FILE*CATALYST*

THE EVOLUTION OF FILE TRANSFER TECHNOLOGY

File*Catalyst* Workflow 5+

Tomcat Installation

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1   Introduction

The following document provides instructions on how to perform a brand new install of FileCatalyst Workflow on Windows or Linux using Apache Tomcat as the application server. Installation instructions for other platforms may differ, but will follow the same basic steps described in this document.

1.1   Preliminary Requirements

1) Know the target port number for Apache Tomcat. The default HTTP port is 80; however, this port is often already in use by another application. You will either have to disable such applications (IIS or Apache) or install Apache Tomcat on a different port. The most commonly used alternative HTTP port is 8080.

2) Prepare Root path (server URL) visible to the outside world. How will users connect to this service? Will they enter an IP address in their web browser, or will you provide a domain name? (Example: fcweb.mycompany.com). If you plan to use a sub-domain, ensure that it is properly configured prior to installation. **Sub-domain is recommended.** Make sure that your sub-domain works from both outside and within your local network.

3) Configure your Firewall. The port of your choice must be forwarded on your firewall to make FileCatalyst Web accessible by the outside world. The bare minimum is port 80 or whichever port you decided on in step 1. If you wish to provide UDP acceleration ports, 21, 12400, and 8000-8999 TCP/UDP are also recommended.

4) Choose an Administrator password for Tomcat servlet container

5) Choose an Administrator password for FileCatalyst Workflow application. Too many people leave the default "aaaaa" as the admin password, don't do that.

6) Know the details of your Mail Server or SMTP within your network, including port, username and password if applicable. Note: you will be able to install without proper SMTP configuration; however, email notifications will not function. Make sure your SMTP outgoing email server can relay to outside email addresses.

7) Choose or create an Administrator email account, where notifications will be sent.

8) Make sure that you have enough disk space (100GB minimum) and Memory (6GB minimum)

9) Make sure that your operating system is recent and preferably runs on 64 bit.

2   Apache Tomcat Server Installation

Tomcat web server installation is broken into the following steps. Estimated installation time is about 30 minutes.

2.1   Download Java 8

The following link will take you to Amazon's Corretto website:

https://aws.amazon.com/corretto/

The link to Java Download may change in the future. In case if the link is expired, do a web search for "Java Corretto 8"

AWS Documentation » Corretto » Corretto 8 User Guide » Downloads for Amazon Corretto 8

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Downloads for Amazon Corretto 8

This topic lists all the downloads available for Amazon Corretto 8. Use the link for the appropriate platform of your environment.

Amazon Corretto 8

Platform	Type	Download Link	Checksum (MD5)	Sig File
Linux x64	JDK	java-1.8.0-amazon-corretto-jdk_8.222.10-1_amd64.deb	c557ec2400165ebbd665fe4a95658efd	
		java-1.8.0-amazon-corretto-devel-1.8.0_222.b10-1.x86_64.rpm	227ef7bd237e170038869bf83252e5cd	
		amazon-corretto-8.222.10.1-linux-x64.tar.gz	6599a081ce56dda81ee7ac23802d6e67	Download
Linux aarch64	JDK	java-1.8.0-amazon-corretto-jdk_8.222.10-4_arm64.deb	33c6fd99c895b17d79415a9fa5f353ab	
		java-1.8.0-amazon-corretto-devel-1.8.0_222.b10-4.aarch64.rpm	9ea6e5a5258027e26aa8d27ebda084c2	
		amazon-corretto-8.222.10.4-linux-aarch64.tar.gz	8235bf49af2c2ae7340bebd0b0ef9820	Download
Windows x64	JDK	amazon-corretto-8.222.10.3-windows-x64.msi	29da4f86581537a74a5784ef81d4c5d1	
		amazon-corretto-8.222.10.3-windows-x64-jdk.zip	9879a7f69c0bd7d8c1bbb916df7b5f82	Download
	JRE	amazon-corretto-8.222.10.3-windows-x64-jre.zip	6903e6c0c13204d35ed70430ed568777	Download
Windows x86	JDK	amazon-corretto-8.222.10.3-windows-x86.msi	0cb0e8f5dbc2a65f0bbe0a6883ca241f	
		amazon-corretto-8.222.10.3-windows-x86-jdk.zip	85dfaf1ee4117649d9bdf94fe9c05a64	Download
	JRE	amazon-corretto-8.222.10.3-windows-x86-jre.zip	79d13957b148178295f01f14b4f52b5b	Download
macOS x64	JDK	amazon-corretto-8.222.10.1-macosx-x64.pkg	719d02ff40ccb605f5a38699cd602539	
		amazon-corretto-8.222.10.1-macosx-x64.tar.gz	96fb77b91e1bfe6227ef1197a5e1685b	Download
Amazon Linux 2 x64	JDK	java-1.8.0-amazon-corretto-devel-1.8.0_222.b10-2.amzn2.x86_64.rpm	f6acf9f2f5ae83d5ff23340b603f79ea	
	JRE	java-1.8.0-amazon-corretto-1.8.0_222.b10-2.amzn2.x86_64.rpm	f800b5265fbc6e80ccb3786615606796	
Amazon Linux 2 aarch64 (experimental)	JDK	java-1.8.0-amazon-corretto-devel-1.8.0_222.b10-2.amzn2.aarch64.rpm	028a628d927eb2a5965d6e0589526871	
	JRE	java-1.8.0-amazon-corretto-1.8.0_222.b10-2.amzn2.aarch64.rpm	07ee08363a1cd862aa34d3d3b40ccef8	

