



JUST:in multi

Installation & User Manual
for **just:in multi v1.7** and later

Mac OS X 10.9 and higher only!

TOOLS air

broadcast engineering gmbh

Version:	Date:	Changes:
1.0.0	09.05.2014	Release version of just:in multi v.1.7 manual.
1.0.1	16.05.2014	Updated description of new installer process.

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1

INTRODUCTION

just:in multi is an innovative Apple Macintosh-based ingest solution that offers crash, gang, batch and schedule recording and features single or multi-channel video capture over SDI into MOV, MXF and MP4 containers. **just:in multi** unites single and multi-channel ingest into one flexible and therefore expandable application.

Supported Formats PAL, NTSC, HD, UHD (QT only!)	QuickTime (QT 7 and AVFoundation)	MXF (D-10, GC, XDCAM, Avid OP-Atom)
	Supported FPS (vendor and card specific): 23.976, 24, 25, 29.97, 30, 50, 59.94, 60	
	<ul style="list-style-type: none"> DV, DVCPRO25/50 DVCPRO HD (720 and 1080) IMX MPEG 30/40/50 (625/50, 525/60). All Apple ProRes and most Avid DNxHD (8-bit) codecs. Uncompressed SD/HD(8-/10-bit). H.264: MP4 and MOV (AVF). UHD: 3840x2160p resolution. 	<ul style="list-style-type: none"> DV, DVCPRO50 DVCPRO HD IMX MPEG 30/40/50 (625/50, 525/60) Avid DNxHD (Avid OP-Atom) Uncompressed SD/HD in 8-bit XDCAM (PAL), XDCAM EX, HD, HD 422 AVC-Intra 50 / 100
VTR Control	RS-422	
Supported Capturing Devices (contact ToolsOnAir for devices not shown in this list)	AJA	Blackmagic
	PCI Cards: <ul style="list-style-type: none"> KONA 3G KONA LHi KONA LHe Plus Corvid 22 Corvid 24 Thunderbolt devices: <ul style="list-style-type: none"> Io XT Io 4K 	PCI Cards: <ul style="list-style-type: none"> DeckLink Mini Recorder DeckLink SDI / DeckLink SDI 4K DeckLink Studio / Studio 4K DeckLink HD Extreme 3 / 3D DeckLink 4K Extreme DeckLink Quad Thunderbolt devices: <ul style="list-style-type: none"> UltraStudio Mini Recorder UltraStudio 3D / Express UltraStudio 4K Intensity Extreme
Recording Modes	Crash / Gang, Batch or Schedule (using Apple Calendar)	
Other Features	<ul style="list-style-type: none"> 2 (two) separate recording instances per channel. Multiple Destinations Support. Growing file support in Final Cut Pro 7/X or Adobe Premiere Pro CS6 / CC (Mac) with QuickTime MOV and MXF. Edit-While-Ingest functionality (MOV, MXF). Split-While-Recording functionality. Support for customizable QuickTime and XML-Metadata. Moxa NPort 5650 Serial Device Server Integration. UHD recording available for QuickTime and AVFoundation containers only! 	

Goals of this document

- Installation, configuration and usage of **just:in multi**.
- Customization of sidecar XML files.
- Deployment of **Just In Adobe Panel** for Adobe Premiere Pro CS6 and CC.

1.1

INTRODUCTION

THE APPLICATIONS

Just In Engine QuickTime



Just In Engine QuickTime is the engine responsible for ingesting one or more SDI signals attached to an input card or cards (e.g. AJA, BMD) and writing these signals into a given container (MOV-QT, MOV-AVF, MXF OP1a, AVID OP-Atom MXF or MP4). A single **Just In Engine QuickTime** can support multiple channels in SD and HD as well as single channels in UHD/4K depending on the framerate, TV norm, container and codec used, the available qualified Apple hardware and the storage attached to the system. The engine supports crash, gang, batch and scheduled recording modes as well as RS-422 VTR machine control.

Just In Multi



Just In Multi is the interface for single or multi-channel ingest. It controls multiple channels available from multiple instances of **Just In Engine QuickTime** on the network. The user interface provides live feedback about the status of the channels (real-time video and audio previews) and diagnostics about the systems on which the **Just In Engine QuickTime** is running. The user can then start and stop recording, build and execute batch lists, control connected video tape machines (VTR control), view any pre-defined schedules to be recorded and add metadata.

Just In Adobe Panel



In addition to the **Just In Multi** user interface, there's the option to use our **Just In Adobe Panel** for Adobe Premiere Pro (Mac) to directly record and import files into Adobe Premiere Pro CS6 (6.0.5) and CC (7.2.x). It currently provides single/multi-channel ingest over SDI or HDMI (depending on the PCI video card or Thunderbolt device used) in combination with our **Just In QuickTime Engine**. The automatic import into the Adobe Premiere Pro project panel with growing file support (MOV and MXF) eliminates the complexity of running several applications in an editing environment.

2

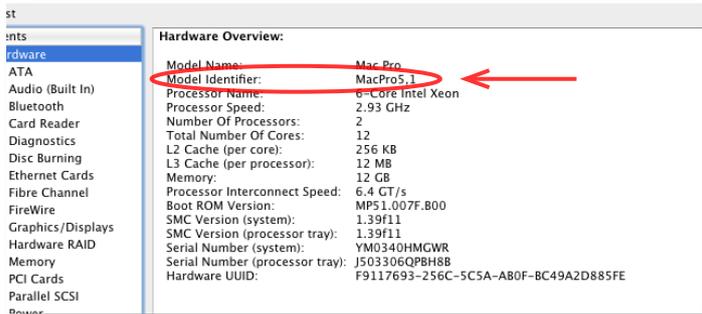
SETUP

2.1

SETUP REQUIREMENTS

The number of channels that qualified Apple hardware can record will depend on the format, framerate, selected codec, the speed of the storage, and the number of CPU cores available. For multi-channel recording on a single machine we therefore recommend the highest specified CPU currently available and a storage device able to read and write at least twice the theoretical data rate required by the specific codec multiplied by the number of channels being recorded.

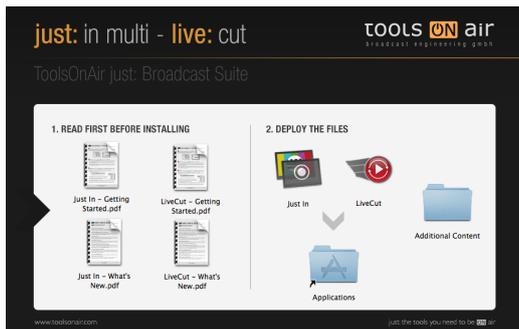
For example, recording high definition 1080 streams in ProRes HQ would require an Apple Mac Pro or Apple Mac mini with the minimum specifications stated below:

Qualified Apple Mac Models for just:in multi	
PCI-Card setups:	MacPro 12-core (5,1). Please note that support for legacy hardware like the Xserve (3,1) models and older Mac Pros (3,1, 4,1) has been discontinued.
Thunderbolt setups:	Mac Pro (6,1) 8- or 12-core, Mac mini Quad-Core (6,2). Currently the max. amount of recordables channels in HD on a Mac mini i7 2012 (6,2) is 2!
Clients:	iMac Quad-Core i7 (13,1 - 13,2 and 14,1 - 14,2) recommended.
<p>If you are having trouble to determine the Model Identifier, then click on the Apple Menu on the appropriate Mac and select "About This Mac" while pressing the "Option/Alt" key. The System Profiler will shows up and display data relevant to your machine.</p> 	
RAM	At least 8 GB (16-64 GB recommended).
Operating System	Mac OS X 10.9.2 or later. Administrator account required.
Other	Variable framerate devices like the FaceTime HD Camera are not supported!

Before you begin make sure that you have Mac OS X 10.9.2 or higher installed as well as the current drivers from either AJA or Blackmagic Design.

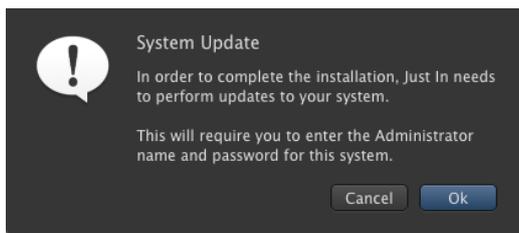
NOTE: just:in multi version 1.7 will **ONLY** run on Mac OS X 10.9.2 or higher!

Double-click on the DMG installer image and click **Agree** to accept the license agreement. To install **Just In** 1.7 drag and drop the installer icon onto the **Applications** folder.



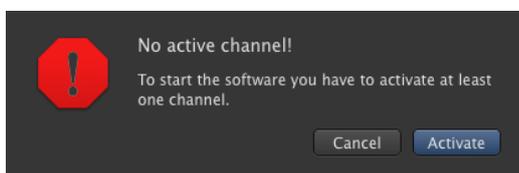
For NEW installations:

- Navigate to the **/Applications/Just In** folder and double-click on **Just In Engine QuickTime** to initialize the software packages. You will be asked to update your system and to allow access to system resources such as Apple Calendar. Confirm all of them by clicking **OK** and by entering your credentials when asked.
- The next step is to activate your channel(s). Click on **Activate** and the **Just In QT** preference pane will open up for you to fine tune your configuration.



For UPGRADE installations ONLY:

- In case of a **previous activation** of any version prior to v.1.7 you will need a **new activation code**. Please contact ToolsOnAir to receive your updated activation code under software maintenance. To perform an upgrade install, you can follow the same steps above. Drag the **Just In** installer package to the **Applications** folder and confirm that you want to replace (**Replace All**) the older version of **Just In**.
- Navigate to the **/Applications/Just In** folder and double-click on **Just In Engine QuickTime** to initialize the software packages. You will be asked to update your system and to allow access to system resources such as Apple Calendar. Confirm all of them by clicking **OK** and by entering your credentials when asked.
- Your capture presets will be kept as well your channel(s) information. Only the destination presets need to be updated in the **Just In QT** preference pane in order to reflect the new multiple destinations structure (see pages 11 and 12).
- Once the upgrade setup is done, restart **Just In Engine QuickTime**, launch **Just In Multi** and connect to the desired channels.



Where to look for **just:in** multi components after the installation process :

- **Just In Multi.app:** /Applications/Just In/
- **Just in Engine QuickTime.app:** /Applications/Just In/
- **Just In QT.prefPane:** /Library/PreferencePanes/
- **Tools On Air Preferences.prefPane:** /Library/PreferencePanes/



Note for AJA KONA Users

- **just:in** multi 1.7 has been designed to take care of all sort of internal cabling between the KONA cards and the **Just In Engine QuickTime** engine, so that the user need not to configure the settings through the AJA Control Panel. For best audio performance use the option “**Line In**” in **System Preferences -> Hardware -> Sound -> Input**. Changing this setting to “AJA Kona (name of card)” might lead to recordings with asynchronous audio!
- **just:in** multi 1.7 has been designed to take care of all sort of signal handling between the KONA cards and **just:in**. Please note that failing to provide a continuously stable signal, during a capture process could interrupt your ingest process or harm the file saved to disk by making them out-of-sync or even unusable at all. In order to stabilize the signal in advance, i.e. before it's sent to the video card input, you can use Audio/Video Frame Synchronizers from the **AJA FS** or **UDC** family of products.
- With the KONA 3G, Corvid 24 PCI cards and the Io 4K PCI Thunderbolt device you will be able to record up to 4 incoming SDI streams, thanks to **just:in** multi's direct SDK link.
- With the Io XT Thunderbolt device you will be able to record up to 2 incoming SDI streams, thanks to **just:in** multi's direct SDK link.
- Version 1.7 of **just:in** multi will support AJA drivers 10.5.2 and higher only!



