

# RODA

## Repository of Authentic Digital Objects

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### Installation manual

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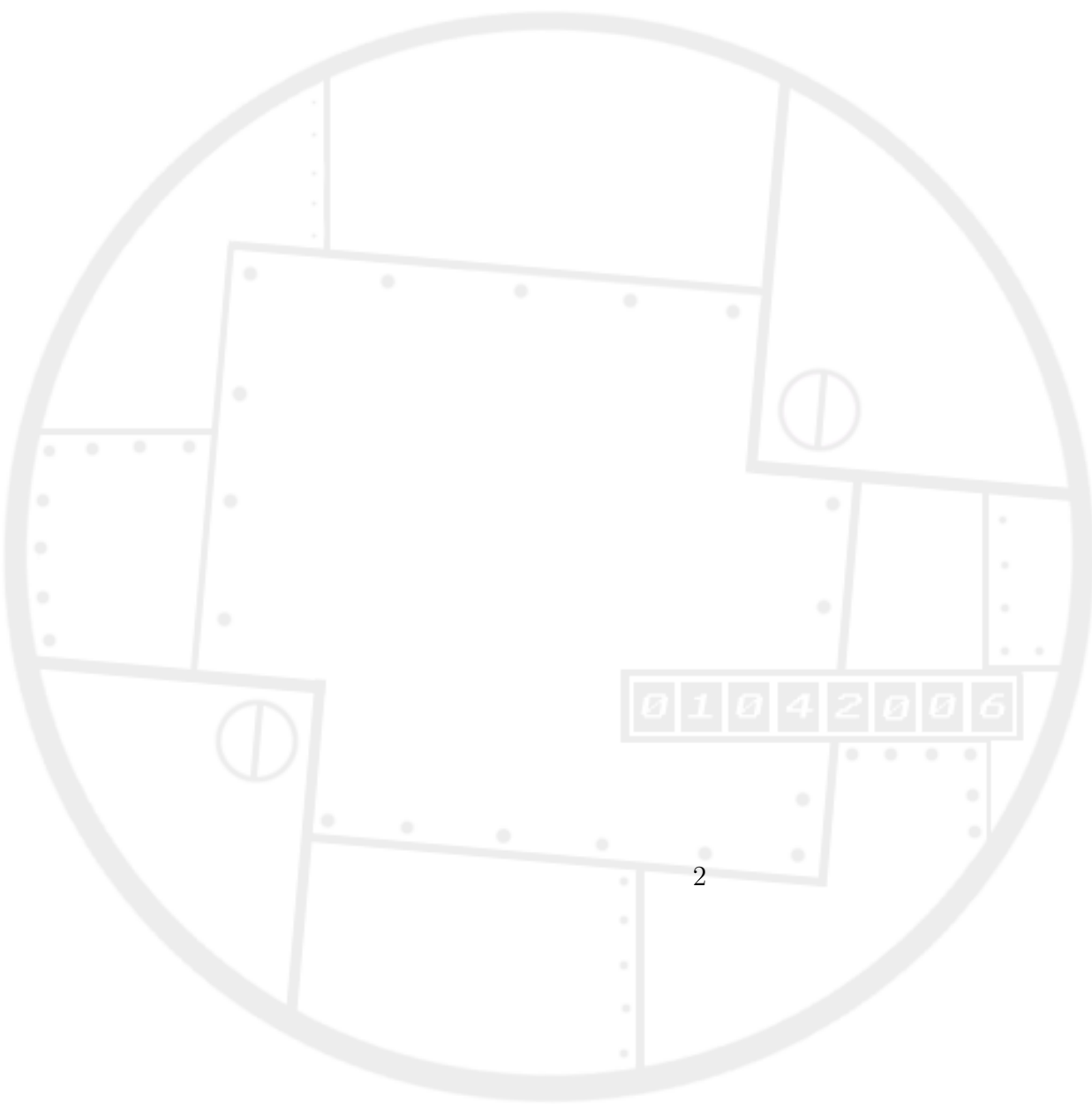
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# 1 Introduction

This manual describes all the necessary steps to install RODA. RODA was only tested in GNU/Linux system, specifically Ubuntu 8.04 and Ubuntu 8.10.

As the project follows a Service Oriented Architecture, it can be distributed in several machines, for scalability. The most important components/services are RODA-Core, RODA-WUI, RODA-Migrator and RODA-in-installer. Everyone of these components can be installed in a different machine, all in the same one, or any type of combination you desire.



## 2 Pre-requisites

### 2.1 RODA-Core

RODA-Core is the central component of RODA. To install it in an Ubuntu (8.04) system it is necessary to install:

- Ant

```
$ sudo apt-get install ant ant-optional
```

- OpenLDAP

```
$ sudo apt-get install slapd
```

To change the OpenLDAP configuration execute:

```
$ sudo dpkg-reconfigure slapd
```

If asked to "Omit OpenLDAP server configuration?" choose "No".

To configure LDAP for RODA change:

**Figure 1** LDAP administration password. This password will be asked for during the RODA installation.

**Figure 2** DNS domain name. This value must be `roda.dgarq.gov.pt`. The respective prefix is `dc=roda,dc=dgarq,dc=gov,dc=pt`.

**Figure 3** Organization name with your organization (eg. RODA).

If asked "Do you want the database to be removed when slapd is purged?" answer "No". If asked to allow LDAPv2 protocol, answer "Yes".