Make sure that you download the latest Corretto 8 "JDK" for your respective platform. You must download the 64 bit edition, and your server OS must also be 64 bit. If you are on Windows, after the download is complete run the installer for the JDK. If you are on Linux, see 2.1.1.

2.1.1   LINUX

Many Linux distributions often come with their own Open JDK pre-installed; please do not use that Open JDK. Instead, download the official Corretto 8 JDK in tar.gz format.

You can unpack the tar.gz file using the commands 'gunzip <FileName>' and then 'tar –xvf <FileName>'.

2.2 Download Apache Tomcat 9

The following link will take you to the download section for Tomcat 9:
https://tomcat.apache.org/download-90.cgi

Make sure that you download Tomcat 9.0.XX.

The link to Download Tomcat may change in the future. In case if the link is expired, do a web search for "Download Tomcat 9"

Locate the latest Tomcat 9 Stable on the download menu.

9.0.44

Please see the README file for packaging information. It explains what every distribution contains.

Binary Distributions

- Core:
  - zip (pgp, sha512)
  - tar.gz (pgp, sha512)
  - 32-bit Windows zip (pgp, sha512)
  - 64-bit Windows zip (pgp, sha512)
  - 32-bit/64-bit Windows Service Installer (pgp, sha512)
- Full documentation:
  - tar.gz (pgp, sha512)
- Deployer:
  - zip (pgp, sha512)
  - tar.gz (pgp, sha512)
- Embedded:
  - tar.gz (pgp, sha512)
  - zip (pgp, sha512)

Source Code Distributions

- tar.gz (pgp, sha512)
- zip (pgp, sha512)

2.2.1 WINDOWS:

Download the Windows Installer for version 9.0.XX (64-bit Windows Service Installer) Although installation path is arbitrary, it is strongly recommended that you install Tomcat in the top-level directory of your root.

For example, c:\tomcat9 (not in "c:\Program Files" as suggested by the installer)

Note: The install directory for Tomcat is also referred to as the CATALINA_HOME.

During installation you can change the Tomcat HTTP port to 80 (which is the default for HTTP, as opposed to Tomcat's default of 8080). If you change the port to 80, make sure that you don't have any other web service already using this port.

You are also presented with a Tomcat administrator login, used to administer the Tomcat servlet container. Provide a suitable password.

Once Tomcat is installed, you can verify it as a service:
 Start→ Settings→ Control Panel→ Administrative Tools→ Services

If installed as a service and the startup type is set as "Automatic", Tomcat will automatically be started at every reboot.

2.2.2 Linux

Download version 9.0.XX. The download will come as tar.gz file and then use the following commands to expand the archive:
```
gunzip filename.tar.gz
tar -xvf filename.tar
```

 It is recommended that the application be unzipped in a standard UNIX directory (/opt). The Tomcat installation directory (CATALINA_HOME) would therefore be "/opt/apache-tomcat-9.0.XX/".

