

NeuroLOG Server Installation and Administration Guide



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Summary:

This document is the NeuroLOG middleware installation and administration guide.

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Document history

Version	Date	Action	Comment
V0.01	April 14, 2009	Creation	Created as a copy of former installation guide
V0.02	Jul. 22 nd , 2009	Modification	Update Data Federator license key and additional fine tuning
V1.0	Dec. 22 nd , 2009	Modification	Major update including server install procedure, Data Federator and Tomcat scripts install.
V1.1	Feb. 24 th , 2010	Modification	Update Data Federator license key. Misc. updates and clarifications.
V1.2	Mar. 19 th , 2010	Modification	Minor updates and fixes during installation of site ASCLEPIOS.
			Add JRE security config.

1. Introduction

This document describes the procedure to deploy a new NeuroLOG registry or site server, that is:

- install the major third-party components: MySQL database server, Data Federator, Apache Tomcat;
- deploy the site server binaries;
- configure and deploy a NeuroLOG registry;
- configure and deploy a NeuroLOG site server.

Pre-requisites: to start this procedure, the user should be aware of the NeuroLOG project architecture, should be familiar with usual Linux administration (install package, create user account), MySQL administration, Apache Tomcat administration and web applications in general.

2. Installation procedure

2.1. Server fine tunings

The NeuroLOG server is hosted on an Linux Ubuntu server.

<u>/etc/hosts</u>

Verify or add that the /etc/hosts file contains the following line:

<public ip address> neurolog.mydomain.com neurolog

like for instance:

134.59.132.67 neurolog.unice.fr neurolog

The libraries below should only be installed if the Visioscopie viewer should be run on this server. Most NeuroLOG servers will not need this.

Mono librairies

From the Synaptic packages manager, add the Mono System Windows Forms library: libmono-winforms2-0.cli. Accept all dependent libraries.

<u>Mesa libraries</u>

Note from Visioscopie: this should be done by an experimented administrator as it may propose to remove libraries => to be done very carefully!

From the Synaptic packages manager, add the Mesa OpenGL Runtime library: libgl1-mesa-swx11-i686.cli. Accept all dependent libraries.

2.2. Java SE

NeuroLOG runs with the Java SE 6 environment. If it is not installed yet, download and install the last release of Java 6 from <u>http://java.sun.com/javase/downloads/widget/jdk6.jsp</u>.

Then, in the neurolog account environment, define the JAVA_HOME variable to the installation directory of the JDK. As an example, the following line is added to file HOME/.bashrc:

```
export JAVA HOME=/home/neurolog/Soft/jdk1.6.0 13
```

```
In file $JAVA_HOME/jre/lib/security/java.security, add the following line:
```

security.provider.9=org.bouncycastle.jce.provider.BouncyCastleProvider:

And in directory \$JAVA_HOME/jre/lib/ext, copy the two following jars:

```
bcprov-ext-jdk16-144.jar
```

bcprov-jdk16-144.jar

2.3. Install MySQL

2.3.1. On Windows XP / 2003 Server

2.3.1.1. Packages installation

The user needs administrator rights to perform the installation. Download and install the following packages (the version is the last one available at the date this document is written; you may choose to install later version).

File name	Comment
mysql-essential-5.0.51b-win32.msi	MySQL core package.
	http://dev.mysql.com/downloads/mysql/5.0.html#win32
	Follow the installation steps described here:
	http://maximilian.developpez.com/mysql/installation_m ysql5/
	Use login root and password root when requested to enter administrator identity.
mysql-gui-tools-5.0-r12-win32.msi	MySQL GUI tools: administrator, query browser, configuration wizard
	http://dev.mysql.com/downloads/mysql/5.0.html#win32
mysql-jdbc-connector-java-5.1.6.jar	JDBC driver that will be used by Data Federator and the NeuroLOG server to access the database.
	http://dev.mysql.com/downloads/connector/j/5.1.html

2.3.1.2. NeuroLOG user and database creation

Once MySQL is installed and running, create the *neurolog_meta* MySQL user and default schema, by following the steps below:

1. Connect on MySQL Administrator (root).

Mys	QL Administrator 1.2.12
M	Janinistrator
	Connect to MySQL Server Instance
	Stored Connection: root@localhost
	Server <u>H</u> ost: localhost Port: 3306
	Username: root
	Password:
	Details >> OK Clear Skip

2. Go to the section *Catalogs*, in the list of schemas, right click and select *Create new Schema*, enter the name *NeuroLOG_Metadata_<Sitename>* where *<Sitename>* stands for IRISA, I3S, GIN, etc.

Create new	Schema		X
	Please enter a n Schema name:	ame for the new schema.	
	OK	Cancel	

3. Go to section *User Administration*, click *Add new user*. Fill-in user information: username *neurolog_meta*, password *<your choice>*, click *Apply Changes*.

MySQL Administrator - Connection: root@localhost				
File Edit View Tools Window M Server Information Service Control	User Information Schema Privileges Resources			
Startup Variables	Login and additional information on the user			
Server Connections	Login Information MySQL User: The user has to enter this MySQL User name to connect to the MySQL Server			
Server Logs	Password: XXXXXXXXXX Fill out this field if you want to set the user's password Confirm Password: XXXXXXXXXXX Again, enter the user's password to confirm			
Restore Catalogs	Additional Information Full Name: NeuroLOG database user The user's full name			
Users Accounts	Description: Additional description of the user			
<u> </u>	Email: The user's email address			
Reurolog_meta InlogIRISA Inlogreg root	Contact Information: Optional contact information			
	Add <u>n</u> ew user <u>Apply changes</u> <u>Discard cha</u>	inges		

4. On tab *Schema Privileges*, select schema *NeuroLOG_Metadata_<Sitename>*, and give the user all rights on this schema, and click *Apply Changes*.

5. Verify the user is ok by connecting to *MySQL Query Browser* using user *neurolog_meta* and schema *NeuroLOG_Metadata_<Sitename>:*

MyS	QL Query Browser 1.2	.12 X
Q	uery Browser	7
	Connect to MySQL Ser	ver Instance
	Stored <u>C</u> onnection:	root@localhost 💽
	Server <u>H</u> ost:	localhost Port 3306
	<u>U</u> sername:	neurolog_meta
	<u>P</u> assword:	****
	Default <u>S</u> chema:	Neurolog_Metadata_IR
	<u>D</u> etails >>	<u>D</u> K Clear Cancel

2.3.2. On Linux Ubuntu

2.3.2.1. Packages installation

In Linux Ubuntu distribution, packages must be installed using the Synaptic Package Manager (see Figure 1).

