

# 5 - Installing LexEVS 5.x Grid Services

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## Introduction

This document is a section of the [Installation Guide](#).


This section provides requirements, instructions, and troubleshooting information for installing LexEVS Grid Services.

## Preliminary Considerations

- The [LexEVS 5.x Supported Platforms](#) are the same for this environment as they are for the Local Runtime and the Remote API.
- Before installing the LexEVS Grid Services environment you must have both a [LexEVS Local Runtime](#) installed and a [LexEVS Remote API](#) working.
- Just like the Remote API install, it is not required that you load a terminology into the Local Runtime in order to complete the installation of the Grid Services environment. However, the Grid services are not very useful if they have nothing in the underlying Local Runtime to query against.
- This environment currently has no additional [Prerequisite Software](#) beyond that of the the Remote API.
- Complete the [#Downloading and Installing the LexEVS Data or Analytical Grid Services](#) steps below.

Once you have completed the Grid Services environment install steps and the verification test as described in this guide then you should be ready to start using the Grid Services features to meet the needs of your application. Not counting prerequisite software products the installation and verification should not take more than 30 minutes.

## Downloading and Installing the LexEVS Data or Analytical Grid Services

Step	Action
<div>1. Download the latest version of the LexEVS Analytical or Data Services ZIP file from the right. You have a choice between ZIP files tailored for JBoss or Apache Tomcat installations. The location you have chosen to save this on your computer will be referred to as the SAVE_DIRECTORY. Our command examples will use <code>scratch</code> as this directory.</div> <div><div><b>Note</b></div><div>Access to the downloads does not require an account. If you are having trouble downloading files then you may need to disable pop-up blockers or check any firewall settings at your site.</div></div>	<div><b>LexEVS caGrid Analytical Services</b> Includes caGrid Analytical Services working in terms of the LexGrid model and LexEVS API. These can be deployed to an Apache Tomcat or JBoss container. Each ZIP file contains a <code>wsrf.war</code> file. <a href="#">LexEVS_51_caGRIDSservices_analytical_tomcat.zip</a> <a href="#">LexEVS_51_caGRIDSservices_analytical_jboss.zip</a></div> <div><b>LexEVS caGrid Data Services</b> Includes caGrid Data Services working in terms of the LexGrid model and LexEVS API. These can be deployed to an Apache Tomcat or JBoss container. Each ZIP file contains a <code>wsrf.war</code> file. <a href="#">LexEVS_51_caGRIDSservices_data_tomcat.zip</a> <a href="#">LexEVS_51_caGRIDSservices_data_jboss.zip</a></div> <div><b>LexEVS caGrid GUI</b> Provides a traditional graphical user interface that provides access to basic browse and query functions provided by LexEVS caGrid Services. <a href="#">LexEVS_50_caGridGUI.zip</a></div>

2. Unzip the file or files you have downloaded to SAVE \_DIRECTORY.



#### Warning

Each ZIP contains a file by the same name. This is by design because you can not deploy the Data or Analytical Grid Services to the same server. Therefore you must do these one at a time or unzip them to multiple locations.



#### Note

Windows typically understands ZIP files and can extract files. Unix has an unzip command. Other utilities can be used such as WinZip or 7-Zip.

## Extraction Wizard

### Select a Destination

Files inside the ZIP archive will be extracted to the location you choose.



Select a folder to extract files to.

Files will be extracted to this directory:

C:\scratch\LexEVS 6.0 Analytical Services

Browse...

Password...

Extracting...

< Back

Next >

Cancel

3. Shut down your application or servlet container. This presumes that you have already installed a web server as outlined in the Prerequisite Software. The command to do the shut down will be web server specific. See the documentation for your web server for information on how to do this. There may be many alternatives.

JBoss example:

- Windows:  
shutdown.bat -S
  - Unix:  
./shutdown.sh -S
- If you experience Java errors then the server may already be down.

