

Ingex User Guide

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Introduction

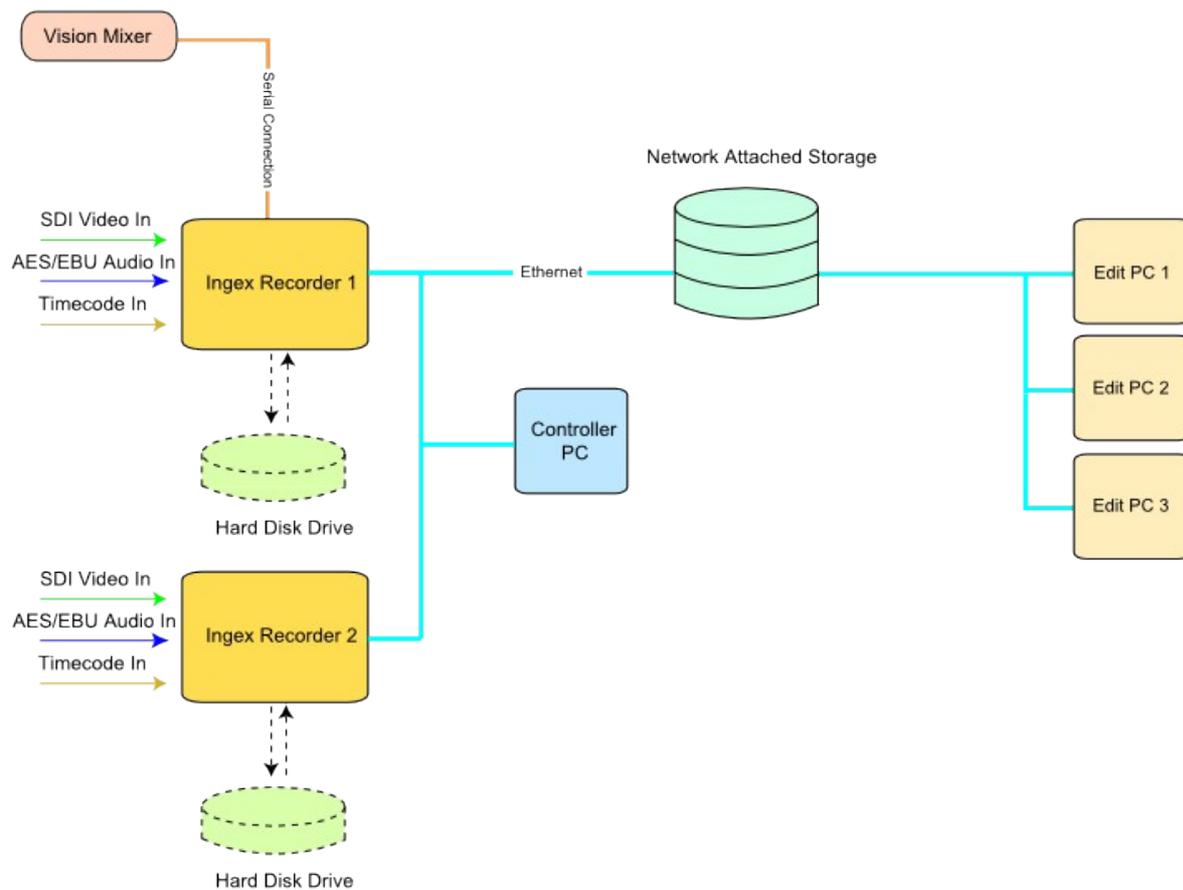
This document is intended to provide an overview of operation for a typical IngeX video recording system. It is aimed at operator-level and assumes that all IngeX hardware and software has been previously installed. A more detailed account of set-up and configuration can be found in the IngeX configuration guide.

The IngeX system is introduced and information on how to connect video hardware to an IngeX recorder is given. The IngeX Controller GUI is described and its features are discussed in turn.

