AIRBOX USER MANUAL

((Version: ***1.12;****December 2015)*

This guide explains how to use the basic functionalities of ***AirBox*** v. 4.4.

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Preface

Dear **ATHENSA** customer,

Thank you for purchasing our product! We would like to assure you that you have chosen the most cost-effective and versatile TV automation system on the market. As always, we are trying to stay close to our customers' needs, making sure they all receive adequate support and satisfaction. Your opinion about our product is an exceptionally valuable source of information for us. The ease of working with the **ATHENSA** products results mainly from the suggestions and comments of our current respected customers.

This manual is structured into several sequential chapters, each aiming to ease the installation, fine tuning, and use of our products. We hope that you will enjoy working with it, and we are anxiously looking forward to receiving your feedback.

Please, send your questions, suggestions, and assistance requests to:

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Style Conventions

- File names, software, documents or terms are written in *italics*
  - The data is written in the *settings.ini* file.
  - The file is located in *C:\Program Files\DMT**AirBox***
  - For further information read *Shortcuts* reference book.
  - The *VTR* is controlled via *RS-422*.
- Direct quotations from the computer screen are presented as follows:
  - **Menu Items and commands**
  - ***Tab/Page names***
  - **Column names (i.e. in a playlist or another grid)**
  - *Field names, check boxes*
  - ***Buttons***
  - Screen readings are written in [square brackets]
  - **The keyboard keys are enclosed in < > signs**
- The arrows, used in the setting procedures mean as follows:
  - ➔ A menu item follows;
  - ⇨ A page(tab) name follows;
  - → A field name, a check box name, or a value name follows.

Except for arrows, you can distinguish between the relevant menu categories also by the styles, listed above.

GETTING STARTED

QUICK START

- Verify all connections and start the workstation;
- Make sure that you have suitable content available in the media folders;
- Launch ***AirBox***;
- Select the desired playback module from Settings > Modules.
- Configure video and audio output from Settings > Output.
- Click the ***Add*** button;
- Select the files you wish to playout and click the ***Open*** button;
- Click the ***PLAY*** button;

Congratulations! You have just launched your first ***AirBox*** playout session!

MPO MIXED PLAYBACK

When operating with the multi-parallel output mixed playback (MPO) playlists can contain files with different types of video and audio compressions, different resolution, different frame rate, etc. If the parameters of the file are different from the parameters, set for ***AirBox*** playback, then the files are transcoded in real-time (during the playback) to match the parameters set.

AIRBOX BASICS

AirBox is a universal SD/HD content playout and streaming software. Depending on the hardware platform and supported files in the playlist, there are different types of ***AirBox*** playout (playback) modules.

Current ***AirBox*** versions provide 3 major modules:

IP PUMP MPEG PROGRAM DUMPER

IP Pump playout allows inserting only content with MPEG1-encoded or MPEG2- encoded video into the playlist. There are three pump plug-ins – *Data pump*, *IP pump* (LAN card based), *ASI pump* (**Deltacast ASI card** based).