## Command Prompt

```
C:\jboss-5.1.0.GA\bin>shutdown.bat -S
Shutdown message has been posted to the server.
Server shutdown may take a while - check logfiles for completion
Press any key to continue . . .
C:\jboss-5.1.0.GA\bin>_
```

4. Create a directory for the web archive. Create a directory called `wsrf.war` inside the following directory:

```
{WEB_SERVER_HOME}\
{DEPLOYMENT_HOME}
```

...where `WEB_SERVER_HOME` is your application server home directory  
`DEPLOYMENT_HOME` is the Web Archive deployment directory for your application server  
JBoss example:

- Windows:  
c:\jboss-4.0.5.  
GA\server\default\deploy
  - Unix:  
/jboss-4.0.5.GA/server/default  
/deploy
- For example:
- Windows:  
mkdir wsrf.war
  - Unix:  
mkdir wsrf.war

## Command Prompt

```
C:\>cd jboss-5.1.0.GA\server\default\deploy
C:\jboss-5.1.0.GA\server\default\deploy>mkdir wsrf.war
C:\jboss-5.1.0.GA\server\default\deploy>dir /ad
Volume in drive C has no label.
Volume Serial Number is F034-BFBA

Directory of C:\jboss-5.1.0.GA\server\default\deploy

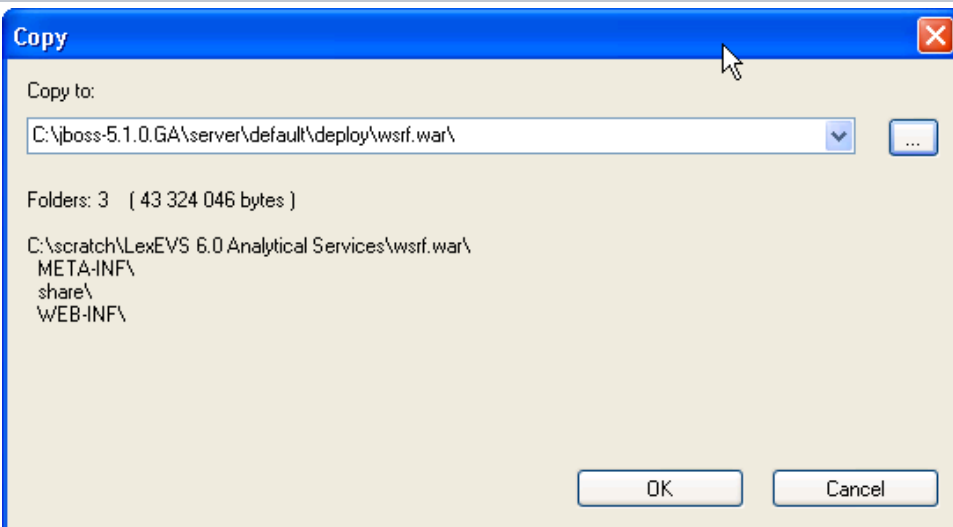
10/25/2010  04:44 PM    <DIR>          .
10/25/2010  04:44 PM    <DIR>          ..
10/22/2010  02:55 PM    <DIR>          http-invoker.sar
10/22/2010  02:55 PM    <DIR>          jboss-aop.deployer
10/22/2010  02:55 PM    <DIR>          jboss-bean.deployer
10/22/2010  02:55 PM    <DIR>          jbossweb-tomcat55.sar
10/22/2010  02:55 PM    <DIR>          jbossws14.sar
10/22/2010  02:55 PM    <DIR>          jms
10/22/2010  02:55 PM    <DIR>          jmx-console.war
10/22/2010  02:55 PM    <DIR>          management
10/22/2010  02:55 PM    <DIR>          uuid-key-generator.sar
10/25/2010  04:44 PM    <DIR>          wsrf.war
               0 File(s)              0 bytes
               12 Dir(s)  58,628,882,432 bytes free

C:\jboss-5.1.0.GA\server\default\deploy>_
```

5. Unzip the `wsrf.war` file to the `wsrf.war` directory.

JBoss example:

- Windows:  
From: `c:\scratch\wsrf.war`  
To: `c:\jboss-4.0.5.GA\server\default\deploy\wsrf.war`
- Unix:  
From: `/scratch/wsrf.war`  
To: `/jboss-4.0.5.GA/server/default/deploy/wsrf.war`  
Windows does not see WAR files as compressed files, therefore you must obtain an unzip utility such as [7-zip](#) or [WinZip](#). In Unix you should be able to use the `unzip` command.