Overview

Ingex is the name for a particular set of software tools developed by BBC R&D to enable a scalable tapeless digital video recording workflow. At its heart are multiple in/out direct to disk recorder PCs controlled either directly or remotely across a network. Each recorder is capable of capturing video and audio and simultaneously compressing to a variety of offline and online formats, while generating AAF or XML metadata files for use in post-production.

While it is understood that most users will use Ingex as a standalone system with recorder, controller and file store on a single machine, the diagram below depicts a larger Ingex configuration.



SDI video feeds and timecode are fed into Ingex recorder PCs being controlled remotely across a network. A separate recorder process is also capturing vision mixer cut decisions which can be exported in the AAF or XML metadata files for use in post production. The coded video, wrapped in MXF or Quicktime format, is transferred to a central file store and where it can be accessed by edit PCs.

Physical Connections

This chapter briefly outlines the physical connections typically found on IngeX recorders.

NB: For installing the DVS PCI-e cards and audio daughter boards, follow the instructions that came with the cards.



1. Timecode

While video input can be monitored and played out of IngeX without a timecode source, a timecode source must be present in order to record. This must be provided either externally as LTC (connector on the audio panel), embedded in the SDI (VITC or ancillary data) or generated internally from the system clock. The timecode source must be specified in the `/etc/ingex.conf` file (see configuration guide for more details).

2. Video Feeds

Each IngeX machine is capable of simultaneously recording 2 HD-SDI feeds or 4 standard definition SDI feeds (requires 2 DVS cards). In addition to this, the cards can be set to feed an SDI monitor with a quad split or any one of the incoming video feeds.

3. Audio

Audio can be sent to IngeX embedded in an SDI stream or into the AES/EBU DVS daughter boards with the appropriate breakout cable. Audio input sources must be specified in the `/etc/ingex.conf` file (see the configuration guide for more details). Some DVS cards use a slightly different arrangement to the one shown above.

4. Ethernet

If multiple machines are to be used in an IngeX cluster, a suitable network connection is required. For details on setting up IngeX web and the naming service, see the configuration document.

Starting IngeX

The main IngeX application is best started before the GUI, by clicking on either one of the IngeXHD or IngeXSD icons (shown below) on the desktop. Depending on configuration, various IngeX core processes will start when either one of the icons are clicked on, and will prime IngeX for recording.



IngeX Player

When IngeX is started in its default configuration, the Player process will automatically run. This process opens a window that displays a quad view of video input on the DVS cards (with a 13-15 frame delay). To zoom in on a single feed, simply click on it or press the input number (1-4). To return to the quad view, press 0.

