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IHE-Europe - Project CAS-2.2015

Installation and Configuration Guide

Gazelle Virtual Machine

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1 Introduction

1.1 Purpose

The purpose of this document is to explain how to install, configure and check the installation of the virtual machine provided by IHE Europe. IHE Europe provides a virtual machine created using Vagrant (based on Oracle VM VirtualBox Manager).

1.2 Scope

This document and associated Gazelle Virtual Machine are relevant to the IHE International Conformity Assessment Scheme CAS-2.2015. It is intended to authorized laboratories that will run a Conformity Assessment Session.

2 Virtual Machine characteristics

Linux kernel	3.2.0-4-amd64
Operating System	Debian GNU/Linux 7.8 (wheezy)
Allocated Base memory	20 GB (10GB are used by the JBoss server), 8 CPUs
Virtual machine host name	gazelle-cats
Networking	How the virtual machine accesses the network must be configured according to your needs and requirements. However, we recommend using a bridge adapter.
Main user	gazelle (password : gazelle) is administrator/sudoer
Installed applications	Oracle Java 6 (/usr/lib/jvm/java-6-oracle) Oracle Java 7 (/usr/lib/jvm/java-7-oracle) Jboss server AS 5.1.0 (location : /usr/local/jboss) Jboss server AS 7.2.0 (location : /usr/local/jboss7) postgresql 9.1 (user : gazelle) Apache 2 exim 4 (SMTP server) Tomcat 6 Tomcat 5

3 Virtual Machine installation process

The Open Virtual Appliance (ova) package has to be imported into a virtualizer. IHE-Europe has already experienced Virtual box and VM Ware.

We recommend you to use VirtualBox (<https://www.virtualbox.org/wiki/Downloads>) latest version.

3.1 Import through Gui

1. Open VirtualBox.
2. Menu: File -> Import appliance...
3. Select the gazelle-cats.ova file
4. Click **import**

3.2 Import from command line

1. `VBoxManage import gazelle-cats.ova`

3.3 Check installation of the Virtual machine

Once the machine is up and running, you should be able to access it in SSH (access with public key only): `#ssh gazelle@box_ip`. You must also be able to access the index from your favorite browser at `box_ip`.

- Postgresql server is launched at startup.
- Jboss server is launched at startup (it may take a while).
- Check the server is correctly started by taking a look at the logs located at `/var/log/jboss/gazelle.log`.
- The owner of the Jboss process is gazelle user, please do not change it in order to allow the Jboss server to access the directories it needs.

3.4 Configuration

3.4.1 URLs

A first step of configuration is required there. In particular, it will update the URLs defined in the database to meet the new URL at which the testing environment will be reachable. To do so, follow the steps below:

1. SSH on the virtual machine
2. Check you are in the following directory: `/home/gazelle`
3. Edit file `update_urls.sh` (vim is installed)
4. Update the value of `BOX_NEW_URL`, it shall match the URL your users will use to access the testing environment
5. Save your changes
6. Run `./update_urls.sh`

The script will restart the Jboss servers so that the tools will take into account the changes.

3.4.2 Port forwarding

We recommend that you use a bridge to connect the virtual machine to your LAN. However, if you rather need to perform a network address translation (NAT), below is the list of ports which MUST be forwarded:

- 20007
- 20009
- 20011
- 20055
- 20070
- 10101
- 10103 # WARNING: this port use UDP protocol (syslog UDP)
- 8180
- 8443


If you use Vagrant to start the virtual machine, below is an extract of the configuration file (as example only)

```

config.vm.network "forwarded_port", guest: 20007, host: 20007
config.vm.network "forwarded_port", guest: 20009, host: 20009
config.vm.network "forwarded_port", guest: 20011, host: 20011
config.vm.network "forwarded_port", guest: 20055, host: 20055
config.vm.network "forwarded_port", guest: 20070, host: 20070
config.vm.network "forwarded_port", guest: 10101, host: 20101 #syslog tcp
config.vm.network "forwarded_port", guest: 10103, host: 20103, protocol: 'udp'
#syslog udp forward
config.vm.network "forwarded_port", guest: 8180, host: 20180
config.vm.network "forwarded_port", guest: 8443, host: 20443
    
```

3.5 Check access to the tools

From [http://\\$your_environment_url](http://$your_environment_url), you should access the following page (Apache front-end) which lists the available applications, their links, and the links to their user manual.



