First Spirit™
Your Content Integration Platform

Installation Instructions
FirstSpirit™ Version 4.2, 4.2R2 and 4.2R4

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e-Spirit AG

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1   Introduction

> [!] *This installation instruction applies to all FirstSpirit versions 4.2, (i.e. also to version 4.2 Release 2 (4.2R2) and version 4.2 Release 4 (4.2R4)), unless otherwise noted.*

Due to the application of Java, FirstSpirit™ is a widely platform-independent client/server system. Basically, the installation only affects the FirstSpirit™ Server, since the client is either managed via Java Web Start (JavaClient) or operated as a web application via a web browser (WebClient). An installed FirstSpirit™ Server has a uniform design on all operating systems due to its platform independency. Discrepancies only occur during the installation process. Here, all the files of the FirstSpirit™ Server, excluding a few files required for the system start, are installed in the destination directory.

The FirstSpirit™ Server Version 4.2 is available for the following operating systems:

- Red Hat Enterprise Linux
- Debian/GNU Linux
- SUSE Linux Enterprise Server
- LSB-compliant Linux distributions
- Solaris
- AIX
- Microsoft Windows

All operating systems are supported in 32 and 64-bit architecture.

1.1   Chapter overview

This document describes the installation of FirstSpirit and the first steps for starting the FirstSpirit-Client on the basis of the supplied project example.

Chapter 2: System requirements of the FirstSpirit Server, JavaClient and WebClient in regard to hardware and operating system (page 5 ff).

Chapter 3: Installation of the FirstSpirit Server under Windows (page 6 ff).

Chapter 4: Installation of the FirstSpirit Server under Linux, Solaris, and AIX and

server updates (page 25 ff).

Chapter 5: Starting FirstSpirit applications (page 43 ff).

> **!**
> *The following chapter are relevant for our clients which would like to* **upgrade** *to a version of the 4.2 minor line:*
> *- Chapter 3.8.2 page 18*
> *- Chapter 4.9 from page 39.*

2 System requirements

FirstSpirit Server **from version 4.2R4**:

- Microsoft Windows 2003 R2, Microsoft Windows 2008 Server, Microsoft Windows 2008 Server R2
- Debian GNU/Linux 5.0
- Suse Linux Enterprise Server 10 and 11
- Red Hat Enterprise Linux 5
- Solaris 9 and 10
- IBM AIX 5.3 and 6.1

All listed operating systems with 32 and 64-bit architecture, 64-bit recommended. x86 = all Intel/AMD 32-bit CPUs, all AMD64 CPUs, all Intel EMT64 CPUs, **not** IA-64

See the Technical Datasheet for FirstSpirit version 4.2 or 4.2R4 for detailed information on the system requirements of FirstSpirit Version 4.2.

3 Installation under Windows

3.1 Startup from CD

After inserting the CD, the installation program starts automatically. If not, call up the file *setup.exe* from the Windows directory of the CD. A welcome screen appears.

FirstSpirit™

Figure 3-1: Installation – start screen

3.2 Java environment selection

The FirstSpirit Server requires the Sun Java Developer Kit (JDK), version 1.5.0 or 1.6.0. The usage of JDK 1.6.0 is recommended, because the implementation of the Garbage Collection, which bears a considerable part of the system output when large quantities of data are processed and a large number of users is working with FirstSpirit, is continually developed by the manufacturer only in this version.

> **!** *JDK 1.5.0_**11** contains invalid registry settings and cannot be found by the FirstSpirit installation program. JDK 1.5.0_**12** and also older versions can be used.*

!   *Because of a bug of the Java Hotspot Compiler the following JDK versions can not be used for the FirstSpirit server:*
- 1.6.0_10
- 1.6.0_11
- 1.6.0_12
- 1.6.0_13
(See bug description of the manufacturer:
http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=6782577)
For this reason, JDK version 1.6.0_14 or newer should be used for the FirstSpirit server.

!   **From FirstSpirit version 4.2R4 on** *the JDK 1.5 is no more supported.*

3.2.1   No JDK available

If JDK 1.5.0 or 1.6.0 has not yet been installed, it has to be downloaded from the Java website and installed.
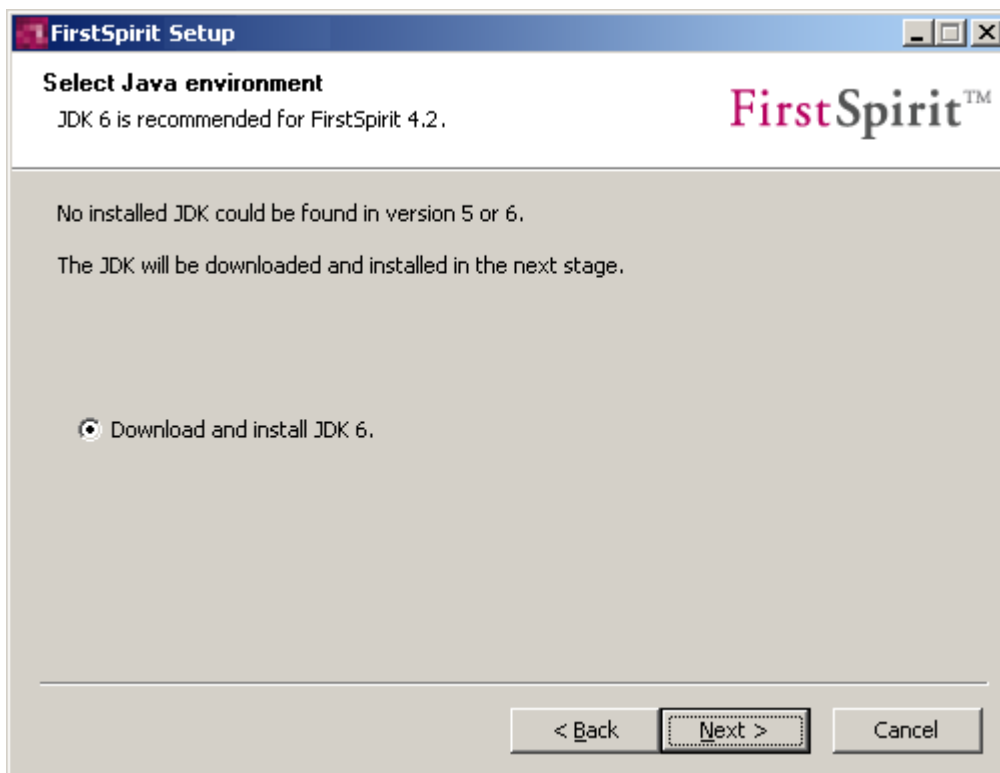
Figure 3-2: Java environment – no JDK available

Click on the **Next** button to go to the download page of Java.sun.com. (http://java.sun.com/javase/downloads/index.jsp)
The latest update of JDK 1.6.0 or 1.5.0 can be downloaded here.

Figure 3-3: Link to the Java website

> ***From FirstSpirit version 4.2R4 on*** *the JDK 1.5 is no more supported.*

3.2.2   JDK already available

If JDK 1.5.0 or 1.6.0 has already been installed on the computer, this JDK can be used for the subsequent FirstSpirit 4.2 installation (recommended) or a (possibly newer) update can be downloaded from the Java website and installed. (In the latter case select the option "Download and install JDK 6.", download and install the latest version and then start the installation of FirstSpirit again.)
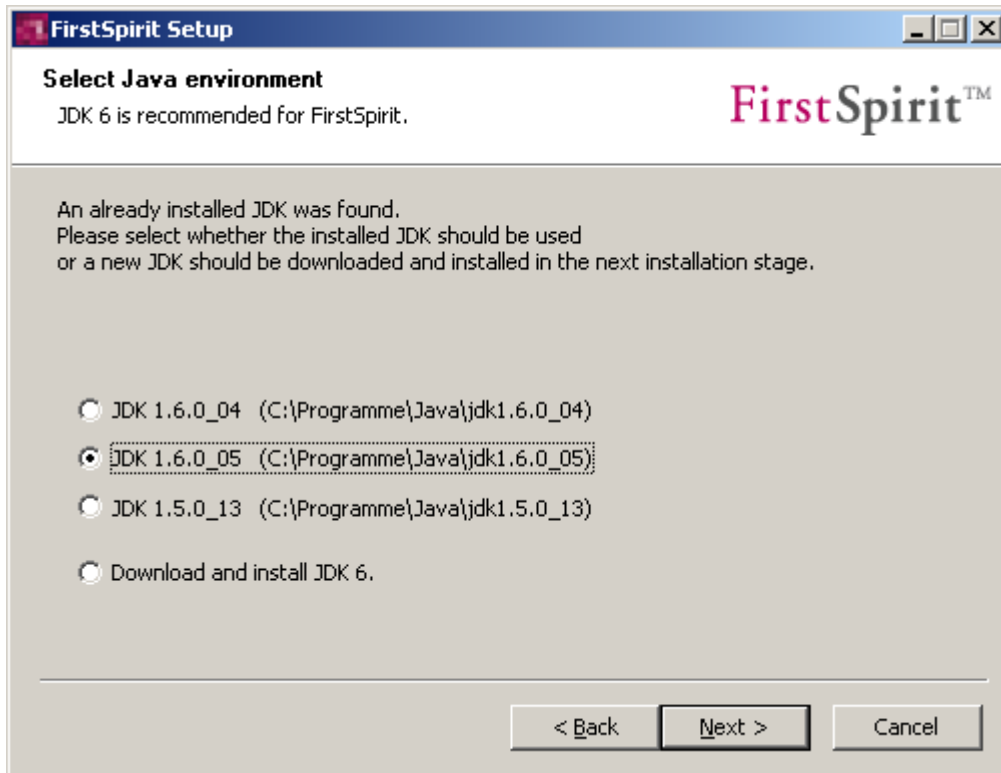
Figure 3-4: Java environment – JDK already available

If you would like to use an already installed version select this version in this dialogue window. Click on the **Next** button to continue installation of FirstSpirit 4.2.