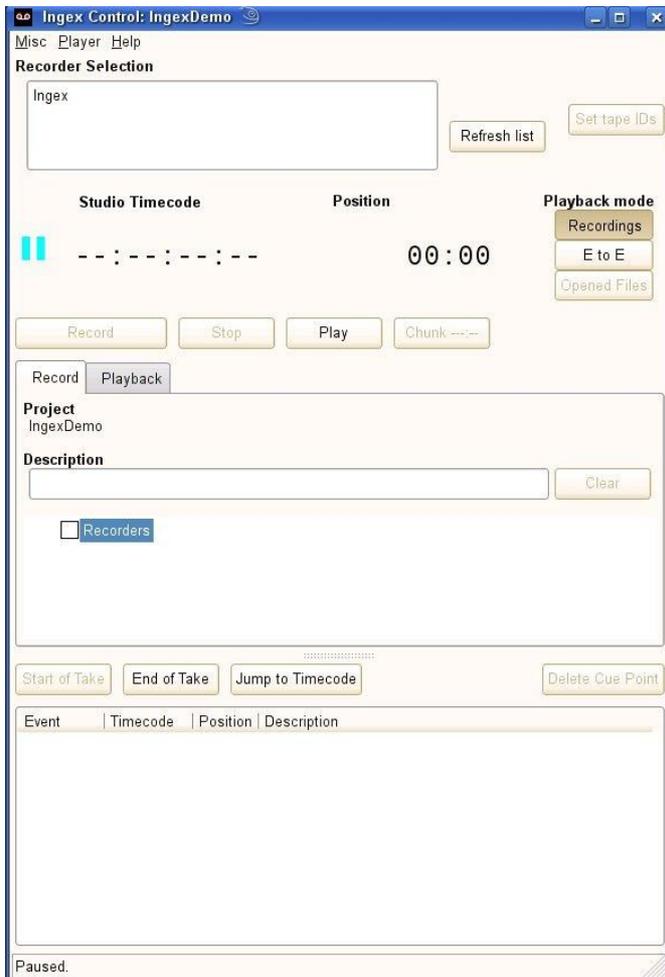
Ingex Controller GUI

The Ingex recorders are controlled and monitored by the IngexGUI which can be run on the Recorder PC itself or on a remote machine connected to the recorder of a network (in a studio galley for example).

To start the GUI, click the IngexGUI icon:



The application looks like this:



Selecting the recorder

Start by selecting the recorders to be controlled using the list which is to the top left, showing *Ingex* in the picture above. You can select several recorders by clicking on each line in turn. You can de-select a recorder by clicking on its name again.

(The recorders that appear in the list are those previously set up in the *System Configuration*: see the configuration document for more details.)

Selecting the record channels

Make sure the record tab is selected, as shown here:



In the centre part of the display, there is a 'tree' view of the record channels that are available for the recorders that you have selected. Note that you can expand this area by dragging the lower border downwards. This is where you can enable only the channels that are needed for a particular recording. Clicking in the box shown with an 'R' in the image above will toggle record-enable for all channels at that level and below. By default, all channels are enabled to record; to disable them just click on the box at the uppermost level in the list. To be more selective, e.g. to record only certain audio tracks, each level can be opened by clicking on the triangle to its left, and the lower part of the list beneath it will be displayed, as shown in the example above. Click on the 'R' box at each level that does not need to record and the R will disappear. Clicking again will re-enable it.

When a subset of channels is selected for recording, the higher level 'R' boxes will be split diagonally to warn of this condition.

Setting the Project Name

A project name can be added to make it easier to identify recordings for the same block.

To set a project name, click on *Misc* (top left) and select *Set project Name* in the menu that appears.



Either click on the down-arrow to open the list of existing projects or click on *Add* to create a new project name. Once the project has been selected, click on OK.

The project details will be carried through with the recording and will enable the clips to be found with the Avid Media Tool or in Final Cut Pro.

Description

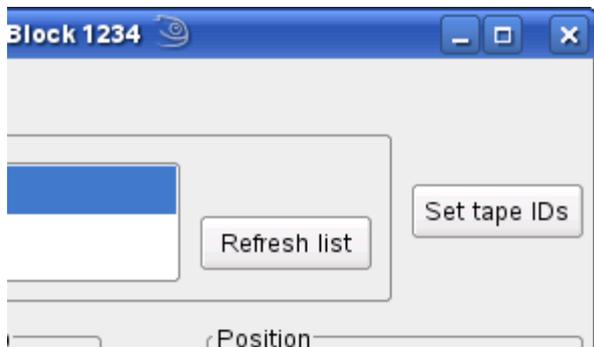
A description can be added for each recording that's made and this will also be carried through to the edit suite. To add a description, click in the box labelled *Description* and enter the text, as shown here. The description is captured at the end of each recording so the text can be edited while a recording is taking place.



The *Clear* button clears the text from the box.

Tape Ids

Many productions will use a tape backup alongside Ingeg, and Tape IDs must be set for all sources that have been enabled for recording. They are set by pressing the Set tape IDs button, which is in the upper right, as shown here.



More detailed info on Tape IDs can be found by clicking on the 'help' button.

