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Making location count.

# Collaborative, Open Source Web Capability for Testing Compliance to Geospatial Web Services Standards

The 2011 International Conference on Collaboration Technologies and Systems (CTS 2011)

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May 23, 2011

# Agenda

- Why Open Geospatial Standards
- Introduction to the Open Geospatial Consortium (OGC)
- Need for Compliance Testing
- Compliance Program
- Overview of OGC Testing Facility - TEAM Engine
- Introduction to the Compliance Test Language (CTL)
- Demonstration of Web Feature Service Testing
- Resources and Getting Started
- Running TEAM Engine in a Local Environment
- Setting TEAM Engine in a Development Environment
- Getting Involved

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# Why Standards for Data Collaboration ?

**Kylie Armstrong**
**Business Development**
**Western Australian Land Information Authority**
**Landgate, Australia**

**“ When you are delivering spatial web services on behalf of 20 government agencies to more than a 1000 organizations running their own spatial systems, you need standards.”**

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# Why Standards for Data Collaboration ?

Kylie Armstrong
Business Development
Western Australian Land Information Authority
Landgate, Australia

"Using the internationally recognized OGC and ISO standards for both the architecture and web services has been essential to our success."

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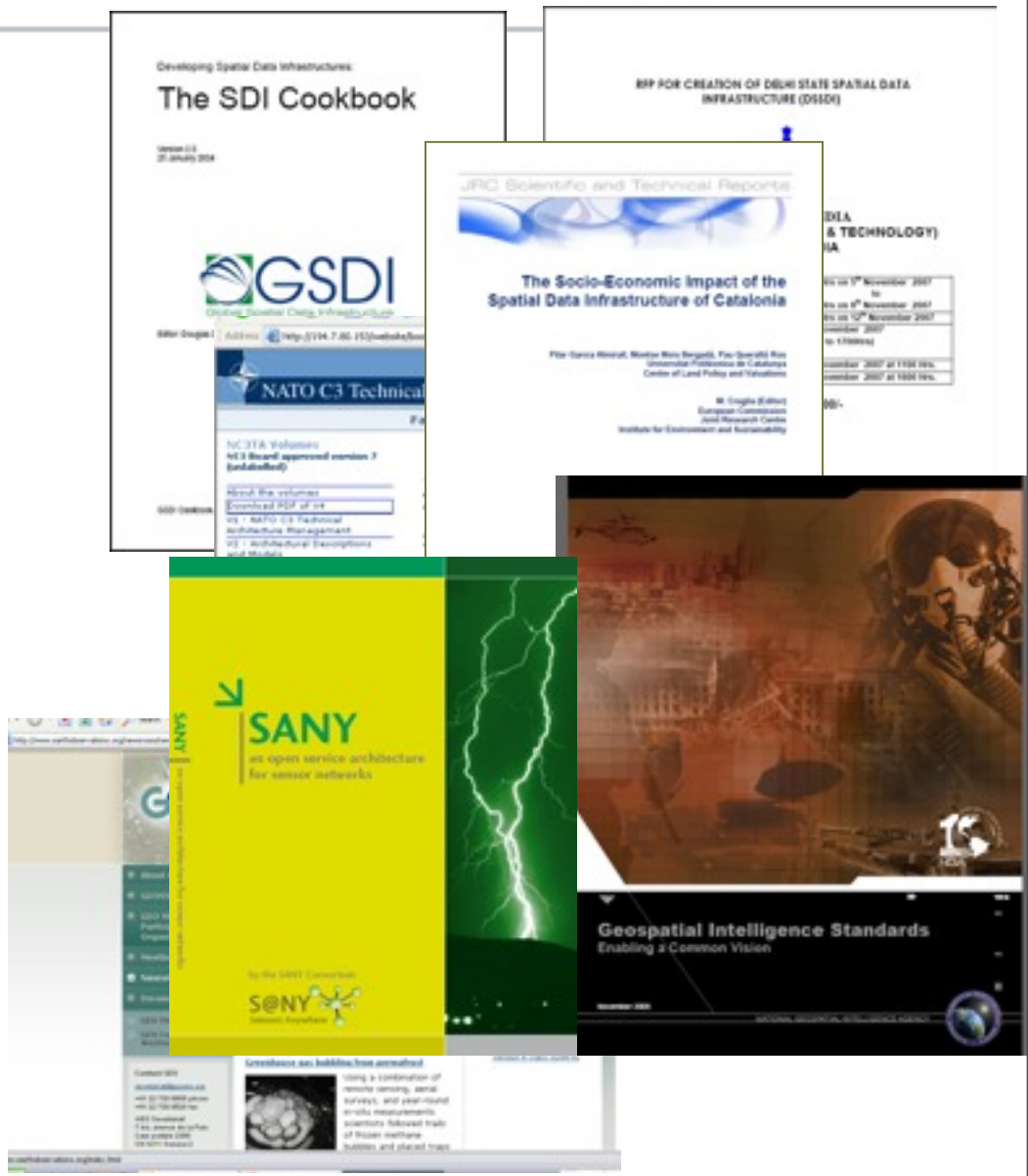
# Policy Requirements for Open Standards

- Global Earth Observation System of Systems (GEOSS)
- NATO C3
- US NGA
- US Federal Geographic Data Committee
- European INSPIRE Directive
- European Space Agency
- Local, national, regional government
- Science and Research

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# Digital Norway – Land Use

Municipal Areas

Flood Risk Areas


- Fisheries
- Waste Water Outflow
- Water Supply

- Demography
- Biodiversity
- Agriculture and Forestry

Land Use

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# Debris Flow Monitoring - Taiwan


Feng Chia University

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# Debris Flow Monitoring - Taiwan



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# Debris Flow Monitoring - Taiwan

- Typhoons and earthquakes trigger landslides and flooding on a frequent basis



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# Debris Flow Monitoring - Taiwan

- Typhoons and earthquakes trigger landslides and flooding on a frequent basis
- OGC standards used with an array of spatial data and sensors to forecast, detect, alert and respond to debris flow situations.



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# Debris Flow Monitoring - Taiwan

- Typhoons and earthquakes trigger landslides and flooding on a frequent basis
- OGC standards used with an array of spatial data and sensors to forecast, detect, alert and respond to debris flow situations.
- Rapidly deployed network of debris flow sensors, and distributed services performing sensor data analysis and processing



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# Sensor Web Enablement Standards Application
# Ocean Observation




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# Open Geospatial Consortium (OGC)

To serve as a global forum for and lead the development, promotion and harmonization of open and freely available geospatial standards.

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# OGC From an Organizational Perspective

# Over 420 Member Organizations


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# Significant Government Participation

- US DHS
- US EPA
- US FAA
- US NASA
- USGS
- US NGA
- US Census
- US NOAA
- JPEO
- Oakridge National Lab
- Natural Resources Canada

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# Over 35 Adopted Standards

- Data Services
  - Sensor Observation Service (SOS)
  - Web Coverage Service
  - Web Feature Service
  - Web Map Service ..
- Catalogue Services
  - Catalogue Service
- Processing Services
  - Open Location Services (OpenLS)
  - Coordinate Transformation Service
  - Sensor Planning Service (SPS)
  - Web Processing Service (WPS)

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# Over 35 Adopted Standards

- Encodings
  - Geography Markup Language (GML)
  - Styled Layer Descriptor (SLD)
  - Transducer Markup Language (TML)
  - Sensor Model Language (SensorML)
  - CityGML
  - Web Map Context (WMC)
  - Observations & Measurements (O&M)
  - Filter Encoding
  - KML
  - Symbology Encoding
  - GML in JPEG 2000
  - .....

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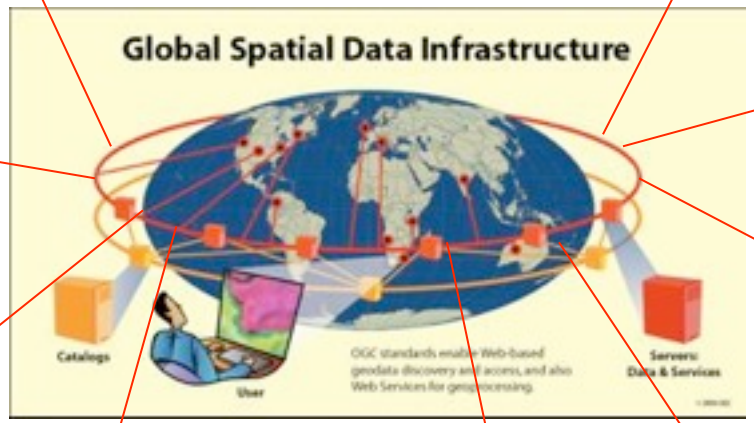
# OGC Activities Driven by Community Needs

Education & Research

Sustainable Development

Utilities

Health




E -Government

Emergency Services

Consumer Services

Energy

Geosciences

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# Domain Working Groups

Meteorology  Domain Working Group

- Advancing Practices to share met/ocean data
- Lead by WMO

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# Domain Working Groups


## Meteorology  Domain Working Group

- Advancing Practices to share met/ocean data
- Lead by WMO

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# Domain Working Groups

## Emergency and Disaster Management DWG

- Provide requirements  and Best practices for web service interfaces, models and schemas
- for enabling the discovery, access, sharing, analysis, visualization and processing of information to
- the forecasting, prevention, response to and recovery from emergency and disaster situations.

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# OGC Alliance Partners


… and others

www.opengeospatial.org/ogc/alliancepartners

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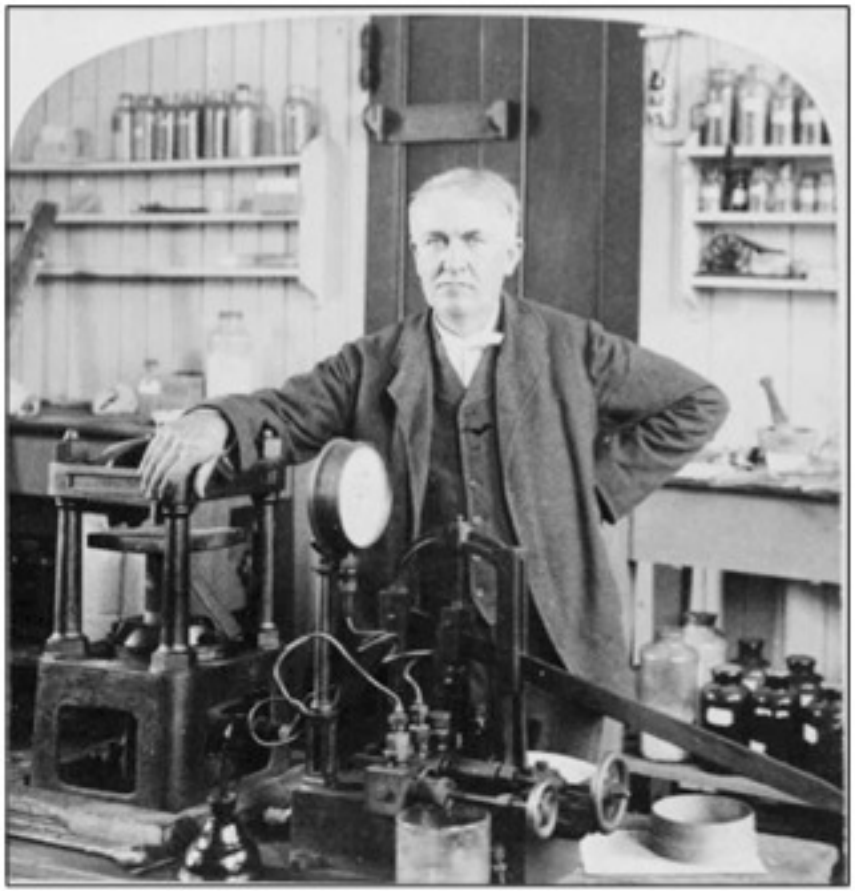
# ..how do we know if a standard works ?



I have not failed, I've just found 10,000 ways that won't work.

