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FusionReactor 3: Installation Guide

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Overview

FusionReactor Setup allows you to easily install FusionReactor on a variety of different application servers, like Adobe ColdFusion 6, 7, 8 and 9, Adobe LiveCycle ES, Apache Tomcat 4.1 to 6, JBoss 3.2 to 5.1, Jetty 4 to 6, Railo 1 to 3, OpenBD or NewAtlanta ServletExec/AS 5 to 6 running on Windows, MacOS, Linux or Solaris operating systems.

FusionReactor Setup can be used to install a new instance of FusionReactor or to add new instances to an existing FusionReactor 3 installation. It can be used to update (resp. reinstall) the current version 3 installation including all configured instances and to update previous versions of FusionReactor 2 that have been installed with the 2.0 installer. Additionally, previous versions of FusionReactor 1 can be updated, provided that they have been installed with the InstallShield Multiplatform Wizard as used by the FusionReactor 1.0 Installer.

This document shows you in detail how to use FusionReactor Setup to install FusionReactor on Windows and Linux. Installation on other platforms is done similarly.

In some cases (e.g. on UNIX machines without X) FusionReactor Setup can not be used to install FusionReactor and therefore FusionReactor has to be installed manually. The procedure of manually installing FusionReactor is described comprehensively giving step by step instructions for Windows and Unix operating systems in this document.

Installing FusionReactor on Windows

Installing FusionReactor 3 on Windows

Caution: If you want to install FusionReactor on a target server that does not run under the `LocalSystem` account please read section *ColdFusion on non default environments* before you begin.

To start the installation, login as user *Administrator* and run

`FusionReactor_windows_3_5_0.exe`

FusionReactor Setup will look for a suitable Java Runtime Environment (JRE) (required to run the installation) and will offer you to download one from the FusionReactor web site if none could be found on the target machine.

Figure 1: install4j JRE Wizard

In case of a problem with the JRE you can start FusionReactor Setup with the command line parameter `-manual`. The default JRE search sequence will then not be performed. FusionReactor Setup will act as if no JRE has been found at all and display the dialog shown in Figure 1 that lets you choose an existing JRE on your computer or download one from the FusionReactor web site.

Figure 2: Welcome panel

Once this initial step is done you will see the Welcome panel as shown in Figure 2.

Clicking the `Next` button will proceed with the installation and open the License panel as shown in Figure 3.

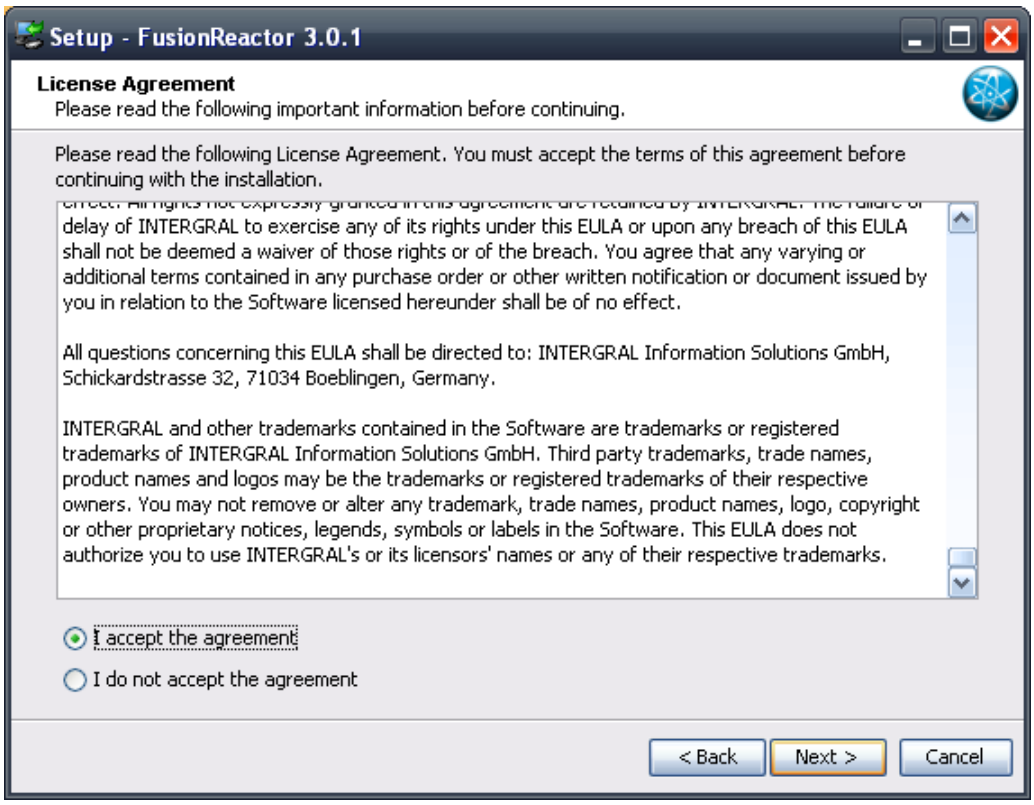

Figure 3: License Agreement panel

Please carefully review the license agreement, then choose the '*I accept the agreement*' option (if you accept its terms and conditions), and click `Next` to proceed.

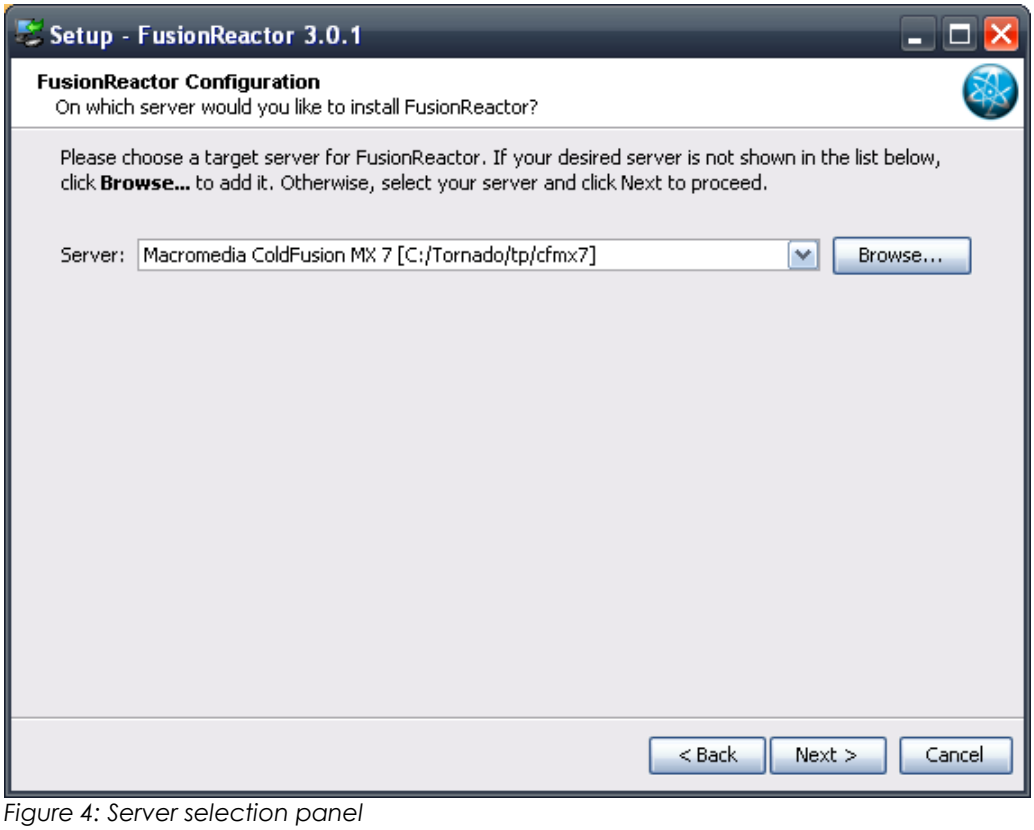

Figure 4: Server selection panel

Note: you will not be able to install FusionReactor if you do not accept the license agreement.

Next you will see the target server selection panel (Figure 4) where you choose the target server on which FusionReactor will be installed.

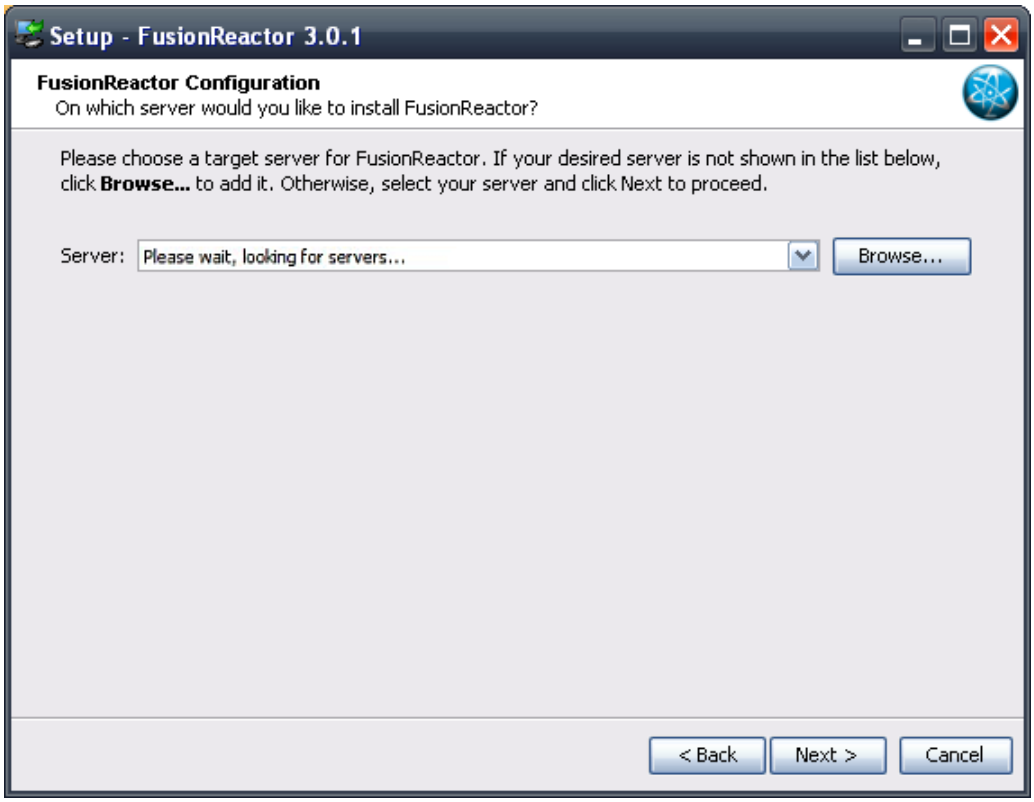

Figure 5: Looking for servers

On slower machines you will probably see (depending on the speed of your disk) a message like in Figure 5, saying that the Setup is looking for target servers on which FusionReactor can be installed.

This search usually requires less then a minute to complete. If you do not want to wait you can click on the `Browse...` button at any time to manually add a target server.

If you have clicked on the `Browse...` button the panel shown in Figure 7 is displayed next.

In this panel the `Next` button will become available as soon you have supplied the correct path to a server root directory (e.g. `C:\ColdFusionMX`) and FusionReactor Setup has found a valid server installation in this directory. On slower machines this check can require a second or two until the button state gets updated.

Clicking the `Next` button will open the next panel (Figure 6). Here you choose the server instance on which you want to install FusionReactor.

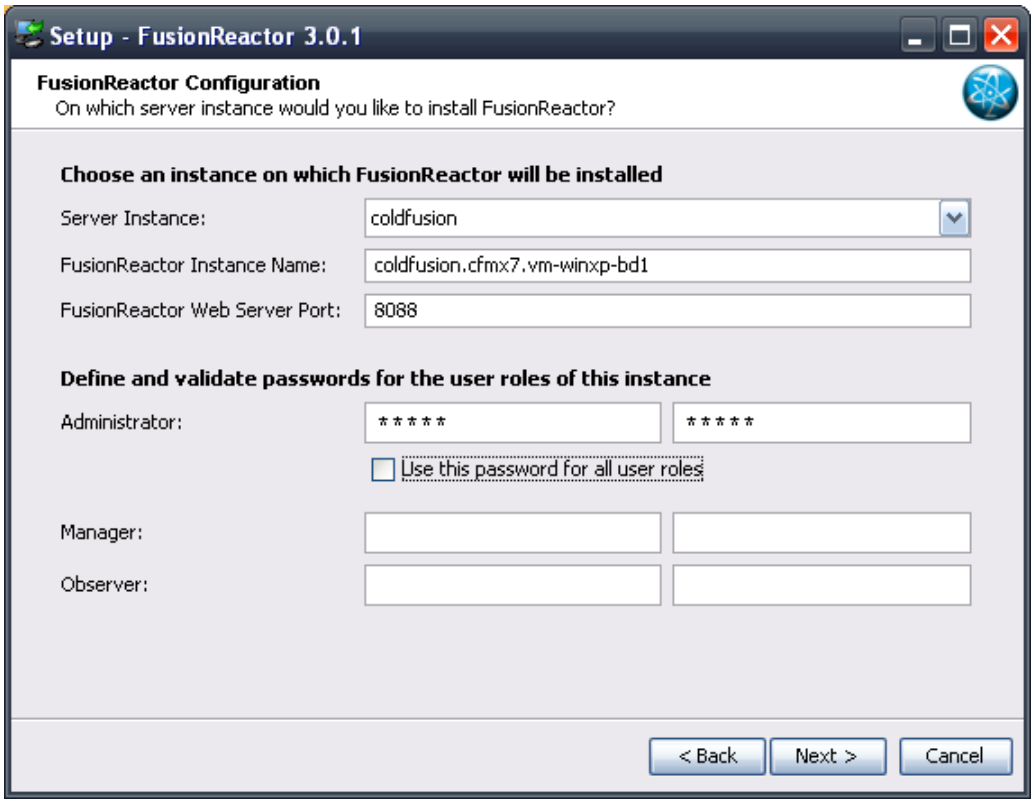

Figure 6: Server instance selection panel

Not all servers support multiple instances, so you might have only the preselected one (often named `default` or `coldfusion`) available in the *Server Instance* selection box.

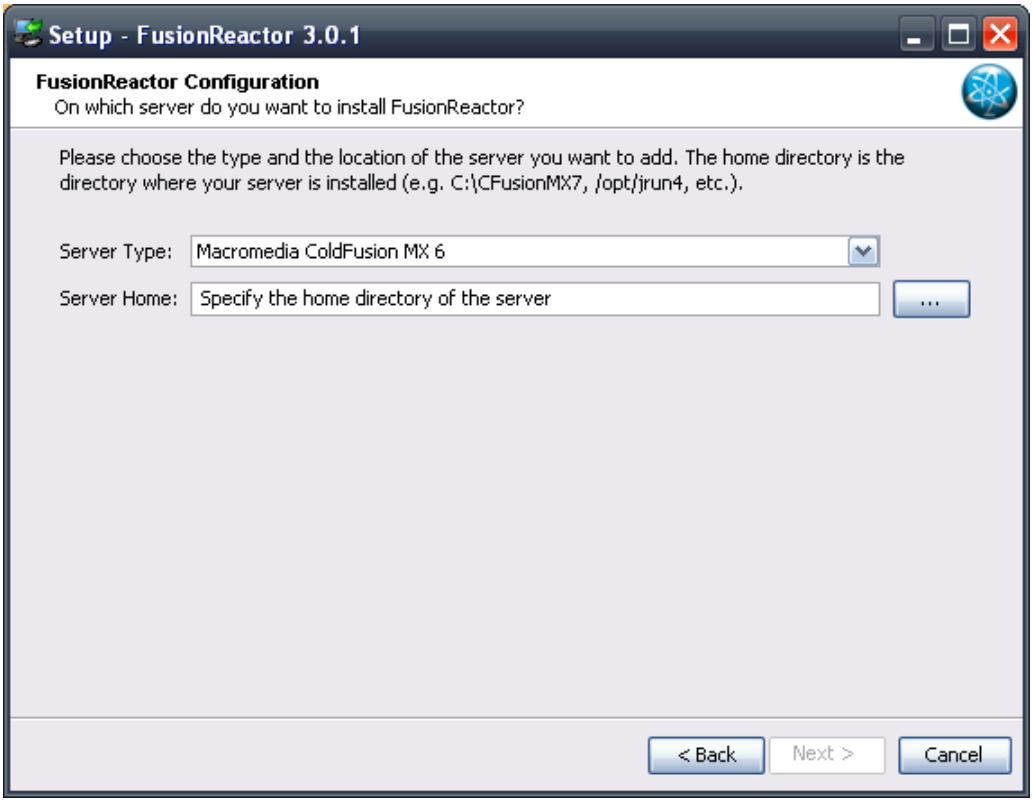

Figure 7: Manual server selection panel

In the *FusionReactor Instance Name* field enter a unique name that you want to give the new FusionReactor instance. FusionReactor Setup will warn you if the name is already used by another instances of FusionReactor (see Figure 8).

The *FusionReactor Web Server Port* must be a valid integer value representing the port number of the built in web server of FusionReactor. FusionReactor Setup will warn you if

Figure 8: Instance name already in use

the port is already in use by another application or instance of FusionReactor (Figure 9).

Figure 9: Port already in use

Finally, the passwords for the three user roles of the new FusionReactor instance must be defined. If you want to use the same password for all user roles mark the '*Use this password for all user roles*' check box. The only mandatory password is the Administrator

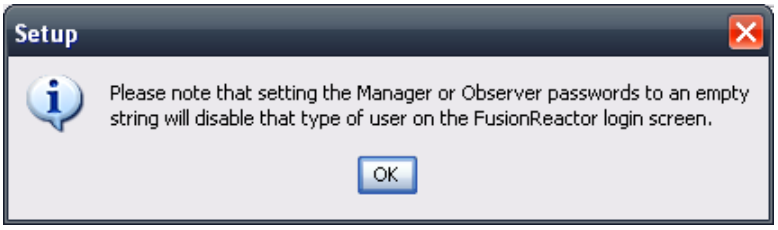

Figure 10: Acknowledge disabling of user roles

password. If you do not specify passwords for the other user roles they will be deactivated (but can be activated at any time later) and you see the dialog shown in Figure 10.

Validate your passwords by typing them again in the password validation fields on the right side of the panel.

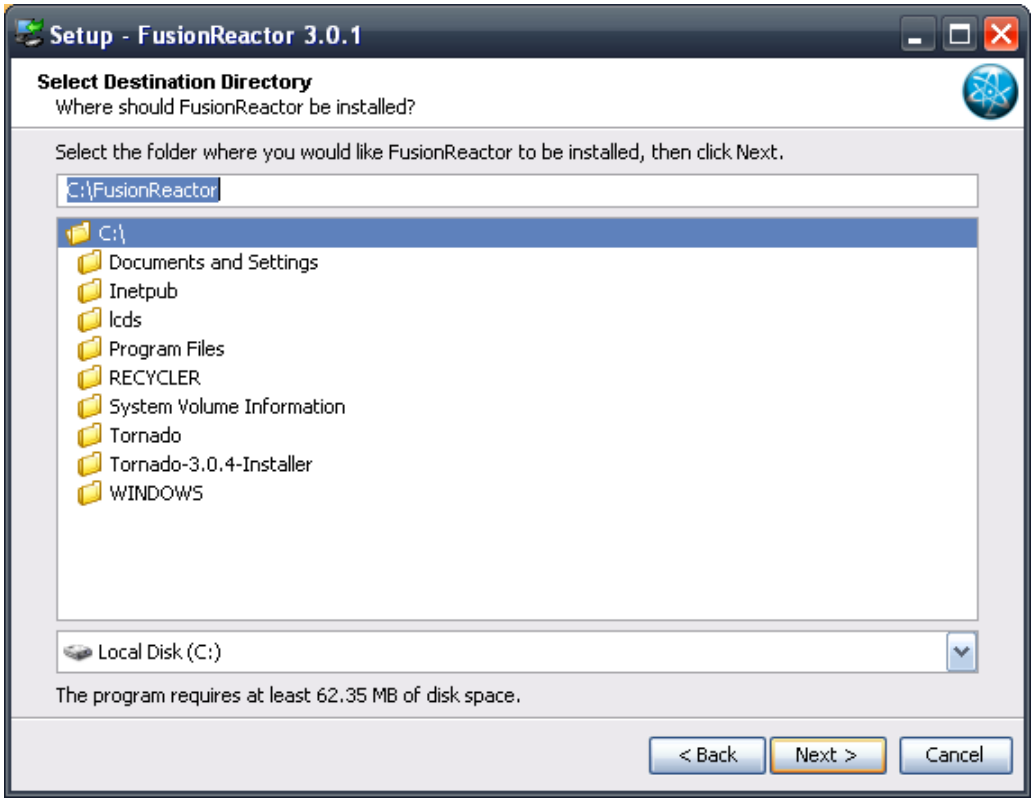

Figure 11: Select destination directory panel

Click `Next` to proceed with FusionReactor Setup and open the Select destination directory panel shown in Figure 11.

