



Project Acronym: **OPTIMIS**
Project Title: **Optimized Infrastructure Services**
Project Number: **257115**
Instrument: **Integrated Project**
Thematic Priority: **ICT-2009.1.2 – Internet of Services, Software and Virtualisation**

Trust Framework Installation Guide

Activity 3: Service Deployment

WP 3.3: Trust Framework

| | | |
|--|---|------|
| Due Date: | M34 | |
| Submission Date: | 31/03/2013 | |
| Start Date of Project: | 01/06/2010 | |
| Duration of Project: | 36 months | |
| Organisation Responsible for the Deliverable: | Atos | |
| Version: | V1.0 | |
| Status | Draft, under review, final for submission | |
| Author(s): | Fco. Javier Nieto | Atos |
| Reviewer(s) | | |

Project co-funded by the European Commission within the Seventh Framework Programme

Dissemination Level

| | | |
|-----------|--|----------|
| PU | Public | X |
| PP | Restricted to other programme participants (including the Commission) | |
| RE | Restricted to a group specified by the consortium (including the Commission) | |
| CO | Confidential, only for members of the consortium (including the Commission) | |



Version History

| Version | Date | Comments, Changes, Status | Authors, contributors, reviewers |
|----------------|-------------|----------------------------------|---|
| 1.0 | 31/03/2013 | Francisco Javier Nieto | Final version |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Table of Contents

| | | |
|----------|--|----------|
| 1 | INTRODUCTION | 6 |
| 1.1 | GLOSSARY OF ACRONYMS..... | 6 |
| 2 | TRUST FRAMEWORK INSTALLATION GUIDE..... | 7 |
| 2.1 | RELEASE INFORMATION | 7 |
| 2.2 | MINIMAL SYSTEM REQUIREMENTS | 7 |
| 2.3 | PLATFORMS SUPPORTED | 7 |
| 2.4 | SOFTWARE PRE-REQUISITES AND DEPENDENCIES..... | 7 |
| 2.5 | INSTALLATION INSTRUCTIONS | 7 |
| 2.6 | GETTING STARTED | 9 |
| 2.6.1 | <i>Using the Software</i> | 9 |
| 2.6.2 | <i>Testing the Software</i> | 9 |
| 2.6.3 | <i>Configuration</i> | 10 |
| 2.7 | FAQ | 11 |

Index of Figures

No table of figures entries found.

Index of Tables

| | |
|------------------------------------|---|
| Table 1 Software dependencies..... | 7 |
|------------------------------------|---|



1 Introduction

This document includes the installation guide for the software component Trust Framework, which is in charge of calculating the trustworthiness of services, Service Providers (SPs) and Infrastructure Providers (IPs).

This document contains only a section which describes dependencies, configuration instructions, basic indications about how to use the component and a list of basic Frequent Asked Questions (FAQ) for supporting any user.

1.1 Glossary of Acronyms

| Acronym | Definition |
|-------------|------------------------------------|
| D | Deliverable |
| DRS | Document Review Sheet |
| EC | European Commission |
| OS | Operation System |
| PM | Project Manager |
| SLA | Service Level Agreement |
| TF | Trust Framework |
| TREC | Trust, Risk, Eco-efficiency & Cost |
| WP | Work Package |
| WS | Web Service |

2 Trust Framework Installation Guide

2.1 Release information

| Component Name | Release Number | Release Date |
|-----------------|----------------|--------------|
| Trust Framework | 3.0 | 2013-03-31 |

2.2 Minimal System Requirements

The Trust Framework is a web service application developed in Java; hence all the OS supporting Java are also supported by the application.

2.3 Platforms Supported

As said before, all Java OS supported are also supported by the Trust Framework.