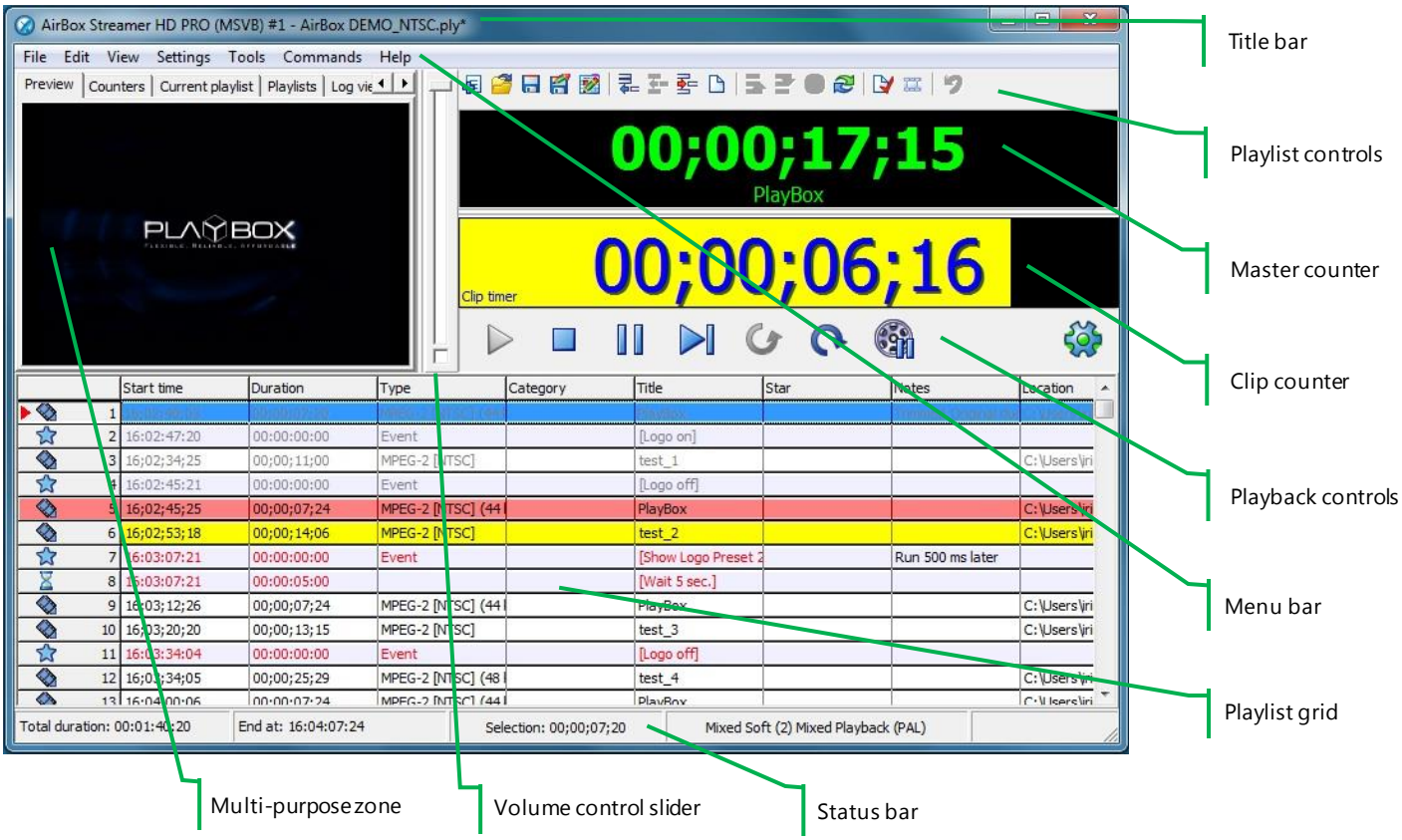
MIXED SOFT MIXED PLAYBACK

The Mixed Soft playback is a software-based playout of files with different compressions and frame rates in the same playlist. Used mostly for demonstration purposes, it represents all features available to Hardware playback, except for the video signal output. If you have a dual-head video card with TV output, the video overlay preview can be monitored through it.

To set the playback module manually, go to ***AirBox Menu*** -> Settings > Modules window and select the preferred option.

AirBox playout is defined in the **AirBox > Settings > Output** menu.

USER INTERFACE



TITLE BAR

The ***AirBox*** title bar contains the application logo and name, abbreviations of all license-enabled options, the active channel number, and the file name of the current playlist. If the playlist has been modified, but not saved, an asterisk (*) is displayed after the playlist name.

MENU BAR

The ***AirBox*** menu bar is described in detail in the Menu bar section below.

MULTI-PURPOSE ZONE

The multi-purpose zone provides quick navigation through the most frequently used functionalities of ***AirBox.***

The multi-purpose zone contains the *Preview*, *Counters*, *Current playlist*, *Playlists*, *Log View*, and *ShotBox* tabs. Use the arrows in the upper-right to scroll through the tabs. To show/hide tabs, right-click somewhere in the multi-purpose zone and check/un-check tab names in the context menu. All tabs are described in detail further in this manual.

TIP: Click and drag the right border of the multi-purpose zone to adjust its width.

Preview tab

Shows a preview of the currently playing video. To move the video preview window outside the main application window, go to the View menu and check *Show external video window*. If you accidentally close the preview window, go to the View menu and check *Show external video window* to re-open it.

The external preview consumes additional resources from the system. To close it, uncheck *Show External Video Window* on the **View** menu.

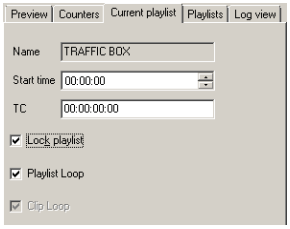
NOTE: Some ***AirBox*** configurations do not provide such video overlay functionality.

Counters tab

This tab contains all counters that can be found in the **View** menu. Their names are written in the lower left corner. Right-clicking in the Clip timer or in the Block timer will open a context menu to switch it to count-down mode.

Please, check the View menu section below for a detailed description of the counters.

Current Playlist tab



This tab contains information about the currently loaded playlist and simple controls.

Name – this is the title of the currently loaded playlist. It is different from its filename. You can change it in the dialog that appears after double-clicking in the string.

NOTE: When you rename the playlist, do NOT use special symbols (like '/', \' and ','). ***AirBox*** will NOT accept names with such symbols and it will return an error.

Start time – by default, it is set to zero. You can set a different start time for the playlist by either entering the value, or using the arrow keys.

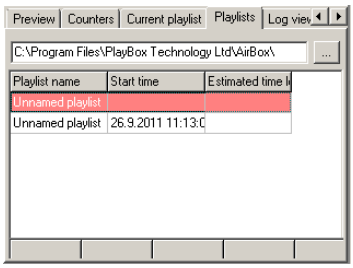
TC – this is an offset that will be applied to the time code, which is broadcast over the network – see **Settings** menu > General section.

If the ***Lock playlist*** box is checked, it will prevent you from editing the currently loaded playlist, as well as from loading another playlist. Use it to prevent accidental changes of the playlist during playout.

Playlist Loop – if checked, when the playback of the last clip in the playlist is complete, playback will continue from the beginning of the playlist again.

Clip Loop – if checked, the currently playing clip will be repeated until the option is disabled (unchecked). When ***AirBox*** is in stop mode, this option will be applied to the first clip to be played after resuming the playout (i.e. the last played before clicking the ***Stop*** button).

Playlists tab



In this tab you can view all playlists that are found in the currently selected playlist folder (displayed in the string). To change the folder, click on the ***Browse*** ... button to the right of the string.

TIP: Double-click on a playlist line to load the relevant playlist in ***AirBox***. Please, note that this will interrupt the playback!

Log tab

This tab displays a list of all events that have occurred during ***AirBox*** operation.

ShotBox tab

This tab accommodates the live show clipboard. Here you can view and operate with the ***custom command*** buttons. It duplicates the live show clipboard window that opens from the **View** menu. Please, check the ShotBox section for details.

AIRBOX PLAYLIST

AirBox works with playlists (play orders).

Start time	Duration	Category	Title	Type	Star	Locatic
12:23:11	00:03:35		Mike's New Car	MPEG2 (48 kHz)	Mike's New Car	E:\mpe
12:26:47	00:00:00		[Logo Off]	Event		
12:26:47	00:00:30		SONY	MPEG2 (48 kHz)		E:\SO
12:27:17	00:00:00		[Show Logo Preset 1]	Event		
12:27:17	00:03:35		Mike's New Car	MPEG2 (48 kHz)	Mike's New Car	E:\mpe
12:30:52	00:00:30		SONY	MPEG2 (48 kHz)		E:\SO
12:23:13	00:03:35		Mike's New Car	MPEG2 (48 kHz)	Mike's New Car	E:\mpe
12:26:48	00:00:25		Mike's New Car	MPEG2 (48 kHz)	Mike's New Car	E:\mpe
12:27:13	00:07:07		movie_001c	MPEG2 (48 kHz)		E:\mpe
12:34:21	00:07:07		movie_001c	MPEG2 (48 kHz)		E:\mpe
12:41:28	00:00:00		For the Birds	Missing		E:\mpe
12:41:28	00:03:50		Viktoria_MoliaSe	MPEG2 (48 kHz)		E:\mpe
12:45:19	00:00:00		Sony2	Bookmark		
12:45:19	00:00:00		[Logo Off]	Event		
12:45:19	00:00:30		SONY	MPEG2 (48 kHz)		E:\SO
12:45:49	00:00:00		[Show Logo Preset 1]	Event		
12:45:49	00:07:07		movie_001c	MPEG2 (48 kHz)		E:\mpe
12:52:57	00:03:50		Viktoria_MoliaSe	MPEG2 (48 kHz)		E:\mpe
12:56:47	00:00:39		Counter IBP 8Mbit_	MPEG2 (48 kHz)		E:\mpe
12:57:27	00:00:00		For the Birds	Missing		E:\mpe