6. Download `LexEVS_51_client.zip` from the right. This is from the client for a Remote API install.

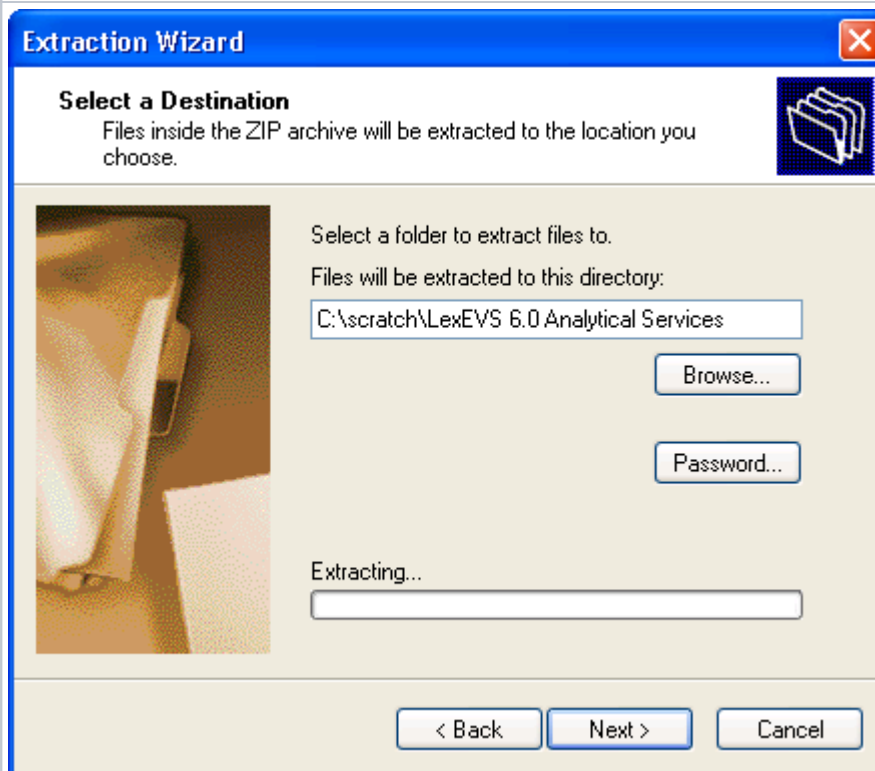
#### **LexEVS Remote API Client**

Enables Java programs to establish a connection to an already-deployed LexEVS Remote API node.  
[LexEVS\\_51\\_client.zip](#)

#### **LexEVS Remote API Client 3rd Party dependencies**

Contains all the code required by the LexEVS Remote API Client.  
[lexevsapi51-client-dependencies.zip](#)

7. Unzip `LexEVS_51_client.zip` to the `SAVE_DIRECTORY`.



8. Copy the application-config-client.xml file out of the unzipped client and into the deployed wsrf.war directory structure.

```
copy {SAVE_DIRECTORY}
\LexEVS_51_client\conf\applic
ation-config-client.xml
{WEB_SERVER_HOME}\
{DEPLOYMENT_HOME}\wsrf.
war\WEB-INF\classes
```

...where SAVE\_DIRECTORY is the location of the downloaded file. WEB\_SERVER\_HOME is your application server home directory. DEPLOYMENT\_HOME is the Web Archive deployment directory for your application server.  
JBoss example:

- Windows:  
copy c:  
 \scratch\LexEVS\_51\_client\conf\appl  
ication-config-client.xml c:\jboss-  
4.0.5.  
GA\server\default\deploy\wsrf.  
war\WEB-INF\classes
- Unix:  
copy /scratch/LexEVS\_51\_client/conf  
/application-config-client.xml c:  
/jboss-4.0.5.GA/server/default  
/deploy/wsrf.war/WEB-INF/classes



#### Note

If you are repeating these steps for the other services WAR file then it will have its own separate application-config-client.xml file that will be similarly placed in the WEB-INF/classes folder of the exploded WAR file.

```
C:\>copy c:\scratch\LexEVS_60_client\conf\application-config-client.xml c:\jboss-5.1.0.GA\server\default\deploy\wsrf.war\WEB-INF\classes
1 file(s) copied.

C:\>
```

9. Edit the application-config-client.xml file. There are three lines where you need to have the proper URL as a value. The three lines are found:

1. in the EvsServiceInfo bean with this text <entry key="APPLICATION\_SERVICE\_URL"
2. in the AppService bean with this text <property name="serviceUrl"
3. (OPTIONAL) in the EvsAuthenticationProvider bean with this text <property name="serviceUrl"

The values each have a URL like this:

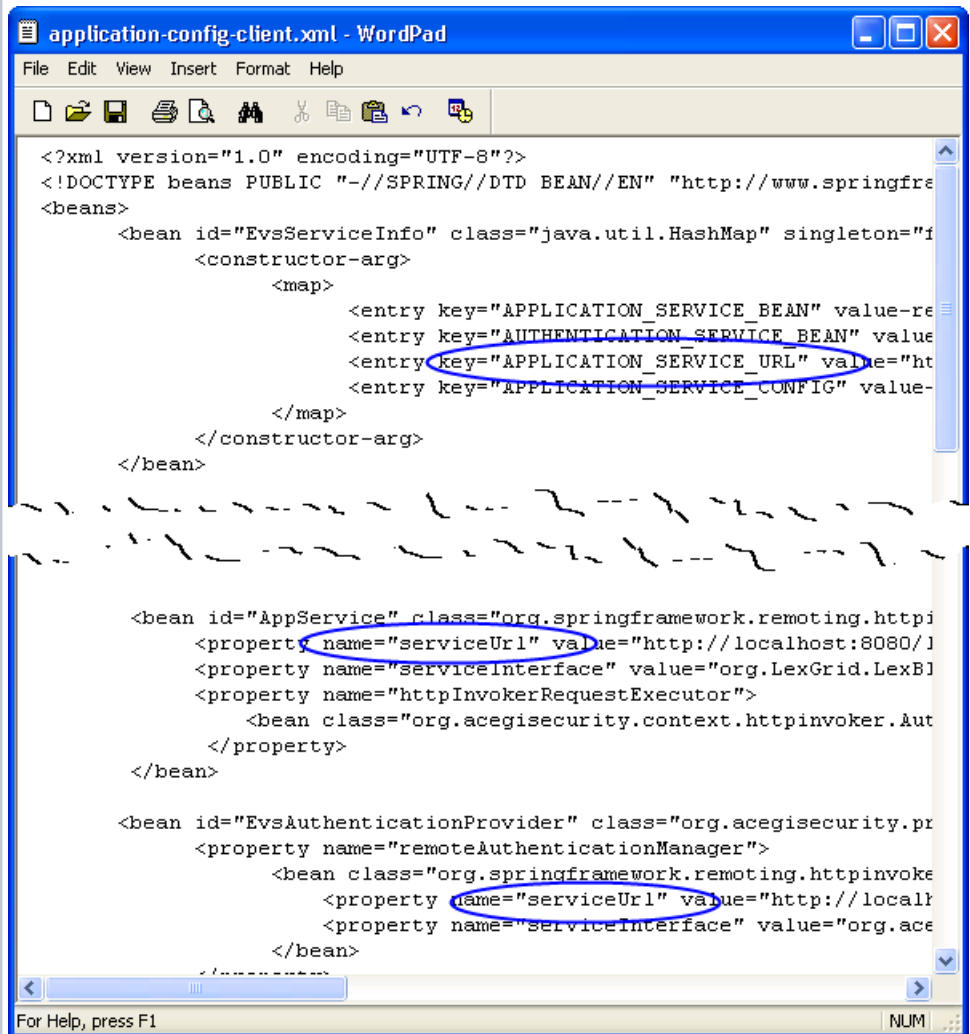
```
http://{SERVER_ADDRESS}/  
{WAR_FILE_DEPLOYED}/
```