2.4 Software Pre-requisites and Dependencies

In the table below we can see the Trust Framework software and library dependencies

| Product | Version | Licence |
|---------------|---------|---------------------|
| Java | 1.6 | GPL V2.1 |
| Apache Tomcat | 6.x | Apache License V2.0 |
| MySQL | 5.5 | GPL V2.1 |
| JFuzzyLogic | 2.1a | LGPL V3 |
| Hibernate | 3.4 | GPL V2.1 |
| Jersey | 1.6 | CDDL 1.1 and GPL 2 |

Table 1 Software dependencies

The software dependencies are automatically managed by Maven. For the development and packaging of the Trust Framework the maven version used is 2.2.1. From the developer team, it is highly recommended to use this version in order to avoid issues when packaging the software.

2.5 Installation Instructions

To install the trust Framework correctly, follow the next steps:

1. Make sure that Apache Tomcat and MySQL server are installed and running
2. Make sure that the database schema is deployed and MySQL is visible from the installation machine
 - a. Connect to the database server in order to verify the correct deployment of the database, any program like MySQL workbench or the command line client can be used for such purpose

3. *Trust Framework* is packaged in war format so deploy the WAR using the application server manager or copying it in the deployment directory

- a. The war files created are SPTrustFramework.war and IPTrustFramework.war. These two files have to be deployed under their corresponding SP and IP environments.

Normally, Tomcat will be the container used to deploy the application. The files should be located under `$CATALINA_HOME/webapps`

4. Once deployed go to the deployed folder and modify the connection settings (ip or domain name and port) in the `config.properties` (`/opt/optimis/etc/iptf` or `/opt/optimis/etc/sptf`, depending on the part to configure) for:

- a. Monitoring manager

```
# Monitoring
monitoring.uri=MonitoringManager/QueryResources
monitoring.host=optimis-ipvm.example.com
monitoring.port=8080
monitoring.interval=300000
```

- b. SLA manager

```
# SLA Manager
sla.url=optimis-ipvm.example.com
sla.port=8080
sla.notification.uri=optimis-sla/sla/notifications
sla.subscription.uri=optimis-sla/sla/subscriptions
```

- c. Service manager

```
# ServiceManager
sm.host=optimis-spvm.example.com
sm.port=8080
```

- d. Cloud Optimizer

```
# Cloud Optimizer config
co.host=optimis-ipvm.atosorigin.es
co.port=8080
```

5. Indicate the threads to be started and change the interval frequency (in seconds) in order to tell the trust framework to update every X seconds.

```
# Threads to START
spside=true
ipside=true

# Data retrieval interval in seconds
interval=120
initial.delay=60
```

6. Adjust the Hibernate configuration file (`hibernate.cfg.xml`) with the database connection details. This change should be done prior packaging as this file is located inside a JAR file.

- a. Host
- b. Port
- c. Username
- d. Password



```
<hibernate-configuration>
  <session-factory>
    <property name="hibernate.bytecode.use_reflection_optimizer">false</property>
    <property name="hibernate.connection.driver_class">com.mysql.jdbc.Driver</property>
    <property name="hibernate.connection.password">password</property>
    <property name="hibernate.connection.pool_size">1</property>
    <property name="hibernate.connection.url">jdbc:mysql://optimis-database:3306/iptrecdb</property>
    <property name="hibernate.connection.username">username</property>
    <property name="hibernate.current_session_context_class">thread</property>
    <property name="hibernate.default_entity_mode">pojo</property>
    <property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>
    <property name="hibernate.search.autoregister_listeners">false</property>
    <property name="hibernate.show_sql">>true</property>
  </session-factory>
</hibernate-configuration>
```

7. Restart the service and start using it.

2.6 Getting started

The Trust Framework will continuously run calculating the trust for all the active services deployed in an infrastructure provider and aggregating all the data in order to provide update the trust for services, service providers or infrastructure providers when the trust framework is deployed.

2.6.1 Using the Software

Once installed and running, the Trust Framework will automatically update the trust values according to the monitoring information requested.

Whenever trust assessment is needed from the service provider or the infrastructure provider, the Trust Framework offers a wide API to provide the better information to the user. This API which is described below can be queried using the Common TREC API developed in the project or using the Clients provided in the software release.