Use *root* when requested to enter administrator identity. Additional information may be found here: <u>http://maximilian.developpez.com/mysql/installation_mysql5/</u>

	Gestionnaire de paquets Synaptic				
<u>F</u> ichier É <u>d</u> ition <u>P</u> aquet	<u>F</u> ichier É <u>d</u> ition <u>P</u> aquet <u>C</u> onfiguration <u>A</u> ide				
C Recharger Tout mett	re à jour Appliquer Propriétés	Rechercher			
Toutes	Él Paquet	Version installée	Dernière version	Description	
mysql	🗌 mylvmbackup		0.6-4	quickly creating backups of MySQL	
	🔲 mysql-admin	5.0~rc12-2ubuntu1	5.0~rc12-2ubuntu1	GUI tool for intuitive MySQL admin	
	🔲 🤤 mysql-client	5.0.51a-3ubuntu5.1	5.0.51a-3ubuntu5.1	MySQL database client (meta pac	
	🔲 🤤 mysql-client-5.0	5.0.51a-3ubuntu5.1	5.0.51a-3ubuntu5.1	MySQL database client binaries	
	🔲 🧐 mysql-common	5.0.51a-3ubuntu5.1	5.0.51a-3ubuntu5.1	MySQL database common files	
	mysql-doc-5.0		5.0.56-0ubuntu1	MySQL database documentation	
	mysql-gui-tools-common	5.0~rc12-2ubuntu1	5.0~rc12-2ubuntu1	Architecture independent files for	
	mysql-navigator	1.4.2-10	1.4.2-10	GUI client program for MySQL data	
	mysql-proxy		0.6.0-1	proxy for high availability, load bala	
	mysql-query-browser	5.0~rc12-2ubuntu1	5.0~rc12-2ubuntu1	Official GUI tool to query MySQL da	
	🔲 🧔 mysql-server	5.0.51a-3ubuntu5.1	5.0.51a-3ubuntu5.1	MySQL database server (meta pa	
	🔲 🧔 mysql-server-5.0	5.0.51a-3ubuntu5.1	5.0.51a-3ubuntu5.1	MySQL database server binaries	
	mysaltcl		3 02-1	Interface to the MVSOL database f	
		• *		•	
	MySQL database server bina	nies 😪			
<u>C</u> atégories	MySQL is a fast, stable and true mult	ti-user, multi-threade	d SQL database ular databasa guan		
État					
ease of use.					
Origine					
Eiltres This package includes the server and ndb-cluster binaries.					
<u>R</u> echerches					
300 paquets listés, 1189 installés, 0 cassés. 0 à installer ou mettre à jour, 0 à désinstaller					

Figure 1. MySQL Packages

Allow MySQL Administrator run to as super user

Once installed, the MySQL Administrator application shortcut must be changed in order to run as super user.

- Run the Main Menu Manager: sudo alacarte
- Get the short cut Applications > Programmation > MySQL Administrator:

2	Menu principal
<u>M</u> enus :	É <u>l</u> éments :
🗢 🌆 Applications	Afficher Élément
以 Accessoires	MySQL Administrator
🔇 Accès universel	MySQL Query Browser
Autre	Outil de rapport d'anomalies Bug l Nouveau <u>s</u> éparateur
🙀 Bureautique	Python (v2.5)
🧰 Debian	Propriétés du lanceur X
téducation	
🔏 Graphisme	
🗢 🥪 Internet	Mom : MySQL Administrator
MX Client for	<u>C</u> ommande : gksudo /usr/bin/mysql-a Parcourir
jeux	Commentaire : MySQL Administration Tool
🎯 Outils système	
👌 Programmation	
50n et vidéo	
🗢 💥 Système	
(?) Aid <u>e</u>	Bétablir Eermer

Change the properties of the shortcut: replace the command by

gksudo /usr/bin/mysql-admin

Allow MySQL to listen for incoming connections

Edit the MySQL configuration file:

sudo vi /etc/mysql/my.cnf

Change the bind-address parameter as follows :

bind-address = 0.0.0.0

NeuroLOG user and database follow the procedure described in 2.3.1.2.

2.3.2.2. Configuration

Using the MySQL Administrator tool, configure the database instance to use the InnoDB engine.

Note: when Hibernate imports a schema from an existing database, it seems that it can't see foreign keys when the database uses the Mylsam engine, although this works fine with InnoDB.

TBC: tune parameters for a server configuration.

2.4. Install Data Federator

Data Federator is currently provided as two archives, available at the following URLs:

- 1. <u>http://neurolog.unice.fr:64000/~neurolog-test/datafederator/DF_XI_3.0-</u> 12.1.0.0.SP1_Dev_RC4.zip
- 2. <u>http://neurolog.unice.fr:64000/~neurolog-test/datafederator/DF_XI_3.0-12.1.2.0-SP1_FixPack2.zip</u>

Below is a simple installation procedure. For further installation details or issues, please refer to the installation guides included in each archive.

2.4.1. On Windows XP / 2003 Server

Install the Data Federator middleware:

- 1. Uncompress the archive DF_XI_3.0-12.1.0.0.SP1_Dev_RC4.zip into directory C:\tmp (or any temporary directory with enough room ~2 GB).
- 2. From a file explorer, run file
 C:\tmp\DF_XI_3.0-12.1.0.0.SP1_Dev_RC4\32-bit\InstData\Windows\VM\install.exe
- 3. When requested, enter use the following license number (valid until Sept. 2010): C1R0K-M5UZAN7-001EEBD-AVYZ
- 4. Select the *Typical* installation mode. Accept the default installation directory, hereafter referred to as <DF_install_dir>:

C:\Program Files\Business Objects\BusinessObjects Data Federator

12

- 5. Uncompress the archive DF_XI_3.0-12.1.2.0-SP1_FixPack2.zip into directory C:\tmp (or any temporary directory with enough room ~200 MB).
- 6. From a file explorer, run file C:\tmp\DF_XI_3.0-12.1.2.0-SP1_FixPack2\win-32\install_fixpack_2.exe

Start and stop Data Federator:

Data Federator is installed as a Windows service, and thus starts automatically. Use the services panel to stop and start the service.