Thomas Edison

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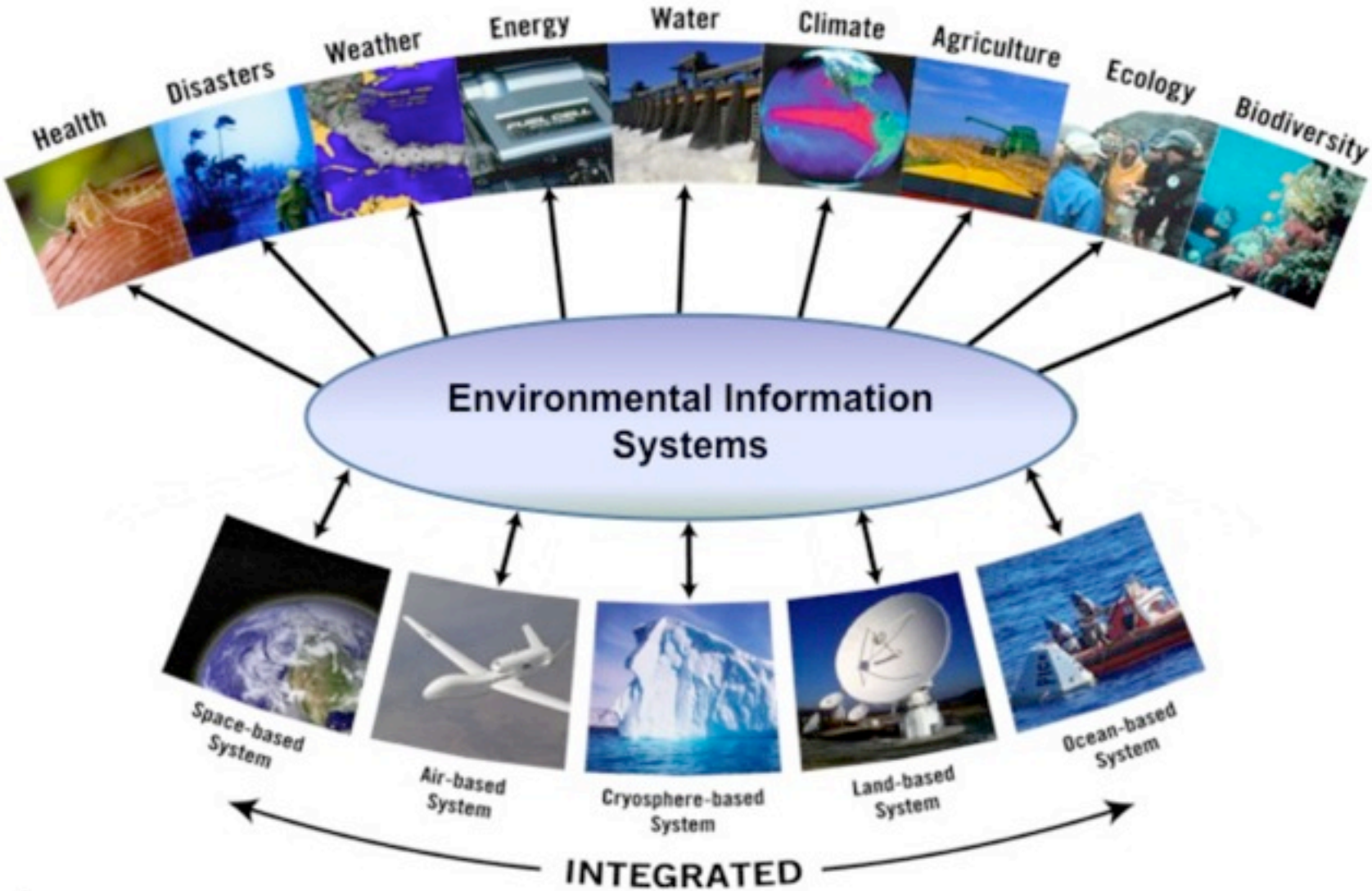
# Interoperability Program

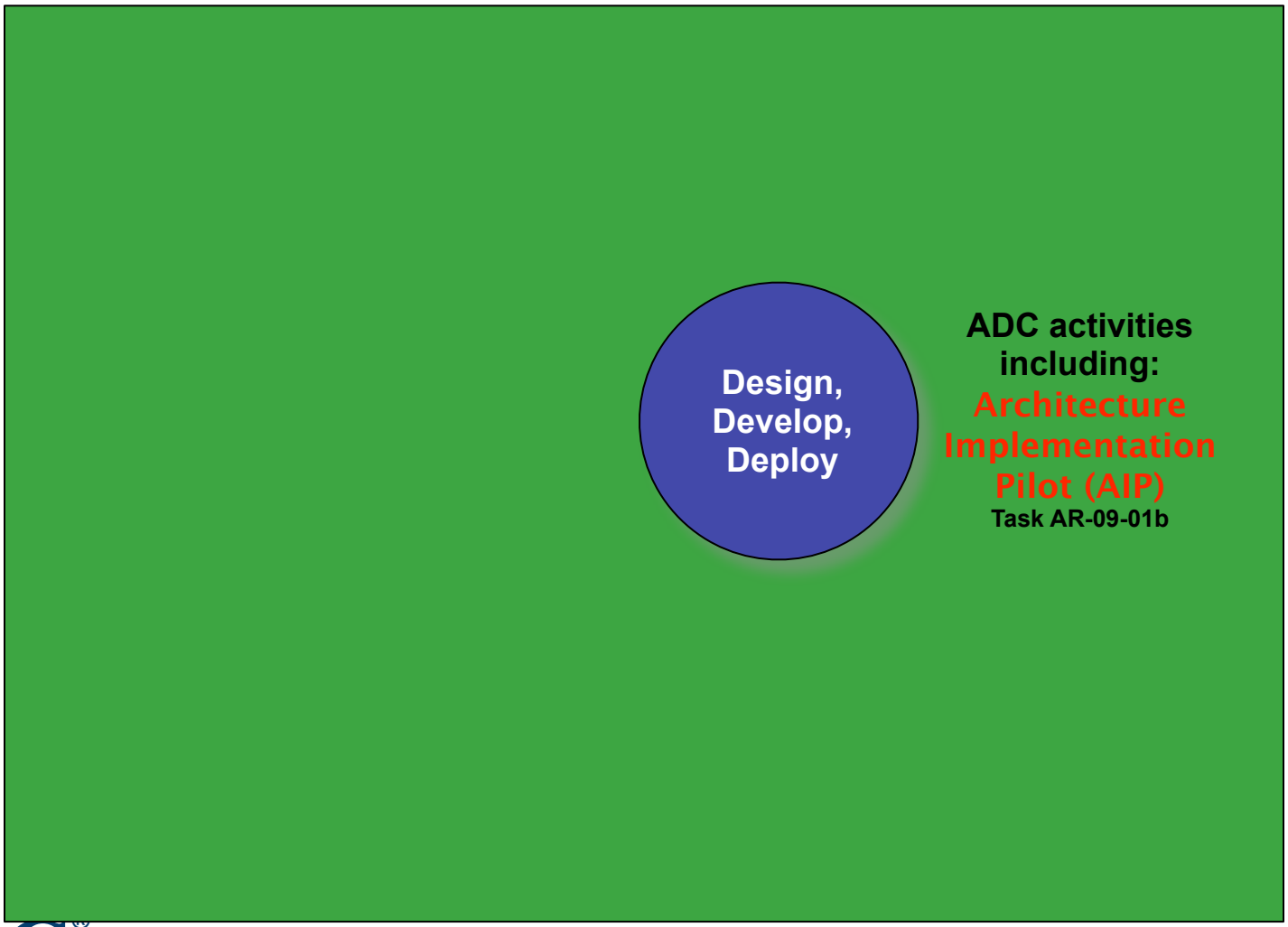
# Interoperability Program


40+ Interoperability Program initiatives since 1999.

# GEOSS


Health
Disasters
Weather
Energy
Water
Climate
Agriculture
Ecology
Biodiversity
Environmental Information Systems
Space-based System
Air-based System
Cryosphere-based System
Land-based System
Ocean-based System
INTEGRATED

# GEOSS Architecture Implementation Pilot

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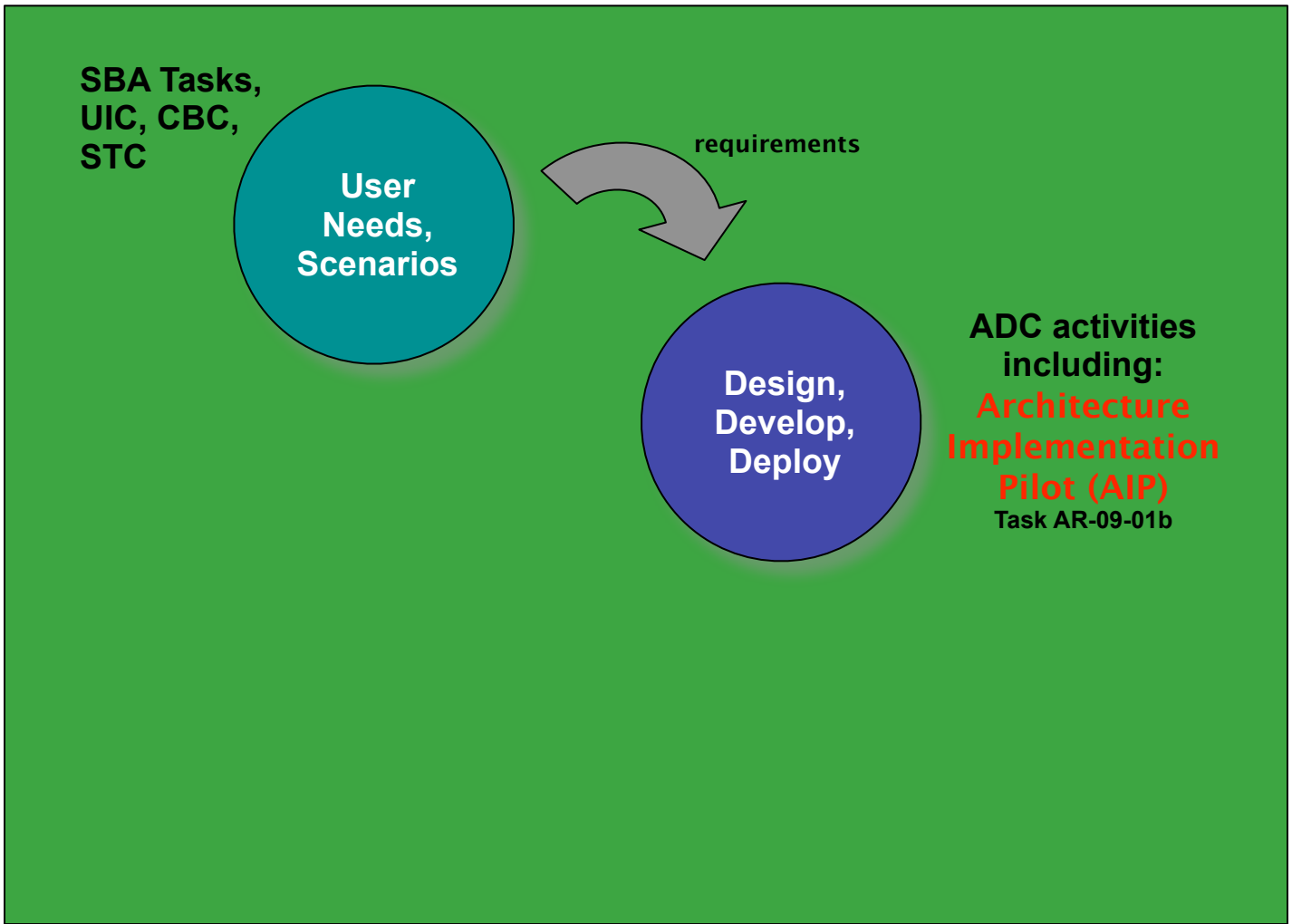
# GEOSS Architecture Implementation Pilot

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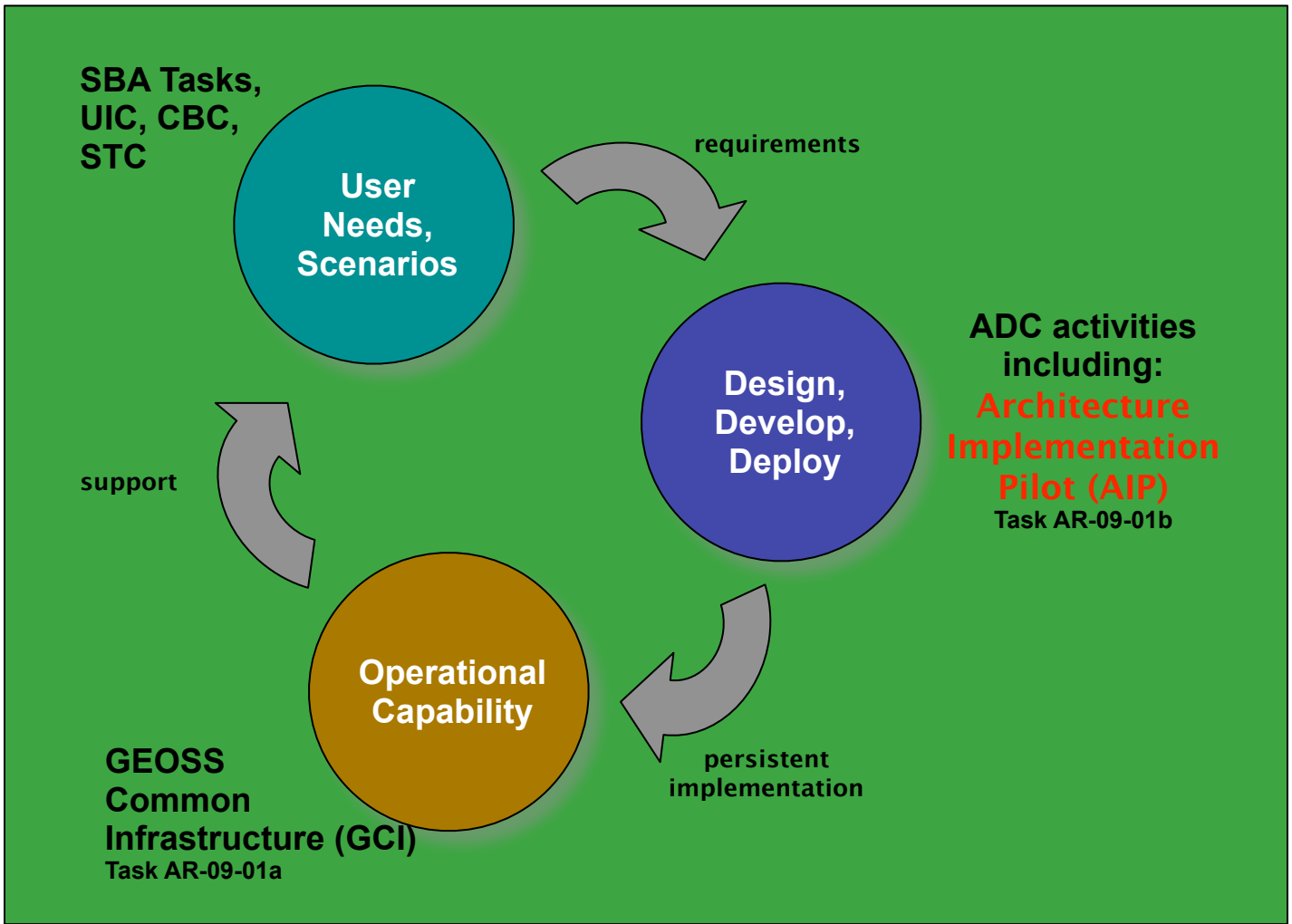
# GEOSS Architecture Implementation Pilot

