



Installation Manual for RSM NMS

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2 Glossary

Term / Acronym	Description
DMS	Document Management System
KSES	Keystone Electronic Solutions
GLAM	Gridlock Access Management
RFID	Radio Frequency Identification
GPS	Global Positioning System

Term / Acronym	Description
GSM	Global System for Mobile communications
APN	Access Point name
SRM	Shared resource management

3 Introduction

This document serves as a guideline for the installation process of RSM NMS.

It specifies the steps required when installing a new system on a new machine with the recommended operating system.

4 Installing operating system

The recommended operating system is CentOS 6. While installing the server please fill the accompanying configuration sheet so that the server credentials can be uploaded to Alfresco.

4.1 Configuration requirements

The following is not required at installation as it can be configured later but it does help a lot if it can be provided beforehand.

4.1.1 Server IP requirements

- ⑩ IP Address
- ⑩ Subnet mask
- ⑩ Gateway

4.1.2 NTP details

- ⑩ Internal NTP server if the machine does not have internet access.

4.2 Server hostname

Normally there are 2 servers installed to provide data redundancy. Provide the primary and secondary servers with hostname's that indicate which server is which.

4.3 Timezone

Select the relevant timezone for the server, as the timestamps will be converted into local time.

4.4 Root password

It is recommended to provide the default root password of: 'lockandroll', without the quotation marks. Should there be a need to change this please make a note of it in the server configuration sheet.

4.5 Disk space allocation

When allocating space on the disk make sure that you allocate as much as possible to '/var'. This is where the most space is required as the database resides there.

4.6 User creation

After the installation is complete create a user with the following credentials (without the quotation marks):

Username: 'rsmuser'

Password: 'rsmuser'

If the password needs to be changed please make a note of this in the configuration sheet.

5 Pre-installation

5.1 IP details

Edit the /etc/sysconfig/network-scripts/ifcfg-eth0 to match the configuration provided if this could not be done during the setup phase.

```
DEVICE=eth0
BOOTPROTO=none
ONBOOT=yes
NETMASK=255.255.255.0
IPADDR=10.0.1.27
USERCTL=no
```

5.2 Name resolution

If you could not setup the DNS server details, edit the resolve configuration file located at: /etc/resolv.conf

```
search <Domain>
nameserver <DNS IP>
```

5.3 Gateway

Add the following to /etc/sysconfig/network

```
GATEWAY={GATEWAY_IP} e.g 10.15.2.1
```

5.4 Package installation

Before installing Glam, the following software packages are required:

Requirement	Package Name
MySQL Server	mysql-server
Tomcat 6	tomcat6
Java	java-1.6.0
Net-SNMP	net-snmp
unzip	unzip
Font geoserver	dejavu*

**The fonts might not be required if the server has a screen card. When looking at Tomcat's logs, the exception 'No fonts found' will be thrown if the package is required.*

The CentOS package manager 'yum' can be used to install the packages.

```
yum install xyz
```

5.5 Post-installation

5.5.1 Creating default user

After installing the operating system it is recommended to create a default user that will be used to manage the server throughout.

To add a new user execute the following:

```
adduser -m rsmuser
```

```
passwd rsmuser
```

This will create a user with the 'rsmuser' username, along with a home directory at /home/rsmuser.
Password:rsmuser

5.5.2 SSH

It is recommended to enable SSH on the server. Make sure that the ssh server is installed and that is configured to start on boot up.

```
chkconfig --list | grep ssh
```

sshd should be 'on' at level 3,4 and 5.

If this is not the case run the following:

```
chkconfig --add sshd
```

```
chkconfig --level 3 sshd on
```

```
chkconfig --level 4 sshd on
```

```
chkconfig --level 5 sshd on
```

Lastly make sure the firewall has been configured to accept sshd. The following can be executed to allow this:

```
iptables --list
```

Check for the ACCEPT policy filter

e.g Chain ???? (policy ACCEPT)....

Then run

```
iptables -I ???? 2 -p tcp --dport 80 -j ACCEPT
```

Remember to save the iptables:

```
service iptables save
```

6 Installing RSM NMS

Copy the 'rsm_installer.run' to the machine. This can be done either by:

- ⑩ Copying it from a flash drive
- ⑩ Copying it from the DVD-Drive
- ⑩ Secure copying the file to the machine:
 - ↳ `scp rsm_installer.run rsmuser@<MachineIP>:/home/rsmuser`

6.1 Running installer

To install Glam onto the server execute the rsm_installer.run in the following manner:

```
./rsm_installer.run --keep
```

It is important to run the installer with the '--keep' flag as this will leave the installation files on the machine, which is used later to update the system.

6.2 Installation prompts

During the installation will be prompted for various information required for the installation. The default value is presented in '[]' and a confirmation question is followed afterwards.