3.3 Memory usage settings

In case of installation of a new FirstSpirit server you can select – depending on the specific use case – how much physical memory you want to use for the Java VM, after having selected the Java environment (see section 3.2 page 7):
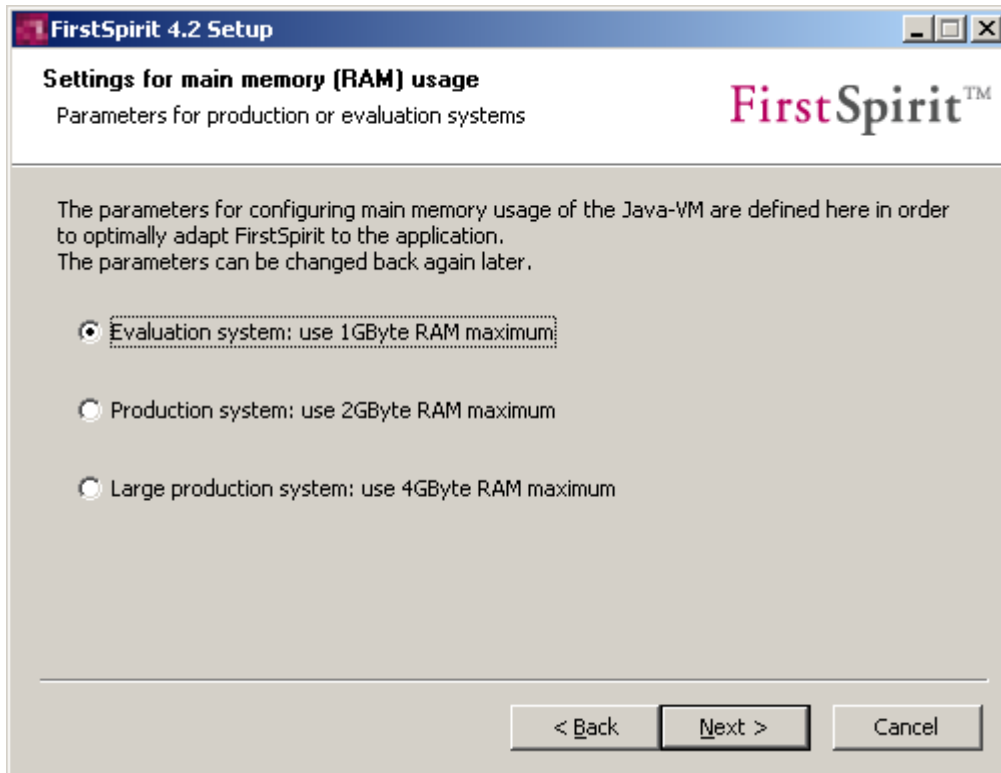
Figure 3-5: Use of memory: production or evaluation system

Evaluation system: This option is selected if the new FirstSpirit Server is used for **testing purposes** and thus needs less main memory than an installation for productive operation. In this case maximum 1 GByte RAM are reserved for the Java-VM.

Production system: This option is selected if the new FirstSpirit Server is used for **productive** operation. In this case maximum 2 GByte RAM are used for the Java-VM.

Large production system: This option is selected if the new FirstSpirit Server is used for **productive** operation and more than 4 GByte RAM are available. This option is only shown for 64Bit systems.

> ! *The size of the reserved RAM can be modified after the installation: in the file "fs-wrapper.con" using the parameters* `wrapper.java.maxmemory` *or* `wrapper.java.maxmemory.percent` *and* `wrapper.java.initmemory` *or* `wrapper.java.initmemory.percent`. *For further information see FirstSpirit Manual for Administrators, section "Configuration of the Java VM and the Java Wrapper (fs-wrapper.conf)".*

3.4 Selection of license file (from FirstSpirit Version 4.2R2)

A license is required to run FirstSpirit. Without a valid license, FirstSpirit can be used for 30 minutes after the start; the FirstSpirit server then ends automatically. When installing a FirstSpirit server under Windows using the Installation Wizard, during the installation process the license file can be selected directly from the local file system or the content of the file can be copied using Copy & Paste from FirstSpirit Version 4.2R2:
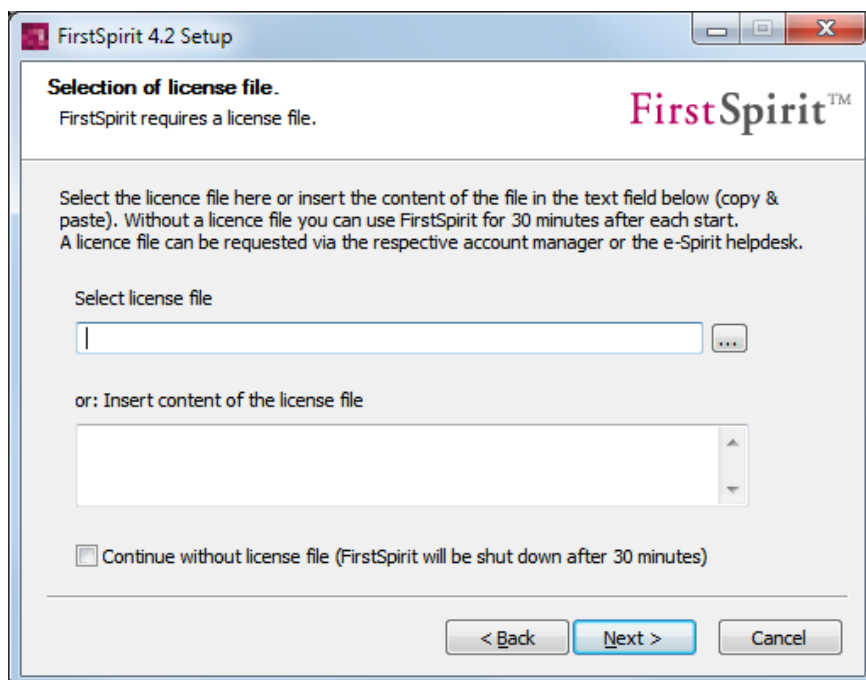
Figure 3-6: Selection of license file

If you select the option "Continue without license file" you can continue with the installing procedure without any valid license. In this case, you must install a valid license file during the next 30 minutes after server start to be able to work with FirstSpirit (see Chapter 5.4 page 50).

3.5 Component selection

During the next step choose which FirstSpirit components are to be installed. Move the mouse pointer over the individual components to display a brief description.
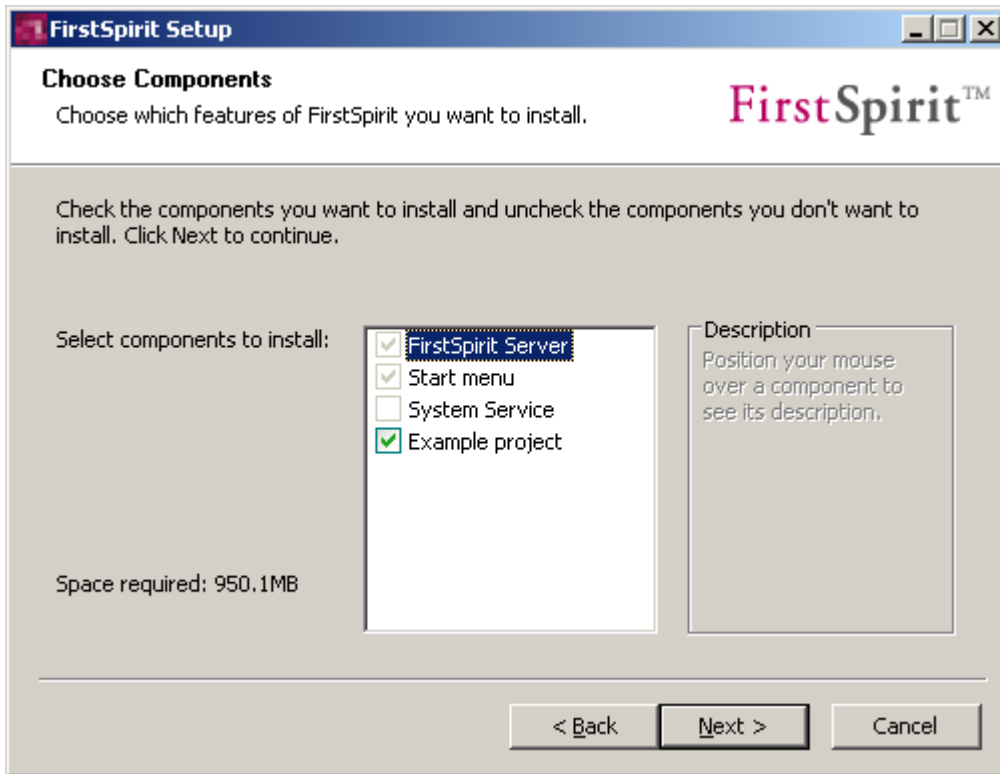
Figure 3-7: Choose components

The following components can be selected:

- FirstSpirit Server: The FirstSpirit Server with integrated web server is installed. The installation of this component is mandatory.
- Start menu: Entries for the FirstSpirit Server are created under menu item "All programs / FirstSpirit" in the start menu. The installation of this component is mandatory.
- System Service: (Local) administrators can configure the FirstSpirit Server as a system service. Without system service the server always has to be started manually first.
- Example project: The FirstSpirit demo project "Mithras Energy" is installed.

After selecting the desired components, click on the **Next** button to continue installation of FirstSpirit 4.2.