2.4.2. On Linux Ubuntu

Create the following Linux user, with default desktop user privileges:

Login	neurolog
Password	<your choice=""></your>
Group	neurolog

Log in as user *neurolog*, and run the installation procedure:

Install the Data Federator middleware:

1. Uncompress the archive DF_XI_3.0-12.1.0.0.SP1_Dev_RC4.zip into directory /tmp (or any temporary directory with enough room ~2 GB).

2. From a shell, run file

/tmp/DF_XI_3.0-12.1.0.0.SP1_Dev_RC4/32-bit/InstData/Linux/VM/install.bin

- 3. When requested, enter use the following license number (valid until Sept. 2010): C1R0K-M5UZAN7-001EEBD-AVYZ
- 4. Select the *Typical* installation mode. Change the default installation directory, hereafter referred to as <DF_install_dir> to:

```
~/Soft/Business Objects/Data_Federator_12
```

- 5. Uncompress the archive DF_XI_3.0-12.1.2.0-SP1_FixPack2.zip into directory /tmp (or any temporary directory with enough room ~200 MB).
- 6. From a shell, run file /tmp/DF_XI_3.0-12.1.2.0-SP1_FixPack2/linux-32/install_fixpack_2.bin

Start and stop Data Federator:

Use the following command to start Data Federator servers:

~/Soft/Data_Federator_Links/Data_Federator_Servers_Startup

Use the following command to stop Data Federator servers:

~/Soft/Data_Federator_Links/Data_Federator_Servers_Shutdown

2.4.3. Post-install configuration

2.4.3.1. Install the MySQL JDBC driver

1. MySQL JDBC driver is available at

http://dev.mysql.com/downloads/connector/j/5.1.html.

2. Copy the last MySQL connector file (mysql-connector-java-5.1.6-bin.jar at the time this document is to written) into directory

<DF_install_dir>/LeSelect/drivers

 Connect to Data Federator Administrator at <u>http://server_hostname:3080/</u> as user sysadmin, default password is sysadmin:

Select Administration pane > Connector Settings > Resource > jdbc.mysql. Set property driverLocation to drivers/mysql-connector-java-5.1.6-bin.jar.

🖉 Data Federator Query Server Ad	ministrator - Microsoft Internet Explorer	
<u> </u>	is <u>O</u> utils <u>?</u>	Ar
Précédente 🔹 🕥 👻 📘	💈 🏠 🔎 Rechercher 🛛 🛧 Favoris 🤸	🔗 🗟 · 😓 🗷 · 📙 鑬 🚳
Adresse Attp://localhost:3080/lang	uage/en/main.html;jsessionid=x41t25xotfnf	💌 芛 ок
Liens 🙋 DF Query Server Administrate	or 🙋 DF Designer	
DATA FEDERATOR Q Objects My Query Tool	UERY SERVER ADMINISTRA	TOR Business Objects Connected as user 'sysadmin' Logout
Server Status Query Manager Connector Settings User Rights	Resource: jdbc.mysql	
Configuration	Property Name	Property Val
P	X capabilities	isJDBC=true;outerJoin=false;leftOuterJoin=true;rightOuterJoin=true;orc
	X driverLocation	drivers/mysql-connector-java-5.1.6-bin.jar
	X driverProperties	useUnicode=true;characterEncoding=utf8
	X jdbcClass	org.gjt.mm.mysql.Driver
	X sessionProperties	character_set_results=@@session.character_set_client
	× sourceType	mysql
	X supportsSchema	no
	X urlTemplate	jdbc:mysql:// <hostname>[:<port>]/<databasename></databasename></port></hostname>
	Add a property	
🛃 Terminé		Intranet local

2.4.3.2. Set the server IP

Data Federator listens on one interface only of the host. As a default, it may be the localhost interface (127.0.0.1), which prevents any connection from another host. Therefore the server must be configured to listen on the public IP address.

 Connect to Data Federator Administrator at http://server_hostname:3080/ as user sysadmin, default password is sysadmin: Select Administration pages - Configuration - System Parameter

Select Administration pane > Configuration > System Parameter

- Set property comm.jdbc.connIP to the host public IP address of your server.
- Set property core.bufferManager.maxConcurrentQueries to 10.
- Click Ok to validate the changes.

🙆 Data Federator Query Se	rver Administrator - Microsoft Intern	et Explorer			
Eichier Edition Affichage Fayoris Qutils 2					
🕒 Précédente 🔹 🛞 🖌 🔎 Rechercher 🤺 Favoris 🚱 🔗 + 🍃 🗹 🖌 🎉 🔉					
Adresse 🛃 http://neurolog.iri	isa.fr:3080/language/en/main.html;jsession	id=2km2tuue7i1bw		🗾 🄁 ок	
Liens 🛅 DataFederator 🗎	neurolog.unice.fr			🔩 -	
DAIA FEDERAIO	OR QUERY SERVER ADMI	NISTRATOR		Business Objects	
Objects My Query To	ool Administration			Connected as user sysadmin Logout	
Server Status	System Parameters Session F	Parameters Startup Parameters	System Properties		
Connector Settings	Parameter Name	Value	Origin of Value	Configured Value	
User Rights	comm.CORBA.conn.closeOnFault.delay	1080	system_default 1080		
Statistics	comm.CORBA.statement.closeOnFault. delay	60	system_default 60		
	comm.HTTPNew.port	3080	system 3080		
	comm.jdbc.SSLconnPort	5514	system_default 5514		
	comm.jdbc.connIP	131.254.215.16	system 131.25	54.215.16	
	comm.jdbc.connPort	5512	system_default 5512		
	comm.jdbc.port	3055	system_default 3055		
	comp	binary	system_default binary		
	core.bufferManager.bufferSize	128	system_default 128		
	core.bufferManager.executorMemory	80%	system_default 80%		
	core.bufferManager. executorStaticMemory	25%	system_default 25%		
	core.bufferManager. maxConcurrentOperatorsPerQuery	5	system_default 5		
	core.bufferManager. maxConcurrentQueries	10	system 10		
	core.common.defaultDecimalPrecision	27	system_default 27		
	core.common.defaultDecimalScale	6	system_default 6		
	core.common.maxDecimalPrecision	40	system_default 40		
Tauminé	core common			Tatamat	

2. Restart the server for the change to be taken into account.

2.4.3.3. Change the administrator default password

Connect to Data Federator Administrator again, select *User Rights* pane and change the *sysadmin* user parameters.

Change the password to *<your choice>*. See the picture below.