You can easily create a playlist manually, by dragging and dropping files onto the ***AirBox*** grid.

Other options for creating playlists include ***ListBox*** *(a* standalone playlist editor), or any third-party software which supports the playlist format, used by ***AirBox***.

NOTE: The ***AirBox*** playlist format is described in detail in the ***AirBox SDK***.

AirBox also provides a possibility to import playlists from simple text files (tab delimited or comma separated text files).

There are two workflows with ***AirBox*** playlists: ordinary playlist and daily playlist. The difference is that the daily playlist is loaded automatically at an assigned day and time, while the ordinary playlist should be loaded manually.

Daily playlists require specific naming structure in order to be played on the desired date and time automatically. The structure is: YYYY_MM_DD_HH_MM_SS, where YYYY stands for year, MM-month, DD-date, HH-hour, MM-minutes and SS-seconds.

EXAMPLE: If the name of the playlist is "2011_11_20_14_00_00.ply", it will be loaded on November 20th, 2011 at 14.00 h (2.00 pm) exactly.

The ***AirBox*** playlist contains video clips and events (commands), which are described in details further in this chapter.

Playlist Grid

This is the main part of the ***AirBox*** interface, dedicated to the playlist (play order) visualization.

When you launch ***AirBox***, depending on your startup settings, you will see an empty window, and you will have to load (create) a playlist, or you will see the opened playlist.

The Grid Columns

If there is a playlist, loaded in ***AirBox***, you will see information about the clips in different columns:

Start Time

This column contains each clip's starting time. During **Stop** mode, it shows the current time for the clip that will be played first when the ***Play*** button is clicked. The time refreshes every 2 seconds. The following clips hold positive times calculated according to the current time and the duration of the preceding clips. During **Play** mode, this column shows the actual starting time for each clip. If there has been a ***Jump*** command or a clip has been trimmed during **Play** mode, the starting times of the following clips will be recalculated accordingly.

If for any reason a file is removed or renamed after the playlist is loaded, it will be considered missing and hence - colored in red. ***AirBox*** will skip it and will jump to the next available clip. The **Start Time** column will be recalculated accordingly.

Duration

Shows the actual duration of each clip. Naturally, if a clip has been trimmed, its actual duration will be reduced. The duration of the part to be shown will be displayed in the playlist and will be used for calculation of the starting times of all following clips.

Type

Shows the type (*such as MPEG*) of the clip – this is quite useful to determine the major type of compression, since many decoders do not allow different compression types to co-exist in the same playlist.

Category

Contains category information. This information can be entered manually by the user into the playlist or fed from some external database (e. g. ***DataBox***).

NOTE: If category is taken from ***DataBox***, you can define a field color for the clip, using ***DataBox*** (**Options** > ***Default values*** > *Color to* ***AirBox***).

The C*ategory* and its color can also be defined manually in ***AirBox (or ListBox)***. You can fill-in the entire clip rows with their Category colors. In order to do this, go to ***AirBox*** **Settings** > **General** > ***Interface*** and check *Color entire row by category*.

Title

Shows the clip's title or filename.

Location

Shows the file location (full path).

Star

Contains data, describing the artists in the clip.

Notes

Contains additional data.

NOTE: If the note comes from ***DataBox***, you have to specify in ***DataBox*** (**Options** > ***General*** > *Fields to* ***AirBox*** *Notes*) what exactly field to be transferred.

TIP: You can change the columns' order by *dragging and dropping* them.

TIP: A double-click in the first column that contains the items' numbers will open the clip properties dialog. Double-clicking in any other column will open the ***Clip Trimmer*** (if it is enabled in **Settings** menu > **General** (see the description further in this manual).

Color coding

The color-coding of the playlist's rows provides additional information to the user:

- **Pink row** – outlines the currently playing clip. It is visible in ***PLAY*** and ***PAUSE*** modes only.

- **Yellow row** – it is visible only while switching between clips. It shows which clip will be played next. In that moment, the yellow clip is being actually fed into the decoder circuit. This happens during the last couple of seconds before the end of the previous clip. The clip cannot be moved, trimmed or deleted anymore. Just for comparison, competitive playout solutions tend to permanently lock the clip after the currently playing one, which reduces on-air flexibility and your last-minute decision freedom.
- **Blue row** indicates the currently selected clip – all actions, i.e. ***Jump***, ***Move Up/Down*** will be applied to it.
- **Red row** highlights those files in the playlist that are missing/invalid (not supported by the currently installed hardware). The playback skips such files and plays the next available clip.
- If the file is missing, you can set the time interval for automatic check for missing files (**Settings** > **General** > ***Missing Files*** > Check Missing files every […] sec).
- **Light cyan row** outlines the playlist events when selected.

NOTE: You can change these colors to fit your personal preferences in **Settings** > **Colors** > ***Playlist*** tab.

Drag and drop

One of the main features of the grid is the *drag and drop* functionality. It allows dragging clips within the playlist and from one grid to another (from ***DataBox/ListBox*** to ***AirBox*** or from any folder to ***AirBox***). If <Ctrl> is being held while dragging a clip in the playlist, the executed operation will be **Copy**. By default, each internal (in the grid) dragging means **Move** and dragging between two windows (similar to ***Windows Explorer***) is **Copy**. Clips that have already been played-back are grey and cannot be moved, but can be copied.