Note for Blackmagic Decklink Users

- We do **NOT** recommend the use of 2 DeckLink Duo cards to achieve a 4 channel ingest station due to extended thermic problems and reported frame loss issues. Please use the DeckLink Quad card instead which is the approved setup for multi-channel input! This refers to both the Mac Pro 5,1 and any external Thunderbolt extension chassis.
- It is recommended to use the Blackmagic Desktop Video drivers versions 9.9.3 or 10.x of for full compatibility with Mac OS X 10.9 Mavericks and fixes with regard to channel reallocation upon restart.

3

CONFIGURATION

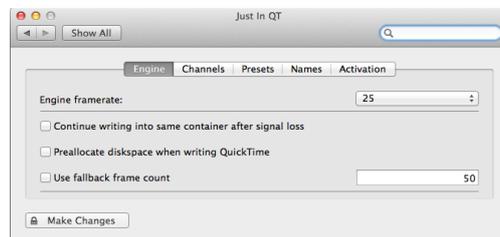
3.1

CONFIGURATION

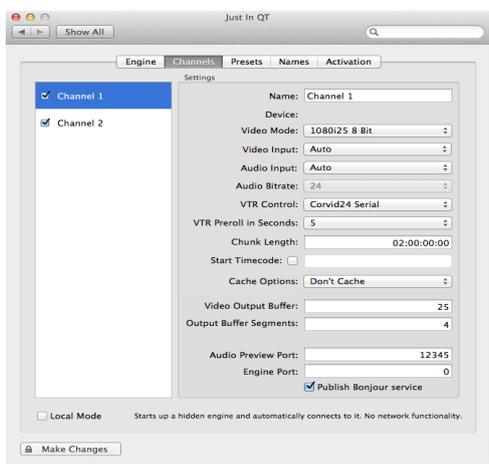
JUST IN ENGINE QUICKTIME ENGINE

Open the **System Preferences** and select the **Just In QT** preference pane under **Other**. Before you can continue, please authenticate yourself by clicking on the **lock (Make Changes)** icon and entering the administrative credentials. In the **Just In QT** preference pane you will see five tabs.

- Under **Engine** select the desired framerate (23.976, 24, 25, 29.97, 30, 50, 59.94 or 60).
- Check “**Continue writing into same container after signal loss**” if you would like to keep the container opened during a signal loss and have **just:in multi** resume the recording into the same container as soon as a signal is fed again. If not checked and in the event of a signal loss, **just:in multi** will stop recording, close the container and resume recording into a new file as soon as a proper signal is fed again. This applies to both QuickTime and MXF containers in **Crash** mode only. We highly recommend using use frame stores to guarantee a stable and correct input signal.
- Check “**Preallocate disk space when writing QuickTime**” if you want **just:in multi** to preallocate disk space in order to prevent file fragmentation (extends). The amount of allocation needed is automatically calculated by **just:in multi** according to the capture preset (codec) selected. This option is not recommended for XSan deployments.
- Check “**Use fallback frame count**” if you want to set a given amount of frames (max. 100) that should be buffered before switching to the fallback destination set in the **Just In QT** preference panel. When reached, **just:in multi** will fallback onto the defined fallback storage.

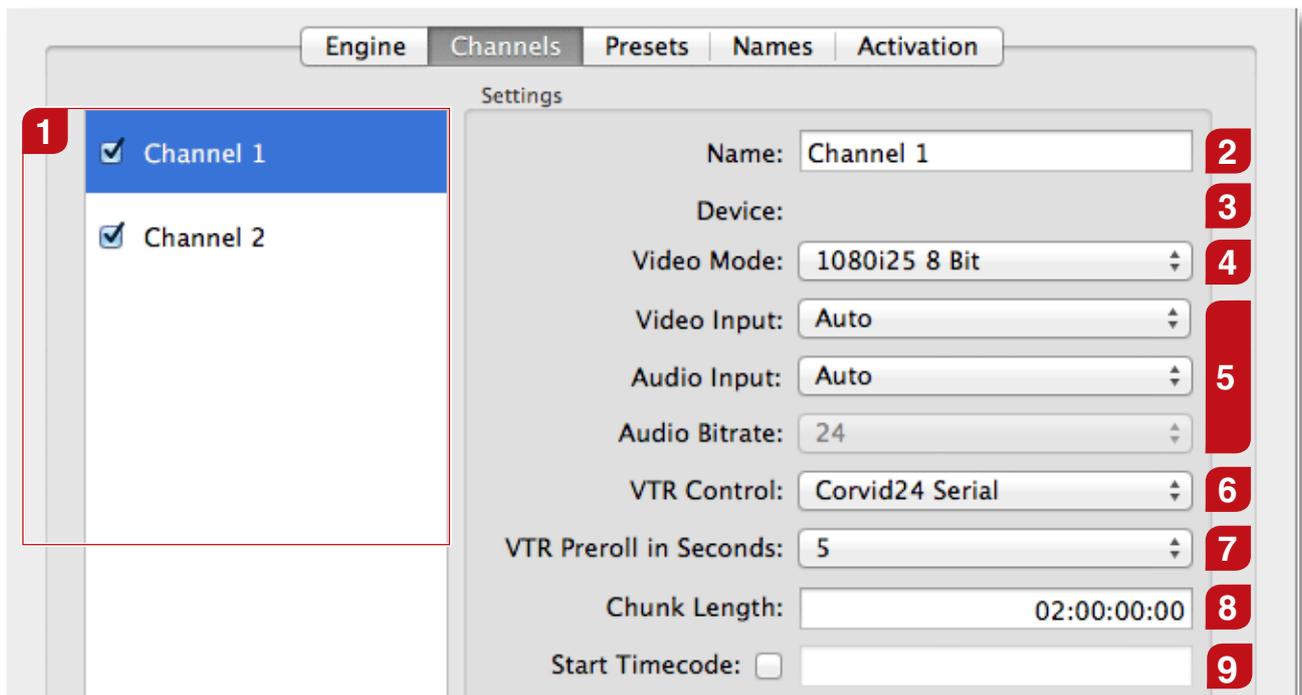


3.2

CONFIGURATION
CHANNELS

- Under **Channels** select the available channels that you would like to use by clicking on the appropriate **checkbox** and choose the appropriate settings for the channel. The available video mode settings for the previously selected framerate will be displayed automatically.
- Choose **Publish Bonjour service** if you want to use Bonjour for network discovery. In case that Bonjour cannot be routed in your network, check **Local Mode** to run a network agnostic version. If you plan to re-use Bonjour again later in time, then make sure to enter “**0**” as the port number. Please consult your network administrator on port availability.

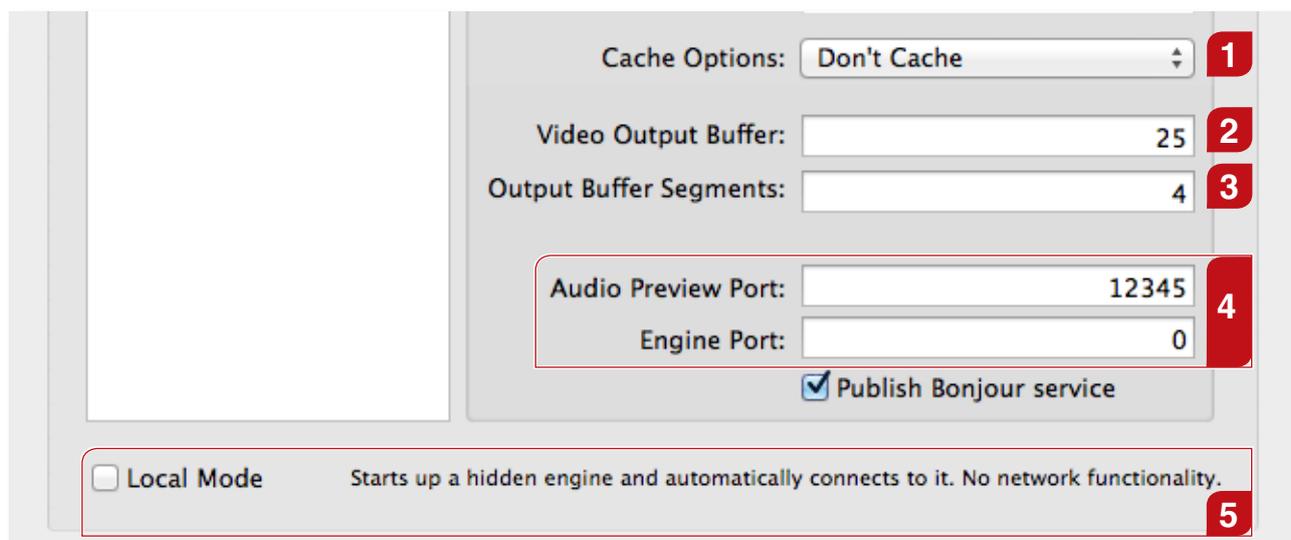
On the left side you can see all the video capture devices found by the engine, as well as the names given to those devices. Please select a device to configure it.



- 1** **Capture Devices:** Lists all video capture devices found by the engine.
- 2** **Name:** Define a channel name.
- 3** **Device:** Shows the device manufacturer. Left blank intentionally.
- 4** **Video Mode:** Configure the video device. The available video mode settings for the previously selected engine framerate will be displayed automatically.
- 5** **Video Input, Audio Input and Audio Bitrate:** Selectable Video and Audio Input settings as well as native 24-bit bitrate for AJA, selectable 16- or 24-bit for Blackmagic Design cards.
- 6** **VTR Control:** Select the connection you want to use to control your VTR.
- 7** **VTR Preroll in Seconds:** Set the desired VTR preroll value in seconds (1-10).
- 8** **Chunk Length:** The Chunk Length defines the maximum length of the container. If the recording does not reach the entered Chunk Length, the clips will be automatically truncated into the expected recorded length. If the recording exceeds the entered Chunk Length a new recording, generating a new clip, will automatically be started. When recording in crash mode, clips will be added after the maximum record length has been reached. It is not required to enable this feature separately as it is enabled by default. The maximum chunk length is 12 hours.
- 9** **Start Timecode:** By selecting this option and entering the appropriate timecode information, every new clip will start / record with the given timecode preset.

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1

Cache Options: Normally files are written to disk in a stream (no caching, default). You can ask the HDD-Controller to cache data in order to flush them later to disk to improve write performance. Change this value to “**Cache**” if you experience low write performance, otherwise keep the default “**Don't Cache**” setting.

2

Video Output Buffer (QuickTime only): Number of A/V frames to flush to the storage system at once. If you want to flush once a second, just enter your video framerate.