- Clam AntiVirus<sup>1</sup>

```
$ sudo apt-get install clamav
```

- Java 5

```
$ sudo apt-get install sun-java5-bin
```

<sup>1</sup><http://www.clamav.net>

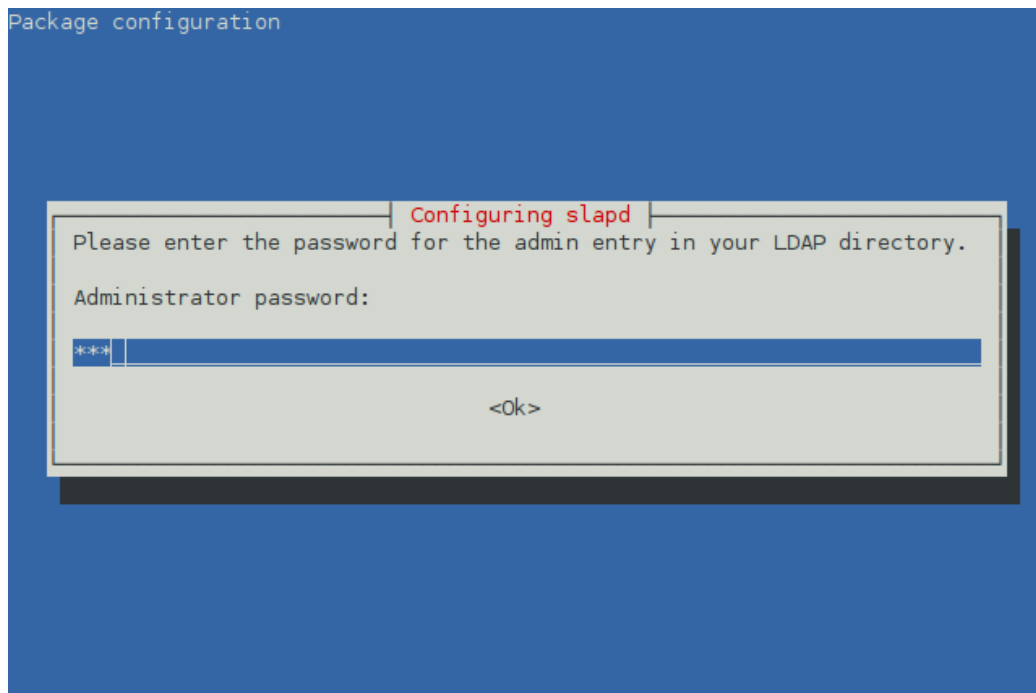


Figure 1: slapd - LDAP administrator password

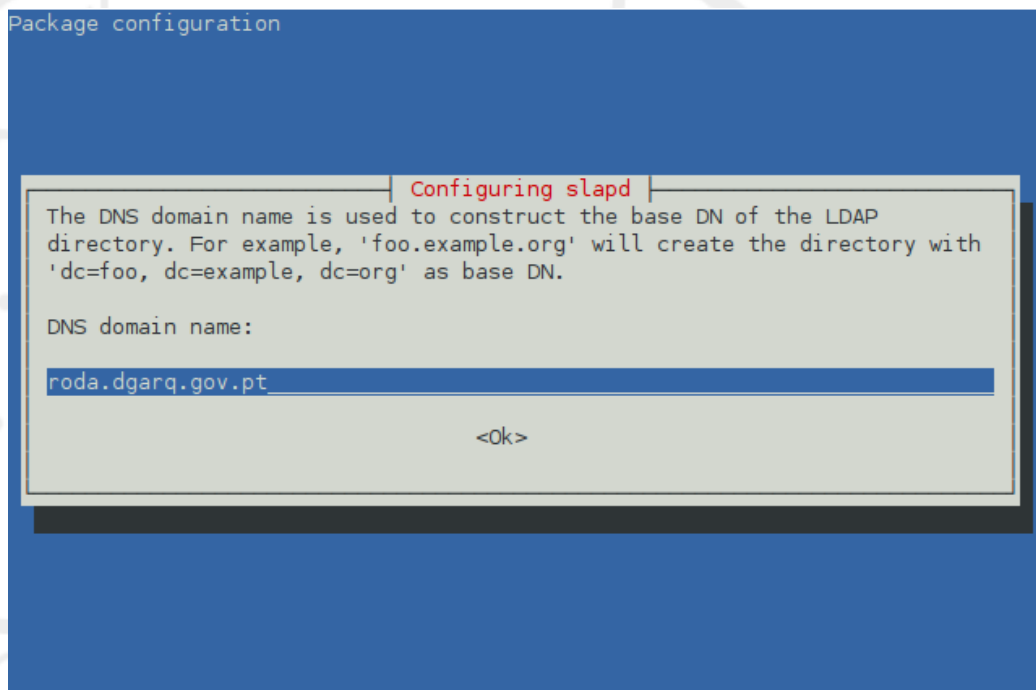


Figure 2: slapd - DNS domain name

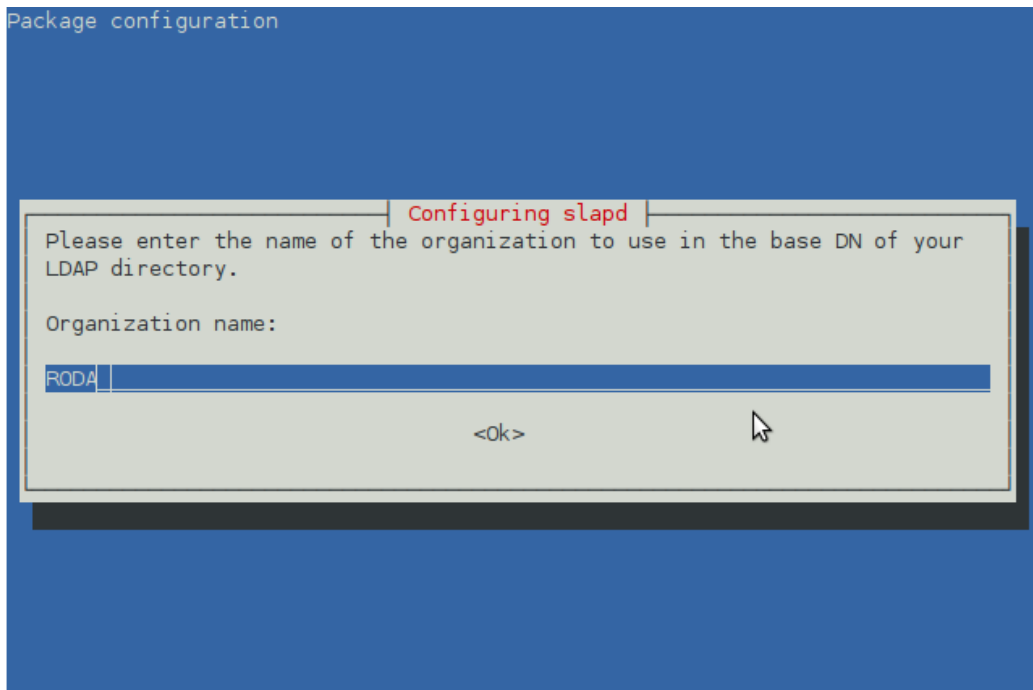


Figure 3: slapd - Organization name

or Java 6

```
$ sudo apt-get install sun-java6-bin
```

- VsFTPD (The Very Secure FTP Daemon) and LDAP module for PAM (Pluggable Authentication Modules)

```
$ sudo apt-get install vsftpd libpam-ldap
```

- A SMTP server (like postfix in Ubuntu).

```
$ sudo apt-get install postfix
```

## 2.2 RODA-Migrator

RODA-Migrator is an application independent from RODA-Core or RODA-WUI, but these services need RODA-Migrator. This service offers conversion services based on the following tools:

- ImageMagick<sup>2</sup> - converts images in various formats.
- Ghostscript - converts PDF in images
- OpenOffice - converts text documents in various formats.
- Mencoder e w32codecs/w64codecs - converts between various video formats.
- Soundconverter, gstreamer0.10-ffmpeg, gstreamer-plugins-ugly e gstreamer0.10-plugins-ugly-multiverse - converts between various audio formats.

To install these componets in Ubuntu 8.04 it is necessary to activate the Medibuntu repository<sup>3</sup> and then execute:

```
$ sudo apt-get install imagemagick ghostscript mencoder \
openoffice.org openoffice.org-headless openoffice.org-java-common \
soundconverter gstreamer0.10-plugins-base gstreamer0.10-ffmpeg \
gstreamer0.10-plugins-ugly gstreamer0.10-plugins-ugly-multiverse \
gstreamer0.10-pitfdll
```

For 32 bit systems:

```
$ sudo apt-get install w32codecs
```

For 64 bit systems:

```
$ sudo apt-get install w64codecs
```

## 2.3 RODA-Migrator-Win

RODA-Migrator-Win is like RODA-Migrator, but offers conversion services based on Microsoft Office for Windows. The pre-requisites are:

- *Microsoft Office 2007*<sup>4</sup>.
- *2007 Microsoft Office Add-in: Microsoft Save as PDF or XPS*<sup>5</sup> - converte documentos de texto em formato .doc e .docx para PDF/A.

<sup>2</sup><http://www.imagemagick.org>

<sup>3</sup><https://help.ubuntu.com/community/Medibuntu>

<sup>4</sup><http://office.microsoft.com/>

<sup>5</sup><http://www.microsoft.com/downloads/details.aspx?FamilyID=4d951911-3e7e-4ae6-b059-a2e79ed87041&displaylang=en>

## 2.4 RODA-in-installer

RODA-in-installer allows the download of the RODA-in desktop application installer, and can even generate installers with the user classification plan embedded. It is a web application that runs under a J2EE web server container, like Apache Tomcat<sup>6</sup>, and needs to access RODA-Core. In 64 bit systems also needs to have installed:

- MinGW 32 binary utilities

In Ubuntu:

```
$ sudo apt-get install mingw32-binutils
```

## 2.5 RODA-WUI

RODA-WUI is the web application that contains the web user interface. It is a web application that runs under a J2EE web server container, like Apache Tomcat<sup>7</sup>, and needs to access RODA-Core and RODA-in-installer. Also needs to have installed:

- A Mail Transport Agent installed on localhost (like postfix in Ubuntu)
- Some libraries needed for integrated PHP.