Recording

Click on the record button to start a recording. This button can only be pressed if there is at least one source enabled for recording, in which case it will be a dull red, changing to a bright red with no legend (as it can no longer be pressed) while recording. F1 provides a shortcut key for recording.

If the Record button is greyed out, check you have entered tape IDs for each video source.

While recording, the "Mark cue" button (or shortcut F2) adds an entry to the cue point display.

To end the recording, click on the stop button. Remember that the recorder has pre- and post-roll, so the actual recorded content will start from a few frames before you pressed the record button and end a few frames after stop was pressed. The stop button can only be pressed while recording, and immediately sets the displayed status to stopped, even if the recorder is still "post-rolling". Shift-F5 provides a shortcut key for stopping.

Record/F1 can be pressed during playback, which will immediately stop playback and commence a new recording.

If the Ingeg Controller is running on the same computer as a recorder (which can be arranged even if you are using a separate controller PC, by using it remotely), the incoming video can be monitored by clicking on the 'E to E' button under playback mode.

Cues

When a significant event occurs during a recording, a line is added to the cue point display just above the bottom of the application window. The space given to this display can be varied by dragging the dotted splitter line above it. The display shows the type of event, and when it occurred both in absolute timecode and relative position. The timecode values do not take into account

network delays so will be approximate. The description for a start event is the project name, and that for a last frame event is from the description box.

Cue points can be added at will with the "Mark cue" button, which will bring up a dialogue to select the type of cue point required. The text of these can be changed during recording by double-clicking on the entry in the list.

There are Misc menu options to clear the cue point list, and prevent it logging more than one recording.

Setting Pre- and Post-roll times

When connected to a recorder, a dialogue can be accessed from the Misc menu to set pre-roll and post-roll.

The pre-roll slider allows you to add a variable amount of pre-roll to each recording. Its maximum value depends on the capabilities of the recorder, and defaults to as close to 10 frames as the recorder allows. Its value is remembered when connecting to a new recorder.

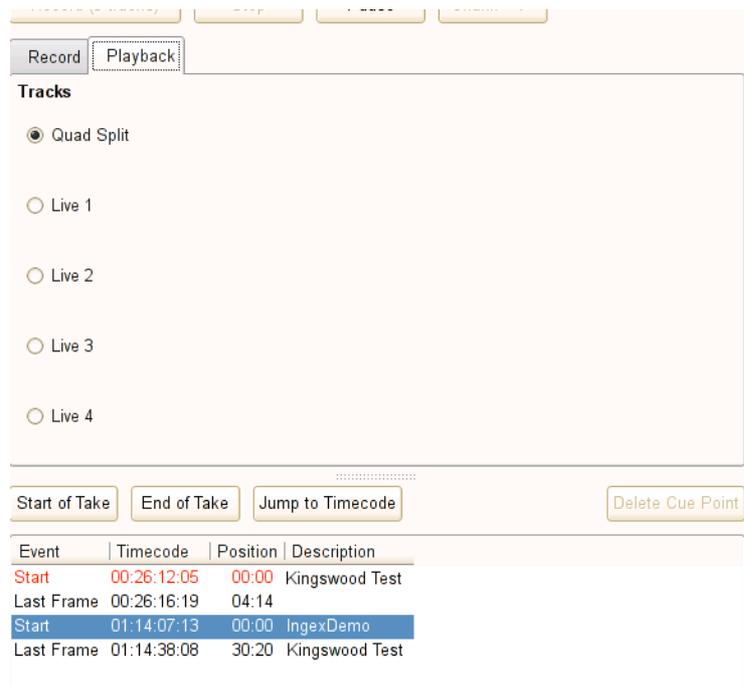
If the pre-roll is set too large, there may be a chance of dropping frames at the onset of recording due to CPU loading.

The post-roll slider operates in a similar way, defaulting to as close to 10 frames as possible, but with an upper limit of 250 frames.