3

Output Buffer Segments: Number of buffer segments. The number of segments multiplied by the storage flush size is the total buffer size. Be careful when using that feature, as you can run out of RAM. It is recommended not to exceed a total buffer size of 500.

4

Audio Preview Port: enter a port number of choice to enable audio preview in the **Just In Multi** GUI for that particular channel.

Engine Port: when using “**Publish Bonjour service**” it defaults to “**0**” since the Bonjour discovery mode will deliver the available information to the **Just In Multi** GUI. Please enter a dedicated port number, if you want a channel to be accessed from **Just In Multi** over IP (see also pages 15-16 of this manual for further explanations). Consult your network administrator for port availability for both settings. When selecting “**Local Mode**” it will default to port number **65010** and on.

5

Local Mode: This mode allows to run a network agnostic version whenever engine and GUI are on the same machine. Choose “**Local Mode**” and start/run the **Just In Multi** GUI. It will automatically start both the engine process and connect to the channels selected in the **Just In QT** preference pane. While this option comes in handy for Bonjour-less setups, it is recommended to use the IP-only connection for production setups.



Note on Xsan support

- Version 1.7 of **just:in multi** highly improves the writing frequency/load behavior on Xsan and other similar storage systems. This is done by the possibility to specify the frames per flush and storage buffer size. The frames per flush value defines after how many frames the chunk will be written to disk, the storage buffer size defines how many chunks are possible. The total size of the buffer is calculated by multiplying these two values (see **Video Output Buffer** and **Output Buffer Segments** settings on this page).

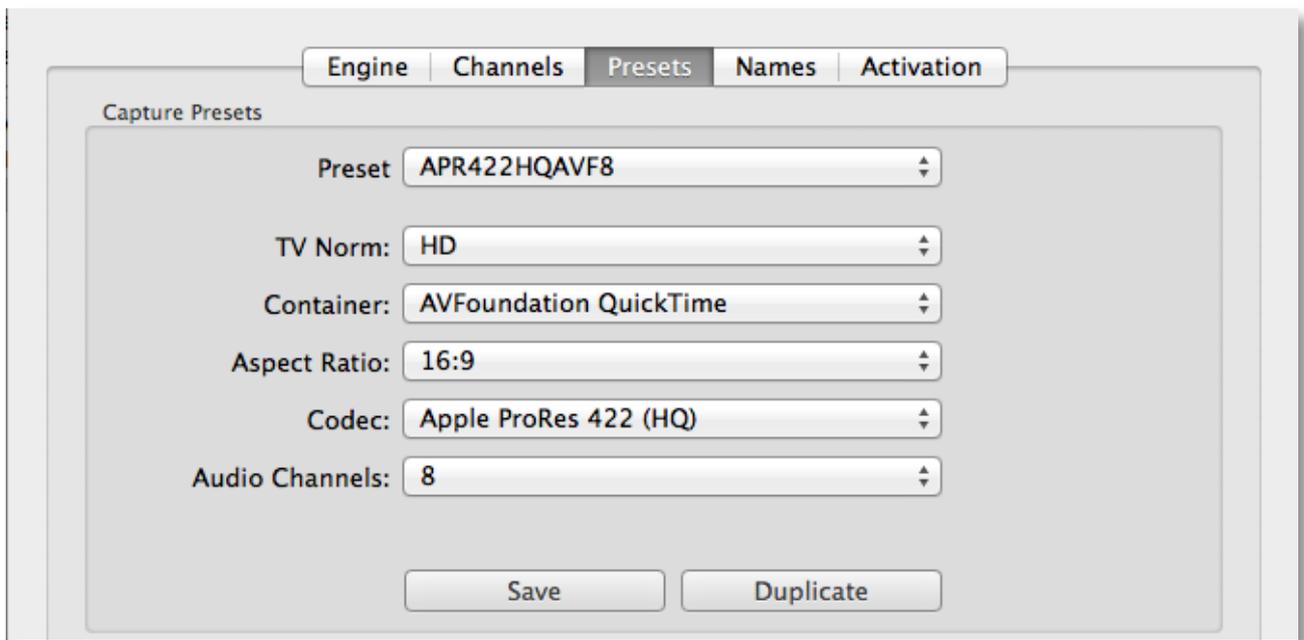


Important note on codecs availability and deployment on Mac OS X

- Due to licensing restrictions, we're not allowed to ship any Apple codecs along with our products. In order to obtain the appropriate professional Apple codecs (ProRes, IMX etc.) you need to have an already installed version of either Final Cut Studio 3 or Final Cut Pro X on the machine used for either ingest or playout.
- The professional codecs are also available via a Software Update upon a new installation of Final Cut Pro X or as an update installer under the following URL: <http://support.apple.com/kb/DL1396>. Please check regularly for new updates on Apple's support site or via the Software Update mechanism built into Mac OS X. Please note that this update installer will check for an already installed version of Final Cut Pro (7 or X)!
- The same applies to other codec or MXF player vendors: if you plan to either record or play MXF files, please contact MXF4mac for licensing information under <http://www.mxf4mac.com>. This is particularly the case when you intend to record into the AVC-Intra 50/100 format.
- If you plan to either record or playout DNxHD encoded files you need to install the Avid for QuickTime codecs. As of this writing actual Avid QuickTime codecs can be downloaded under the following URL: http://avid.force.com/pkb/articles/en_US/download/Avid-Codecs-LE-2-3-9?popup=true&NewLang=en&DocType=1450&q=Avid%20QuickTime%20codec&site=kbase&filter=0&subfilters=&ProductCategory=

PRESETS: DEFINE CAPTURE PRESETS

A capture preset in consists of the following options: **TV Norm**, **Container**, **Aspect Ratio**, **Codec** and **Audio Channels**. Before using **just:in** multi for the first time you will need to create a capture preset. To do this press the **Preset** pull-down menu and select **New...** When you're done defining the options, click on the save button and you will be prompted to enter a preset name. Click **Save** and enter a descriptive name for it. Make sure that you save this preset into **/Library/Application Support/ToolsOnAir/Just In**. **Do not use one or more of the following characters: / @ : | \ < >**. To speed up the process you can also duplicate an existing preset and change it to your needs accordingly.



Preset

The name of the defined capture preset.

TV Norm

Set a TV norm here as required (PAL, NTSC, HD or Custom for H.264 settings).

Container

Choose between MXF OP1a, AVFoundation QuickTime, QuickTime, Avid OP-Atom MXF or AVFoundation MP4. For MXF ingest other than Avid OP-Atom MXF please see the note in Chapter 3.7 with regard to the MXF activation steps.

Aspect Ratio

Configures the aspect ratio (4:3 or 16:9).

Codec

Choose from a list of available codecs for the selected container (QuickTime, AVFoundation QuickTime, MXF, Avid OP-Atom MXF or AVFoundation MP4).

Audio Channels

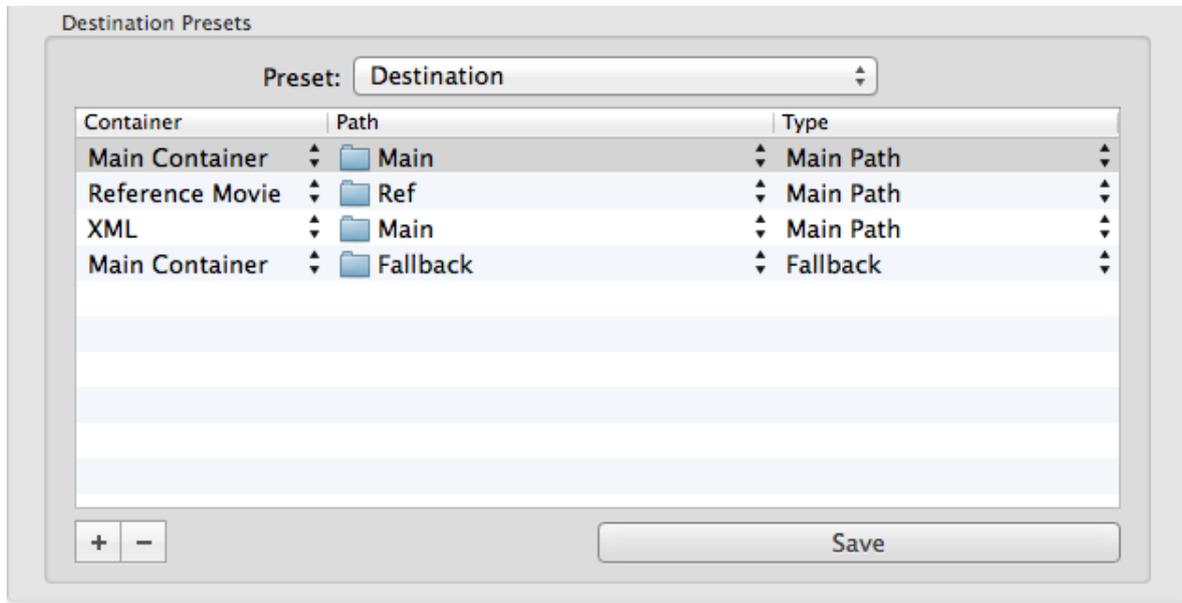
Select the number of audio channels and the audio track alignment (Mono or Stereo) you would like to capture. If you're using MXF as a container you will not be able to choose between Mono or Stereo alignment. They will all default to Mono.

You will find some demo capture presets to get you started in the **Additional Content** folder of the **Just In** Installer for your convenience.

Just copy them to **/Library/Application Support/ToolsOnAir/Just In/** and you're ready to go. You can use them as a reference for new presets.

PRESETS: DEFINE MULTIPLE DESTINATIONS PRESETS

One of the new features of version 1.7 is the ability to define multiple destination settings. To do so, please select the appropriate paths for each destination you want to save and hit **Save**. You will then be prompted to enter a preset name. A destination preset consists of the following options:



Preset

The name of the defined destination preset.

Container Types

First select “New...” from the **Preset** pull-down menu, then click on the “+” button to create a new entry. Choose between **Main Container** (where the media will be written to), **Reference Movie** (where the Ref. movies will be written to) or **XML** (where the sidecar XML files will be written to). You can choose multiple destinations for every preset.

Once you have defined your destination preset, click **Save** and enter a descriptive name for it. Make sure that you save any preset(s) into **/Library/Application Support/ToolsOnAir/JustIn.**

Reference Movie Path

Enter the path where you want to store the reference movies (QuickTime and Final Cut Pro X).

XML Path

Enter the path where you want to store the XML sidecar files with descriptive metadata in it. If you want to import them alongside your media, it might be useful to write them to the same path. The XML sidecar file gets written automatically once the recording has ended provided that the sidecar XML input/output files have been previously defined (see the XML documentation available separately).

Fallback Path

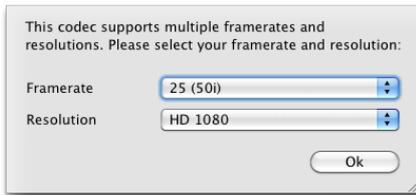
Define one or more fallback paths where you want to store your media in case something happens with the primary storage. Once a fallback occurs **just:in** multi will continue writing on the fallback path and try to keep its frame accuracy while switching to another volume defined as the fallback destination.

