Deploying OpenSextant on JBoss

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This document describes the procedure for deploying the OpenSextant web service on JBoss , specifically JBoss Application Server 7.1.

# Class Loading in JBoss

The main difference between deploying OpenSextant on JBoss and deploying on Tomcat is the way JBoss does class loading. On Tomcat, all the JARs required by OpenSextant (with the exception of a few shipped with Tomcat that are automatically put on the classpath) are simply agglomerated in the WEB-INF/lib directory. JBoss loads classes via modules, which are collections on JARs on the server side. See <https://docs.jboss.org/author/display/AS7/Class+Loading+in+AS7> for details.

A web service’s dependent modules are specified in a file named jboss-deployment-structure.xml in the WEB-INF directory. Figure 1 shows OpenSextant’s jboss-deployment-structure.xml. All the modules listed are shipped with JBoss. The JARs corresponding to the various modules are not included in the WEB-INF/lib directory to avoid problems with loading duplicate classes.



Figure 1. OpenSextant’s dependent module specification file jboss-deployment-structure.xml.

There are also modules that JBoss automatically adds as dependencies. See <https://docs.jboss.org/author/display/AS7/Implicit+module+dependencies+for+deployments> for details. Among these, the modules relevant to OpenSextant are:

* org.apache.log4j
* org.apache.commons.logging
* org.slf4j

The JARs for these modules are also excluded from WEB-INF/lib.

# Deploying OpenSextant

Before attempting to deploy OpenSextant, it may be necessary to adjust the JVM memory allocations. JVM options are specified in the standalone.conf file in the bin directory under the JBoss installation. The following JVM options have been used successfully:

-Xms64m –Xmx1200m –XX:MaxPermSize=256m

Once the JVM options are set, the deployment procedure is simple:

1. Copy OpenSextant.war to the standalone/deployments directory in the JBoss installation.
2. Execute standalone.sh (or standalone.bat) in the bin directory.

The progress of the deployment is recorded in the file standalone/log/server.log. Class loading issues, however, often do not log errors. Instead, the deployment hangs and eventually times out. The default timeout period is 60 seconds, and this should be sufficient. The timeout period is set through the deployment-timeout attribute in the file standalone/configuration/standalone.xml. If the OpenSextant deployment times out even when increasing the timeout period to some reasonable value, then a class loading problem is indicated.

# Configuring OpenSextant

After deployment has been accomplished successfully, system-specific configuration is required. Instructions can be found in the document *OpenSextant User’s Guide*.

The remainder of this document displays a server.log file for the sunny day scenario of error-free deployment.

# Sample Log File from an Error-Free Deployment

09:44:30,186 INFO [org.jboss.as.security] (ServerService Thread Pool -- 44) JBAS013101: Activating Security Subsystem

09:44:30,189 INFO [org.jboss.as.osgi] (ServerService Thread Pool -- 39) JBAS011940: Activating OSGi Subsystem

09:44:30,196 INFO [org.jboss.as.webservices] (ServerService Thread Pool -- 48) JBAS015537: Activating WebServices Extension

09:44:30,191 INFO [org.jboss.as.naming] (ServerService Thread Pool -- 38) JBAS011800: Activating Naming Subsystem

09:44:30,374 INFO [org.jboss.as.clustering.infinispan] (ServerService Thread Pool -- 31) JBAS010280: Activating Infinispan subsystem.

09:44:30,382 INFO [org.jboss.as.security] (MSC service thread 1-5) JBAS013100: Current PicketBox version=4.0.7.Final

09:44:30,551 INFO [org.jboss.as.connector] (MSC service thread 1-6) JBAS010408: Starting JCA Subsystem (JBoss IronJacamar 1.0.9.Final)

09:44:30,625 INFO [org.jboss.as.naming] (MSC service thread 1-2) JBAS011802: Starting Naming Service

09:44:30,640 INFO [org.jboss.as.mail.extension] (MSC service thread 1-6) JBAS015400: Bound mail session [java:jboss/mail/Default]

09:44:30,694 INFO [org.jboss.as.connector.subsystems.datasources] (ServerService Thread Pool -- 27) JBAS010403: Deploying JDBC-compliant driver class org.h2.Driver (version 1.3)

09:44:30,868 INFO [org.jboss.ws.common.management.AbstractServerConfig] (MSC service thread 1-7) JBoss Web Services - Stack CXF Server 4.0.2.GA

09:44:31,120 INFO [org.apache.coyote.http11.Http11Protocol] (MSC service thread 1-3) Starting Coyote HTTP/1.1 on http--127.0.0.1-8180

09:44:31,372 INFO [org.jboss.as.server.deployment.scanner] (MSC service thread 1-3) JBAS015012: Started FileSystemDeploymentService for directory /usr/local/jboss/standalone/deployments

