## D4Science Infrastructure - Task #6306

### Migrate development infrastructure nodes to Java 8

**Jan 09, 2017 03:16 PM - Massimiliano Assante**

<table>
<thead>
<tr>
<th>Status</th>
<th>Closed</th>
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</thead>
<tbody>
<tr>
<td>Priority</td>
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</tr>
<tr>
<td>Assignee</td>
<td>_InfraScience Systems Engineer</td>
</tr>
<tr>
<td>Category</td>
<td>System Application</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Development</td>
</tr>
<tr>
<td>Start date</td>
<td>May 09, 2017</td>
</tr>
<tr>
<td>Due date</td>
<td></td>
</tr>
<tr>
<td>% Done</td>
<td>100%</td>
</tr>
<tr>
<td>Estimated time</td>
<td>0.00 hour</td>
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</tbody>
</table>

### Description

This is a master ticket to track the development infrastructure nodes migration to Java 8.

The development infrastructure nodes should be migrated to Java 8 within the end of this month.

### Subtasks:

- **Task # 8380:** Testing activities on the development infrastructure with Java 8  
  - Task # 8424: Dataminer service to test: dataminer1-d-d4s.d4science.org.  
  - Task # 8426: Dataminer service to test: dataminer2-d-d4s.d4science.org  
  - Task # 8427: Quota service to test: quota-d-d4s.d4science.org  
  - Task # 8428: Accounting service to test: accounting-service-d.d4science.org  
  - Task # 8429: social-networking-ws service to test: socialnetworking-d-d4s.d4science.org  
  - Task # 8430: gcube-oauth service to test: socialnetworking-d-d4s.d4science.org  
  - Task # 8431: resource-checker-se-plugin service to test: resource-checker-d-d4s.d4science.org  
  - Task # 8432: social-data-indexer-se-plugin service to test: node22.d4science.org  
  - Task # 8433: tabular-data-manager service to test: tabulardata-devsec.org  
  - Task # 8434: tabular-data-manager service to update: gcube@node7.d.d4science.research-infrastructure.org  
  - Task # 8435: tabular-data-manager service to update: spd-devsec.d4science.org  
  - Task # 8436: ckan-connector to test: ckan-d-d4s.d4science.org  
  - Task # 8437: RConnector to test: rstudio-dev.d4science.org  
  - Task # 8438: Home Library Webapp to test: node11.d.d4science.research-infrastructure.org  
  - Task # 8439: sdi-service to test: sdi-d-d4s.d4science.org  
  - Task # 8440: FHNManager Service to test: node2-d-d4s.d4science.org  
  - Task # 8441: DataManager Pool Manager Service to test: node2-d-d4s.d4science.org  
  - Task # 8442: Resource Registry (New IS) to test: resourceregistry1-d-d4science.org  
  - Task # 8443: Smart Executor to test: smartexecutor1-d-d4s.d4science.org  
  - Task # 8444: Smart Executor to test: node6.d4science.org  
  - Task # 8445: Smart Executor to test: node17.d4science.org  
  - Task # 8446: Smart Executor to test: node19.d4science.org  
  - Task # 8447: Smart Executor to update: node22.d4science.org  
  - Task # 8448: tabular-data-manager service to test: tabulardata-devnext-d.dev.d4science.org  
  - Task # 8449: Authorization service to test: auth-d.dev.d4science.org  

### Related issues:

- Related to D4Science Infrastructure - Task # 7442: Recreate node22.d4science.org  
  - Closed Mar 08, 2017  
- Related to D4Science Infrastructure - Task # 7445: Recreate node19.d4science.org  
  - Closed Mar 08, 2017  
- Related to D4Science Infrastructure - Task # 7446: Recreate node17.d4science.org  
  - Closed Mar 08, 2017  
- Related to D4Science Infrastructure - Task # 7447: Recreate node6.d4science.org  
  - Closed Mar 08, 2017  
- Related to D4Science Infrastructure - Task # 8327: Upgrade JAVA Version on pr...  
  - Closed May 03, 2017  
- Related to D4Science Infrastructure - Incident # 9679: TabularData: Tomcat fa...  
  - Closed Sep 13, 2017  
- Blocks D4Science Infrastructure - Task # 6312: Java 8 unexpected behaviours s...  
  - Closed Jan 09, 2017  
- Blocked by D4Science Infrastructure - Task # 6329: migrate old ghn dev (ubunt...  
  - Closed Jan 12, 2017  