About Multiple and Fallback Destinations: **just:in** multi features a sophisticated fallback mechanism (for Hi-Res) for out-of-storage, network connection loss or even power outage scenarios on the storage side. **just:in** multi ensures that you will still have your recordings available for later use, as long as a power outage didn’t affect any hardware components or any serious file system corruptions happened. The Fallback Destination mechanism will only work when a Fallback Destination Path has been defined within the given destination preset.

3.5

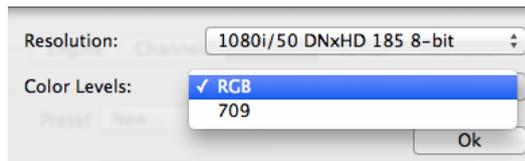
CONFIGURATION

PRESETS: APPLE PRORES, AVID DNxHD AND H.264



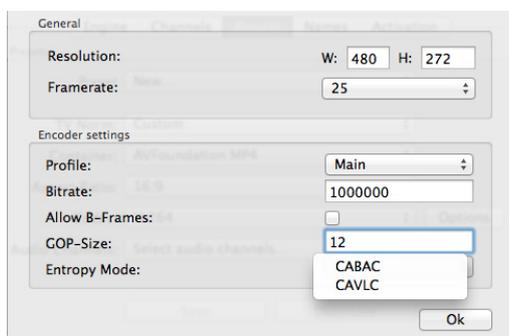
Apple ProRes (all flavors)

When using any of the Apple ProRes codecs you will be prompted to select a framerate and resolution.



Avid DNxHD (8-bit only)

When using the Avid DNxHD codec, you will be prompted to select a resolution and the appropriate Color Level (RGB or 709). Please make sure that you're using a recommended machine and a storage system with enough capacity and bandwidth!



H.264 codec

When using the H.264 codec in either AVFoundation MP4 or AVFoundation QuickTime container you will be prompted to define several settings such as:

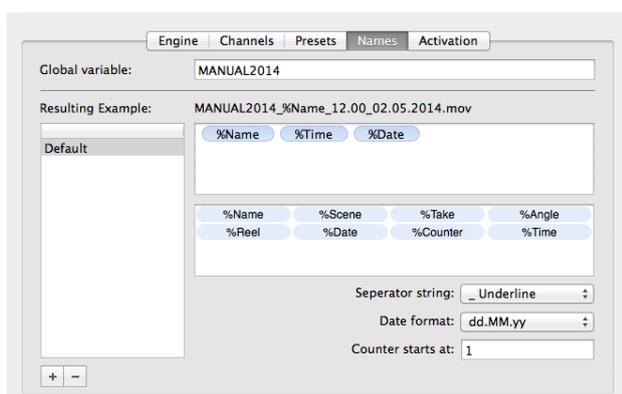
Resolution, Framerate, Profile, Bitrate, Allow B-Frames, GOP-Size and Entropy Mode.

Again make sure to use a recommended machine to encode H.264 material.

3.6

CONFIGURATION

NAMING CONVENTION PRESETS



Naming Conventions Presets

Under **Names** you can define the desired naming conventions for your clips. You can add your own variables by entering the “%” prefix followed by the wanted naming expression as well as static text expressions (without the “%” prefix). The clips will be named accordingly. The customized “%” variables will be displayed as additional fields in the **Just In Multi** GUI in the **Clip** section.



Attention

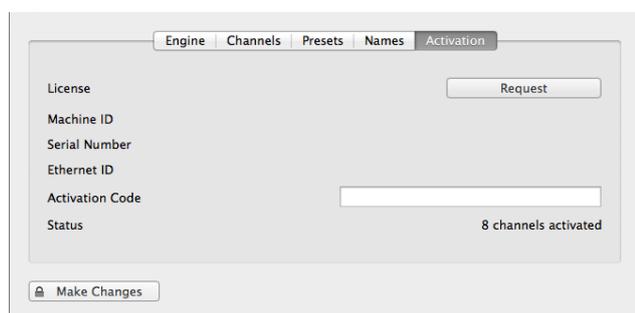
- Naming presets are only visible on the machine on which they were created!
- The naming convention preset database is stored locally in the file: **/Library/Application Support/ToolsOnAir/Just In/nameconventions.db**

To activate **just:in multi** click on the **Activation** tab and enter an activation key either for demo (without watermarks) or permanent use (licensed) in the **Activation Code** field.

Note



- **just:in multi** works in full-featured mode without an activation key! In Trial Mode you will see a logo watermark every four seconds. Please contact ToolsOnAir to get a temporary activation code that removes the watermark.

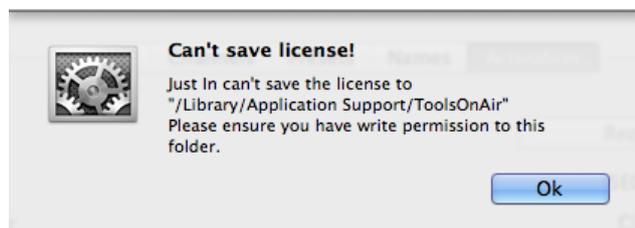


just:in multi Activation panel

just:in multi can be activated by clicking on the **Activation** tab of the **Just In QT Preference Pane** (System Preferences).

Machine ID

The machine ID will be automatically generated by **just:in multi** and is needed to activate any number of ingest channels in either demo or permanent activation mode (intentionally left blank on screenshot).



License Code

After receiving the license activation code from ToolsOnAir insert it into the **Activation Code** field and hit the **Enter** key to activate the Demo or Permanent license. Please make sure that you have write permissions to the **/Library/Application Support/ToolsOnAir/** folder!

Note

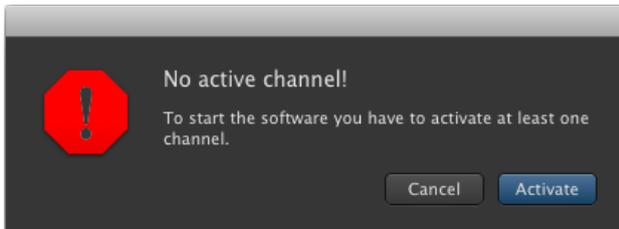


- **just:in multi** has the ability to ingest into a MXF OP1a container already built-in. There is a license fee though to activate it. Due to license agreement contracts you will have to contact Hamburg Pro Media/MXF4mac to receive your license to use their MXF writing technology in combination with **just:in multi**! Just take a screenshot of the **Activation** tab and send it to MXF4mac (licensing@mxf4mac.com). They will be more than happy to issue you the license file promptly.
- Should you want to use the AVC-Intra codec for your recordings then please contact your preferred MXF4mac reseller to purchase their AVC-Intra Codec for use with **just:in multi**.
- **just:in multi** can ingest into an Avid OP-Atom MXF container right away without a dedicated license!

4

USING THE APPLICATION

Once you are done with the configuration of the presets, close the **Just In QT** preference pane, navigate to **/Applications/Just In** and double-click on **Just In Engine QuickTime**. The engine application will start up and display information about each channel that has been selected in the **Just In QT** preference pane. Congratulations! You are only a few steps away from your first recording!

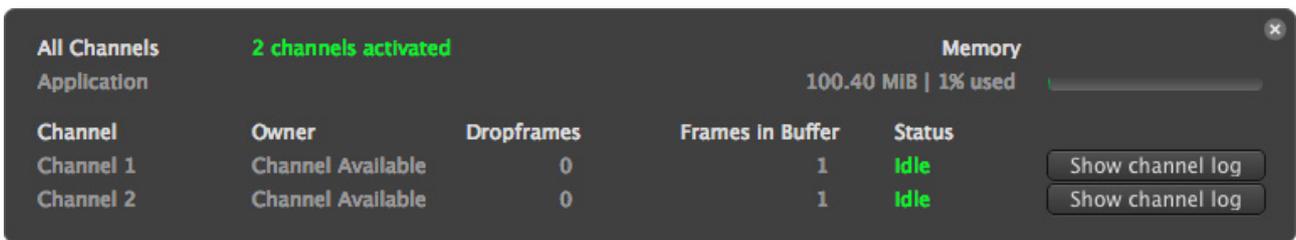


If there is no active channel this message will show up after launching **Just In Engine QuickTime**.

After pressing **Activate** the application will quit and the **Just In QT** preference pane appears.

Please refer to chapter 3 on how to properly setup **just:in multi**.

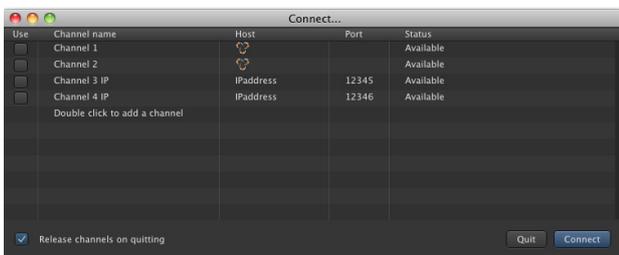
If everything has been configured properly, the **Just In Engine QuickTime** diagnostics window displays the number of available channels, as well as the owner of the channel and information about the activation status (activated vs. trial mode). By clicking on the **Show channel log** button you will be automatically directed to the log information for the given channel.



Arranging the Just In Engine QuickTime window to be in front of others

If you want to arrange the **Just In Engine QuickTime** diagnostics window in front of others, then select the option **“Always on top”** from the **Window** Menu of **Just In Engine QuickTime**.

Connecting to channels via Bonjour or over IP with the Just In Multi user interface



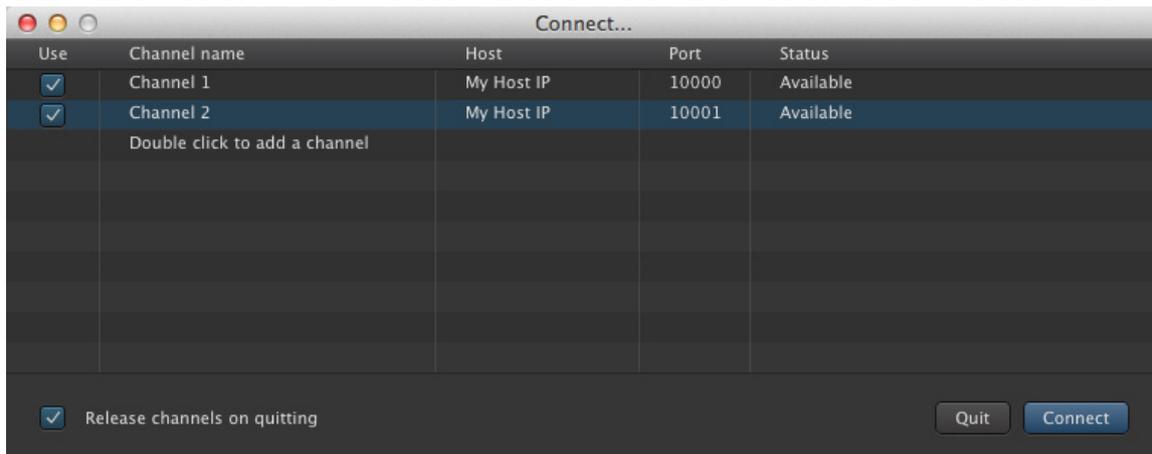
Start **Just In Multi** and select the channel(s) (Shift-Click a checkbox to select all available channels) you wish to control and record on.

