



ReadMe.pdf

Instructions for

FinalCutServerIntegrationSample

Version 1.0
June 5, 2008

“FinalCutServerIntegrationSample” demonstrates how to communicate between Final Cut Server and an external application. The external application is a simple Rails application which allows viewing and commenting on movie clips.

Final Cut Server uses a subscription to trigger the export of copies of a movie and invokes an external script which adds a record to the database that backs the Rails application. Final Cut Server also has a watcher which is polling a particular directory in the filesystem. To return information to Final Cut Server the Rails application writes an XML file into a that directory.

Running this sample requires (a) building the Rails application and (b) creating the appropriate entries inside Final Cut Server.

Set up

System Requirements

Software

Mac OS X 10.5.2 (or later)

QuickTime 7.4.1 (or later)

Java - J2SE 5.0

Final Cut Server (version 1.0) should be installed on the system. Refer to “Final Cut Server - Setup and Administration Guide” which is on the Final Cut Server install disk.

A note on Final Cut Server client

If you haven’t used Final Cut Server before you may not be aware that you install the client application by accessing the URL “<http://hostname/FinalCutServer>”, where hostname is the IP address or name of the computer on which you installed Final Cut Server. This process is detailed in chapter 8 of the Setup and Administration Guide.

Building the Rails application

Preparation

We’re not going to bother with the details of building a Rails application. We’ll get all the modified files from a cpio archive. If you want to know the details of constructing a Rails application, there is an excellent series of articles on the Apple developer website about Rails. The first article in that series is “Developing Rails Applications on Mac OS X Leopard”.

The Rails application we are creating requires Rails 2.0.2, but Mac OS X Leopard shipped with Rails 1.2.6. To check which version of Rails you have, run the following command in a Terminal window:

```
gem list rails
```

It should report “rails (1.2.6)”. We need to go to the latest rails so:

```
sudo gem update --system
sudo gem install rails -v 2.0.2
sudo gem update rake
sudo gem update sqlite3-ruby
```

Now if you check which version of Rails you have, you should see “rails (2.0.2, 1.2.6)”

Creating the Rails app

The Rails application depends on

```
sudo gem install mislav-will_paginate \
    --source http://gems.github.com/
```

The rest of the instructions expect the path “/fcsvr/review” to be the base directory of the Rails application. You can place the Rails app elsewhere. If you do so, then remember to substitute your chosen parent directory for “/fcsvr” throughout these instructions. If not then create a directory on the root of your boot volume called “fcsvr”.

Please note - it is very important that the Rails app be run by the same user who installed Final Cut Server.

Move the following pieces from the distribution in the “/fcsvr” (or your parent) directory.

- archive.cpio
- create_review

In a Terminal window do the following

```
cd /fcsvr      # fix path if you put it elsewhere
sh create_review
```

This will produce quite a bit of output. Do not run ‘create_review’ with a ‘sudo’, the ownership & permissions will be wrong.

Testing the Rails app

In the Terminal

```
cd /fcsvr/review  # fix path if you put it elsewhere
```

```
script/server
```

Leave the script/server running. Point Safari at <http://localhost:3000/clips>. You should see the basic Rails application page come up, with no clips listed.

Installing the Compressor settings

We need to add special settings to Compressor so that Final Cut Server can produce the right size of video for the Rails application.

Open Compressor. This must be done while logged in to the same account as you used to install Final Cut Server.

Show the Settings window.

Drag ‘FCSvr Web.setting’ and FCSvr Web Small.setting’ files to the “Custom” folder in the Settings window.

Quit Compressor.

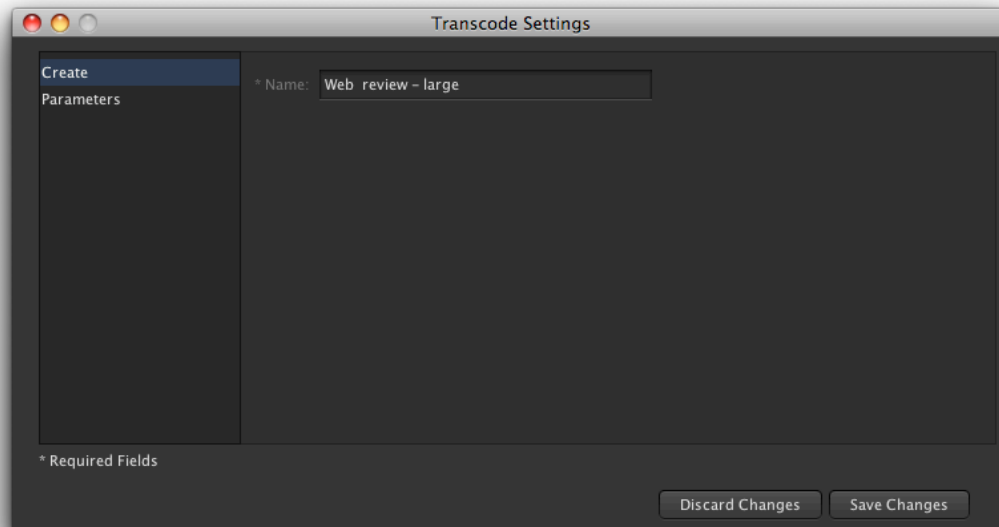
Configuring Final Cut Server

All the configuration we will be doing involves either the Final Cut Server System Preferences pane or the use of the Final Cut Server client’s Administration Window. If you are unfamiliar with those please review the “Final Cut Server - Setup and Administration Guide”.

