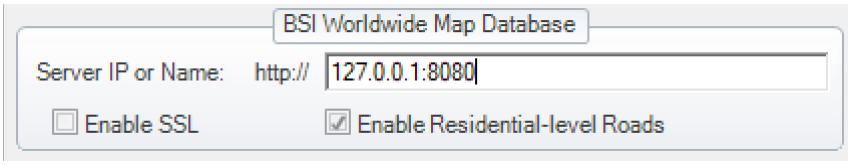

Figure 3: MACE System Settings Communication Tab: Worldwide Map Address using localhost loopback address

3. Residential Roads are off by default Enabling residential level roads can lead to slower map performance when in large urban areas (for more information on this topic, please refer to the 'BSI Worldwide Road Vectors' section of your MACE User's Manual). If you change this setting, you will also have to cycle your Road Vector connection in MACE.

Connecting From MACE

Once MACE configuration is correct (see above), MACE is connected to Map Tiles, and/or Road Vectors, and/or Building vectors:

1. Go to MACE **FILE** tab
2. Using the 

button in the 'Database' group select one or all of:
    a. BSI Worldwide Map Tiles
    b. BSI Worldwide Road Vectors
    c. BSI Worldwide Building Footprints

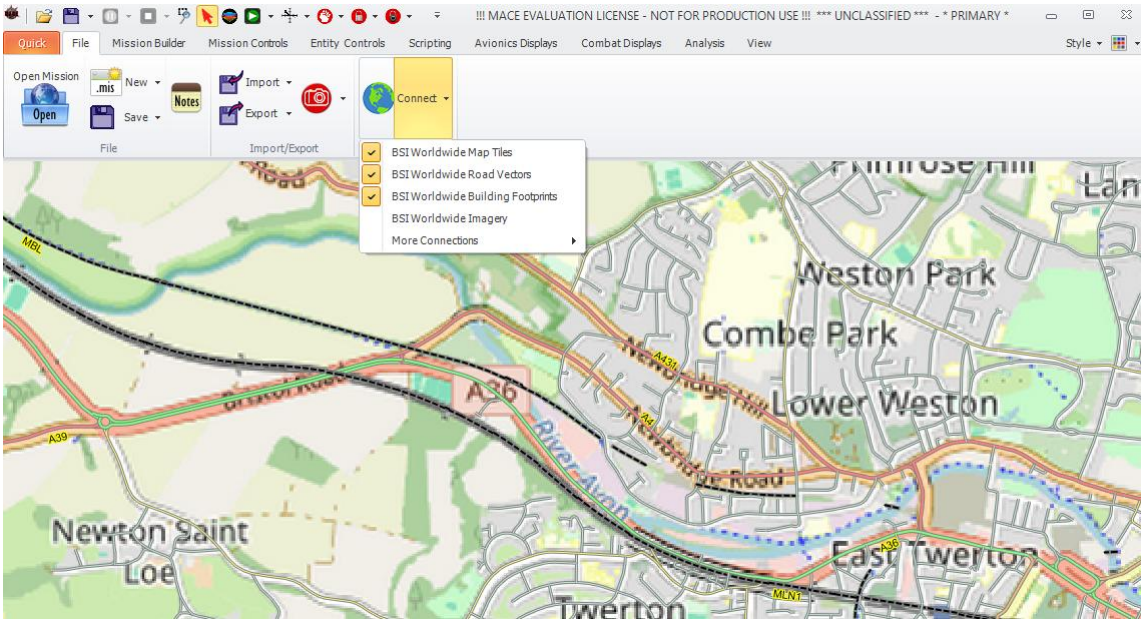

Figure 4: MACE File Tab → Connect: Active Connections to Map Tiles, Road Vectors, Building Footprints

Note:

3. When connected you should see maps / vectors (as per Figure 4)
    a. You will need to switch off the BSI Worldwide Imagery layer (or make it semitransparent using the layer manager – See MACE Manual for Details)
    b. You should switch off CADRG layers also – MACE will do this automatically on first connection
4. The Road Vectors / Building footprints appear only at an appropriately close zoom level in MACE – if not seen try zooming in.
5. For performance, the map projection should be set to **SPHERICAL MERCATOR** in the 'Projection' group on the **VIEW** tab

