NATO Communications and Information Agency
Agence OTAN d'information et de communication

SYMBOLOGY SERVER INSTALLATION

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Applies to: LOGFAS 6.5.0 and all previous versions.

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Document change log			
Version	Comments	Date	Author
1.0	Initial version	01 June 2021	Daniel POIRIER

Installation of Symbology Server

1 GENERAL

This documents details the admin procedures to install, configure and maintain the Symbology Server v1.5x. The contents of this document are based on the *Symbology Server Administrators Guide v1.5* (https://tide.act.nato.int/svn/symbology/branches/SS_v1.5.X/Documentation/) but have been tailored to the specifics for LOGFAS.

Symbology Server consists of the following services:

- Military Symbology rendering services,
- NATO Vector Graphics (NVG) rendering services.

To render NVG objects in CORSOM, a Symbology Server must be accessible from CORSOM. In case an iGeoSIT server can be accessed from CORSOM, the installation of the Symbology Server is not required: CORSOM can be configured to make use of the Symbology Server hosted by iGeoSIT. However, if iGeoSIT is not available on the network this manual describes how to install the Symbology Server.

2 INSTALLATION PREREQUISITES

The Symbology Server can be installed only after the following prerequisites have been met.

2.1 Operating System

Supported Operating Systems for Servers:

- Windows Server 2008 R2 SP1 – 64-bit
- Windows Server 2012 R2
- Windows Server 2016

2.2 Java

Java 1.8 or greater is required to run the Symbology Server. The exact Java 1.8 (or higher) version is subject to what is allowed on the target computer. Hence, Java is not included in the package. For NATO environments the Approved Fielded Product List (AFPL) is leading.

The Symbology Server is known not to run on OpenJDK due to incompatibilities with the Batik libraries. Therefore, currently only Oracle/Sun variants of Java are supported.

3 INSTALLATION

The following files are required for the installation:

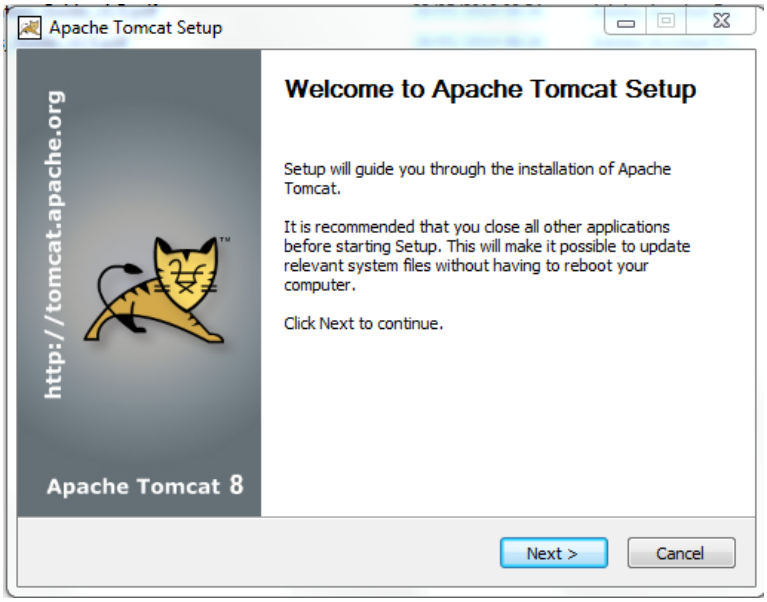
- Apache Tomcat 8.x installer
- SymbologyServer.war (v1.5.x)
- NVG 1.4 – Forces.nvg