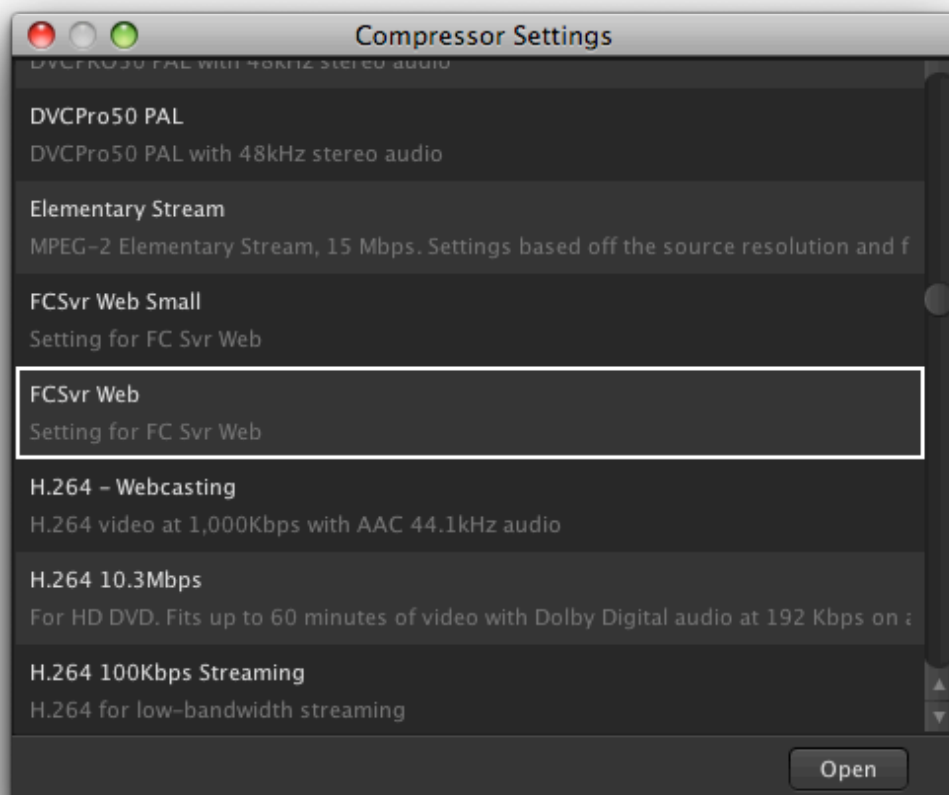
Add transcodes

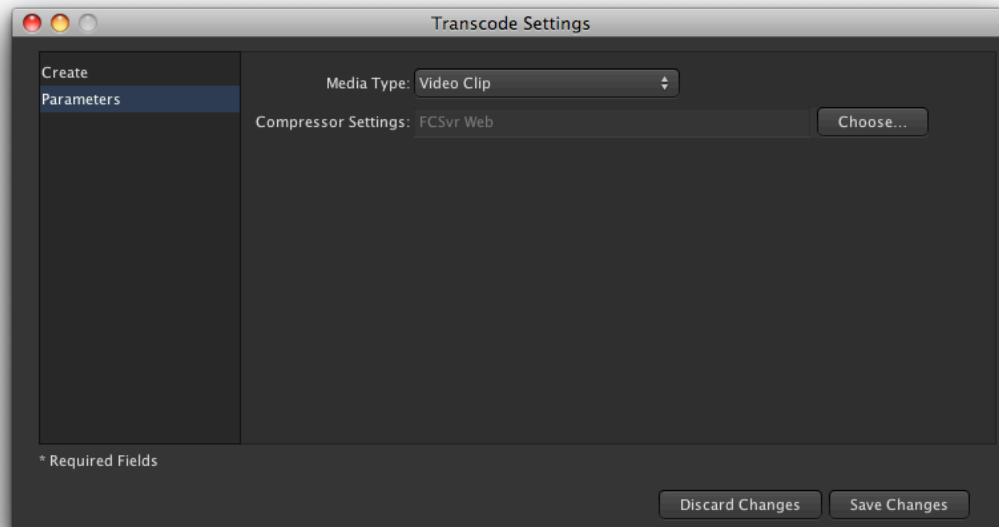
The compressor settings we added earlier need to have transcode settings created in Final Cut Server, so that other objects within Final Cut Server can reference them.

Open the Transcode Settings pane of the Final Cut Server client’s Administration window. Click the create button. Name the transcode “Web review - large”.



Click on "Parameters". Choose "Video Clip" for the Media Type and then click the "Choose" button and pick "FCSvr Web" from the Compressor Settings window.





The transcode settings should like this. Then click Save Changes.

Now create a second Transcode Setting. This one should be called “Web review - small” and should connect to the Compressor setting called “FCSvr Web Small”.