Check **“Release channels on quitting”**, if you want **Just In Multi** to release the selected channels upon quitting. Press **“Connect”** to open the user interface.

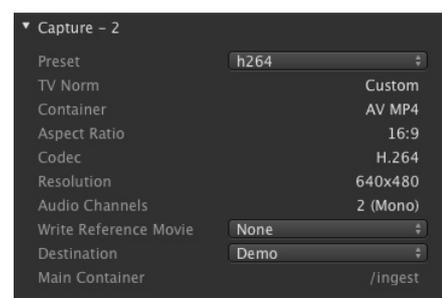
Connecting to the engine using dedicated IP addresses

You can connect to your channel(s) either via **Bonjour** (automatic discovery) or **IP address** (manual entry). The port number must match the one entered for each channel in the **Just In QT** preference pane (see Page 9). In order to connect to a channel over IP double-click on the text “**Double click to add a channel**” and enter your preferred **Channel name**, **Host IP address** and **Port** number.

Don't forget to click on the checkbox **Use** to connect to the appropriate channel or Shift-Click to connect to all channels. You can sort by channel name(s) by clicking on the column header “**Channel Name**”.



You are now ready to proceed with your first recording. Select the appropriate capture and destination presets, then press the **Record** button. You will be recording in **Crash mode**.



Please read on to the next chapter explaining the detailed usage of the **Just In Multi** user interface.



1

Preview

Shows the preview of the video input.

2

Audio Preview & Reference

Shows the audio preview levels and display the presence of VTR and LTC over audio signals.

3

Batch DigitizePress this button to enter **Batch** mode.

4

Crash RecordingPress this button to enter **Crash** mode.

5

Schedule RecordingPress this button to enter **Schedule** mode (Calendar events, see also chapter 6.4).

6

Record Button & VTR Control

Start recording or control a VTR deck. Click on the timecode display to switch from timecode information to recording length.

7

Clip Properties

Used to define the naming conventions and the resulting clip name.

8

Timecode Properties

Select the timecode source and define a timecode offset here.

9

Metadata Properties

Select a previously defined metadata set from the drop-down list and enter data in the appropriate fields.

10

Capture + Destination Settings

Select previously defined capture and destination presets for capture instance 1 and 2 from the dropdown-list before recording as well as the reference movie format if needed.

11

Batch Recording

Shows batch settings and a list of queued batch jobs. Import CSV batch lists directly into the list. Only active and visible in batch mode.

12

Scheduled RecordingShows a list of the upcoming 10 events in the next 24 hours. Only visible in **Schedule** mode. Works in combination with Apple Calendar.

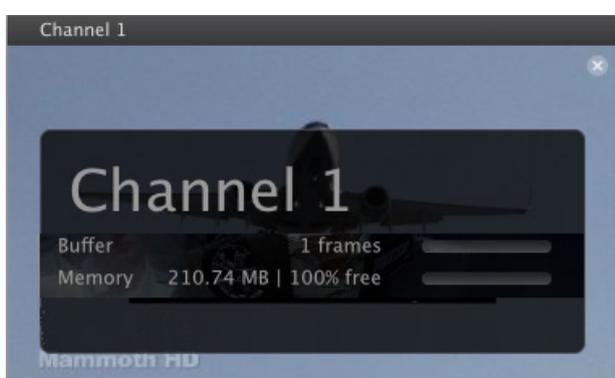
5.1

INTERFACE PREVIEW



When the mouse pointer resides in the preview area there is a small «i» sign in the upper right corner. Press it to switch to the info view.

The info view can be closed in the same way (by clicking the «x» in the upper right corner).



The information in the overlay displays the **Channel Name** as well as the **Buffer** and **Memory** status.

The memory bar show the remaining free space in MBytes. The percentage represents the free memory space.

In this example 210.74 MB of memory is used.



In the event of a connectivity problem a large **attention** sign shows up in the preview area. Please contact your administrator to have him check the connection to the engine.



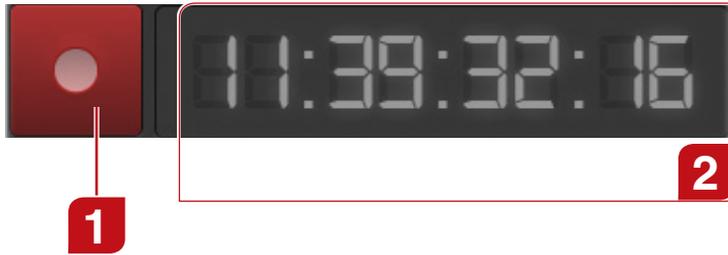
In the event of a signal loss or inconsistency, **Just In Multi** will display a “**No Signal**” alert to the user and stop the current recording in order to safeguard the recorded clip. Once the signal is back the user can restart the recording.

You can choose though to continue writing into the same container by checking this option in the **Just In QT** preference panel (see info on Page 7).

5.2

INTERFACE

RECORD BUTTON & TIMECODE DISPLAY



Record

Use the **Record** button to start or stop capturing in both Crash and Batch modes.

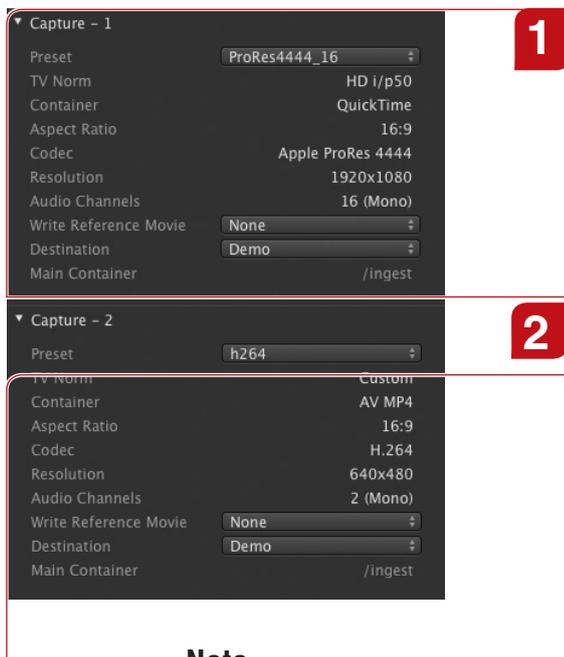
SMPTE Timecode

The timecode display has several states which are explained in the chapter “Record Button States”.

5.3

INTERFACE

CAPTURE INSTANCES SETTINGS



Capture-1 Instance

Select the appropriate settings for the Capture-1 instance. If needed choose your favorite Reference movie (QuickTime 7 or Final Cut Pro X) format from the pull-down menu.

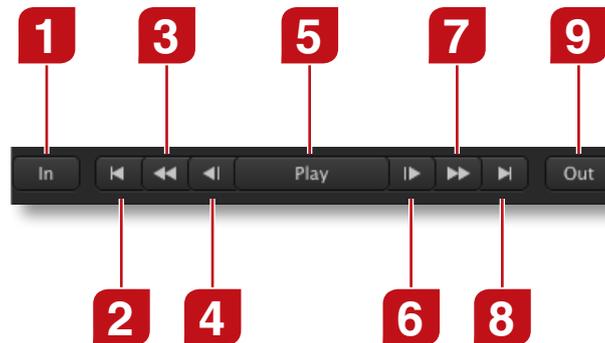
Capture-2 Instance

Select the appropriate settings for the Capture-2 instance. If needed choose your favorite Reference movie (QuickTime 7 or Final Cut Pro X) format from the pull-down menu.

Note



- New in version 1.7 are two capture instances per channel. This allows to capture any combination of presets within on single channel and is ideal for high-res / proxy recording scenarios.
- The last selected setting will be loaded automatically after the **Just In Multi** GUI has been launched.



1

Set In Point

Defines the in-point, used in batch recording.

2

Goto In

Cues the tape to the in-point.

3

Rewind

Tape stopped: Press once to rewind the tape. Press it again or press stop to stop rewinding.
Tape running: Tape rewinds while pressed.

4

Previous Frame

Steps one frame towards the beginning of the tape.

5

Play/Stop

Play or stop the tape.

6

Next Frame

Steps one frame towards the end of the tape.

7

Fast Forward

Tape stopped: Press once to fast forward the tape. Press it again or press stop to end fast forwarding.
Tape running: Tape fast forwards while pressed.

8

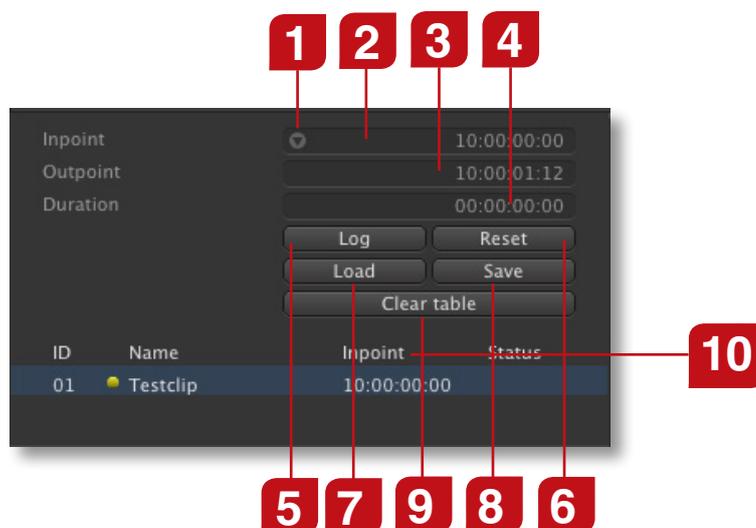
Goto Out

Cues the tape to the out-point.

9

Set Out Point

Defines the out-point, used in batch recording.



1

Cue to ...

Cues to the selected in- or out-point. Only visible when the mouse is above the field.

2

In-Point

Defines the in-point of a batch item.

3

Out-Point

Defines the out-point of a batch item.

4

Duration

Defines the duration of a batch item. If the in- and out-point are set, the duration is calculated automatically.

5

Log

Adds a new batch item to the batch list.

6

Reset

Resets all three timecode fields to 00:00:00:00.

7

Load

Starts the Batch Import process of a text file.

8

Save

Saves the content of the Batch list into an editable/archivable text file for later use.

9

Clear table

Clears the entries of the Batch list table.

10

Batch List Header

Clicking this element of the batch list header switches through the following modes: *Inpoint*, *Outpoint* and *Duration*.

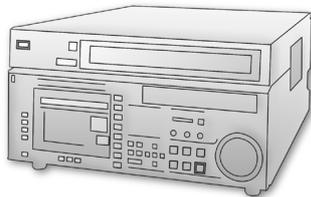
6

RECORDING

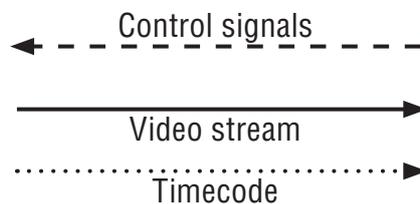
just:in multi offers three different recording/ingest modes:

- **Crash Mode:** record video signals on the fly.
- **Batch Mode:** record a predefined batch list of clips from a connected VTR deck over RS-422.
- **Schedule Mode:** record clips based on events in the local Apple Calendar calendar of the engine machine.

just:in provides integrated machine control over RS-422. Note that the maximum recording length is 12 hours per clip in any case.