3.6   Destination directory selection

During the next step choose the installation directory of the FirstSpirit Server:
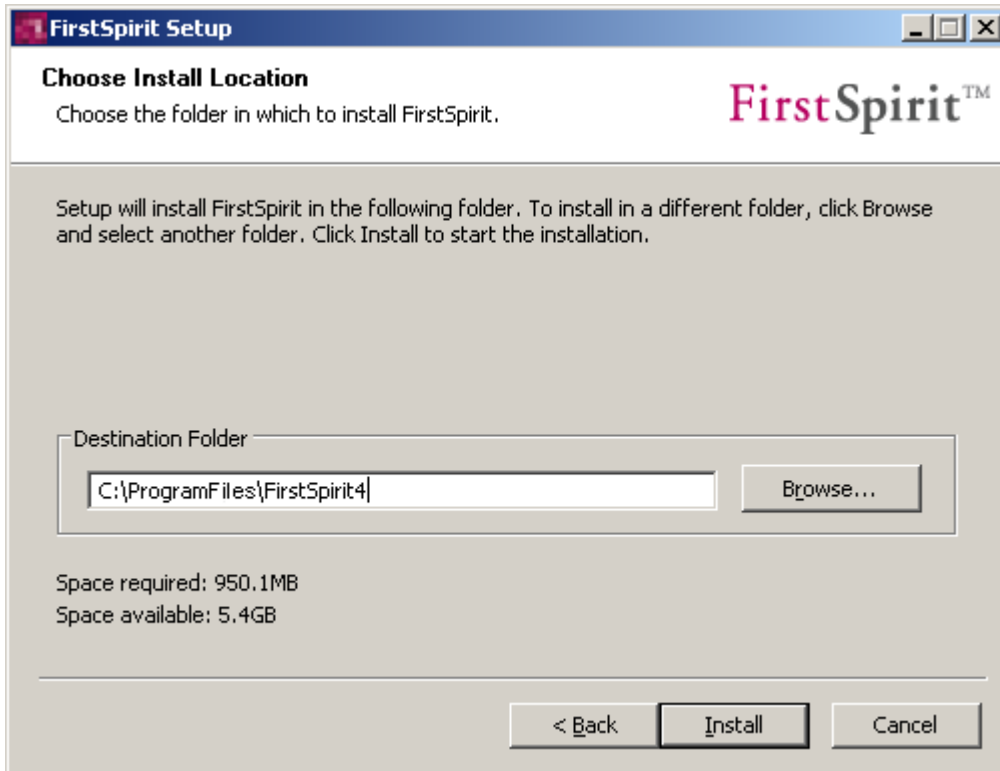
Figure 3-8: Choose destination directory

In case of an update the correct path to the selected server which is to be upgraded (see section 3.8.1 page 17, option „Upgrade") is displayed here and should not be changed.

Depending if it is a new installation or an upgrade the button **Install** or **Upgrade** is displayed. Click on the respective button to start the installation of FirstSpirit 4.2 or the upgrade of the selected server.

3.7 Carry out installation

Installation of FirstSpirit 4.2 can take several minutes. A progress bar displays the installation process.
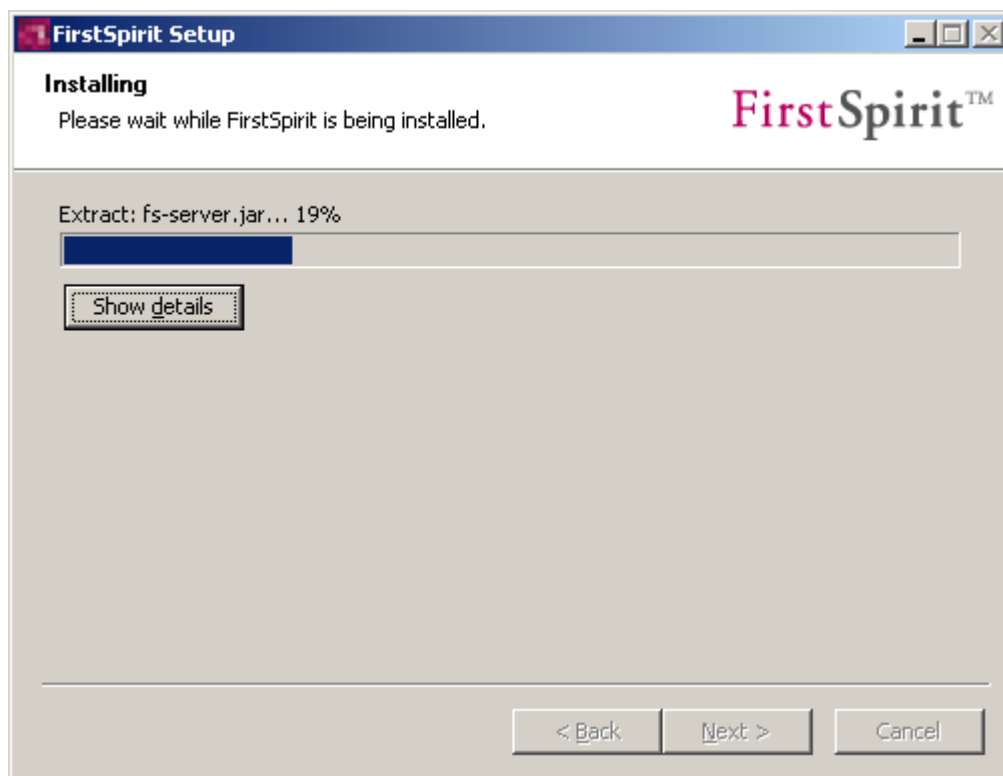
Figure 3-9: Install FirstSpirit 4.2

Click on the **Show details** button to monitor the installation progress more precisely.
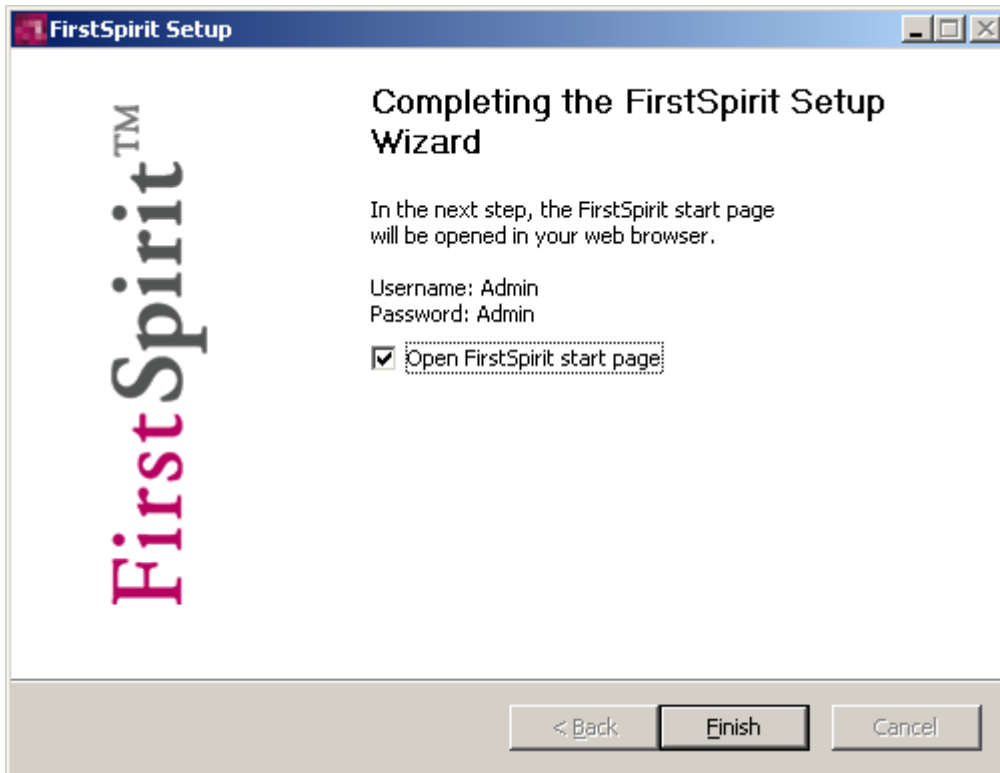
Figure 3-10: Installation completed

After installation, click on the **Finish** button to open the FirstSpirit start page in the web browser.

> **!** *After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.*

Subsequently, the FirstSpirit Server should be configured as described in the chapter "FirstSpirit Server configuration" in the "Manual for Administrators". Here, the subsection "Configuration of Java-VM" is of particular importance since an **adjustment of the Java configuration is required for failure-free operation**.