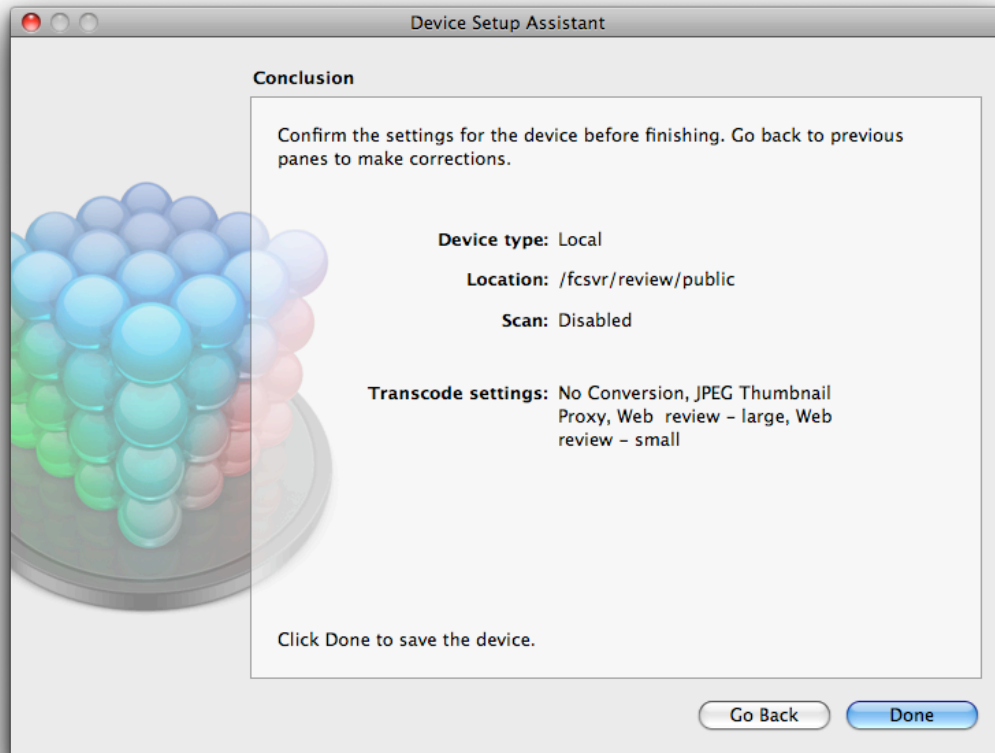
Add a device

Most responses within Final Cut Server can not access arbitrary locations within the filesystem. Instead, paths are given relative to Devices. Also, devices allow you to restrict the possible transcodes that can be applied when copying items to that device. Transcodes can be added to a device after it has been created, but it is more convenient in this sample to have created the transcodes first.

Go to the Devices pane of the Final Cut Server System Preferences pane. Click the lock and authenticate as an administrator. Click the Add (+) button and the Device Setup Assistant starts.

- Select one of the Local device type, then click Continue.
- Set the Device Name to “Review” and the Location to “/fcsvr/review/public” (fix the path if you put it elsewhere), then click Continue.
- Do not make it an Archive device, click Continue.
- Do not create a scan, click Continue.
- For Transcode Settings, select “No Conversion”, “JPEG Thumbnail Proxy”, “Web review - large”, and “Web review - small”; then click Continue.

Then you should see a pane that looks like this. Click Done.



You should quit and restart your Final Cut Server client to insure the Device is picked up cleanly.

Add metadata

You need two Metadata Fields. Open the Metadata Field pane of the Final Cut Server client's Administration window.

Click the create button. Name the field "Send to Web", set the Data Type to Boolean and the Category to None. Then click Save Changes.

The image shows a 'Metadata Field' dialog box with the following fields and values:

- * Name: Send to Web
- * Data Type: Boolean
- Description: Flag to trigger review
- * Category: None
- Suffix: (empty)
- Default Value: ☐
- Lookup Values: [None]
- Display hints: (empty)
- Width: (empty) pixels
- No label: ☐
- Preceding row empty: ☐

Buttons at the bottom: Discard Changes, Save Changes

Click the create button again. Name the field "Web Comments", set the Data Type to Unicode String, the Category to None, and set Multiline on. Then click Save Changes.

The screenshot shows a 'Metadata Field' dialog box with the following fields and options:

- * Name: Web Comments
- * Data Type: Unicode String
- Description: (empty)
- * Category: None
- Suffix: (empty)
- Default Value: (empty)
- Lookup Values: [None]
- Display hints: (empty)
- Width: (empty) pixels
- Multiline: ☒
- Rows: (empty) rows
- Hide Field Lookup in Filter: ☐
- Label Only: ☐
- No label: ☐
- Preceding row empty: ☐