You can either accept the predefined destination directory or choose a directory of your choice. Click `Next` to proceed.

Next (see Figure 12) you select the Start Menu Folder and whether FusionReactor Setup

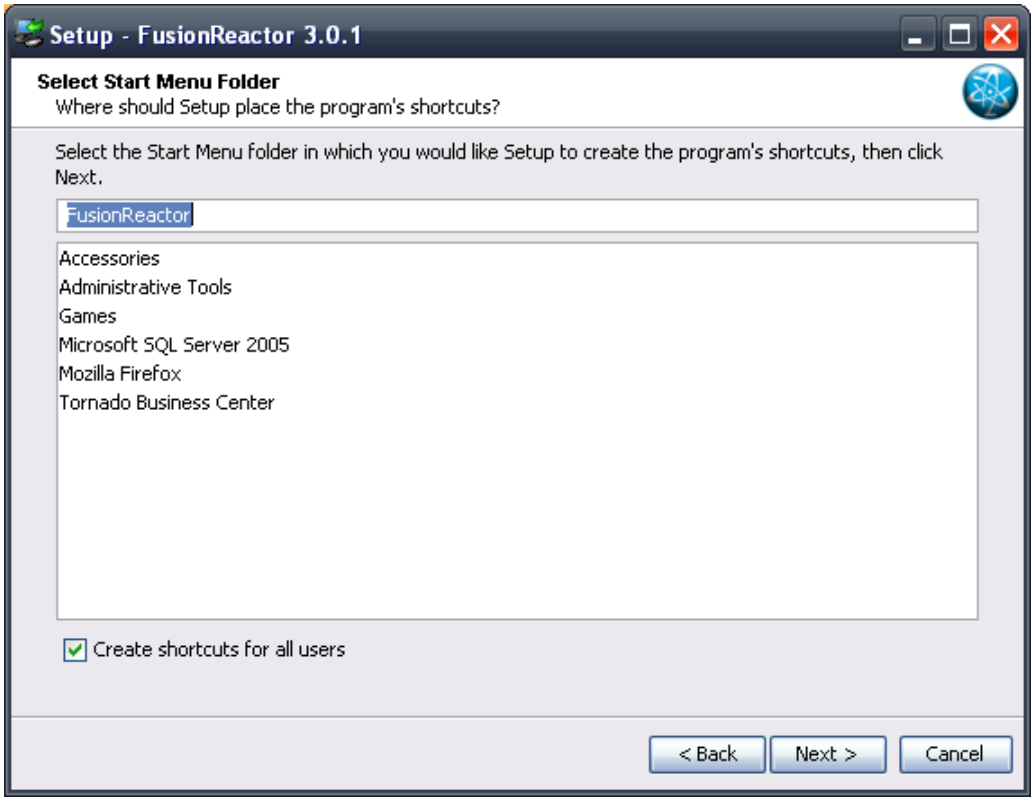

Figure 12: Select start menu folder panel

should create shortcuts for all users. Click `Next` to proceed with the installation.

In the following panel (Figure 13) choose the additional tasks you want FusionReactor Setup to perform then click `Next` to proceed. Note that the *'Launch FusionReactor*

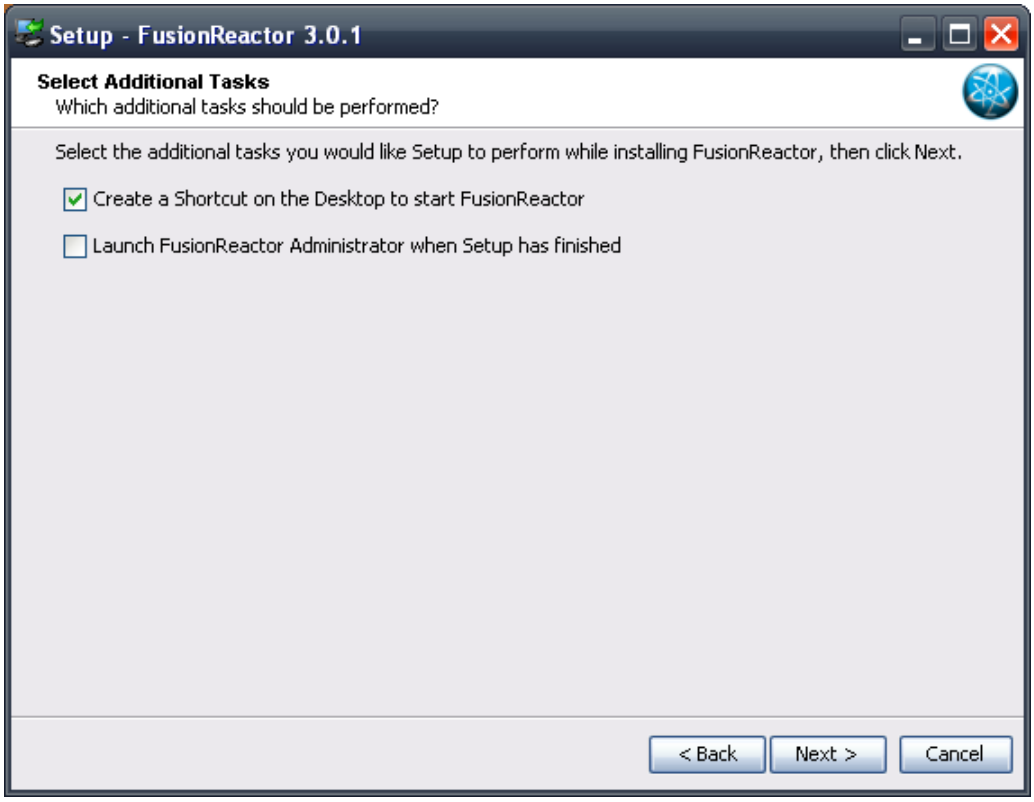

Figure 13: Select additional tasks panel

Administrator when Setup has finished' option only works if the server can be started by FusionReactor Setup, i.e. runs as a Windows service.

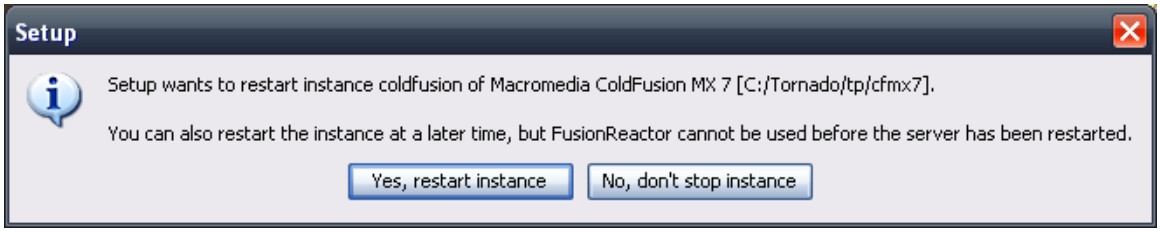

Figure 14: Restart server instance dialog

If the target server you have selected runs as a Windows Service it can be controlled by FusionReactor Setup. Depending on the status of the service FusionReactor Setup will ask you if the service should be restarted (Figure 14) and later started after FusionReactor Setup has finished (Figure 15).

Figure 15: Start server instance dialog

Subsequently FusionReactor Setup shows you a panel (Figure 16) displaying messages

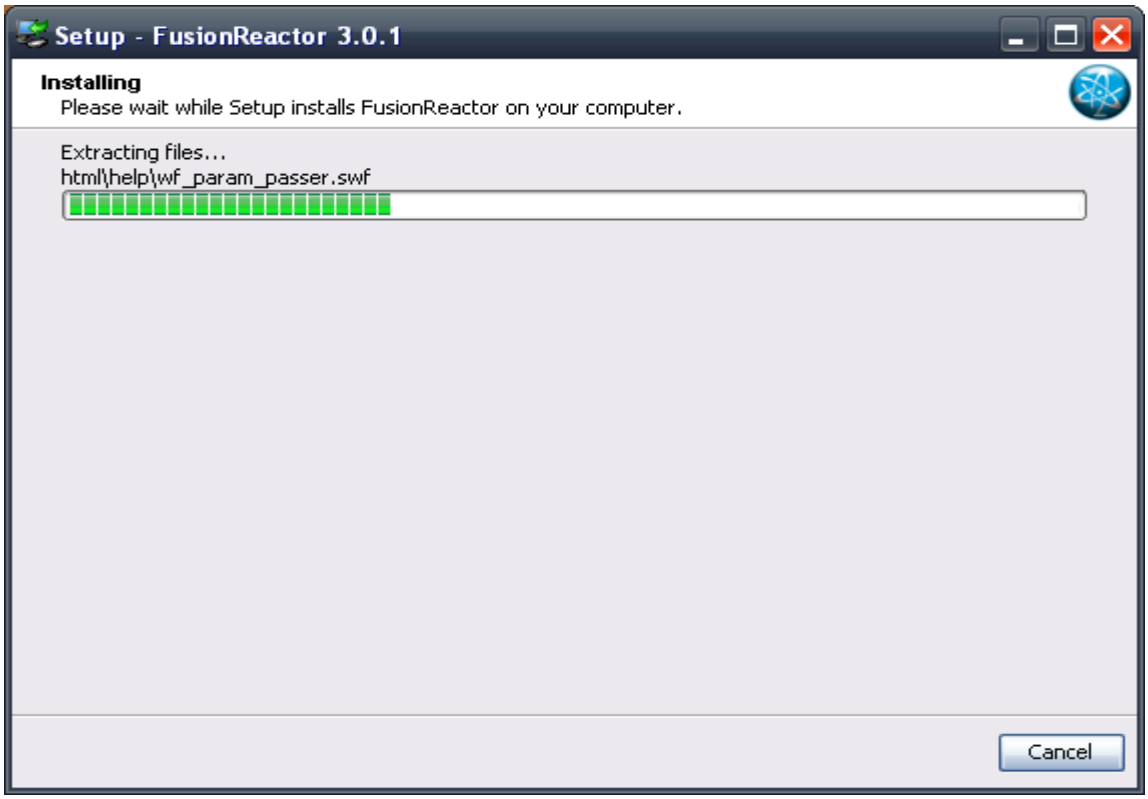

Figure 16: Installing panel

about the current installation actions.

If the target server does not run as a service i.e. can not be stopped by FusionReactor Setup, it is your responsibility to stop and later start it. In this case FusionReactor Setup will prompt you to stop the server as shown in (Figure 17) and also to manually start the server (Figure 18) after FusionReactor Setup has finished.

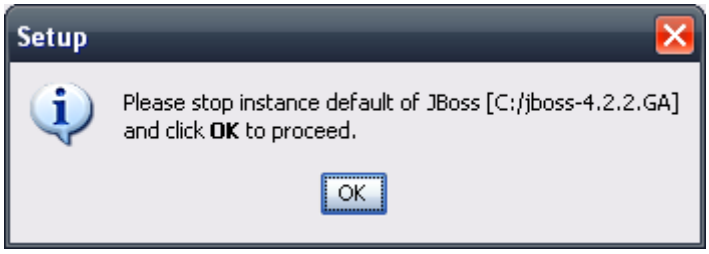

Figure 17: Stop server instance dialog

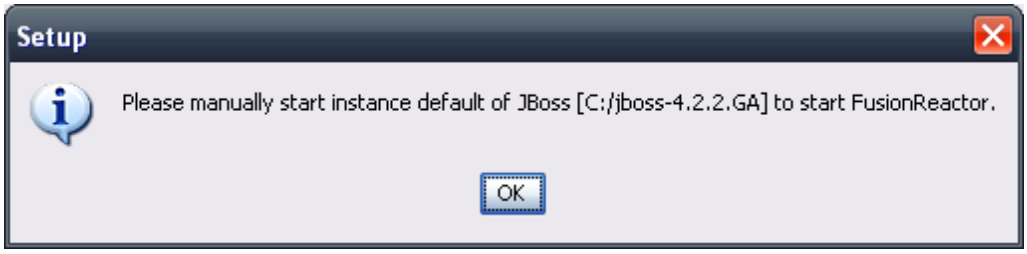

Figure 18: Start server instance dialog

Once FusionReactor Setup is ready you will see the Finish panel shown below.

Figure 19: Finish panel

Click `Finish` to end the installation. You can use the FusionReactor entry in the Start Menu or the Desktop Shortcut to open the FusionReactor Administrator.

ColdFusion on non default environments

If you have changed the account of the service running the target server and/or the ownership of the target server directory (ColdFusion runs by default under the `LocalSystem` account) you must ensure that the runtime user of the target server has read/write access to the FusionReactor directory and the Windows Registry hive

`HKEY_LOCAL_MACHINE\SOFTWARE\JavaSoft\Prefs\com\intergral\fusionreactor`

can be accessed in read/write mode. Create the above key if missing or, alternatively, give the whole

`HKEY_LOCAL_MACHINE\SOFTWARE\JavaSoft\Prefs`

read/write access for the runtime user of your target server.

When using FusionReactor Setup click on the `'No, don't stop instance'` button and then apply the above changes after FusionReactor Setup has finished. Manually restart the target server afterwards to start FusionReactor. This will make sure that FusionReactor can create and update its log and configuration files and install its license.

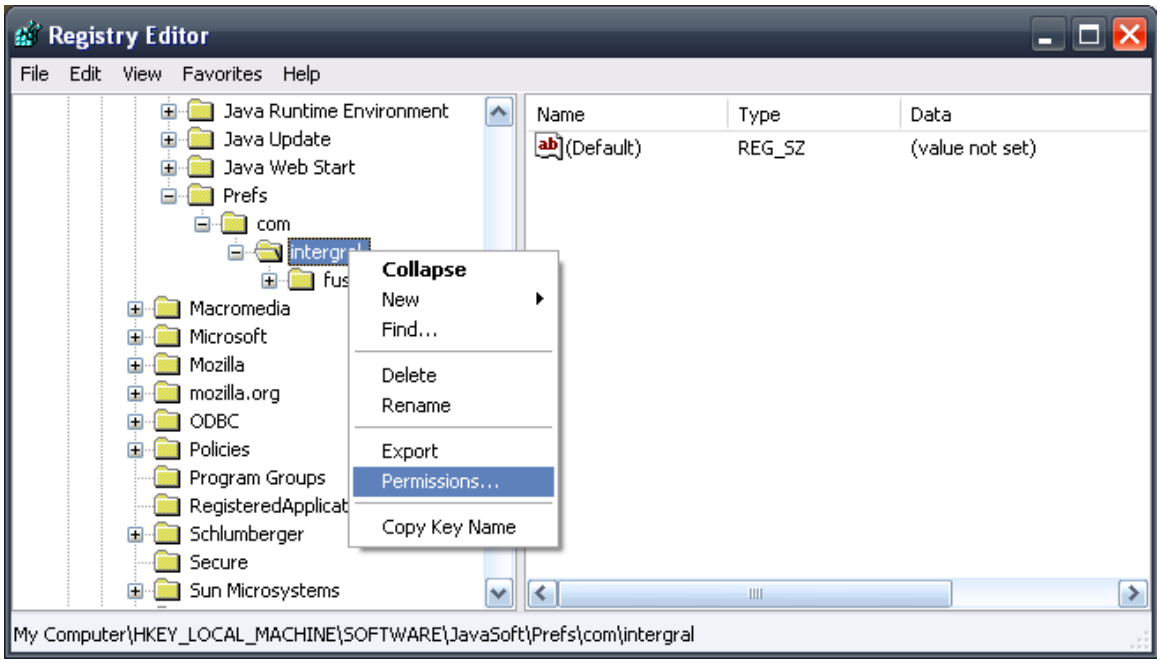

Figure 20: Changing permissions with regedit.exe

Note: Figure 20 shows a screenshot taken on a Windows XP system. If you use another version of Windows (e.g. Windows 2000) you might have to use the `regedt32.exe` application to adjust the permissions.

Installing additional instances of FusionReactor on Windows

You can re-run FusionReactor Setup to install additional instances in parallel to already existing instances. This feature is new since version 3.0.1 of FusionReactor Setup and allows users that don't have an enterprise license and therefore can not use the FusionReactor InstanceManager to install additional instances.

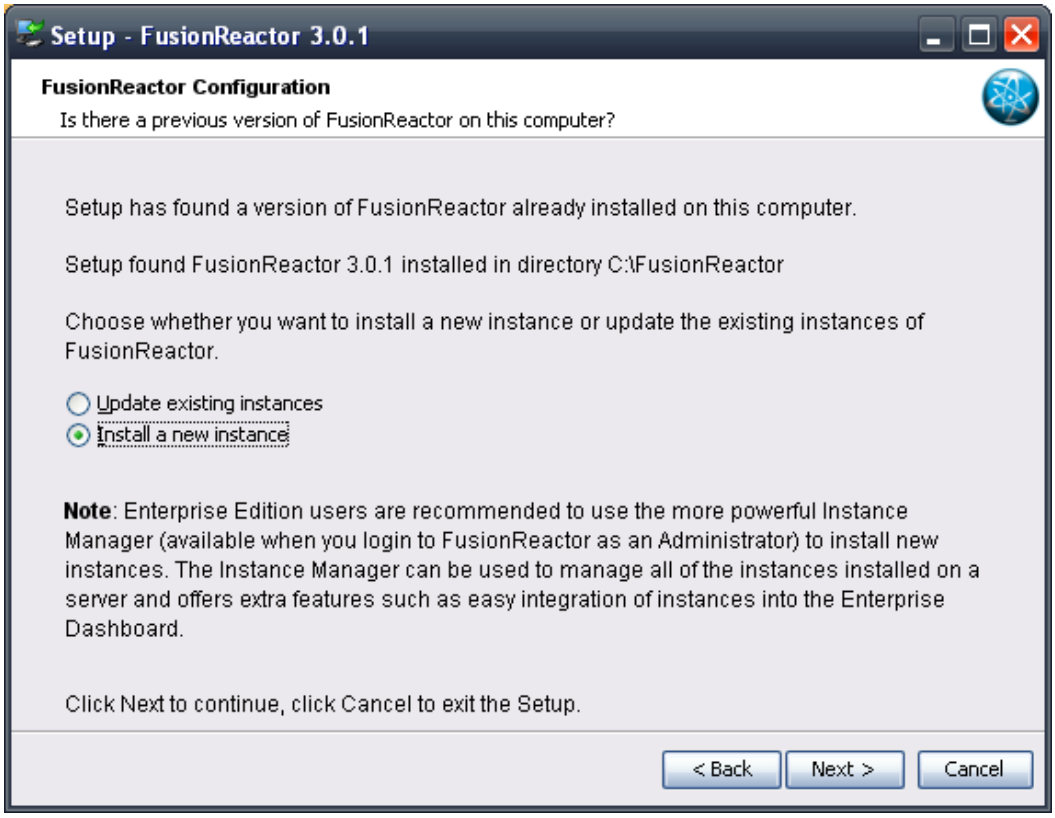

Figure 21: Installing additional instances

Users who do have an enterprise license are recommended to use the FusionReactor Instance Manager to add additional instances. The Setup panel in Figure 21 displays this recommendation as soon the '*Install a new instance*' option is selected.