🚰 Data Federator Query Server Administrator - Microsoft Internet Explorer	
Eichier Edition Affichage Favoris Qutils ?	
💽 😋 Précédente 🔹 🕥 - 💌 😰 🏠 🔎 Rechercher Favoris 🤣 🔗 - چ 📨 - 🗔 🕻	1 🚳
Adresse 🖉 http://localhost:43080/language/en/main.html;jsessionid=50o4itmkne2hc	💌 🄁 ок
Liens 🛅 DataFederator 🛅 neurolog.unice.fr] 🔩 👻
DATA FEDERATOR QUERY SERVER ADMINISTRATOR	
Objects My Query Tool Administration	Connected as user 'sysadmin' Logout
Server Status User Accounts Roles Privileges	
Connector Settings	Granted Roles
Leeneral Sysadmin Password Configuration	
III Statistics III is an administrator C Enter new password	
© None	
C Select an existing catalog C Select an existing schema	
C Enter path of catalog C Enter schema name	
Privilege on Default Catalog	
Grant SELECT privilege on reader	
OK	
	-
E Terminé	Intranet local

2.4.3.4. Additional user accounts

Later on, when the mappings will be deployed, 2 additional DF users must be defined (replace SITE with the name of the site on which DF is installed):

- **localSITE**, default catalog localSITE, default schema targetSchema
- neurologSITE, default catalog globalSITE, default schema targetSchema
 Both shall have as password the administrator password that will be defined when the middleware is installed on the site (see §2.9, step 4).

2.4.3.5. Install the stop/start script

On Linux, as super user, create the following script with name: /etc/init.d/datafederator.

```
!/bin/bash
# description: Starts and stops the Data Federator servers
# Basic support for RedHat style chkconfig
# chkconfig: 35 98 01
DF_ROOT='/home/neurolog/Soft/Business_Objects/Data_Federator_Links'
```

```
[ -f $DF ROOT/Data Federator Servers Startup ] || { echo "ERROR:
$DF_ROOT/startup.sh doesn't exist" ; exit 1; }
   start()
    {
     $DF ROOT/Data Federator Servers Startup
    }
   stop()
    {
     $DF_ROOT/Data_Federator_Servers_Shutdown
     kill -9 `ps -ef | grep Business_Objects | grep -v grep | awk '{print
$2}'`
   }
   restart()
    {
     $DF_ROOT/Data_Federator_Servers_Shutdown
     kill -9 `ps -ef | grep Business_Objects | grep -v grep | awk '{print
$2}'`
     $DF_ROOT/Data_Federator_Servers_Startup
    }
   case "$1" in
    'start')
     dfProcId=`ps -ef | grep Business_Objects | grep -v grep | awk '{print
$2}'`
     if [[ ($dfProcId != "") ]]
     then
       echo "Service already running."
      else
       start
      fi
      ;;
    'stop')
     dfProcId=`ps -ef | grep Business Objects | grep -v grep | awk '{print
$2}'`
     if [[ ($dfProcId == "") ]]
     then
       echo "Service is not running."
      else
        stop
      fi
      ;;
    'restart')
     dfProcId=`ps -ef | grep Business Objects | grep -v grep | awk '{print
$2}'`
     if [[ ($dfProcId == "") ]]
```

```
then
   echo "WARNING: Service was already stopped, trying to start."
   start
  else
   restart
  fi
  ;;
'status')
 procId=`ps -ef | grep Business Objects | grep -v grep | awk '{print $2}'`
 if [[ ($procId == "") ]]
 then
   echo "Service is not running."
  else
   echo "Service is running."
 fi
 ;;
*)
 echo "Usage: $0 {start|stop|restart|status}"
 exit 1
  ;;
esac
```

Then, give this file the execution rights, and register the service.

On Ubuntu:

```
chmod 755 /etc/init.d/datafederator
sudo update-rc.d datafederator defaults
```

On Fedora:

```
chmod 755 /etc/init.d/datafederator chkconfig --add datafederator
```

2.4.4. Configure a database client

Data Federator comes with a JDBC driver, so that it is possible to configure a usual database client to access to it as any other database. This section provides a way to configure the connector to Data Federator for two examples of SQL clients, namely DB Visualizer and Squirrel SQL. This is not a mandatory step, this is not an installation procedure: for installation, refer to the appropriate documentation.

2.4.4.1. DB Visualizer

The following describes the configuration steps for the DB Visualizer client (<u>http://www.minq.se/products/dbvis/</u>). See further details at <u>http://www.dbvis.com/products/dbvis/doc/6.0/doc/ug/getConnected/getConnected.html</u>.

1. Add the Data Federator driver:

Select menu Tools > Driver Manager: opens the Driver Manager window.

Select menu *Driver* > *Create Driver*.

Name: DataFederator, URL format: jdbc:datafederator.

In Driver File Paths, open <DF_install_dir>/JdbcDriver/lib/thindriver.jar.

The Driver Manager automatically finds the dependent jars and the driver class name, as shown below:

💐 DbVisualizer Personal - Driver Manager	2	ĸ
Driver Edit View		
🛛 🌆 🎥 🍋 🖓 🎝 🖓 🖍 💙 🔯		
Driver Name	Driver Settings	1
🖉 🎍 Data Federator 📃	Name: Data Federator	
C Daffodil DB	IDI Exmatu idex.datafadaratar	
🖉 DB2		
DB2 (DataDirect)	Driver Class: JP LeSelect. ThinDriver. ThinDriver	
DB2 for A5/400 (JTOpen)	Driver Version: 12.0	
Eirebird		
E FrontBase	🟴 - JDBC Driver 🛷 - JNDI Lookup	
HP Neoview	Duiver Ele Datha	
K HSQLDB server		
K HSQLDB embedded	User Specified System Classpath	
	C:\Program Files\Business Objects\BusinessObjects Data Federator 12\JdbcDriver\lib\thinc	
Informix (DataDirect)	PLeSelect.ThinDriver.ThinDriver	
JavaDB/Derby server	Com.businessobjects.datafederator.jdbc.DataFederatorDriver	
JavaDB/Derby embedded	· · · · · · · · · · · · · · · · · · ·	
DataStore		
JDBC/ODBC Bridge		
MaxDB	Show Full Path	
🚢 = Custom Driver		
	Close	
		1

2. Add a connection to Data Federator:

In the connections list, manually configure the connection (don't use the wizard), for instance:

URL: jdbc:datafederator://localhost:3055/globalI3S

User: neurolog-test

Password: <some pwd>

Note: the url //localhost:3055/neurolog is provided by Data Federator Designer in the project configuration when it is deployed.