3.1 Servlet Container (Tomcat)

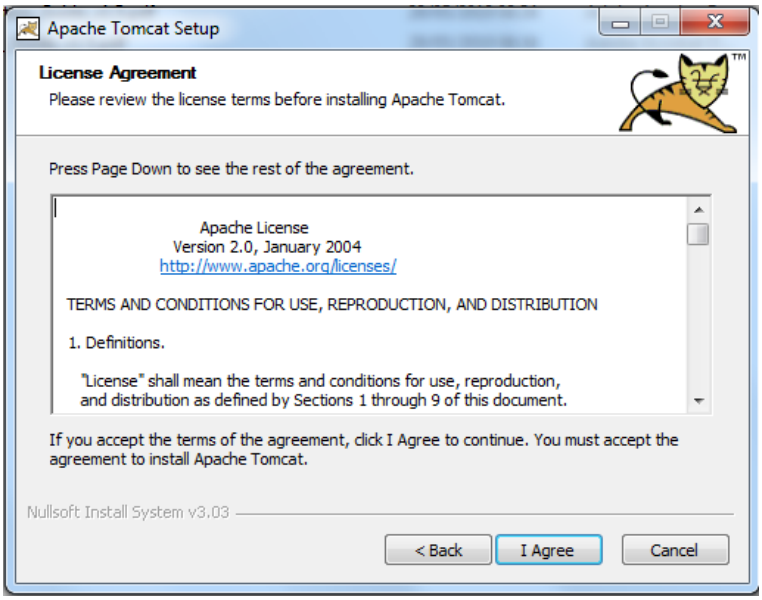
A servlet container is required to install and run the Symbology Server and has been verified to work with Apache Tomcat v8.x.

Install the provided Apache Tomcat as described in the following steps:

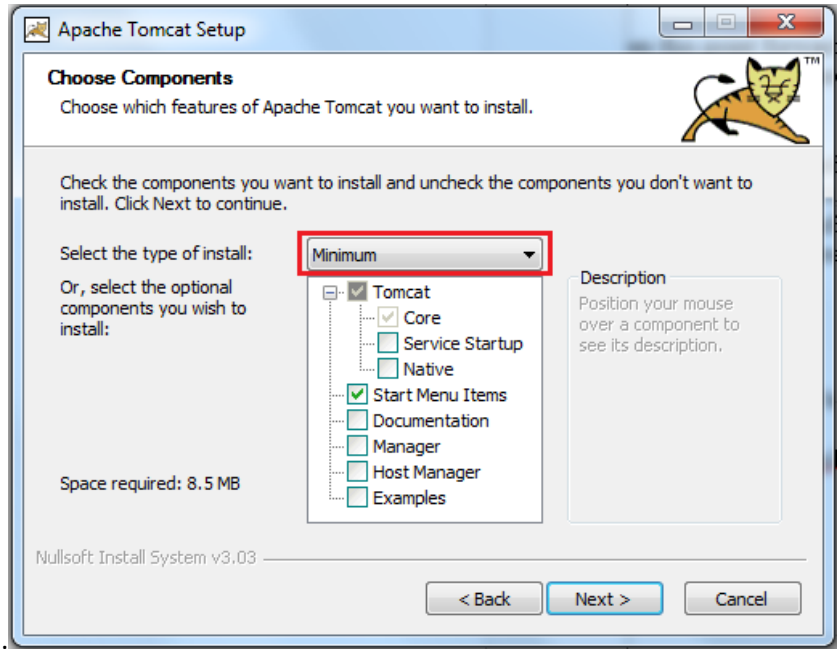
1. Launch the installation as administrator, in the welcome screen click Next.



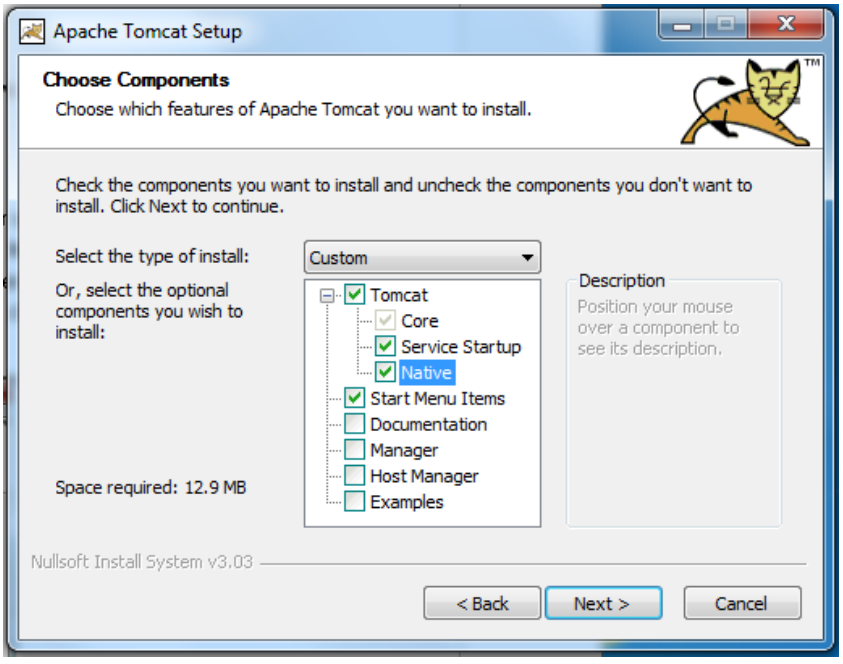
2. Click the I Agree button to agree with the license agreement.