For each, you must change the SERVER\_ADDRESS and WAR\_FILE\_DEPLOYED only.  
...where SERVER\_ADDRESS is the address of your server (domain and optionally the port number). WAR\_FILE\_DEPLOYED is the name of the WAR file you placed in the server directories for deployment.  
Example lines for the file:

```
<entry key="APPLICATION_SERVICE_URL"  
value="http://localhost:8080/lexevsapi51/http/applicationService"/>>
```

```
{{<property name="serviceUrl" value="http://localhost:8080/lexevsapi51/http/applicationService"/>}}
```

```
<property name="serviceUrl" value="http://localhost:8080/lexevsapi51/http/applicationService"/>
```



```
<?xml version="1.0" encoding="UTF-8"?>  
<!DOCTYPE beans PUBLIC "-//SPRING//DTD BEAN//EN" "http://www.springframework.org/dtd/beans-2.0.xsd">  
<beans>  
  <bean id="EvsServiceInfo" class="java.util.HashMap" singleton="true">  
    <constructor-arg>  
      <map>  
        <entry key="APPLICATION_SERVICE_BEAN" value-ref="appService"/>  
        <entry key="AUTHENTICATION_SERVICE_BEAN" value-ref="evsAuthenticationProvider"/>  
        <entry key="APPLICATION_SERVICE_URL" value="http://localhost:8080/lexevsapi51/http/applicationService"/>  
        <entry key="APPLICATION_SERVICE_CONFIG" value="http://localhost:8080/lexevsapi51/http/applicationServiceConfig"/>  
      </map>  
    </constructor-arg>  
  </bean>  
  
  <bean id="AppService" class="org.springframework.remoting.httpinvoker.HttpInvokerServlet">  
    <property name="serviceUrl" value="http://localhost:8080/lexevsapi51/http/applicationService"/>  
    <property name="serviceInterface" value="org.springframework.remoting.httpinvoker.HttpInvokerServlet">  
      <bean class="org.springframework.remoting.httpinvoker.HttpInvokerServlet">  
        </property>  
      </bean>  
    </property>  
  </bean>  
  
  <bean id="EvsAuthenticationProvider" class="org.springframework.security.authentication.Provider">  
    <property name="remoteAuthenticationManager">  
      <bean class="org.springframework.remoting.httpinvoker.HttpInvokerServlet">  
        <property name="serviceUrl" value="http://localhost:8080/lexevsapi51/http/applicationService"/>  
        <property name="serviceInterface" value="org.springframework.remoting.httpinvoker.HttpInvokerServlet">  
          <bean class="org.springframework.remoting.httpinvoker.HttpInvokerServlet">  
            </property>  
          </bean>  
        </property>  
      </bean>  
    </property>  
  </bean>  
</beans>
```

10. There are 8 JAR files that must be copied from the LexEVS Subversion repository to your application server's class path. Open a browser to here: [https://ncisvn.nci.nih.gov/svn/lexevs/base/v5/trunk/lexevs\\_service\\_cagrid/LexEVSAAnalyticalService/gs.lib/](https://ncisvn.nci.nih.gov/svn/lexevs/base/v5/trunk/lexevs_service_cagrid/LexEVSAAnalyticalService/gs.lib/), and copy each of the JAR files to here:

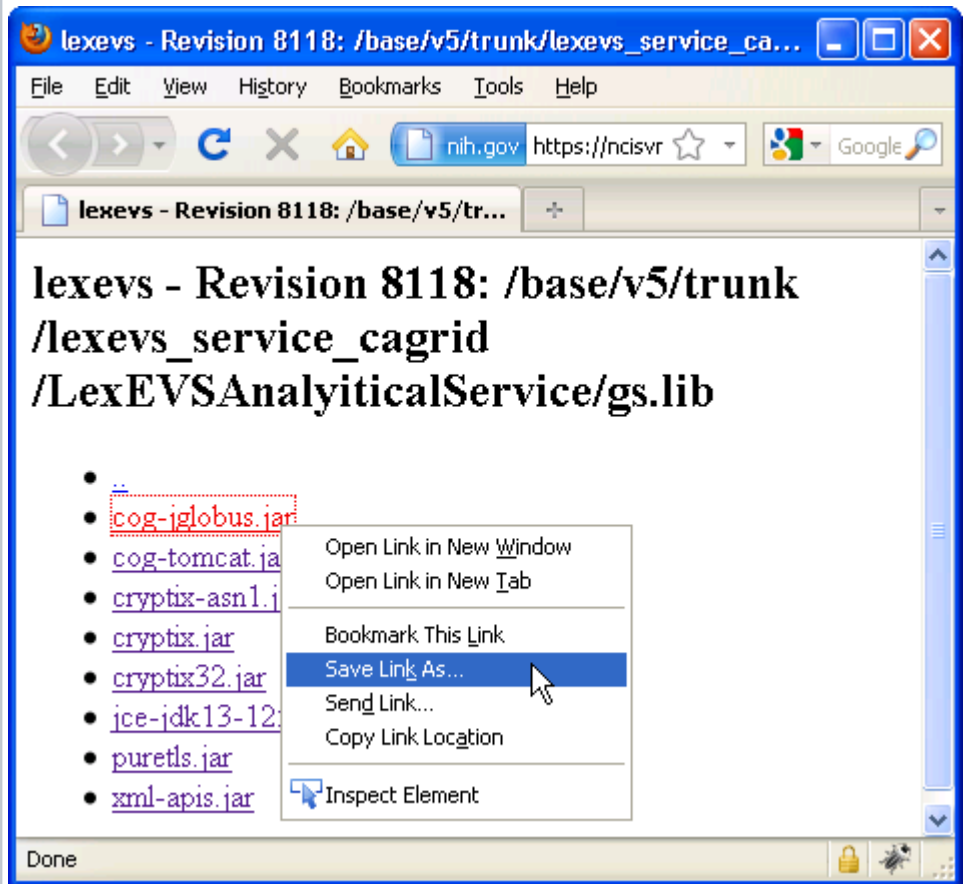
{WEB\_SERVER\_HOME}\{LIB\_HOME}

...where WEB\_SERVER\_HOME is your application server home directory. LIB\_HOME is the server's library directory.  
JBoss example:

- Windows:  
c:\jboss-4.0.5.GA\server\default\lib
  - Unix:  
/jboss-4.0.5.GA/server/default/lib/
- Each service is in its own server. These files must be copied into each server. If your web application server supports it there may be a way to place a single set of these files into a common location for all your application servers.

#### Note

Also, watch out for port conflicts by making sure you select an alternate range for binding the ports on a separate server. When the Data or Analytical Grid Services server runs at the same time they each must have unique port numbers to use.