IHE Conformity Assessment : Testing Tool Package V2015

Access tools

Support Tools	Version	Description
Gazelle Test Management	4.11.0	The Gazelle Test Management Test Bed
Assertion Manager Gui		Assertion coverage management
Test tools	Version	Description
Gazelle HL7 Validator	2.5.4	Offers web services to validate HL7v2.x and HL7v3 messages exchanged in the context of IHE
PatientManager	8.0.1	Emulates the actors defined in the PAM, PDQ, PIX profiles and the SWF/ADT actor
Sharing Value Set Simulator	1.7.3	Value set repository simulator
ATNA tool	4.7.12	PKI, TLS Simulator and ATNA Questionnaire
XDS Testing	200	XDSTools 2
Syslog Collector	2.1	Simulator for collecting syslog messages : <ul style="list-style-type: none"> • UDP on port 20103 • TCP on port 20101
Utilities	Version	Description
CAS login		SSO login

Check you have access to all the tools. When you access the tool for the first time, the loading of the page could appear to be quite long because Jboss is initializing the tool.

3.5.1 Login

A CAS service has been set up and a default login has been created:

- **Username:** admin
- **Password:** azerty
- **Role:** admin_role

4 Jboss management

Some aliases have been configured to start and stop the Jboss servers but also to access the log file.

Alias	Command	Description
jstart	sudo service jboss start	Starts the Jboss default server (requires gazelle's password)
jstop	sudo service jboss stop	Kills the Jboss process (requires gazelle's password)
jrestart	sudo service jboss restart	Kills the Jboss server and after a while starts it again (requires gazelle's password)
jlog	tail -f /usr/local/jboss/server/gazelle/log/server.log	Displays the last lines of the Jboss log file and outputs the appended data as the log file is populated
	sudo service jboss7 start	Starts the Jboss7 default server (requires gazelle's password)
	sudo service jboss7 stop	Kills the Jboss7 process (requires gazelle's password)
	sudo service jboss7 restart	Kills the Jboss7 server and after a while starts it again (requires gazelle's password)

5 Gazelle tools

5.1 User guides

Documentation for the tools that are installed on the virtual machine can be found on the Gazelle pages at [http://\\${your_environment_url}/docs/user_guides/](http://${your_environment_url}/docs/user_guides/)

5.2 Included tools

The following tools are installed on the virtual machine:

- **Test Management (configured to work as Test Management and Gazelle Master Model)** is the tool used during the connectathons. It embeds the test cases and the IHE concepts. Test Management also offers a feature to manage samples.
- **Patient Manager** is a simulator which integrates the IHE profiles which deals with patient and encounter management (PDQV3, PIXV3 and PDQ actors are configured)
- **SVS Simulator** is a simulator for the Sharing Value Set profiles. It is used by the other applications of the Gazelle test bed as a value set repository.
- **Gazelle HL7 Validator** is a validation tool for HL7v2.x messages (uses HL7 message profiles) and HL7v3 messages
- **Assertion manager Gui** gathers the assertions extracted from the IHE Technical Framework
- **XDSTools2** is aimed to test the systems implementing the XDS.b integration profile
- **ATNA Tool** gathers features to test the ATNA integration profile
- **Syslog collector** is used for testing the syslog protocol
- **CAS** service for single-sign-on login
- **Nagios** is a service monitoring configured to check the availability of the tools installed in the virtual machine

The following binaries are deployed in the gazelle server of Jboss: `/usr/local/jboss/server/gazelle/deploy` directory.

Application	Binary name	version	Database
Test Management	gazelle-tm.ear	4.11.0	gazelle
Patient Manager	PAMSimulator.ear	8.0.1	pam-simulator
SVS Simulator	SVSSimulator.ear	1.7.3	svs-simulator
Gazelle HL7 Validator	GazelleHL7v2Validator.ear	2.5.4	gazelle-hl7-validator
ATNA Tool	gazelle-tls.ear	4.7.12	tls

The following binaries are deployed in Jboss 7 server: `/usr/local/jboss7/standalone/deployment/`.