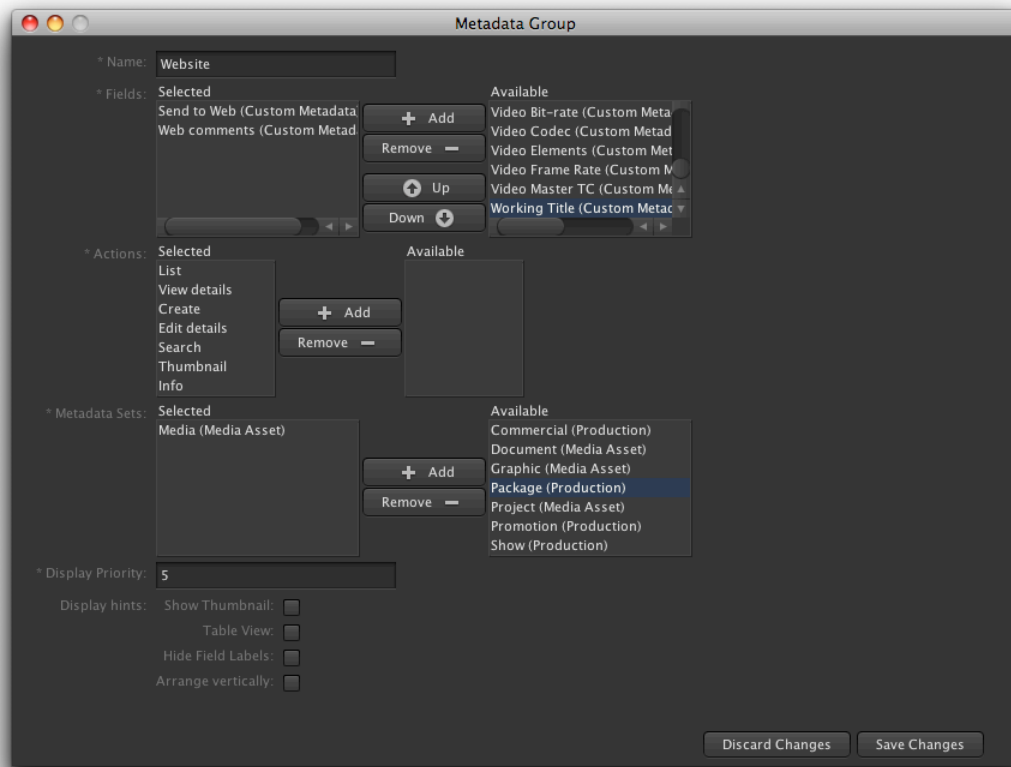
Buttons at the bottom: Discard Changes, Save Changes

Add metadata group

Metadata fields can't be used until they are in a metadata group. Switch to the Metadata Group pane of the Administration window.

Click the create button. Name the group "Website", add the two fields we created (Send to Web, and Web Comments) to the Selected Fields, add all the Available Ac-

tions to the Selected Actions, and add the Media (Media Asset) metadata set to the



Selected Metadata Sets. Then click Save Changes.

Fix the True False lookup

In order to searches on boolean fields we need to use a lookup. However, in version 1.0 there is a bug - the built-in lookup, “True False Choice”, is broken. (This will be fixed in subsequent versions.) The built-in lookup is not editable, but you can get around this by creating your own Boolean lookup.

Switch to the Lookup pane of the Administration window.

Click the create button. Name the group “Fixed True False Choice”, set the Data Type to Boolean. Then type “True” into the Name field of the Options, select the Value checkbox and click the Add button.

The screenshot shows a window titled "Lookup". It contains the following fields and controls:

- * Name: Fixed True False Choice
- * Data Type: Boolean
- * Options: A table with two columns: Name and Value.

Name	Value
True	<input checked="" type="checkbox"/>

Below the table is an empty rectangular area. To the right of the table are two buttons: "Add" and "Remove". At the bottom of the window are two buttons: "Discard Changes" and "Save Changes".

Then type “False” into the Name field of the Options, un-select the Value checkbox and click the Add button. The window should look like this afterwards:

The screenshot shows the same "Lookup" window, but with the following changes:

- * Options: The table now has two rows.

Name	Value
True (true)	<input checked="" type="checkbox"/>
False (false)	<input type="checkbox"/>

The rectangular area below the table now contains the text "True (true)" and "False (false)". The "Add" button is still present, and the "Remove" button is now disabled. The "Discard Changes" and "Save Changes" buttons remain at the bottom.

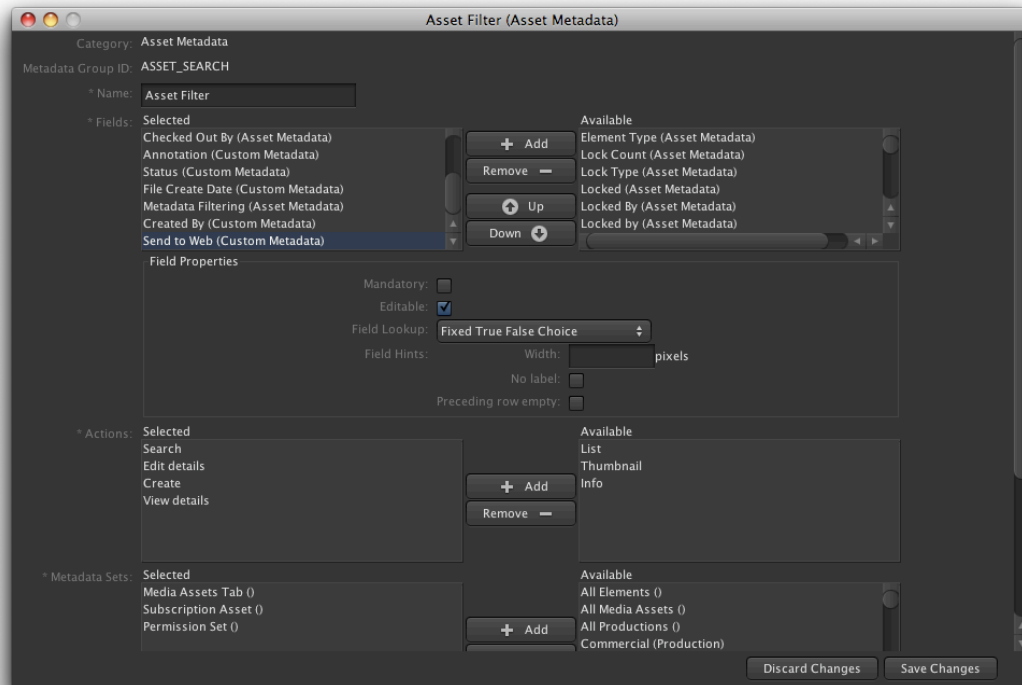
Then click Save Changes.