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# Need for Compliance Testing


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# Compliance Program Goals

- Provide robust standard compliance solutions for communities applying/using geospatial software/technologies
- Provide a process whereby compliance for OGC specifications can be tested. Validate certified product compliance with OGC standards and provide Seal of Approval.
- Increase systems interoperability
- Reduce technology risks

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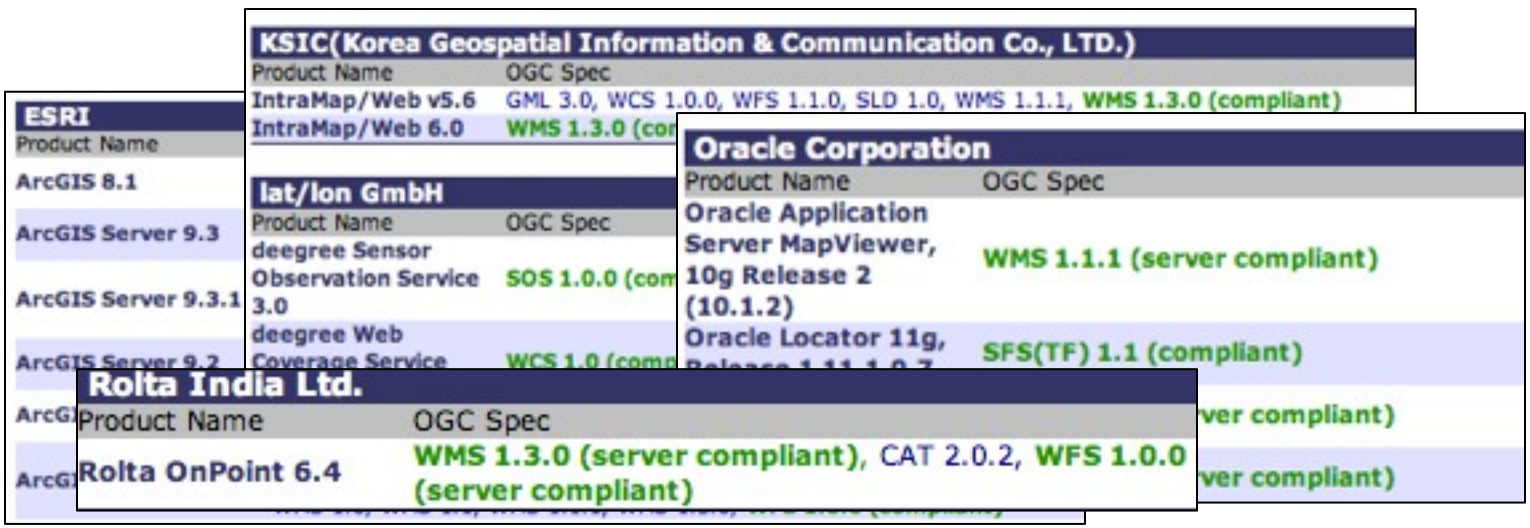
# Compliance Numbers (Mar 2011)

- More than 10 years providing certification
- Web Testing Engine - open source - operational since 2007
- More than 600 implementing products in the market
- More than 260 compliant  products in the market



**KSIC(Korea Geospatial Information & Communication Co., LTD.)**

| Product Name | OGC Spec |
|---|---|
| IntraMap/Web v5.6 | GML 3.0, WCS 1.0.0, WFS 1.1.0, SLD 1.0, WMS 1.1.1, WMS 1.3.0 (compliant) |
| IntraMap/Web 6.0 | WMS 1.3.0 (cor |

**ESRI**

| Product Name |
|---|
| ArcGIS 8.1 |
| ArcGIS Server 9.3 |
| ArcGIS Server 9.3.1 |
| ArcGIS Server 9.2 |
| ArcGI |
| ArcGI |

**Iat/Ion GmbH**

| Product Name | OGC Spec |
|---|---|
| deegree Sensor Observation Service 3.0 | SOS 1.0.0 (com |
| deegree Web Coverage Service | WCS 1.0 (comp |

**Oracle Corporation**

| Product Name | OGC Spec |
|---|---|
| Oracle Application Server MapViewer, 10g Release 2 (10.1.2) | WMS 1.1.1 (server compliant) |
| Oracle Locator 11g, | SFS(TF) 1.1 (compliant) |
| | ver compliant) |
| | ver compliant) |

**Rolta India Ltd.**

| Product Name | OGC Spec |
|---|---|
| Rolta OnPoint 6.4 | WMS 1.3.0 (server compliant), CAT 2.0.2, WFS 1.0.0 (server compliant) |

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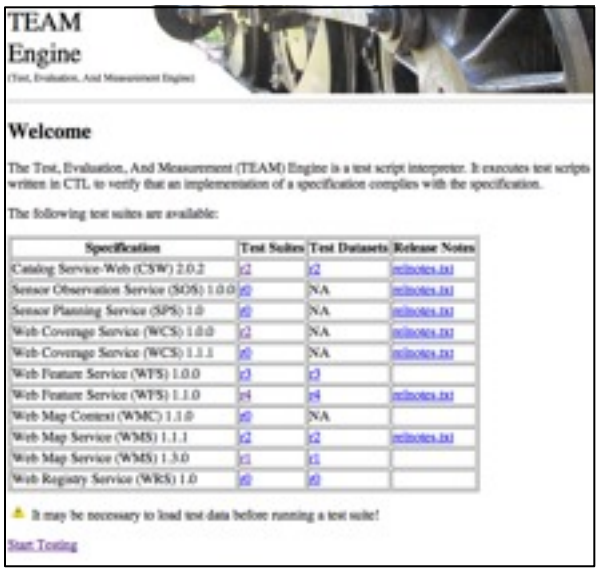
# Compliance Procedure

## 1) Developers go to online test engine




http://cite.opengeospatial.org/teamengine/

## 2) Fill the Test Results (TSR) form

## 3) Pay License Fee

**Annual Fee per Product Version per Implemented Standard Version**

| Licensee Total Gross Annual Revenue | Non Member | Member |
|---|---|---|
| $0M - < $2M | $100 | $80 |
| $2M - < $3M | $250 | $200 |
| $3M - < $10M | $500 | $400 |
| $10M - < $20M | $750 | $600 |
| $20M - < $50M | $1,200 | $960 |
| $50M - < $100M | $2,000 | $1,600 |
| $100M - < $500M | $4,500 | $3,600 |
| $500M+ | $7,000 | $5,600 |

## 4) Get compliance certificate

**Open Geospatial Consortium, Inc.**
**Compliance Certificate**

*This Compliance Certificate is awarded to*

**[Company Name]**

*In recognition that*

**[Product Name and Version]**

*Meets all Compliance Items and therefore complies with*

***[Full Specification Name and Version]***

*Awarded the [date] day of [Month Year]*

Jeffrey S. Barnett, Vice President

## 5) Use certification mark

CERTIFIED OGC COMPLIANT

**More information:**
**http://bit.ly/gTmmSo**

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# Agenda

- **Overview OGC Testing Facility - TEAM Engine**

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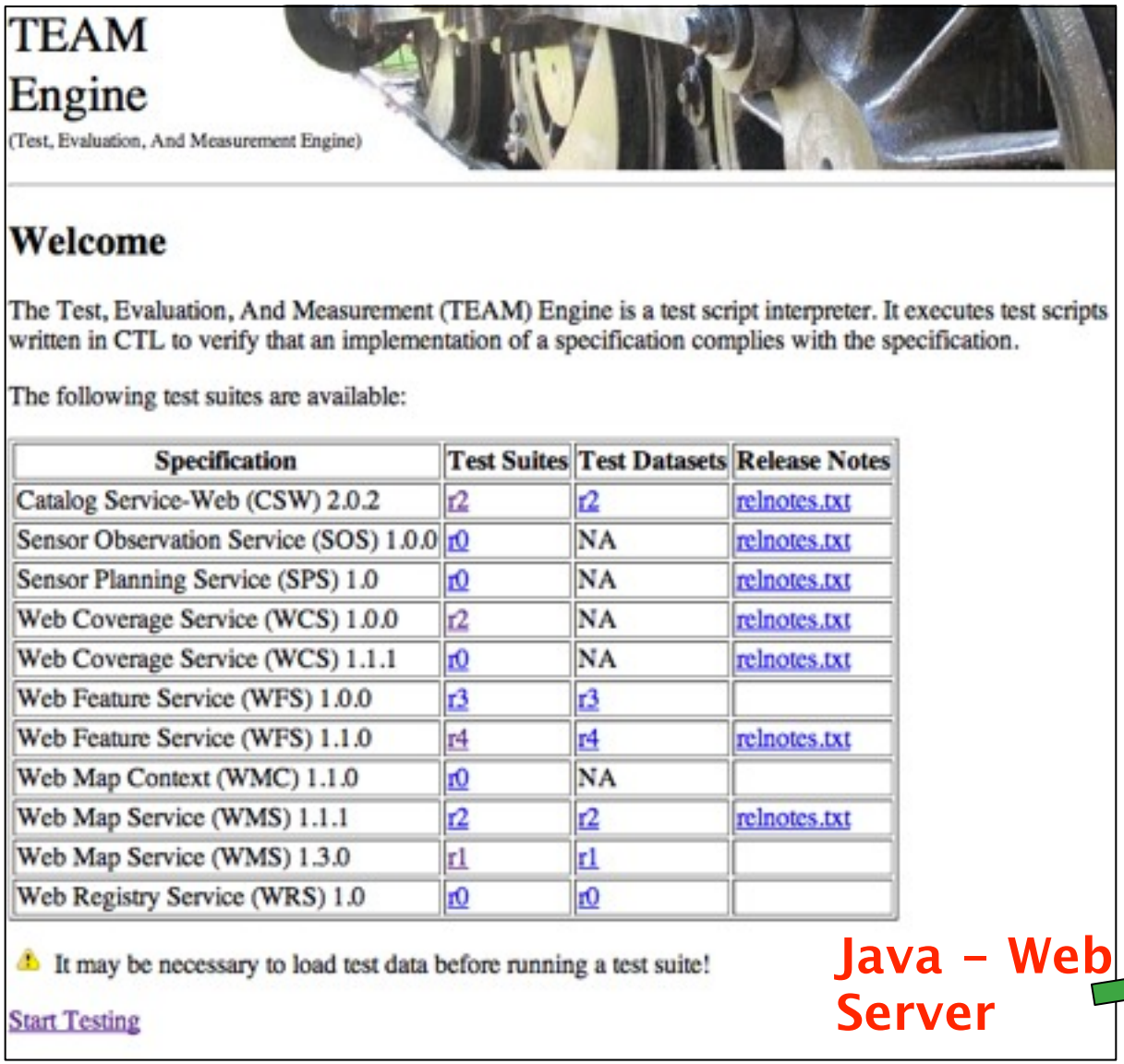
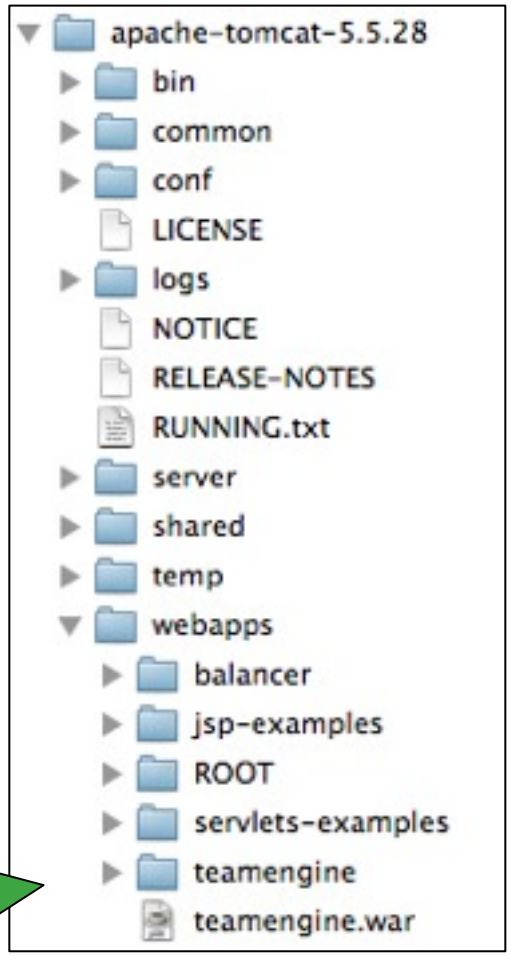
# Online Facility TEAM Engine