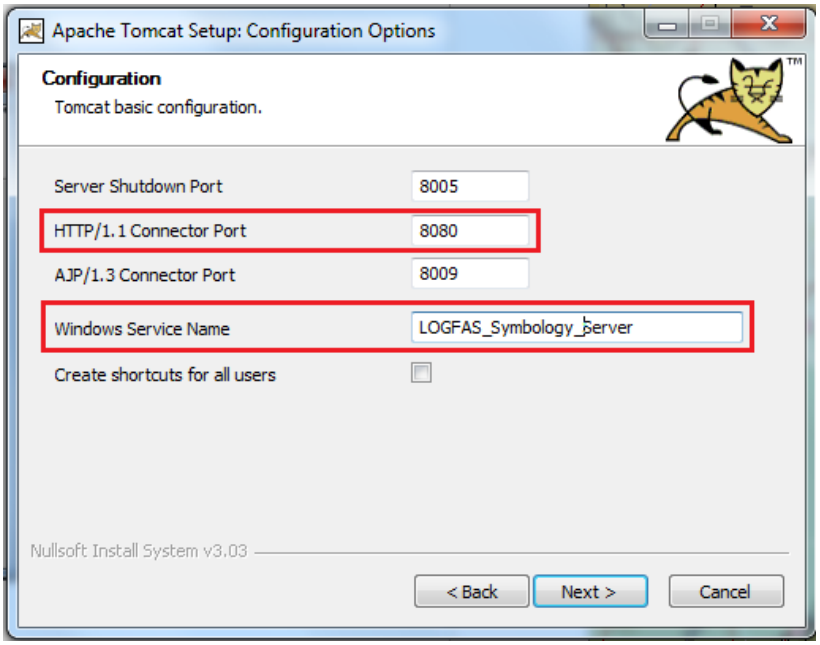
3. For the type of installation, select Minimum as indicated in the screenshot below. Expand the Tomcat node.



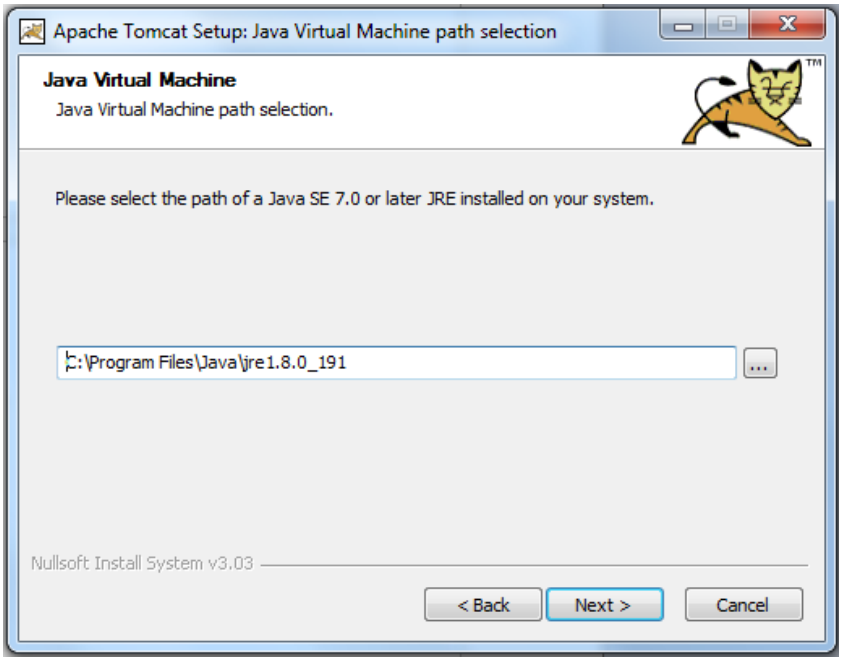
4. Tick the "Service Startup" and Native check boxes as indicated in the screenshot below. Notice installation type switched to Custom after ticking the boxes. This is normal behaviour. Click Next.