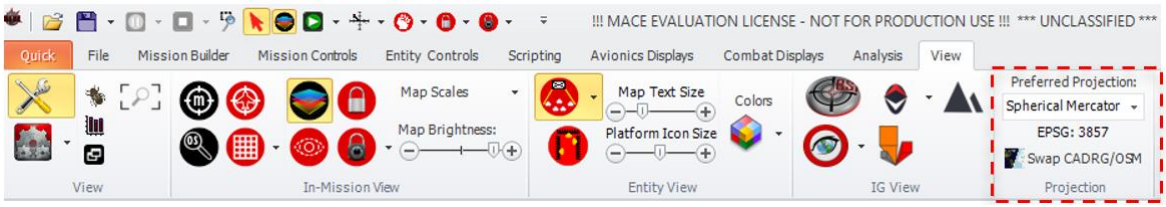

Figure 5: Spherical Mercator Projection Selected in MACE VIEW Tab

Auto Starting the Application and Server

The application itself can be started as Windows starts up. This combined with the AutoStart checkbox being selected will start the server. The application can also be started from a command line with arguments to start the server and run minimized.

Adding BSI Worldwide Map Server to Windows Startup – Method 1

Adding a short cut with startup arguments within the windows startup folder is a simple method of having the application AutoStart when logging on to windows.

1. Navigate to the folder containing bsimap.exe e.g. \BSI_Worldwide_Maps\bsimap\bsimap.exe
2. Select bsimap.exe, then press **<CTRL>** + **<C>** to copy it (or right mouse click and select copy)
3. Press **<Windows Key>** + **<R>** to open the 'run dialog'
4. Type '**Shell:startup**' to open the 'Startup Folder'

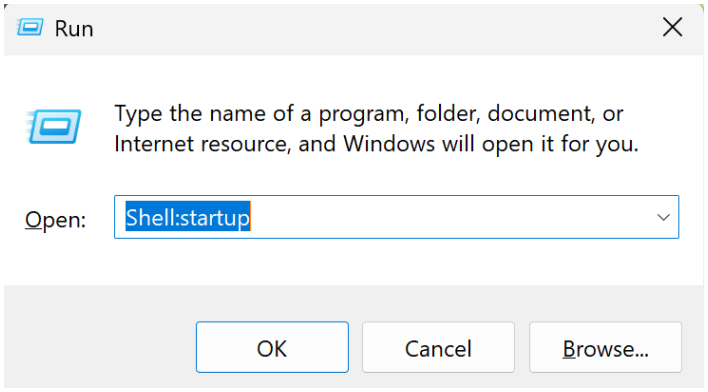

Figure 6: The Windows 'Run Dialog' with Correct Command to Open the Startup Folder

5. Once in the folder:
    a. Right mouse button click
    b. Select **Show More Options**
    c. Paste Shortcut

In this state, when windows starts up it will start the BSI Worldwide Map server and honor the Autostart selection check box

Command Line Arguments

You can use command line arguments to tell the Map server start automatically regardless of the checkbox selection and/or to have the map server start minimized:

6. Right click on the bsimap.exe - Shortcut shortcut and edit properties
    a. In the Target Box place the cursor at the end of the line (after bsimap.exe) add a space then type either:
        i. '**-s**' – which will autostart the application

        and/or a space followed by:

        ii. '**-m**' – which will run the application minimized

Adding BSI Worldwide Map Server to Windows Startup – Method 2

You can use a .bat file placed in the windows startup folder as an alternative to a shortcut (Method 1), to do this:

1. If it has been selected already, run the bsimap.exe application and click the 'Autostart' check box (see section above)
2. In a text editor, modify the **AutoStart-BSI-Map-Server.bat** file located in the **\BSI_Worldwide_Maps** to reflect your map server drive letter and path to bsimap.exe There are only 3 lines that need to be edited.
    a. The drive letter is highlighted in yellow below
    b. The startup command line arguments (if desired) are highlighted in green