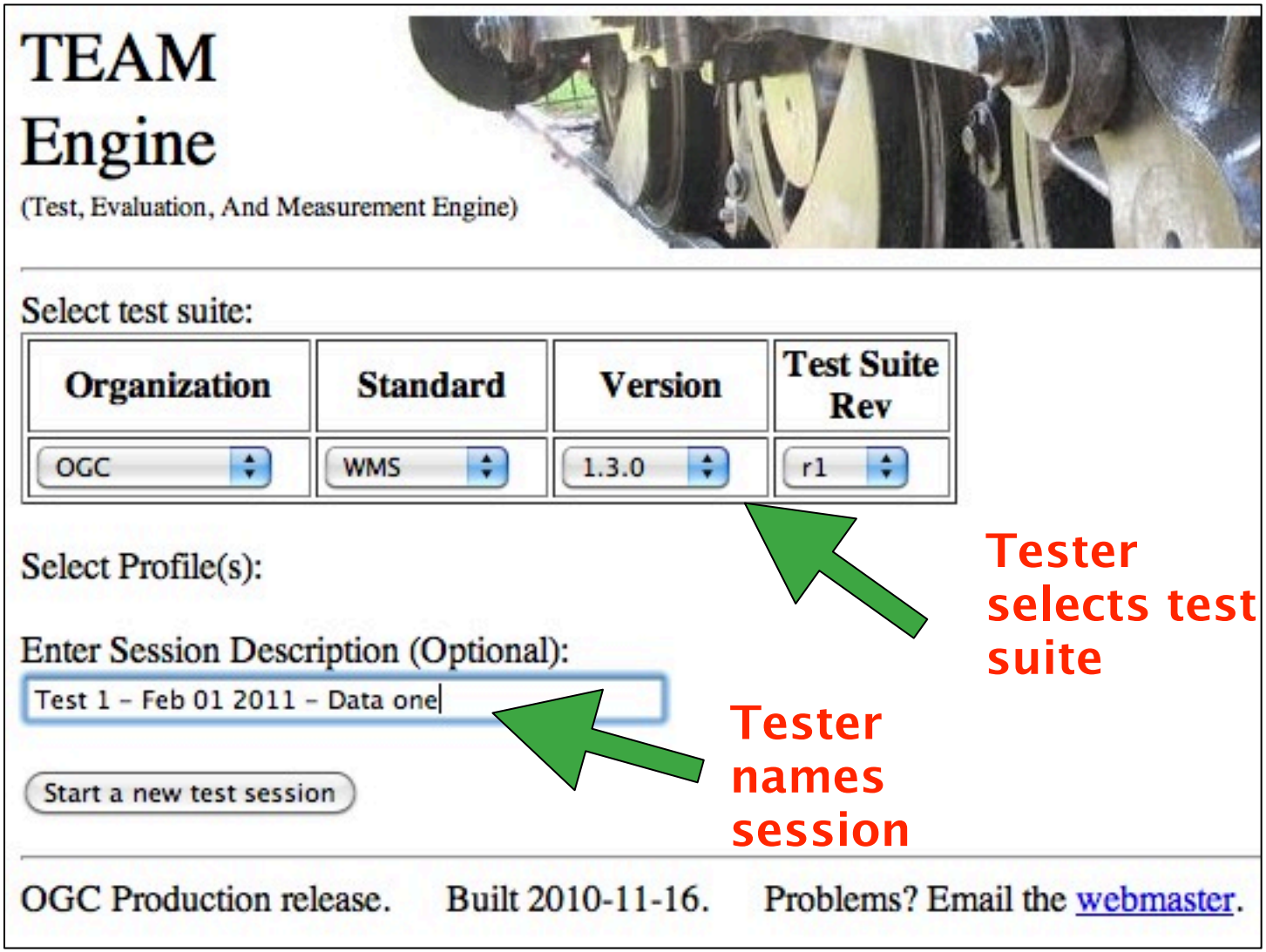
**http://cite.opengeospatial.org/teamengine/**

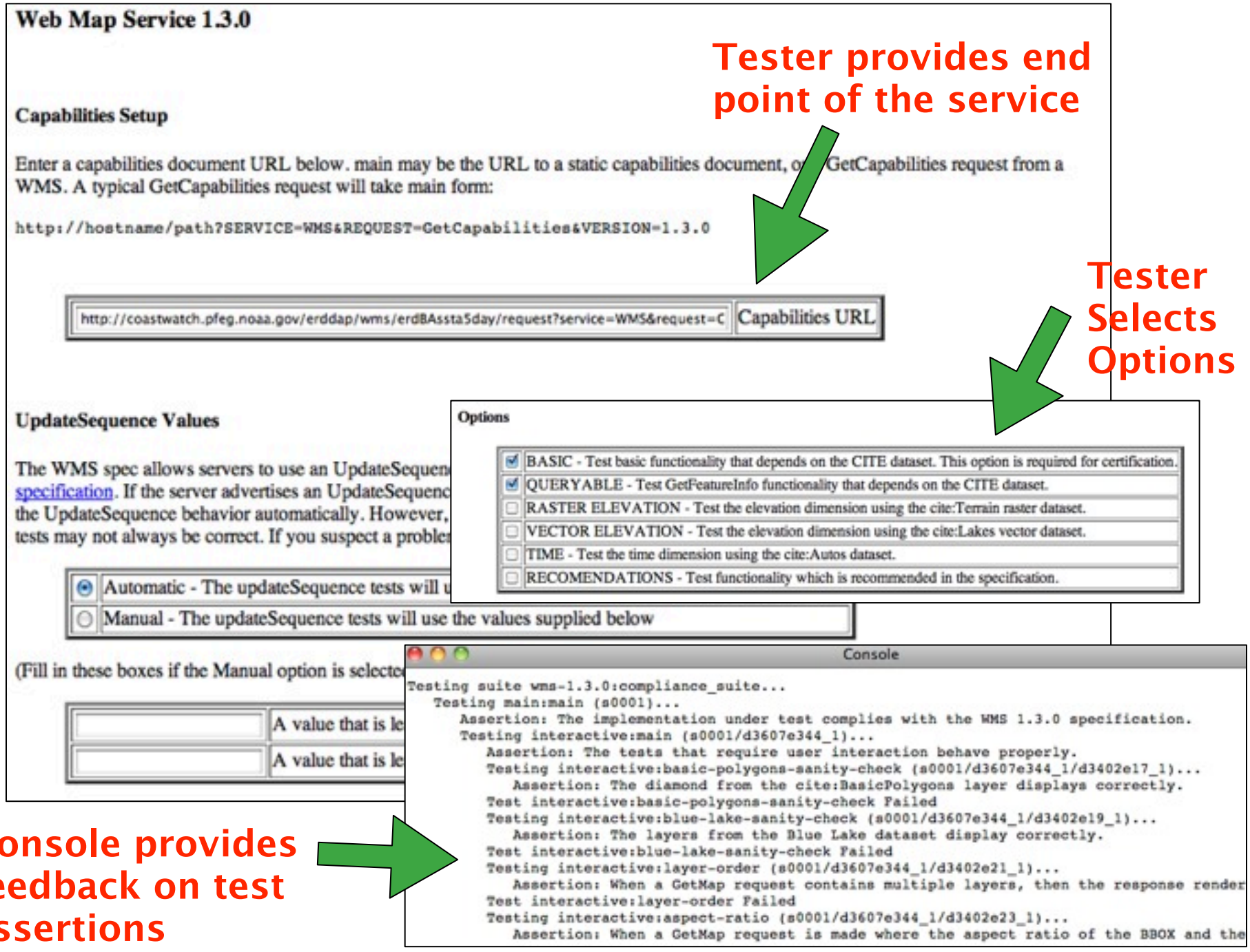
MOZILLA PUBLIC LICENSE Version 1.1




Java - Web Server






Web Map Service 1.3.0
Tester provides end point of the service
Capabilities Setup
Enter a capabilities document URL below. main may be the URL to a static capabilities document, o GetCapabilities request from a WMS. A typical GetCapabilities request will take main form:
http://hostname/path?SERVICE=WMS&REQUEST=GetCapabilities&VERSION=1.3.0
http://coastwatch.pfeg.noaa.gov/erddap/wms/erdBAssta5day/request?service=WMS&request=C
Capabilities URL
Tester Selects Options
UpdateSequence Values
Options
BASIC - Test basic functionality that depends on the CITE dataset. This option is required for certification.
QUERYABLE - Test GetFeatureInfo functionality that depends on the CITE dataset.
RASTER ELEVATION - Test the elevation dimension using the cite:Terrain raster dataset.
VECTOR ELEVATION - Test the elevation dimension using the cite:Lakes vector dataset.
TIME - Test the time dimension using the cite:Autos dataset.
RECOMENDATIONS - Test functionality which is recommended in the specification.
The WMS spec allows servers to use an UpdateSequen
specification. If the server advertises an UpdateSequenc
the UpdateSequence behavior automatically. However,
tests may not always be correct. If you suspect a proble
Automatic - The updateSequence tests will u
Manual - The updateSequence tests will use the values supplied below
(Fill in these boxes if the Manual option is selecte
A value that is le
A value that is le
Console
Testing suite wms-1.3.0:compliance_suite...
Testing main:main (s0001)...
Assertion: The implementation under test complies with the WMS 1.3.0 specification.
Testing interactive:main (s0001/d3607e344_1)...
Assertion: The tests that require user interaction behave properly.
Testing interactive:basic-polygons-sanity-check (s0001/d3607e344_1/d3402e17_1)...
Assertion: The diamond from the cite:BasicPolygons layer displays correctly.
Test interactive:basic-polygons-sanity-check Failed
Testing interactive:blue-lake-sanity-check (s0001/d3607e344_1/d3402e19_1)...
Assertion: The layers from the Blue Lake dataset display correctly.
Test interactive:blue-lake-sanity-check Failed
Testing interactive:layer-order (s0001/d3607e344_1/d3402e21_1)...
Assertion: When a GetMap request contains multiple layers, then the response render
Test interactive:layer-order Failed
Testing interactive:aspect-ratio (s0001/d3607e344_1/d3402e23_1)...
Assertion: When a GetMap request is made where the aspect ratio of the BBOX and the
Console provides feedback on test assertions

# Results for session s0006

## Test Suite: Web Map Service (WMS) 1.3.0

Summary of Results

- Test main:main (View Details): Passed
  - Test interactive:main (View Details): Passed
    - Test interactive:basic-polygons-sanity-check (View Details): Passed
    - Test interactive:blue-lake-sanity-check (View Details): Passed
    - Test interactive:layer-order (View Details): Passed
    - Test interactive:aspect-ratio (View Details): Passed
    - Test interactive:exceptions-inimage (View Details): Passed
    - Test interactive:fees-and-access-constraints (View Details): Passed
  - Test main:options-requirements (View Details): Passed
    - Test main:gif-or-png (View Details): Passed
    - Test main:std-data-present (View Details): Passed
    - Test main:getfeatureinfo-supported (View Details): Passed
    - Test main:std-data-queryable (View Details): Passed
  - Test basic_elements:main (View Details): Passed
    - Test basic_elements:version-negotiation (View Details): Passed
      - Test basic_elements:negotiate-no-version (View Details): Passed
      - Test basic_elements:negotiate-basic_elements-version (View Details): Passed
      - Test basic_elements:negotiate-higher-version (View Details): Passed
      - Test basic_elements:negotiate-lower-version (View Details): Passed
    - Test basic_elements:reserved-chars (View Details): Passed
      - Test basic_elements:escaped-chars (View Details): Passed

# Online Facility TEAM Engine

tion:core-SOS.GetObservation-ResponseAdvertisedEventTimeData.1 (View Details): Passed
tion:core-SOS.GetObservation-ResponseMatchingEventTimeData.1 (View Details): Passed
tion:core-SOS.GetObservation-ResponseMatchingFeatureOfInterestData.1 (View Details): Passed
tion:core-SOS.GetObservation-ResponseMatchingResultData.1 (View Details): Passed
tion:core-SOS.GetObservation-ResponseMatchingResponseFormatData.1 (View Details): Passed

2 Warning: 0 Fail: 0

lete this session | Download log Files | Create execution log report file | Email log Files

Email Results to Compliance Program

# Agenda

- Introduction to the Compliance Test Language (CTL)