2.4.4.2. Squirrel SQL

The Squirrel SQL client can be downloaded freely at http://www.squirrelsql.org/.

1. Add the Data Federator driver:

Select the *Drivers* tab, add a driver, and fill the parameter as shown below.

From the *Extra Class Path* tab, add the DataFederator driver from <DF_install_dir>/JdbcDriver/lib/thindriver.jar.

Click *List Drivers*, this automatically finds the driver class name *LeSelect.ThinDriver.Thindrier*. Click ok.

🔌 Add Driver	×
Add Driver	
Driver	
Name: DataFederator	
Example URL: jdbc:datafederator:// <hostname>[<:3055>]/<dbname></dbname></hostname>	
Website URL:	
Java Class Path Extra Class Path	
bjects\BusinessObjects Data Federator 12\JdbcDriver\lib\thindriver.jar	List Drivers
	Up
	Down
	Add
	Delete
Class Name: LeSelect.ThinDriver.ThinDriver	•
OK Close	

2. Add a connection to Data Federator:

In the *Aliases* tab, add a connection, for instance:

URL: jdbc:datafederator://localhost:3055/globalI3S

User: neurolog-test

Password: <some pwd>

✓ DataFederator
jdbc:datafederator://localhost:3055/globalNiceTest
neurolog-test
•••••
Connect at Startup
🛱 Properties
ords are saved in clear text

2.5. Uninstall Data Federator

If Data Federator should be uninstalled for some reason, note that the uninstall may fail due to the presence of the fix pack 2, for which there is no uninstallation procedure. In this case, do the following:

- Stop Data Federator
- Remove installation directory \$HOME/Soft/Business_Object
- Remove directory \$HOME/.datafederator
- Remove file \$HOME/.com.zerog.registry.xml

Then restart the install procedure as described in section 2.4.

2.6. Install and configure Apache Tomcat

2.6.1. Deploy Apache Tomcat

Follow the steps below:

- Unpack the last official archive of Tomcat 6 (current version is v6.0.18 at the time this document is written).
- Set the environment variable \$CATALINA_HOME to the directory of the unpacked Tomcat.
- Update the conf/tomcat-users.xml as follows:

```
<tomcat-users>

<role rolename="manager"/>
<role rolename="tomcat"/>
<role rolename="admin"/>
<user username="tomcat" password="<a password>"
roles="tomcat"/>
<user username="admin" password="<a password>"
roles="admin,manager"/>
</tomcat-users>
```

• When deploying Tomcat under Linux, add the jar responsible for java annotations in the Tomcat classpath in conf/catalina.properties:

shared.loader=/home/neurolog/Soft/jdk1.6.0_10/lib/*.jar

(Replace this path with the appropriate path of your jdk).

 Give the execution rights to the scripts below in the \$CATALINA_HOME/bin directory:

```
cd $CATALINA_HOME/bin
chmod 755 catalina.sh shutdown.sh startup.sh setclasspath.sh
```

2.6.2. Install the stop/start script

On Linux, as super user, create the following script with name: /etc/init.d/neurolog, and if necessary update the values in bold.

```
#!/bin/bash
# description: Starts and stops the Tomcat server for NeuroLOG
# Basic support for RedHat style chkconfig
# chkconfig: 35 99 01
export HOME=/home/neurolog
```

```
export CATALINA HOME=${HOME}/Soft/apache-tomcat-6.0.18
   export CATALINA PID=${CATALINA HOME}/bin/pid
    [ -f $CATALINA_HOME/bin/startup.sh ] || { echo "ERROR:
$CATALINA HOME/bin/startup.sh doesn't exist" ; exit 1; }
   start()
   {
     $CATALINA HOME/bin/startup.sh
   }
   stop()
   {
     $CATALINA HOME/bin/shutdown.sh -force
   }
   restart()
   {
     $CATALINA HOME/bin/shutdown.sh -force
     $CATALINA HOME/bin/startup.sh
   }
   case "$1" in
   'start')
     procId=`ps -ef | grep tomcat | grep -v grep | awk '{print $2}'`
     if [[ ( $procId != "") ]]
     then
       echo "Service already running."
     else
       start
     fi
     ;;
    'stop')
     procId=`ps -ef | grep tomcat | grep -v grep | awk '{print $2}'`
     if [[ ($procId == "") ]]
     then
       echo "Service is not running."
     else
       stop
     fi
     ;;
    'restart')
     procId=`ps -ef | grep tomcat | grep -v grep | awk '{print $2}'`
     if [[ ($procId == "") ]]
     then
       echo "WARNING: Service was already stopped, trying to start."
       start
```

```
else
   restart
  fi
  ;;
'status')
 procId=`ps -ef | grep tomcat | grep -v grep | awk '{print $2}'`
 if [[ ($procId == "") ]]
 then
   echo "Service is not running."
  else
   echo "Service is running."
  fi
  ;;
*)
  echo "Usage: $0 {start|stop|restart|status}"
 exit 1
  ;;
esac
```

Then, give this file the execution rights, and register the service.

On Ubuntu:

```
chmod 755 /etc/init.d/neurolog
sudo update-rc.d neurolog defaults
```

On Fedora:

```
chmod 755 /etc/init.d/neurolog chkconfig --add neurolog
```

2.7. Configure the server environment

In the following, the variable \$HOME or \${HOME} is the home path of the Linux account that runs the NeuroLOG server. Frequently it should be /home/neurolog.

Create directory \$HOME/bin and add it to the \$PATH environment variable.

2.7.1. Deploy server binaries

2.7.1.1. Create directories

First, create the following directories. The \$HOME variable denotes the home of the neurolog account on the NeuroLOG server:

```
$HOME/.neurolog
$HOME/.neurolog/lib
$CATALINA HOME/site
```

2.7.1.2. From a development environment:

This procedure assumes that the development environment is installed on the server.

Copy all files in \$HOME/NetBeansProjects/NeuroLOG/NeuroLOG_Middleware/bin into directory \$HOME/bin.

Copy all files in \$HOME/NetBeansProjects/NeuroLOG/NeuroLOG_Registry/bin into directory \$HOME/bin.

Run the deploy site.sh script to copy all needed binaries.

2.7.1.3. Without the development environment:

A specific script can be made to deploy a new server from an existing one, through the secured copy command: scp. As an example, use the script deploy_site_GIN.sh on the IRISA server.