09:44:31,449 INFO [org.jboss.as.remoting] (MSC service thread 1-2) JBAS017100: Listening on /127.0.0.1:4547

09:44:31,450 INFO [org.jboss.as.remoting] (MSC service thread 1-7) JBAS017100: Listening on /127.0.0.1:10099

09:44:31,780 INFO [org.jboss.as.connector.subsystems.datasources] (MSC service thread 1-2) JBAS010400: Bound data source [java:jboss/datasources/ExampleDS]

09:44:31,810 INFO [org.jboss.as.server.deployment] (MSC service thread 1-7) JBAS015876: Starting deployment of "OpenSextant.war"

09:44:35,622 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.neethi:main") which may be changed or removed in future versions without notice.

09:44:35,623 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.neethi:main") which may be changed or removed in future versions without notice.

09:44:35,624 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.codec:main") which may be changed or removed in future versions without notice.

09:44:35,624 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.codec:main") which may be changed or removed in future versions without notice.

09:44:35,625 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.io:main") which may be changed or removed in future versions without notice.

09:44:35,626 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.io:main") which may be changed or removed in future versions without notice.

09:44:35,626 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.lang:main") which may be changed or removed in future versions without notice.

09:44:35,627 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.lang:main") which may be changed or removed in future versions without notice.

09:44:35,638 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.pool:main") which may be changed or removed in future versions without notice.

09:44:35,639 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.apache.commons.pool:main") which may be changed or removed in future versions without notice.

09:44:35,649 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.jaxen:main") which may be changed or removed in future versions without notice.

09:44:35,650 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("org.jaxen:main") which may be changed or removed in future versions without notice.

09:44:35,651 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("asm.asm:main") which may be changed or removed in future versions without notice.

09:44:35,651 WARN [org.jboss.as.dependency.private] (MSC service thread 1-1) JBAS018567: Deployment "deployment.OpenSextant.war" is using a private module ("asm.asm:main") which may be changed or removed in future versions without notice.

09:44:35,905 INFO [org.jboss.as.connector.deployers.jdbc] (MSC service thread 1-1) JBAS010404: Deploying non-JDBC-compliant driver class com.mysql.jdbc.Driver (version 5.1)

09:44:36,039 INFO [org.apache.catalina.core.ContainerBase.[jboss.web].[default-host].[/OpenSextant]] (MSC service thread 1-8) No Spring WebApplicationInitializer types detected on classpath

09:44:36,059 INFO [org.apache.catalina.core.ContainerBase.[jboss.web].[default-host].[/OpenSextant]] (MSC service thread 1-8) Set web app root system property: 'webapp.root' = [/usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/]

09:44:36,072 INFO [org.apache.catalina.core.ContainerBase.[jboss.web].[default-host].[/OpenSextant]] (MSC service thread 1-8) Initializing log4j from [/usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/WEB-INF/GateHome/log4j.properties]

09:44:36,170 INFO [org.apache.catalina.core.ContainerBase.[jboss.web].[default-host].[/OpenSextant]] (MSC service thread 1-8) Initializing Spring root WebApplicationContext

09:44:36,172 INFO [org.springframework.web.context.ContextLoader] (MSC service thread 1-8) Root WebApplicationContext: initialization started

09:44:36,278 INFO [org.springframework.web.context.support.XmlWebApplicationContext] (MSC service thread 1-8) Refreshing Root WebApplicationContext: startup date [Thu Aug 16 09:44:36 EDT 2012]; root of context hierarchy

09:44:36,335 INFO [org.springframework.beans.factory.xml.XmlBeanDefinitionReader] (MSC service thread 1-8) Loading XML bean definitions from ServletContext resource [/WEB-INF/applicationContext.xml]

09:44:36,935 INFO [org.springframework.beans.factory.config.PropertyPlaceholderConfigurer] (MSC service thread 1-8) Loading properties file from ServletContext resource [/WEB-INF/config.properties]

09:44:36,953 INFO [org.springframework.beans.factory.annotation.AutowiredAnnotationBeanPostProcessor] (MSC service thread 1-8) JSR-330 'javax.inject.Inject' annotation found and supported for autowiring