Alter the Asset Filter metadata group

In order for us to create a subscription that will trigger on changes to the Send to Web field, we need alter the Asset Filter metadata group to include that field.

Search for “Asset Filter” in the Metadata Group pane. Double click on Asset Filter in the list. In the window that comes up, find Send to Web in the Available Fields and add it to the Selected Fields.

Click on Send to Web in the Selected Fields and the Field Properties sub-pane will pop up. Click Field Lookup and select Fixed True False Choice. Then Save



Changes.

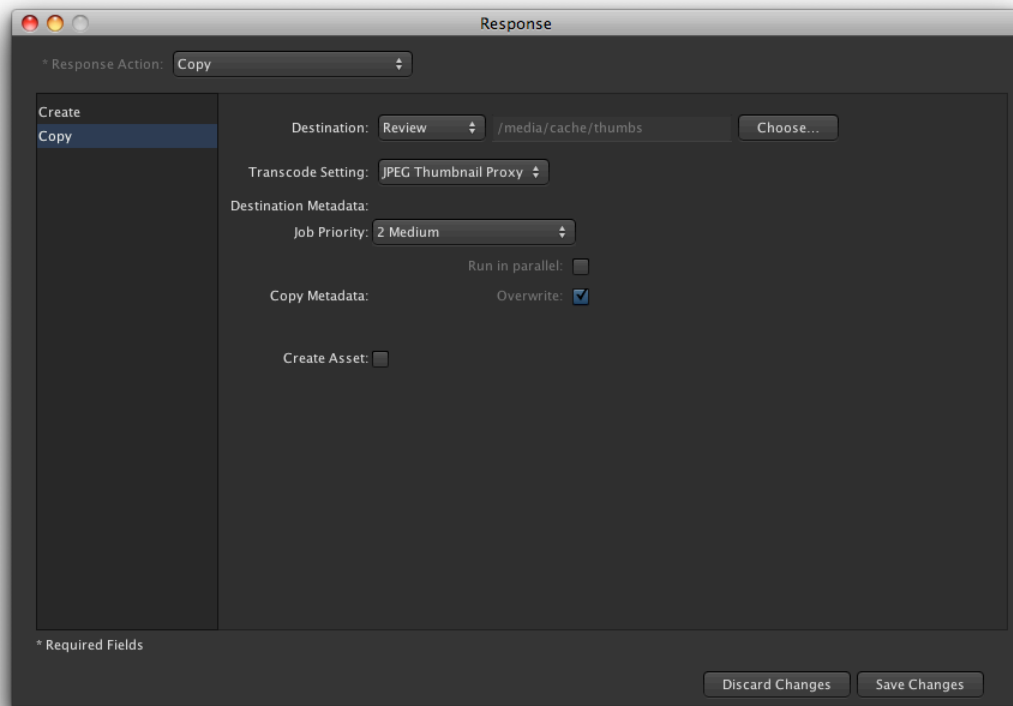
Add responses

Responses are the basic actions in Final Cut Server. Responses are potential, that is, they are not run of themselves, but must be associated with a Subscription, Watcher, or Schedule in order to be run.

The Rails site will need a static image, a thumbnail, for each movie. It makes sense for Final Cut Server to create this, since it has support for a wide range of formats.

Switch to the Response pane of the Administration window. Click the create button. Select a Response Action of Copy, name the response “Review - Make JPEG Thumbnail”. Click on Copy in the list. Select as Destination the Review device with a