In Ubuntu:

```
$ sudo apt-get install postfix libmm14 libmcrypt4 libltdl3
```

If only libltdl7 is available in you system, install it and then link libltdl7 to libltdl3:

```
$ sudo apt-get install libltdl7  
$ sudo ln -s /usr/lib/libltdl.so.7 $RODA_HOME/libs/php5servlet-linux-x86_64-1.0.3/PHP/
```

<sup>6</sup><http://tomcat.apache.org>

<sup>7</sup><http://tomcat.apache.org>

### 3 Install

To start the RODA install just execute:

```
$ sudo ./install-roda.sh /usr/local/roda
```

The installer needs the input of several parameters for the configuration of every component.

The sections of the installer that need to be configured are:

#### JBoss administration console password

```
*****
* Configuration values for JBoss *
*****

RODA_HOME already set to /usr/local/roda
JBoss management applications 'admin' password: xxx
```

#### LDAP hostname and port

```
*****
* Configuration values for LDAP filter *
*****

LDAP host [localhost]:
LDAP port [389]:
```

#### RODA base users passwords

```
*****
* Configuration values for LDAP initial entries *
*****

LDAP admin password: xxx

RODA 'guest' password: xxx

RODA 'admin' password: xxx

RODA 'roda-wui' user password: xxx

RODA 'roda-ingest-task' user password: xxx

RODA 'roda-preservation-task' user password: xxx

RODA 'roda-handle' user password: xxx
```

## Port and passwords of users 'fedoraAdmin' and 'roda-core' to database of RODA-Data

```
*****
* Configuration for RODA-Data MySQL database      *
*****

RODA Data MySQL database port [13306]:
Fedora 'fedoraAdmin' password (used also in fedora database): xxx

RODA Data MYSQL 'roda-core' user password: xxx
```

## RODA-Core service hostname and port

```
*****
* Configuration values for Fedora                  *
*****

FEDORA_ADMIN_PASSWD already set to xxx
RODADATA_MYSQL_PORT already set to 13306
Copy fedora-users.xml from template
Configuring fedora-users.xml
Buildfile: /home/tobias/roda-installer/roda/bin/roda-config.xml

fedora-users.xml:

BUILD SUCCESSFUL
Total time: 0 seconds
Copy fedora.fcfg from template
Configuring fedora.fcfg
Buildfile: /home/tobias/roda-installer/roda/bin/roda-config.xml

fedora.fcfg:

BUILD SUCCESSFUL
Total time: 0 seconds
RODA Core host [localhost]:
RODA Core port [8080]:
```

## Host and port of RODA-Data service; Host and port of RODA-Migrator service

```
*****
* Configuration values for RODA Core              *
*****

RODA Data host [localhost]:
RODA Data port [8080]:
RODADATA_MYSQL_PORT already set to 13306
RODADATA_MYSQL_RODACORE_PASSWD already set to xxx
RODA_GUEST_PASSWD already set to xxx
RODA_ADMIN_PASSWD already set to xxx
FEDORA_ADMIN_PASSWD already set to xxx
LDAPHOST already set to localhost
LDAPPORT already set to 389
LDAP_ADMIN_PASSWD already set to xxx
```

```
RODA Migrator (linux) host [localhost]:
RODA Migrator (linux) port [8080]:
```

## Password of Fedora administrator

```
*****
* Configuration values for Fedora users file      *
*****

Fedora 'fedoraAdmin' password: fedoraAdmin
```

## RODA-WUI host; RODA-Migrator host; RODA-WUI database password

```
*****
* Configuration values for WUI database users    *
*****

RODA WUI host [localhost]:
RODA Migrator (linux 64bit) host [localhost]:
RODA WUI database disseminator MySQL root password: froda
```

## RODA-WUI public address and port

```
*****
* Configuration values for RODA Handle          *
*****

RODACORE_HOST already set to localhost
RODACORE_PORT already set to 8080
RODA_HANDLE_PASSWD already set to roda-handle
RODA WUI public address [roda.dgarq.gov.pt]:
```

## RODA-Core public address and port

```
*****
* Configuration values for RODA-in Installer    *
*****

RODA Core public address [roda.dgarq.gov.pt]:
RODA Core public port [8080]:
RODAWUI_PUBLIC_HOSTNAME already set to roda.dgarq.gov.pt
```

## Host, port and administration password of RODA-WUI database

```
*****
* Configuration values for RODA WUI            *
*****

RODA_HOME already set to /usr/local/roda
```

```
RODACORE_HOST already set to localhost
RODACORE_PORT already set to 8080
RODA_WUI_PASSWD already set to xxx
RODAMIGRATORLINUX_HOST already set to 'localhost'
RODAMIGRATORLINUX_PORT already set to '8080'
RODA WUI MySQL database host [localhost]:
RODA WUI MySQL database port [23306]:
RODA WUI MySQL database 'root' password: xxx
```

## RODA-Data database password

```
[install-roda.sh] Configuring RODA Data Services. Press ENTER to continue...

*****
* First time RODA-Data is started the Fedora GSearch index      *
* has to be created, otherwise, the search service will NOT    *
* be available.                                                *
*                                                                *
* To create the index use the following command:                *
* (JBoss/Tomcat MUST to be running)                            *
* sudo /usr/local/roda/bin/roda-data-create-gsearch-index.sh   *
*****

[install-roda.sh] Press ENTER to continue...

[install-roda.sh] Setting up RODA-Data MySQL database engine
.
.
.

In order to log into MySQL to secure it, we'll need the current
password for the root user. If you've just installed MySQL, and
you haven't set the root password yet, the password will be blank,
so you should just press enter here.

Enter current password for root (enter for none):
OK, successfully used password, moving on...

Setting the root password ensures that nobody can log into the MySQL
root user without the proper authorisation.

Set root password? [Y/n]
New password:
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
... Success!

By default, a MySQL installation has an anonymous user, allowing anyone
to log into MySQL without having to have a user account created for
them. This is intended only for testing, and to make the installation
go a bit smoother. You should remove them before moving into a
production environment.

Remove anonymous users? [Y/n]
... Success!

Normally, root should only be allowed to connect from 'localhost'. This
```

ensures that someone cannot guess at the root password from the network.

```
Disallow root login remotely? [Y/n]
... Success!
```

By default, MySQL comes with a database named 'test' that anyone can access. This is also intended only for testing, and should be removed before moving into a production environment.

```
Remove test database and access to it? [Y/n]
- Dropping test database...
... Success!
- Removing privileges on test database...
... Success!
```

Reloading the privilege tables will ensure that all changes made so far will take effect immediately.

```
Reload privilege tables now? [Y/n]
... Success!
```

Cleaning up...

All done! If you've completed all of the above steps, your MySQL installation should now be secure.

Thanks for using MySQL!

```
[install-roda.sh] Creating Fedora MySQL database
RODA-Data MySQL root password:
Creating Fedora DB
```

```
[install-roda.sh] Creating RODA MySQL database
RODA-Data MySQL root password:
Creating RODA DB
Creating RODA Logger tables
Creating RODA Ingest tables
Creating RODA Reports tables
Creating RODA Scheduler tables
Creating Quartz tables
Creating Statistics tables
```

Except for the administration password, all other options should be the default.