    This is what the contents of the file should look like:

```
rem (c) 2025 Battlespace Simulations, Inc.
rem All Rights Reserved
rem Auto-Start the BSI Worldwide Map Server

@ECHO ON

rem set your drive letter and path to bsimap.exe as below
H:
cd H:\BSI_Worldwide_Maps\bsimap
rem only the two lines above need to be altered based on your install location
rem do not change anything below this line

start bsimap.exe -s -m
echo "BSI Map Server started."
Exit
```

For example, if BSI Map Server is running on the D: drive (and the bsimap.exe file is in the default BSI_Worldwide_Maps folder), then the drive letter should be changed from H: to D: in the two locations highlighted above.

3. Save the file and ensure the text editor did not change the extension from **.bat** to **.txt**
4. Place the .bat file in the Windows startup folder. To find this, follow these two steps:
    b. Press **<Windows Key>** + **<R>** to open the 'run dialog'
    c. Type '**Shell:startup**' to open the 'Startup Folder'

Pre-Rendering Additional Areas

The Map Server is serving up web tiles for MACE via the Web Mapping Service (WMS) standard. This is very similar to online maps such as Google Maps or Bing Maps. However, this is being done locally and without an internet connection. As a result, the entire planet is not pre-rendered to the highest level of resolution (that would take about 18 Terabytes of space!).

Instead, the whole world is pre-rendered down to level 12 out of 19 levels of detail. In addition, BSI has pre-rendered areas around the world's largest cities (almost 2,000 of them).

When zooming into an area where no tiles have yet been created, the tile serve requests from the underlying database, the vector data and creates the tiles requested on-the-fly. These tiles are then added to the tile cache, so that the next time that areas is zoomed to, those tiles are present and the map renders much faster.

It is possible to pre-render a geographic area by taking the following steps:

Pre-render One Area

1. Select '**Prerender**' tab on the BSI Map Server Control Panel
2. Type in the bounding box coordinates (in lat/long) and the starting and ending zoom levels (Figure 7)

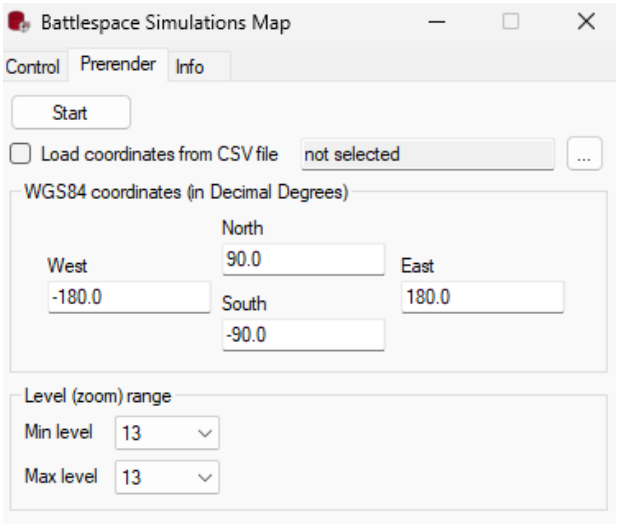

Figure 7: Prerender Bounding Box Coordinates and Required Zoom Levels

Note: that there is no reason to select any starting zoom level less than 13, as the entire world has been prerendered down to level 12.

Be cautious when pre-rendering additional areas that not to select too large of an area at too high of a zoom level or it will needlessly consume excessive disk space. Pre-rendering works well when the bounding box is confined to large urban areas where scenarios are expected to be created in MACE. It is recommended that pre-rendering be to no level higher than level 14 or 15.

Prerender from CSV

It is also possible to load a list of coordinates to be prerendered from a **.csv** file. Each line should have 4 values, for west latitude, east latitude, south longitude and north longitude. E.g. for Tampa, this is a valid entry in the CSV: "27.6942, 28.2942, -82.7451, -82.1451"

Thank you and please don't hesitate to reach out to us (support@bssim.com) if you need help or would like to schedule a screen-sharing session for additional one-on-one training.

Best Regards,

The BSI Team