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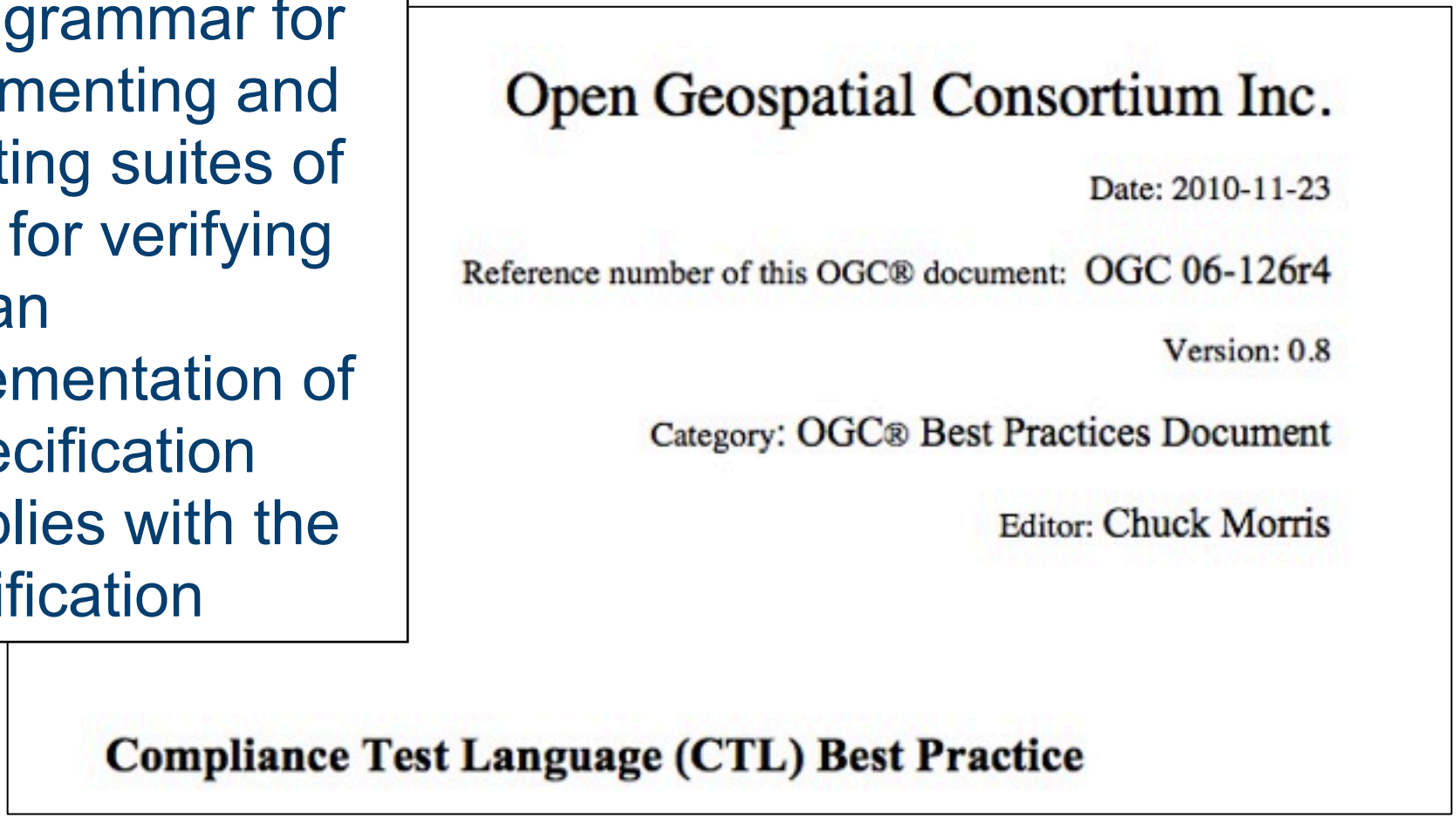
XML grammar for documenting and scripting suites of tests for verifying that an implementation of a specification complies with the specification



Open Geospatial Consortium Inc.

Date: 2010-11-23

Reference number of this OGC® document: OGC 06-126r4

Version: 0.8

Category: OGC® Best Practices Document

Editor: Chuck Morris

**Compliance Test Language (CTL) Best Practice**

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# CTL at Wiki

http://cite.opengeospatial.org/node/58

## CITE Navigation

- About CITE
- Start Testing
- Beta Testing
- Build for Local Testing
- TEAM Engine & CTL Quick Start
- Standards Available for Testing
- Reference Implementations
- Developer Information
- Frequently Asked Questions

### Writing a simple Hello World Test Script

The following is a simple Hello World CTL test script.

hello.ctl

```
<ctl:test
 xmlns:ctl="http://www.occamlab.com/ctl"
 xmlns:my="urn://mynamespace"
 name="my:hello"
>
  <ctl:assertion>This test displays a greeting.</ctl:assertion>
  <ctl:code>
    <ctl:message>Hello, world!</ctl:message>
  </ctl:code>
</ctl:test>
```

This is one of the simplest test scripts that can be written. It contains a single test. Tests are identified by a namespace qualified name attribute. In this case, we have made up our own namespace "urn://mynamespace" identified by the prefix "my" which we are using in the test name. A test has an assertion, which is a statement that is true if what is being tested is compliant. It also has code that determines whether the assertion is true or false. This test isn't really testing anything. The code merely displays a greeting on the console, and the assertion just describes what the code does.

To execute the test, use the TEAM Engine test utility.

```
C:\teamengine2.0>bin\test -source=hello.ctl -test=my:hello
```

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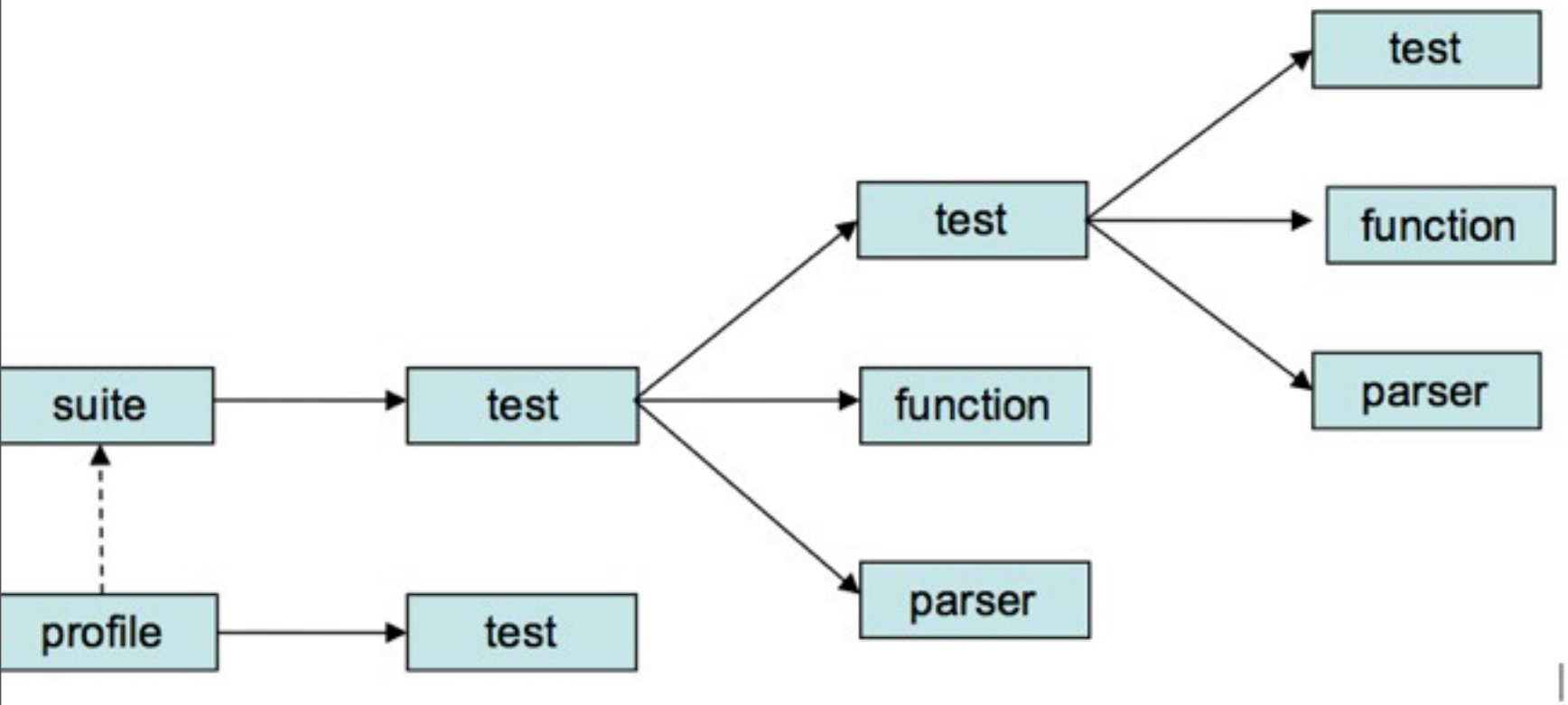
# Structure CTL Tests



# CTL Features and Examples

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# Suite and Profiles

```
<ctl:suite name="test:base">
      <ctl:title>Base profile test suite</ctl:title>
      <ctl:description></ctl:description>
      <ctl:starting-test>test:base_main</ctl:starting-test>
      <ctl:form>
         Enter a value for X:
         <xhtml:input type="text" name="x"/>
         <xhtml:br/>
         <xhtml:input type="submit"/>
      </ctl:form>
  </ctl:suite>

  <ctl:profile name="test:profile_a">
      <ctl:title>Profile A</ctl:title>
      <ctl:description></ctl:description>
      <ctl:base>test:base</ctl:base>
      <ctl:exclude>/test:base_main/test:fail</ctl:exclude>
      <ctl:starting-test>test:profile_a_main</ctl:starting-test>
  </ctl:profile>

  <ctl:test name="test:base_main">
    <ctl:param name="x"/>
    <ctl:assertion>Base Main</ctl:assertion>
    <ctl:code>
      <ctl:message>X: <xsl:value-of select="$x"/></ctl:message>
      <ctl:call-test name="test:pass"/>
      <ctl:call-test name="test:fail"/>
    </ctl:code>
  </ctl:test>
```

```
<ctl:test name="test:base_main">
  <ctl:param name="x"/>
  <ctl:assertion>Base Main</ctl:assertion>
  <ctl:code>
    <ctl:message>X: <xsl:value-of select="$x"/></ctl:message>
    <ctl:call-test name="test:pass"/>
    <ctl:call-test name="test:fail"/>
  </ctl:code>
</ctl:test>

<ctl:test name="test:pass">
  <ctl:assertion>Pass</ctl:assertion>
  <ctl:code>
  </ctl:code>
</ctl:test>

<ctl:test name="test:fail">
  <ctl:assertion>Fail</ctl:assertion>
  <ctl:code>
    <ctl:fail/>
  </ctl:code>
</ctl:test>

<ctl:test name="test:profile_a_main">
  <ctl:param name="x"/>
  <ctl:assertion>Profile A Main</ctl:assertion>
  <ctl:code>
    <ctl:message>X: <xsl:value-of select="$x"/></ctl:message>
  </ctl:code>
</ctl:test>
```

# Suite and Profiles

# Test and Assertions

```
<ctl:test name="example:zulu">
    <ctl:param name="time">time string</ctl:param>
    <ctl:assertion>
If the hours field is included in {$time},
    the suffix Z (for zulu) is required.
</ctl:assertion>
    <ctl:link title="WMS 1.1.1 Section B.2.1">wms111.html#b_2_1</ctl:link>
    <ctl:code>
        <xsl:if test="contains($time, 'T')">
            <xsl:variable name="len" select="string-length($time)"/>
            <xsl:if test="not(substring($time, $len) = 'Z')">
                <ctl:fail/>
            </xsl:if>
        </xsl:if>
    </ctl:code>
</ctl:test>
```

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# Functions

```
<function name="example:add">
        <param name="num1">First Number</param>
        <param name="num2">Second Number</param>
        <return>num1 + num2</return>
        <description>Adds two numbers</description>
        <code>
            <xsl:value-of select="$num1 + $num2"/>
        </code>
    </function>

    <function name="example:sqrt">
        <param name="num"/>
        <return>the square root of num</return>
        <description>Calculates a square root</description>
        <java class="java.lang.Math" method="sqrt"/>
    </function>
```

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# XHTML Forms

```
<ctl:form>
   <p>
      <img src="http://www.google.com/intl/en/images/logo.gif"/><br/>
      Do you see the Google logo?<br/>
      <input type="submit" name="answer" value="yes"/>
      <input type="submit" name="answer" value="no"/>
   </p>
</ctl:form>
```


```
<values>
   <value key="answer">yes</value>
</values>
```

# XHTML Forms - Uploading FIle

```
<ctl:variable name="form-values">
   <ctl:form>
      <p>Select an XML file:</p>
      <input name="myupload" type="file" />
      <br />
      <input type="submit" value="OK" />
      <ctl:parse file="myupload" />
   </ctl:form>
</ctl:variable>
<ctl:message>
   <xsl:text>The root element is named <xsl:text>
   <xsl:value-of select="name($form-values/values/value[@key='myupload']/*) "/>
</ctl:message>
```

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# HTTP Requests

```
<request>
   <url>http://www.somewms.com</url>
   <method>get</method>
   <param name="SERVICE">WMS</param>
   <param name="REQUEST">GetCapabilities</param>
   <param name="VeRsIoN">1.1.1</param>
</request>
```