2.7.2. Global configuration file: server.config

Configuration properties of the server software are set in properties files, bundled in the middleware jar. Any property may be overridden in the server.properties (site server, web services server and registry).

During the server installation procedure, this server.properties file is created with appropriate properties values. They can be manually modified later on.

2.7.3. Cron configuration

As the super user (sudo) update or create the file /etc/cron.allow by adding a line listing the current user name.

2.7.4. Grid certificates

As root or sudo user, copy file

\$HOME/NetBeansProjects/NeuroLOG/NeuroLOG_Middleware/bin/grid-security.tar into directory /etc and untar it:

```
cd /etc
tar xvf grid-security.tar
```

Copy the shell script clear_tempfiles.sh from the NeuroLOG distribution into directory \$HOME/bin. Edit the user crontab using the command: crontab -e, and add the following line:

1,16,31,46 * * * * /home/neurolog/bin/clear_tempfiles.sh

If needed, replace directory /home/neurolog with the appropriate home directory of the user running the NeuroLOG server.

2.7.5. Enable per-user web sharing

To allow for sharing of files through the Apache web server, the NeuroLOG server must be allowed to share file in the usual public_html directory.

- Create directory \$HOME/public_html.

On Fedora:

- Edit /etc/httpd/conf/httpd.conf.
 - Comment out the line UserDir disable,
 - change the UserDir option to public_html,
 - restrict the rights as follows:

```
<Directory /home/*/public_html>
        AllowOverride FileInfo AuthConfig Limit
        Options MultiViews IncludesNoExec
</Directory>
```

- Execute service httpd reload

On Ubuntu:

```
cd /etc/apache2/mods-enabled
sudo ln -s ../mods-available/userdir.conf userdir.conf
sudo ln -s ../mods-available/userdir.load userdir.load
sudo /etc/init.d/apache2 restart
```

- In the /etc/apache2/mods-available/userdir.conf file, restrict rights as follows:

```
<Directory /home/*/public_html>
AllowOverride FileInfo AuthConfig Limit
Options MultiViews IncludesNoExec
</Directory>
```

- Execute service apache2 reload

2.8. Deploy and configure the a root CA and registry server

To start the procedure, run the script \$HOME/bin/nlog_registryconfig.sh.

🛃 Registry setup	Step 1. The root site define
Registry setup X	Step 1. The root site defining 2 components: the Neuserver, and the NeuroLOG Authority.
Cancel Next >	

ned here consists euroLOG Registry G Root Certificate

🙆 Registry setup	×	Step 2	2. These	are the defau	ult setting	s to
Enter NeuroLOG registry bindings information.		create	e a registr e.	y server on th	ie root se	rver
		For hostna	a local ame to loc	installation, calhost.	simply	set
Registry service protocol	https					
Registry service host	neurolog.unice.fr					
Registry service port	8442					
Registry service path	NeuroLOG_Registry-1.0-SNA					
Registry service name	RegistryService.RegistryPort					
Unsecure registry service protocol	http					
Unsecure registry service host	neurolog.unice.fr					
Unsecure registry service port	8080					
Unsecure registry service path	NeuroLOG_Registry-1.0-SNA					
Unsecure registry service name	UnsecureRegistryService.Un					
Cancel	< Previous Next >					

🕌 Registry set	up 🔀
Enter system	n administrator information.
lleor namo	De siste Administrator
User name	Registry Administrator
Login	root
Password	·····
Confirmation	•••••
Phone	04 92 96 51 03
Email	johan@i3s.unice.fr
	r
	Cancel < Previous Next >

Step 3. The registry administrator password will be used not only to log into the registry, but also as a pass-phrase to protect the self-signed Root CA certificate.

🕌 Registry setup	Step 4.
Registry setup The connection to the MySQL DataBase server will be tested. If needed, start your MySQL server now.	Step 4.
Cancel < Previous Next >	<u></u>

🕌 Registry setup

Enter database server connection parameters. The root SQL account will be used to create a new database and a neurolog user with all access right to this database. Enter the root SQL password below. Adapt the other connectivity parameters if needed.

×

SQL root password	•••••
SQL user login	nlogreg
SQL server	localhost
SQL server port	3306
DataBase name	NeuroLOG_Registry
	Cancel < Previous Next >

Step 5. An MySQL user and schema must be created to store the registry information.

DataBas	e reset confirmation
	The NeuroLOG_Registry database already exists in your SQL server. Are you sure you want to proceed?. Proceeding further will delete the database content. Or click the NO option to keep this existing database as is and continue.

Step 6. This message may occur if you have already installed a registry server before. Answer No to keep the registry database as is, and go on. Answer Yes only if you are sure that there is no important data in it.

Registry setup X The root Certificate Authority (CA) will now be created.	Step 7. The NeuroLOG Root CA will b responsible for signing the site server certificates.				
	The certificate of the Root CA is self- signed.				
Cancel < Previous Next >					

🕌 Registry setup	×	Step 8. The Root CA distinguished
Enter Root CA distinguish information.		information will be part of the Root CA certificate.
Country (2 letters)	FR	
Organization	CNRS	
Organization unit	ANR-06-TLOG-024 NeuroLOG	
CA Name	NeuroLOG Root CA	
	Cancel < Previous Next >	

🕌 Registry setup	Step 9. This "server certificate" is here to
Registry setup X The server certificate will now be created and signed.	Step 9. This "server certificate" is here to be understood as the certificate of the registry server administrator.
Cancel < Previous Next >	

🕌 Registry setup	×	Step 10. The distinguished information will
Enter administrato	r certificate distinguish information.	be part of the certificate of the registry administrator.
Country (2 letters)	FR	
Organization	CNRS	
Organization unit	ANR-06-TLOG-024 NeuroLOG	
Administrator name	NeuroLOG Registry	
	Cancel < Previous Next >	

🛓 Registry setup	Step 11. In this step, the Root CA will be
nlog's certificate now needs to be signed by the CA. In	used to sign the registry administrator
a terminal, execute the following command.	Note: on Windows, execute the three lines
cd "C:\Documents and Settings\fmichel\.neurolog"	one after the other (cd, openssl x509,
openssl x509 -reg -in "C:\Documents and	openssl ca…).
Settings\fmichel\.neurolog/nlog.csr" -CA	
"C:\Documents and Settings\fmichel\ neurolog/plog_cacert nem" -CAkey	In both openssl commands, use the same
"C:\Documents and	3.
Settings\fmichel\.neurolog/nlog_cakey.pem" -out	
-days 365 -CAcreateserial -CAserial "C:\Documents	
and Settings\fmichel\.neurolog/nlog_ca.seq"	
openssl ca -gencrl -cert "nlog_cacert.pem" -keyfile	
"nlog_cakey.pem" -out "nlog_ca.crl" -config openssl.cnf	
enter your password when prompted and click the next	
button.	
Cancel < Previous Next >	