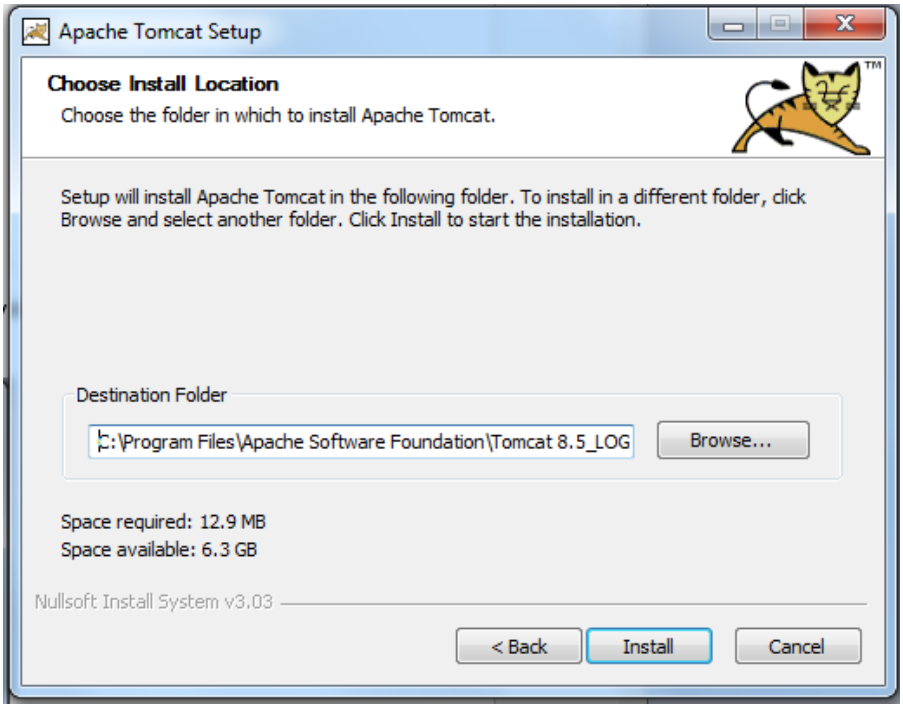
5. In the Configuration Options, enter *LOGFAS Symbology Server* as the Windows Service name. The HTTP/1.1 Connector port is set at 8080 by default**. In case there is another web server active on the same port number** – for example the Internet Information Server (IIS) used for EVE Web – the HTTP/1.1 Connector port needs to be changed to avoid conflicts. Suitable values are 80 or 8088. Click Next to continue.



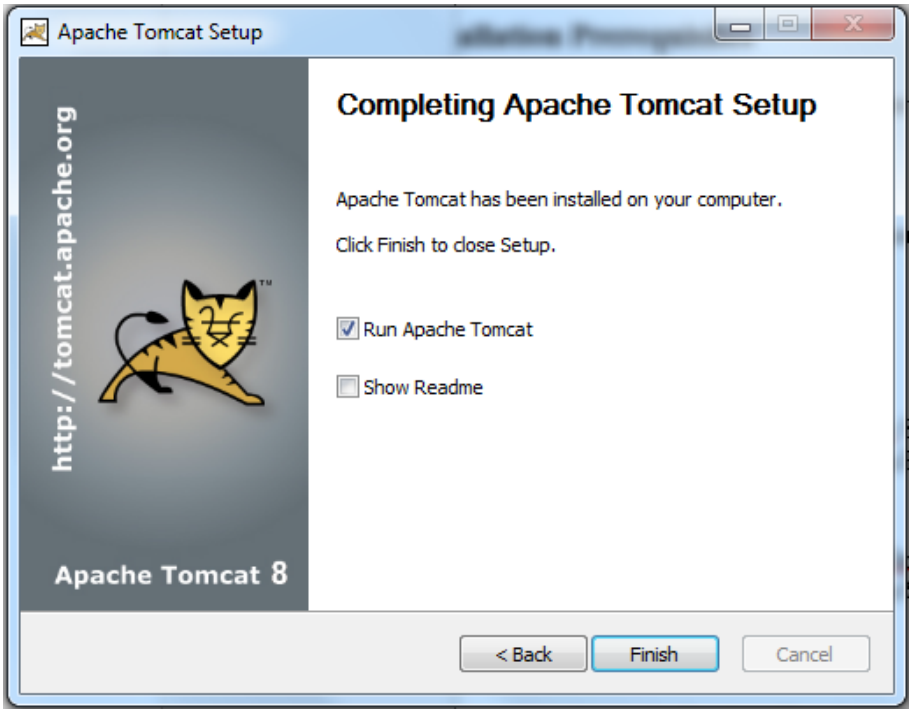
6. Select the location where the (prerequisite) Java Runtime Environment (JRE) has been installed and Click next.