The remainder of the Setup then continues with the Server selection panel as shown in Figure 7. Please take into account that installing additional instances also reinstalls the files in the FusionReactor directory.

Updating FusionReactor 3 on Windows

You can re-run FusionReactor Setup to update an already installed version of FusionReactor 3. FusionReactor Setup first shows you the Welcome panel (see Figure 2). Clicking the `Next` button will proceed with the installation and open the License panel as shown in Figure 3. If there is already a version of FusionReactor 3 on your computer that has been installed with FusionReactor Setup before, you will see a panel like the one shown in Figure 22.

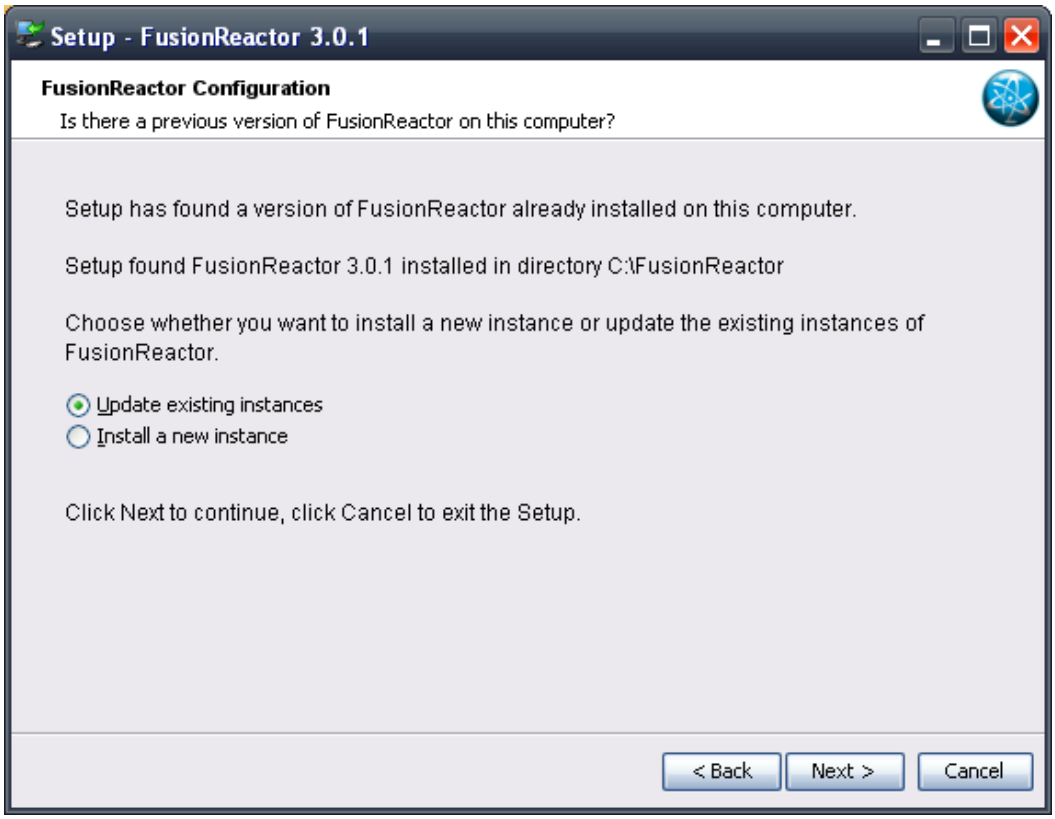

Figure 22: Updating the current version

Leave the *'Update existing instances'* option selected and click on the `Next` button to proceed. FusionReactor Setup shows a summary (Figure 23) panel next. Click the `Next` button to update all FusionReactor instances found on your computer.

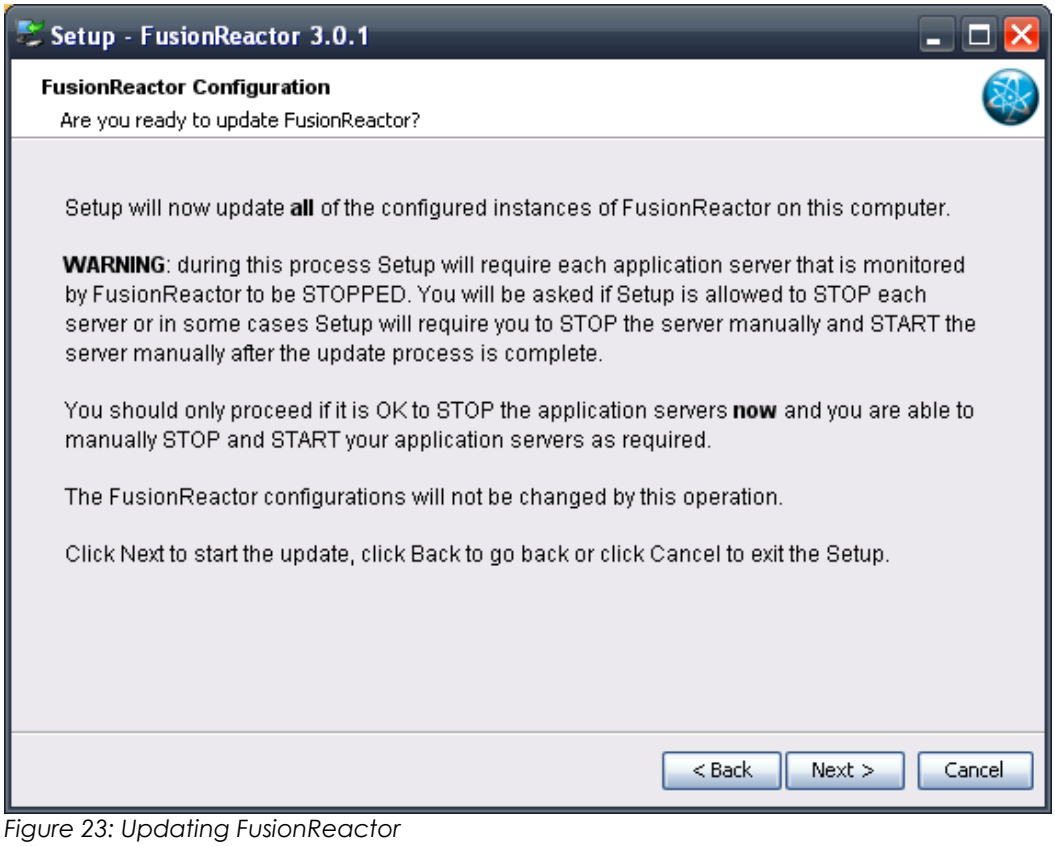

Figure 23: Updating FusionReactor

FusionReactor Setup will continue as described in the *Updating FusionReactor 2 on Windows* section.

Updating FusionReactor 2 on Windows

FusionReactor Setup fully supports updating multiple local instances of FusionReactor if they are located in the default location (the instance directory of FusionReactor). As described in the instructions for the new installation, start FusionReactor Setup which will show you after a short while the Welcome panel (see Figure 2). Clicking the `Next` button will proceed with the installation and open the License panel as shown in Figure 3.

Figure 24: Updating a 2.0 version of FusionReactor

If there is a previous version of FusionReactor 2.0 on your computer that has been installed with the 2.0 Setup Wizard you will see a panel like the one shown in Figure 24 once you clicked `Next` on the License panel.

Click `Next` to update the instances found on your computer to the current version of FusionReactor. FusionReactor Setup will proceed with the Installing panel (Figure 16) and prompt you if it may restart the target servers or you should manually stop and start them (see Figures 14, 15, 17 and 18). If you have not stopped the server you will possibly see an

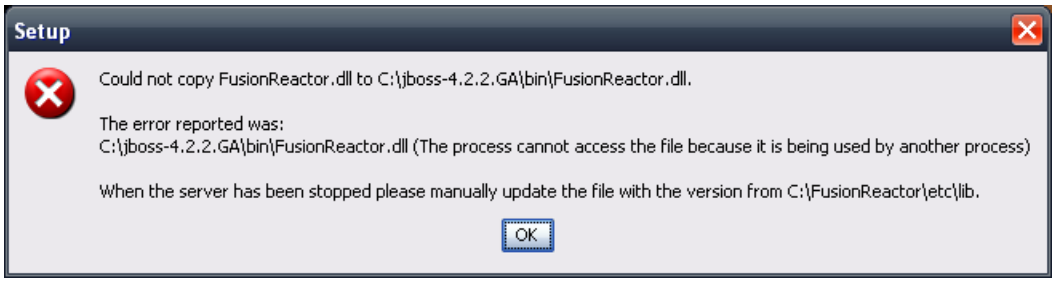

Figure 25: Could not copy native library

error dialog (see Figure 25) saying that the FusionReactor native library cannot be copied. In this case manually stop the server blocking the native library and then click on the OK button afterwards. If you cannot stop the application at this time manually copy the native library once the server can be stopped.

Click `Finish` on the last panel (Figure 19) to complete the update procedure.

Updating FusionReactor 1 on Windows

Similar to the instructions for the new installation start FusionReactor Setup which will show you the Welcome panel (see Figure 2) after a short while. Clicking the `Next` button will proceed with the installation and open the License panel as shown in Figure 3. If FusionReactor Setup has found a previous version of FusionReactor 1.0 you will see a panel similar the one shown in Figure 26 next.

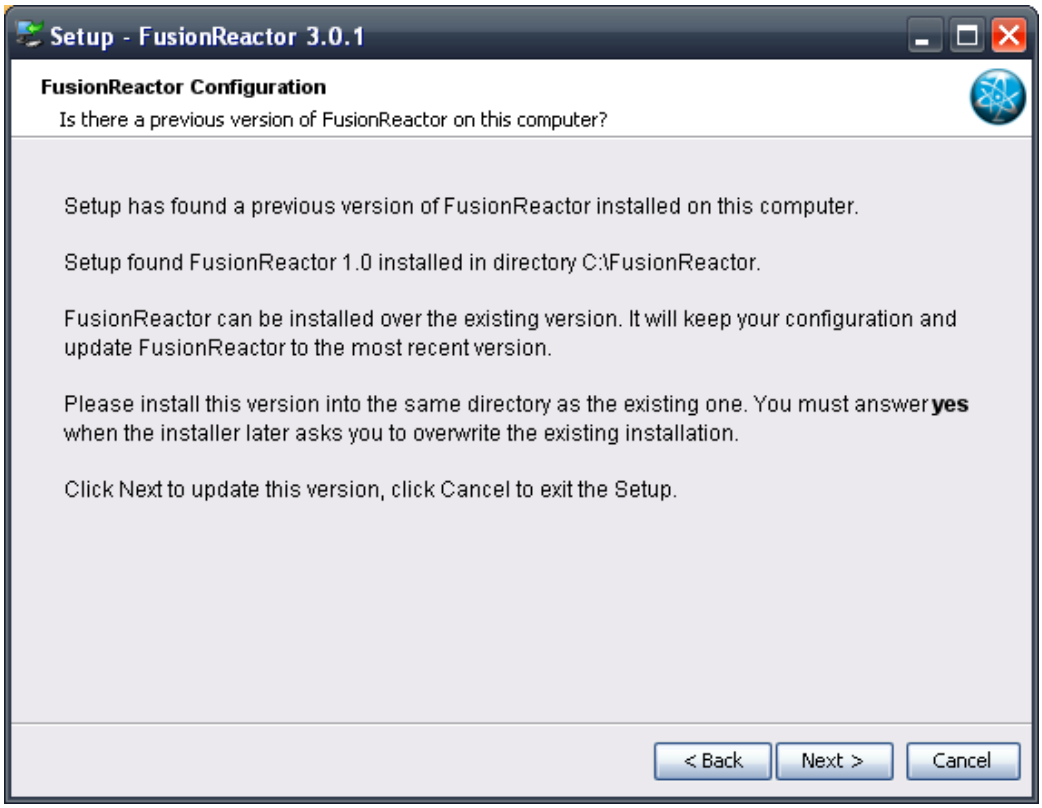

Figure 26: Updating a 1.0 version of FusionReactor

Click `Next` to proceed with the installation. FusionReactor Setup has preselected the target server on which FusionReactor 1.0 is installed in the *Server* selection box – illustrated in Figure 27.

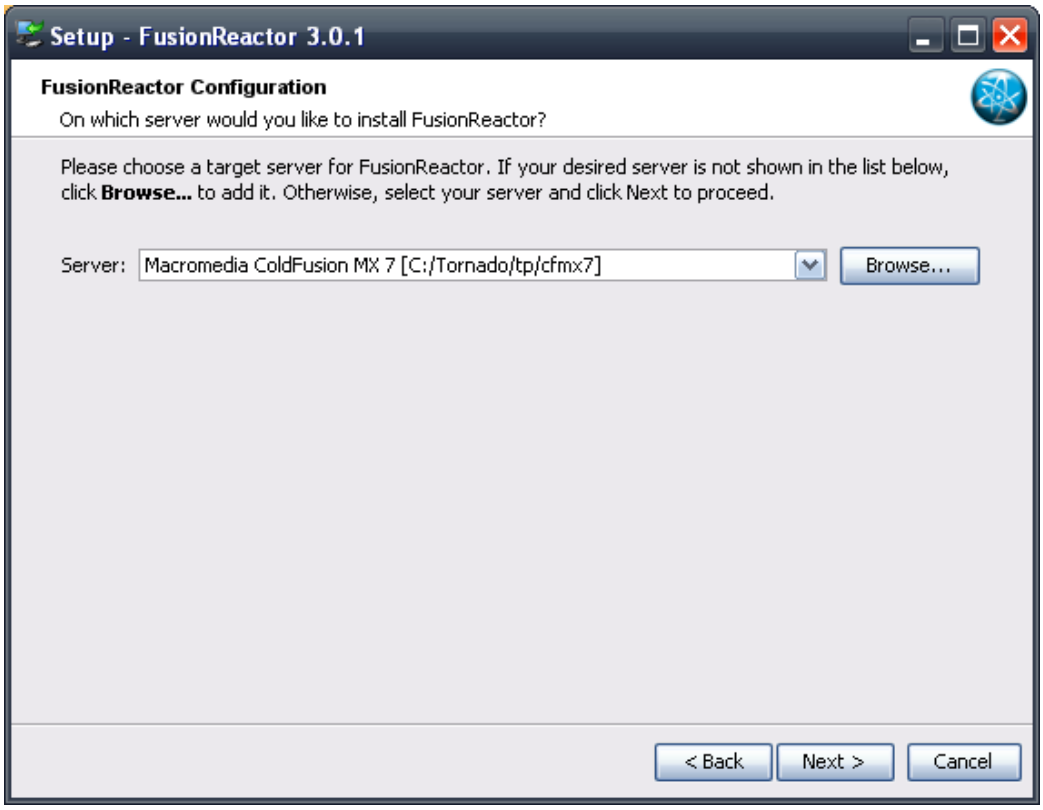

Figure 27: Target server selection panel

Accept the preselected target server by clicking on the `Next` button. This opens the next panel (see Figure 6) with the target server instance on which FusionReactor 1.0 is currently installed preselected. You can change the *FusionReactor Instance Name* and *FusionReactor Web Server Port* if required, previous values will be overridden. Provide passwords as described in the instructions for the new installation (see Figure 6 and Figure 10).

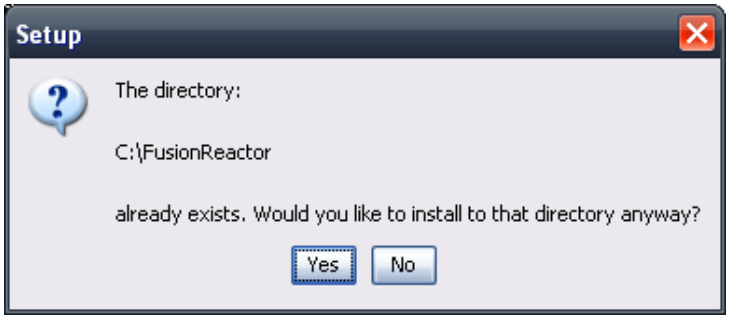

Figure 28: Acknowledge: Directory already exists

The rest of the update procedure will then be the same as with the new installation starting from Figure 11. The only difference is that you have to confirm that the installation directory already exists (see Figure 28).

Uninstalling FusionReactor on Windows

To completely remove FusionReactor from your system, you can either use the FusionReactor Uninstaller Start Menu entry or you can use the Windows Control Panel to open the *Add or Remove Programs* application shown below. The Uninstaller will completely remove the FusionReactor directory including all of the generated data – **please take care that you save any files you want to keep before running the uninstaller**.

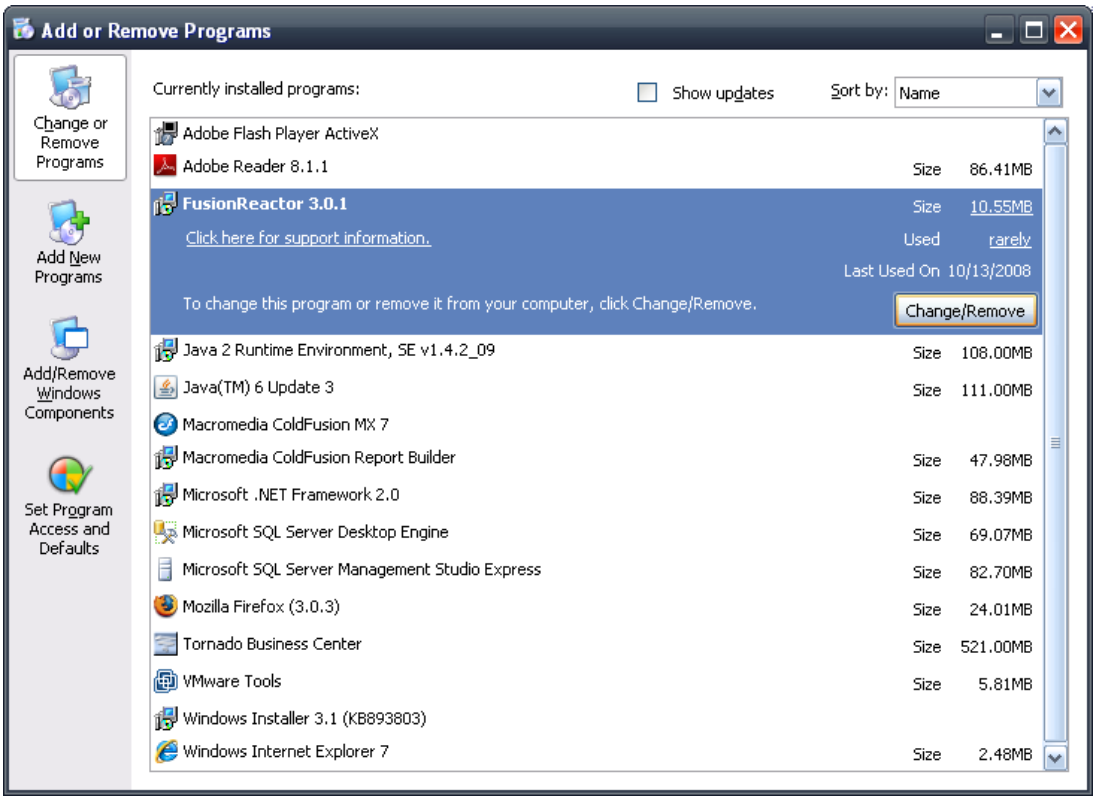

Figure 29: Add or Remove Programs

Once the Uninstaller has been started you must acknowledge the following question

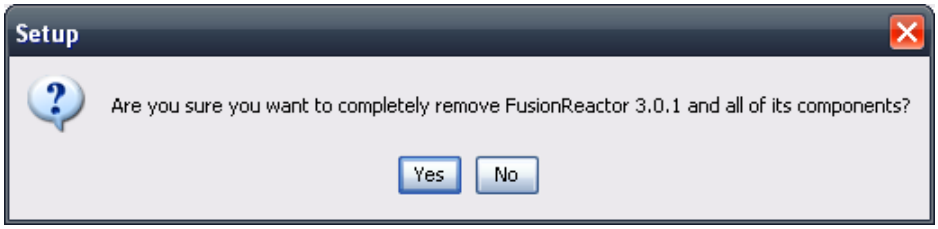

Figure 30: Uninstaller: Remove FusionReactor confirmation

The Uninstaller will then remove FusionReactor completely from your computer. Depending on the server on which FusionReactor is installed the Uninstaller will prompt

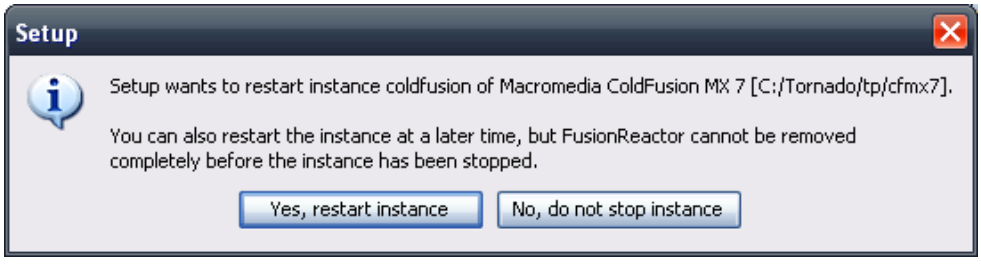

Figure 31: Uninstaller: Restart server instance

you if it may restart the target server as shown in Figure 31 resp. that you should manually stop the server before (see Figure 17).