path of “/media/cache/thumbs”. Choose Transcode Setting of JPEG Thumbnail

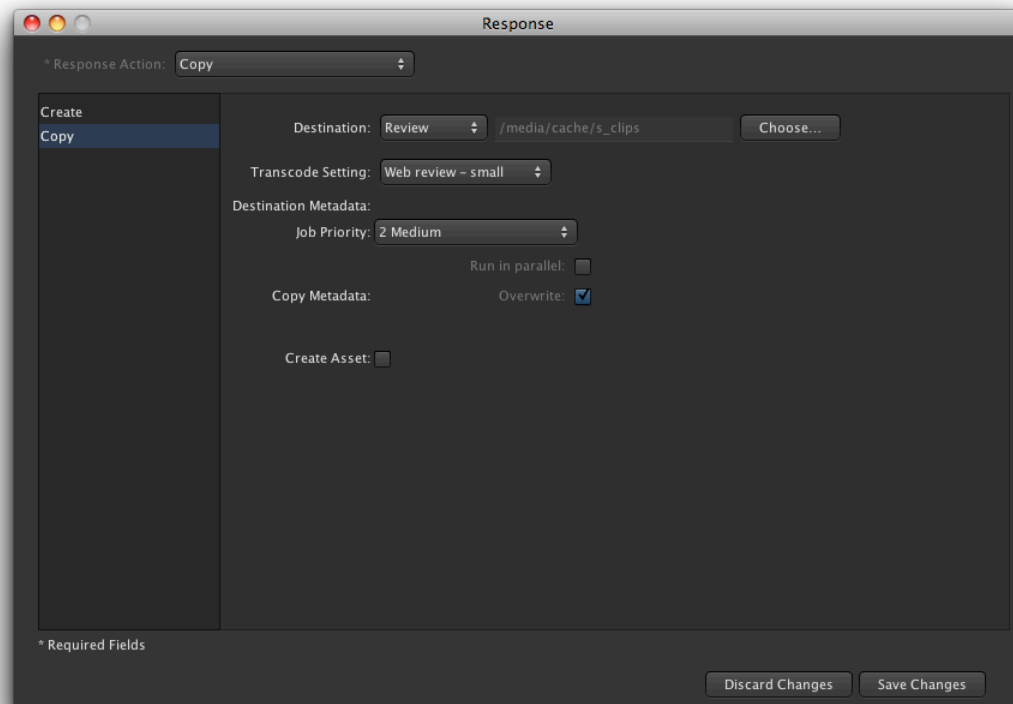


Proxy and check the Overwrite box. The click Save Changes.

The next two responses create the web downloadable movies.

Click the create button. Select a Response Action of Copy, name the response “Review - Make Small QuickTime”. Click on Copy in the list. Select as Destination the

Review device with a path of “/media/cache/s_clips”. Choose a Transcode Setting



of Web review - small and check the Overwrite box. Then click Save Changes.

Click the create button again. Select a Response Action of Copy, name the response “Review - Make Large QuickTime”. Click on Copy in the list. Select as Destination the Review device with a path of “/media/cache/l_clips”. Choose a Transcode Setting of Web review - large and check the Overwrite box. Then click Save Changes.

The next response is a Write XML. This response writes out a file with an XML representation of the metadata associated with the asset that trigger the subscription. Our script will pick up metadata from this file.

Click the create button. Select a Response Action of Write XML, name the response “Review - Write XML”. Click on Write XML in the list. Select as Destination the Review device with a path of “/media/cache/xmlin”. Then click Save Changes.

The last response is a Run an external script or command. These are commonly called script responses.

Click the create button. Select a Response Action of Run an external script or command, name the response “Review - Create clip in Rails”. Click on Run Script in the list. Set the Command Path to “/fcsvr/review/script/fcsvr/add_asset.rb”. (Fix the path if you put it elsewhere, but only fix the the first “/fcsvr”, the second is within the

Rails app.) Set the Command Parameters to '-t "[Title]"'. Be sure to get the case correct, as metadata substitutions are case-sensitive. Then click Save Changes.

Note that we only pass one argument to the script. If you look at the add_asset.rb script you will see that we pick up six different metadata fields from the XML file. We could pass all six fields as Command Parameters, but it is simpler to do the Write XML.

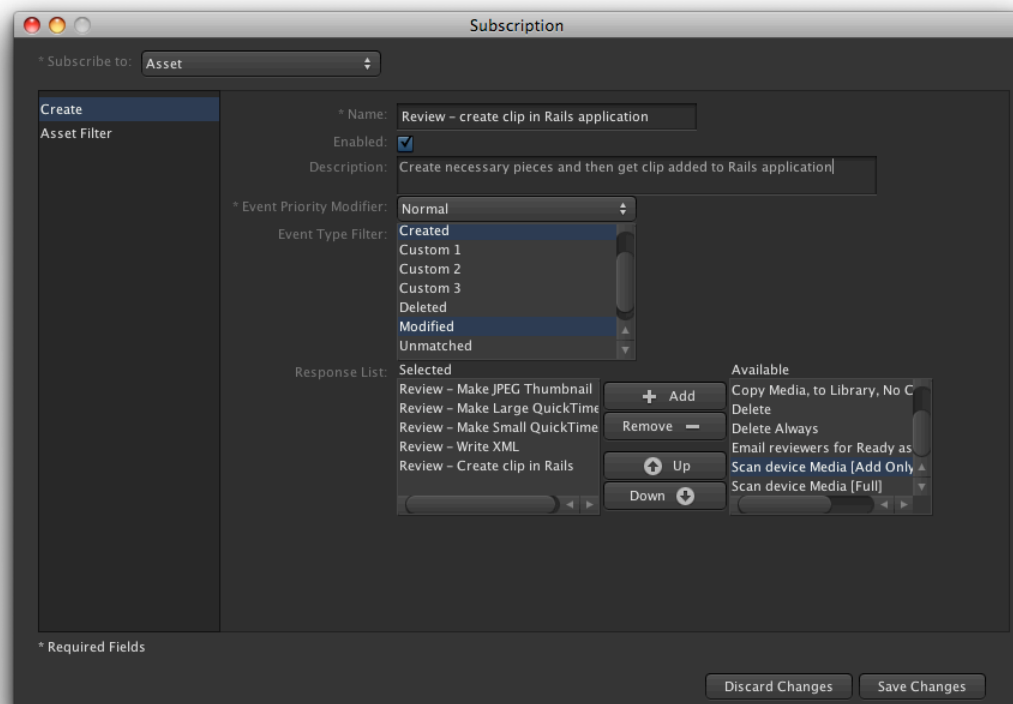
Add a subscription

Now we have the pieces in place so we are ready to create our subscription.