Positioning the mouse pointer over a row in the playlist displays a hint with the clip's file name and IN/OUT timecode values.

Double-click over a clip opens the ***Clip Trimmer*** (if it is enabled from **Settings > General** > ***General*** > *Use clip trimmer*). If you trim a clip in the playlist, the change will not be permanent, but valid ONLY for this playlist. If you add the same clip to another playlist, it will appear un-trimmed there.

A detailed description of ***Clip Trimmer*** can be found further in the Clip Trimmer appendix of this document.

If the use of ***Clip Trimmer*** is not enabled, the clip's properties dialog will open.

Right-click

Right-clicking over a row opens a context menu of playlist and event commands:

- **Add** – activates a drop-down list for appending various items to the end of the playlist. See their detailed description in the Edit menu section.
- **Insert**– opens a drop-down list for inserting various items before the currently selected item in the playlist. The Add and Insert drop-down lists are identical.
- **Delete –** deletes the selected playlist row(s); a dialog asks confirmation before the deletion.
- **Jump –** click it to interrupt the currently playing clip and jump to the currently selected (highlighted) item in the playlist.
- **Loop** – marks the selected clip for repeating until the option is cancelled. To disable clip looping, right-click in the clip and uncheck *Clip Loop*.

NOTE: This option is different from the *Clip Loop* option in the **Current playlist** tab of the **Multi-purpose zone**, which will loop the *currently playing* clip (not the currently *selected* one).

- **Override QC restriction –** if you have defined a QC restriction in **Settings > General > *Quality Control***, and a particular file does not satisfy these restrictions, it will be marked red, just like a missing file. Thus, this menu option allows you to override the QC setting and play this particular file. The setting is applied only once during the current playout.
- **Cut/Copy/Paste –** these options are self-explanatory.
- **Clip Trimmer** – opens the ***Clip Trimmer*** application (if it is enabled in **Settings > General** > ***General >*** *Use Clip Trimmer*. Otherwise, the *Clip Properties* dialog will open). Find detailed information about the ***Clip Trimmer*** in the Clip Trimmer appendix at the end of this manual.
- **Properties** – opens a window with clip's properties.

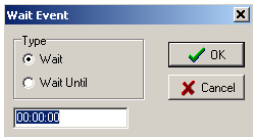
Properties

Clip's properties are described in detail in the Clip Properties section.

Events

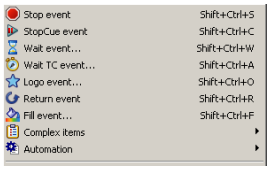
There are two types of events in relation to ***AirBox***, internal and external. They are separated by a thin line – the internal events are listed above, and the external ones are below.

Internal Events



Stop event

Inserting such an event in the playlist will stop the playback automatically at reaching this point of the playlist. This function is useful for news and other interactive sessions.



StopCue event

Automatically stops the playback upon reaching this point of the playlist and shows the first frame of the next clip.

Wait event

Temporarily stops the playback. A dialog box appears to specify the type of "waiting":

Wait means that playback will stop and standby for a certain period (hh:mm:ss).

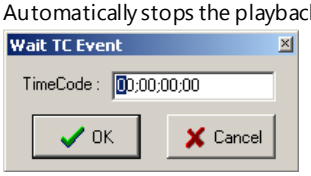
EXAMPLE: 00:01:00 means that the playback will wait for 1 minute;

Wait Until means that playback will stop and automatically resume at a defined time (hh:mm:ss).

EXAMPLE: 14:00:00 means that the playback will start at 14:00:00 o'clock.

Wait TC event

Automatically stops the playback and resumes it upon reaching the specified time code (e.g. coming from an external timecode generator). The message



to the right will be displayed on the ***AirBox*** window and the Master counter will continue running. See the LTC reader description in the **Settings** menu > **Timecode** section further in this chapter.

The TimeCode format here is HH;MM;SS;FF, where H stands for hours, M for minutes, S for seconds, and F for frames per second.

NOTE: Depending on the standard you are using (PAL, NTSC, etc.), make sure to enter the corresponding number of frames in **Settings** > **General** > ***Interface*** > *Frame rate* (25 for PAL and 29.97 for NTSC).

NOTE: Be aware that when you are using PAL the timecode separators are ':' and when you are using NTSC they are ';".

Logo event

⊙ ***Logo On*** – Starts displaying the logo, set in the preceding *Logo Preset event*. If there is no preceding *Logo Preset event*, the first logo preset from the list (in **Settings** > **Logo...** > *Logo Presets*) will be displayed.

⊙ ***Logo Off***– Stops displaying the logo.

⊙ ***Logo preset*** - Sets a logo preset, which will be displayed after initiating the *Logo On* event. The preset number corresponds to its number in the preset list in **Settings** > **Logo...** > *Logo Presets*.

If you check the *Activate now* box in the event dialog box, the logo will appear immediately. You can also activate the logo before or after the beginning of the following clip by setting an offset to it.

Return event

This event will return the playback at the position before a previously executed Jump.

EXAMPLE: If you have a movie in your playlist, and it has markers for commercial blocks, you can insert a Return event after the commercials you would like to play. Thus, the movie playback will resume after the end of the commercial break from the point of the commercial marker.

Fill event

Opens the *Fill event properties* dialog. For more information, see section **Settings** menu > **Auto-fill** further in this chapter.

NOTE: The minimum fill time is 2 seconds. In case you have gaps that are less than 2 seconds long, you can use the Default Start Tolerance option in **Settings** menu > **Fixed time** events.

NOTE: The Fill event is in the format HH:MM:SS, i.e., it is seconds-accurate.

Complex Items

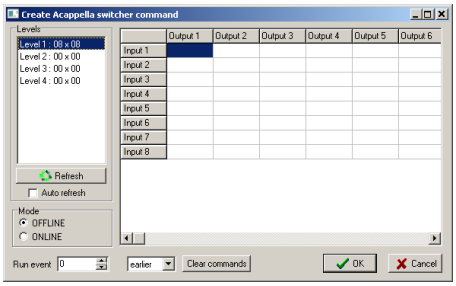
Opens the *Custom Complex Event* dialog. A list of all previously defined complex events is displayed for the sake of convenience. For more information, see section **Settings** menu > **Complex items...** further in this chapter.