3.8   Parallel installation of multiple FirstSpirit Servers

3.8.1   Upgrade or new installation

In FirstSpirit version 4.2 one (or more) FirstSpirit Servers version 4.1 and one (or more) FirstSpirit Server 4.2 can be installed under Windows operating systems. Updates and new installations of FirstSpirit Servers are differentiated explicitly:
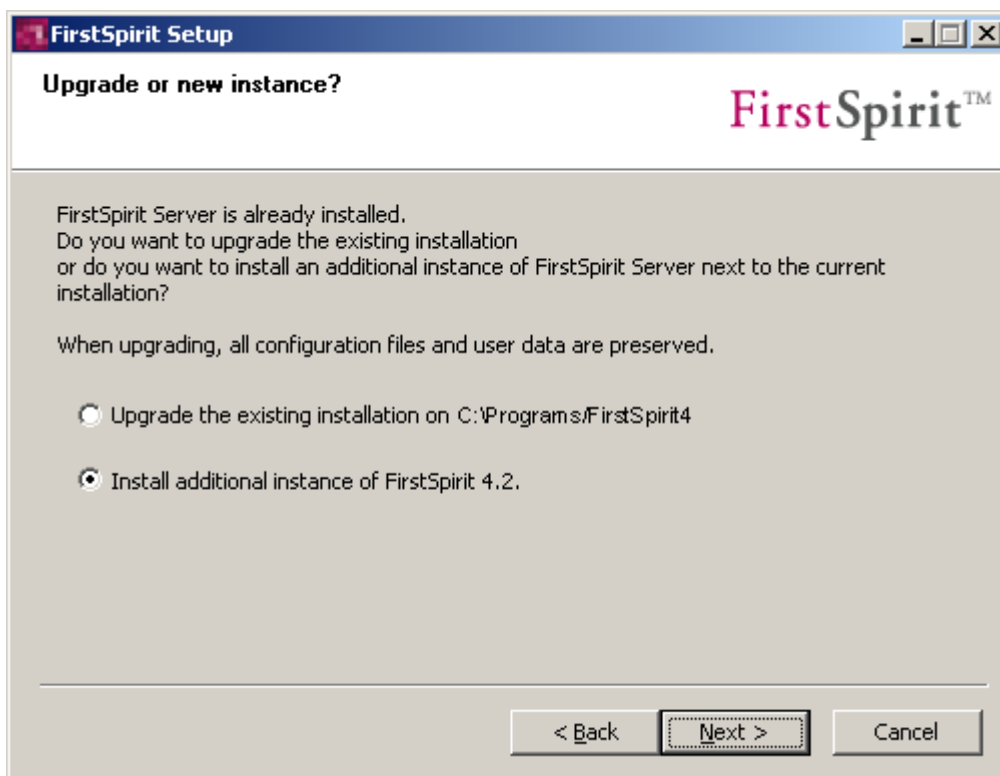
Figure 3-11: Parallel installation of servers

Upgrade: Existing installations will be updated. Configuration and user data will not be changed. If more than one FirstSpirit Server is existing they are displayed here with the respective path and can be selected for an upgrade.

Additional Instance: A new FirstSpirit Server (with separate System Service, startmenu etc., see chapter 3.3 page 10) will be installed in addition to an already existing one. The new instance will be labelled explicitly for being able to differentiate the individual FirstSpirit Servers. The label can be defined while selecting the destination directory of the Server (chapter 3.6 page 14), e.g. "FirstSpirit 4 Instance 2".

Click on the button **Next** the installation or upgrade of the selected FirstSpirit Server

to continue. In the next step the Java environment can be selected (see chapter 3.2 page 7).

3.8.2   Recommendation for changing to FirstSpirit 4.2

> **!** *For carrying out an update from version 4.1 to 4.2, first a new FirstSpirit Server (version 4.2) should be installed. Subsequently, export your projects from the FirstSpirit Server (version 4.1) and import them to the newly installed FirstSpirit Server (version 4.2).*
> *If a backup is available the existing installation can be updated. Configurational and user data will not be changed.*

With FirstSpirit version 4.2 some new functions are introduced which demand a migration of data. For further information about changing from FirstSpirit version 4.1 to FirstSpirit version 4.2 see also FirstSpirit Release Notes version 4.2, chapter 7.

> **!** *If using the functionality "PackagePool" see chapter 3.8.4.*

> **!** *Downgrades from FirstSpirit version 4.2 to version 4.1 always require manual customizations and are not recommended. For further information see FirstSpirit Release Notes version 4.2, chapter 7.*

3.8.3   Problems under Windows Server 2003 R2 (SP2)

Installing a further instance of a FirstSpirit Server can cause problems when using a Windows Server 2003 R2 (SP2). The new installation will be terminated once the FirstSpirit installer asks if an existing installation is to be upgraded or a new server is to be installed in parallel to the existing one (see Figure 3-11).

Reason: The messagebox.dll of the installer can not be registered.

Nevertheless, for being able to install another instance of the FirstSpirit Server you should deactivate the option "*Turn on DEP for essential Windows programs and services only*" temporarily under:

Control Panel – System – Advanced – Button "Settings" in "Performance" area – Tab

"Data Execution Prevention"

Subsequently, the Windows operating system must be restarted.

Now the FirstSpirit Server can be installed. The "Data Execution Prevention" option should be reactivated after installation is completed.

3.8.4 Notes for users of the functionality "PackagePool"

> ! *Using the PackagePool all previous package information will be lost if projects are exported and subsequently imported (see also documentation of the FirstSpirit PackagePool, chapter "Export/Import").*

The recommendation for an update from FirstSpirit version 4.1 to version 4.2 should for this reason not be followed (see chapter 3.8.2 page 18). Instead of, an update should be carried out only by means of an inplace update (for inplace updates see also FirstSpirit Release Notes version 4.2, chapter 7).

3.9 Update

3.9.1 Via the file fs-server.jar

You can update the FirstSpirit server within a minor version (e.g. 4.2) by replacing the file `fs-server.jar` by a newer one. You find the most current version of this file, including the most current installation files of the version 4.2, und http://www.e-spirit.de/download/updateFS42 in the subfolder "4.2.[versionnumber]"

During the update process the FirstSpirit server has to be stopped. All clients should, therefore, be logged off before starting the update.

Download the file `fs-server.jar` from the directory mentioned above.

Replace the file `fs-server.jar` in the subfolder `\server\lib` of the FirstSpirit server with the downloaded file.

Restart the server.

> ❗ *Updating the server by means of replacing the file `fs-server.jar` is appropriate for updates from one build version to another within a minor version, but not for updates from one minor version to another (e.g. from version 4.1 to version 4.2), because, here, the Java Wrapper will not be updated.*

3.9.2   FirstSpirit modules

When updating a FirstSpirit server, it is recommended to create newly all modules which you have created yourself against the current FirstSpirit version. Furthermore, all installed modules delivered by e-Spirit and all web applications should always be updated as well!

For updating modules, the related `fsm` files must be uploaded one by one by using the Server and Project Configuration. After having updated modules with depending modules, you must also restart manually the services of these depending modules. For more information about updating modules and starting services see *FirstSpirit Manual for Administrators*, Chapters "Modules" and "Services").

In this context we would like to point out, too, that when installing or updating modules which are the basis for data (either themselves or because of directly or indirectly dependent services), these data are not (or no more) available in processes which are accessing these data (generations, clients...) until these processes are restarted.

3.10 Uninstallation

3.10.1 Uninstallation via start menu

If entries for the FirstSpirit Server have been created in the start menu during installation, the server can be uninstalled via these entries in the start menu. Simply call the option **Uninstall FirstSpirit** under menu item **Start – All Programs – FirstSpirit – Installation** (or under menu items, which have been created for other instances (see chapter 3.8 page 17)).
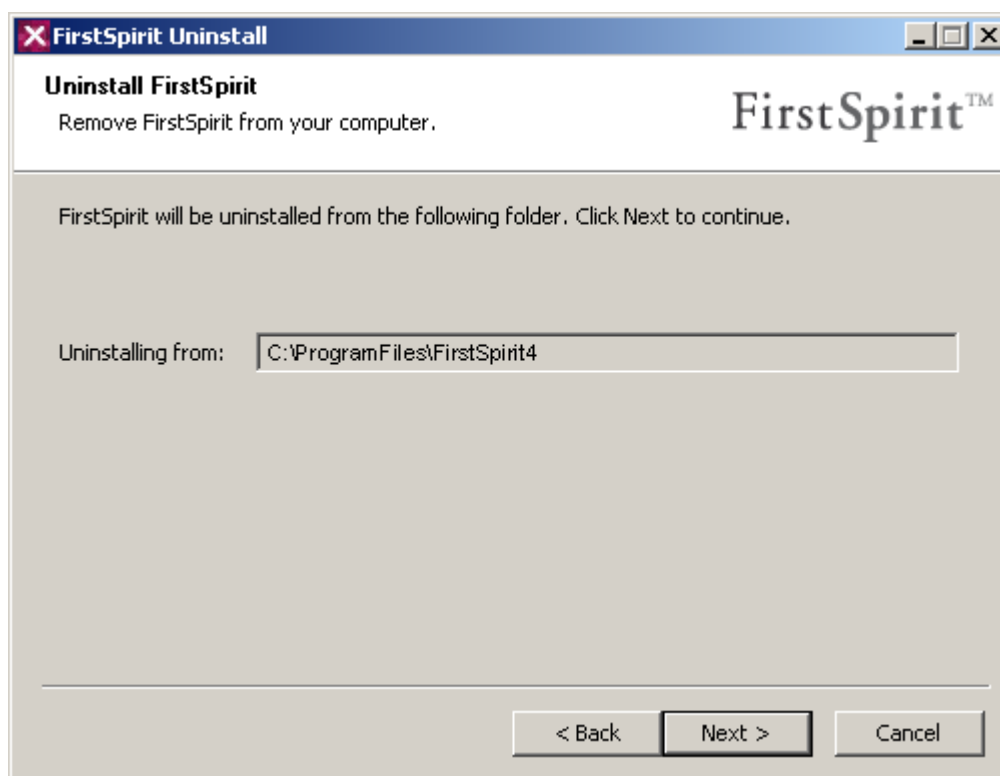
Figure 3-12: Uninstallation of FirstSpirit