Sources: SDI signal from VTR,
Camera, Live or Satellite feed



Just In Engine QuickTime
Just In Multi GUI

6.1

RECORDING

RECORD BUTTON STATES

The record button and timecode have different states. Each state is listed in the following.



Connected (with no preset selected)

Indicates that there is a connection to a capture device but no recording is in progress. The record button is not active until all settings are valid.

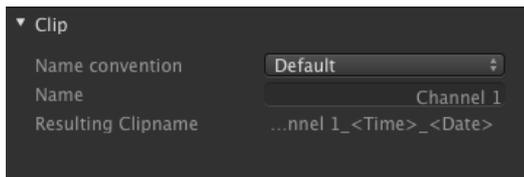
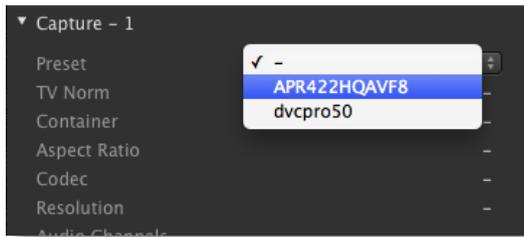


Recording + Writing

Indicates that a record is in progress and files are being written to disk.

6.2

RECORDING CRASH RECORDING



Select Preset

Select the preferred preset from the **Setting** pop-up menu in the Capture section.

Specify Clip Name

Specify a clip name or select a name convention from the **Name convention** pop-up menu.

Clip Name Already Exists

If you use the same clip name twice or the file name already exists in the capture folder a number will be appended to the file name and the resulting clip name will be displayed in yellow.

Capture

Press the **record** button to start or stop recording. While recording the preview is bordered with a red frame.

Keyboard Shortcuts for recording and channel selection

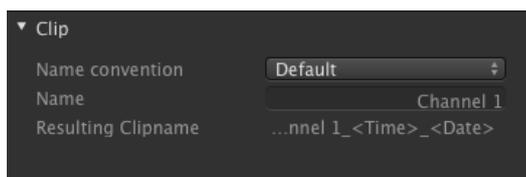
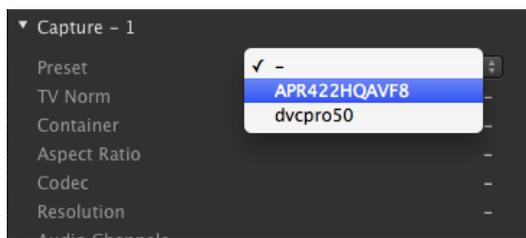
Select/Deselect channels by pressing “**Alt-<ChannelNumber>**” and Start/Stop recording by pressing “**Command-R**”.

LTC over Audio Info

If a LTC over audio signal is fed into the video card or the sound input of the computer, a LED will show the status accordingly.

Split Clip Function

While recording you can hold down the Option (Alt) key and the record button will turn into Split Mode (noticeable by a vertical line that crosses the record icon). Clicking on it or pressing the F3 key will generate a new file along with its companion sidecar XML.

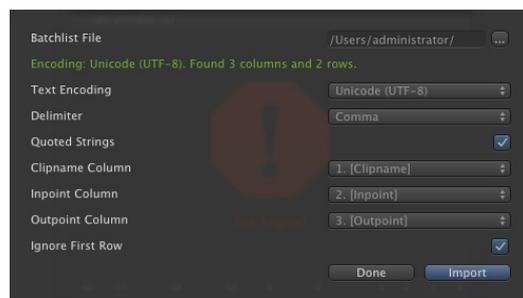
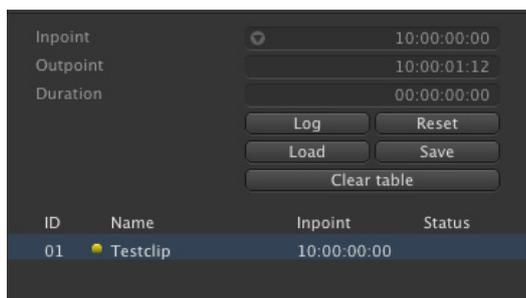


Select Preset

Select the preferred preset from the **Setting** pop-up menu in the Capture section. Remember to select a **VTR** option (e.g. RS-422) in the **Timecode** section, in order to activate machine control.

Specify Clip Name

Specify a clip name. After editing the name press **return**. If desired fill out the other fields.



Define Batch List

Enter an in-point and an out-point in the appropriate fields and press **Log** to create a new entry in the batch table. Repeat this step until your batch list is complete. You may also use the **In** and **Out** buttons to set the current timecode as your in- or out-points. Alternatively you can import a predefined text (.csv) file by pressing the **Load** button and adjust the import parameters (separate window) as needed. If you want to export your batch list for archiving purposes, then click the **Save** button. Click **Clear table**, if you want to reset the entries in the batch table.



Note

- The batch table is not directly modifiable. If you want to edit a batch job, click on it and edit its parameters as explained above and hit the enter key to confirm.
- You can jump to the in- or out point by pressing the symbol in the **Inpoint** field. Note that the symbol only shows up when the mouse pointer is above the **Inpoint** field.
- In order to allow for metadata flexibility, you can apply a metadata set for each clip logged by selecting the clip and choosing the appropriate metadata set in the clip section.



Capture

Press the record button to start or stop recording. While recording the record button glows and the preview is bordered with a red frame.

VTR Detection Info

If a VTR is detected a green LED will be shown in the **Just In Multi** GUI accordingly. Remember to select the **VTR - RS-422** option in the **Timecode** section, in order to activate machine control.

VTR Preroll settings

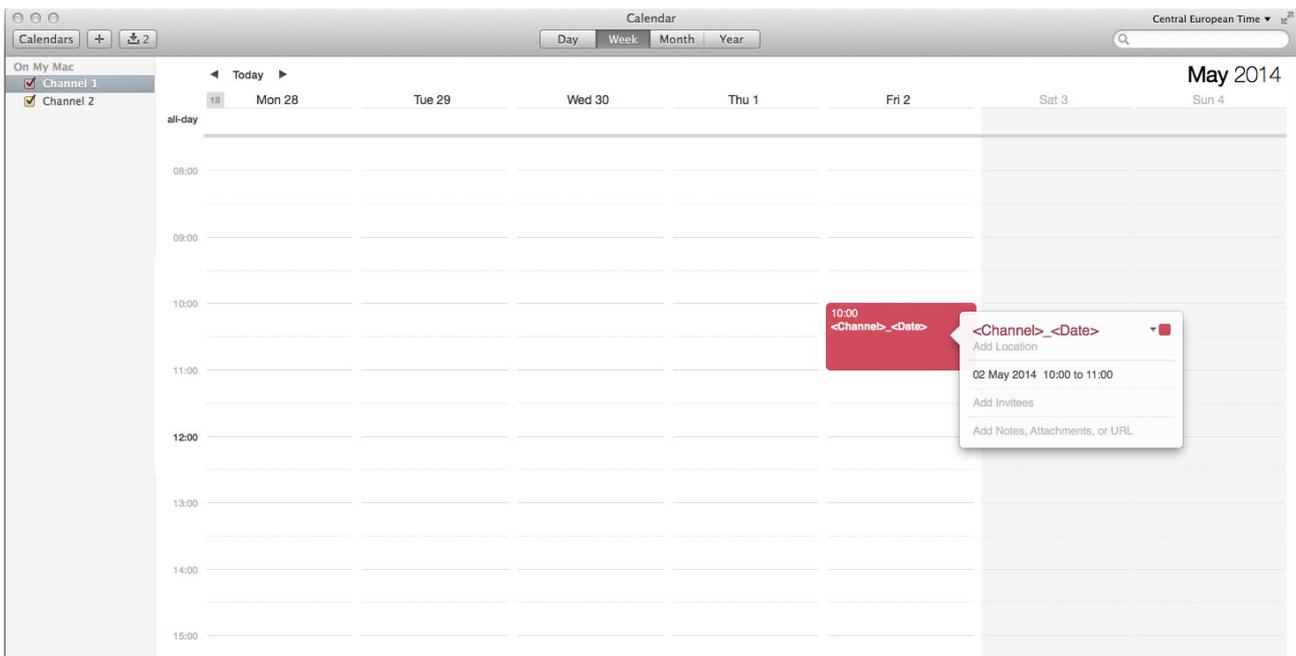
You can set the VTR preroll settings in the **Just In QT** preference pane. Values range from 1-10 seconds.

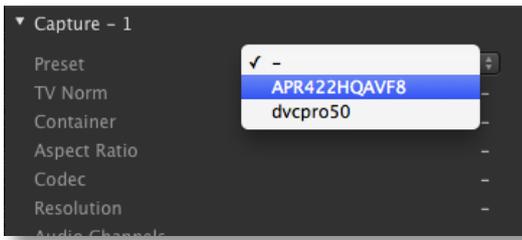
6.4

RECORDING

SCHEDULED RECORDING

One of the great features of **just:in multi** is that it uses out-of-the-box features that Mac OS X provides and the Apple Calendar application is used for scheduling because of that. The integration between **just:in** and Apple Calendar is very straightforward and easy to use. Once you select a channel in the **Just in QT** preference pane and name it according to your needs, a calendar with that same name will be automatically created for that/every channel. So, all you need to do is to set your calendar events in Apple Calendar and they will be instantly visible in the **Schedule** section of **Just In Multi**. Please remember that all events have to be created on the machine holding the **Just In Engine QuickTime** engine and these events are automatically displayed in the **Just In Multi** GUI.





Select Preset

In the capture settings area select your preset from the “Setting” pull-down menu.



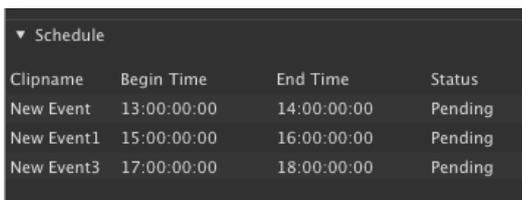
Clip Naming in Apple Calendar

The clip length will be based on the event’s duration, the clip name will be the event’s name. One can add <Channel>, <Date> and <Time> variables.

Note

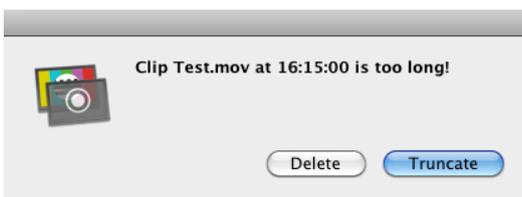


- Repeating an Apple Calendar event would result in a file which gets overwritten every time the same event is executed. To avoid this you can add the variables <Date> and <Time> to the clip name of the event. This automatically appends the date and time (= beginning of the corresponding Apple Calendar event) to the clip name.