7. Select the location to install Apache Tomcat. Remember this location for future steps.



8. After installation, the following screen will be shown. Uncheck the Show Readme option and click the Finish to finalise the installation. The Apache Tomcat will start automatically.



Apache Tomcat must be configured to use the Java 1.8 Java Virtual Machine or higher. See the section Configuration for details.

3.2 Symbology Server

Once the Apache Tomcat has been installed, execute the following steps to install the Symbology Server:

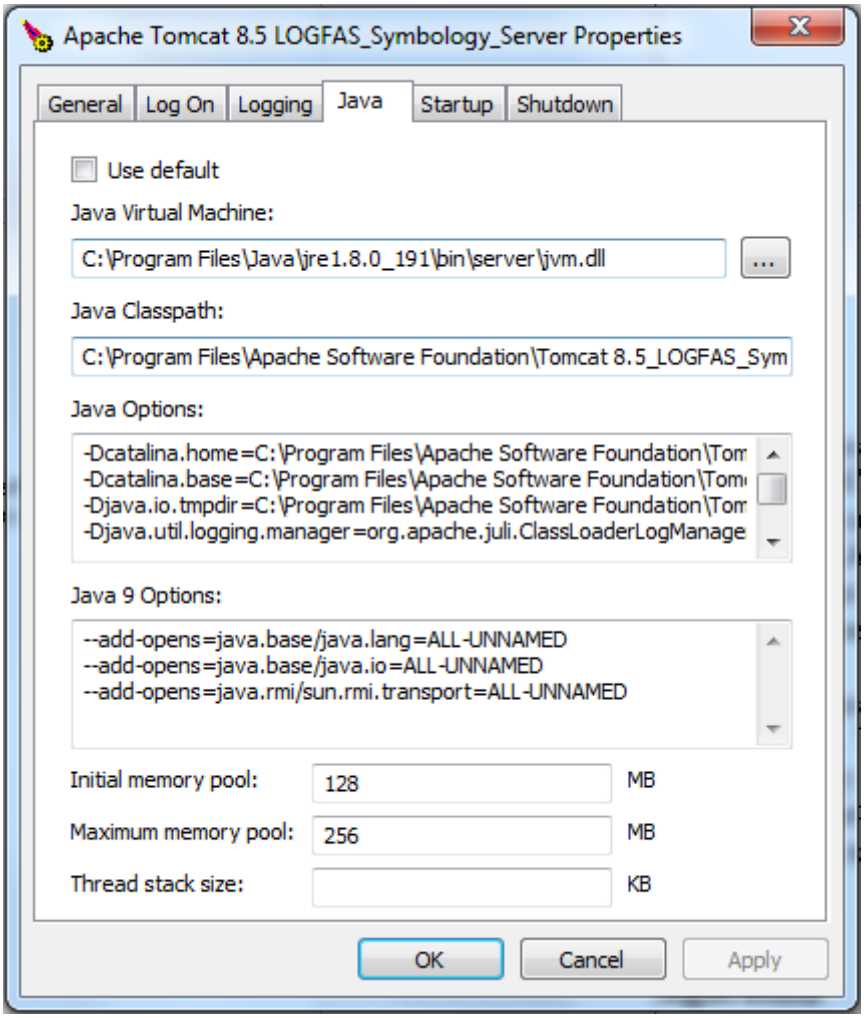
1. Copy the `SymbologyImpl.war` file to the `<tomcat home>/webapps/` directory. Where <tomcat home> is the location of Tomcat on the target system. The `<tomcat home>` used in this manual is `C:\Program Files\Apache Software Foundation\Tomcat 8.5_LOGFAS_Symbology_Server`.
2. Check the `<tomcat home>logs/catalina.out` log file for errors relating to a directory called OVERLAYS. The Symbology Server attempts to create an OVERLAYS directory in the current directory of the servlet container. This is typically `<tomcat home>/OVERLAYS` or `<tomcat home>/bin/OVERLAYS`. If the error exists and this directory has not been created, it needs to be created manually and write permissions assigned to the servlet container user.
3. Check the `<tomcat home>/logs/catalina.out` log file for errors relating to a directory called CACHE. The Symbology Server attempts to create a CACHE directory in the current directory of the servlet container. This is typically `<tomcat home>/CACHE` or `<tomcat home>/bin/CACHE`. If the error exists and this directory has not been created, it needs to be created manually and write permissions assigned to the servlet container user.