During the next step choose which FirstSpirit components are to be uninstalled. Move the mouse pointer over the individual components to display a brief description.
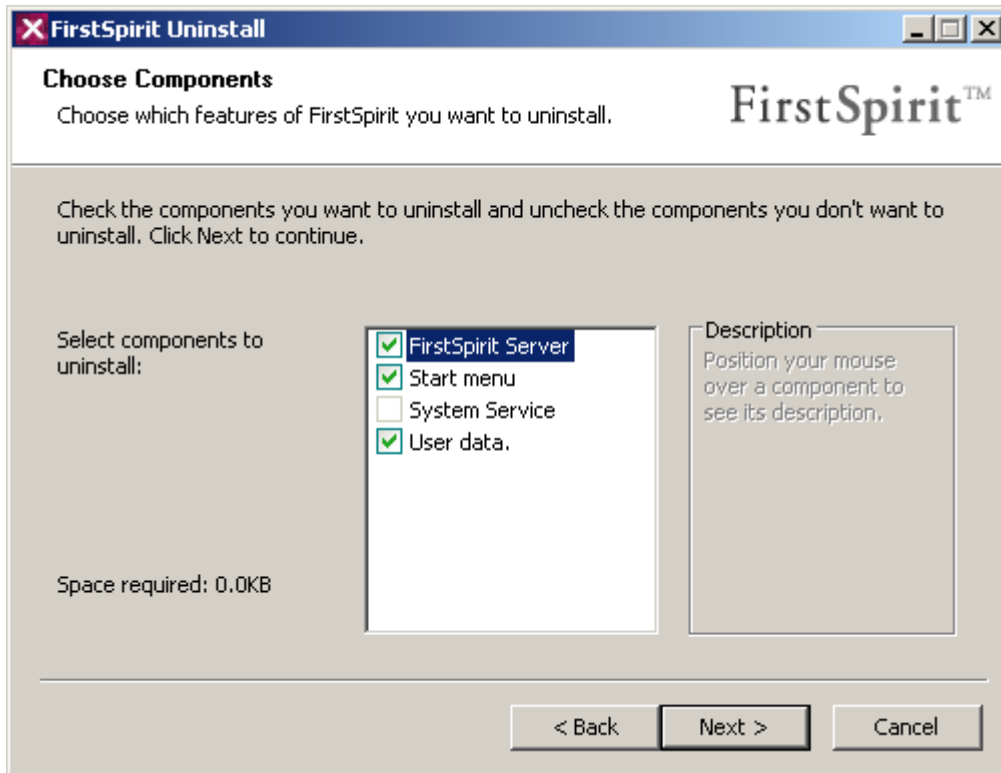
Figure 3-13: Uninstallation – component selection

The following components can be selected:

- FirstSpirit Server: The FirstSpirit Server is exclusively installed without removing configuration and user data.
- Start menu: The entries for the FirstSpirit Server in the start menu are removed.
- System Service: (Local) administrators can also remove the FirstSpirit Server from the system service list.
- User data: All configuration and user data of the FirstSpirit Server is removed.

In the following dialogue window you must confirm the deinstallation once again by clicking the button **Uninstall**:
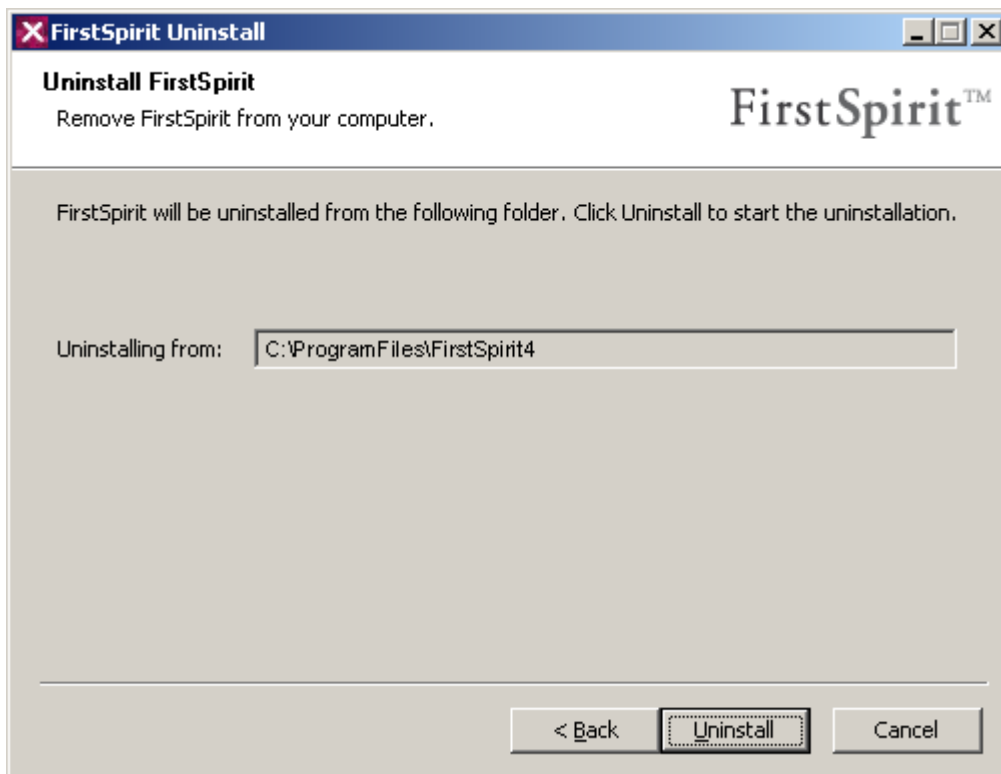
Figure 3-14: Deinstallation – Starting

Uninstallation of FirstSpirit 4.2 can take several minutes. A progress bar displays the uninstallation process. You can check the progress by clicking the button **Show details**.
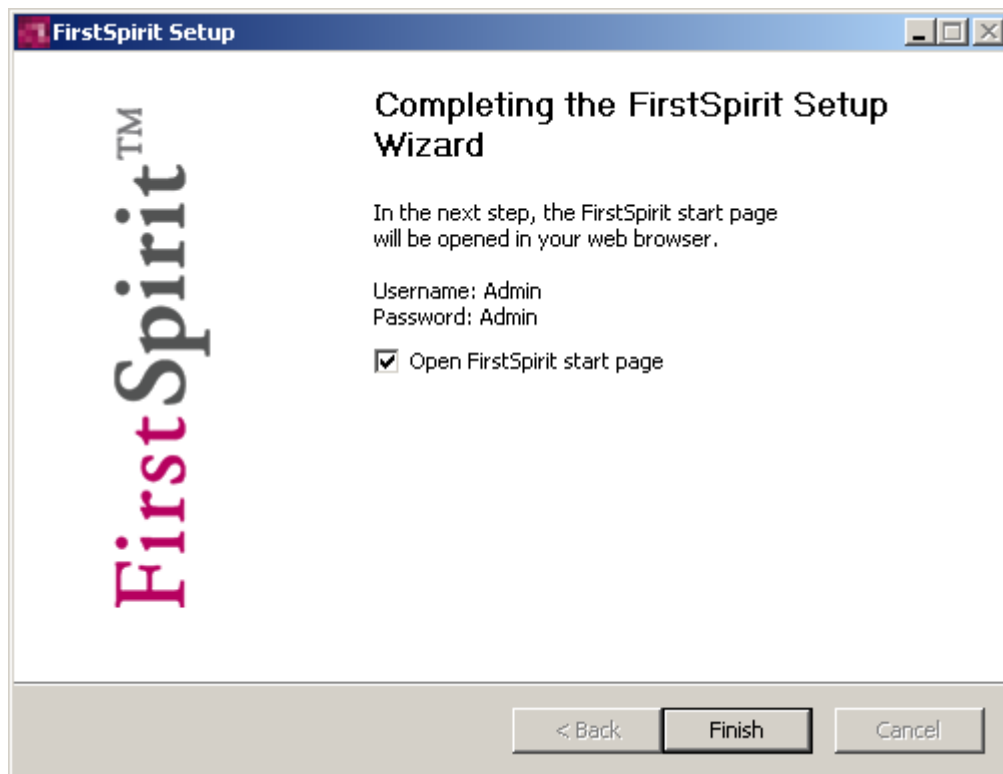
Figure 3-15: Uninstallation completed

After completing uninstallation the uninstaller assistent can be closed by clicking the button **Finish**.

3.10.2 Uninstallation via control panel

If there are no entries for FirstSpirit 4.2 in the start menu, the server can also be uninstalled via the control panel.

Call the function **Control panel** under **Settings** in the start menu.

Double-click on the **Software** icon in the following window.

A window opens in which programs and Windows components can be installed and removed.

Choose **FirstSpirit 4** (or another instance, see chapter 3.8 page 17) and click on the **Change/Remove** button.

A dialog for uninstalling FirstSpirit opens (see above for a description of the dialog).

4 Installation under GNU/Linux, Solaris or AIX

Installation of the FirstSpirit Server on Unix systems is described here (see chapter 2).
See chapter 5 for starting the FirstSpirit JavaClient and WebClient.

Installation includes the following steps.

1. Installation of the Java environment (see section 4.4)

2. Installation of the FirstSpirit Server as a package (see section 4.5) or tar archive (see section 4.6)

3. Installation of the license file (see section 5.4)

4. Configuration of the operating system (see section 4.8)

5. Start of the FirstSpirit-Client (see chapter 5)

6. Configuration of the FirstSpirit Server (see chapter "FirstSpirit Server configuration" in the "Manual for Administrators"). Here, the subsection "Configuration of Java-VM" is of particular importance since **an adjustment of the Java configuration is required for failure-free operation**.

4.1 Installation media

FirstSpirit 4.2 is available in the following package formats:

▪ **RPM Package Manager (.rpm):** Red Hat Linux and SUSE Linux, as well as other Linux distributions compliant to LSB 3.0.

▪ **Debian (.deb):** Debian GNU/Linux.

▪ **Solaris Package (.pkg):** Solaris Sparc and x86

▪ **tar Archive (.tgz):** All Unix systems if no package system is to be used.