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# Parsers

```
<xsl:variable name="results">
    <request>
        <url>http://www.example.com/example.xml</url>
        <method>get</method>
        <parsers:XMLValidatingParser>
            <parsers:schemas>
                <parsers:schema type="url">
 http://www.example.com/example.xsd
                </parsers:schema>
            </parsers:schemas>
        </parsers:XMLValidatingParser>
    </request>
</xsl:variable>
<xsl:if test="not($results/*)">
    <message>Parsing or validation failed.</message>
</xsl:if>
```

CDataParser
HTTPParser
XMLValidatingParser
SOAPParser
**XSLTransformationParser**

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# Example - SOS DescribeSensor request

```
<xsl:variable name="noOutputFormatRequest">
    <ctl:request>
        <ctl:url>
            <xsl:value-of select="$postURL"/>
        </ctl:url>
        <ctl:method>post</ctl:method>
        <ctl:body>
            <DescribeSensor
                service="SOS"
                xmlns="http://www.opengis.net/sos/1.0"
            >
                <xsl:attribute name="version">
                    <xsl:value-of select="$describeSensorVersion"/>
                </xsl:attribute>
                <procedure>
                    <xsl:value-of select="$procedure"/>
                </procedure>
            </DescribeSensor>
        </ctl:body>

        <ctl:call-function name="sosFunctions:xmlValidatingParser">
            <ctl:with-param name="schemaFile" select="$exceptionReportSchema"/>
        </ctl:call-function>
    </ctl:request>
</xsl:variable>
```

# Demonstration WFS testing

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# Agenda

- **Resources and Getting Started**

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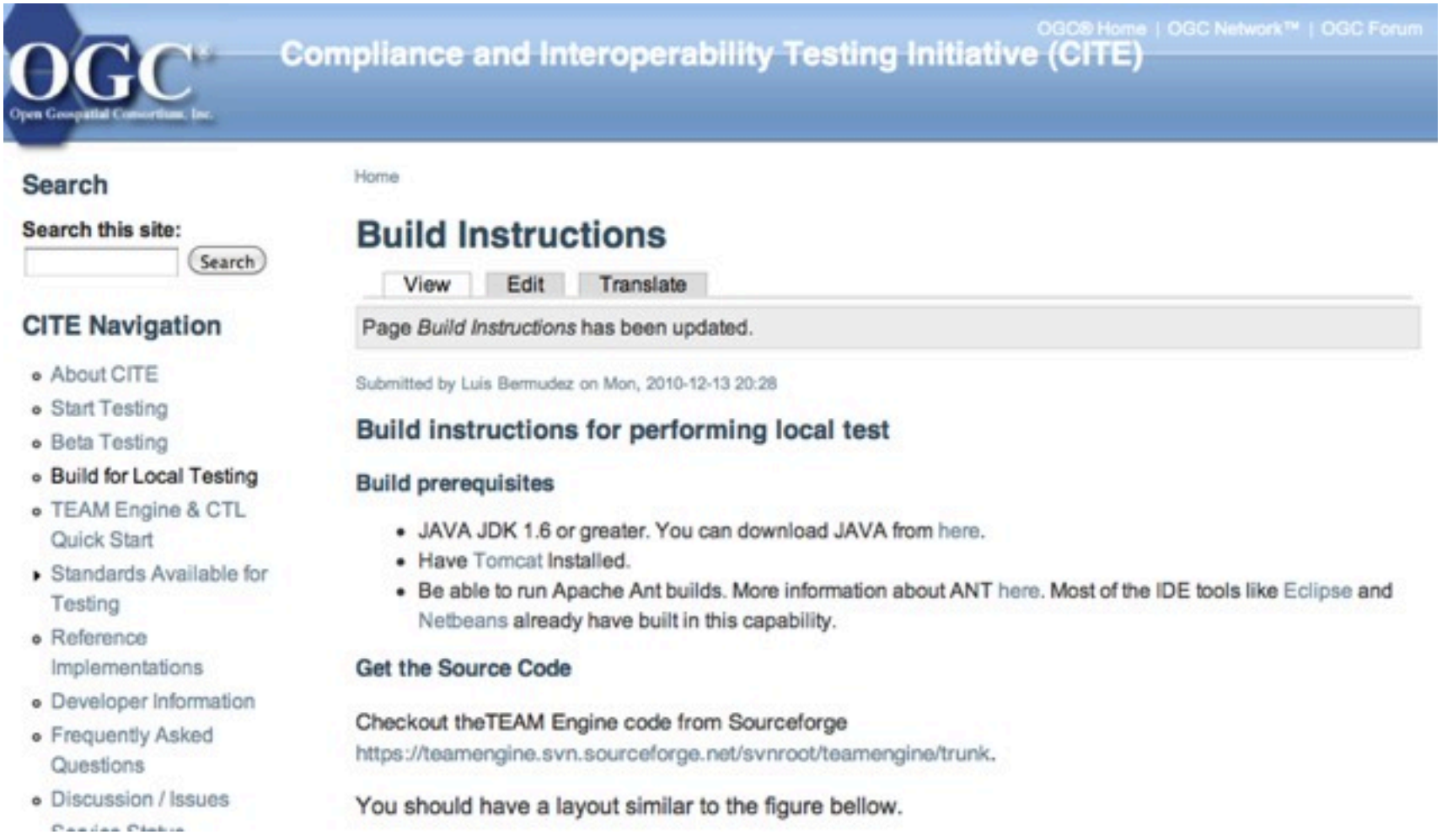
# CITE WIKI

http://cite.opengeospatial.org/

# Building instructions

http://cite.opengeospatial.org/node/65

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# Developers Mailing List

https://lists.opengeospatial.org/mailman/listinfo/cite-forum

cite-forum@lists.opengeospatial.org

The cite-forum public mailing list provides CITE and OGC compliant software developers the means to discuss issues and solutions related to OGC tests. This list is used for:

- Discussions of problems found when using TEAM Engine or the test scripts (for example apparently inexplicable failing tests)
- Discussions of new features for TEAM Engine
- Discussions of new tests enhancements
- Announcing of new beta and production releases of TEAM Engine
- Submission of bugs when using TEAM Engine or test scripts

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# CITE Subcommittee Mailing List

https://lists.opengeospatial.org/mailman/listinfo/cite

cite.sc@lists.opengeospatial.org

This list is used for:

- Discussion of Policies
- Discussion of Road map
- Discussions of Strategies
- Discussion of the Agenda for the TC meetings

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# Issue Tracker

- Is in the CITE SC Project Web Site.

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# Agenda

- **Running TEAM Engine deploying a TEAM Engine WAR**

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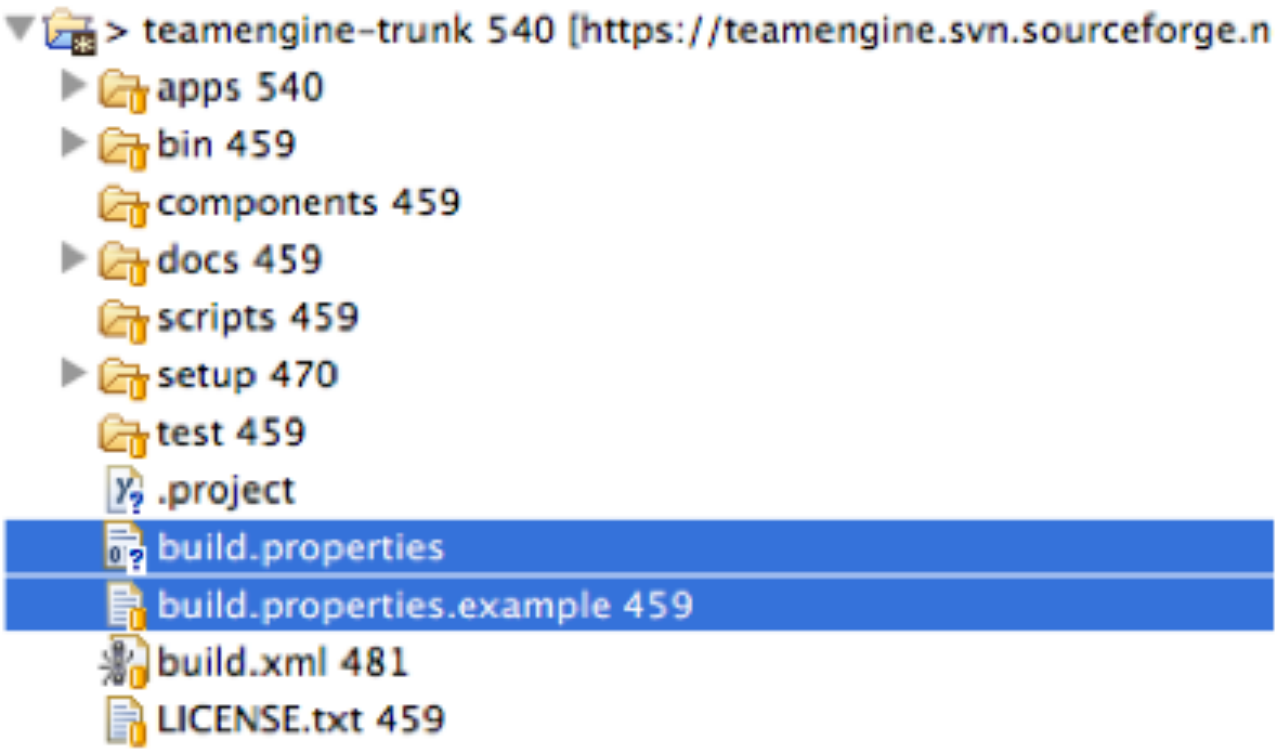
# 1) Checkout team engine from Sourceforge

https://teamengine.svn.sourceforge.net/svnroot/teamengine/trunk.

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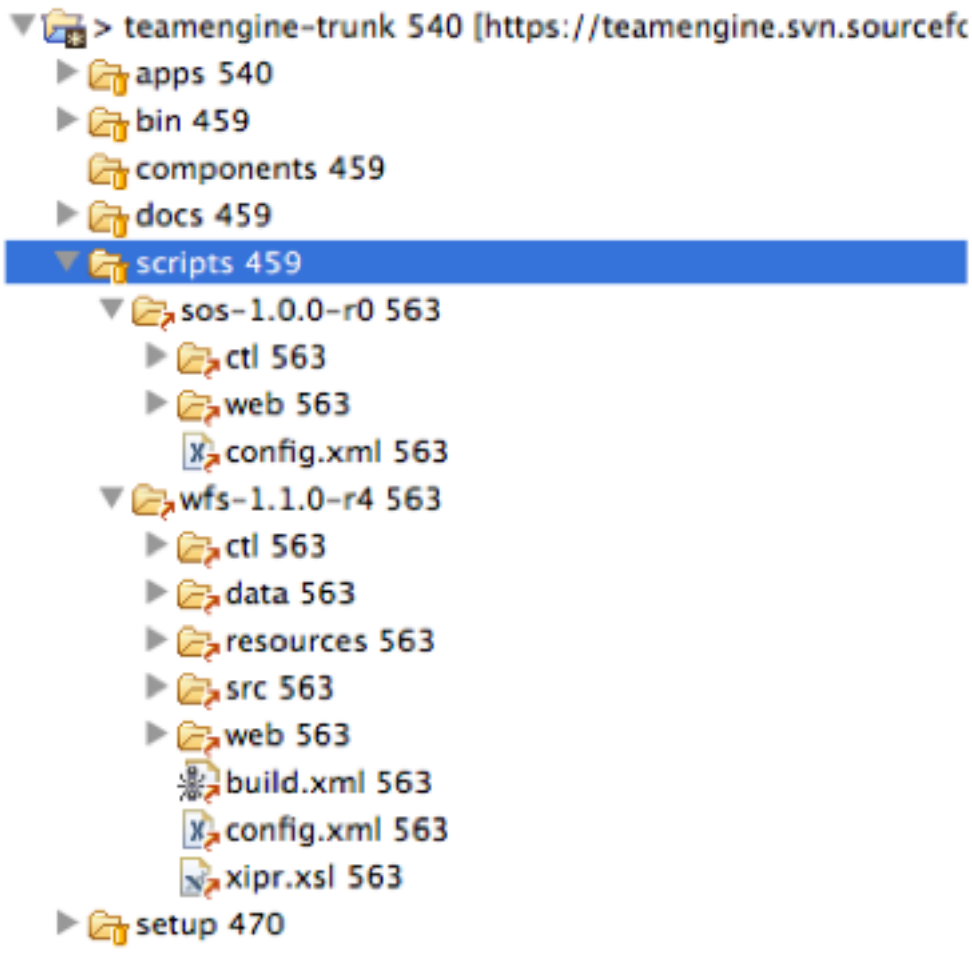
# 2) Copy the tests in the scripts folder

- Tests are available in one zip file ( ~ 10 MB): http://portal.opengeospatial.org/files/?artifact_id=44173



# 3) Create a build.properties file

build.properties

```
usersdir /local/srv/teamengine2.dat/te2.users
workdir /local/srv/teamengine2.dat/te2.work
tomcat.dir /Applications/apache-tomcat-5.5.28
```