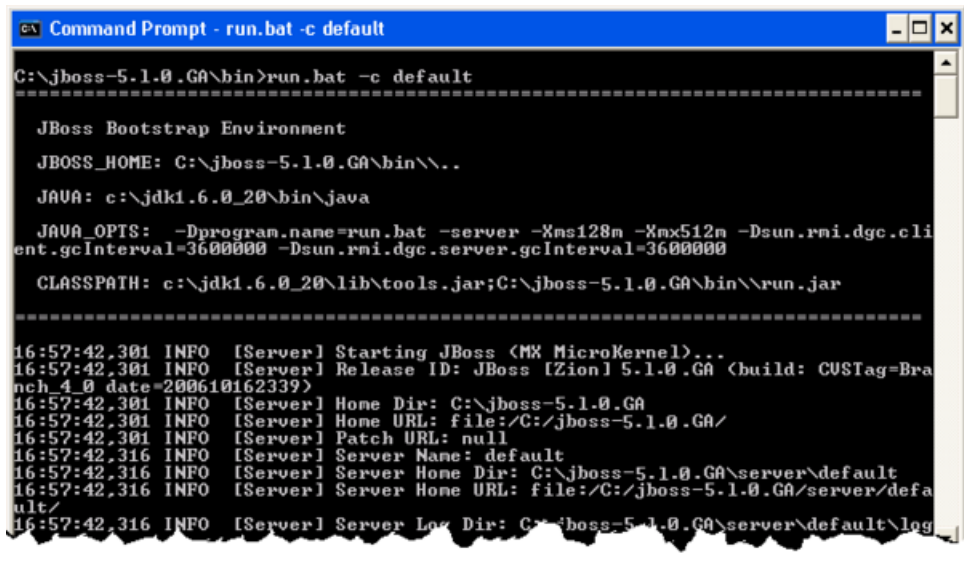


11. Repeat these steps for the other service if you are doing them one at a time.

## Testing the LexEVS Grid Services

1. Start your application or servlet container if it is not already started. The start command will be web server specific. See the documentation for your web server for information on how to do this.  
JBoss example:

- Windows:  
Run.bat -c default
- Unix:  
./Run.sh -c default



2. Verify the installation by opening a browser to either

```
http://{SERVER_ADDRESS}/wsrf  
/services/cagrid  
/LexEVSDDataService
```

or

```
http://{SERVER_ADDRESS}/wsrf  
/services/cagrid  
/LexEVSGridService
```

...where SERVER\_ADDRESS is the address of your server (domain and optionally the port number)

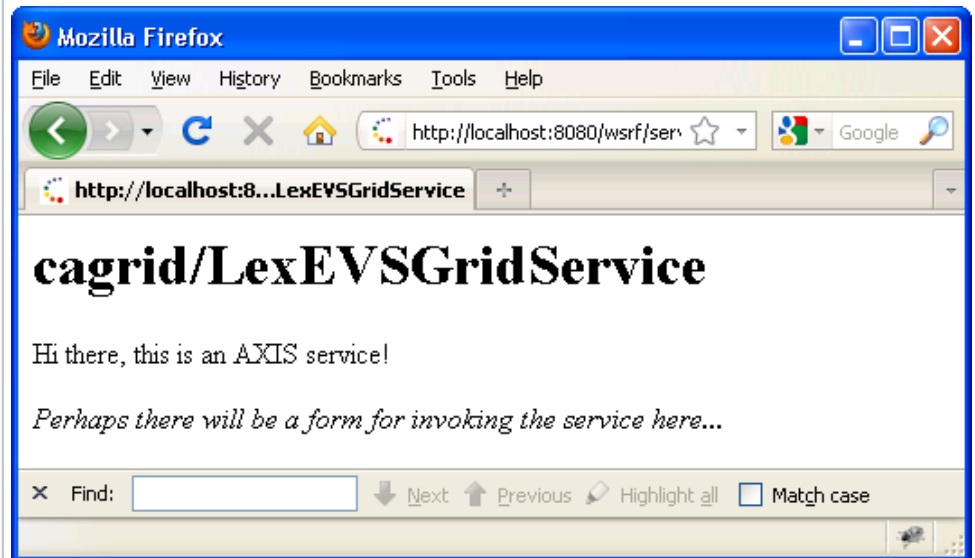
For example:

<http://localhost:8080/wsrf/services/cagrid/LexEVSDDataService>

or

<http://localhost:8080/wsrf/services/cagrid/LexEVSGridService>

If you are using localhost then your browser must be running on the same server as LexEVS



If you see the typical Axis service message then you have successfully installed the LexEVS Grid Service.

**Congratulations!**

## Troubleshooting

Deployment errors may occur if all instances of references in the application-config-client.xml are not correctly configured with the web address of a Remote API install.