## Confirmation to clean LDAP data

```
[install-roda.sh] Setting LDAP default values
*****
This script will delete all information currently in LDAP and
replace it with entries in /usr/local/roda/core/config/ldap/production-ldap-default-values.ldif.
*****

Are you sure you want to continue?
(yes) to continue; (no) or Ctrl+C to abort
```

```
yes
Stopping OpenLDAP: slapd.
_##### 100.00% eta none elapsed none fast!
Closing DB...
Starting OpenLDAP: slapd.
```

```
[install-roda.sh] Configuring RODA Core Services. Press ENTER to continue...
No post-install operations
```

**Password of RODA-WUI database**

```
[install-roda.sh] Configuring RODA UI Services. Press ENTER to continue...

[install-roda.sh] Setting up RODA-WUI MySQL database engine

.
.
.

RODA-WUI MySQL 'root' password:
RODA-WUI MySQL 'root' password confirmation:
Creating RODA-WUI PhpMyAdmin database
mysql --defaults-file=/usr/local/roda/config/roda-wui-mysql.cnf -u root -pxxx
Creating RODA-WUI PhpMyAdmin default users
mysql --defaults-file=/usr/local/roda/config/roda-wui-mysql.cnf -u root -pxxx
RODA-WUI database setup complete
```

```
[install-roda.sh] Configuring RODA Conversion Services. Press ENTER to continue...
No post-install operations
```

**Instalation finished**

```
*****
* RODA installed in directory /usr/local/roda.
*****

tobias@kain:~/roda-installer$
```

RODA is installed. Now to start all services execute:

```
$ sudo /usr/local/roda/bin/roda-start-all.sh
```

On the first time the RODA is started the Fedora GSearch index must be initialized. To create the index execute:

```
$ sudo /usr/local/roda/bin/roda-data-create-gsearch-index.sh
```

To enable the ingest workflow and the preservation events, you have to schedule the tasks in the Administration => Scheduler panel on RODA-WUI. Please see the plugins configuration document for more information. Please note that the user "roda-ingest-task", which password was defined in the install script, must be used in the parameters of some ingest tasks.

### 3.1 RODA-in-installer

In 64 bit systems:

- Create a symbolic link from the MinGW 32 binaries to \$RODA\_HOME/in/launch4j

```
$ sudo ln -sf /usr/bin/i586-mingw32msvc-windres $RODA_HOME/in/launch4j/windres
$ sudo ln -sf /usr/bin/i586-mingw32msvc-ld $RODA_HOME/in/launch4j/ld
```

### 3.2 RODA-Migrator in Windows

There is no automatic procedure to install RODA-Migrator in Windows. A RODA-Migrator installation for Linux and other files from the RODA installer will be needed.

The installation steps for this component are:

- Create directory C:\roda
- Define environment variable RODA\_HOME with value C:\roda (Figures 4, 5, 6 and 8)  
Restart Windows after defining environment variable, so it will be defined for all users and programs.
- Create directorues C:\roda\bin, C:\roda\config, C:\roda\migrator e C:\roda\migrator\cache.
- Copy from the Linux RODA-Migrator installation:  
\$RODA\_HOME/bin/doc2pdf.exe to C:\roda\bin  
\$RODA\_HOME/config/roda-migrator-win.properties to C:\roda\config  
\$RODA\_HOME/config/ldap-filter.properties to C:\roda\config  
\$RODA\_HOME/config/certification to C:\roda\config
- Install Apache Tomcat for Windows<sup>8</sup> (version 6). It is recommend to use the “Windows Service Installer”
- Copy from RODA installer the RODA-Migrator for Windows web application:  
RODA\_INSTALER\_DIR/roda/web-deploy/migrator/roda-migrator-win.war to C:\Program Files\Apache Software Foundation\Tomcat 6.0\webapps.

<sup>8</sup><http://tomcat.apache.org/>

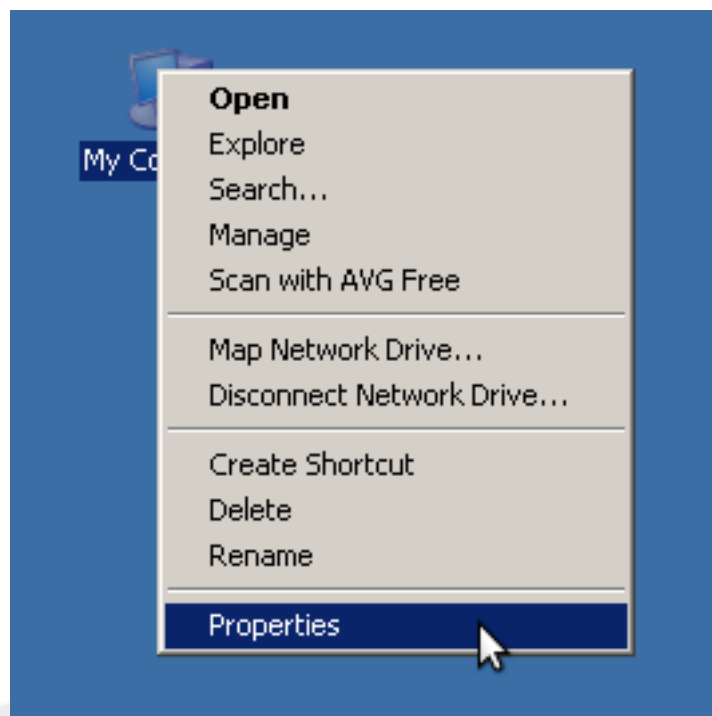


Figure 4: Windows - Open Computer Properties

- Open Start menu and run Apache Tomcat 6.0 -> Configure Tomcat, Set "Startup type" to "Automatic", then click Ok.
- Next, restart Windows and Apache Tomcat will start automatically, and also the RODA-Migrator for Windows.