Locate CATALINA_HOME/bin/setenv.sh file. If it is not present then create that file. Edit the setenv.sh file and enter the below line at the top of your file

export JAVA_HOME=/pathto/JDK-Corretto/

Note : The path("=/pathto/JDK-Corretto/") in the above step is the same path where you expanded the tar.gz file for Amazon Corretto 8 "JDK".

Tomcat's listener port can be changed by modifying the configuration file:
CATALINA_HOME/conf/server.xml

```
<Connector port="8080" protocol="HTTP/1.1"
connectionTimeout="20000" redirectPort="8443" />
```

To manually start Tomcat on Unix, go to CATALINA_HOME/bin/startup.sh

To have Tomcat automatically startup when the Linux/UNIX server boots up, it is recommended that the operating system be configured appropriately to include Tomcat startup as part of the boot process. This may vary based on operating system environment:

- RC scripts (standard UNIX)
- YaST runlevels (Linux)

- Do a web search for "Tomcat Service" installation for your respective platform for more details

 To verify Tomcat has started, open a browser on the server machine and go to the main Tomcat page:

```
http://localhost:<port>
```

or:

```
http://<serverIP>:<serverPort>
```

The following splash page should be visible if Tomcat has been installed and started:

At this point, your installation of Tomcat is complete; you will now be able to deploy any web applications in WAR format simply by placing them in {tomcat_home}/webapps.

Here are some other considerations with respect to your Tomcat installation:

Tomcat ships with several default web applications, found in the {tomcat_home}/webapps directory. These defaults depend on the version of Tomcat and which installer you use.

- The ROOT application contains the server's main page. Any file that you add under ${tomcat_home}/webapps/ROOT will be served.

- The admin and manager applications are used for remote management. We recommend to delete those applications
- The examples and docs should probably be removed from a production server, to minimize security exposure. You can do this from the manager application or by deleting those directories from ${tomcat_home}/webapps.
- The host-manager and manager apps are probably harmless, but can also be removed if you want.
- Review Tomcat Hardening Guide: https://support.filecatalyst.com/index.php?/Knowledgebase/Article/View/333/0/how-to-harden-tomcat-web-server

2.2.3 Prepare JSP Servlet in Tomcat for mappedfile (Optional)

If you are seeing the error "The code of method _jspService(HttpServletRequest, HttpServletResponse) is exceeding the 65535 bytes limit. " when running the Workflow application, you can set the "mappedfile" init-param in web.xml file to avoid this error. The section below describes how to set this setting -

Locate the file /<Tomcat_Home>/conf/web.xml and search the file for the phrase JspServlet. This should return an xml node of <servlet> containing some <init-param> values. You will need to add an additional <init-param> as shown below:

```
<init-param>
 <param-name>mappedfile</param-name>
<param-value>false</param-value>
</init-param>
```

The resulting block of the web.xml file, once you have inserted the above, should look like the code below:

```
<servlet>
<servlet-name>jsp</servlet-name>
<servlet-class>org.apache.jasper.servlet.JspServlet</servlet-class>
<init-param>
<param-name>fork</param-name>
<param-value>false</param-value>
</init-param>
<init-param>
<param-name>xpoweredBy</param-name>
<param-value>false</param-value>
</init-param>
<init-param>
<param-name>mappedfile</param-name>
<param-value>false</param-value>
</init-param>
<load-on-startup>3</load-on-startup>
```

</servlet>

Once the changes are made, save web.xml file and restart the Tomcat.

2.2.4 Configure Maximum Memory for Tomcat (Optional)

By default Tomcat will start with 500MB of maximum memory usage. For production environment, we recommend increasing this to 4GB on 64 Bit Systems.

You will have to set "–Xmx4000m" as a Java Option parameter at startup of Tomcat. The insertion of this parameter will depend on the platform and if you are running Tomcat as a service or not, refer to your own Tomcat Installation Guide for more details.

2.2.5 Install SSL (Optional)

You can find our Tomcat SSL tutorial at the following link:
https://support.filecatalyst.com/index.php?/Knowledgebase/Article/View/295/0/tomcat-csr-and-ssl-certificate-installation-and-renewal

2.2.6 Download and deploy FileCatalyst Workflow

Download the latest version of Workflow 5+ from the following links:
Workflow http://filecatalyst.software/workflow.html

Please note that files in the download area are password-protected. For all clients with a valid support contract, the download password can be obtained via the Support Portal (if you don't have an account simply create one). If after logging in you don't see a link "Get Download Password" open a ticket and request "Get Download Password" feature to be added to your account.