Registry setup Set up server options.	×	Step 12. Directories listed here may not exist yet, but the application should be able to read and write them.
Temporary files directory	/tmp	
Log file	me/neurolog/.neurolog/log/registry.log	
	Cancel < Previous Next >	

Warning X Directory '\home\neurolog\.neurolog\log' does not exist. Create? Qui	Step 13.
🗟 Registry setup	Step 14.
Registry setup succeded.	

ation
NeuroLOG Registry configuration complete. 1. Add the following services declarations in your tomcat configuration file (\$CATALINA_HOME/conf/server.xml): <service name="Unsecure"> <connector <br="" port="8080" protocol="HTTP/1.1">connectionTimeout="20000" /> <engine defaulthost="localhost" name="Unsecure"> <realm <br="" classname="org.apache.catalina.realm.UserDatabaseRealm">resourceName="UserDatabase"/> <host <br="" appbase="webapps" name="localhost">unpackWARs="true" autoDeploy="true" xmlValidation="false" xmlNamespaceAware="false"> </host> </realm></engine></connector></service> <service name="Registry"> <connector <br="" port="842" protocol="HTTP/1.1" sslenabled="true">maxThreads="150" scheme="https" secure="true" clientAuth="true" sslProtocol="TLS" keystoreFile="C.1Documents and Settings\fmichel\.neurolog/registry.key" keystoreFile="C.1Documents and Settings\fmichel\.neurolog/registry.key"</connector></service>
ОК

Cancel

_

< Previous

Terminate

Step 15. Follow the instructions in this last window: this aims at adding new Tomcat

contexts for the unsecured registry web application (8080, http), and the secure registry web application (https, 8442).

2.9. Deploy and configure a site server

To start the procedure, run the script \$HOME/bin/nlog_siteconfig.sh.

The snapshots below present all steps of the configuration in the case of the IRISA site. Change the values accordingly to your site.

Note that some snapshots are no longer up to date. In such cases, the notes will describe changes.



Site server setup	Step 2.
Enter new site connectivity information.	
Site name IRISA	The site name will be stored in the NeuroLOG Registry to identify the site. It will also be used to build default values for some parameters, like the site database schema.
SMTP host smtp.irisa.fr	The SMTP host is must be reachable from the NeuroLOG server.
,	
Cancel < Previous Next >	
Site server setup	Step 3.
An account will now be created for the site administrator.	

Cancel

< Previous

Next >

🔹 Site server setup 🗙					
Enter system administrator information.					
User name	Franck Michel				
Login	root				
Password	•••••				
Confirmation	•••••				
Phone	+33299842205				
Email	franck.michel@irisa.fr				
	Cancel < Previous Next	>			

Step 4. This is the administrator of the local NeuroLOG server. The administrator login will later be used to connect to the server through the NeuroLOG client.

The administrator **password** will be used not only to log into the server, but also as a **pass-phrase of the site certificate**.

_	Site server setup	Step 5
	Site server setup Site server setup The connection to the MySQL DataBase server will be tested. If needed, start your MySQL server now.	Step 5.
	Cancel < Previous Next >	

	<u>s</u>	ite server setup	Step 6.					
r a F	Enter database server connection parameters. The root SQL account will be used to create a new database and a neurolog user with all access right to this database. Enter the root SQL password below. Adapt the other connectivity parameters if needed.							
	SQL root password	•••••						
	SQL user login	nlogIRISA	Change t nlog <your s<="" th=""><th>the site>.</th><th>SQL</th><th>user</th><th>login</th><th>tc</th></your>	the site>.	SQL	user	login	tc
	SQL server	localhost	This login will be created along with site database which name is given at bottom of the window. It is not the s					
	SQL server port	3306	login as the NeuroLOG	e one	ndow. e used databa	to con	nect to (metad	me the ata
	DataBase name	NeuroLOG_SiteServer_IRISA	database).				Υ.	
		Cancel < Previous Next >						

<u>ی</u>	DataBase reset confirmation 🛛 🗙
	The NeuroLOG_SiteServer_ASCLEPIOS database already exists in your SQL server. Are you sure you want to proceed?. Proceeding further will delete the database content. Or click the NO option to keep this existing database as is and continue. Qui Non

Step 7. This message may occur if you have already installed a server before. **Answer No** to keep the site server database as is, and go on. Answer Yes only if you are sure that there is no important data in it.

4	DataBase reset confirmation
	The NeuroLOG_Metadata_ASCLEPIOS database already exists in your SQL server. Are you sure you want to proceed?. Proceeding further will delete the database content. Or click the NO option to keep this existing database as is and continue.
	Qui Non

Step 8. This message may occur if you have already installed the NeuroLOG database. **Answer No** to keep the NeuroLOG metadata database as is, and go on. Answer Yes only if you are sure that there is no important data in it.

📓 Site s	erver setup 🛛 🗙	
Which is the NeuroLOG Registry to connect to?		
Access protocol	hadan a	
Access protocor	Inttps	
Server	neurolog.unice.fr	
Port number	8442	
Sanvica noth	Neural OC Registry 1.0 SNARSUG	
Service paci	NeuroLOG_Registry-1.0-SNAFSHQ	
Service name	RegistryService.RegistryPort	
Unsecure access protocol	http	
Unsecure server	neurolog.unice.fr	
Unsecure port number	8080	
Unsecure service path	NeuroLOG_Registry-1.0-SNAPSHC	
Unsecure service name	UnsecureRegistryService.Unsecure	
Cance	I Crievious Next >	

Step 9.

Registry ports may change, thus the default values may be wrong. Check the right ports first with people managing the registry in I3S.

At the time this document is been written, the current registry of the NeuroLOG test environment is:

- Port number: 8444,
- Unsecure port number: 8082.