**Dec 09, 2019**
History

#1 - Jan 09, 2017 03:21 PM - Massimiliano Assante
- Description updated

#2 - Jan 09, 2017 03:25 PM - Massimiliano Assante
- Priority changed from Normal to High

#3 - Jan 09, 2017 03:40 PM - Massimiliano Assante
- Parent task set to #6309

#4 - Jan 09, 2017 03:47 PM - Massimiliano Assante
- Blocks Task #6312: Java 8 unexpected behaviours should be communicated by the gCube VRE Social Facility added

#5 - Jan 16, 2017 08:16 PM - Andrea Dell'Amico
- Status changed from New to In Progress

I just set Java 8 as the default JVM for all the development servers managed by ansible. A new provisioning run is needed to install the new packages and reconfigure the services. On the smartgears-based nodes this can be done running the playbook(s) with the tags: jdk,tomcat

#6 - Jan 23, 2017 12:16 PM - Tommaso Piccioli
- % Done changed from 0 to 10

node26.d.d4science.research-infrastructures.eu migrated (no java app running on this host)
node24.d.d4science.research-infrastructures.eu migrated (smartgears or ghn was not running on this host, only postgresql)
node27.d.d4science.research-infrastructures.eu migrated (old smartgears tomcat restarted with java8)
...

#7 - Jan 23, 2017 12:38 PM - Roberto Cirillo
I've checked the container hosted on "node27.d.d4science.research-infrastructures.eu": now, it is correctly registered to the infrastructure after the restart

#8 - Jan 23, 2017 12:46 PM - Tommaso Piccioli
- Blocked by Task #6329: migrate old ghn dev (ubuntu 8.04) to new hosts added

#9 - Jan 23, 2017 12:47 PM - Tommaso Piccioli
- Blocked by Task #6501: migrate old dev (ubuntu 9) to new hosts added

#10 - Jan 23, 2017 02:57 PM - Roberto Cirillo
I've found an exception after the migration of IS-Collector from java 7 to java8.

The following exception seems to be related to an incompatibility between java8 and the XercesImpl library (dependency of IS-Collector service).

java.lang.RuntimeException: could not load authorization endpoints
    at org.gcube.common.authorization.client.Constants.authorizationService(Constants.java:22)
    at org.gcube.common.handlers.GCUBEHandler.retrieveTokenInfo(GCUBEHandler.java:221)
    at org.gcube.common.handlers.GCUBEHandler.invoke(GCUBEHandler.java:165)
    at org.apache.axis.SimpleChain.doVisiting(SimpleChain.java:118)
    at org.apache.axis.SimpleChain.invoke(SimpleChain.java:83)
  at com.sun.xml.internal.bind.v2.util.XmlFactory.createParserFactory(XmlFactory.java:128)
  at com.sun.xml.internal.bind.v2.runtime.unmarshaller.UnmarshallerImpl.getXMLReader(UnmarshallerImpl.java:139)
  at java.xml.bind.helpers.AbstractUnmarshallerImpl.unmarshall(AbstractUnmarshallerImpl.java:162)
  at java.xml.bind.helpers.AbstractUnmarshallerImpl.unmarshall(AbstractUnmarshallerImpl.java:171)
... 11 more

Caused by: org.xml.sax.SAXNotRecognizedException: Feature 'http://javax.xml.XMLConstants/feature/secure-processing' is not recognized.
  at org.apache.xerces.parsers.AbstractSAXParser.setFeature(Unknown Source)
  at org.apache.xerces.jaxp.SAXParserImpl.setFeatures(Unknown Source)
  at org.apache.xerces.jaxp.SAXParserImpl.<init>(Unknown Source)
  at org.apache.xerces.jaxp.SAXParserFactoryImpl.newSAXParserImpl(Unknown Source)
  at org.apache.xerces.jaxp.SAXParserFactoryImpl.setFeature(Unknown Source)
  at com.sun.xml.internal.bind.v2.util.XmlFactory.createParserFactory(XmlFactory.java:121)
... 16 more

it needs further analysis.

#11 - Jan 23, 2017 04:05 PM - Tommaso Piccioli

obis2.i-marine.research-infrastructures.eu alias geoserver-dev2.d4science-ii.research-infrastructures.eu migrated (no java app running on this host, only postgresql)
dev.d4science.org migrated (no java app running on this host, only postgresql)
...