 Unzip and Copy the .war file (workflow.war) into CATALINA_HOME/webapps folder:

Tomcat will automatically deploy the war file and it will create a new folder with the same name under webapps. You are now finished deploying FileCatalyst Web.

To access FileCatalyst Workflow, point your browser to:

```
http://localhost:8080/workflow (or http://localhost/workflow)
```

or

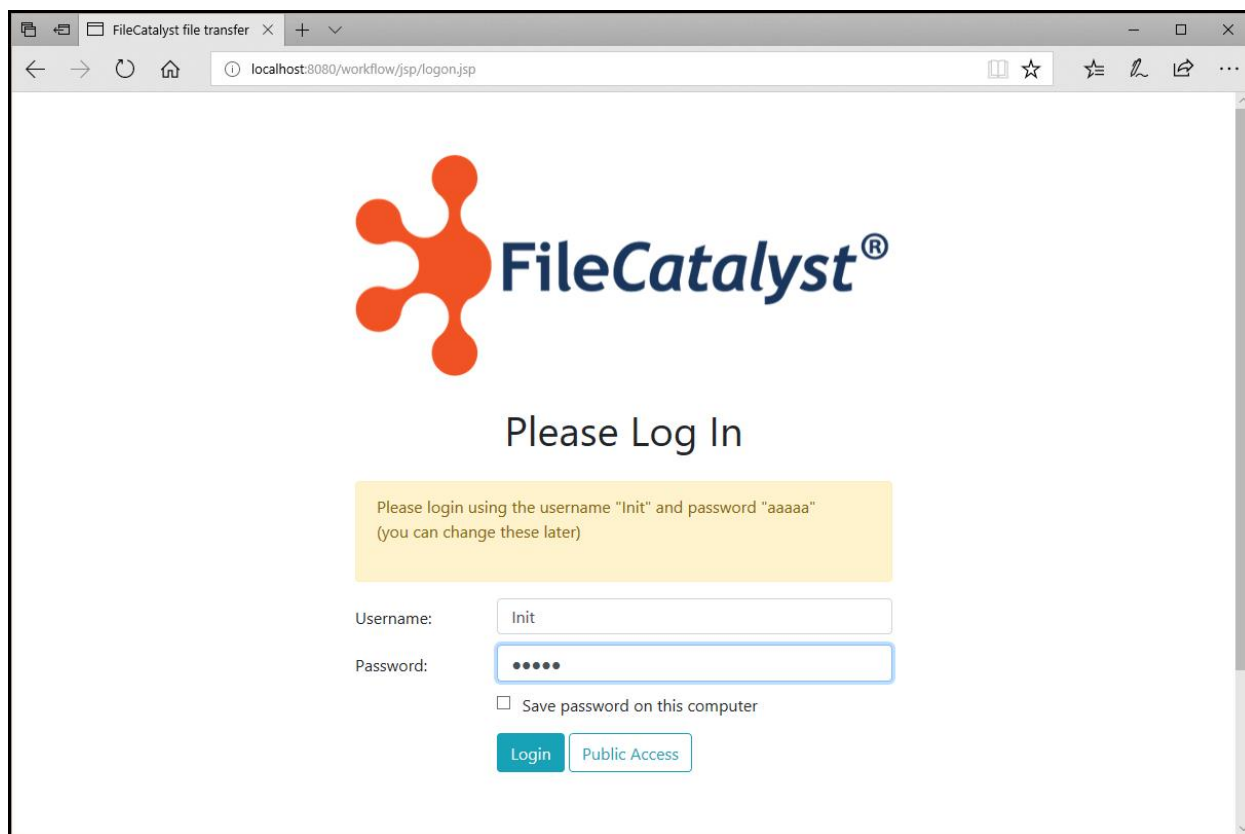```
http://<serverIP>:<serverPort>/workflow
```

 Your installation of FileCatalyst Workflow is now complete; you can proceed to the configuration stage.

## 3   FileCatalyst Workflow Configuration Instructions

### 3.1  Log in

Log into the system using the default Super Admin name and password (username = "Init", password = "aaaaa"). Click on the login button.



Note: The init user is the only user in FileCatalyst Workflow that can modify configuration of the application. Modification of this account (username and password) can be done at a later stage of the configuration.

### 3.2  Select New or Existing Setup

After logging in, you can specify whether you are doing a new installation or modifying an existing installation.

- New Setup will create a new configuration folder on your computer in a default directory. This is the simplified installation procedure.
- Existing Setup or Custom Directory will allow you to retrieve all your current settings from the previous FileCatalyst Workflow installation, or to create a new configuration folder in a custom path.
- The path where Custom Directory is stored must have at least 80GB of disk space free