Application	Binary name	version	Database
Assertion manager Gui	AssertionManagerGui.ear	3.1.0	assertion-manager

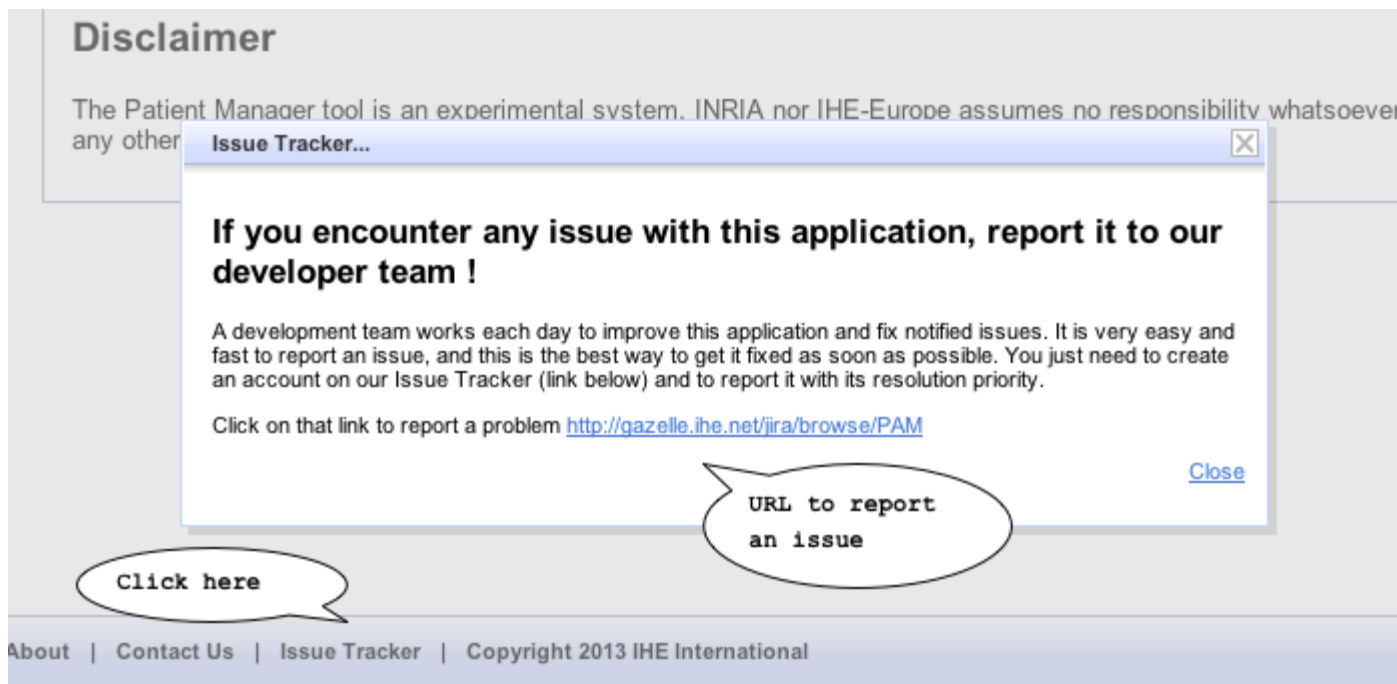
The following binaries are deployed in tomcat 6 server: `/var/lib/tomcat6/webapps/`

Application	Binary name	version	Database
XDSTools2	xdstools2.war	200	NO DB

All the web services required by the applications are on the virtual machine. No access will be done to Gazelle's servers.

5.3 Reporting a problem

Each tool we provided on the virtual machine contains a link to the JIRA project where to report issues.



5.4 Backups

The backup of the databases (and ONLY the databases) is performed automatically. In the home directory of gazelle (/home/gazelle) there is a folder called backup. In that folder there is a script called backup.sh which is executed once a day thanks to a cron

```
@daily /home/gazelle/backup/backup.sh
```

We use then logrotate in order to keep:

- a back up for the last 7 days
- a back up for the last 4 weeks
- a back up for the last 12 months

For each database we create

- a dump,
- a SQL dump of the definition,
- a SQL dump of the data