External Events

NOTE: The *External Events* are part of the ***AirBoxPRO*** option. The following section contains a description of these events:

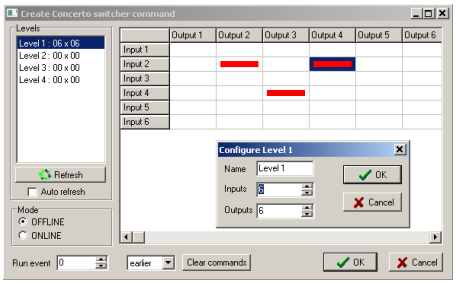
NOTE: In order to insert events into the playlist, you have to enable the related plug-ins in the **Settings > Modules > *RemoteControl*** section first.

Acappella Switcher Output



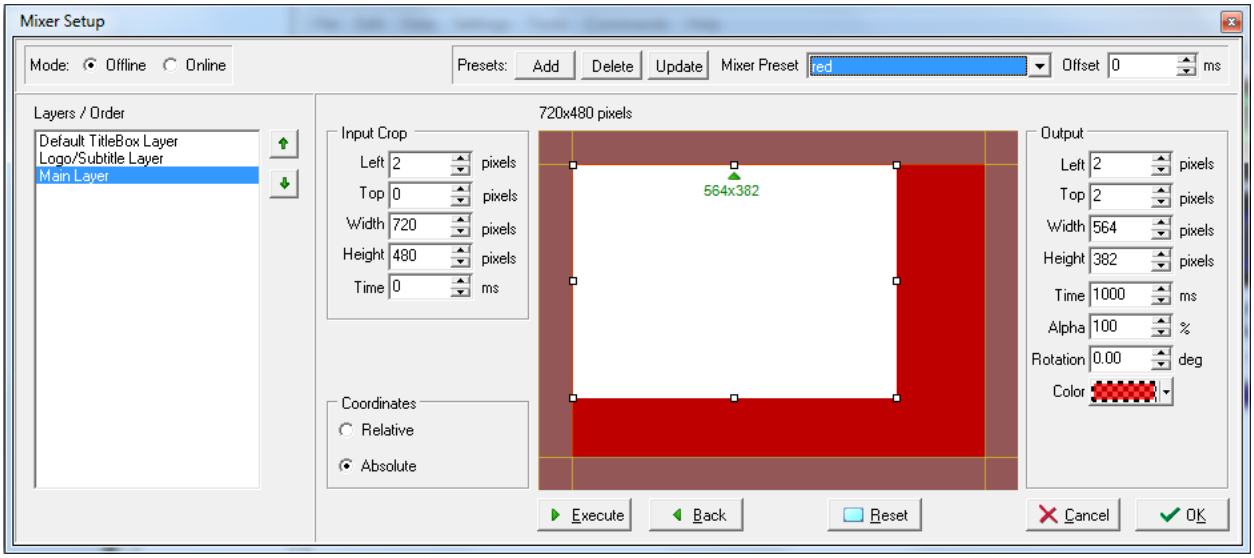
This is an event for controlling an external video/audio router. Depending on the switcher model, the currently available inputs/outputs will be displayed in a matrix grid, in which you can configure the command you need. Click ***OK*** when ready. You can also set an event offset via the *Run event* field, if necessary. The number you enter in the field is in milliseconds.

Concerto Switcher Output



This is an event, which allows you to control Concerto series of routing switchers. When you select it, you will be able to see the dialog, shown above. Double-click on the relevant *Level* to specify the number of inputs and outputs in it. After that, specify the commands in the grid (it will reflect your ***Configure*** settings). If you choose the ***Command*** mode, you will have to click ***OK*** to insert the event in the playlist. In ***Online*** mode, you can control the matrix switcher in real time. You can also set an event offset via the *Run event* field, if necessary. The number you enter in the field is in milliseconds.

Graphic Mixer Control Event



NOTE: The Graphic Mixer is available only for Multi-format playout plug-ins in ***AirBox.***

Mode:

Use the radio buttons to select the mixer operation mode - ***Online*** or ***Offline***.

If you select ***Offline*** mode, you can edit or add to preset any changes you make in the dialog. To send the changes to ***AirBox*** output, you need to click the ***Execute*** button.

NOTE: If you choose ***Online*** mode, all changes you make will be sent to the ***AirBox*** output in real-time.

Presets:

You can manipulate the video output through pre-defined mixer presets. The **Mixer Preset** drop-down list contains all previously created presets. When you activate the **Mixer Setup** for the first time, this list will be empty. Use the ***Add***, ***Delete*** and ***Update*** buttons to create, remove or change presets. Select the preset you wish to use or update from the **Mixer Presets** drop-down list.

To create a preset, click the ***Add*** button. The **Graphic Mixer** drop-down list transforms to an input field. Enter preset name in the field, make the desired changes and click ***Update***.

TIP: To quick-add a preset, make the desired changes and click ***Add***. Enter preset name in the field and press <Enter>.

To edit a preset, select a preset from the drop-down list, make the desired changes and click ***Update***.

To delete a preset, select it from the drop-down list and click ***Delete***. The preset will be removed immediately and you will not be prompted to confirm deletion.

Offset:

The offset time (in milliseconds) indicates the time after (before for negative numbers) which the selected preset will be applied, counted from the event start time.

Layers/Order:

Layers allow easy manipulation over the main video output, graphic objects (e.g. ***TitleBox*** objects), channel logo and subtitles. You can change layer size, order and position as well as rotate a layer along its center.

Select a layer and move it up or down in the list, using the arrow buttons to the right.

NOTE: When two objects are overlapped, the one which is positioned on the topmost layer in the list will be visible.

Input crop:

In the *Input Crop* field, add the corresponding values by which your input video content to be cropped from the desired direction.

Left – this value represents the offset from the left margin of the monitor. The video portions that remain unseen are still being rendered.

Top – the offset value from the top of the monitor.