Finally, when FusionReactor has been completely removed acknowledge the dialog shown in Figure 32.

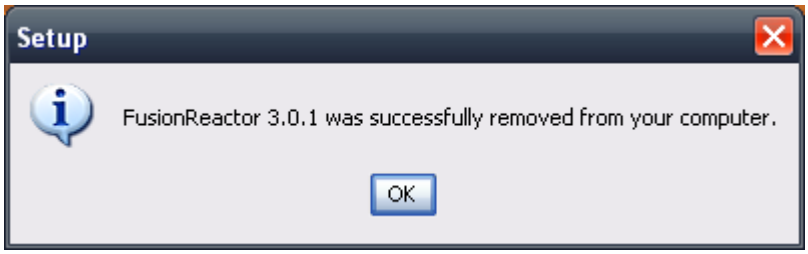

Figure 32: Uninstallation completed

Installing FusionReactor on Linux

Installing FusionReactor 3 on Linux

To start with the installation login as user `root` in an X-Windows session and execute

```
sh ./FusionReactor_linux_3_5_0.bin
```

If you can not use an X-Windows session, you must install FusionReactor manually, either by using the

```
FusionReactor_linux_3_5_0.rpm
```

or the

```
FusionReactor_unix_3_5_0.tgz
```

package. Please read the chapter **Manually installing FusionReactor** about how to do this.

FusionReactor Setup will search your computer for a Java Runtime Environment suitable to run the installation. It will offer you to download a JVM from the FusionReactor web page if none could be found on the target machine. Figure 33 shows the download of the JVM in progress.

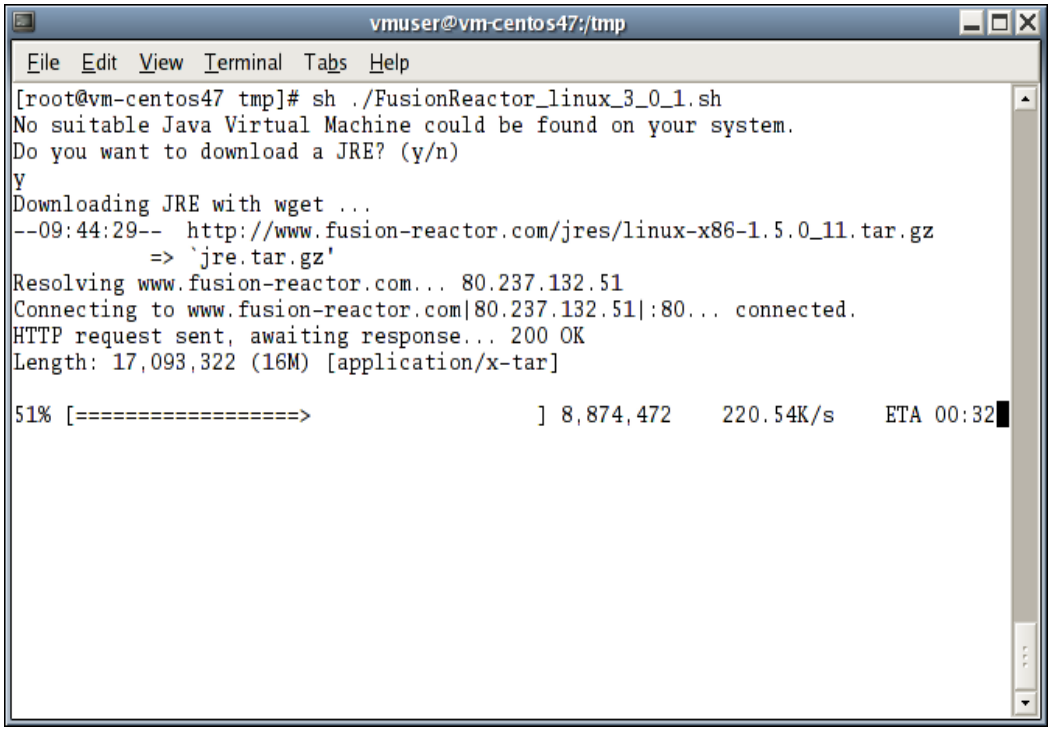

Figure 33: Downloading JRE

In case of a problem with the JVM found by FusionReactor Setup you can set the environment variable `INSTALL4J_JAVA_HOME_OVERRIDE` which then must point to an appropriate JRE directory (e.g. export `INSTALL4J_JAVA_HOME_OVERRIDE=/opt/jre1.6`).

Once this initial step is done you will see the Welcome panel shown in Figure 34 below.

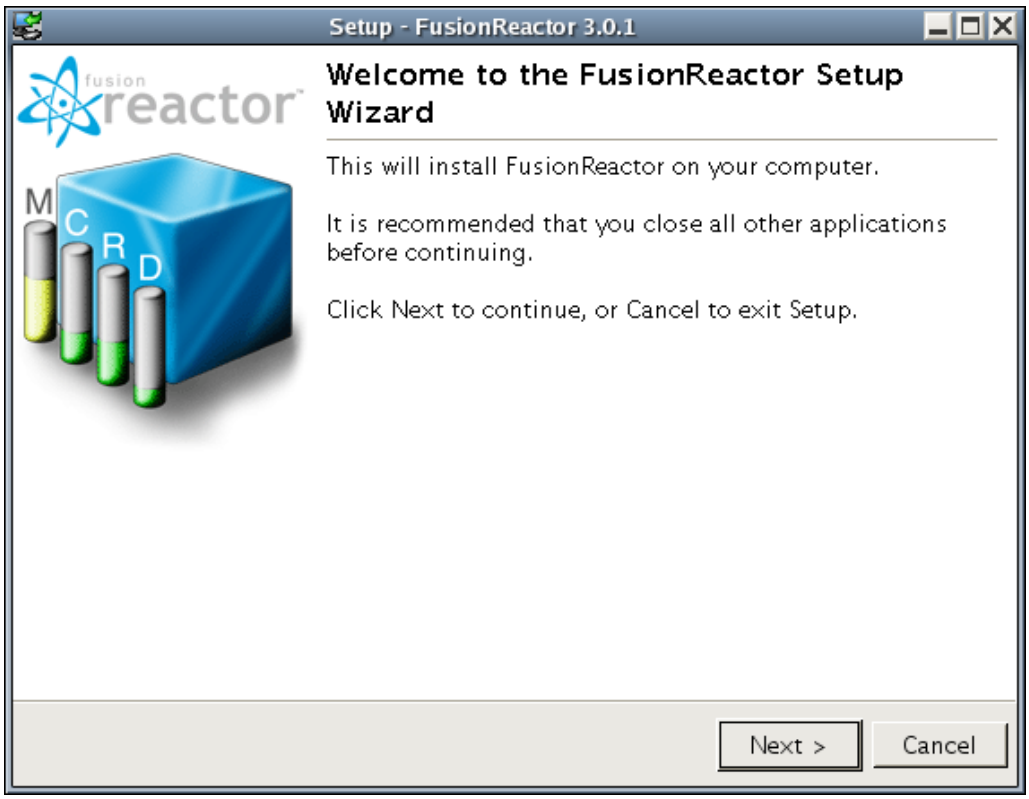

Figure 34: Welcome panel

Clicking the `Next` button will proceed with the installation and open the License panel as shown in the Figure 35.

Figure 35: License agreement panel

Please carefully review the license agreement, then choose the *'I accept the agreement'* option (if you accept its terms and conditions), and click `Next` to proceed. Note: you will not be able to install FusionReactor if you do not accept the license agreement.

Next you will see the target server selection panel (Figure 36) where you choose the

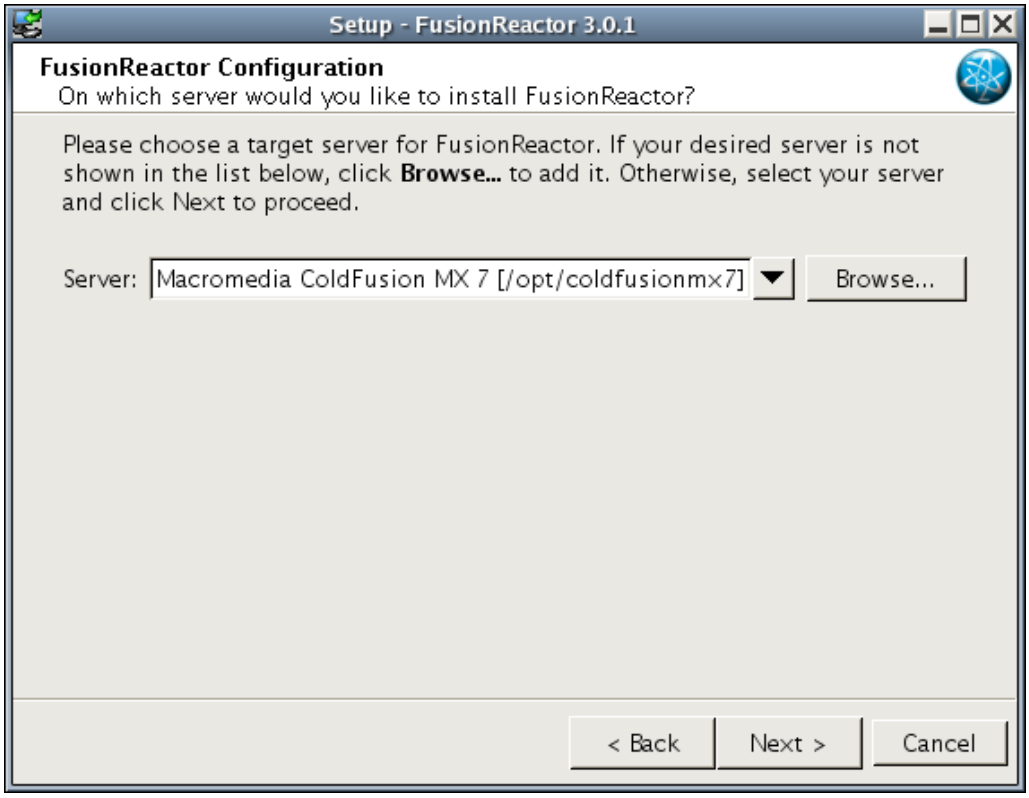

Figure 36: Choose target server panel

target server on which FusionReactor will be installed. On slower machines you will probably see (depending on the speed of your disk) a message like in Figure 5, saying

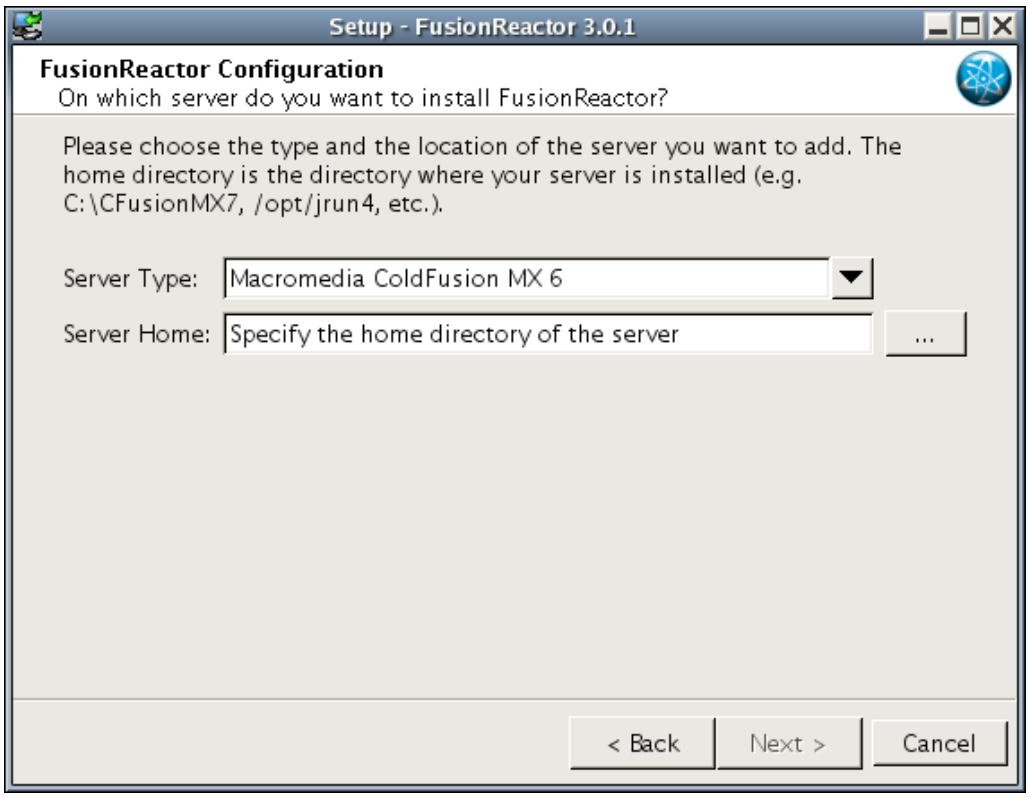

Figure 37: Manually selecting a target server

that the Setup is looking for target servers. This search usually requires less then a minute to complete. If you do not want to wait you can click on the `Browse...` button at any time to manually add a target server. (see Figure 37).

On the next panel (Figure 38) FusionReactor Setup prompts you to enter the user and

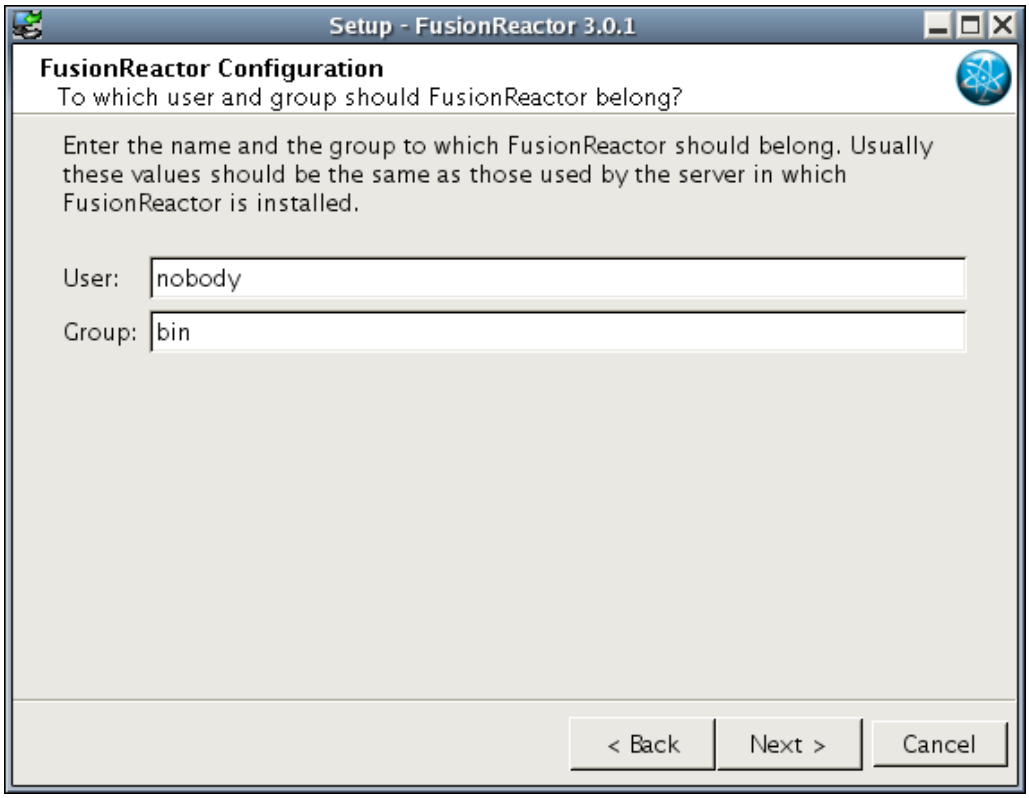

Figure 38: Define user and group

group of the target server. FusionReactor Setup does retrieve these values from your

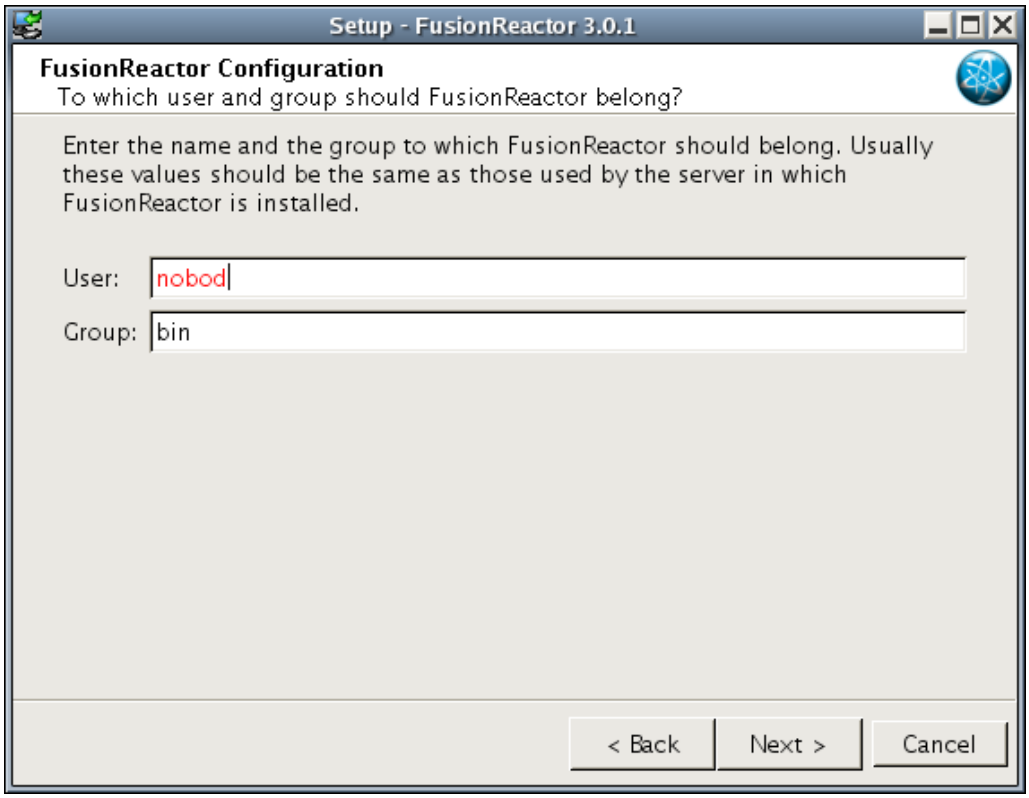

Figure 39: User does not exist

system and puts them as default values in the text input fields. If you change a value FusionReactor Setup will display it in red (see Figure 39) if the belonging user or group does not exist. You should only make changes here if you exactly know what you are doing. Otherwise FusionReactor might not work afterwards.