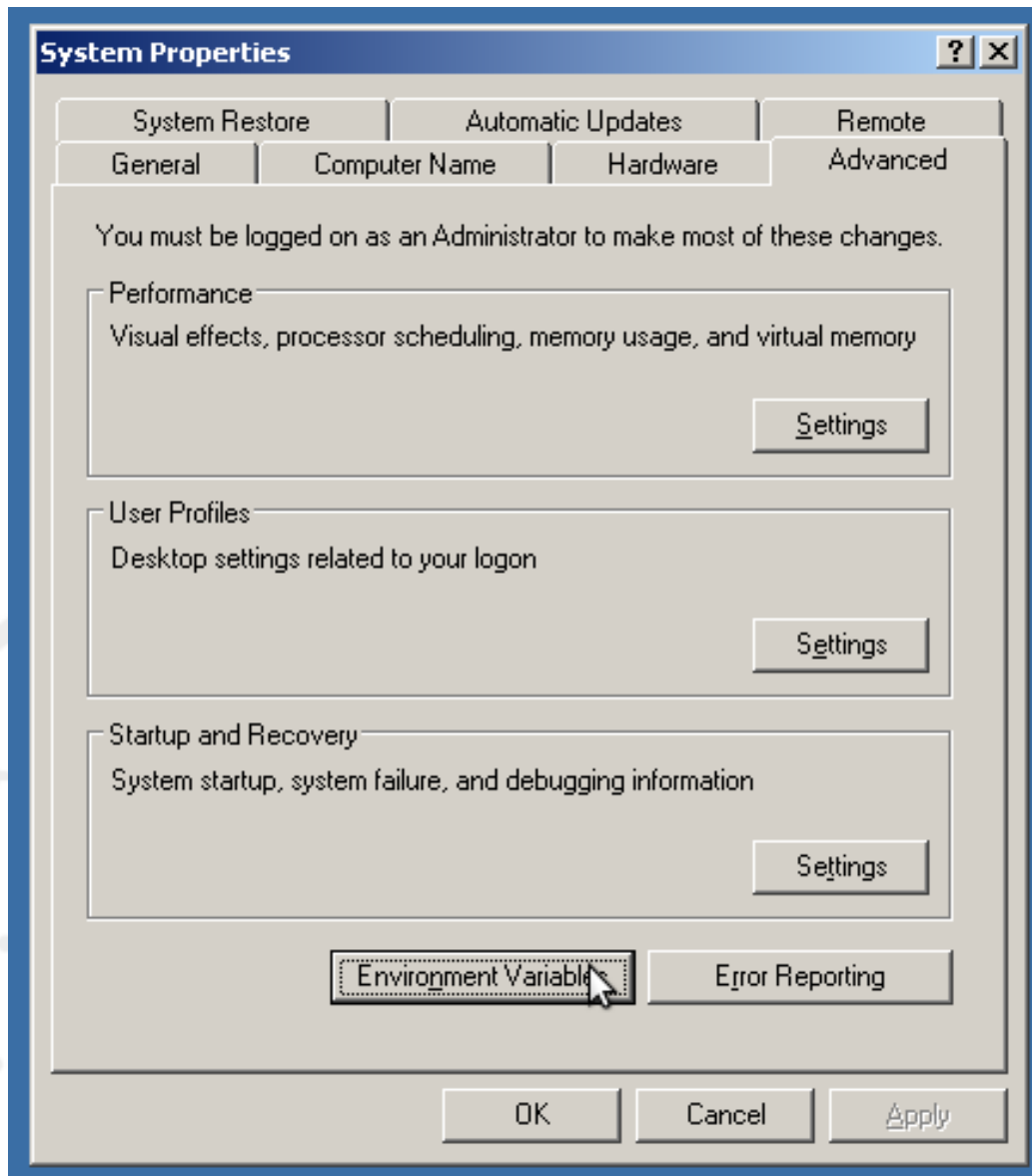


Figure 5: Windows - Computer Properties window

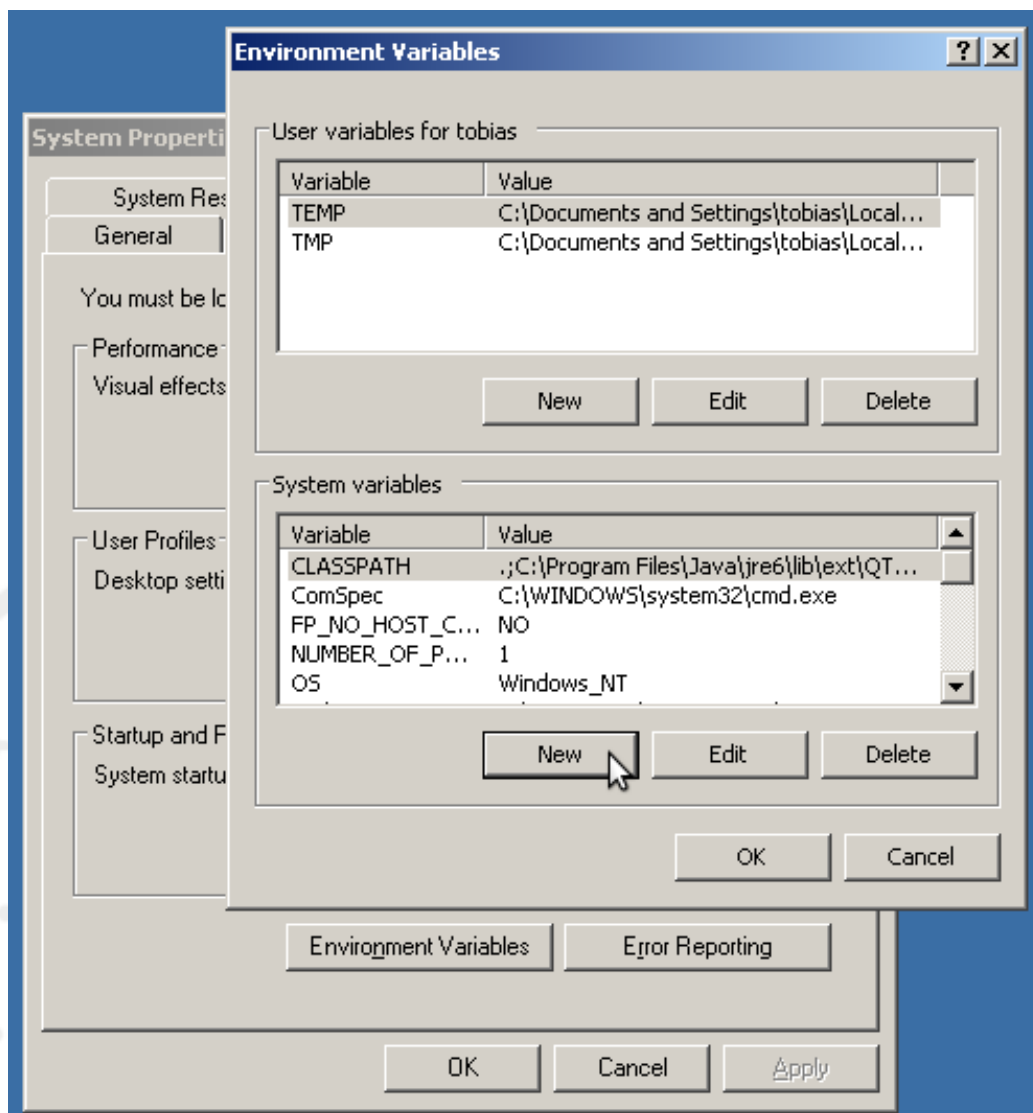


Figure 6: Windows - System variables

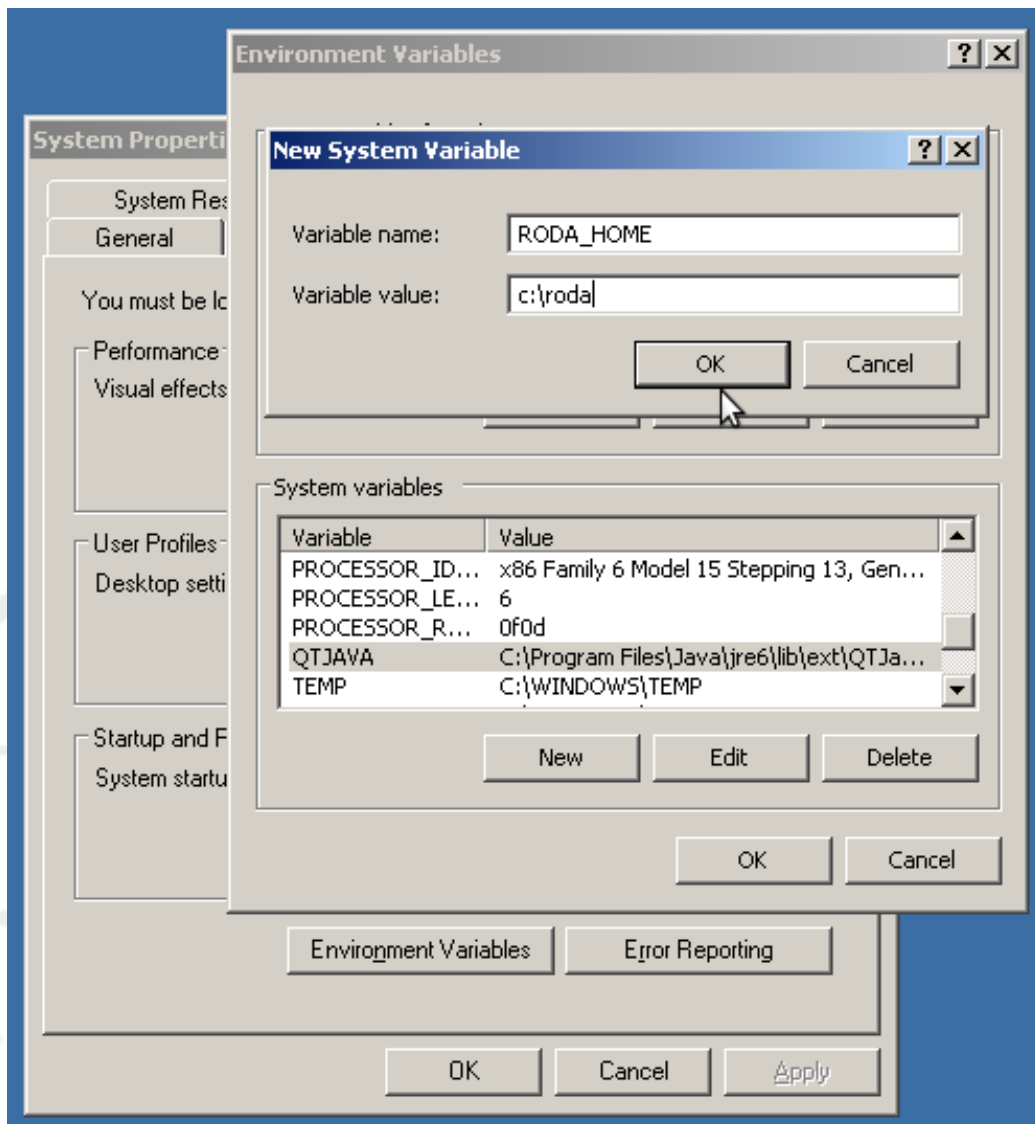


Figure 7: Windows - Create RODA\_HOME System variable

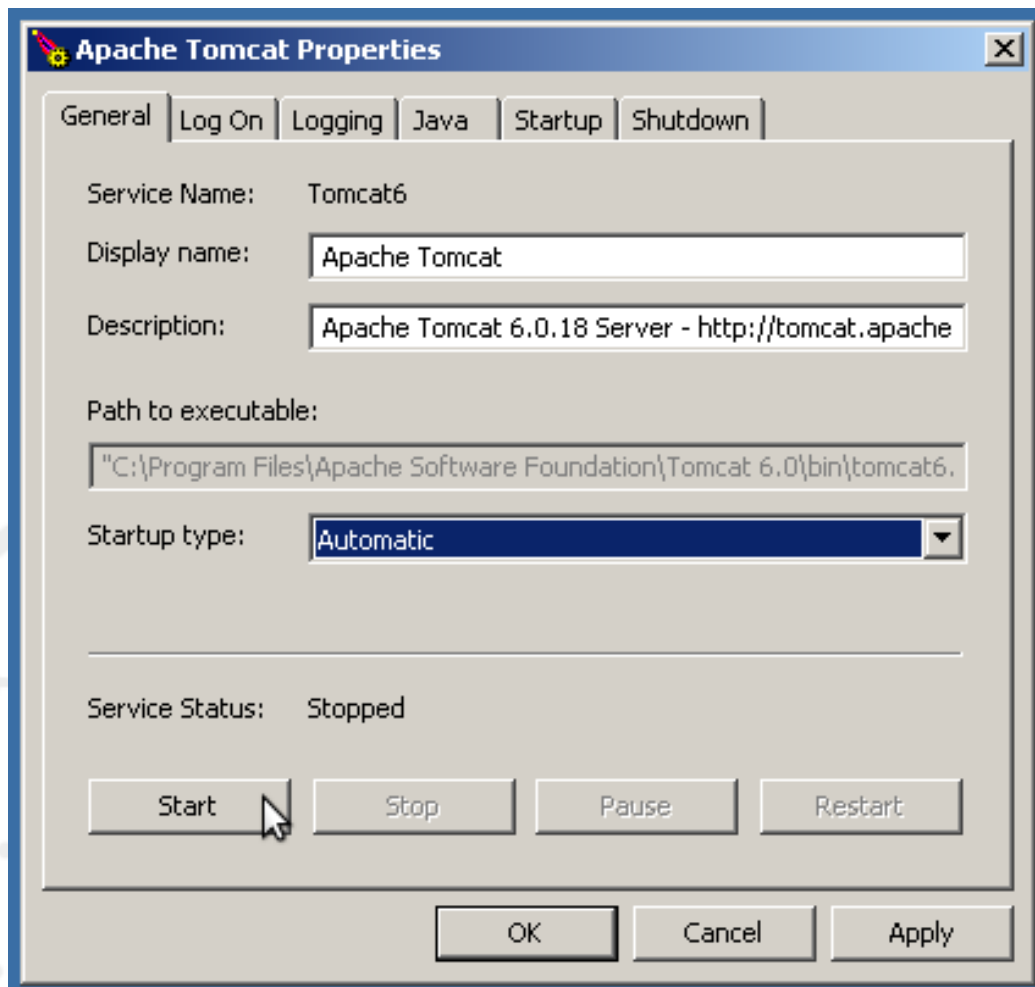


Figure 8: Windows - Apache Tomcat properties window

## 4 Configuration

### 4.1 RODA-Core

#### Change basic configuration

Basic configuration is in file:

```
$RODA_HOME/core/config/roda-core.properties
```

Here it can be changed:

- The Fedora server URL
- User name and password of the Fedra administrator (fedoraAdmin)
- User name and password of the guest user (guest)
- User name and password of the administrator user `admin`
- LDAP access configuration
- Handle System prefix configuration
- Default values for country code and repository code of descriptive objects.

There are also other properties that MUST NOT be changed in the system configuration:

- Fedora *datastreams* identifiers
- Names of users and groups with fixed and mandatory permissions.

The configuration of the `Logger` service is in file:

```
$RODA_HOME/core/config/logger.properties
```

Here it can be changed:

- `Logger` service database access configuration

The configuration of the `Statistics` service is in file:

```
$RODA_HOME/core/config/statistics.properties
```

Here it can be changed:

- **Statistics** service database access configuration

The configuration of the **Scheduler** service is in files:

```
$RODA_HOME/core/config/scheduler.properties  
$RODA_HOME/core/config/quartz.properties
```

Here it can be changed:

- **Scheduler** service database access configuration