Width – shrinks/stretches the input video to horizontally the right, using the top left corner of the frame as a pivot point.

Height – shrinks/stretches the input video vertically to the bottom, using the top left corner of the frame as a pivot point.

Time – the time (in frames) for transition from the previous video layout to the current resize preset.

Coordinates:

Video offset and scaling can be calculated in percentage or absolute values.

If you select *Relative*, all values in the **Input Crop** and **Output** sections will be calculated in percent and will represent percentage from the input video (for **Input Crop**) or the default video output size (for **Output**).

If you select absolute, all fields will be calculated in pixels and you will be able to set exact pixel values for each.

Mixer Canvas:

In the main mixer canvas, drag the selected object layer to the desired position and size. When you change a value in any of the **Output** spin-boxes to the right, these changes are also visualized on the canvas.

NOTE: Moving/resizing layers is restricted to the maximum layer size in pixels which is the same as the resolution of the current video standard, set in the ***Settings > Output > Video tab***.

Output:

The *Output* field to the right contains tools for precise positioning and resizing of the video output.

Left – this percentage represents the offset from the left margin of the monitor. The video portions that remain unseen are still rendered.

Top – the offset percentage from the top of the monitor.

Width – shrinks/stretches the output video horizontally to the right, using the top left corner of the frame as a pivot point.

Height – shrinks/stretches the output video vertically to the bottom, using the top left corner of the frame as a pivot point.

Time – The time (in frames) for transition from the previous video layout to the current resize preset.

Alpha – Use it to set transparency to the video (in percent).

Rotation – Set video (object) rotation degree. The center of rotation is the object center.

Color – Set the color for the surrounding area of the scaled video. This part is usually used as a background for graphics insertion (i.e. in info channels).

NOTE: The changes that you make to the height/width of the video will affect the video quality!

Execute – applies all changes to the AirBox output (available in *Offline* mode only)

Reset – discards all changes and restores canvas defaults

Back – restores previous state

NOTE: The back button resets to previous state. This may include several steps and actions.

DTMF output

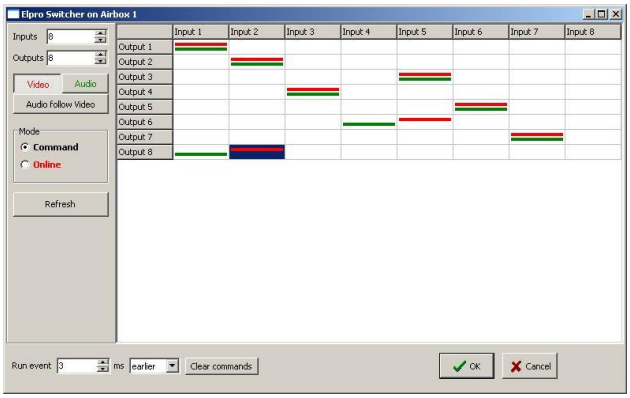
This event inserts a line in the playlist to activate the *DTMF signal*. The following dialog box appears:

In the *DTMF Preset* field select a preset, as it is defined in the Modules -> Remote Control-DTMF output section.

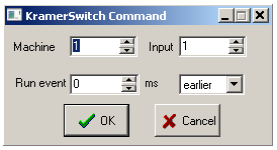
In the *Time Offset* field enter how many milliseconds *earlier* or *later* to execute this event

Elpro Switcher Output

This feature activates the ***Elpro Switcher output***. When you select it, the dialog below appears.



The first thing you have to do is to configure the number of inputs and outputs of the switcher from the fields in the upper left corner. Then you have to specify the desired input/output configuration. You can switch the ***Video*** and ***Audio*** separately or together. The user can work in two modes: ***Command*** and ***Online***. In ***Online*** mode **Inputs** and **Outputs** can be switched in real time just by clicking the desired *In/Out* combination field



in the grid. In ***Command*** mode you have to insert the desired *In/Out* configuration and add or insert it as an event in the playlist.

GPI Output

Inserts a line in the playlist, which activates the *GPI Output*. A dialog box appears to define the output **GPI** commands. You can have up to two commands on each COM port: GPI 1 means DTR tone (pulse on pin 4 and 5), and GPI 2 means RTS tone (pulse on pin 7 and 5).

You can select the *COM*-port from the available *COM*-ports, listed in the main window area. To configure them, go to **Settings** > **Modules** > ***Remote Control*** tab, select the GPI Output, and click the ***Configure*** button.

The time for execution of a GPI event is defined via the surrounding items in the playlist. Therefore, you could correlate an event offset by using the end of the previous clip ("earlier" execution), or the beginning of the following one ("later" execution). Just fill in the number of frames in the *Run event* field and select [earlier] or [later] in the next field.

Kramer Switcher Output

Activates a *Kramer Switch Output*. A dialog box appears to define the Kramer Switcher commands:

Machine – select the number of the device, connected to the *COM port (RS-232)*. Up to 8 devices can be connected.

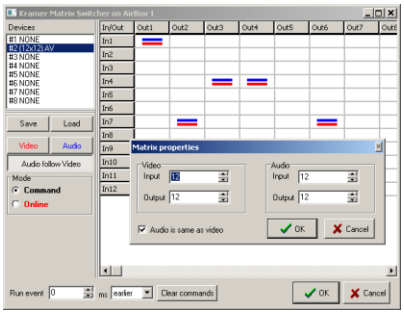
Input – select the number of the desired switcher input.

Run event – fill-in the number of frames for "earlier" or "later" command to the switcher (see the *GPI* section).

NOTE: This switcher control plug-in works with the old control protocol. Most of the latest Kramer switchers are Protocol 2000-compliant, so you should use the "Kramer Matrix Switcher Control" module, even if your switcher is not a matrix switcher.

NOTE: Deck Control connector, supplied on the DeckLink breakout cable is NOT supported.

Kramer Matrix Switcher Output



It is used for all Kramer switchers that use Protocol 2000.

This event activates the *Kramer Matrix Switcher Output*. A dialog box appears to define the Kramer Matrix Switcher commands. There are two main modes: *Command* and *Online*.