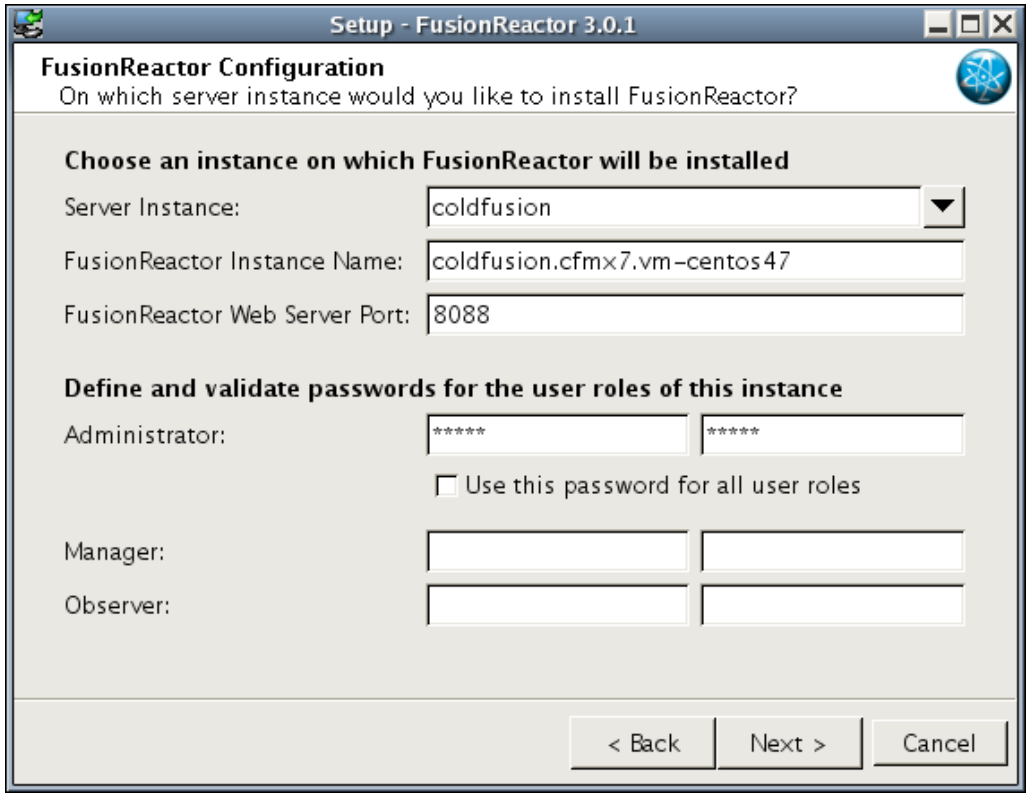

Figure 40: Choose server instance

Clicking on the Next button brings you to the panel shown in Figure 40 where you choose the instance of the target server on which FusionReactor should be installed.

Not all servers support multiple instances, so you might have only the preselected one (often named `default` or `coldfusion`) available in the *Server Instance* selection box. In the *FusionReactor Instance Name* field enter a unique name that you want to give the new FusionReactor instance. FusionReactor Setup will prevent you from using a name containing characters that it can not handle.

The *FusionReactor Web Server Port* must be a valid integer value representing the port number of the built in web server of FusionReactor. FusionReactor Setup will prevent you from using a port which is currently in use by another application or FusionReactor instance.

Finally, the passwords for the three user roles of the new FusionReactor instance must be defined. If you want to use the same password for all user roles mark the *'Use this password for all user roles'* check box. The only mandatory password is the Administrator password. If you do not specify passwords for the other user roles they will be

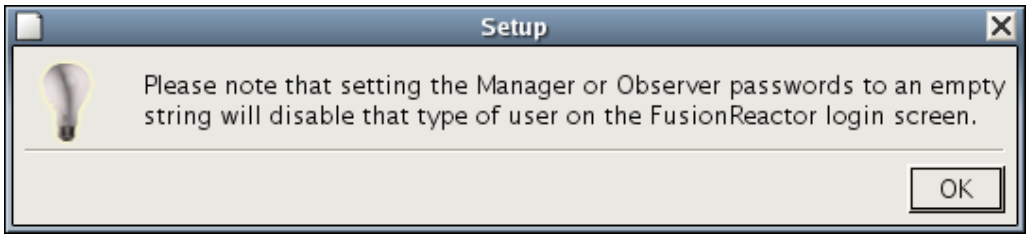

Figure 41: Confirm user role deactivation

deactivated (but can be activated at any time later) and you see the dialog shown in Figure 41.

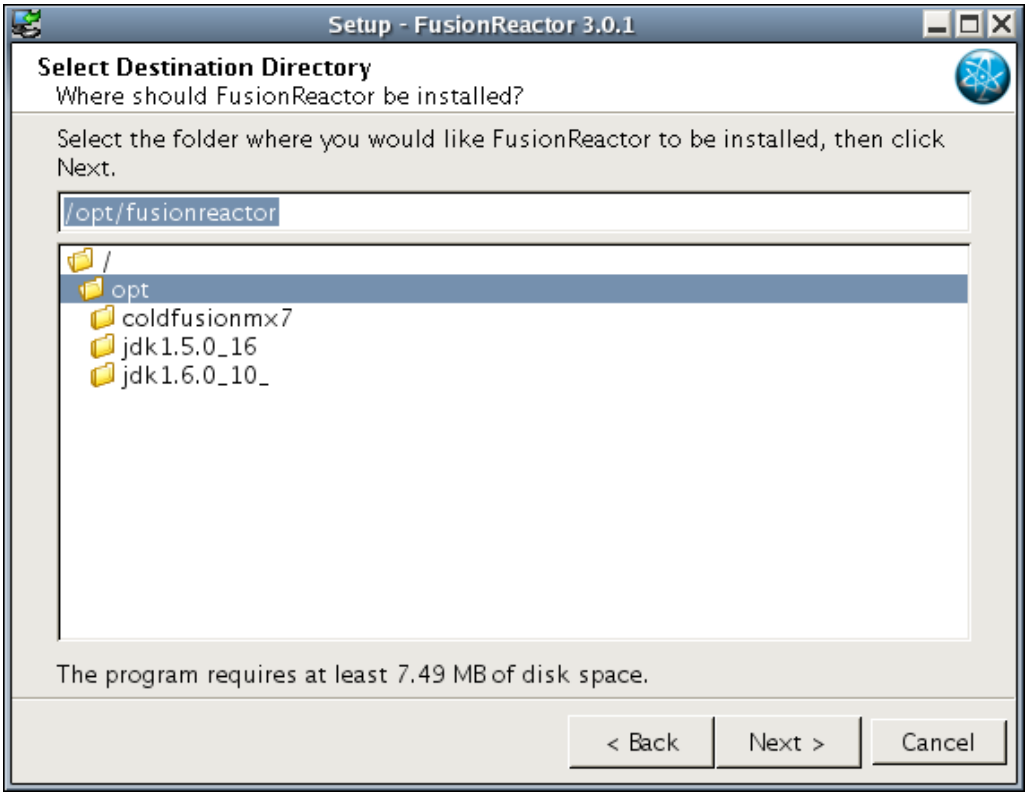

Figure 42: Select destination directory

Once you clicked `Next` on the server instance panel you will see the Select Destination Panel shown in Figure 42. You can either accept the predefined destination directory or choose a directory of your choice. Click `Next` to proceed.

On the next panel (Figure 43) you can decide whether FusionReactor Setup should create a symbolic link for FusionReactor If you do not check the '*Don't create symlinks*'

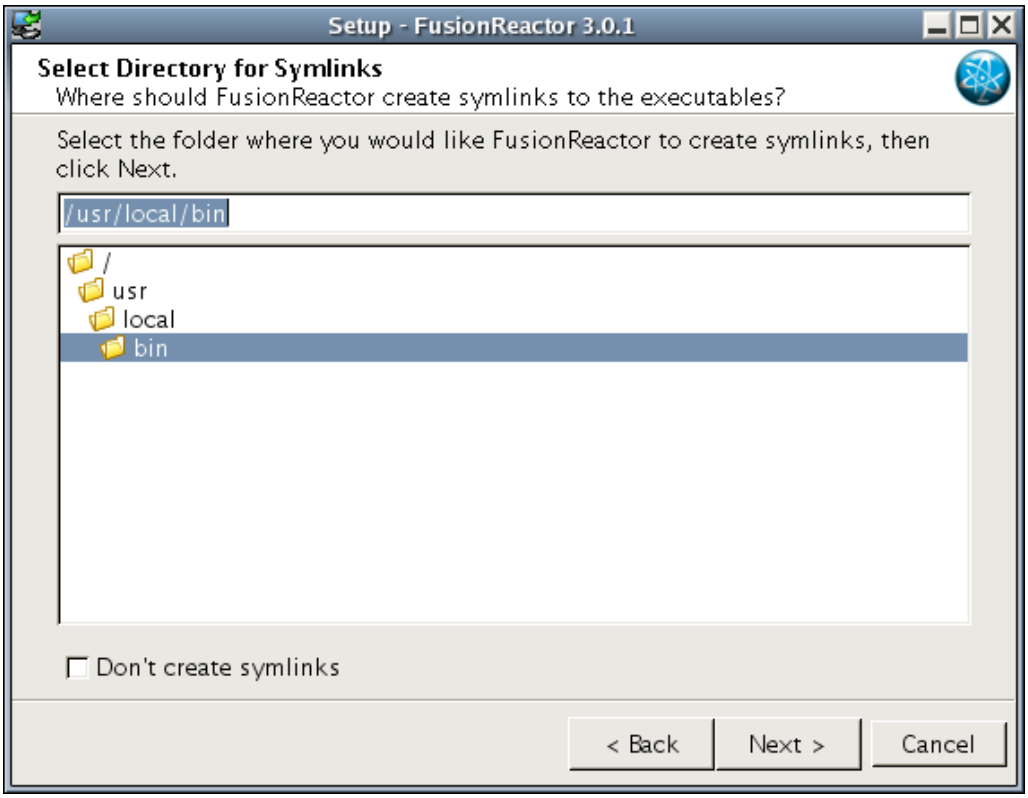

Figure 43: Select directory for symbolic link

option FusionReactor Setup will create a symbolic link in the specified directory that points to the FusionReactor shell script in the directory where FusionReactor is installed. You can use this script to to start a browser running FusionReactor Administrator.

Click `Next` to proceed to the Select Additional Tasks panel shown in Figure 44. Please

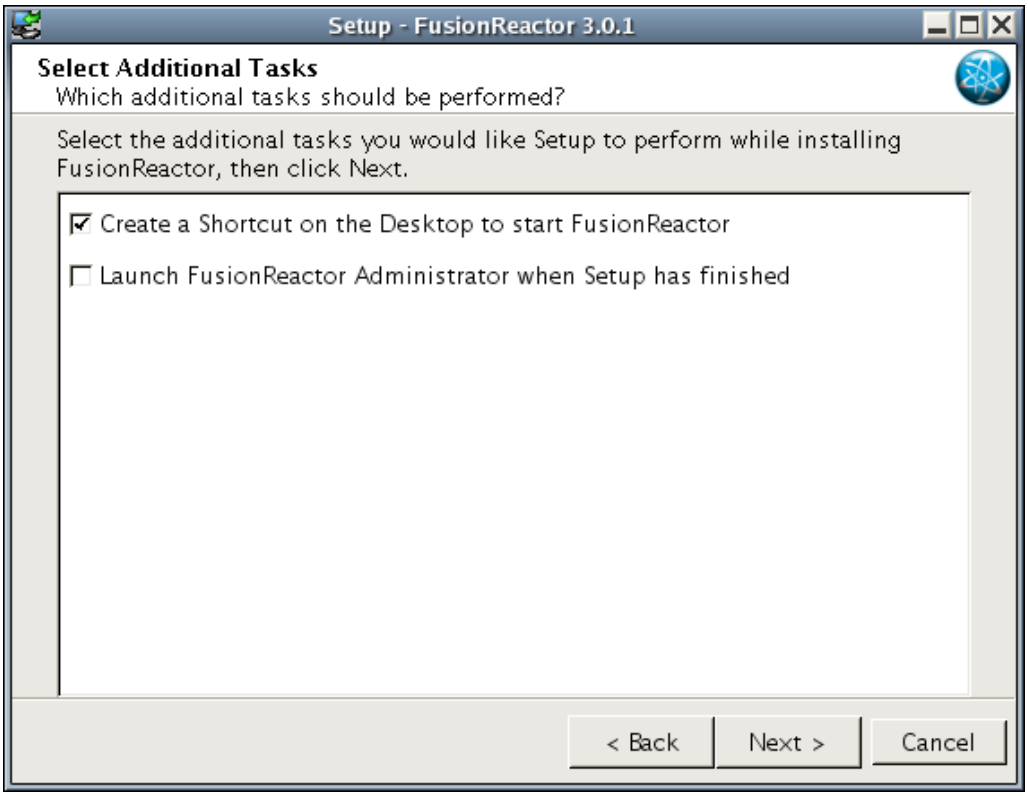

Figure 44: Select additional tasks

consider that a shortcut will be created on the desktop of the `root` user (because you run the Setup as `root`). You might want to manually copy the desktop shortcut to the appropriate user desktop afterwards.

The '*Launch FusionReactor Administrator when Setup has finished*' option can only start target servers that can be started automatically by FusionReactor Setup – currently this is only supported on Windows and has no effect on other platforms.

Clicking the `Next` button will start the actual installation of files. Setup will ask you if the server should be restarted (Figure 45) before proceeding. Again, even if you click the '*Yes, restart instance*' button you will have to start the server instance manually afterwards. However, FusionReactor Setup will show you a dialog reminding you to start

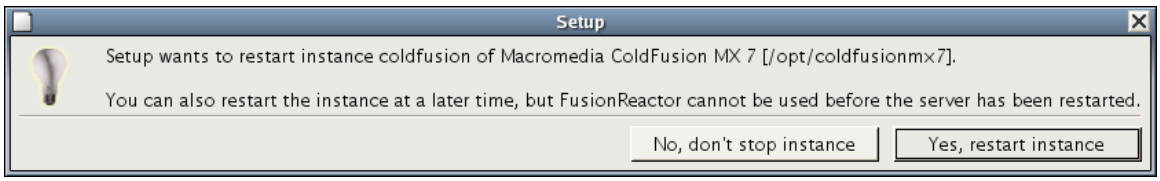

Figure 45: Confirm server restart

the server instance at the end of the installation phase (see Figure 47). If you click '*No, do not stop instance*' the target server remains running but typically tries to load the FusionReactor Servlet filter after it has been added to the web descriptor of the server. Since the Java library making up the FusionReactor application is known to the target server classpath only after a restart you will see a warning in the server log file (which you can ignore in this case) that FusionReactor could not be loaded.

FusionReactor Setup then starts with the extraction of files as shown in Figure 46

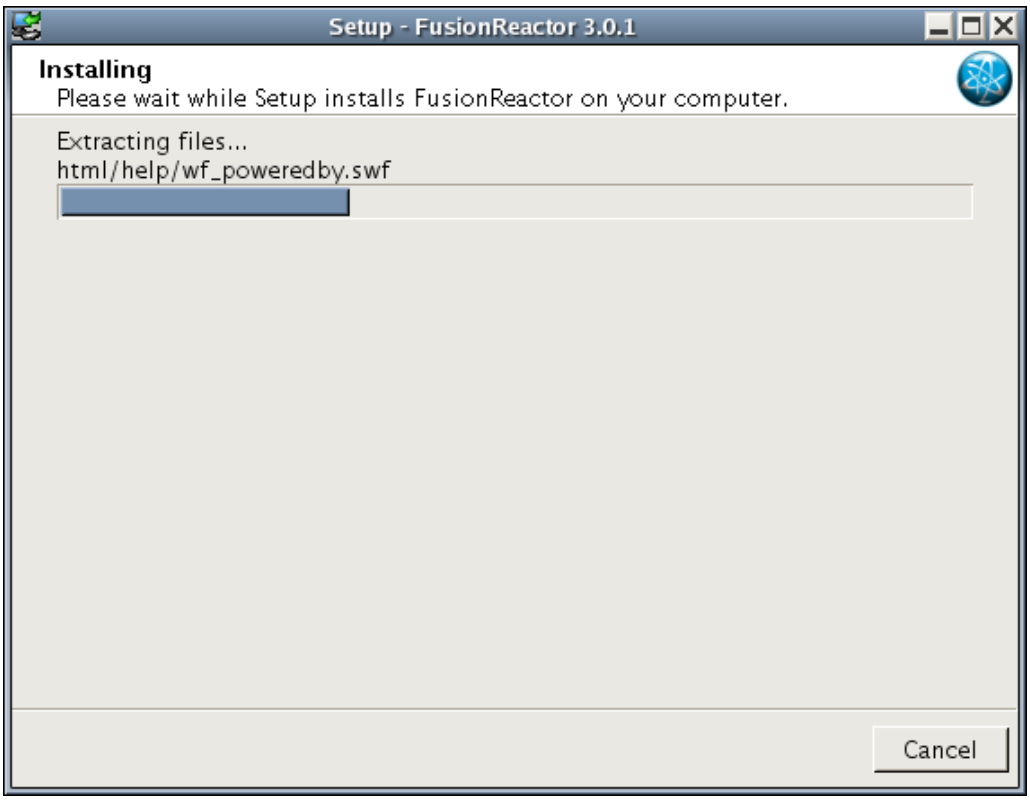

Figure 46: Installing

Once all files are installed FusionReactor Setup reminds you to start the server again (Figure 47). Acknowledge the message to proceed to the last panel shown in Figure 48.