The decision whether the installation is to occur via the operating system's own package system or without a package system via the tar archive depends on the following criteria:

▪ **Can the installation occur as root?**

> Yes: Package or tar archive
>
> No: tar archive

▪ **Shall multiple FirstSpirit Servers be installed on the Unix system?**

> Yes: tar archive
>
> No: Package

▪ **Shall the installation be updated without knowledge of FirstSpirit?**

> Yes: Package
>
> No: tar archive

The package file in the respective package format as well as the license file `fs-license.conf` is required as installation media. The package file is located on the supplied installation CD in the directory `Unix`. The version of the FirstSpirit Server is stated in the file name. Here an example based on the package file `firstspirit-4.2.14.noarch.rpm`

- **Package name** `firstspirit4:` The "4" has been added to the name to make a distinction to previous versions of FirstSpirit with a different file system structure and to enable the parallel installation of FirstSpirit 4.x with 3.x during the migration phase.

- **FirstSpirit Version** 4.2.14

- **CPU architecture** `noarch:` FirstSpirit packages are independent of the CPU architecture due to the utilization of Java.

The license file is supplied separately. If necessary, it can be requested via your account manager at e-Spirit or via https://helpdesk.e-spirit.de. Without a license file it is possible to use FirstSpirit for 30 minutes after each start so that, if required, installation can, at first, occur without a license file. If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.

4.2   System architecture overview

FirstSpirit basically consists of the following components:

- Server:

    FirstSpirit Server
    Web application server (Jetty)
    Database system (Derby)
    Java Wrapper (Tanukisoftware)
    Start script
- Clients:

    JavaClient
    WebClient

On the server side, the web server and the database system are integrated into the FirstSpirit Server. The FirstSpirit Server itself is a Java application. The required Java interpreter is started via the Java Wrapper. The Java Wrapper is the only platform-dependent component. It is a small native binary, compatible to the respective operating system and CPU architecture which monitors and controls the Java process. The Java Wrapper is started and stopped via a shell script. From the operating system's point of view there are only **2 processes**, Java and Java Wrapper, available during the runtime of the FirstSpirit Server whereas the Java process can comprise **hundreds of threads**.

On the client side, the installation occurs automatically via the web browser and Java Web Start (see chapter 5).

4.3   Client/server communication

Communication between client and server takes place via HTTP and optionally via a FirstSpirit protocol (SOCKET). See the manual for administrators, section 3.2 ff, for detailed information on the client/server configuration.

The standard value for the HTTP port is 8000/tcp and the port for the FirstSpirit protocol (SOCKET) is 1088/tcp. If one of the ports has already been reserved by the operating system, another free port is automatically selected during the installation and written into the configuration file `/opt/firstspirit4/conf/fs-server.conf`. Ports can also be changed manually via that configuration file after the FirstSpirit installation.

4.4   Java

Under Linux and Solaris the FirstSpirit Server requires the Java Developer Kit (JDK) version 1.5.0 or 1.6.0 from Sun. Under AIX the JDK version 1.5.0 (no more supported **from FirstSpirit version 4.2R4** on!) or 1.6.0 from IBM is used. The usage of JDK 1.6.0 is recommended, because the implementation of the Garbage Collection, which bears a considerable part of the system output when large quantities of data are processed and a large number of users is working with FirstSpirit, is continually developed by the manufacturer only in this version.

JDK for Linux and Solaris: The "**JDK 6.0 Update x**" is available as an RPM package or self extracting shell archive with installation notes under the following address:

http://java.sun.com/javase/downloads/

Installation as an RPM or Solaris package is preferred, because the dependencies in the FirstSpirit package are checked automatically.

For 64-bit architectures select the **64-bit JDK**. Under Solaris the 32-bit JDK has to be installed prior to utilization of the 64-bit JDK.

> ! *The GNU Java, sometimes supplied with Linux distributions, cannot be used for FirstSpirit! JDKs which have not been officially released by Sun should not be used either, since they are expected to lead to stability problems during longer runtimes.*

> ! *Because of a bug of the Java Hotspot Compiler the following JDK versions can not be used for the FirstSpirit server:*
> *- 1.6.0_10*
> *- 1.6.0_11*
> *- 1.6.0_12*
> *- 1.6.0_13*
> *(See bug description of the manufacturer:*
> *http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=6782577)*
> *For this reason, JDK version 1.6.0_14 or newer should be used for the FirstSpirit server.*

> *From FirstSpirit version 4.2R4 on* the JDK 1.5 is no more supported.

JDK for AIX: "Java 5 or 6, 64-bit" as AIX package with installation notes and the required AIX level is available under:

http://www.ibm.com/developerworks/java/jdk/aix/service.html

4.5   Installation via a package system

Installation via a package system has the following advantages compared to installation as a tar archive:

- Simple method for updating.
- Automatic dependency check of the required system components.
- Automatic integration into the system start environment.

The following sections describe installation under the package systems supported by FirstSpirit.

If installation of the example project is not desired, deactivate it by adding `FS4DEMO=false` prior to calling the respective package manager. Example:

```
FS4DEMO=false rpm –i firstspirit*.rpm
```

During installation as a package the user account `fs4` is automatically created with a group of the same name. Automatic creation might fail for systems with central user account management, e.g. NIS. In this case, manually create the user account `fs4` with primary group `fs4` and directory `/opt/firstspirit4` prior to installation as `root`.

4.5.1   Red Hat Enterprise Linux

Enter as `root`:

```
rpm –i firstspirit*.rpm
```

> ❗ *Precondition: Java (JDK) must have been installed as original RPM, which can be downloaded from the Sun website (http://java.sun.com/javase/downloads/). Only then the line can be entered without* `JAVA_HOME=`*. If this is not desired,* `JAVA_HOME=` *must be used (see also chapter 4.5.4 page 31).*

Package parameters:

- Destination directory: /opt/firstspirit4
- User account: fs4
- Start script: /etc/init.d/fs4

The FirstSpirit Server is automatically integrated into the system start environment (/etc/init.d) and started during installation.

After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.

4.5.2 SUSE Linux Enterprise Server

Enter as `root`:

```
rpm –i firstspirit*.rpm
```

> ❗ *Precondition: Java (JDK) must have been installed as original RPM, which can be downloaded from the Sun website (http://java.sun.com/javase/downloads/). Only then the line can be entered without* `JAVA_HOME=`*. If this is not desired,* `JAVA_HOME=` *must be used (see also chapter 4.5.4 page 31).*

Package parameters:

- Destination directory: /opt/firstspirit4
- User account: fs4
- Start script: /etc/init.d/fs4

The FirstSpirit Server is automatically integrated into the system start environment (/etc/init.d) and started during installation.

After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit

users before the time interval expires.

4.5.3 Debian GNU/Linux

Enter as `root`:

```
JAVA_HOME=/opt/jdk1.5.0_12 dpkg –i firstspirit*.deb
```

For JAVA_HOME the path to the installed JDK has to be specified.

Package parameters:

- Destination directory: /opt/firstspirit4
- User account: fs4
- Start script: /etc/init.d/fs4

The FirstSpirit Server is automatically integrated into the system start environment (/etc/init.d) and started during installation.
After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.

4.5.4 LSB-compatible Linux

Enter as `root`:

```
JAVA_HOME=/opt/jdk1.5.0_12 rpm –i --ignoreos --nodeps firstspirit*.rpm
```

For JAVA_HOME the path to the installed JDK has to be specified.

Package parameters:

- Destination directory: /opt/firstspirit4
- User account: fs4
- Start script: /etc/init.d/fs4

The FirstSpirit Server is automatically integrated into the system start environment (/etc/init.d) and started during installation.
After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.

4.5.5 Solaris

Enter as `root`:

```
pkgadd -d firstspirit*.pkg all
```

Package parameters:

- Destination directory: /opt/firstspirit4
- User account: fs4
- Start script on Solaris 9: /etc/init.d/fs4
- Start script on Solaris 10: "application/fs4" in Service Management Facility

During installation via `pkgadd` you will be asked if the included FirstSpirit example project should be imported. If a non-interactive installation is required, use the Solaris system utility `pkgask` to answer that question.

The FirstSpirit Server is automatically integrated into the system start environment (see section 4.7) and started during installation.

After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.

4.5.6 AIX

On AIX the installation method via tar archive is used, as described in the next chapter.

4.6 Installation via tar archive

Installation can occur as `root` or under a normal user account.

4.6.1 Installation as root

During installation via tar archive a user account "fs4" is created automatically with a group of the same name. This automatic creation can fail for systems with central user account management, e.g. NIS. In this case create the user account "fs4" with primary group "fs4" and directory `/opt/firstspirit4` manually as root before installation.

Enter as `root`:

```
cd /opt
tar xzf /tmp/firstspirit*.tgz
JAVA_HOME=/opt/jdk1.6.0_09 /opt/firstspirit4/bin/fs4 start
```

When calling "fs4 start" for the first time, the path to the Java installation has to be specified for `JAVA_HOME`. The Java path is transferred into the configuration file `/opt/firstspirit4/conf/fs-wrapper.conf` for all subsequent starts.

If installation of the sample project is not desired insert `FS4DEMO=false` into the last line above:

```
FS4DEMO=false JAVA_HOME=/opt/jdk1.6.0_09 /opt/firstspirit4/bin/fs4 start
```

The FirstSpirit Server is automatically integrated into the system start environment of the operating system during installation. See chapter 4.7 for details. The server can be stopped and started manually after installation via the system start environment too.

After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.

4.6.2 Installation under normal user account

In this case, installation occurs in any directory below $HOME:

```
cd
tar xzf /tmp/firstspirit*.tgz
```

When calling "fs4 start" for the first time, the path to the Java installation has to be specified for JAVA_HOME. The Java path is transferred into the configuration file `fs-wrapper.conf` for all subsequent starts.