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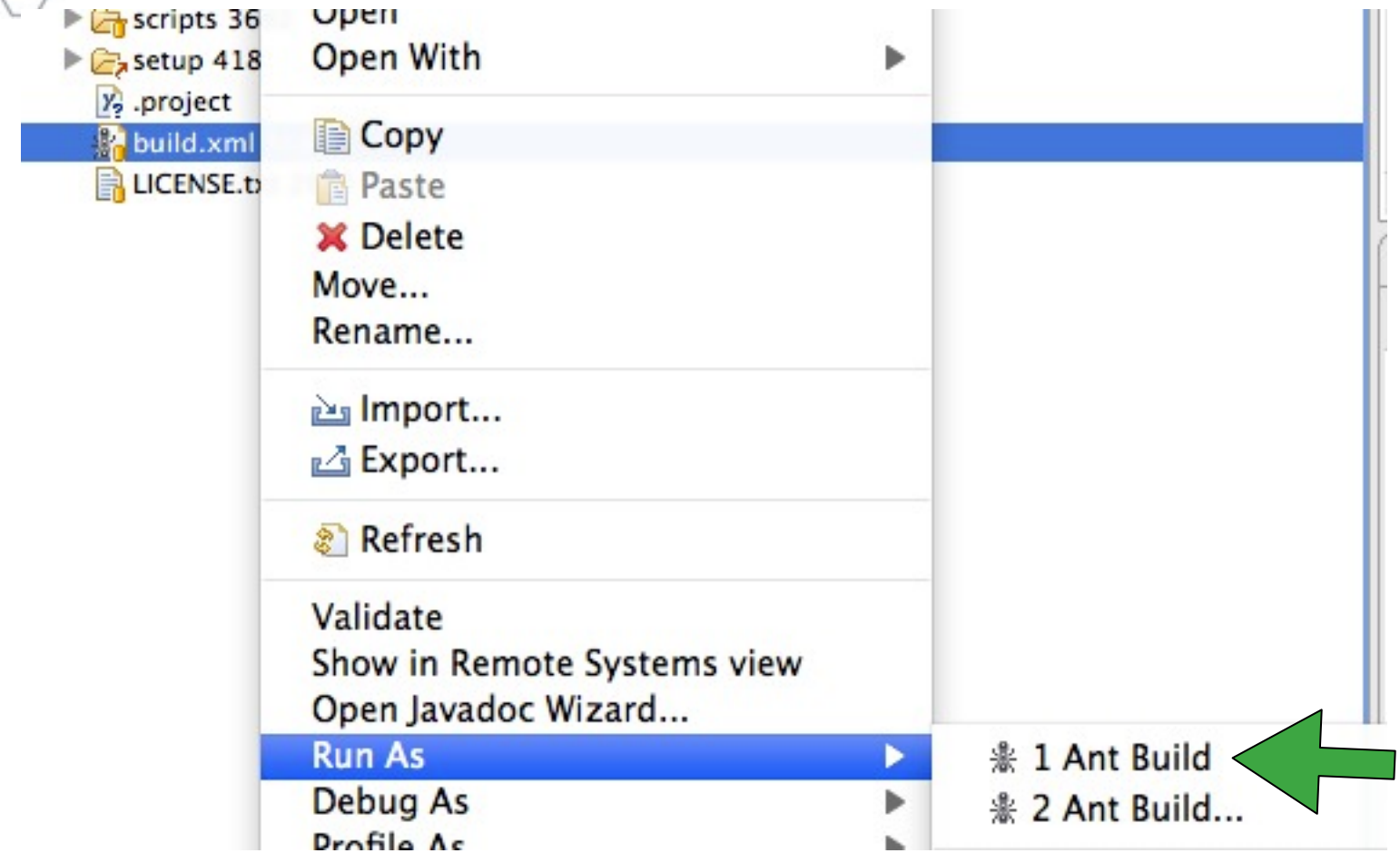
# 4) Run the build



# 5) Get Successful Build Result

```
zip.manager.bin:
   [delete] Deleting directory /Users/bermud/Documents/workspace/teamengi
    [mkdir] Created dir: /Users/bermud/Documents/workspace/teamengine-tru
    [mkdir] Created dir: /Users/bermud/Documents/workspace/teamengine-tru
     [copy] Copying 2 files to /Users/bermud/Documents/workspace/teamengi
      [zip] Building zip: /Users/bermud/Documents/workspace/teamengine-tr
BUILD SUCCESSFUL
Total time: 9 seconds
```

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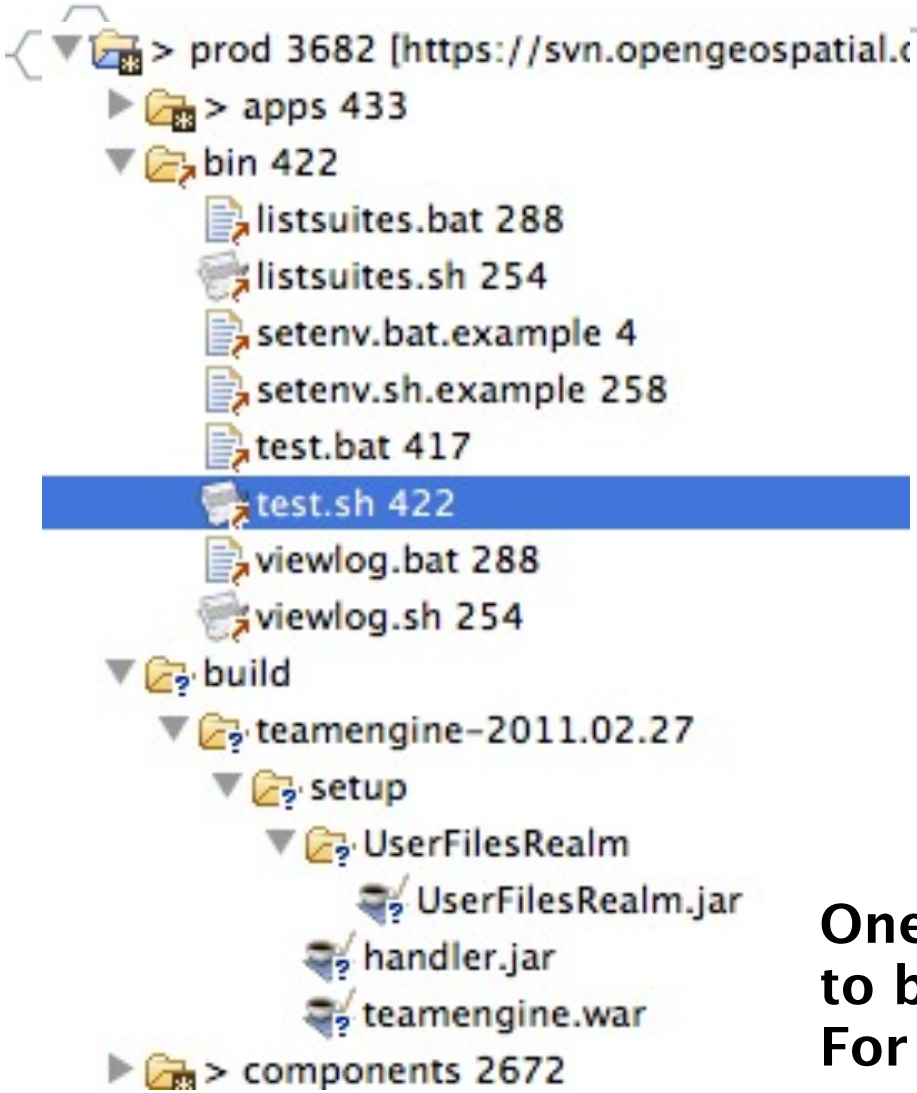
# After the build




**One WAR is created and 2 jars. Need to be moved to a servlet container. For example TOMCAT**

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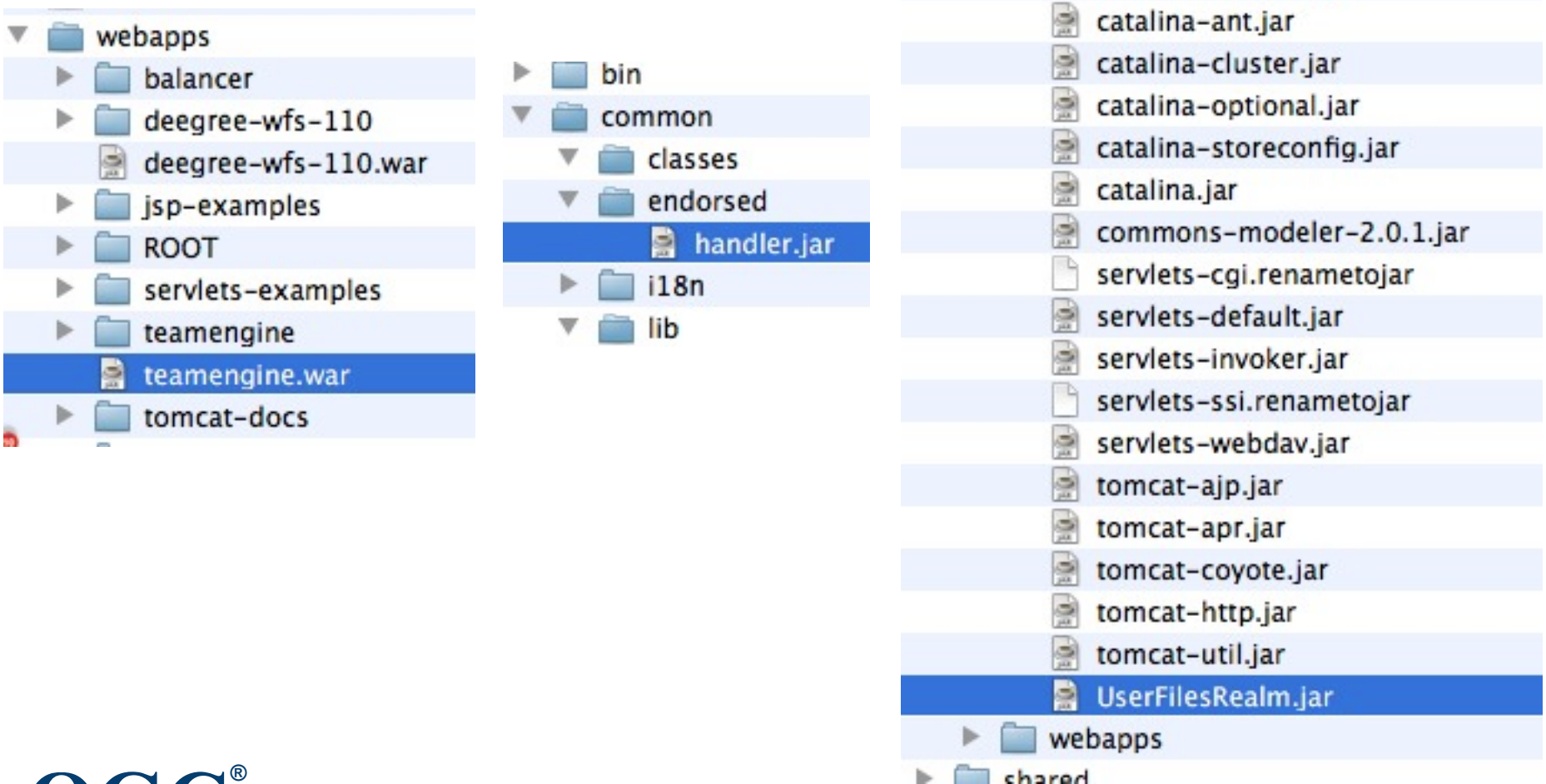
# Tomcat directories for the build artifacts