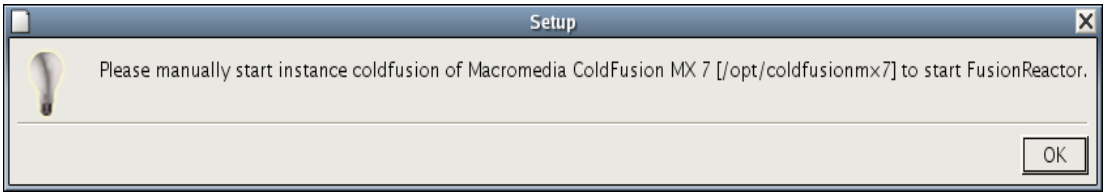

Figure 47: Manually start server

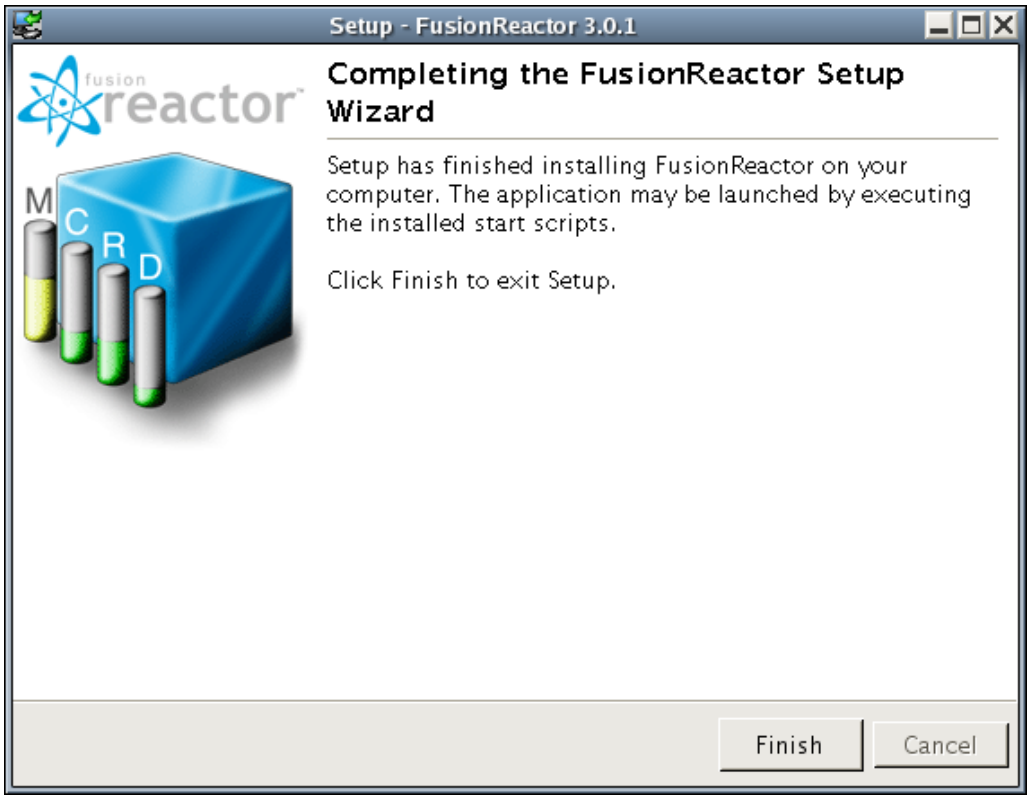

Figure 48: Finished installing

Click `Finish` to complete the installation.

Once the target server has been restarted you can log into FusionReactor Administrator either by starting the `fusionreactor` script in the directory in which FusionReactor has been installed to or by opening a web browser on this computer and entering `http://localhost:8088` (assuming you have not changed the default port number).

Installing additional instances of FusionReactor on Linux

You can re-run FusionReactor Setup to install additional instances in parallel to already existing instances. This feature is new since version 3.0.1 of FusionReactor Setup and allows users that don't have an enterprise license and therefore can not use the FusionReactor Instance Manager to install additional instances.

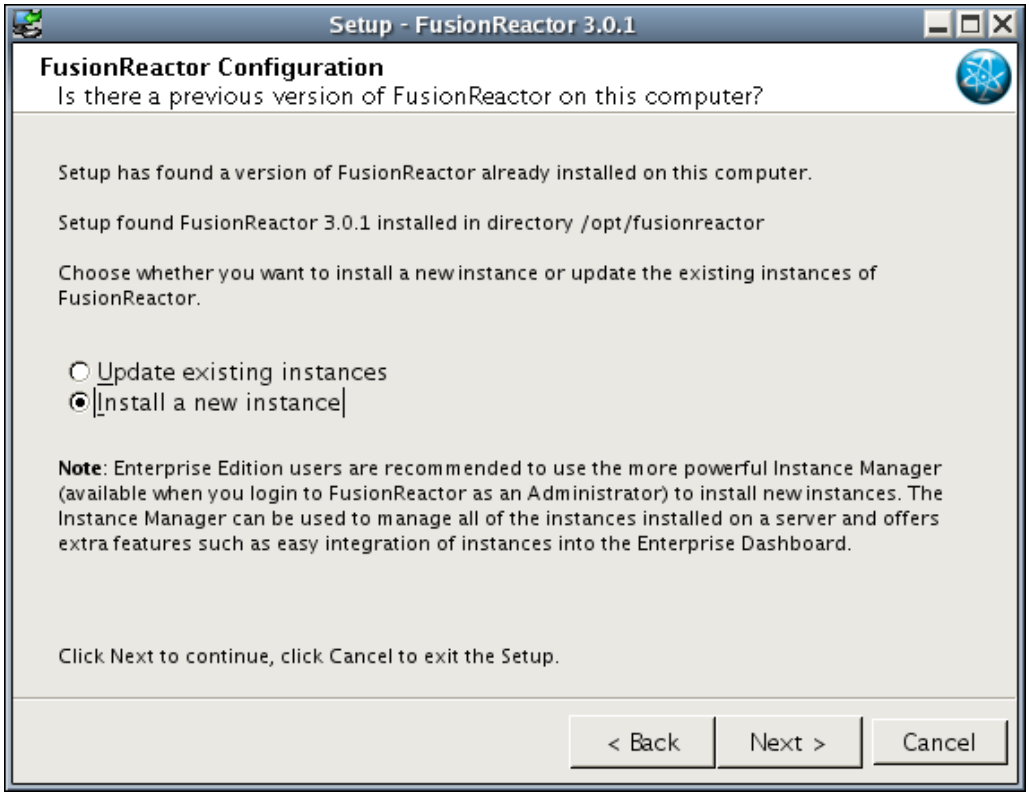

Figure 49: Installing additional instances

Users who do have an enterprise license are recommended to use the FusionReactor Instance Manager to add additional instances. The Setup panel in Figure 49 displays this recommendation as soon the '*Install a new instance*' option is selected.

The remainder of the Setup then continues with the Server selection panel as shown in Figure 36. Please take into account that installing additional instances also reinstalls the files in the FusionReactor directory.

Updating FusionReactor 3 on Linux

You can re-run FusionReactor Setup to update an already installed version of FusionReactor 3. FusionReactor Setup first shows you the Welcome panel (see Figure 34). Clicking the `Next` button will proceed with the installation and open the License panel as

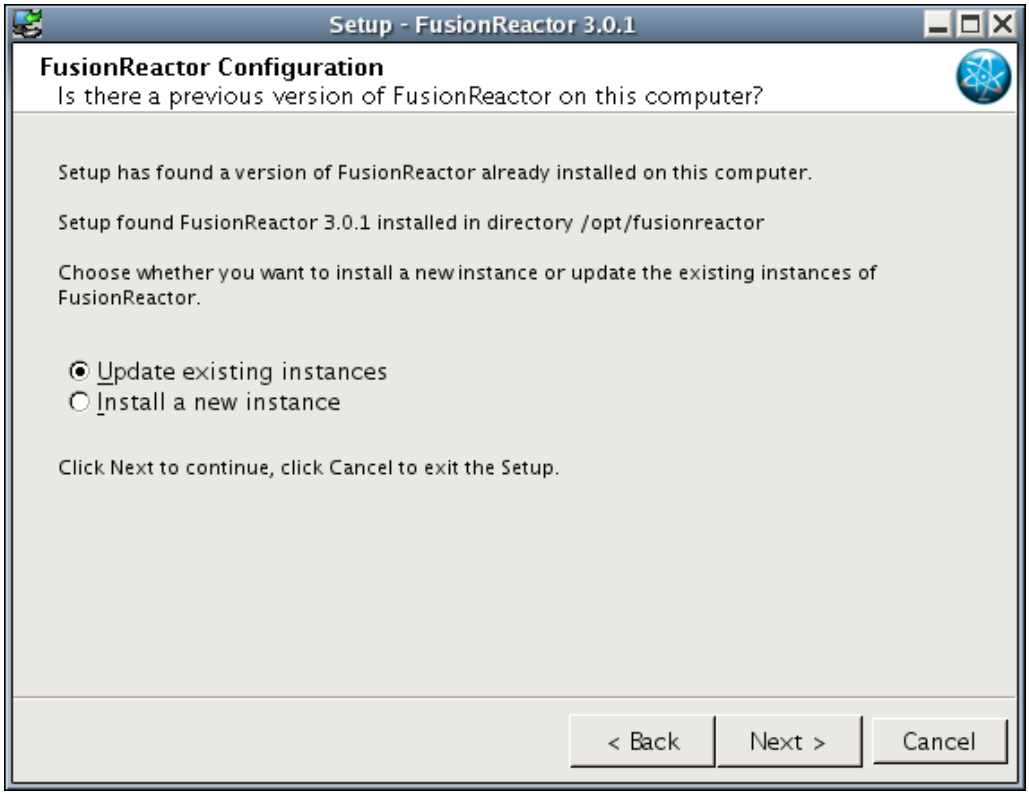

Figure 50: Updating the current version

shown in Figure 35. If there is already a version of FusionReactor 3 on your computer that has been installed with FusionReactor Setup before, you will see a panel like the one shown in Figure 50.

Leave the *'Update existing instances'* option selected and click on the `Next` button to proceed. FusionReactor Setup shows a summary (Figure 51) panel next.

Click the `Next` button to update all FusionReactor instances on your computer. Setup will

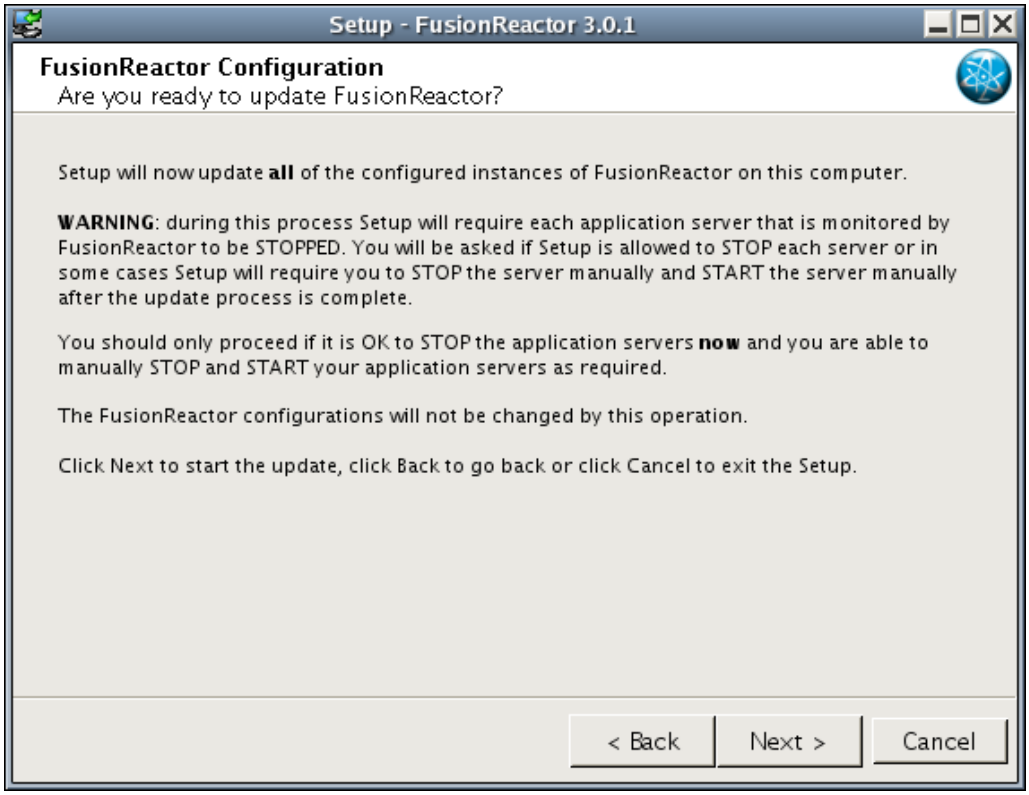

Figure 51: Updating FusionReactor

continue as described in the *Updating FusionReactor 2 on Linux* section.

Updating FusionReactor 2 on Linux

FusionReactor Setup fully supports updating multiple local instances of FusionReactor if they are located in the default location (the instance directory of FusionReactor). As described in the instructions for the new installation, start FusionReactor Setup which will then show you after a short while the Welcome panel (see Figure 34). Clicking the `Next` button will proceed with the installation and open the License panel as shown in Figure 35.

If there is a previous version of FusionReactor 2.0 on your computer that has been installed with the 2.0 Setup Wizard you will see a panel like the one shown in Figure 52 once you clicked `Next` on the License panel.

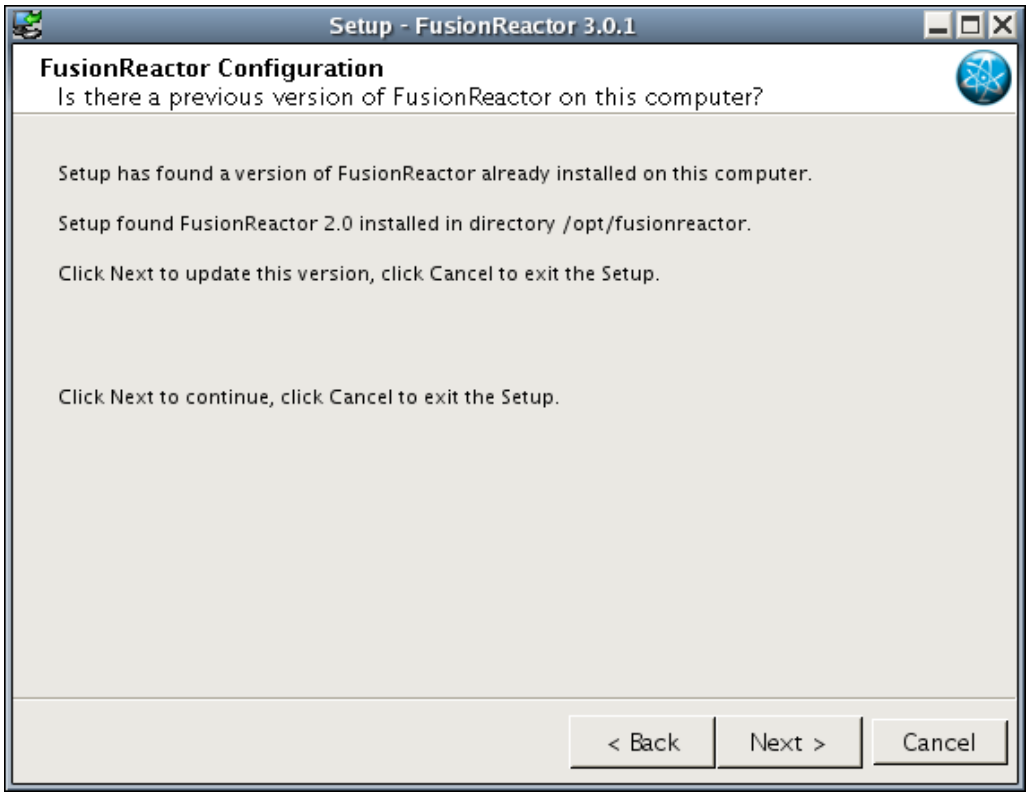

Figure 52: Setup has found a 2.0 version of FusionReactor

Click `Next` to update the instances found on your computer to the current version of FusionReactor. FusionReactor Setup will proceed with the Installing panel (Figure 46) and prompt you if it may restart the target servers or you should manually stop and start them (see Figures 45 and 47). Click `Finish` on the last panel (Figure 48) to complete the update procedure.

Updating FusionReactor 1 on Linux

Similar to the instructions for the new installation, start FusionReactor Setup which will show you the Welcome panel (see Figure 34) after a short while. Clicking the `Next` button will proceed with the installation and open the License panel as shown in Figure 35. If FusionReactor Setup has found a previous version of FusionReactor 1.0 you will see a panel similar the one shown in Figure 53 next.

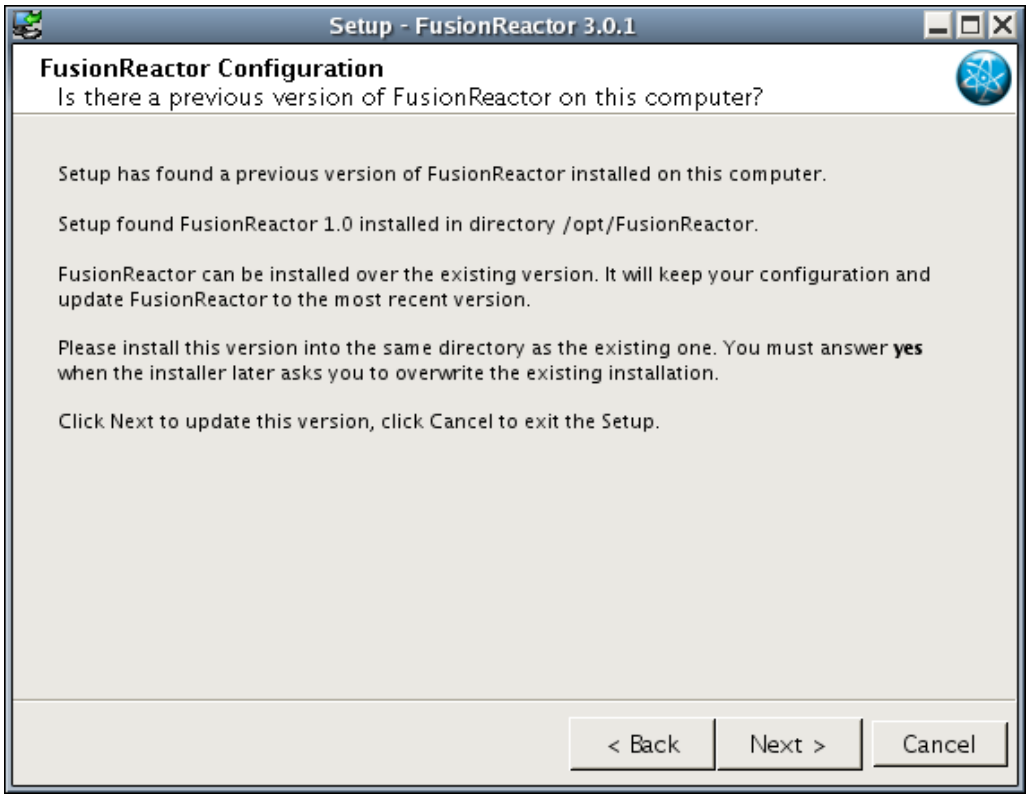

Figure 53: Updating a 1.0 version of FusionReactor

Click `Next` to proceed with the installation. FusionReactor Setup has preselected the target server on which FusionReactor 1.0 is installed in the Server selection box – as shown in Figure 54

Accept the preselected target server by clicking on the `Next` button. This opens the next panel (see Figure 38) where you acknowledge the user and group of the target server which will be also used for FusionReactor.