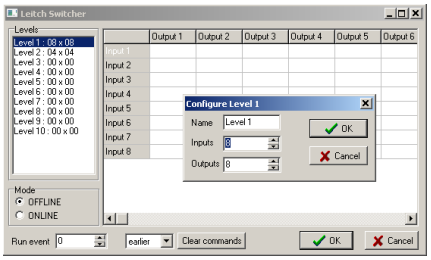
In *Online* mode the user can switch Inputs/Outputs in real time by clicking the desired *In/Out* combination field in the grid (the right part of the window) area.

In *Command* mode the user selects the desired combination for the Matrix and after clicking *OK* the event is added to ***AirBox*** playlist.

The attached devices are automatically detected, but you can add more manually by double clicking a row in the list of devices (#1 NONE; #2 NONE; etc.).

Video and **Audio** can be switched separately or together. The Device list can be **Saved** and **Loaded**. You can also set time offset in milliseconds.

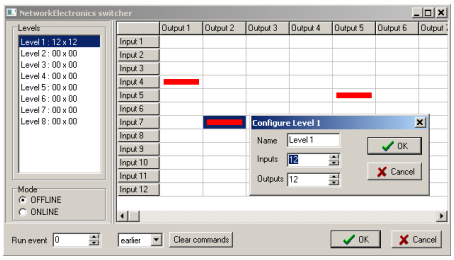
Leitch Matrix Switcher Output



This is another optional plug-in for ***AirBox***. When you choose to insert a *Leitch Matrix event*, the dialog to the right is displayed. Double-click on the relevant level to configure it (i.e. to specify the number of inputs and outputs in it) and click *OK*.

Then, specify the commands in the grid (it will reflect your *Configure* settings). If you select the *Command* mode, you will have to click OK to insert the event in the playlist. In *Online* mode you can control the matrix switcher in real time. You can also set an event offset, if necessary.

NetworkElectronics switcher



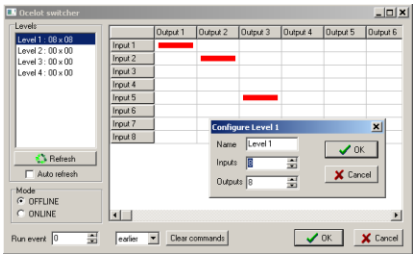
This is another optional external event for ***AirBox***. It is controlled in the same way as the **Leitch Matrix** event.

Net Sender Output

The Net Sender Outputevent will send any text message via UDP. Thus, you could control IP-enabled third-party devices. All you have to do is specify the port, to which the message will be broadcast and type in the text. ***AirBox*** will send the message on the specified port when it reaches the event line in the playlist, observing the offset (if any).

NOTE: The maximum size per message is 512K.

Ocelot Switcher Output



It activates the *Ocelot Switcher* output dialog, where you can define the switcher's commands.

You can schedule the device control by adding/inserting events into the ***AirBox*** playlist (the so-called *Offline* mode) or control it interactively (in *Online* mode).

The available matrix levels, which refer to digital video, analog audio and digital audio are listed in the *Levels* field. Right-clicking on a level opens a pop-up menu that enables grouping it with another level, or ungrouping the currently selected pairs, or resetting all of them. Grouping is convenient for simultaneous switching of all levels in a group.

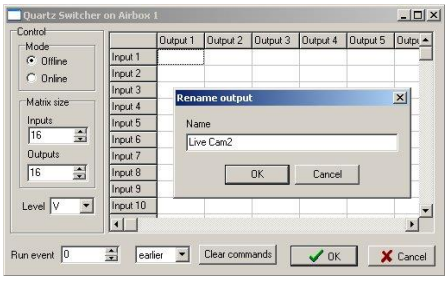
Double-clicking on a level will open a dialog, in which you can define its name, and the inputs' and outputs' numbers. Note that you cannot do this in *Online* mode. While in this mode the switcher deals only with the existing levels.

To define inputs and outputs of the selected level, mark and unmark the cross cells in the grid with a single click. Double-clicking on a column/row header opens a dialog for changing its label. If you want to delete all current commands (at all levels), use the ***Clear commands*** button. Note that it works only in ***Offline*** mode.

If ***Auto refresh*** is checked, the grid will automatically reflect the matrix status every time any of the switcher's Input/Output buttons is pressed. If not checked, you can update this information manually by clicking the ***Refresh*** button.

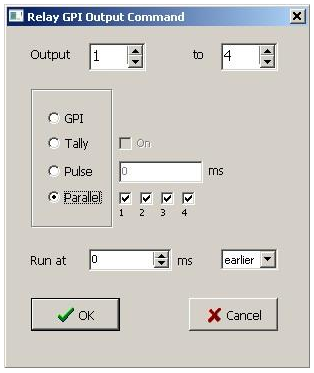
When in ***Offline*** mode, you can specify the delay/precession of the event in milliseconds. The corresponding strings are situated in the lower left part of the window.

Quartz matrix switcher Output



As in all other switcher events' properties, you can rename the Inputs and Outputs in the interface for easier navigation. For renaming, just double-click on the Input/Output and type the new name.

Relay GPI Switch output



This event inserts a line in the playlist to activate the *GPI Relay Output*. The following dialog box appears:

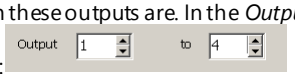
In the *Output* field select the number of GPI output, on which the signal will be sent. Then, select what kind of a signal to send by marking the respective radio-button – ***GPI, Tally, Pulse, Parallel.***

When you select ***Tally,*** the next *On* check-box becomes available:

. Check it in order to set ***Tally*** *On*.

If you select ***Pulse,*** a single pulse will be sent to the output. Enter the length of the pulse in milliseconds in the next field:

.