Switch to the Subscription pane of the Administration window. Click the create button. Set Subscribe to as Asset, name it "Review - Create clip in Rails application", and select Enabled. The Event Type Filter should select Created and Modified.

From the Available Response List select the five responses we have created, "Review - Make JPEG Thumbnail", "Review - Make Large QuickTime", "Review - Make Small QuickTime", "Review - Write XML", "Review - Create clip in Rails" and add them to the Selected Response List.

If necessary, use the Up/Down buttons to make sure that "Review - Create clip in Rails" is the last item in the selected list. The list is executed in order and we must



call our script last.

Click on Asset Filter in the list. Set Send to Web to Equals True and set Trigger if changed. This ensures that our subscription will only be invoked when Send to Web

The screenshot shows a window titled "Review - Create clip in Rails app" with a sidebar on the left containing "Details" and "Asset Filter". The "Asset Filter" section is active, displaying a list of filter criteria. Each criterion has a dropdown menu for the filter type and a checkbox for "Trigger if changed". The "Send to Web" filter is set to "Equals" and "True", with its "Trigger if changed" checkbox checked. Other filters include Asset ID, Metadata Set, Title, Location, File Name, Stored On, Checked Out By, Annotation, Status, File Create Date, Metadata Filtering, and Created By. At the bottom, there are "Discard Changes" and "Save Changes" buttons, and a note "* Required Fields".

Filter	Value	Trigger if changed
Asset ID:	All	<input type="checkbox"/>
Metadata Set:	All	<input type="checkbox"/>
Title:	All	<input type="checkbox"/>
Location:	All	<input type="checkbox"/>
File Name:	All	<input type="checkbox"/>
Stored On:	All	<input type="checkbox"/>
Checked Out By:	All	<input type="checkbox"/>
Annotation:	All	<input type="checkbox"/>
Status:	All	<input type="checkbox"/>
File Create Date:	All	<input type="checkbox"/>
Metadata Filtering:	Do Not Include Log & Capture Metadata	<input type="checkbox"/>
Created By:	All	<input type="checkbox"/>
Send to Web:	Equals	<input checked="" type="checkbox"/>

is turned on. Then click Save Changes.

Add response for watcher

Information returning from the Rails application will be in an XML file.

Switch to the Response pane of the Administration window. Click the create button. Select a Response Action of Read XML, name the response "Review - Read XML". Then click Save Changes.

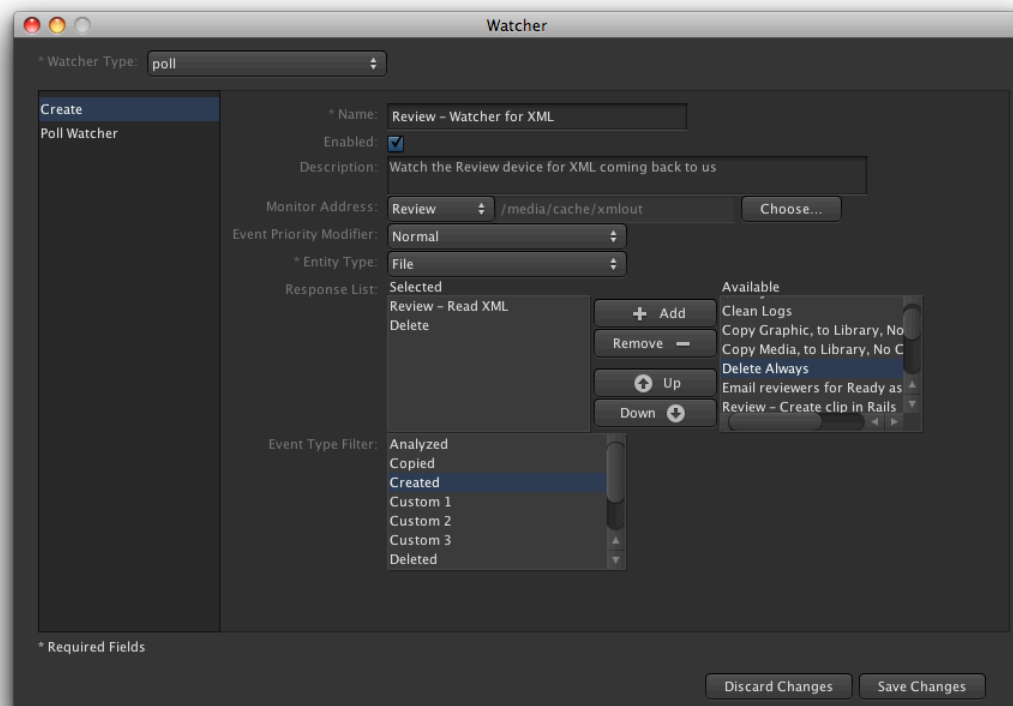
Note that no directory is given. This is because the Read XML response will read the file that triggered the response. Insuring it is triggered by the right file is the responsibility of the watcher.

Add a watcher

Our watcher polls the filesystem looking for XML files.