Install and start:

```
JAVA_HOME=/opt/jdk1.6.0_09 firstspirit4/bin/fs4 start
```

If installation of the project example is not desired:

```
FS4DEMO=false JAVA_HOME=/opt/jdk1.6.0_09 firstspirit4/bin/fs4 start
```

> ⚠️ *After the completion of installation, a valid license has to be installed (see section 5.4 page 50). If no valid license is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.*

4.7 Start and stop the FirstSpirit Server

4.7.1 GNU/Linux and Solaris 9

Start as `root`:

```
/etc/init.d/fs4 start
```

Stop as `root`:

```
/etc/init.d/fs4 stop
```

4.7.2 Solaris 10

FirstSpirit uses the Service Management Facility on Solaris 10 if available.

Start as `root`:

```
svcadm enable fs4
```

Stop as `root`:

```
svcadm disable -s -t fs4
```

List processes as `root`:

```
svcs -p fs4
```

4.7.3 AIX

On AIX an entry with key „fs4" is written during installation into the file /etc/inittab to start FirstSpirit during system boot.
For manual control of the FirstSpirit Server the following commands are available.
Start as `root`:

```
/opt/firstspirit4/bin/fs4.init start
```

Stopp as `root`:

```
/opt/firstspirit4/bin/fs4.init stop
```

4.7.4 From standard user account

The FirstSpirit Server can also be controlled from a standard user account. The installation creates the user account `fs4`, but deactivates the login for this user

account. To activate the possibility to login as `fs4` via SSH or Telnet, it is sufficient to enter the password for the user account `fs4`. Enter as `root`:

```
passwd fs4
```

After logging in with the user account fs4, it is possible to use the following calls to control the FirstSpirit Server:

Start as user `fs4`:

```
firstspirit4/bin/fs4 start
```

Stop as user `fs4`:

```
firstspirit4/bin/fs4 stop
```

4.8 Operating system configuration

4.8.1 Resource limits (ulimit)

The standard settings of the parameters for resource limits are, except for parameter `nofile`, adequate for the operating systems stated in chapter 2. Parameter `nofile` defines the maximum possible number of opened file handles under the user account of the FirstSpirit Server. Since file handles also comprise TCP sockets which are required for client/server communication, the parameter has to be selected large enough for the expected number of simultaneous client accesses. The parameter is defined in `/etc/security/limits.conf` (similar configurations are required under Solaris and/or AIX):

```
fs4        soft nofile 10000
fs4        hard nofile 10000
```

> **!** *Each FirstSpirit project occupies up to 200 opened files. According to the amount of projects the limitation should be adequately high.*

Please observe that changes to this file only become effective after a new login. It is possible to check the change after FirstSpirit installation and creation of the user account fs4 via the following call:

```
su - fs4 -c "ulimit -a"
```

See the "Manual for Administrators", chapter 3, for further information on the FirstSpirit configuration via the configuration files.

4.8.2 Virtual memory (Swap Space)

The Java process of the FirstSpirit Server starts external processes for some functions via the function fork() of the operating system. When calling the function fork() the actual process is duplicated and in this way allocates additionally the same amount of virtual memory as the Java process of the FirstSpirit Server. Since the Java process is configured normally with the parameter -Xmx for allocating almost the complete system memory, the complete virtual memory must have been configured to the double size of the system memory. The called up external process will not use the complete reserved memory; but there is no other possibility for

calling, except for using fork(), in the Sun Java-VM in Version 1.6.0.

On operating systems which provide memory overcommit this option should be activated as follows, for avoiding that the call of an external process fails with the error message "Out of Memory":

Linux:
Calling

```
sysctl vm.overcommit_memory
```

should show:

```
vm.overcommit_memory = 0
```

(default setting)

AIX:
Check if „Deferred Page Space Allocation" is activated (default setting).

Solaris:
Does not provide memory commit.

4.8.3   File system

The FirstSpirit Server uses the Unix system function flock() to protect some control files for an exclusive access. The combination of operating system and file system must offer flock() for this reason. In case of local file systems, this function is provided by all operating systems which are supported by FirstSpirit. In case of distributed file systems (e.g. GFS2, OCFS, VXFS or NFS), the documentation of the particular supplier must be checked with regard to flock() on the used file system. Under Solaris and AIX, flock() is for example always available on NFS, under Linux not until Kernel 2.6.12 on NFS.

4.9 Update

Only the FirstSpirit Server needs to be updated manually. On the client side, the update occurs automatically via Java Web Start. During the update process the FirstSpirit Server has to be stopped. All clients should, therefore, be logged off prior to the update.

An update does not change any project or user data in FirstSpirit. Only executable binaries and libraries are updated.

Except for the version number, the same file in the package format is used for the update as for installation.

The update can be applied within version 4.2 or from version 4.1 to 4.2.

4.9.1 Via a package system

Update via a package system occurs as `root`.

The FirstSpirit Server is automatically stopped and started via the package system.

RPM:

```
rpm –U firstspirit*.rpm
```

Debian:

```
dpkg –i firstspirit*.deb
```

Solaris:

```
pkgadd -d firstspirit*.pkg all
```

4.9.2 Via a tar archive

At first, the FirstSpirit Server is shut down.

Either as `root`:

```
/etc/init.d/fs4 stop
```

or under the user account fs4:

```
firstspirit4/bin/fs4 stop
```

Subsequently carry out the update of the files in directory `/opt/firstspirit4`. If the

FirstSpirit Server is installed in a different basic directory than `/opt`, adapt the parameter during the following call:

```
cd /opt
tar xzf /tmp/firstspirit4*.tgz
```

If the update is applied on version 4.0 to 4.1, the following line must be inserted into file `firstspirit4/conf/fs-wrapper.conf` below the line containing parameter `wrapper.java.mainclass`:

```
#include ../conf/fs-wrapper-license.conf
```

Finally, start the FirstSpirit Server.

Either as `root`:

```
/etc/init.d/fs4 start
```

or under the user account fs4:

```
firstspirit4/bin/fs4 start
```

4.9.3   Via the file fs-server.jar

You can update the FirstSpirit server within a minor version (e.g. 4.2) also by replacing the file `fs-server.jar` by a newer one. You find the most current version of this file, including the most current installation files of the version 4.2, und http://www.e-spirit.de/download/updateFS42 in the subfolder "4.2.[versionnumber]"

During the update process the FirstSpirit server has to be stopped. All clients should, therefore, be logged off before starting the update.

Download the file `fs-server.jar` from the directory mentioned above.

Replace the file `fs-server.jar` in the subfolder `/server/lib` of the FirstSpirit server with the downloaded file.

Restart the server.

> ！ *Updating the server by means of replacing the file `fs-server.jar` is appropriate for updates from one build version to another within a minor version, but not for updates from one minor version to another (e.g. from version 4.1 to version 4.2), because, here, the Java Wrapper will not be updated.*

4.9.4   FirstSpirit modules

When updating a FirstSpirit server, it is recommended to create newly all modules which you have created yourself against the current FirstSpirit version. Furthermore, all installed modules delivered by e-Spirit and all web applications should always be updated as well!

For updating modules, the related `fsm` files must be uploaded one by one by using the Server and Project Configuration. After having updated modules with depending modules, you must also restart manually the services of these depending modules. For more information about updating modules and starting services see *FirstSpirit Manual for Administrators*, Chapters "Modules" and "Services").

In this context we would like to point out, too, that when installing or updating modules which are the basis for data (either themselves or because of directly or indirectly dependent services), these data are not (or no more) available in processes which are accessing these data (generations, clients...) until these processes are restarted.

4.10   Uninstallation

4.10.1   Via package system

The package system will automatically shut down the FirstSpirit Server before uninstallation.

During uninstallation via a package system it is common for a package system to only delete the files which it has installed itself and which have not been changed by the user. Therefore, no project data and configuration files are removed. After uninstallation of the package, it is, thus, necessary to manually remove the project data and configuration files (as stated system-specifically in the following calls):

```
rm -rf /opt/firstspirit
```
RPM:
```
rpm -e firstspirit4
```
Debian:
```
dpkg -r firstspirit4
```
Solaris:
```
pkgrm firstspirit4
```

4.10.2 Via tar archive

Either as `root`:

```
/etc/init.d/fs4 stop
rm -rf /opt/firstspirit4 /etc/init.d/fs4 /etc/rc.?/???fs4
```

or under the user account fs4:

```
firstspirit4/bin/fs4 stop
rm -rf /opt/firstspirit4
```

5 Start FirstSpirit

Once installation has been completed on Windows, the default browser of your computer opens automatically, either with a log-on page (see section 5.1) or with a start page (see section 5.2).

For installation under Unix operating systems please enter the following URL (example call – host name and domain has to be changed to your settings):

```
http://fs4server.domain.net:8000
```

If no FirstSpirit start page appears on port 8000 but some other web page, FirstSpirit selected automatically another free TCP-port during installation. The selected TCP-port to be used for the URL is listed as parameter HTTP_PORT in the configuration file /opt/firstspirit4/conf/fs-server.conf.

The standard connection to the FirstSpirit Server is established according to the settings for installation. If connection was successful, a login dialog window is displayed (see section 5.1, page 43).

If errors occur while the login window or the FirstSpirit start page is displayed, check whether the HTTP port on the server side is already occupied. The same applies when starting in socket mode. It is important to check the port configuration on the server side here too.

> **!** *The configuration of FirstSpirit (e.g. port configuration) takes place via configuration files located in the installation directory of the FirstSpirit Server. File structure and configuration possibilities are described in the FirstSpirit Manual for Administrators.)*

5.1 FirstSpirit login window

The user can log in at the FirstSpirit Server via the login window. This login is valid for all applications on the server and also lasts for inactive users for a certain period of time.