4 CONFIGURATION

Given a good installation, the Symbology Server application and services should run correctly without configuration. However, the following items can be configured:

4.1 Java Virtual Machine (JRE) version

Apache Tomcat must be configured to use the Java 1.8 Java Virtual Machine or higher. This can be performed using the Apache Tomcat configuration application (Start > Programs > Apache Tomcat 8.X > Configure Tomcat) on the Java tab.



4.2 Apache Tomcat memory pool

The memory available to Apache Tomcat is critical to the performance of the Symbology Server. The amount of memory required depends on the number of symbols being served through the various service interfaces. Generally, an initial memory pool of 128MB and a maximum of 256MB is sufficient for the Symbology Server. If other applications and services are being served from the same Apache Tomcat instance then their memory considerations should be taken into account as well.

4.3 Changing the HTTP port of Apache Tomcat

In case the HTTP port of Apache Tomcat needs to be changed – for example when there is a port conflict – execute the next steps:

1. Go to the directory `<tomcat home>/conf`.
2. Open the file server.xml in a text editor like Notepad.
3. Find the tag Connector and change the value of the port attribute.
4. Save the file.
5. Open the Services applet (Start > Control Panel > Administrative Tools > Services)
6. Look for Apache Tomcat 8.x LOGFAS_Symbology_Server (or another name that has been provided during installation).
7. Restart the service.

5 TESTING

The Symbology Server is accessible through the servlet URL. Typically this will be:

http://<hostname>:<port>/SymbologyImpl/

Replace <hostname> and <port> as appropriate. If Apache Tomcat is only accessible through a firewall or HTTP proxy, this URL may not work and you will need to consult the network administrator to determine the proper URL.

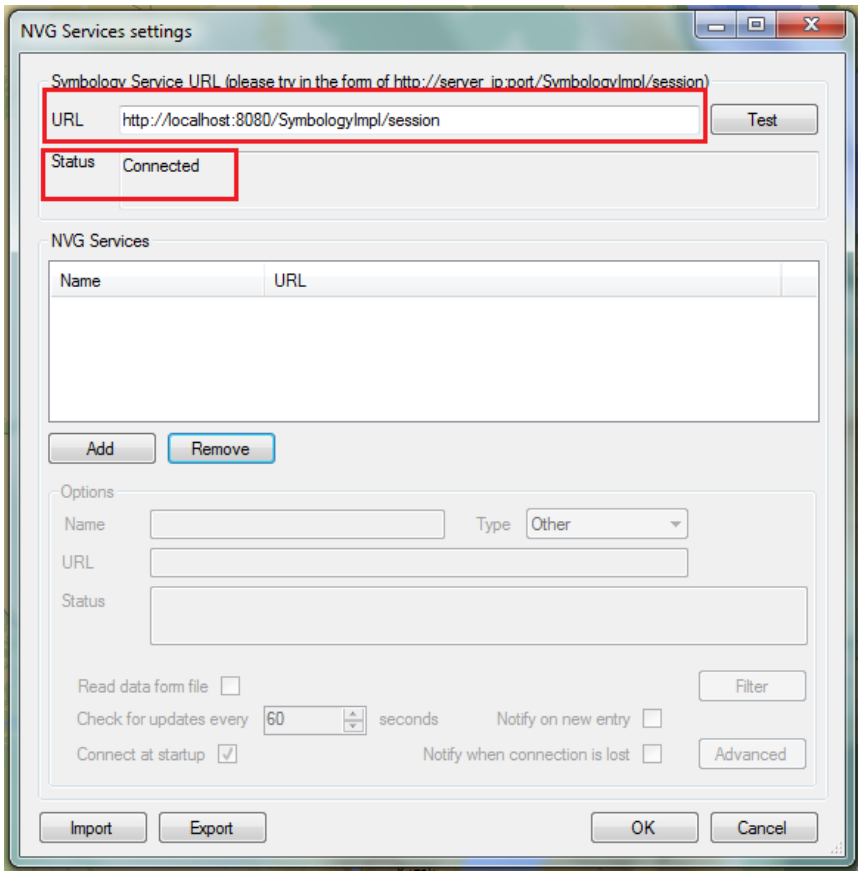
5.1 CORSOM

The Symbology Server can easily be tested from CORSOM. For this purpose, the servlet URL has to be extended like