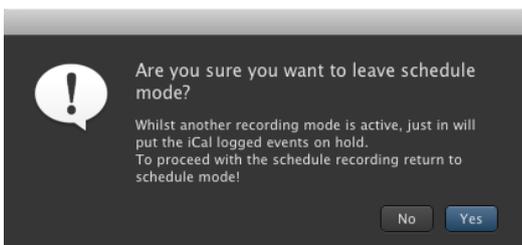
Event List in Just In Multi

The scheduled events show up immediately after creating them in Apple Calendar.



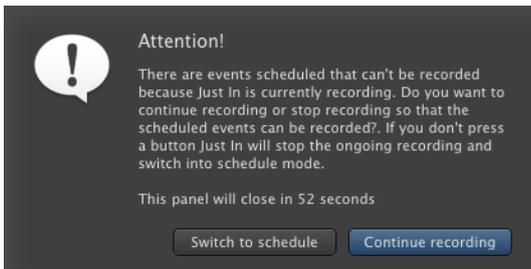
Maximum Record Length

Due to the maximum record length, the **Just In Multi** user interface will display a warning when a scheduled Apple Calendar event exceeds the maximum length of 12 hours even when using MXF.



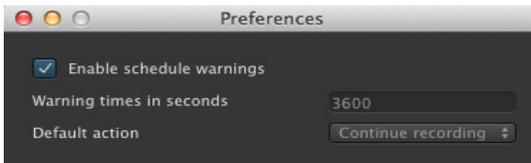
Schedule Warnings Panel

A handy new feature to the schedule mode is the ability to set specific reminders in the event of a mixed ingest operation. Let’s say that you have scheduled one or more recordings in the future, but would like to do some crash recordings in between. **Just In Multi** will ask, if you want to leave schedule mode and set the logged Apple Calendar events on temporary hold.



Once you're done with your crash recording you would then switch back again to schedule mode, but in case you forget to do so, you can use the schedule reminder settings under the menu "Just In Multi -> Preferences".

First check **Schedule warnings** then enter the intervals that you want these warnings to show up ahead in time (in seconds and values > 60) and choose one of the following wanted operations: **Force Scheduling** or **Continue Recording**.



Continue Recording

Select this option, if you want to continue recording, even when a scheduled event has been set. That schedule will then be disregarded.



Force Scheduling

Select this option, if you want to abort an ongoing crash recording and revert to the scheduled recording.

The first picture above shows the warning that will pop up as a visual support to the operator whilst in crash recording mode. There you can decide whether to directly switch into schedule mode or continue recording. If you press **Switch to schedule**, then **Just In Multi** will stop recording and automatically switch to Schedule mode.

Gapless Scheduled Recording

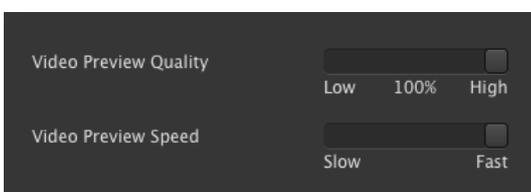
In versions of **just:in multi** (pre-1.5) it was not possible to record two subsequent events where the end of the first clip was the start time of the second clip. Starting with version 1.5 of **just:in multi**, Apple Calendar events can be used to perform gapless schedule recordings on a frame accurate level.

6.5

RECORDING

VIDEO PREVIEW QUALITY AND SPEED SETTINGS

New in version 1.7 is the ability to set the both the **Video Preview Quality** and the **Video Preview Speed** to optimize the network and encoding bandwidth. By reducing both parameters to the lowest values, you can ideally relieve the pressure on the CPU and therefore increase stability and, depending on the codec used, the amount of recording channels. You can set these values in the menu "Just In Multi -> Preferences".



Video Preview Quality and Speed settings

Adjust the desired values for Video Preview Quality (Low -> High) and Video Preview Speed (Low -> Fast).

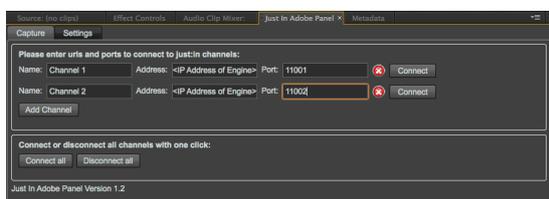
JUST IN ADOBE PANEL FOR ADOBE PREMIERE PRO CS6/CC

In addition to the **Just In Multi** user interface, there's the option to use our **Just In Adobe Panel** for Adobe Premiere Pro (Mac) to directly record and import files into Adobe Premiere Pro CS6 (6.0.5) and CC (7.2.x). It currently provides the following features:

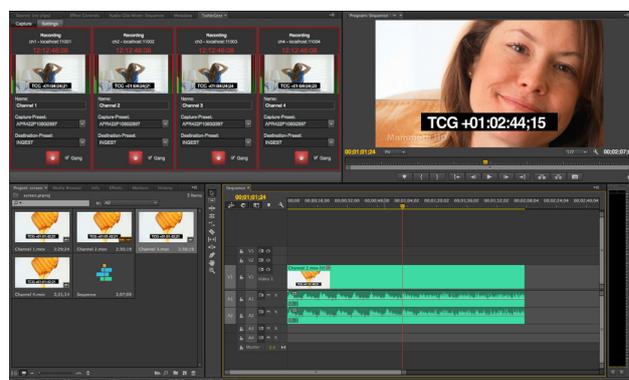
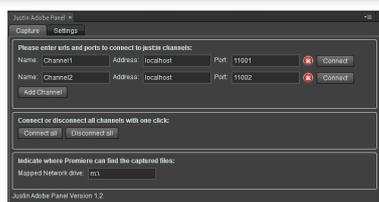
- single / multi-channel ingest (MOV and MXF containers) over SDI or HDMI (depending on the PCI video card or Thunderbolt device used) in combination with our **Just In QuickTime Engine v1.7**.
- automatic import into an Adobe Premiere Pro CS6/CC project panel with growing file support for MOV and MXF containers.
- Crash and Gang recording modes.

Please follow these steps to use it:

1. Define a port for every channel you would like to connect to from the **Just In Adobe Panel** in the **Just In QT** preference pane (see pages 9 and 15-16). Connection from the **Just In Adobe Panel** can only be done via a direct IP setup.
2. Open the **Additional Content** folder in the **Just In** installer window. Double-click the **Justin Adobe Panel.zxp** package to install the **Just In Adobe Panel** via the Adobe Extension Manager CS6 or CC (separate Adobe install routine).
3. Launch Adobe Premiere Pro CS6/CC, choose your preferred project or create a new one and navigate to **Preferences -> Media**. Uncheck **Write XMP ID to Files on Import** and verify that **Automatically Refresh Growing Files** is checked. Enter a lower value for the refresh rate if needed (min. 10s).
4. Make sure that the **Just In Engine QuickTime** engine is running. Navigate to the **Window** menu and select **Extensions -> Just In Adobe Panel**. The **Just In Adobe Panel** gets initialized and started. Click on the **Settings** tab, add a channel entry by clicking on **Add Channel** and enter the desired channel name, IP Address and Port number. Once done, click on either **Connect** or **Connect All** to connect to the given channel(s). **Windows:** enter the **Mapped Network drive** to access the files.
5. Switch to the **Capture** tab, enter the desired clip name and select the appropriate capture and destination presets already defined in the original setup (see pages 11-12). Click on the **Record** button to initiate the recording. Premiere Pro will import the recording after a short while. You can then start editing your clips in the timeline while the file is growing (trim out to extend the growing file). After the recording has been stopped one last update of the duration will be executed.



Just In Adobe Panel Settings (Mac / WIN)



Just In Adobe Panel Capture

7

CREATING CUSTOMIZED XML

This section describes how to adapt the standard XML schema of **just:in multi** to create customized sidecar XML files for further workflow processing once a recording is terminated.

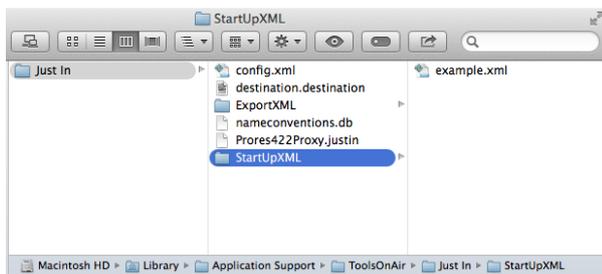
7.1

CREATING CUSTOMIZED XML

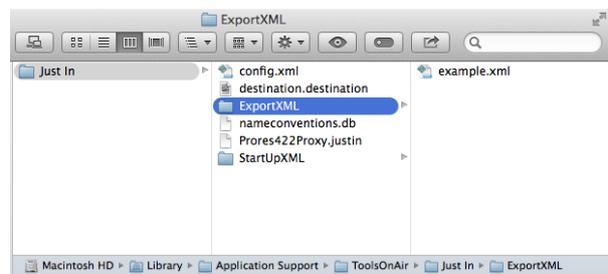
SETTING UP THE XML EXPORT REQUIREMENTS

Setting up the XML export within **just:in multi** is very straightforward. The Just In installer automatically creates two new separate folders named **StartupXML** and **ExportXML** within the following directory: **<yourharddisk>/Library/Application Support/ToolsOnAir/Just In**

Inside these folders you'll find some sample files to get you started. Please note that the XML files **MUST** always carry the same name in both folders, so that the **Just In Multi XML** writer can access them correctly. A well formed folder structure will look like this:



StartupXML folder



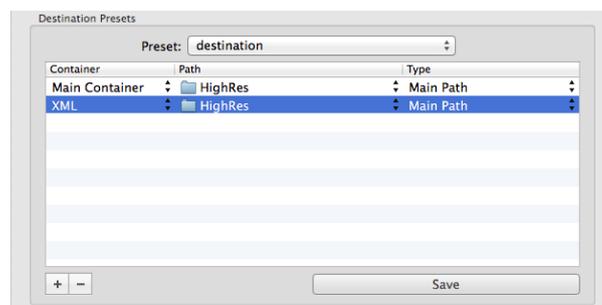
ExportXML folder

7.2

CREATING CUSTOMIZED XML

SETTING UP THE XML DESTINATION IN THE PREFERENCE PANEL

In order to write a sidecar XML file upon completion of a recording, you have to define an appropriate destination path first. Run the **Just In QT** preference pane switch to the **Presets** tab and define the XML path of choice by clicking on the “+” sign. Select **XML** from the **Container** pull-down list and choose the desired path.



Destination Presets configuration in Just In QT Preference pane

ABOUT THE LOGIC BEHIND THE XML EXPORT

The **just:in** multi XML Export is based on dedicated XML files found in the folders **StartupXML** and **ExportXML**. The **example.xml** file residing in the **StartupXML** folder holds the customizable information that you would like displayed or made accessible for data entry in the **Just In Multi** GUI.

The **sample.xml** file residing in the **ExportXML** folder is the output template, where you define the variables that will be exported at the end of a recording. The final result will be an XML file named after the defined clip name and holding all information that you entered in the GUI and/or set as **just:in** multi system variables in the output template.