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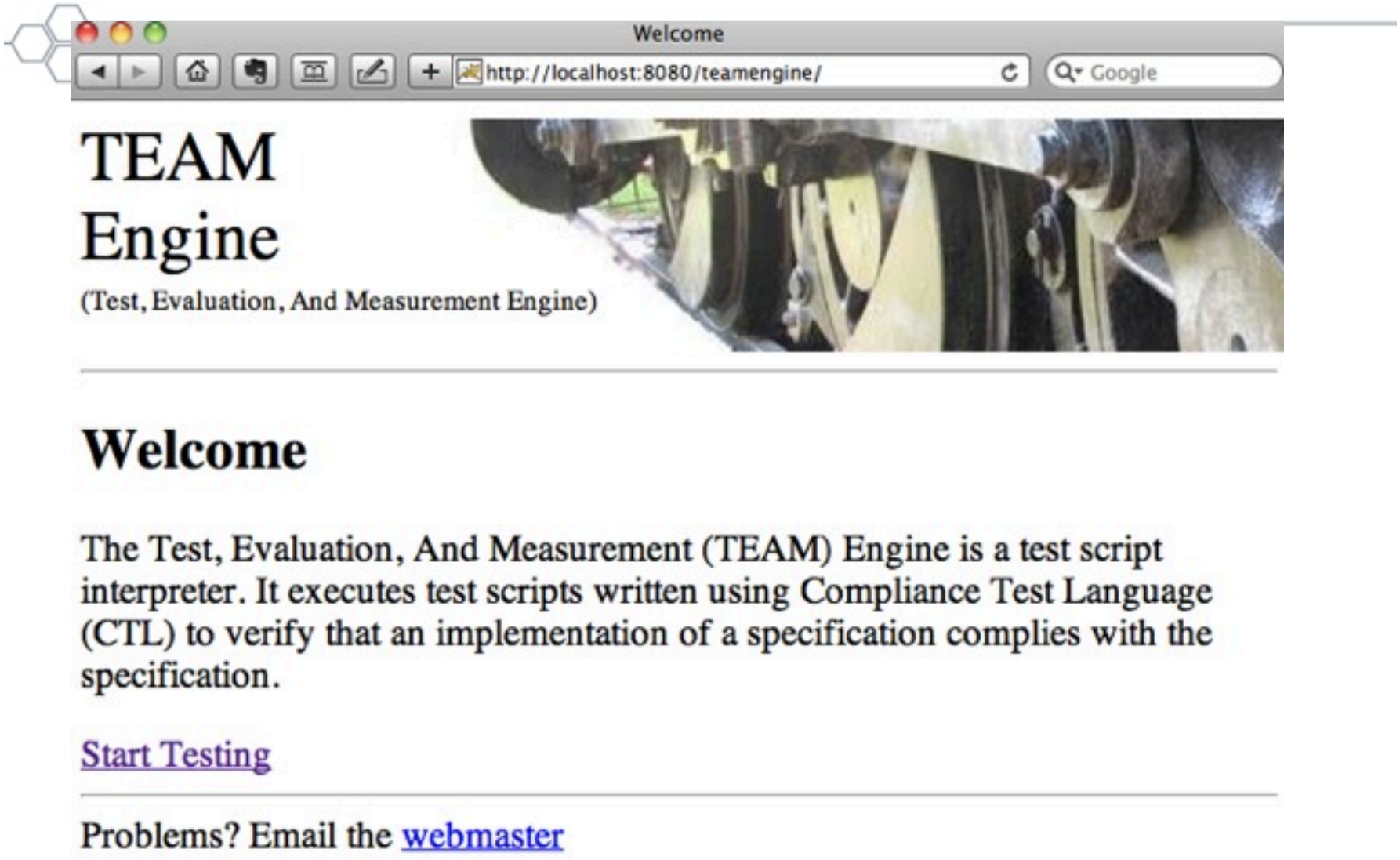
# After deploying the WAR file you should see:



# Agenda

- **Running TEAM Engine via command line.**

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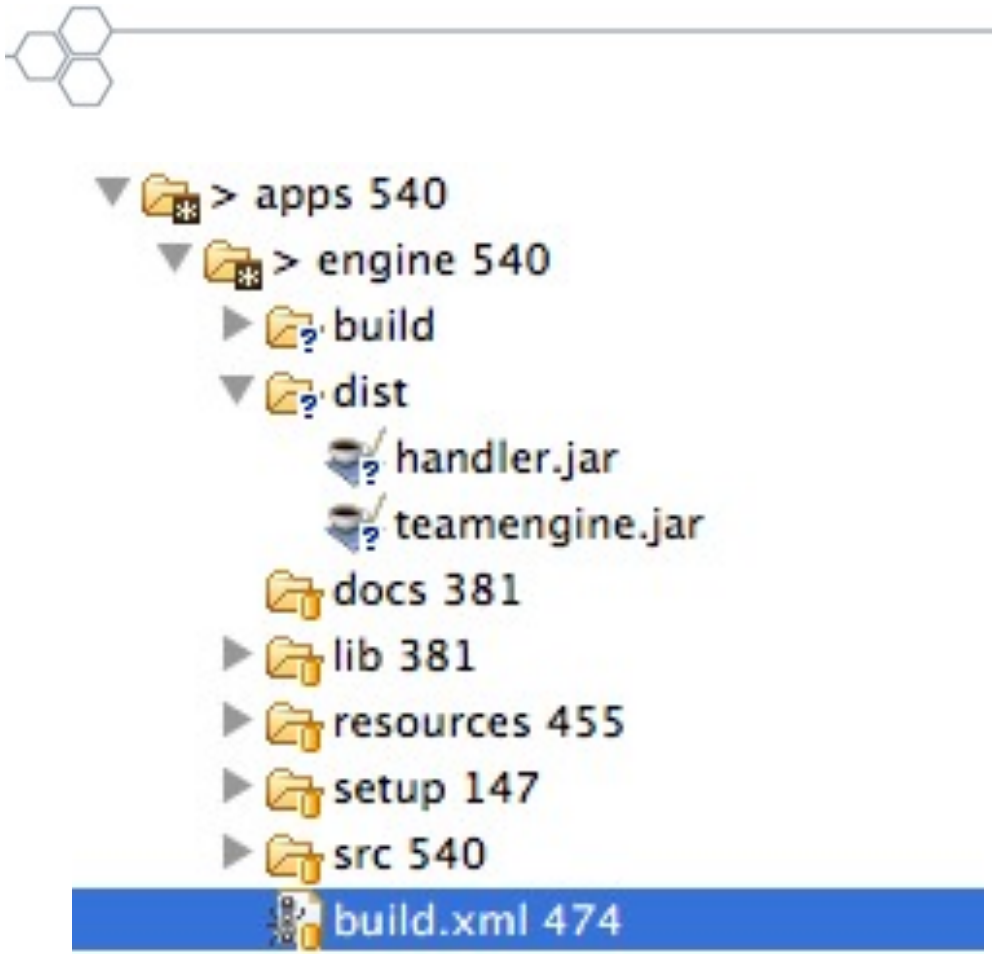
# Build Engine

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# Create a test suite

- Go to the project root

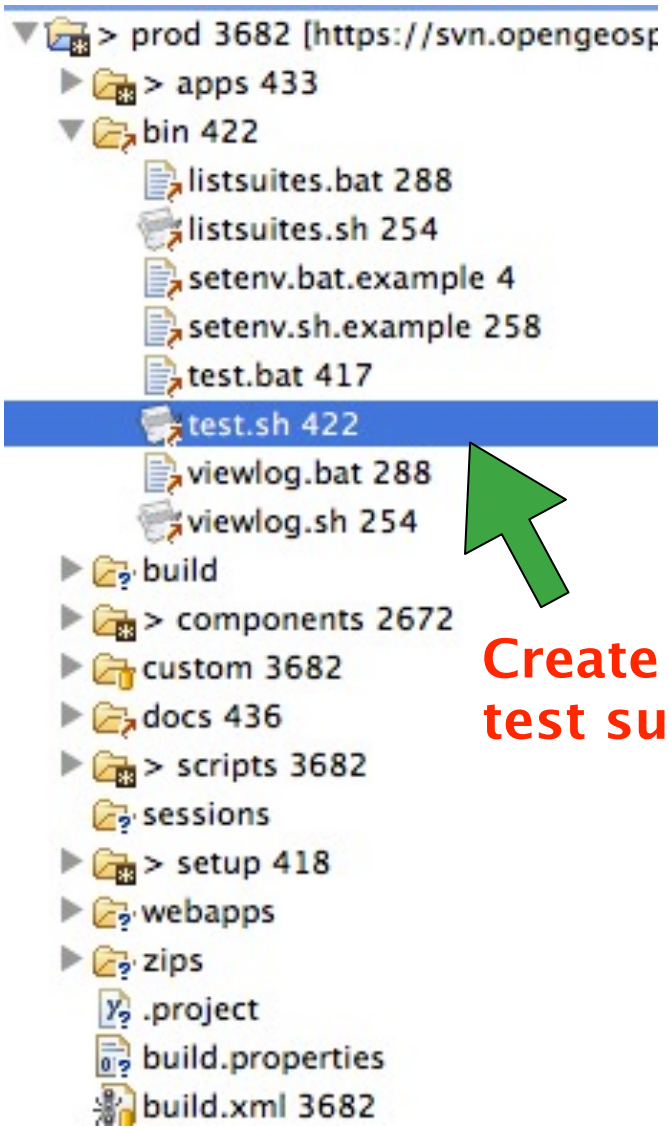
  **cd /Users/bermud/Documents/workspace/prod**

- Create a directory to keep information about the sessions

  **mkdir sessions**

- Run

```
./bin/test.sh -source=scripts/
wms-1.3.0-r1/ctl -logdir=sessions
```

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# 8) Output from your run

```
INFO: Validating /Users/bermud/Documents/workspace/prod/apps/engine/resources/com/occamlab/te/scri
Feb 27, 2011 5:39:56 PM com.occamlab.te.Generator generateXsl
INFO: Validating /Users/bermud/Documents/workspace/prod/apps/engine/resources/com/occamlab/te/scri
Feb 27, 2011 5:39:56 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/basic_elements.xml
Feb 27, 2011 5:39:56 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/dimensions.xml
Feb 27, 2011 5:39:57 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/functions.xml
Feb 27, 2011 5:39:57 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/getcapabilities.xml
Feb 27, 2011 5:39:57 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/getfeatureinfo.xml
Feb 27, 2011 5:39:58 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/getmap.xml
Feb 27, 2011 5:39:59 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/interactive.xml
Feb 27, 2011 5:39:59 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/main.xml
Feb 27, 2011 5:39:59 PM com.occamlab.te.Generator generateXsl
INFO: Validating scripts/wms-1.3.0-r1/ctl/recommendations.xml
```

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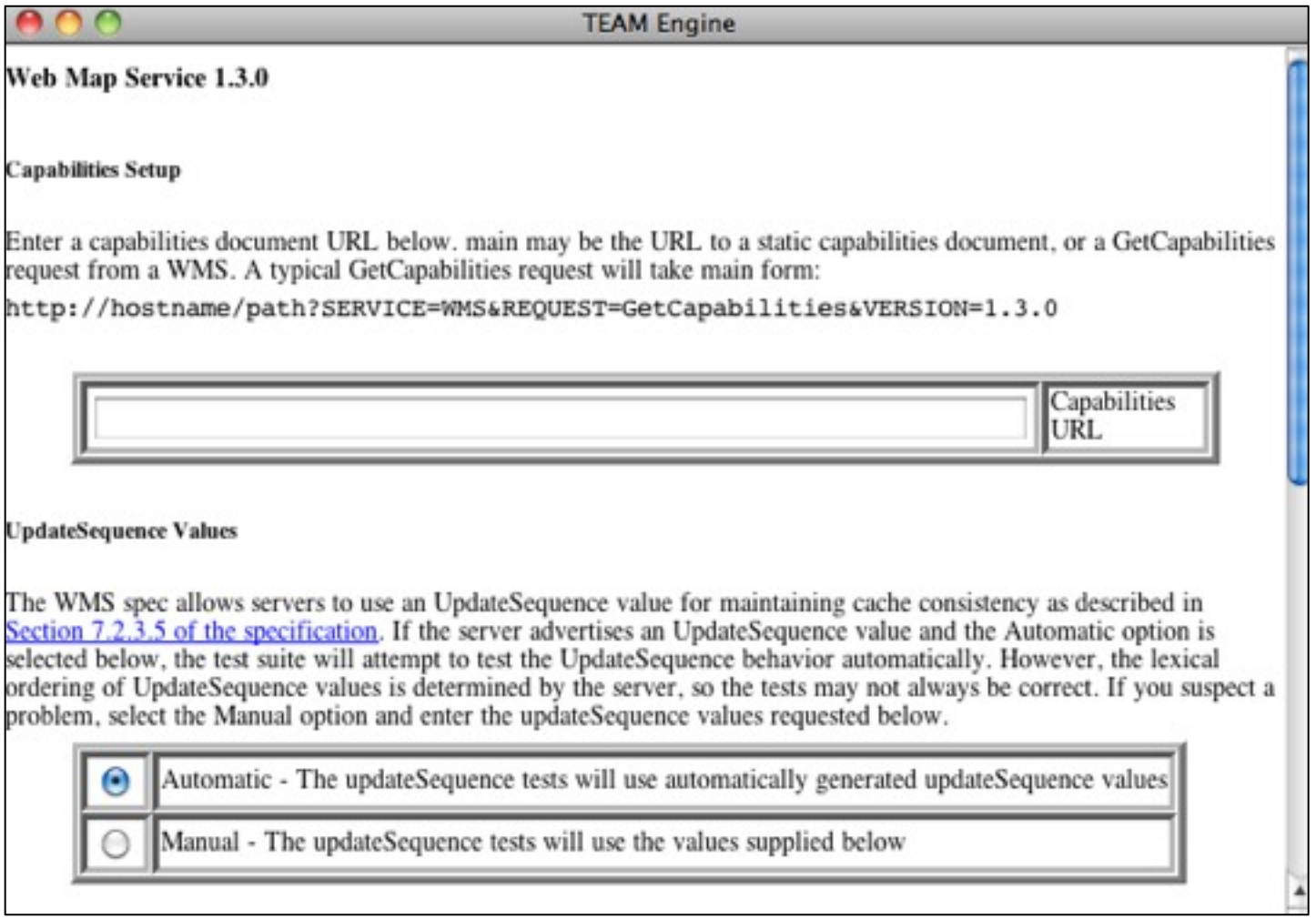
# JAVA window will pop up for WMS 1.3.0

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# Setting up TEAM Engine in a Development Environment

- Create scripts to run via command line.
- Integration with MAVEN and JUNIT coming soon. Experimental branch is here:

  https://teamengine.svn.sourceforge.net/svnroot/teamengine/branches/maven

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# Getting Involved

- Get in the mailing list:
  https://lists.opengeospatial.org/mailman/listinfo/cite-forum
- If you are interested in advancing TEAM Engine let us know
- Any other comments and suggestions:
  Luis Bermudez
  lbermudez@opengeospatial.org

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