#12 - Jan 23, 2017 04:42 PM - Tommaso Piccioli

Problems with java8 on node6.d4science.org too:

java.io.EOFException
  at java.io.DataInputStream.readUnsignedShort(DataInputStream.java:340)

Dec 09, 2019
there was a problem with some file access rights on node6, now solved. At the moment this is the only problem in catalina.out:

```
```

Tommaso Piccioli wrote:

```
there was a problem with some file access rights on node6, now solved. At the moment this is the only problem in catalina.out:

```
```
```
```

We have these errors since before the upgrade, see #2472

I see again the following exception in ghn.log and the container is not correctly published on the infrastructure:

```
    at com.sun.xml.internal.bind.v2.util.XmlFactory.createParserFactory(XmlFactory.java:128)
    at com.sun.xml.internal.bind.v2.runtime.unmarshaller.UnmarshallerImpl.getXMLReader(UnmarshallerImpl.java:139)
    at javax.xml.bind.helpers.AbstractUnmarshallerImpl.unmarshal(AbstractUnmarshallerImpl.java:162)
    ... 11 more
```

```
```

Dec 09, 2019
could you upgrade the tomcat version to 7.0.72 on node6.d4science.org? Maybe the problem is due to tomcat version

#17 - Jan 23, 2017 07:23 PM - Andrea Dell'Amico

Roberto Cirillo wrote:

could you upgrade the tomcat version to 7.0.72 on node6.d4science.org? Maybe the problem is due to tomcat version

I don't know of any incompatibility between java 8 and our tomcat packages.
tomcat on node6 is still running with java 7, btw:

gcube    21237  3.2 22.0 3581640 675836 ?      Sl   19:03   0:35 /usr/lib/jvm/java-7-oracle/bin/java -Dnop -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -XX:+UseConcMarkSweepGC -XX:MaxPermSize=256m -server -Djava.awt.headless=true -Xmx2048m -Xmx2048m -Djava.endorsed.dirs=/usr/share/tomcat7/endorsed -Djava.io.tmpdir=/home/gcube/tomcat/tmp org.apache.catalina.startup.Bootstrap start

Was the playbook run without passing the 'tomcat' tag?

#18 - Jan 24, 2017 09:37 AM - Roberto Cirillo

Andrea Dell'Amico wrote:

Roberto Cirillo wrote:

could you upgrade the tomcat version to 7.0.72 on node6.d4science.org? Maybe the problem is due to tomcat version

I don't know of any incompatibility between java 8 and our tomcat packages.

@lucio.lelli@isti.cnr.it please, could you provide the details of incompatibility between Xerces library and tomcat/java8 ?
tomcat on node6 is still running with java 7, btw:

gcube    21237  3.2 22.0 3581640 675836 ?      Sl   19:03   0:35 /usr/lib/jvm/java-7-oracle/bin/java -Dnop -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -XX:+UseConcMarkSweepGC -XX:MaxPermSize=256m -server -Djava.awt.headless=true -Xmx2048m -Xmx2048m -Djava.endorsed.dirs=/usr/share/tomcat7/endorsed -Djava.io.tmpdir=/home/gcube/tomcat/tmp org.apache.catalina.startup.Bootstrap start

Was the playbook run without passing the 'tomcat' tag?

@tommaso.piccioli@isti.cnr.it please could you enable java8 on tomcat in the right way?
#19 - Jan 24, 2017 10:08 AM - Tommaso Piccioli

Now tomcat is running with java8

gcube 24074 116 10:02 ? 00:00:51 /usr/lib/jvm/java-8-oracle/bin/java -Dnop
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -XX:+UseConcMarkSweepGC -server -Djava.awt.headless=true -Xms2048m
-Xmx2048m -Djava.endorsed.dirs=/usr/share/tomcat7/endorsed -classpath /usr/share/tomcat7/bin/bootstrap.jar:/usr/share/tomcat7/bin/tomcat-juli.jar
-Dcatalina.base=/home/gcube/tomcat -Dcatalina.home=/usr/share/tomcat7 -Djava.io.tmpdir=/home/gcube/tomcat/tmp
org.apache.catalina.startup.Bootstrap start

#20 - Jan 24, 2017 10:53 AM - Lucio Lelii

there is an issue with javaassist and java8 in tomcat with version 7.0.55, this is the link i have found :
https://github.com/jboss-javassist/javassist/issues/29
We have to update the tomcat to the latest version.

#21 - Jan 24, 2017 11:15 AM - Andrea Dell'Amico

Lucio Lelii wrote:

there is an issue with javaassist and java8 in tomcat with version 7.0.55, this is the link i have found :
We have to update the tomcat to the latest version.

Moving to the latest tomcat version is not so easy. We want to stuck with the distribution provided tomcat for a lot of reasons:

- backport of bug and security fixes
- compatibility with the apr libraries

In addition to that, the javassist exceptions were a cosmetic only problem in the past, and an upgrade to a newer version of javassist was planned.

#22 - Jan 24, 2017 06:14 PM - Andrea Dell'Amico

- % Done changed from 10 to 20

What we found after further investigation:

gCore

- Updating the xerces and xml-api libraries is sufficient to make the gCore services working

smartgears

- the javassist and xml parsing problems do not manifest themselves on the Ubuntu 14.04 servers. So #2472 is not so largely present anymore because all the new servers are 14.04 based
- the tomcat version doesn't make a difference: on ubuntu 14.04 we are running an older version that the one that's running on 12.04 (we had to
compile and provide an internally build tomcat package because the original tomcat package from 12.04 does not work with smartgears at all)

So the proposal is: upgrade to 14.04 all the dev smartgears. The same will be needed on the production servers when we will introduce java8 there.

#23 - Feb 14, 2017 03:05 PM - Maria Di Girolamo

Because during the release 4.3.0 all components should be migrated to Java8, it's important to understand if the migration to the developments nodes can be considered closed (please, update the ticket).
We are starting with the writing of the documentation [https://wiki.gcube-system.org/gcube/GCube_Java_8_migration_guide](https://wiki.gcube-system.org/gcube/GCube_Java_8_migration_guide) about this activity.

#24 - Feb 15, 2017 10:56 AM - Massimiliano Assante

- Priority changed from High to Urgent

@roberto.cirillo@isti.cnr.it can you provide as with the status of the migration of the dev infra, are we really at 20% ? I don't think so.

#25 - Feb 16, 2017 10:29 AM - Roberto Cirillo

This question should be asked to @tommaso.piccioli@isti.cnr.it

#26 - Feb 16, 2017 01:02 PM - Tommaso Piccioli

- % Done changed from 20 to 40

we have found another issue on registry service (node9-d-d4s): after the replacing of Xerces and xml-api libraries, the gCore container doesn't start with the following exception:

```
2017-02-16 17:20:20,037 FATAL contexts.GHNContext [Initialiser.fatal:76] [0.663s] GHNContext: gHN could not complete initialisation
at org.apache.xerces.jaxp.validation/XMLSchemaFactory.newSchema(Unknown Source)
at javax.xml.validation.SchemaFactory.newSchema(SchemaFactory.java:638)
at org.gcube.common.resources.kxml.KGCUBEResource.getSchema(KGCUBEResource.java:170)
at org.gcube.common.resources.kxml.KGCUBEResource.load(KGCUBEResource.java:80)
at org.gcube.common.resources.kxml.node.KGCUBEHostingNode.load(KGCUBEHostingNode.java:18)
at org.gcube.common.corecontexts.GHNContext.loadGHNResource(GHNContext.java:405)
at org.gcube.common.corecontexts.GHNContext.configureGHNResource(GHNContext.java:384)
at org.gcube.common.corecontexts.GHNContext.initialise(GHNContext.java:291)
at org.gcube.common.corecontexts.GHNContext.initialiseOnRIDeployed(GCUBEServiceContext.java:677)
at org.gcube.common.corecontexts.service.Consumer.onNextEvent(Consumer.java:30)
at org.gcube.common.coreutilsevents.GCUBEProducer$2.run(GCUBEProducer.java:176)

we are investigating on this issue
Me and @costantino.perciante@isti.cnr.it experienced the javaassist issue on a smart-executor node (node22.d4science.org a development machine). Giving that the tomcat on the machine cannot be upgraded and we urge to use it, the only way to solve it for the moment was to use smartgears-distribution-bundle which already provide apache-tomcat-7.0.73.

As was stated more than once, the problem afflicts Ubuntu installations < 14.04. The solution is to get rid of the older Ubuntu installations.
#38 - Oct 10, 2017 10:56 AM - Maria Di Girolamo
- Status changed from In Progress to Feedback

Is it possible to close this task?

Thank you,
Maria.

#39 - Oct 10, 2017 01:59 PM - Roberto Cirillo
- Blocked by deleted (Task #6501: migrate old dev (ubuntu 9) to new hosts)

#40 - Oct 10, 2017 02:08 PM - Roberto Cirillo
- Status changed from Feedback to Closed

I'm going to close this ticket.

Some notes:

- All the gCore based container will be not upgraded to Java8;
- the problem on Smartgears containers has been solved upgrading the Ubuntu distro to version 14.04 and tomcat to version > 7.0.55