LEARNING

jetty

#jetty

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About

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Chapter 1: Getting started with jetty

Remarks

Jetty is an open-source project providing a light weight HTTP server, HTTP client, and javax.servlet container.

The Jetty project is hosted by the Eclipse Foundation and can be found at: https://www.eclipse.org/jetty/ . The Jetty page on Eclipse includes downloads for the latest versions of Jetty, as well as official documentation and JavaDocs.

The code base for Jetty is hosted on GitHub.

Examples

Installing and Running Jetty

For the sake of this example, it is assumed the user is running Jetty as a distribution. For information on how to run Jetty as an embedded web server, please refer to the official documentation.

Jetty can be downloaded from here and is available in both .zip and .gzip formats. Current versions of Jetty require Java 1.8 to be installed, which can be obtained from Oracle's website.

Extract the distribution to a directory of your choosing. In the following example, this directory will be referred to as $JETTY_HOME. To start Jetty, simply start the *start.jar* file in the distribution from the command line:

```
$ cd $JETTY_HOME
$ java -jar start.jar
```

Performing this from the $JETTY_HOME directory will produce an output similar to this:

```
2016-07-25 09:24:46.019:INFO::main: Logging initialized @313ms
2016-07-25 09:24:46.068:WARN:oejs.HomeBaseWarning:main: This instance of Jetty is not running
from a separate {jetty.base} directory, this is not recommended.  See documentation at
http://www.eclipse.org/jetty/documentation/current/startup.html
2016-07-25 09:24:46.191:INFO:oejs.Server:main: jetty-9.3.11.v20160721
2016-07-25 09:24:46.207:INFO:oejdp.ScanningAppProvider:main: Deployment monitor
[file:///Users/user/installs/repository/jetty-distribution-9.3.11.v20160721/webapps/] at
interval 1
2016-07-25 09:24:46.226:INFO:oejs.AbstractConnector:main: Started
ServerConnector@735f7ae5{HTTP/1.1,[http/1.1]}{0.0.0.0:8080}
2016-07-25 09:24:46.227:INFO:oejs.Server:main: Started @521ms
```

The server is running, but you will notice that if you point your browser to localhost:8080, you receive a 404 error.

In the output above there is a warning about running the server from the $JETTY_HOME directory. Jetty 9.1 introduced the concept of having a Jetty Home directory and a Jetty Base directory (or directories). The basic premise is that the Jetty Home directory is the standard of truth for all server files. It contains all of the files required to run the server and the defaults for all server extensions. The Jetty Base directory (or directories) are for managing your instance(s) of Jetty and contain all of the web applications, third party plug-ins and customizations for your server. For more information, please see the official documentation on Managing Jetty Base and Jetty Home.