Switch to the Watcher pane of the Administration window. Click the create button. Select a poll watcher, name it "Review - Watcher for XML" and select Enabled. The Monitor Address should be the Review device and a path of "/media/cache/xmlout". The Entity Type should be file. From the Available Response List select "Review - Read XML", and "Delete" and add them to the Selected Response List. If neces-

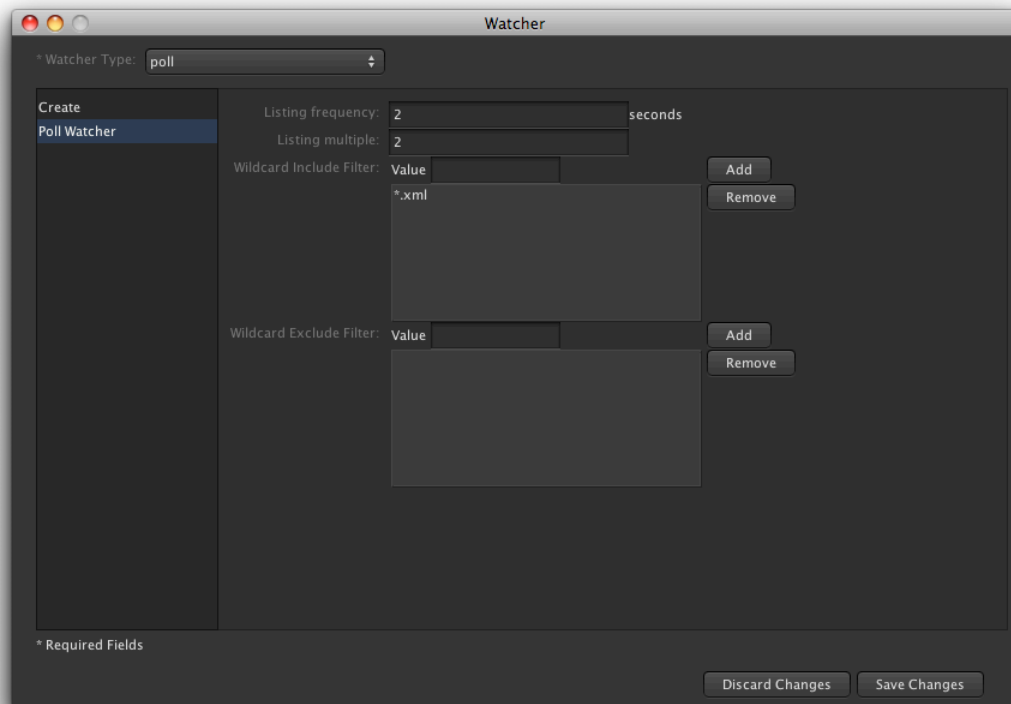
sary, use the Up/Down buttons to make sure that “Delete” is the last item in the se-



lected list. The Event Type Filter should select Created.

Click on Poll Watcher in the list. Set Listing Frequency to 2 seconds, and Listing Multiple to 2. Type "*.xml" in the Value field of Wildcard Include Filter and click the

Add button. This will cause the watcher to ignore all files that do not end in '.xml'.



Then click Save Changes.

Done with configuration

Now we have completed Final Cut Server configuration. This may seem like a lot of detail, but with experience setting up responses goes very quickly.

In a real configuration we might also have also created Email responses to send notifications.

Running the sample

Running the sample

Startup the Rails app

If you had shut down the Rails application after testing it, then start it up again.

In Terminal

```
cd /fcsvr/review
script/server
```

Leave the script/server session running. As the Rails app does things you will see log output appear in the window.

Upload a movie

Upload a movie to Final Cut Server by dragging and dropping a movie into the Assets pane of Final Cut Server client. (See “Final Cut Server: User Manual”.) If you don’t have a movie handy simply unpack the file “bars.mov.zip” included in this sample. This is a one second duration QuickTime movie of bars and tone.

You can check the progress of the upload/analyze process by selecting “Search All Jobs” from the Server pop-up menu. Look for the transcoding to be done.

Send to Web

Search in the Assets pane to find the movie you just uploaded. Double click on the movie’s icon to open the asset’s info window. The Metadata pane should be selected by default. Click on the Website group in the list. Select Send to Web and then Save Changes.

Use Search All Jobs again. You should see each of the copy operations and the write XML of the “Review - Create clip in Rails application” subscription go by. The script response will not show up here. (You can use the Log pane of the Administration window to view the status of the script response.) One the other operations have completed the script response goes very quickly.

View in Rails application

Point Safari at <http://localhost:3000/clips>. You should see the basic Rails application page come up, but now there will be your clip in the list. If Safari already had the page up, you will need to reload it.

If you click on the clip’s thumbnail it will bring up another window in which you can add comments and some other things. Clicking the Update button will send the current values in this window back to Final Cut Server. After you click Update it will take several seconds for the data to be picked up.

View changes in Final Cut Server

Go back to Final Cut Server and look at the asset again. You should see the new values. If the asset info window was still up you should close it and reopen.

Troubleshooting

Review the instructions

There is a lot of detail here and some minor items can be quite important, so as first step go back through the instructions, looking for details you may have overlooked.

Be sure to check that subscriptions and watchers are “Enabled”. Check the Wild-card Include Filter in the watcher to make sure it is correct. You can remove the filter to see if this changes the behavior.

Check the logs

Final Cut Server keeps detailed logs. The ‘Search All Jobs’ window is a filter that shows you a subset of the log. You can double click any line in the list to get a detail window with specific log entries. You can double click on those entries to get even more detail.

Not all responses appear as “jobs”. For example, script responses do not. You can use the Log pane of the Administration window to see all the log entries, including those for script responses. You can type text in the search area of the log pane to restrict your view to log entries that match that text.