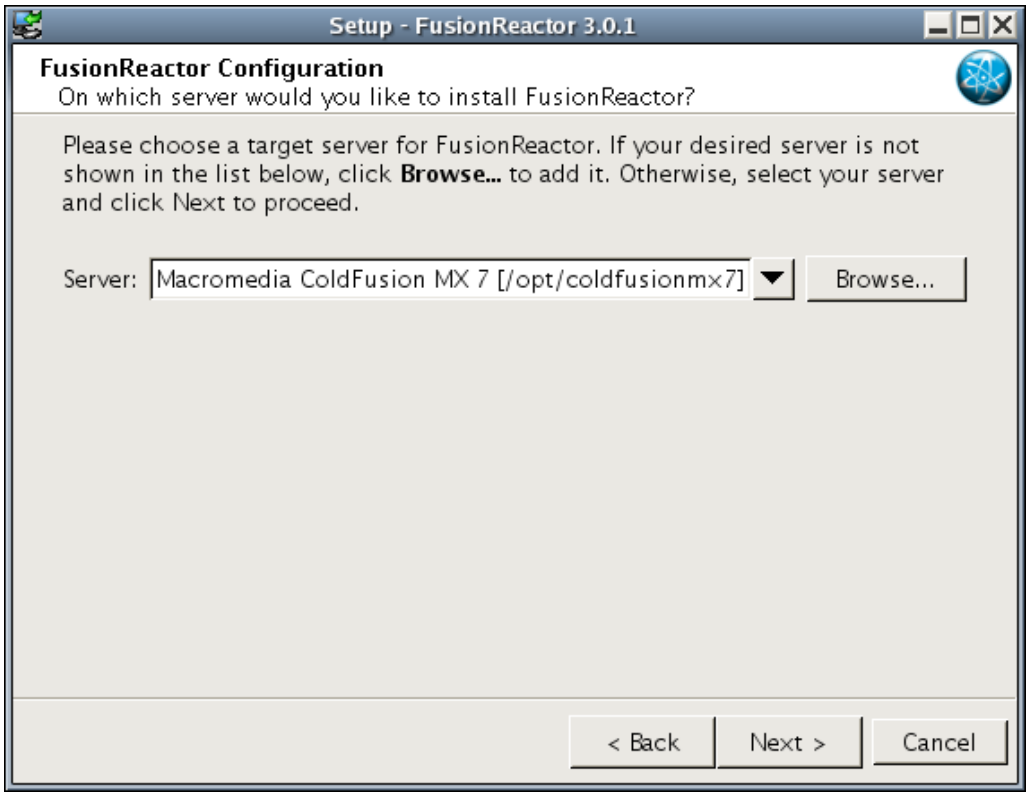

Figure 54: Acknowledge target server

Next you have to acknowledge the *Server Instance* on which FusionReactor 1.0 is currently installed (Figure 55). Again this value has been preselected by FusionReactor

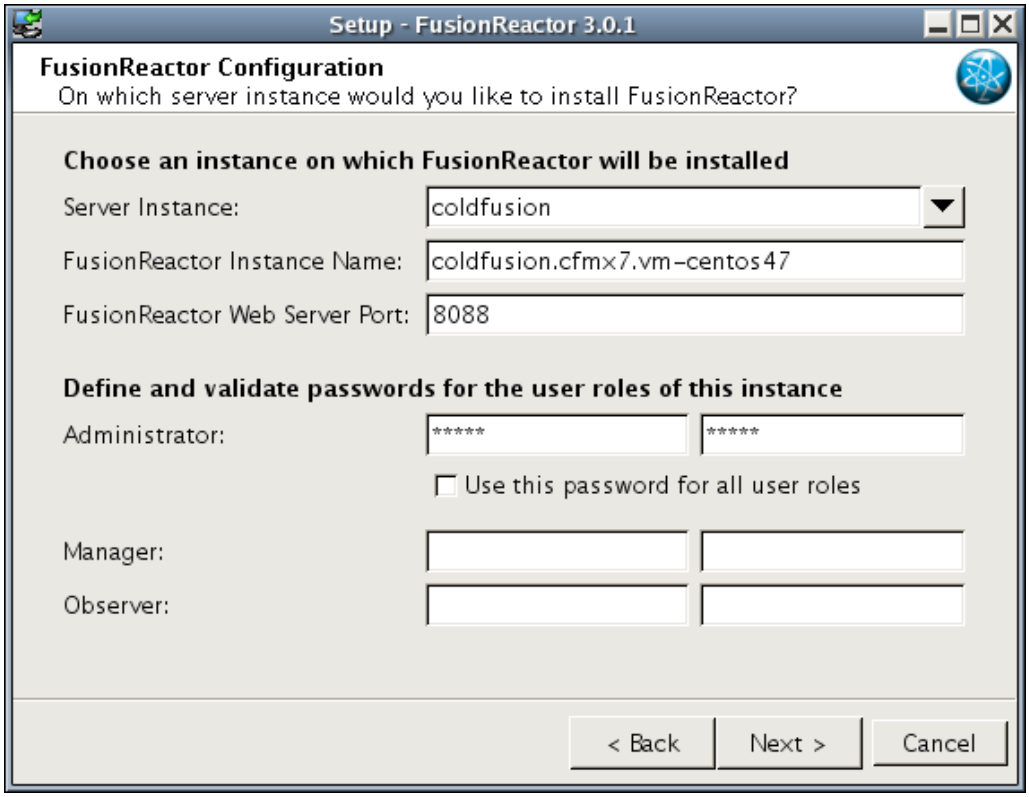

Figure 55: Define server and FusionReactor instance

Setup. You can change the *FusionReactor Instance Name* and *FusionReactor Web Server Port* if required, previous values will be overridden. Provide passwords as described in the instructions for the new installation (see Figure 40 and Figure 41).

The rest of the update procedure will then be the same as with the new installation starting from Figure 46. The only difference is that you have to confirm that the installation directory already exists (see Figure 56).

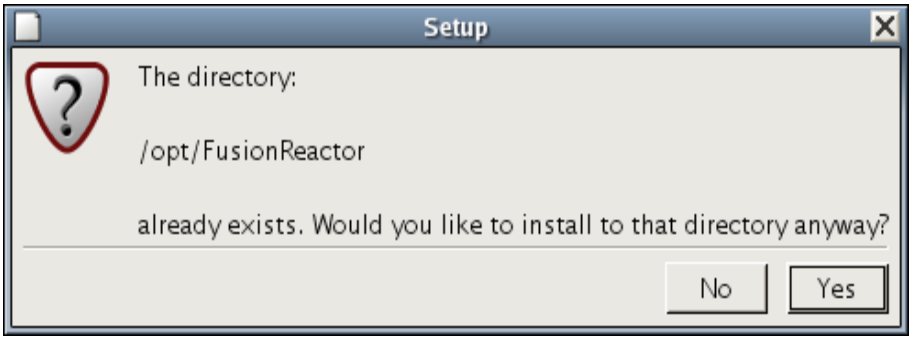

Figure 56: Acknowledge: Directory already exists

Uninstalling FusionReactor on Linux

To completely remove FusionReactor from your system, you can either double click on the FusionReactor Uninstaller icon in the FusionReactor directory or you can run the `uninstall` command located in the FusionReactor directory in a shell window. Both methods require you to be the `root` user.

The uninstaller will completely remove the FusionReactor directory including all generated data – **please take care that you save any files you want to keep before running the uninstaller**.

Once the uninstaller has started you must acknowledge the following question:

Figure 57: Confirm Uninstallation

The uninstaller will then continue to remove FusionReactor completely from your computer. During this process it might prompt you (Figure 58) to stop and restart certain

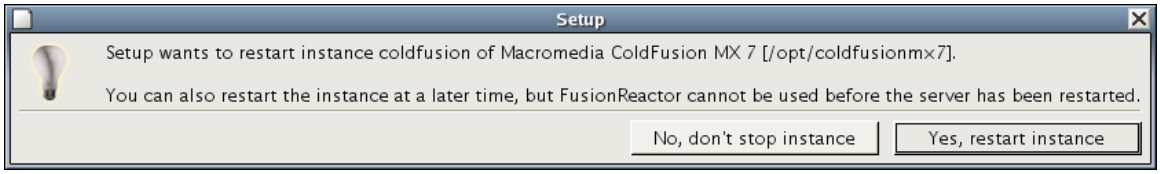

Figure 58: Uninstall: Restart server instance

server instances if it can not do this automatically.

While FusionReactor is being removed you see a panel like in Figure 59 showing messages about the actions currently executing.

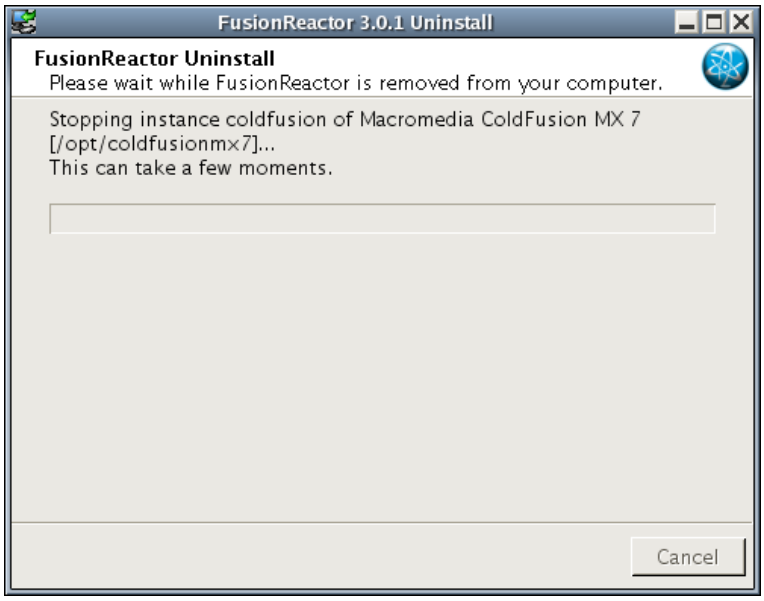

Figure 59: Uninstall in progress

Manually installing FusionReactor

The following section describes how to manually install FusionReactor using one of the generic archive distributions listed below:

Linux/Unix platforms supporting rpm:	`FusionReactor_linux_3_5_0.rpm`
Linux/Unix platforms:	`FusionReactor_unix_3_5_0.tgz`
Windows platforms:	`FusionReactor_windows_3_5_0.zip`

Use one of these packages if you can not use an X-Session under Unix/Linux or you can not or do not want to use the Setup for any other reasons.

Overview

Since version 2.0 FusionReactor supports multiple instances. Every instance of FusionReactor has its own dedicated sub directory in the `<FR_HOME>/instance` directory where `<FR_HOME>` stands for the directory in which you have installed FusionReactor.

The manual installation packages come with a default instance that contains preconfigured properties and matches the values in the FusionReactor filter definition template (`<FR_HOME>/etc/conf/fusionreactor-web.xml`). If you unpack the manual distribution to the suggested directory (`C:\` on Windows and `/opt` on UNIX) and do not change any files of the distribution, only a few steps are necessary to complete the configuration: Copying the FusionReactor Java library `fusionreactor.jar` and the native libraries `FusionReactor.dll` and `FusionReactor-windows-x86_64.dll` (use the native libraries belonging to your operating system if you are not on a Windows system) to the appropriate server directory and adding the FusionReactor filter definition to the servers default web descriptor.

Any libraries or templates required to install an instance of FusionReactor can be found in the `<FR_HOME>/etc/lib` and `<FR_HOME>/etc/conf` directories of FusionReactor after the distribution has been unpacked. On some servers (e.g. Tomcat 5.0.x) you may have to additionally install the third party libraries (`mail-1.4.jar` and `activation-1.1.jar`) to enable email notifications from FusionReactor.

Once an instance is up and running you can use the built in InstanceManager to install additional instances on any other suitable target servers located on the computer. The InstanceManager will create a directory having the name of the new instance (e.g. `cfusion.cfmx6.myhost`) in the instance directory and configure the properties of the new instance (`<FR_HOME>/instance/cfusion.cfmx6.myhost/conf/reactor.conf`) appropriately. If you do not use the InstanceManager these steps have to be done manually which is error-prone and therefore not recommended.

Target server files relevant to FusionReactor

Coming next is a reference of the directories and files of the target servers currently supported by FusionReactor which are relevant for the installation. FusionReactor Instance Manager copies and modifies several files when a new instance is added or removed.

If you are performing manual installation find the information belonging to your target server to figure out where to copy

- the FusionReactor Java library (`fusionreactor.jar`)
- the FusionReactor native libraries (32 and 64 bit version)

  Windows
  `FusionReactor.dll`

  `FusionReactor-windows-x86_64.dll`

  Linux

  `libFusionReactor.so`

  `libFusionReactor-linux-x86_64.so`

  MacOS

  `libFusionReactor.jnilib`

  `libFusionReactor-macos-x86_64.jnilib`

  Solaris

  `libFusionReactor.sparc.so`

  `libFusionReactor-solaris-sparc64.so`

and which file represents the web descriptor (usually `default-web.xml` or `web.xml`) in that you must add the Servlet Filter definition for FusionReactor. The filter definition for FusionReactor **must be the first filter in that file**.

Adobe

ColdFusion MX 6

FusionReactor Native libraries	`<CFMX>/lib`
FusionReactor Java library	`<CFMX>/runtime/servers/default/SERVER-INF/lib`
FusionReactor Servlet Filter	`<CFMX>/runtime/servers/default/SERVER-INF/default-web.xml`

ColdFusion MX 7

FusionReactor Native libraries	`<CFMX>/lib`
FusionReactor Java library	`<CFMX>/runtime/servers/coldfusion/SERVER-INF/lib`
FusionReactor Servlet Filter	`<CFMX>/runtime/servers/coldfusion/SERVER-INF/default-web.xml`

ColdFusion 8

FusionReactor Native libraries	`<CFMX>/lib`
FusionReactor Java library	`<CFMX>/runtime/servers/coldfusion/SERVER-INF/lib`
FusionReactor Servlet Filter	`<CFMX>/runtime/servers/coldfusion/SERVER-INF/default-web.xml`

ColdFusion 9

FusionReactor Native libraries	<CFMX>/runtime/bin
FusionReactor Java library	<CFMX>/runtime/servers/coldfusion/SERVER-INF/lib
FusionReactor Servlet Filter	<CFMX>/runtime/servers/coldfusion/SERVER-INF/default-web.xml

where <CFMX> denotes the home directory (e.g. C:\CFusionMX7 or C:\Coldfusion9) of the server.

JRun4

FusionReactor Native libraries	< JRUN4>/bin
FusionReactor Java library	< JRUN4>/servers/<NAME>/SERVER-INF/lib
FusionReactor Servlet Filter	<JRUN4>/servers/<NAME>/SERVER-INF/default-web.xml

where <JRUN4> denotes the home directory of the server (e.g. C:\JRun4) and <NAME> denotes the name (e.g. cfusion or admin) of the server instance.

Apache Tomcat

Tomcat 4.1

FusionReactor Native libraries	<TOMCAT>/bin
FusionReactor Java library	<TOMCAT>/common/lib
FusionReactor Servlet Filter	<TOMCAT>/conf/web.xml

Tomcat 5

FusionReactor Native libraries	<TOMCAT>/bin
FusionReactor Java library	<TOMCAT>/common/lib
FusionReactor Servlet Filter	<TOMCAT>/conf/web.xml

Tomcat 6.0

FusionReactor Native libraries	<TOMCAT>/bin
FusionReactor Java library	<TOMCAT>/lib
FusionReactor Servlet Filter	<TOMCAT>/conf/web.xml

where <TOMCAT> denotes the home directory of the server (e.g. C:\apache-tomcat-6.0.20).

JBoss

JBoss 3.2

FusionReactor Native libraries	<JBOSS>/bin
FusionReactor Java library	<JBOSS>/server/<NAME>/lib
FusionReactor Servlet Filter	<JBOSS>/server/<NAME>/deploy/jbossweb-tomcat50.sar/conf/web.xml or <JBOSS>/server/<NAME>/deploy/jbossweb-tomcat50.sar/web.xml

JBoss 4.0

FusionReactor Native libraries	<JBOSS>/bin
FusionReactor Java library	<JBOSS>/server/<NAME>/lib
FusionReactor Servlet Filter	<JBOSS>/server/<NAME>/deploy/jbossweb-tomcat50.sar/conf/web.xml

JBoss 4.2

FusionReactor Native libraries	<JBOSS>/bin
FusionReactor Java library	<JBOSS>/server/<NAME>/lib
FusionReactor Servlet Filter	<JBOSS>/server/<NAME>/deploy/jboss-web.deployer/conf/web.xml

JBoss 5.0

FusionReactor Native libraries	<JBOSS>/bin
FusionReactor Java library	<JBOSS>/server/<NAME>/lib
FusionReactor Servlet Filter	<JBOSS>/server/<NAME>/deployers/jbossweb.deployer/conf/web.xml

JBoss 5.1

FusionReactor Native libraries	<JBOSS>/bin
FusionReactor Java library	<JBOSS>/common/lib
FusionReactor Servlet Filter	<JBOSS>/server/<NAME>/deployers/jbossweb.deployer/web.xml

where <JBOSS> denotes the home directory of the server (e.g. C:\jboss.3.2.7 or C:\jboss-5.1.0.GA) and <NAME> denotes the name of the server instance (e.g. default).

Jetty

Jetty 4-5

FusionReactor Native libraries	<JETTY>
FusionReactor Java library	<JETTY>/ext
FusionReactor Servlet Filter	<JETTY>/etc/webdefault.xml

Jetty 6

FusionReactor Native libraries	<JETTY>
FusionReactor Java library	<JETTY>/lib/ext
FusionReactor Servlet Filter	<JETTY>/etc/webdefault.xml

where <JETTY> denotes the home directory of the server (e.g. C:\jetty-6.1.5).

Open BlueDragon

FusionReactor Native libraries	<OPENBD>
FusionReactor Java library	<OPENBD>/lib/ext
FusionReactor Servlet Filter	<OPENBD>/etc/webdefault.xml

where <OPENBD> denotes the home directory of the server (e.g. C:\jetty-6.1.12-OpenBD).

NewAtlanta ServletExec/AS 5-6

FusionReactor Native libraries	<SERVLETEXEC>/bin
FusionReactor Java library	<SERVLETEXEC>/<INSTANCE>/webapps/default/<WEBAPP>/WEB-INF/lib
FusionReactor Servlet Filter	<SERVLETEXEC>/<INSTANCE>/webapps/default/<WEBAPP>/WEB-INF/web.xml

where <SERVLETEXEC> denotes the home directory of the server (e.g. C:\NewAtlanta\ServletExec 5.0), <INSTANCE> denotes the directory of the instance and <WEBAPP> denotes the directory of the web application FusionReactor should be installed in.

Railo

Railo Railix

FusionReactor Native libraries	<RAILO>
FusionReactor Java library	<RAILO>/extra/lib
FusionReactor Servlet Filter	<RAILO>/extra/webdefault.xml

Railo Express

FusionReactor Native libraries	<RAILO>
FusionReactor Java library	<RAILO>/extra/lib
FusionReactor Servlet Filter	<RAILO>/extra/webdefault.xml

Railo Resin

FusionReactor Native libraries	<RAILO>/win32 (Windows), <RAILO>/libexec (Unix)
FusionReactor Java library	<RAILO>/lib
FusionReactor Servlet Filter	<RAILO>/conf/app-default.xml

where <RAILO> denotes the home directory of the server (e.g. C:\railo-1.0.0.030-railix-without-jre).

Manually installing FusionReactor on Windows

1. Login on the computer as a user with administrative rights to the computer.
2. Unzip FusionReactor_windows_3_5_0.zip to a directory of your choice (in the following we assume you use C:\).
3. Stop the target application server on which you want to install an instance of FusionReactor.
4. Open C:\FusionReactor\etc\conf\fusionreactor-web.xml with an editor, copy the FusionReactor filter definition to the clipboard and add it as the **first** filter to the default web descriptor (default-web.xml resp. web.xml) of the target server. You can find the location of this file by looking up the corresponding server data in the section *Target files relevant to FusionReactor*. The filter definition is exactly the piece of XML code starting with <filter> and ending with </filter-mapping>. In the copied filter definition, make sure the path to the reactor.conf file is correct, e.g. if you have unzipped the package to C:\ and kept the default instance directory the correct value for the config parameter would be

   C:/FusionReactor/instance/default/conf/reactor.conf.
5. Check if your computer runs an application already using the port number 8088 of the built in FusionReactor web server. Use netstat -a or do a telnet localhost 8088 or any other port checking application to verify this.

In case the port is already in use you must change the value of property `webserver.port` in file

`C:/FusionReactor/instance/default/conf/reactor.conf`

to a free port number.