Site server setup	Step 10. Directories listed here may not
Set up server options.	exist yet. The NeuroLOG server must have read and write access to the directories you will set here.
Files storage directory /tmp/neurolog/server/uplo	aded
Public file server root path /home/neurolog/public_ht	m
Public file server URL http://neurolog.irisa.fr/~ne	eurolo
Temporary files directory /tmp	
Log file og/.neurolog/log/site_serv	er.log
Cancel < Previous Nex	a >

\$	Warning	Step 11. Any such non-existing directory
Δ	Directory '/tmp/neurolog/server/uploaded' does not exist. Create?	will be created if needed.
	Qui	

📓 Si	te server setup	Step 12. The Data Federator configuration
Enter Data Federa parameters.	tor server connection	has changed since this snapshot. Default values will follow the rules below:
DF server host name	localhost	
DF server port	3055	
DF login	neurolog	DF login: neurolog <site name="">, for instance neurologRISA.</site>
DF schema name	globalRennes	DF schema name: global <site name="">, for instance globalRISA.</site>
DF site ID (2 letters)	RĘ	DF site id: presumably the same as site name: for instance IRISA.
	Cancel < Previous Next >	

🛃 Site s	erver setup	Step 13.
Enter web services co	nnectivity information.	
Tomcat protocol	https	
Tomcat server name	localhost	 Unlike this screenshot Instead of localhost, put the full name of the site server, like neurolog.irisa.fr.
Tomcat server port	8443	 The root path should be ending with "site", not with "webapps".
Tomcat services root path	ipache-tomcat-6.0.18/webapps	This information will be stored in the registry.
Canc	el < Previous Next >	

Site server setup 🗙	Step 14. Each site has its own Certification
The site server Certificate Authority (CA) will now be created.	certificate. The certificate of the site server CA must be signed by the NeuroLOG Root CA.
	The root CA was previously created and self-signed during the Registry installation procedure.
Cancel < Previous Next >	

Site server setup	Step 15. The CA distinguish information
istinguish information.	will be part of the site CA certificate.
FR	
INRIA	
IRISA	
IRISA CA	
Cancel < Previous Next >	
i	INRIA IRISA IRISA CA Cancel < Previous Next >

The site server CA certificate now needs to be signed by the NeuroLOG CA. The certificate request will be transferred to the root CA administrator. You will be notified directly when the certificate is ready for retrieval and you can restart the site installation procedure to retrieve it.
Cancel - Previous - Terminate

Step 16. Once you click Terminate, go to the registry server, check the notification admin console, or look into the registry log file. Follow the instructions to sign the new site CA certificate.

Do not proceed with the next step until this one is completed.



Step 17. Run the script nlog_siteconfig.sh again, log in with the administrator login and password you entered in step 4.



Step 18. Accept the Root CA certificate.



s S	ite server setup	Step 20. Enter the DN of the administrator.
Enter administrat information.	or certificate distinguish	This information will be included in the administrator certificate.
Country (2 letters)	FR	
Organization	INRIA	
Organization unit	IRISA	
Administrator name	Franck Michel	
	Cancel < Previous Next >	1



Step 21. In this step, the site local CA will sign the site administrator certificate (the sentence was updated after this snapshot to be more accurate).

<u>Note</u>: on Windows, execute the three lines one after the other (cd, openssl x509..., openssl ca...), do not copy them all at once.

In both openssl commands, use the same password as the one you specified in step 4.

📓 Site server setup 🗙	Step 22.
Server configuration completed.	
Cancel - Previous Terminate	
Cancer < rievious Terminate	



Step 23. Follow the instructions in this last window: this aims at adding new Tomcat contexts for the unsecured site server web application (8080, http), and the secure site server web application (https, 8443).

3. Site administration guide

3.1. Stop and start the service

3.1.1. Stop and start Data Federator

3.1.1.1. On Linux

The script described in §2.4.3.5 allows to check/stop/start/restart the service using the commands:

```
service datafederator status
service datafederator stop
service datafederator start
service datafederator restart
```

Note: as a default, Ubuntu may not be installed with this 'service' command. In case the commands above do not work, install the sysvconfig package as follows:

sudo apt-get install sysvconfig

3.1.1.2. On Windows

The Data Federator server is installed as a Windows service, it can be managed through the usual Windows services panel.

🖏 Services					
Fichier Action Affichage ?					
$\leftrightarrow \rightarrow$	📧 🖻 🗗 🕾 😫 🕨 🗉	•			
Servi	Services (local)	-			
	DataFederator.OueryServer	Nom 🔺	Description	État	Type de démarrage 🔺
		Centre de sécurité	Analyse les		Automatique
	Arrêter le service Redémarrer le service Description : Data Federator Query Server enables users to query multiple datasource tables from different datasources in a single SQL query, or to query target tables that are mapped from multiple datasource tables. Data Federator Query Server provides high-performance, on-demand	Cisco Systems, Inc. VPN Service		Démarré	Automatique
		Cliché instantané de volume	Gère et im		Manuel
		🙀 Client de suivi de lien distribué	Maintient I	Démarré	Automatique
		Client DHCP	Gère la con	Démarré	Automatique
		Client DNS	Résout et	Démarré	Automatique
		Compatibilité avec le Changement rapide d'	Fournit un		Manuel
		Configuration automatique sans fil	Fournit la c		Automatique
		Connexion secondaire	Permet le d	Démarré	Automatique
		Connexions réseau	Prend en c	Démarré	Manuel
	access to user source data.	DataFederator.Designer	Data Feder	Démarré	Manuel
		DataFederator.QueryServer	Data Feder	Démarré	Manuel
		DataFederator.Repository	Data Feder	Démarré	Manuel
		DDE réseau	Fournit le t		Désactivé
		Détection matériel noyau	Fournit des	Démarré	Automatique
		Distributed Transaction Coordinator	Coordonne		Manuel
		DSDM DDE réseau	Gère l'écha		Désactivé
		Emplacement protégé	Fournit un	Démarré	Automatique
		Explorateur d'ordinateur	Tient à jou		Automatique
		Extensions du pilote WMI	Fournit des		Manuel
		Fax	Vous perm		Automatique
		FileZilla Server FTP server		Démarré	Automatique 🗨
		•			<u> </u>
└└ ♪ \Étendu \ Standard /					

3.1.2. Stop and start Apache Tomcat

3.1.2.1. On Linux

The script described in §2.6.2 allows to check/stop/start/restart the service using the commands:

```
service neurolog status
service neurolog stop
service neurolog start
service neurolog restart
```

3.1.2.2. On Windows

The Apache Tomcat server is installed as a Windows service, it can be managed through the usual Windows services panel.

3.2. Users registration

<Alban>

3.3. Managing data sharing

<Alban>

3.4. Managing user access rights

<Alban>

3.5. Registering tools

<Javier>