Figure 5-1: Login

During the first login process as server administrator, the user has to log in at the FirstSpirit Server via the standard login.

Please enter "Admin" for both user name and password for the login as server administrator. Please observe that both words start with a capital letter. The **Login** is only active if at least one character has been entered in both fields. Click on this button to open the start page (see Figure 5-2). The logged-in user "Admin" is displayed at the top of the start page.

During the next step, it is recommended to change the standard password for the server administrator. This is possible under the menu item **Change password** in the section **User**.

5.2   FirstSpirit start page

After login (automatically or manually), the FirstSpirit start page opens. The start page is divided into sections which are, depending on the permissions of the respective user, either shown or hidden:

- Quickstart section   (see section 5.2.1)
- Client section   (see section 5.2.2)
- Administration section(see section 5.2.3)
- User section   (see section 5.2.4)

Sun Java Runtime Environment (JRE) Version 1.5.0 or higher, including Java Web Start, is required to start the server and project configuration in the administrator section and the JavaClient. (The JRE is usually automatically installed during JDK 1.5.0. installation).

> ⚠️ *Because of a bug of the signature check in Java Web Start for the FirstSpirit JavaClient the following versions of Sun Java Web Start (part of the JRE) can not be used: 1.6.0_14, 1.6.0_15 and 1.6.0_16. The bug has been fixed in the version 1.6.0_17 by SUN, but this version can not yet be released for the use with FirstSpirit.*
> *For this reason, Java Web Start **1.6.0_13 or older** should be used for the FirstSpirit JavaClient. Java Web Start 1.6.0_13 or older can be combined with a different version of the JRE by configuration of the operating system or of the web browser.*

> ⚠️   With FirstSpirit Version 4.2 Release 2, the 32 bit version of **Sun JDK 1.6.0_18** is released for FirstSpirit-JavaClient. Unfortunately, this JDK (like all JDKs since 1.6.0_14) contains fatal errors. But as customers want an updated JDK release for JavaClient, e-Spirit has implemented a special strategy for circumventing a JDK error, which was intensely checked within the scope of the FirstSpirit Version 4.2 Release 2 release tests. The Sun JDK 1.6.0_18 can therefore be released for use in JavaClient. A release for older FirstSpirit versions (before Release 2) is **not** possible because it is too risky to transfer the measurement which has been implemented to circumvent the error into stable version lines. Further, it is also possible that there are still places in FirstSpirit in which the error has not yet been circumvented. The error in Sun JDK is primarily manifested in shift buttons (radio buttons), which do not respond (or unexpectedly respond) to a status change. The error has been reported to Sun, but cannot yet be publicly viewed (internal review ID: 1714980).
>
> Furthermore, VM crashes can occur currently. The conditions for them have not yet been resolved.

Figure 5-2: FirstSpirit start page

Information about the name and version of the FirstSpirit Server is located in the bottom right corner of the page. The current logged-in user at the server is also displayed.

[English ▼] This select box at the top right of the page allows you to set a language for further work with FirstSpirit.

From FirstSpirit Version 4.2R2 the license type is displayed on this start page, if it

is not a "Productive" license, e.g.

Figure 5-3: Logo of license type "Training"

5.2.1 Quickstart

On the left-hand side of the page there are quickstart entries which are directly linked to a project. The client (JavaClient or WebClient) which has been configured for the entry is automatically started and the selected project opened via these entries. Only projects which the logged-in user is permitted to open are displayed in this list (see the FirstSpirit Manual for Administrators for more information on the configuration of quick start entries).

If the demo project is installed, the quickstart entries are displayed in this section.

5.2.2 Client start

In the middle part of the page there are the entries for starting the FirstSpirit-Clients.

- **JavaClient (Editor application):** Click on this entry to start the FirstSpirit editorial system. The editor can select the desired project. A connection to the server is automatically established (see section 5.3).

- **WebClient (Author environment):** Click on this entry to start the FirstSpirit author environment via a browser. In contrast to the JavaClient, the FirstSpirit author environment offers a limited functional scope for editorial work with FirstSpirit (see section 5.3).

5.2.3 Administration

The right-hand part of the page is divided once more. At the top there are the entries for the server and/or project administrators.

- **Server-Monitoring:** Click on this entry to open Server-Monitoring. If there is any access to the FirstSpirit directory under Windows, the licence file can be installed here easily (see chapter 5.4 page 50.) See the documentation for administrators for a detailed description.

- **Server and Project configuration:** Click on this entry to open a console for the FirstSpirit Server and project configuration. See the documentation for administrators for a detailed description (see section 5.3).

> **!** *This part is only visible for server and project administrators.*

5.2.4   User

In the bottom part of the right-hand window side there is the area for the user settings of the currently logged-in user. Some functions which are required for the initial login process as server administrator after FirstSpirit installation are briefly described below (see subsections).

- **Connection settings:** Here it is possible to change the connection settings of the currently logged-in user.

- **Change password:** Here it is possible to change the password of the currently logged-in user.

- **Change User:** In some cases it might be desired to authenticate yourself at the FirstSpirit Server under a different user name, e.g. to log in as server administrator.

- **Log off:** Click on this entry to terminate the current FirstSpirit session of the logged-in user.

- **Help:** Click on this entry to open the FirstSpirit online documentation.

5.3   Application start

5.3.1   JavaClient

A web browser with "Java Web Start"[1] is required for starting the JavaClient. Via Java Web Start, software updates of the FirstSpirit products are automatically transferred to the client systems during startup. For this, the required permissions (e.g. file creation permissions) have to be configured on the system or the user layer.

---

[1] Further information: http://java.sun.com/products/javawebstart/

Just click on the respective entry on the FirstSpirit start page to start the client (see chapter 5.2 page 45).

After the connection has been established, a project select dialog with a list of available projects for logged-in user opens. Initially, only the example project is available after installation.
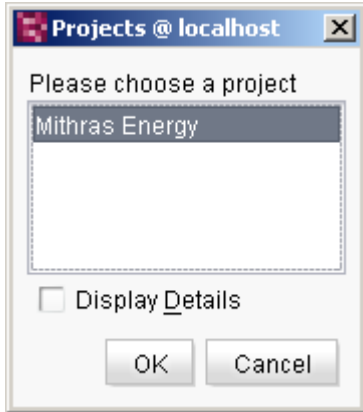

Figure 5-4: Choose project

Double click on the entry or click on the **OK** button to load the selected project. It is now possible to start familiarizing yourself with the FirstSpirit client.

5.3.2 WebClient

The WebClient does not require a Java environment and can be called directly via the web browser. Just click on the respective entry on the FirstSpirit start page to start the client (see chapter 5.2, page 45).

> *The link is only displayed if the used browser is supported (e.g. Internet Explorer Version 6 or later) (see the "Technical Datasheet" for more information).*

During start-up of the WebClient a project select dialog with a list of available projects for the logged-in user opens after connection establishment. Initially, only the example project is available.

5.3.3 Server-Monitoring

The Server-Monitoring does not require a Java environment and can be called directly via the web browser. Just click on the respective entry in the administrator

part on the FirstSpirit start page to start the client (see chapter 5.2 page 45). Here, the licence file can easily be installed for example (see chapter 5.4 page 50.)

> ⚠️ *The link is only displayed if the used browser is supported (e.g. Internet Explorer Version 6 or later) (see the "Technical Datasheet" for more information).*

5.3.4 Application for the server and project configuration

A web browser with "Java Web Start"[2] is required for starting the application for the server and project configuration. Via Java Web Start, software updates of the FirstSpirit products are automatically transferred to the client systems during startup. For this, the required permission configurations (e.g. file creation permissions) have to be, amongst other things, carried out on the system or the user layer.

Just click on the respective entry in the administrator part on the FirstSpirit start page to start the application (see chapter 5.2 page 45).

5.4 Installation of the licence file

The licence file `fs-license.conf` is supplied separately. If necessary, it can be requested via the respective account manager or https://helpdesk.e-spirit.de. Without a licence file it is possible to use FirstSpirit for 30 minutes after each start.

If no valid licence is installed, a message is sent to all logged in FirstSpirit users before the time interval expires.

When entering a new configuration file `fs_license.conf`, it is not necessary to restart the server. The file is automatically read by the FirstSpirit Server.

> ⚠️ *Manipulations to `fs_license.conf` result in an invalid licence. If changes are necessary (e.g. IP address change), please contact the manufacturer.*

---

[2] Further information: http://java.sun.com/products/javawebstart/

5.4.1 Installation via the FirstSpirit Server-Monitoring

The licence file can easily be installed via the FirstSpirit Server-Monitoring. For this purpose select the menu item "Licence" in the Server-Monitoring in the menu "FirstSpirit / Configuration".

To import the licence file onto the server, the content has to be inserted into the text field on this page in full and unchanged. Click on **Save** to save the licence file.

5.4.2 Installation via the file system

As an alternative to the installation via Server-Monitoring the licence file can also be stored in the directory `conf` of the FirstSpirit Server.

In the standard installation the complete path to the license file is

- under **GNU/Linux, Solaris or AIX**:
  `/opt/firstspirit4/conf/fs-license.conf.`

- under **Windows**:
  `C:\Programs\FirstSpirit4/conf/fs-license.conf.`

See the manual for administrators, section 3.2.5, for further information on the license file.

5.5 Problem analysis during installation

If after installation no FirstSpirit start page is accessible with your web browser the server side log files fs-server.log and fs-wrapper.log in /opt/firstspirit4/log show detailed information about the origin of the problem. On Windows these log files can be viewed via the start menu „FirstSpirit / View log files".

If no log file is written to `/opt/firstspirit4/log`, there is a problem with launching the Java Virtual Machine. In this case the file `/opt/firstspirit4/bin/wrapper.log` shows further information about the error cause.

6   Table of figures