Playback

As soon as a recording has been completed, the player is activated. Its window will only appear for the first time when at least one video file from the recording is available, which may take some time depending on post-roll and the configuration of the recorder. If all media files do not appear simultaneously (due to processing times), the player will start with what is available and reload automatically (maintaining its position in the recording) as more files become available.

Select the playback tab as shown here:



The sources recorded during the take appear as radio buttons in the area below the Project name box, with the option to view all 4 sources at once with the 'Quad-Split' function. The space given to this can be varied by dragging the dotted splitter line which is below it. The radio buttons can be selected in order using the F5 and F6 keys, and each has a tool-tip showing the associated file name. Only the sources currently available are enabled.

The playback tab also shows the project name shown in the recording tab when the recording was made.

Playback controls

During playback, the mark cue button becomes a play/pause button, which is enabled if the video player is functioning correctly. It switches from play to pause, but labelled "replay", when playback reaches the end of the selected clip, to allow the clip to be re-played easily. The stop button has no effect on playback.

The position indicator overlaid on the video display can be dragged to reposition the playback point quickly.

Record/F1 can be pressed during playback, which will immediately stop playback (to reduce load on the recording system) and commence a new recording.

Shortcut keys

The shortcut keys J, K and L can be used to play backwards, pause and play forwards, respectively. In the same way, number keys 3 and 4 can be used to step backwards and forwards frame by frame when the player is paused.

Quad split

If more than one source is available, a quad split is also provided, and when selected the player window title will show the names of the sources displayed. If more than four sources are available, the first four are shown on the quad split.

Each source in the quad split window can be magnified to inhabit the entire viewer window for close inspection. To do this, simply click on one of the four quadrants. To return to the quad split, click again.

When a new recording is made, if available, live video is shown, but if not, the player window is blanked rather than disappearing. This allows the player to maintain its position on the screen during a session.

Cue points during playback

During playback, cue points are automatically highlighted as they are played through, and the player will jump to them if they are clicked, and start playing from them if they are double-clicked. (Note that the player's burnt-in timecode display appears in red when at a cue point.) The adjacent take navigation buttons allow different recordings to be selected quickly.

Setting player behaviour

The player's behaviour can be controlled by the Player menu, which is located at the top of the window. It can be enabled and disabled at will, and its burnt-in timecode display can be switched between the recording's embedded timecode and position, or switched off completely.

Setting up an SDI output

Ingenix has the ability to mirror the GUI player window on the SDI output of the DVS card. The SDI output is activated by default. It should be noted that this SDI monitor output has an intrinsic delay of 15 frames, making it unsuitable for any time critical live work.

To activate, go to Player -> Enable external monitor output.