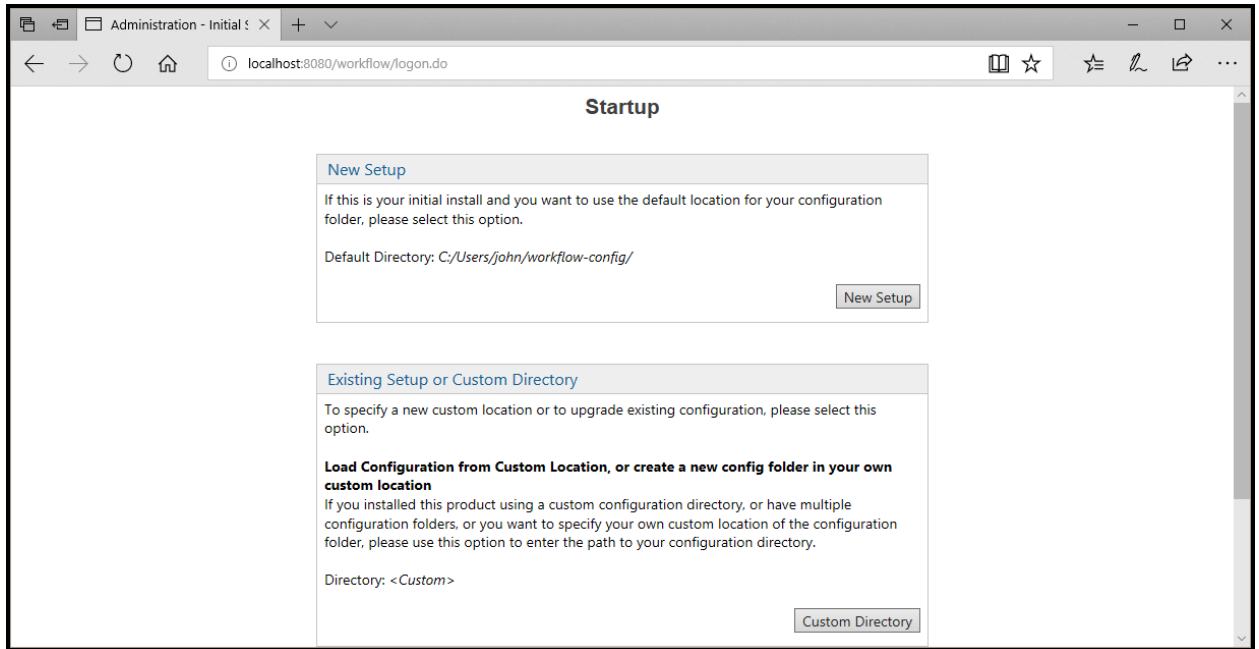
For this instruction, the "Custom Directory" button was pressed.

## 3.3 Configuration Folder Information
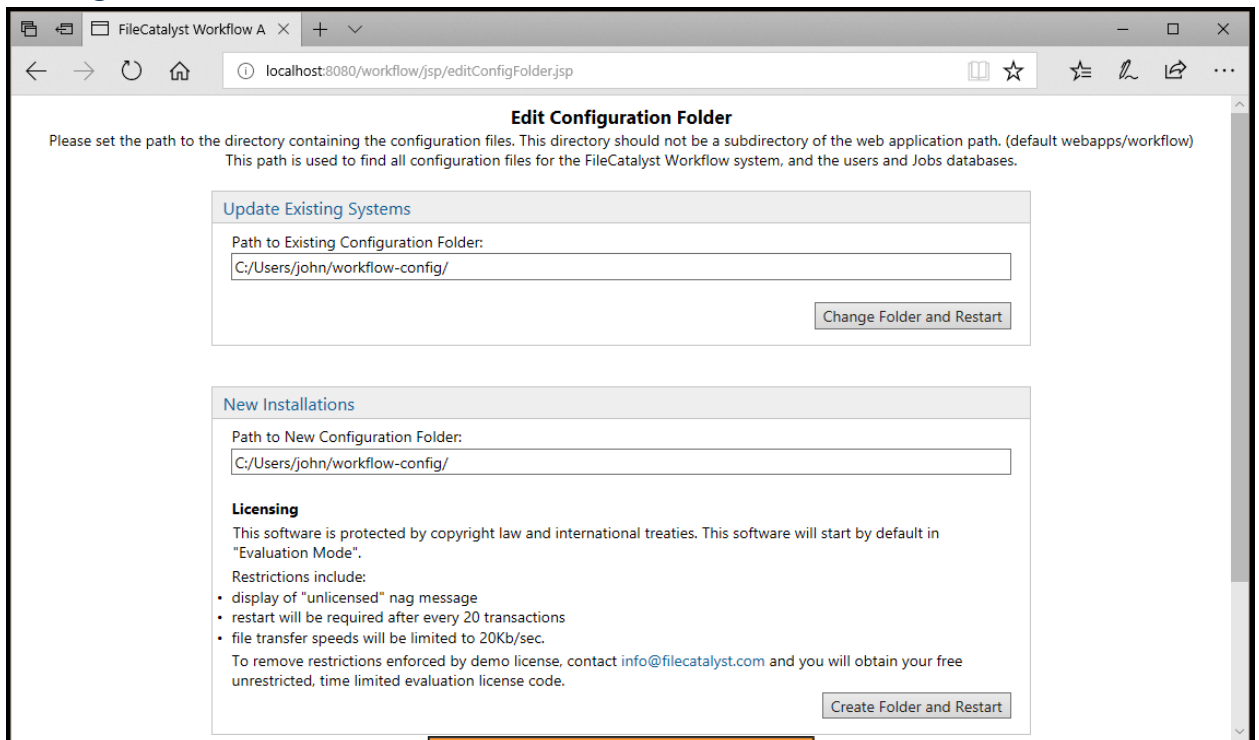


For "Update Existing Systems", FileCatalyst Workflow will try to retrieve an existing configuration folder from the location specified in the text input. You will be prompted on the screen if one was found. Once the path is found, the system with restart and your existing congiuration will be

applied.  For "New Installations", a new configuration folder must be created. You may overwrite the default with a suitable location. For UNIX installations, this should be set to a recognizable UNIX directory (/var/fcweb-config or /opt/fcweb-config).

Once you are ready, press "Create Folder and Restart" to finish this stage of the installation.  This will create a new configuration folder and the application will restart.

## 3.4   Company Information and outgoing mail server

Log back in as user Init and password "aaaaa" again.

Complete all required fields. The web root path for the server (public URL) must be accurate; otherwise the links sent out to clients for file notifications may not be valid.

Note: Although SMTP settings are not required fields during initial setup, the application will not function as intended until the Email server is configured by the administrator. This can be done at any time after initial setup is completed. Most web based email services (Gmail, Yahoo, Apple) will offer a free SMTP service. Consult documentation for your email service provider to find the server details.

At this point your installation and initial configuration of FileCatalyst Workflow is complete.

**We recommend to RESTART Tomcat at this point. On Linux, a service restart might not work properly, it is recommended to do "kill -9 <pid>" on the Tomcat process before restarting it.**

## 3.5 Super Admin password reset (Optional)

Enter the configuration screen using the super administrator password (Init/aaaaa). From the menu, select the **Modify Configuration→ Admin User** option and set an appropriate password to protect the application as well as to set personal information.

At this point you completed the minimum configuration to start using FileCatalyst Webmail/Workflow.

## 3.6 Setting a License Key (Optional)

By Default FileCatalyst Workflow will run in DEMO mode, there will be file size and speed limits as well as there will be a visible "Demo Nag Screen" on each page. To remove the limitations, you will have to request a valid license key from your FileCatalyst Representative. License keys are based on the hardware configuration and are defined by License Request String. You can find the License Request String either via **Modify Configuration→ Licenses** or by clicking on the "About FileCatalyst" page when logged in as Super Admin (Init).

## 3.7 Getting More Help (Optional)

You can access the online help by clicking on the Help button, near the top right of every admin screen. From the help menu you can also click on Contents button to see the entire index of the online help system. You can also refer to the FileCatalyst Workflow Getting Started Guide.