The following is requested during the installation:

Name	Description
Installation root	This is the root directory that will hold the product application directory. In this case, this is where all the 'glam' applications will be installed. <i>Default: /usr/local</i>
Java home	Directory of the Java executable to use. <i>Default: /etc/alternatives/java_sdk</i>
Tomcat home	Home directory of Tomcat being used. <i>Default: /usr/share/tomcat6</i>
Tomcat webapps directory	Directory Tomcat uses to keep all the web applications. <i>Default: /usr/share/tomcat6/webapps</i>
Tomcat logs directory	Directory Tomcat uses to keep all the log files. <i>Default: /usr/share/tomcat6/logs</i>
Is tomcat managed by a service	The next prompt asks if Tomcat can be managed through a service. It is important to enter 'y' when using CentoOS as the default is 'n'. <i>Default: n</i>
Name of the Tomcat service	If Tomcat can be managed by a service this prompt request the name of the service to use. <i>Default: tomcat6</i>
MySQL client	The next prompt is the request on what application should be used to manage MySQL. <i>Default: mysql</i>
**If you need to start over the process delete the /var/lib/pakman directory and run the installation script again	
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6.3

6.4 Installation process

The following is performed once the installation process begins:

1. MySQL server is started, if required you might need to enter the MySQL root user password.
2. The most recent version of the database installation script is found and executed.
3. Applications are installed into the specified product directory.
4. Tomcat services are copied across.
5. Tomcat is stopped.
6. Additional required libraries are copied to the services and/or tomcat.
7. Tomcat is started
8. Post service installation scripts are run
9. The client URL will be requested, this is the URL the client application will use to contact the services installed. For example, *http://10.0.0.1:8080/*
10. Tomcat is restarted

6.5 Tomcat configuration

Additional configuration might be required for tomcat. To give some additional memory for all the task it will be performing it is advised to add the following to its JAVA_OPTS field: in */usr/local/tomcat6/conf/tomcat6.conf*

```
JAVA_OPTS="-Djava.awt.headless=true -Dfile.encoding=UTF-8 -server -Xms1536m -Xmx1536m -XX:NewSize=256m -XX:MaxNewSize=256m -XX:PermSize=256m -XX:MaxPermSize=256m -XX:+DisableExplicitGC"
```

6.6 Firewall setup

After the installation process the following ports need to be opened:

Port	Protocol	Description
8080	tcp	Tomcat port
80	tcp	Http server port
3306	tcp	MySQL port
162	udp	SNMP Trap port
161	udp	Snmp port
694	Udp	Heartbeat -clustering

An example of an iptable command to perform this looks as follows:

```
iptables -I INPUT 2 -p <protocol> --dport <port> -j ACCEPT
```

**NOTE: The 'INPUT' has to be the correct ACCEPT policy chain filter name, to confirm this run iptables --list*

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e.g Chain ???? (policy ACCEPT)....

Remember to save the iptables once they have been configured as desired:

```
service iptables save
```

6.7 Service configuration

Make sure the following service have been configured to start on boot up

(*chkconfig --list | grep <service>*):

1. mysqld
2. tomcat6
3. hnmd
4. rsm_and

These service should be 'on' at level 3,4 and 5.

If this is not the case run the following:

```
chkconfig --add <service>
chkconfig --level 3 <service> on
chkconfig --level 4 <service> on
chkconfig --level 5 <service> on
```

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8 RSM Cleaner

RSM Cleaner will delete system log files older than a week. As this log file is only to show the system is doing something we do not require more information regarding this.

Ensure that a CRON job was created during the installation process. The installer should place a cron file in */etc/cron.d/* running the cleaner script at 23:00 everyday.

9 Client

RSM consist of a main application that serves as the container and the actual RSM client. The main container is located in */tomcat6/webapps/ROOT* whilst the actual client lives in */tomcat6/webapps/ROOT/apps*

The client configuration file is located in */tomcat6/webapps/ROOT/apps* and is named *'rsmContext.xml'*

10 Additional backup

The installer has an additional backup script that can be used to create a 7 day roll over backup of the database. This script needs to be added as a cron job for it to work, this is done as follows:

- ⑩ Create the following directories in */home/glamadmin*:

- scripts
- backup
- ⑩ Copy the pakman/misc/backup/backup.sh script to the 'glamadmin' home folder, /home/glamadmin/scripts. Make sure it is executable (chmod a+x backup.sh)
- ⑩ Setup the cron job, 'crontab -e' with the following:
 - 0 23 * * * /home/glamadmin/scripts/backup.sh

11 SNMP

If SNMP monitoring of the processes have been requested there are scripts to retrieve the status of the required processes in the pakman/misc/snmp folder.

The example snmpd.conf can be used to configure the snmp agent accordingly.

END OF DOCUMENT