09:44:36,967 INFO [org.springframework.beans.factory.support.DefaultListableBeanFactory] (MSC service thread 1-8) Pre-instantiating singletons in org.springframework.beans.factory.support.DefaultListableBeanFactory@46af2a50: defining beans [org.springframework.context.annotation.internalConfigurationAnnotationProcessor,org.springframework.context.annotation.internalAutowiredAnnotationProcessor,org.springframework.context.annotation.internalRequiredAnnotationProcessor,org.springframework.context.annotation.internalCommonAnnotationProcessor,gate.util.spring.Init#0,placeholderConfig,myApp,contextApplicationContextProvider,line,sentence,htmlFormatter,kmlFormatter,shapefileFormatter,csvFormatter,jsonFormatter,wktFormatter,myProcessor,gate.util.spring.pool-filler.fileUploadHandler,gate.util.spring.pool-target.fileUploadHandler,gate.util.spring.pool-target-source.fileUploadHandler,fileUploadHandler,gate.util.spring.pool-filler.textUploadHandler,gate.util.spring.pool-target.textUploadHandler,gate.util.spring.pool-target-source.textUploadHandler,textUploadHandler,fileStreamer,org.springframework.context.annotation.ConfigurationClassPostProcessor$ImportAwareBeanPostProcessor#0]; root of factory hierarchy

09:44:36,995 INFO [gate.util.spring.Init] (MSC service thread 1-8) Initialising GATE

09:44:36,995 INFO [gate.Gate] (MSC service thread 1-8) Using /usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/WEB-INF/GateHome as GATE home

09:44:36,996 INFO [gate.Gate] (MSC service thread 1-8) Using /usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/WEB-INF/GateHome/plugins as installed plug-ins directory.

09:44:36,998 INFO [gate.Gate] (MSC service thread 1-8) Using /usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/WEB-INF/GateHome/gate.xml as site configuration file.

09:44:36,999 INFO [gate.Gate] (MSC service thread 1-8) Using /usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/WEB-INF/GateHome/user-gate.xml as user configuration file

09:44:37,000 INFO [gate.Gate] (MSC service thread 1-8) Using /root/.gate.session as user session file

09:44:37,947 INFO [gate.creole.CreoleRegisterImpl] (MSC service thread 1-8) CREOLE plugin loaded: file:/usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/WEB-INF/GateHome/plugins/ANNIE/

09:44:37,965 INFO [gate.creole.CreoleRegisterImpl] (MSC service thread 1-8) CREOLE plugin loaded: file:/usr/local/jboss/standalone/tmp/vfs/tempb4863d8b23f8bc09/OpenSextant.war-ad20f641cdff4559/WEB-INF/GateHome/plugins/OpenSextant/

09:44:38,857 INFO [org.mitre.xcoord.PatternManager] (MSC service thread 1-8) Found # of PATTERNS=28

09:44:38,864 INFO [org.mitre.gate.naivetagger.NaiveTaggerMySQLPR] (MSC service thread 1-8) Initializing NaiveTaggerMySQLPR with jdbc:mysql://localhost/geotagger

09:44:40,635 INFO [org.mitre.gate.geotaser.CantileverPR] (MSC service thread 1-8) Initializing

09:44:40,714 INFO [org.mitre.opensextant.ws.TextUploadHandler] (MSC service thread 1-8) init() for TextUploadHandler 1

09:44:40,716 INFO [org.mitre.opensextant.ws.TextUploadHandler] (MSC service thread 1-8) init() for TextUploadHandler 2

09:44:40,720 INFO [org.mitre.opensextant.ws.TextUploadHandler] (MSC service thread 1-8) init() for TextUploadHandler 3

09:44:40,831 INFO [org.mitre.xcoord.PatternManager] (MSC service thread 1-8) Found # of PATTERNS=28

09:44:40,832 INFO [org.mitre.gate.naivetagger.NaiveTaggerMySQLPR] (MSC service thread 1-8) Initializing NaiveTaggerMySQLPR with jdbc:mysql://localhost/geotagger

09:44:41,440 INFO [org.mitre.gate.geotaser.CantileverPR] (MSC service thread 1-8) Initializing

09:44:41,457 INFO [org.mitre.opensextant.ws.FileUploadHandler] (MSC service thread 1-8) init() for FileUploadHandler 1

09:44:41,458 INFO [org.mitre.opensextant.ws.FileUploadHandler] (MSC service thread 1-8) init() for FileUploadHandler 2

09:44:41,459 INFO [org.mitre.opensextant.ws.FileUploadHandler] (MSC service thread 1-8) init() for FileUploadHandler 3

09:44:41,505 INFO [org.springframework.web.context.ContextLoader] (MSC service thread 1-8) Root WebApplicationContext: initialization completed in 5333 ms

09:44:41,695 INFO [org.jboss.web] (MSC service thread 1-8) JBAS018210: Registering web context: /OpenSextant

09:44:41,702 INFO [org.jboss.as] (MSC service thread 1-5) JBAS015951: Admin console listening on http://127.0.0.1:10090

09:44:41,703 INFO [org.jboss.as] (MSC service thread 1-5) JBAS015874: JBoss AS 7.1.1.Final "Brontes" started in 15895ms - Started 182 of 257 services (74 services are passive or on-demand)

09:44:41,787 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) JBAS018559: Deployed "OpenSextant.war"