The Jetty distribution comes with a base directory with several web applications already configured. This directory is aptly named *demo-base*:

```
$ cd demo-base
$ java -jar $JETTY_HOME/start.jar
2016-07-25 09:25:48.435:INFO::main: Logging initialized @316ms
2016-07-25 09:25:48.645:WARN::main: demo test-realm is deployed. DO NOT USE IN PRODUCTION!
2016-07-25 09:25:48.647:INFO:oejs.Server:main: jetty-9.3.11.v20160721
2016-07-25 09:25:48.662:INFO:oejdp.ScanningAppProvider:main: Deployment monitor
[file:///Users/user/installs/repository/jetty-distribution-9.3.11.v20160721/demo-
base/webapps/] at interval 1
2016-07-25 09:25:48.923:INFO:oeja.AnnotationConfiguration:main: Scanning elapsed time=81ms
2016-07-25 09:25:49.078:INFO:oejsh.ContextHandler:main: Started
o.e.j.w.WebAppContext@527740a2{/proxy,file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/j
0.0.0.0-8080-xref-proxy.war-_xref-proxy-any-1184996072304577986.dir/webapp/,AVAILABLE}{/xref-
proxy.war}
2016-07-25 09:25:49.083:INFO:oejsh.ContextHandler:main: Started
o.e.j.s.h.MovedContextHandler@229d10bd{/oldContextPath,null,AVAILABLE}
2016-07-25 09:25:49.166:INFO:oeja.AnnotationConfiguration:main: Scanning elapsed time=34ms
2016-07-25 09:25:49.168:WARN::main: test-spec webapp is deployed. DO NOT USE IN PRODUCTION!
2016-07-25 09:25:49.238:INFO:oejsh.ContextHandler:main: Started
o.e.j.w.WebAppContext@647fd8ce{/test-
spec,[file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/jetty-0.0.0.0-8080-test-
spec.war-_test-spec-any-195142828825451628.dir/webapp/,
jar:file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/jetty-0.0.0.0-8080-test-
spec.war-_test-spec-any-195142828825451628.dir/webapp/WEB-INF/lib/test-web-fragment-
9.3.11.v20160721.jar!/META-INF/resources],AVAILABLE}{/test-spec.war}
2016-07-25 09:25:49.259:INFO:oeja.AnnotationConfiguration:main: Scanning elapsed time=15ms
2016-07-25 09:25:49.284:INFO:oejsh.ContextHandler:main: Started
o.e.j.w.WebAppContext@55b7a4e0{/,file:///Users/user/installs/repository/jetty-distribution-
9.3.11.v20160721/demo-base/webapps/ROOT/,AVAILABLE}{/ROOT}
2016-07-25 09:25:49.323:INFO:oeja.AnnotationConfiguration:main: Scanning elapsed time=16ms
2016-07-25 09:25:49.325:WARN::main: test-jaas webapp is deployed. DO NOT USE IN PRODUCTION!
2016-07-25 09:25:49.349:INFO:oejsh.ContextHandler:main: Started
o.e.j.w.WebAppContext@a514af7{/test-
jaas,file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/jetty-0.0.0.0-8080-test-
jaas.war-_test-jaas-any-6378488515259627366.dir/webapp/,AVAILABLE}{/test-jaas.war}
2016-07-25 09:25:49.436:INFO:oeja.AnnotationConfiguration:main: Scanning elapsed time=28ms
2016-07-25 09:25:49.438:WARN::main: test-jndi webapp is deployed. DO NOT USE IN PRODUCTION!
2016-07-25 09:25:49.476:INFO:oejsh.ContextHandler:main: Started
o.e.j.w.WebAppContext@3febb011{/test-
jndi,file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/jetty-0.0.0.0-8080-test-
jndi.war-_test-jndi-any-5492379371528358988.dir/webapp/,AVAILABLE}{/test-jndi.war}
2016-07-25 09:25:49.553:INFO:oeja.AnnotationConfiguration:main: Scanning elapsed time=38ms
2016-07-25 09:25:49.555:WARN::main: async-rest webapp is deployed. DO NOT USE IN PRODUCTION!
2016-07-25 09:25:49.576:INFO:oejsh.ContextHandler:main: Started
o.e.j.w.WebAppContext@36fc695d{/async-
rest,[file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/jetty-0.0.0.0-8080-
async-rest.war-_async-rest-any-7692963153880036981.dir/webapp/,
jar:file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/jetty-0.0.0.0-8080-async-
```

```
rest.war-_async-rest-any-7692963153880036981.dir/webapp/WEB-INF/lib/example-async-rest-jar-
9.3.11.v20160721.jar!/META-INF/resources],AVAILABLE}{/async-rest.war}
2016-07-25 09:25:49.669:INFO:oeja.AnnotationConfiguration:main: Scanning elapsed time=34ms
2016-07-25 09:25:49.670:WARN::main: test webapp is deployed. DO NOT USE IN PRODUCTION!
2016-07-25 09:25:49.913:INFO:oejsh.ManagedAttributeListener:main: update PushFilter null-
>org.eclipse.jetty.servlets.PushCacheFilter@4e0ae11f on
o.e.j.w.WebAppContext@5dda768f{/test,file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/je
0.0.0.0-8080-test.war-_test-any-2157501520644819622.dir/webapp/,STARTING}{/test.war}
2016-07-25 09:25:49.921:INFO:oejsh.ManagedAttributeListener:main: update QoSFilter null-
>org.eclipse.jetty.servlets.QoSFilter@376a0d86 on
o.e.j.w.WebAppContext@5dda768f{/test,file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/je
0.0.0.0-8080-test.war-_test-any-2157501520644819622.dir/webapp/,STARTING}{/test.war}
2016-07-25 09:25:49.922:WARN:oeju.DeprecationWarning:main: Using @Deprecated Class
org.eclipse.jetty.servlets.MultiPartFilter
2016-07-25 09:25:49.941:INFO:oejsh.ContextHandler:main: Started
o.e.j.w.WebAppContext@5dda768f{/test,file:///private/var/folders/h6/yb_lbnnn11g0y1jjlvqg631h0000gn/T/je
0.0.0.0-8080-test.war-_test-any-2157501520644819622.dir/webapp/,AVAILABLE}{/test.war}
2016-07-25 09:25:49.952:INFO:oejs.AbstractConnector:main: Started
ServerConnector@74f6c5d8{HTTP/1.1,[http/1.1]}{0.0.0.0:8080}
2016-07-25 09:25:49.957:INFO:oejus.SslContextFactory:main:
x509=X509@43015c69(jetty,h=[jetty.eclipse.org],w=[]) for
SslContextFactory@19b89d4(file:///Users/user/installs/repository/jetty-distribution-
9.3.11.v20160721/demo-base/etc/keystore,file:///Users/user/installs/repository/jetty-
distribution-9.3.11.v20160721/demo-base/etc/keystore)
2016-07-25 09:25:49.958:INFO:oejus.SslContextFactory:main: x509=X509@4bbf6d0e(mykey,h=[],w=[])
for SslContextFactory@19b89d4(file:///Users/user/installs/repository/jetty-distribution-
9.3.11.v20160721/demo-base/etc/keystore,file:///Users/user/installs/repository/jetty-
distribution-9.3.11.v20160721/demo-base/etc/keystore)
2016-07-25 09:25:49.968:INFO:oejs.AbstractConnector:main: Started
ServerConnector@13608c15{SSL,[ssl, http/1.1]}{0.0.0.0:8443}
2016-07-25 09:25:49.968:INFO:oejs.Server:main: Started @1850ms
```