6. Copy the `fusionreactor.jar` file to the appropriate directory of the target server. Again, find the location of this directory by looking up the corresponding server data in the *Target files relevant to FusionReactor* section. If the target directory (e.g. ...\SERVER-INF\lib) does not exist you have to create it.
7. Add the directory containing the native libraries `C:\FusionReactor\etc\lib` to either the `PATH` variable, the Java System property `java.library.path` (make sure it is passed to the server) or copy the appropriate libraries it to a directory of the server that already contains native libraries (see *Target files relevant to FusionReactor* section).
8. If necessary give the runtime user of the target server read/write access to the FusionReactor directory and the Windows Registry hive

   `HKEY_LOCAL_MACHINE\SOFTWARE\JavaSoft\Prefs\com\intergral\fusionreactor`
9. Restart the target application server
10. In a web browser on this computer open `http://localhost:8088` (or the port you have defined) and login to the FusionReactor Administrator application with password `admin`.
11. Go to the FusionReactor menu tab (last one on lower left) and choose `Change password` to set a new password.
12. If you want to add the current instance to Instance Manager and Enterprise Dashboard follow the steps described in the section *Adding the current instance*.

Manually installing FusionReactor on Linux/Unix

1. Login on the computer as a user with root rights to the computer.
2. Execute `rpm -ihv FusionReactor_linux_3_5_0.rpm` (if rpm is available) or `tar zxvf FusionReactor_linux_3_5_0.tar.gz -C /opt`.
3. Stop the target application server on which you want to install an instance of FusionReactor.
4. Open `/opt/fusionreactor/etc/conf/fusionreactor-web.xml with an editor`, copy the FusionReactor filter definition to the clipboard and add it as the **first** filter to the default web descriptor (`default-web.xml` resp. `web.xml)` of the target server. You can find the location of this file by looking up the corresponding server data in the *Target files relevant to FusionReactor* section. The filter definition is exactly the piece of XML code starting with `<filter>` and ending with `</filter-mapping>`. In the copied filter definition, make sure the path to the `reactor.conf` file is correct, e.g. if you have unpacked the archive to `/opt` and kept the `default` instance directory the correct value for the `config` parameter would be

   `/opt/fusionreactor/instance/default/conf/reactor.conf`.
5. Check if your computer runs an application already using the port number 8088 of the built in FusionReactor web server. Use `netstat -a` or do a `telnet localhost 8088` or any other port checking application to verify this.

   In case the port is already in use you must change the value of property `webserver.port` in file

`/opt/fusionreactor/instance/default/conf/reactor.conf`

to a free port number.

6. Copy the `fusionreactor.jar` file to the appropriate directory of the target server. Again, find the location of this directory by looking up the corresponding server data in the *Target files relevant to FusionReactor* section. If the target directory (e.g. .../SERVER-INF/lib) does not exist you have to create it.
7. Add the directory containing the native libraries `/opt/fusionreactor/etc/lib` to either the `LD_LIBRARY_PATH` variable, the Java System property `java.library.path` (make sure it is passed to the server) or copy the appropriate libraries to a directory of the server that already contains native libraries (see previous section).
8. Adjust permissions and file ownership (user and group should be the same as used by the target server).
9. Ensure that FusionReactor can read and write to the Java System Preferences Backing Store by entering the following commands:

   ```
   mkdir -pm 777 /etc/.java/.systemPrefs/com/intergral
   chmod 777 /etc/.java/.systemPrefs
   ```

10. Restart the target application server.
11. In a web browser on this computer open `http://localhost:8088` (or the port you have defined) and login to the FusionReactor Administrator application with password `admin`.
12. Go to the FusionReactor menu tab (last one on lower left) and choose `Change password` to set a new password.
13. If you want to add the current instance to Instance Manager and Enterprise Dashboard follow the steps described in the next section *Adding the current instance*.

Adding the current instance

Compared to an installation performed with FusionReactor Setup, a manual installation does not have the `servers.xml` and `instances.xml` files in the `<FR_HOME>/etc/conf/` directory (because these are created by FusionReactor Setup). The Instance Manager and the Enterprise Dashboard will therefore be initially empty as you can see in Figure 60.

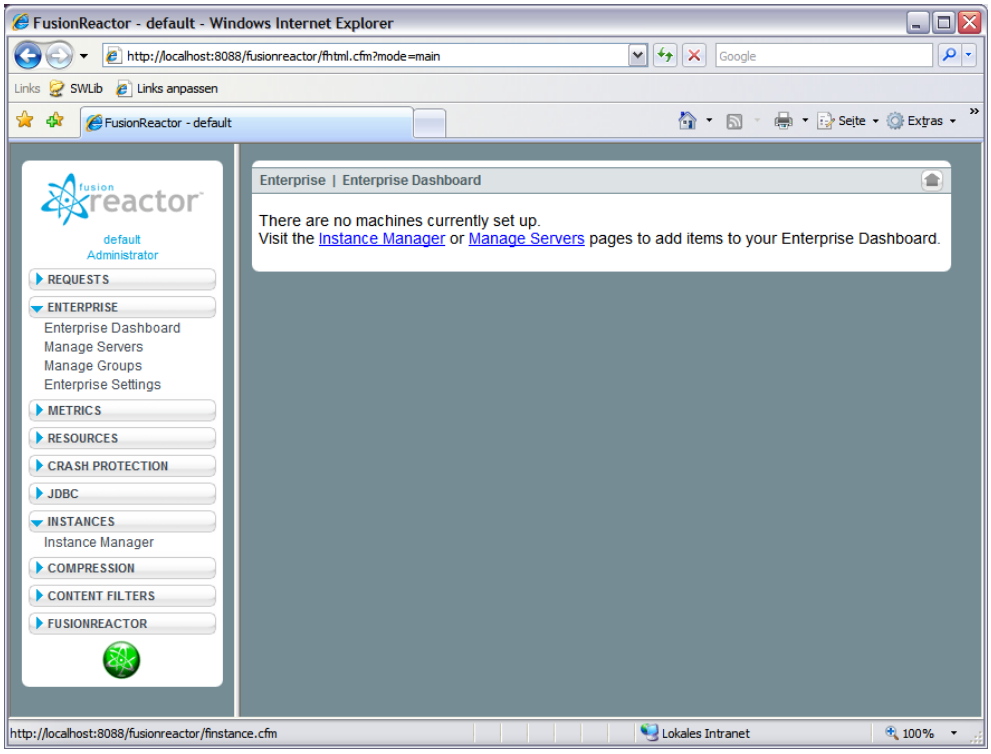

Figure 60: Empty Enterprise Dashboard

You can add the current (i.e. active) FusionReactor instance from the Instance Manager. Click on the *Instance Manager* link in the Enterprise Dashboard or on *Instances* in the menu on the left side.

On the Instance Manager page (see Figure 61) in the *Add Server* section at the top of the page choose the current server, enter the path to its root directory and click the `Add Server` button. Alternatively you can use the `Scan System` button to let FusionReactor search for the server. If you this make sure that you use appropriate values for the start directory and the search depth.

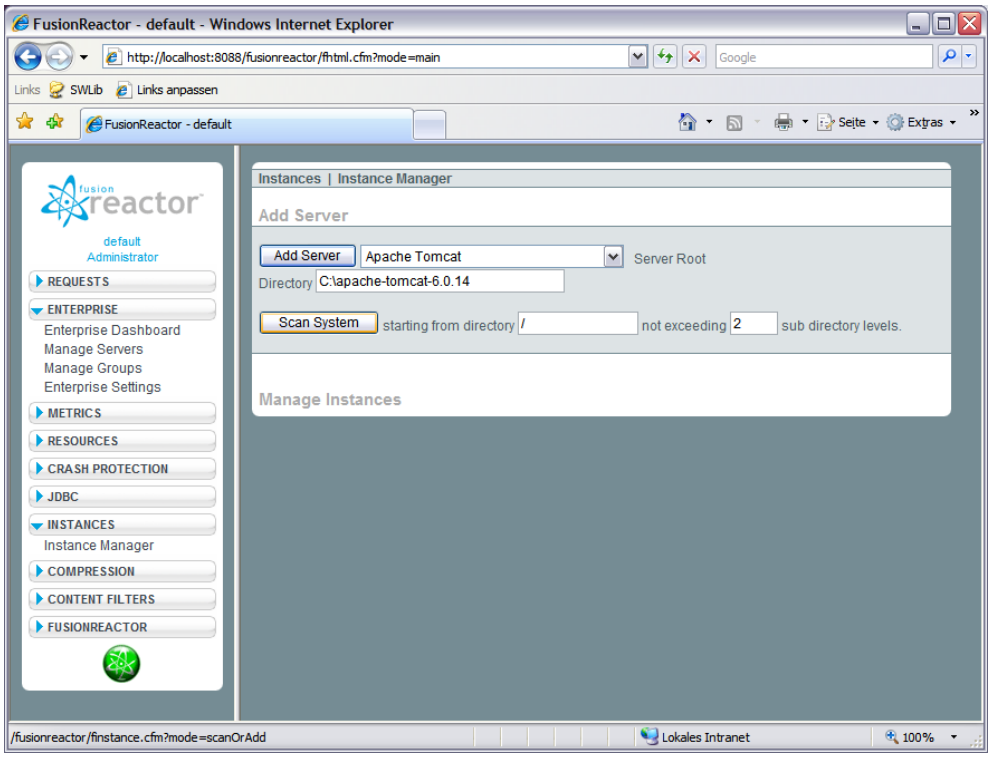

Figure 61: Adding a server

This will show the current server in the Manage Instances section as shown in Figure 62.

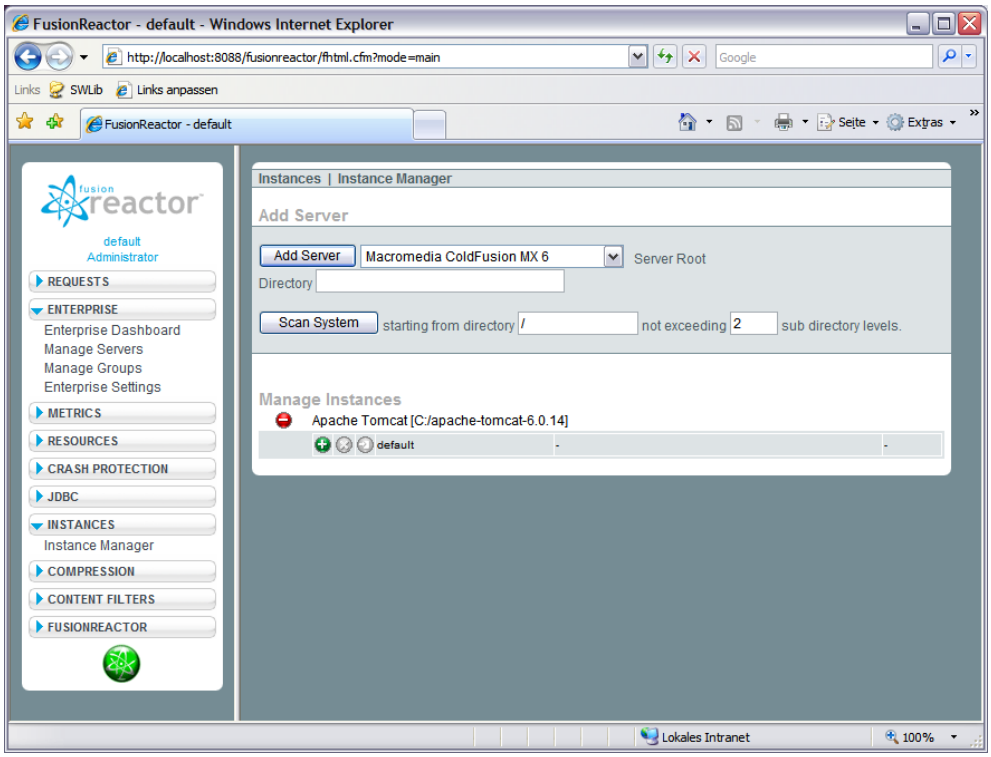

Figure 62: Manage Instance

Click on the green button to add the current instance. This will show the Add FusionReactor Instance page (Figure 63).

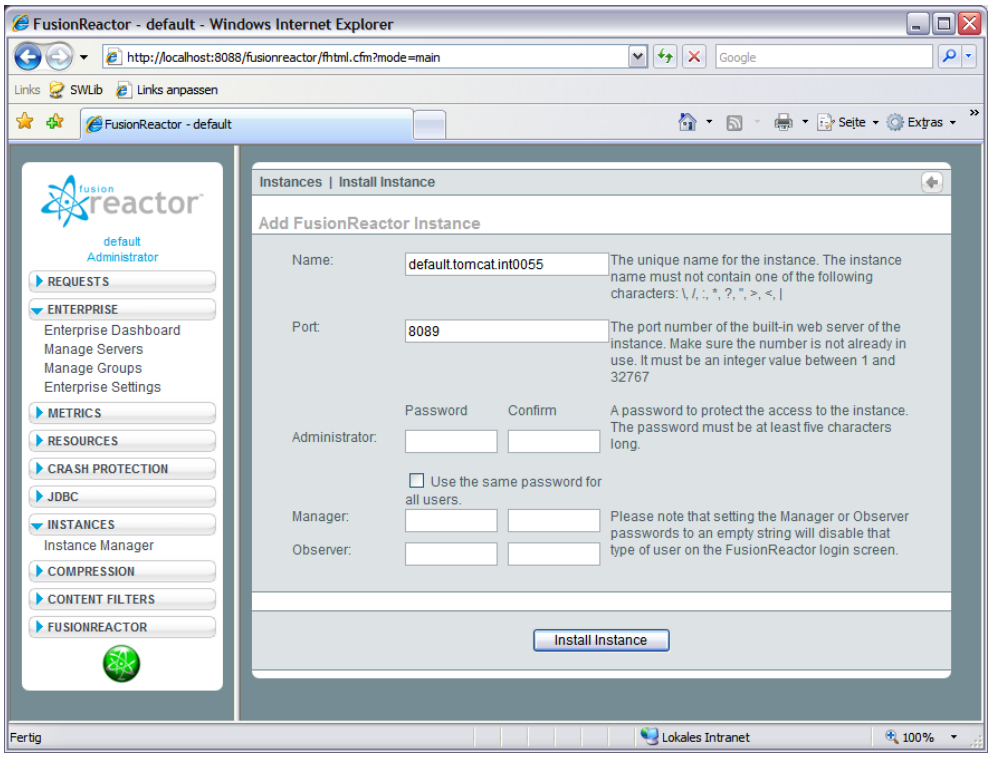

Figure 63: Add FusionReactor Instance

Change the default value for the name to `default or` the name in blue color that is displayed in the top left corner underneath the FusionReactor logo. Change the value of the port to the one currently in use. Provide and validate a new password and click on the `Install Instance` button. Acknowledge any dialogs warning you that the port is already in use or informing you about a required server restart. Finally, click on the blue

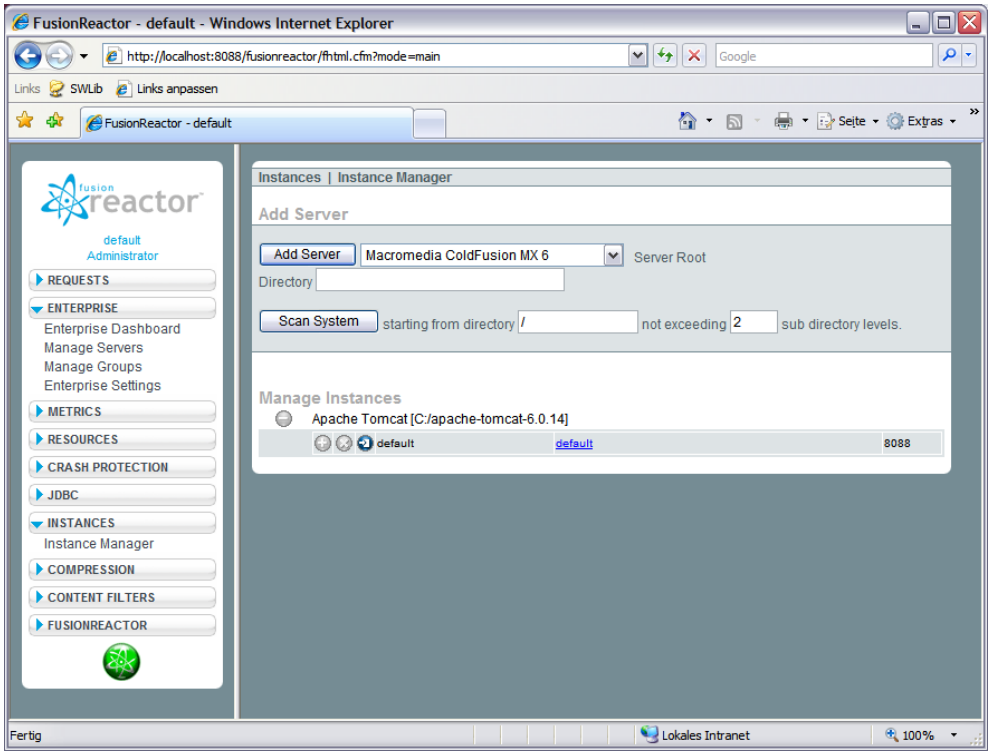

Figure 64: Adding the instance to the Enterprise Dashboard

button (see Figure 64) to add the new instance to the Enterprise Dashboard.

All buttons should now be gray as shown in Figure 65 and inactive (because you are not allowed to delete the active instance). To finish the procedure, restart the server so that the changes are applied.

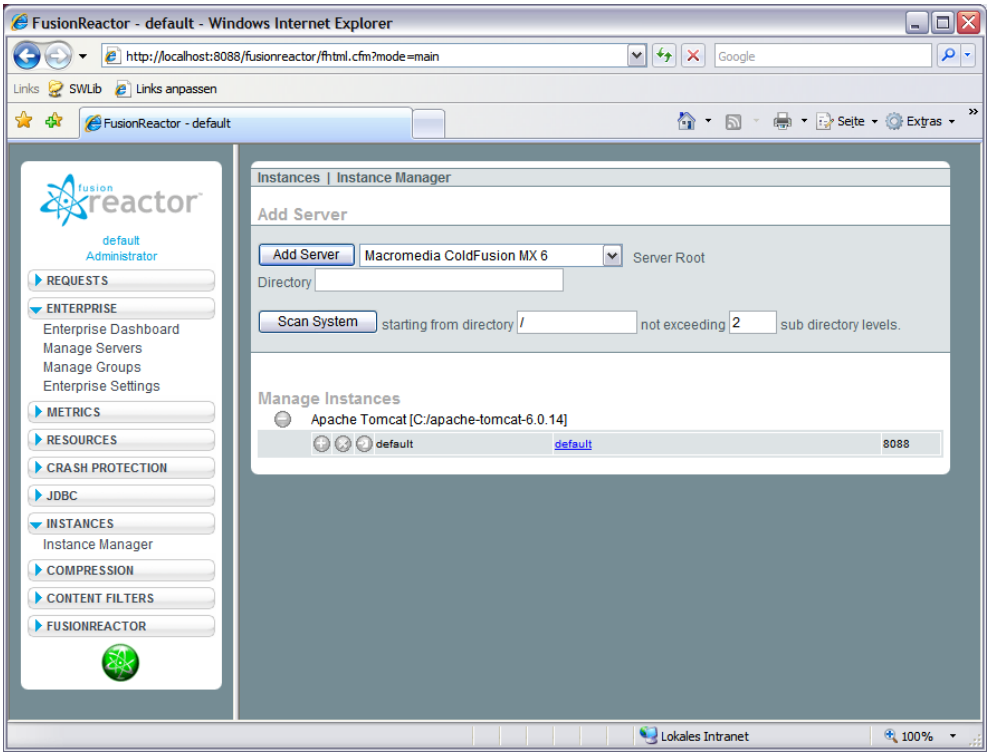

Figure 65: Current instance successfully added