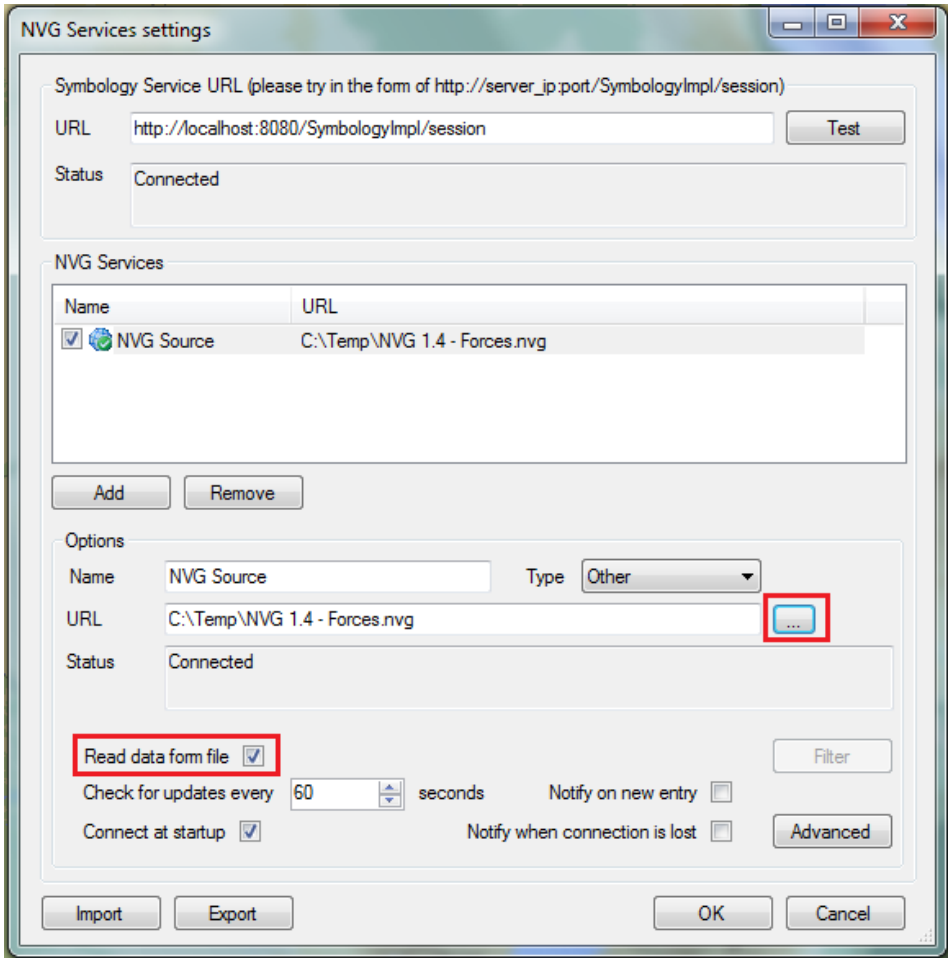
http://<hostname>:<port>/SymbologyImpl/**session**

To configure and test the Symbology Server in CORSOM execute the following steps:

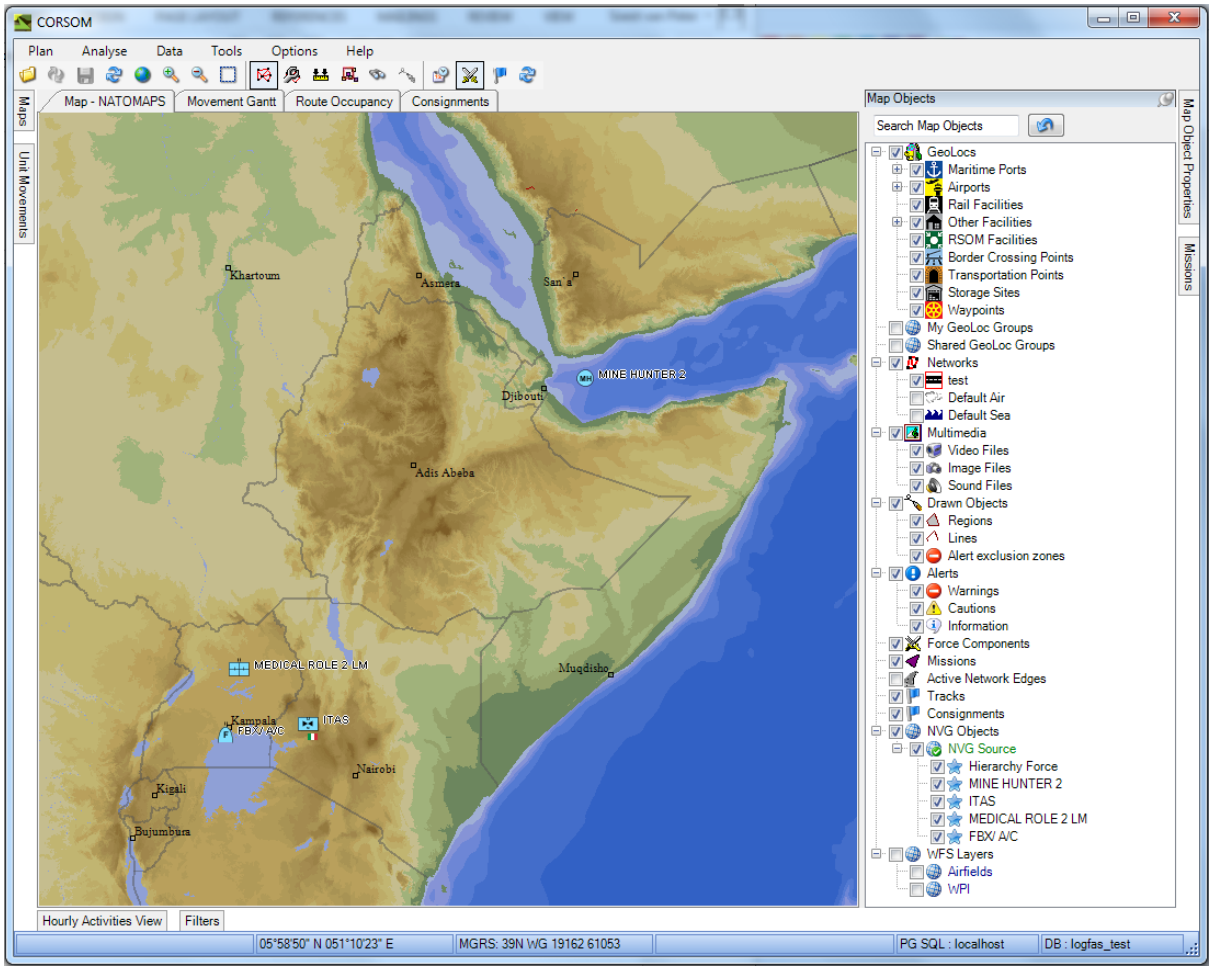
1. Launch CORSOM.
2. In the main menu go to Options > Services -> NVG Services.
3. Enter the URL http://<hostname>:<port>/SymbologyImpl/session and click the Test button. The Status field must show Connected as shown in the screenshot below.



4. Under NVG Services click the “Add” button, tick the check box “Read data from file” and select the provided NVG file (NVG 1.4 – Forces.nvg).



5. Click OK.
6. On the map, navigate to the Horn of Africa. CORSOM should show the NVG objects on the map and the Map Objects Tree under NVG Objects.



5.2 Additional testing

Additional testing can be applied to verify the installation.

Using a web browser load the following URL and verify the output:

- http://<hostname>:<port>/SymbologyImpl/hier, must provide an XML file with the supported Symbology schemes.
- http://<hostname>:<port>/SymbologyImpl/verify, provides and HTML page with the possibility to upload an NVG file:
  - Browse to an NVG file
  - Click submit query
  - The browser must provide an HMTL file that shows the APP6 symbols provide by the NVG file.

6 MAINTENANCE

Generally, the Symbology Server is low maintenance. However, the following maintenance points should be reviewed on a periodic basis.

6.1 Memory Consumption

Using the Windows Task Manager monitor the memory consumption of Apache Tomcat. Memory consumption should gradually grow after the initial start-up and use of the application and services but

should stabilize after a while. The Administrator should know what the normal memory consumption is (it is different for each installation). During the periodic check of Apache Tomcat's memory consumption the Administrator should look for excessive memory consumption. If this occurs, restart the Apache Tomcat service and continue monitoring the memory consumption

6.2 Apache Tomcat Logs

Periodically check the Apache logs for errors and excessive size. The logs can be found in the following directory:

```
<tomcat installation dir>/logs
```