Now if you point your browser to *localhost:8080* you will see a Jetty welcome page along with several links to example web applications as well as links to the official Jetty documentation and user groups. **NOTE**: The web applications that come with the Jetty distribution are *not* designed to be secure or fully functional, they are only provided as examples. Using them in your production environments is **not** recommended.

Congratulations! You have installed and started a Jetty web server. For more instructions on how to configure your server, and for more advanced subjects, please refer to the Official Documentation.

Read Getting started with jetty online: https://riptutorial.com/jetty/topic/2906/getting-started-with-jetty

Chapter 2: Official Jetty Resources

Examples

An Overview of Jetty

Jetty is a Java-based, open-source project providing a HTTP server/client and javax.servlet container. Jetty also provides support for HTTP/2, JMX, JNDI, OSGi JAAS and other integrations. Jetty can be deployed as a standard distribution package or as an embeddable web server, allowing users to customize their implementations to be as fully featured or as small as they would like.

The Jetty project is hosted by the Eclipse Foundation and can be found at https://www.eclipse.org/jetty/. Until 2009 the Jetty project was hosted on The Codehaus and before that was located on Sourceforge.

Original development for Jetty began in 1995 by Greg Wilkins of Mort Bay Consulting. Today, development of Jetty is fully funded by Webtide, LLC., who also provide commercial support for the project.

Jetty Downloads and Documentation

The current release version of Jetty is 9.4. Support is still provided for Jetty 9.2 and 9.3, and maintenance releases are provided for Jetty 7 and Jetty 8 when needed.

The most up-to-date distributions can be found on the Jetty Downloads page. It is worth noting that current releases of Jetty require Java 1.8 to be installed, which can be downloaded from Oracle.

The code base for Jetty is hosted on GitHub. Users are free to suggest enhancements, report bugs and even submit changes themselves. Information about contributing to Jetty can be found here.

Official Jetty documentation is hosted on the Eclipse Jetty site. In addition to current version documentation, the site provides documentation for prior versions of Jetty. JavaDocs and Source XRef documentation for Jetty can be found on the Jetty Downloads page.

Read Official Jetty Resources online: https://riptutorial.com/jetty/topic/3746/official-jetty-resources

Chapter 3: Running jetty as embedded container

Examples

Maven Jetty plugin

This example applies to maven projects. Add the *jetty-maven-plugin* to build element as below.

```
<build>
    <plugins>
        <plugin>
            <groupId>org.eclipse.jetty</groupId>
            <artifactId>jetty-maven-plugin</artifactId>
            <version>9.4.0.M0</version>
        </plugin>
    </plugins>
</build>
```

Execute *mvn jetty:run*

It downloads necessary dependencies and starts the jetty server. Console shows below lines if the server has started-

```
[INFO] Started ServerConnector@7a31eb5d{HTTP/1.1,[http/1.1]}{0.0.0.0:8080}
[INFO] Started @10535ms
[INFO] Started Jetty Server
```

Application can be accessed in *http://localhost:8080/*

If you want to start jetty on different port-

Using system property during launch

```
mvn -Djetty.http.port=8181 jetty:run
```

Or permanently add to plugin configurations

```
<plugin>
  <groupId>org.eclipse.jetty</groupId>
  <artifactId>jetty-maven-plugin</artifactId>
  <version>9.4.0.M0</version>
  <configuration>
     <httpConnector>
        <port>8181</port>
     </httpConnector>
  </configuration>
</plugin>
```

Read Running jetty as embedded container online: https://riptutorial.com/jetty/topic/6464/running-jetty-as-embedded-container

Credits

S. No	Chapters	Contributors
1	Getting started with jetty	Community, Walkerwatch
2	Official Jetty Resources	jesse mcconnell, Walkerwatch
3	Running jetty as embedded container	kann