- **Quartz** component database access configuration.

The configuration of the **Reports** service is in file:

```
$RODA_HOME/core/config/reports.properties
```

Here it can be changed:

- **Reports** service database access configuration

The configuration of the **plugins** is in file:

```
$RODA_HOME/core/config/plugins.properties
```

Here it can be changed:

- The directory where **RODA-Core** must look for *plugins*.

#### 4.1.1 RODA-Core Plugins

##### Tarefas de ingestão

The configuration of the ingest tasks is in file:

```
$RODA_HOME/core/config/ingest.properties
```

Here it can be changed:

- Ingest service database access configuration;
- The directory where SIPs are kept during the ingest process;
- The list of possible SIP states during the ingest process;
- The list of initial and final states of the ingest process;
- The properties of each ingest task. These properties include the start and end state of each ingest task, determining, therefore, the sequence of ingest tasks.

## Conversion plugins

The configurations of the conversion plugins can be found in the `.properties` files on the directory:

```
$RODA_HOME/core/config/plugins
```

On each of these files it can be changed:

- The migration service URL that the converter must use.
- The representation format with the converter applies to (e.g. `image/mets+jpeg`, `audio/flac`, etc).

## 4.2 Munin

Munin is a monitorization service composed by two partes, the `munin-node`, that gathers information of each machine using plugins, and the `munin`, that collects the information from all the `munin-nodes` and generates graphics and html. In every server that we wish to monitor it must be installed a `munin-node`.