Jog-Shuttle control

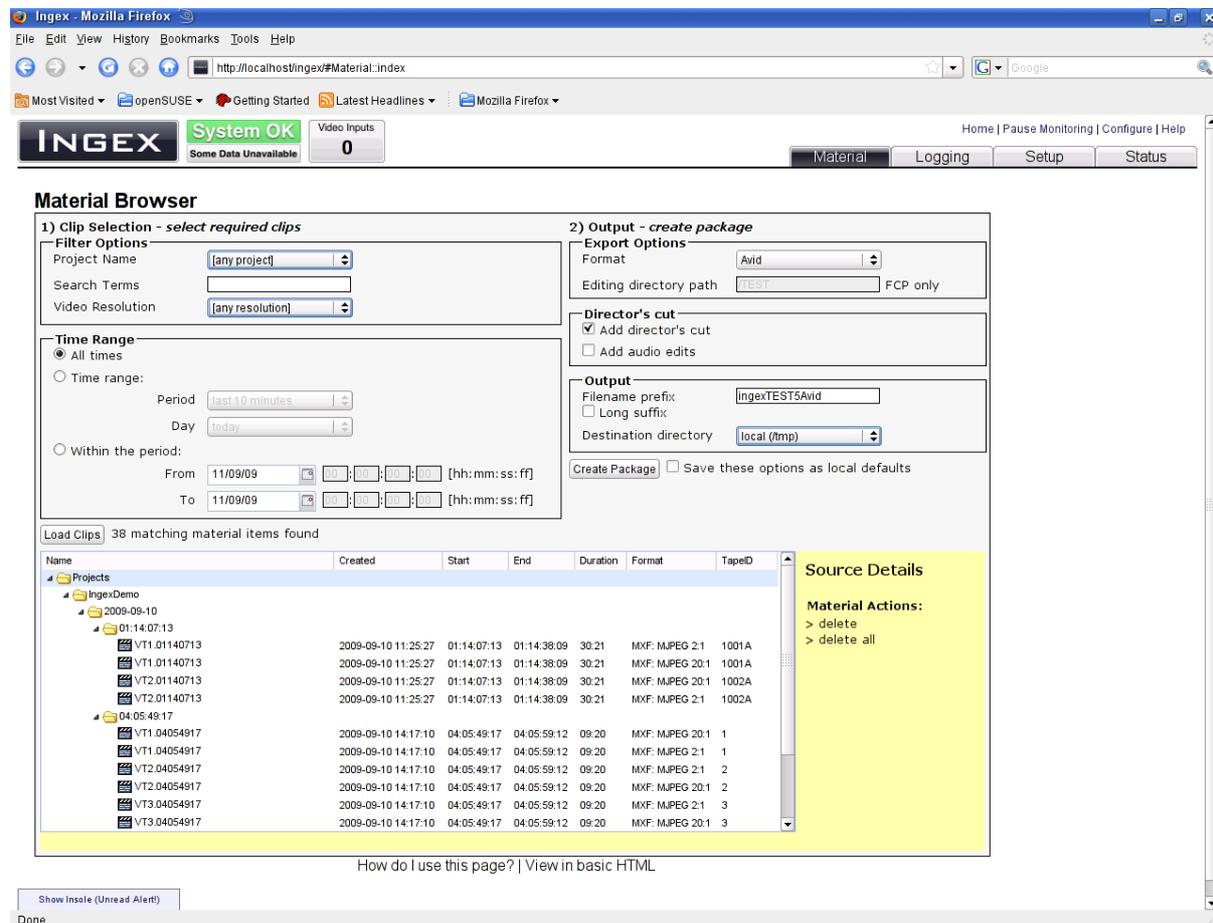
A "Shuttle Pro" USB jog-shuttle control can be used to drive the recording and playback functions. Its button assignments are explained in the relevant tab in the help window, accessed from the Help menu.

Ingen Web – Exporting an Avid AAF or Final Cut Pro XML

After video has been recorded, it can be located using the Material browser in Ingen Web. From here, the metadata for the recorded video can be collected and exported in the form of either an Avid .aaf or Final Cut Pro .xml file to automatically link video material to metadata in post-production.

Open a browser and go to <http://<INGEX WEB SERVER HOSTNAME>/ingen> inserting the name of your Ingen system web server as appropriate. (If you are on the same computer as the recorder, you can use <http://localhost/ingen>.)

Click on the Materials Tab at the top right, you will see the screen below.



From here it is possible to search for and view all the material on the Ingen recorders. After search criteria for the desired material have been entered, click the 'Load Clips' button to search.

Material is selected by clicking on folders or files. (Multiple items can be selected using ctrl-click and shift-click.)

Selecting the 'Director's Cut' feature will include any live cuts if a vision mixer had been connected to an Ingen recorder during the recording.

Once the material has been chosen, the .aaf or .xml files can be exported ready for loading into Avid or Final Cut Pro along with the relevant source material. IngexWeb will provide a link to the xml or aaf if the recorder is being accessed remotely to enable quick download of the aaf or xml.