The API offered is the following

2.6.2 Testing the Software

The software comes with unitary tests generated while developing the service. And that can be run anytime using either Eclipse or Maven. The pre-requirements needed for most of them are that the CludOptimizer and the monitoring information is running, but for the SLA test, that also requires the SLA Manager running.

```
$ PATH/TrustFrameworkService/IPTrustFramework > mvn test
```

However, for testing the whole system, what it is needed is to run a service, make sure that the monitoring information system is running and the SLA manager are running and you can run the client's tests that calls the service.

```
$ PATH/TrustFrameworkClients > mvn test
```

2.6.3 Configuration

The TrustFramework can be easily configured using the properties file provided. This properties file allows the Optimis administrator to deploy the web application anywhere, regardless if the rest of the toolkit is in the same infrastructure or not, the only requirement is that it is reachable from the machine in which this is deployed.

The main configuration properties are the ones required for contacting the monitoring information system and the SLA manager:

```
# Monitoring
monitoring.uri=MonitoringManager/QueryResources
monitoring.host=optimis-ipvm.atosorigin.es
monitoring.port=8080

# SLA Manager
sla.url=optimis-ipvm.atosorigin.es
sla.port=8080

# Cloud Optimizer config
co.host=optimis-ipvm.atosorigin.es
co.port=8080

# Data retrieval interval
interval=60
```

Another configuration to take a look at is the database connection data which are located in the *hibernate.cfg.xml* file.

```
<hibernate-configuration>
<session-factory>
  <property name="hibernate.bytecode.use_reflection_optimizer">>false</property>
  <property
name="hibernate.connection.driver_class">com.mysql.jdbc.Driver</property>
  <property name="hibernate.connection.password">*****</property>
  <property name="hibernate.connection.pool_size">1</property>
  <property name="hibernate.connection.url">jdbc:mysql://optimis-
database.atosorigin.es:3306/TrustFrameworkCore</property>
  <property name="hibernate.connection.username">tf_admin</property>
  <property name="hibernate.default_entity_mode">pojo</property>
  <property
name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>
  <property name="hibernate.search.autoregister_listeners">>false</property>
  <property name="hibernate.show_sql">>true</property>
  <property name="hibernate.transaction.auto_close_session">>true</property>
  </session-factory>
</hibernate-configuration>
```

Finally, it is possible to configure the logs related information, detailed in the file *log4jTRUST.properties*. Three log files are created, including different levels of details about the events happening in the component. This can be changed by modifying the file according to log4j options, adding more details or changing the target folder for the log files (initially set to */opt/optimis/var/log/TrustFramework*). An example for one of the files would be:

```
log4j.appender.rollingFileSimplified=org.apache.log4j.RollingFileAppender
log4j.appender.rollingFileSimplified.File=/opt/optimis/var/log/TrustFramework
/ip_trust_framework_Simplified.log
log4j.appender.rollingFileSimplified.MaxFileSize=10MB
log4j.appender.rollingFileSimplified.MaxBackupIndex=3
log4j.appender.rollingFileSimplified.layout=org.apache.log4j.PatternLayout
```

```
log4j.appender.rollingFileSimplified.layout.ConversionPattern=%d{HH:mm:ss} %-5p - %m%n
```

2.7 FAQ

1. Trust Framework is not connecting to the Monitoring System.
Check the *config.properties* and verify that the connection details to the monitoring system are correct and the monitoring service is running.
2. Trust Framework does not connect to the SLA Manager.
Check the *config.properties* and verify that the connection details to the SLA manager are correct and the SLA manager is running.
3. Trust Framework does not connect to the Cloud Optimizer.
Check the *config.properties* and verify that the connection details to the Cloud Optimizer are correct and the CO is running.
4. Trust Framework does not connect to the database.
Verify that the database connection details are fine and verify that MySQL is running.