A `munin-node` for Windows can be downloaded at <http://www.jory.info/serendipity/index.php?/categories/4-Munin-Node-for-Windows>. The MSI should be installed, creating a Windows service that keeps gathering the information. If the HDD category doesn't work, this option should be deactivated in `C:\Program Files\Munin Node for Windows\munin-node.ini`, by changing the line to `hd=0`.

The `munin-node` for Ubuntu 8.10 can be installed with:

```
$ sudo apt-get install munin-node munin-plugins-extra \
libxml-simple-perl mailutils
```

After installing it is possible to select the plugins used by the `munin` node by creating a symbolic link to the directory `/etc/munin/plugins/`. All system installed plugins are at `/usr/share/munin/plugins/`, and the `jBoss` plugin developed by RODA is at:

```
$RODA_HOME/ui/munin/plugins/
```

Next, change all the necessary configurations for the installed plugins at:

```
/etc/munin/plugin-conf.d/munin-node
```

## MySQL Munin plugin

The configuration of the MySQL plugin, in a 32 bit machine is:

```
[mysql*]
user root
env.mysqladmin RODA_HOME/database/mysql-5.1.30-linux-i686-glibc23/bin/mysqladmin
env.mysqlopts --defaults-extra-file=/root/.my.cnf
```

And in a 64 bit machine is:

```
[mysql*]
user root
env.mysqladmin RODA_HOME/database/mysql-5.1.30-linux-x86_64-glibc23/bin/mysqladmin
env.mysqlopts --defaults-extra-file=/root/.my.cnf
```

In witch `RODA_HOME` must be the absolute path to the directory defined by this variable.

On both situations, a file must be created at `/root/.my.cnf`, with read permissions only for root, and the content:

```
[client]
host      = localhost
user      = USERNAME
password  = PASSWORD
socket    = SOCKET_PATH
```

In witch `USERNAME` is the user name to access the database, `PASSWORD` is the user password, and `SOCKET_PATH` is the absolute path of the MySQL socket. If Munin is monitoring the data layer MySQL, the path should be `/tmp/mysql.sock`. If the monitoring is for the RODA-WUI MySQL, the path should be `/tmp/wui-mysql.sock`.

## JBoss Munin plugin

The JBoss plugin doesn't need configuration for the default installed JBoss. But, if you add authentication or encryption to the JBoss web-console, you need to follow the configurations explained at 4.3.

### 4.3 JBoss security

The default JBoss configuration leaves the JBoss management applications (web-console and jmx-console) open to public access, with no authentication nor encryption. To resolve this problem see <http://www.jboss.org/community/docs/DOC-12190>.

The the above link it is explained how to add authentication to the applications and only allow encrypted connections to them. But if these changes are made, don't forget to configure the JBoss Munin plugin. Change `/etc/munin/plugin-conf.d/munin-node` to<sup>9</sup>:

```
[jboss*]
env.url https://%s:%s@127.0.0.1:%d/web-console/status?XML=true
env.ports 8443
env.user USERNAME
env.password PASSWORD
```

One pre-requisite of this plugin to access HTTPS is the package `libcrypt-ssleay-perl`:

```
$ sudo apt-get install libcrypt-ssleay-perl
```

For even more security in JBoss, SSL connections with weak cyphers must be forbidden. Just change the file:

```
$_RODA_HOME/jboss/server/default/deploy/jboss-web.deployer/server.xml
```

And add to the SSL connector the attribute:

```
ciphers="SSL_RSA_WITH_RC4_128_MD5, SSL_RSA_WITH_RC4_128_SHA,
TLS_RSA_WITH_AES_128_CBC_SHA, TLS_DHE_RSA_WITH_AES_128_CBC_SHA,
TLS_DHE_DSS_WITH_AES_128_CBC_SHA, SSL_RSA_WITH_3DES_EDE_CBC_SHA,
SSL_DHE_RSA_WITH_3DES_EDE_CBC_SHA, SSL_DHE_DSS_WITH_3DES_EDE_CBC_SHA"
```

No JBoss integrado no instalador do RODA estas optimizações de segurança já estão implementadas, mas é crucial **mudar as passwords de acesso às consolas**. In the JBoss inside the RODA installer this security changes are already implemented, but it is very important to **change the passwords**.

---

<sup>9</sup>USERNAME and PASSWORD must be substituted by the correct user name and password

## 4.4 RODA WUI

### Change basic configuration

Basic configuration is in file:

```
$RODA_DEV/roda-wui/src/config/roda-wui.properties
```

Here it can be changed:

- RODA-Core service location
- RODA-in-installer service location
- Munin service location
- RODA-WUI user name and password to use in control actions (like user register or logging)
- Known user permissions
- Permissions to access each one the menus
- Disseminations definition
- Mapping from the disseminators to representation classes and formats
- Directories of the dissemination cache
- Parameters of each disseminator defined in RODA-WUI

### Change descriptive metadata default values

When creating the classification plan in RODA-WUI, object are initialized with the descriptive metadata defined at:

```
$RODA_DEV/roda-wui/src/config/roda-element-defaults.properties
```

### Change web pages messages

All messages used in RODA-WUI web pages are defined in properties files (.properties extension) under the directory:

```
$RODA_DEV/roda-wui/src/config/i18n/client
```

They are divided in many files, one for each component they belong to.

## Change PDF report messages

The the dinamic lists component it is possible to download a PDF (or CSV) with the same parameters (order or filters) of the viewed list. These PDF contain some translated messages that are defined in various files, depending on the data type the list refers to:

```
$RODA_DEV/roda-wui/src/config/i18n/server/ContentAdapterHelperMessages_pt_PT.properties
$RODA_DEV/roda-wui/src/config/i18n/server/EventManagerMessages_pt_PT.properties
$RODA_DEV/roda-wui/src/config/i18n/server/IngestListReportMessages_pt_PT.properties
$RODA_DEV/roda-wui/src/config/i18n/server/StatisticsListReportMessages_pt_PT.properties
```

## Change PDF report structure

There are two types of reports, one based in content-adapter, used in the dinamic lists component explained above, and other based on Report (result of a task). Both types are structured in a series of XML-FO templates, each on refers to a deferent part of the report. These templates can be found at:

```
$RODA_DEV/roda-wui/src/config/reports/xml-fo
```

## Change default reject messages

When rejecting a SIP it is possible to select a default message explaining the reason of the rejection. These messages are defined at:

```
$RODA_DEV/roda-wui/src/config/i18n/server/IngestListRejectMessages_pt_PT.properties
```

The key of the default message refers to the name of the message in the selection list. The value refers to the reject message itself, that will be sent to the producer<sup>10</sup>.

## Change user email verification email

When a user registers in RODA-WUI a email is sent the the user email so it can be confirmed. The content of this email can be changed at:

```
$RODA_DEV/roda-wui/src/config/mail/templates/emailverification_html.vm
```

Other properties of the email, like the subject, can be changed at:

```
$RODA_DEV/roda-wui/src/config/mail/velocity.mail.properties
```

<sup>10</sup>The user can always change the default message before sending

## Change recover login email

If a user forgets the name or password, it is possible to recover them. The system sends an email to the user with a link to change the password. The content of this email can be changed at:

```
$RODA_DEV/roda-wui/src/config/mail/templates/recoverlogin_html.vm
```

Other properties of the email, like the subject, can be changed at:

```
$RODA_DEV/roda-wui/src/config/mail/velocity.mail.properties
```

## Change producer SIP rejection notification email

When manually rejecting a SIP, the user can choose to immediately notify the producer. An email is sent to the producer where the SIP is identified and the reason of rejection detailed. The content of this email can be changed at:

```
$RODA_DEV/roda-wui/src/config/mail/templates/notifyproducer_html.vm
```

Other properties of the email, like the subject, can be changed at:

```
$RODA_DEV/roda-wui/src/config/mail/velocity.mail.properties
```