EXPLORING THE EXAMPLE FILE IN THE STARTUPXML FOLDER

Let's have a look at the XML structure of the **example.xml** document below.

```
<?xml version="1.0" encoding="UTF-8" ?>

<metadataset>

  <!-- first class-type = Selection -->

  <control>

    <!-- this definition will be used as variable (%quality) in the export xml -->
      <name>quality</name>

    <!-- this label is displayed in the Just In Multi GUI -->
      <label>Quality</label>

    <!-- this pull-down menu will be shown in the Just In Multi GUI -->
      <type class="Selection" default="2">
        <item>Low</item>
        <item>Medium</item>
        <item>High</item>
      </type>
  </control>

  <!-- second class-type = Text -->

  <control>
    <name>customText</name>
    <label>Custom Text</label>
    <type class="Text" default="Insert your text here"></type>
  </control>

  <!-- third class-type = Checkbox -->

  <control>
    <name>special</name>
    <label>Special</label>
    <type class="Checkbox" default="0"></type>
  </control>

</metadataset>
```

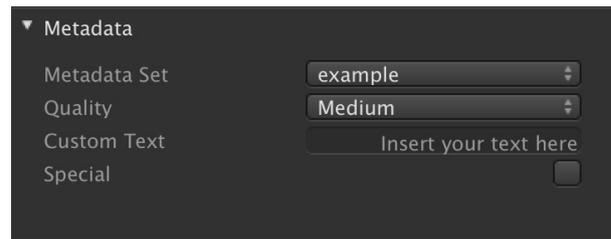
The `<metadataset>` tag is the root tag of the set of definable data. Every information element that can be displayed in the GUI is found within a `<control>` tag, where one can define the values within the `<name>`, `<label>`, `<type>` and the respective `<item>` tags.

There are three `<class>` attributes available: “**Selection**“, “**Text**” and “**Checkbox**”.

In this example we added a new `<control>` tag (blue text) to the `example.xml`, where we defined a new section of `<name>`, `<label>` and `<type>` tags. We chose to add a **Checkbox** type to the code. Every similar addition to this `example.xml` file will be reflected in the **Just In Multi** GUI upon reload of the file via the Metadata Set pull-down menu.



Metadata Set without Checkbox element



Metadata Set with Checkbox element

7.5

CREATING CUSTOMIZED XML

EXPLORING THE EXAMPLE FILE IN THE EXPORTXML FOLDER

The `example.xml` file within the **ExportXML** folder contains the definition of the output template. Keep in mind that you can apply your own XML schema to the output template which is the biggest advantage of the **just:in** multi XML implementation.

Again, let's have a look at the structure. In this example we want to output the tags previously defined in the `example.xml` within the **StartupXML** folder as well as some internal system variables exposed by **just:in** multi (see pages 31-32). The `<name>` tags previously defined (*quality*, *customText* and *special*) are now used as variables in the output template, so that any entry made in the **Just In Multi** GUI will be reflected in the final output. The system variables `%Just_In_Clipname` and `%Just_In_Capture_Duration` used in this example will output the final file name (incl. naming conventions) and the duration of the clip accordingly.

The structure of the `example.xml` file within the **ExportXML** folder looks like this:

```
<?xml version="1.0" encoding="UTF-8" ?>
<file name="%Just_In_Clipname" duration="%Just_In_Capture_Duration">
  <quality>%quality</quality>
  <text>%customText</text>
  <special>%special</special>
</file>
```

The final sidecar XML output will therefore look like this:

```
<?xml version="1.0" encoding="UTF-8" ?>

<file name="MyFirstClip" duration="00:00:15">

  <quality>Medium</quality>

  <text>This is where I entered my text</text>

  <special>1</special>

</file>
```

This sidecar XML file will be generated once the recording has finished and moved to the defined path.

7.6

CREATING CUSTOMIZED XML

INTERNAL SYSTEM VARIABLES (CAPTURE AND GENERAL)

just:in multi exposes a variety of internal system variable keys to ease up metadata processing. These are divided into capture related and general keys. The following table lists them accordingly.

SYSTEM VARIABLE KEYS (CAPTURE SECTION)	DESCRIPTION
%Just_In_Container	Will be replaced by one of the following values: "QuickTime", "MXF GC", "MXF D-10", "MXF XDCAM", "Avid OP-Atom", "AVFoundation QuickTime", "AVFoundation MP4".
%Just_In_Timecode_Source	Will be replaced by one of the following values: "Computer Time", "VTR - RS-422", "VTR FireWire", "LTC over Audio", "Miranda Little Red", "Capture card LTC", "SDI Embedded".
%Just_In_Framerate	Will be replaced by one of the following values: "23.976", "24", "25", "29.97", "30", "50", "59.94", "60".
%Just_In_Aspect_Ratio	Will be replaced by one of the following values: "4:3", "16:9".
%Just_In_Capture_Codec	Will be replaced by the codecs full name.
%Just_In_Audio_Channels	Will be replaced with the actual number of audio channels writing into the container: "2", "4", "8" or "16".
%Just_In_Capture_Resolution	Will be replaced by the resolution of the target format. E.g. "1920x1080", "720x486".
%Just_In_Capture_Width	Will be replaced by the capture width. E.g. "1920".
%Just_In_Capture_Height	Will be replaced by the capture height. E.g. "486".

The general keys exposed by **just:in** multi are listed in the following:

SYSTEM VARIABLE KEYS (GENERAL)	DESCRIPTION
%Just_In_Capture_Split	Will be replaced by one of the following values: "0" - no split occurred, "1" - a split occurred, "2" - last clip of the split sequence.
%Just_In_Previous_Split_Reference_Clip	Will be replaced by the filename of the clip before the current recording one. Empty string if no split occurred.
%Just_In_Capture_Duration	Will be replaced by the length of the recording in "standard time". E.g. "00:30:00" - 30 minutes.
%Just_In_Capture_Inpoint	Will be replaced by the Inpoint timecode. This is the timecode of the first frame. E.g. "10:00:00:00".
%Just_In_Capture_Outpoint	Will be replaced by the Outpoint timecode. This is the timecode of the last frame. E.g. "11:00:00:00".
%Just_In_Clipname	Will be replaced by the Clipname with extension. E.g. "sample.mov".
%Just_In_Full_Clipname	Will be replaced by the full clipname. E.g. "/path/to/the/movie.mov".
%Just_In_Custom_Date	Will be replaced by a representation of the keys' value. E.g. "%d/%m/%Y %H:%M:%S" will be replaced by 01/01/2011 15:32:53.

Every field of the naming convention is available for metadata processing - so just use the same key as in the naming convention. There's one special case though:

NAMING CONVENTION	DESCRIPTION
%Name	Will be replaced by the contents of the "Name" field of the "Clip" section, in schedule mode this field will be the name of the Apple Calendar event.

WRITING METADATA IN A QUICKTIME FILE

just:in multi provides full support for both standard and custom QuickTime metadata. All QuickTime standard fields use plain text. Note that the string length is limited to 255 characters!

The **Just In** installer will copy an example XML template named **QuickTime.xml** to the **StartupXML** folder during the installation process. Let's create an entry based on this example file.

```
<control>
  <name>com.apple.quicktime.album</name>
  <label>Album</label>
  <type class="Text" default="The Album"></type>
</control>
```

This entry would expose the "Album" field of the QuickTime movie. The Label in the **Just In Multi** GUI is "**Album**" - the corresponding key is "com.apple.quicktime.album".

QUICKTIME METADATA LABELS	QUICKTIME METADATA KEYS
Album	com.apple.quicktime.album
Artist	com.apple.quicktime.artist
Author	com.apple.quicktime.author
Comment	com.apple.quicktime.comment
Copyright	com.apple.quicktime.copyright
Description	com.apple.quicktime.description
Director	com.apple.quicktime.director
Title	com.apple.quicktime.displayname
Information	com.apple.quicktime.information
Keywords	com.apple.quicktime.keywords
Producer	com.apple.quicktime.producer
Software	com.apple.quicktime.software
Year	com.apple.quicktime.year

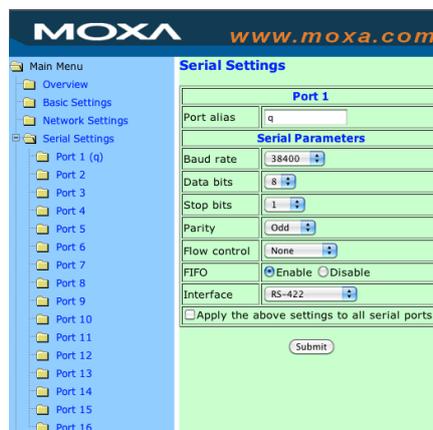
USING MOXA NPORT 5650

This section describes how to set up the parameters for use with the Moxa NPort 5650 serial device server in combination with **just:in** multi and a Blackmagic DeckLink Quad video card in order to control tape decks over dedicated RS-422 connections. Please follow these steps:

1. Install **just:in** multi 1.7, if you haven't done so already and check that the Moxa components (**moxattyd** and **moxattyd.cf**) are installed into `/Applications/Just In/moxadaemon/`.
2. Launch Apple **Terminal.app**, type: `defaults write com.toolsonair.justin.moxa 1` and confirm with the **Enter** key.
3. Open the **moxattyd.cf** configuration file and add all needed ports by following this logic (we will define 4 channels and serial ports in this example):

```
ttyp1 <ip_address_moxa_device> 950
ttyp2 <ip_address_moxa_device> 951
ttyp3 <ip_address_moxa_device> 952
ttyp4 <ip_address_moxa_device> 953
```

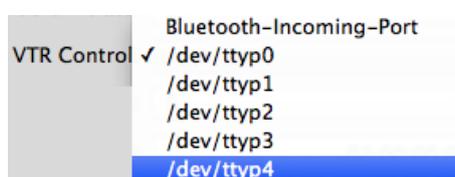
4. Configure the serial port on the Moxa NPort 5650 device by opening a browser connection and entering the IP Address of the Moxa NPort 5650 device. Once the device's homepage has been loaded, click on **Serial Settings** and the desired port to configure it by using the following parameters. Once done, click **Submit** to confirm your settings:



5. Launch the **moxattyd** daemon by entering the following commands in **Terminal.app**:

```
cd /Applications/Just\ In/moxadaemon/
./moxattyd
```

6. Open the **Just In QT** preference pane and allocate the selected channels to the configured serial ports. The ports numbering is always of a one-to-one type. You are now ready to use the serial connections.



KNOWN ISSUES

(1) Problems resulting from not running just:in with an administrator account

To avoid authentication problems always run **just:in** with an administrator account.

(2) FireWire support End-of-Life

FireWire support will remain basic and won't be developed any further due to the technology change to Thunderbolt.

(3) Recording Limitation

The QuickTime and MXF container formats are still limited to 12 hours.

(4) AJA NDD 10.5.2 drivers compatibilities

Version 1.7 will only support AJA drivers 10.5.2 and higher.

(5) AJA Multichannel audio issue in HD NTSC

When using an AJA Io 4K Thunderbolt device with HD NTSC 29.97 formats the audio may be corrupted. AJA has been notified and working on a fix.

(6) Mixing AJA and BMD cards may cause TC to TC asynchronicity

When using any combination of AJA and BMD cards with the latest drivers, an asynchronicity between TC information displayed on the relevant channels may occur. This issue has been reported to both card vendors.