## Modify static pages content

Some RODA-WUI pages are static and are defined in HTML at:

- Home page

```
$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/home/public/Home.html
```

- About RODA

```
$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/about/public/About.html
```

- Services

```
$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/about/public/Services.html
```

- Policy and technical documents

```
$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/about/public/Policies.html
```

- R&D

`$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/about/public/ResearchDevelopment.html`

- Contacts

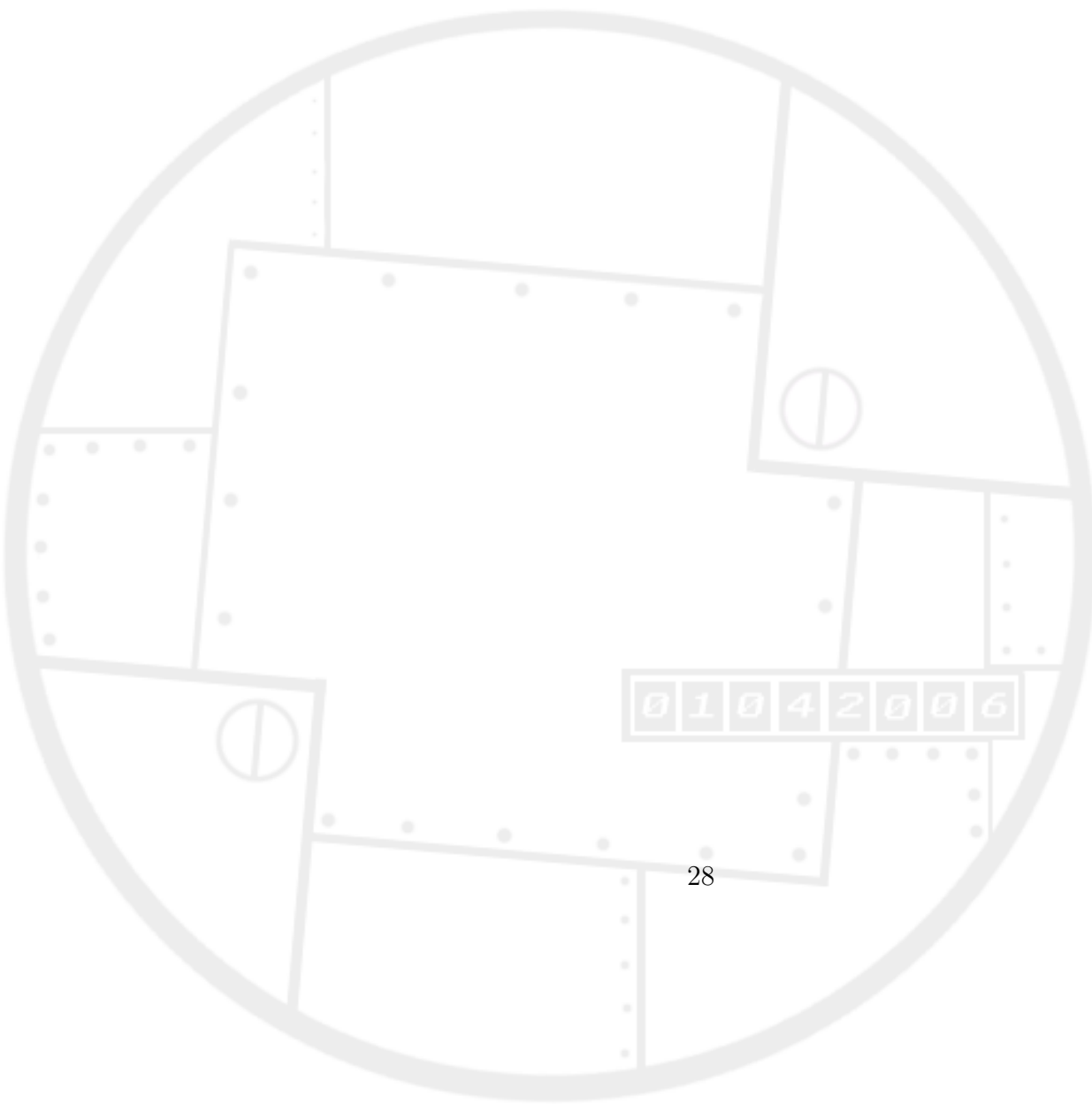
`$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/about/public/Contacts.html`

- About the register

`$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/about/public/AboutRegister.html`

- Help

`$RODA_DEV/ui/roda-wui/src/pt/gov/dgarq/roda/wui/about/public/AboutHelp.html`



## 4.5 RODA In

### Change basic configuration

The basic configuration is in file:

```
$RODA_DEV/roda-in/config/roda-sip-creator.properties
```

Aqui é possível alterar: Here it can be changed

- The RODA-Core service location
- The RODA-in version indicator location
- The RODA-in update service location
- The directories where the RODA-in data is kept in client

### Change the application messages

All the application messages are defined in file:

```
$RODA_DEV/roda-in/config/messages.properties
```

### Change the offline send instructions

The instructions to send SIPs offline are in HTML format on file:

```
$RODA_DEV/roda-in/config/OfflineSendInstructions.html
```

### Change theme (Look&Feel)

RODA-in uses the NimRod Look&Feel to be more appealing. It is possible to change the colors used in the theme in the file:

```
$RODA_DEV/roda-in/config/NimRODThemeFile.theme
```

A NimRod theme editor can be used to change the theme colors:

```
java -jar $RODA_DEV/roda-in/lib/nimrod1f-1.0e.jar
```

And then open the theme file defined above.

## Change the application version

RODA-in automatically detects updates to the online version. For this detection to be possible, a file is kept to maintain the application version. After changing the application, and before the deploy, the version should be incremented so a warning will appear on all the installed versions by the producers. The file that maintains the version is at:

```
$RODA_DEV/roda-in/config/roda-in-version.properties
```



## 4.6 RODA In Installer

### Change basic configuration

The basic configuration is at:

```
$RODA_DEV/roda-in-installer/src/config/roda-in-installer.properties
```

Where it can be changed the RODA-Core service location, used to generate installers with the classification plan embedded.

### Change installer messages

The installer currently supports Portuguese and English. Some of the messages used by the installer can be changed at:

```
$RODA_DEV/roda-in-installer/WebContent/WEB-INF/resources/packsLang.xml_por  
$RODA_DEV/roda-in-installer/WebContent/WEB-INF/resources/packsLang.xml_eng
```

### Change informations (Readme)

The informations, or Readme, presented while installing, are in HTML format and can be changed at:

```
$RODA_DEV/roda-in-installer/WebContent/WEB-INF/resources/Readme.por.html  
$RODA_DEV/roda-in-installer/WebContent/WEB-INF/resources/Readme.eng.html
```

### Change license

The license, shown while installing, is in HTML format and can be changed at:

```
$RODA_DEV/roda-in-installer/WebContent/WEB-INF/resources/Licence.por.html  
$RODA_DEV/roda-in-installer/WebContent/WEB-INF/resources/Licence.eng.html
```

The license in Portuguese must be encoded with HTML entities.

## 4.7 RODA-Migrator

The basic configuration is at:

```
$RODA_DEV/roda-migrator/config/roda-migrator.properties
```

Here it can be changed:

- The directory where the converted representations are kept.
- RODA-Core service location.
- PhpMyAdmin disseminator database access configuration.

## 4.8 RODA-Migrator-win

The basic configuration is at:

```
$RODA_DEV/roda-migrator-win/config/roda-migrator.properties
```

Here it can be changed:

- The directory where the converted representations are kept.
- RODA-Core service location.
- Location of the `doc2pdf.exe` executable for the Microsoft Word conversion service.