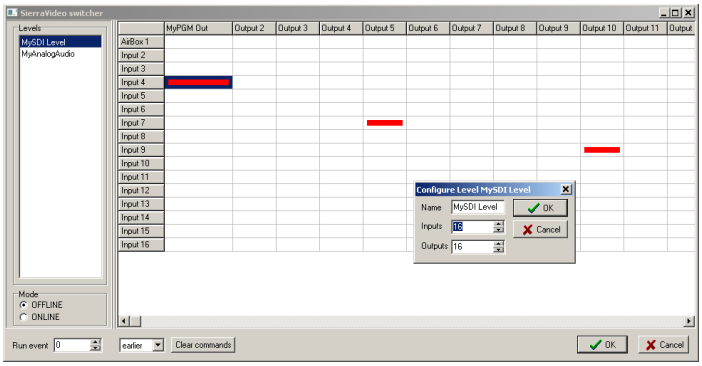
If you select ***Parallel,*** you can send the GPI signal parallelly to several outputs. In this case, you have to select which these outputs are. In the *Output* field enter the number of the first output, and in the *To* field enter the number of the last output, which will be parallel: 

. Small check-boxes, which represent the outputs, will appear next to the ***Parallel*** radio-button. Now, by checking the respective check-box, you can select the outputs:

.

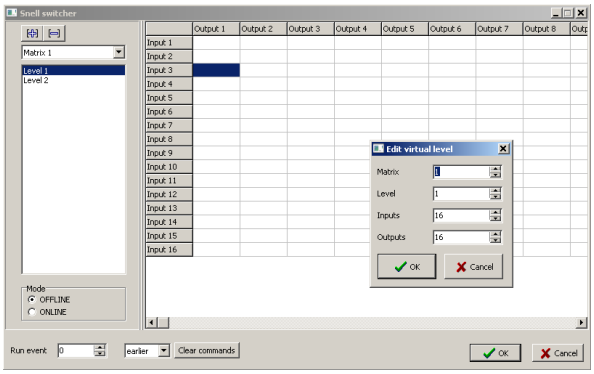
In the *Run At* field enter how many milliseconds *earlier* or *later* to execute this event.

Sierra Video Switcher Output



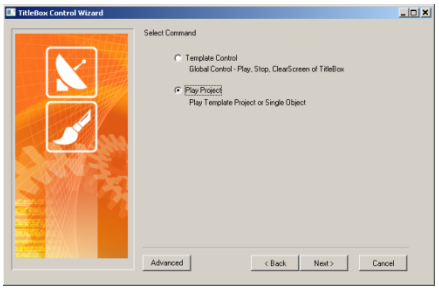
The Sierra Video Switcher Output event is another optional ***AirBox*** plugin. When you choose to insert such an event, the dialog to the right is displayed. Double-click on the relevant level to configure it (i.e., to specify the number of inputs and outputs in it) and click *OK*. Then, specify the commands in the grid (it will reflect your *Configure* settings). If you select the *Command* mode, you will have to click OK to insert the event in the playlist. In *Online* mode you can control the matrix switcher in real time. You can also set an event offset, if necessary.

Snell Switcher Output



This optional plugin is used to control Snell devices that comply with the SW-P-08 protocol. It uses RS-485 cables. COM port settings may vary for different devices. The matrix is configured in the same way as the Sierra Video Switcher event's one above. The only difference is that here you can set more than one matrix, in case you have more than one device.

TitleBox_NetControl_Output



This is actually a set of events, which is used to manage objects in ***TitleBox***. It could be a ***TitleBox* object,** which you would like to control from ***AirBox***, or a **command** for controlling a currently open project in ***TitleBox;*** or a combination between them. For a complete description of ***AirBox*** with ***TitleBox*** integration, see *Appendix-Integration of AirBox with TitleBox .*

The ***TitleBox*** *Control Wizard* appears after selecting **Edit** > **Add/Insert** > **Event** > **TitleBox NetCtrl Output...**. It will guide you through creating a ***TitleBox Net Control Output*** event. Follow the instructions and select the ***TitleBox*** project and/or object, and the desired action. You can evoke the Wizard also by right-clicking on a playlist row and selecting the relevant command from the drop-down menu (*Add/Insert Event >)*.

If you click the ***Advanced*** button in the lower left corner of the *Wizard*, the *Configuration dialog box* will open. There you can define more sophisticated settings of the event (offset, duration, color, or even the text of the text objects).

Configuration dialog box:

Template area: Here you can see the [General Commands] and a list of the available projects. Only the projects that have been previously saved as templates in ***TitleBox*** (**Network** menu > *Export project as Template*) could be managed from ***AirBox***.

General Commands:

Start– starts the project in ***TitleBox***.
Stop– stops ("freezes") the object(s) on the screen by ceasing the exchange of information with the graphics buffer.
Clear screen– clears the graphics frame buffer and hides all objects from the screen.
Reset– This command will stop and hide all previously displayed objects. This function would be useful if there have been other ***TitleBox*** events before the one you would like to insert and you do not know the display status of some object(s).

Slide show – this command triggers the Slide Controller in ***TitleBox***. You can choose between **Play, Stop, Pause**, or **Next** in the drop-down list to the right. Use the spin-box next to it to specify which slide you would like to control.

NOTE: The play and stop commands will be applied to the slide, whose number is specified in the spin-box!

EXAMPLE: ***Slide show*****[Play] [2]** would mean start showing slides from slide 2.
Slide show**[Stop] [3]** would mean stop slide 3 and continue showing the other slides in the project.

If you need to stop the slide controller, please insert a Project ***Stop*** command.

When you select a command, it appears in the mid-window field. To activate a command, check the box in front of its name. After selecting the command, click the ***OK*** button. The ***TitleBox*** command event will appear in the ***AirBox*** playlist.

When you select a ***TitleBox*** project, its objects appear in the lower property window. You can select one (or all of them) to be controlled from ***AirBox*** by checking the boxes in front of the objects. Select the **Command** field (*Play, Stop* or *Update).* The [*Update*] command is used for text items that have been changed after their recent use in ***AirBox***. In the fields to the right you can see the object's properties (duration, offset, effects, etc.). The *Offset* field allows you to set the time for earlier or later start of the object, according to the next video clip. After selecting the object(s), click the ***OK*** button. The ***TitleBox*** object event will appear in the ***AirBox*** playlist.

Channels

These correspond to the *TitleBox channel ID*, set in ***TitleBox*/Project > Options > *Network***.

Text Property area

You can type new texts of text objects in it.

NOTE: In order to use **TitleBox Net Control output** event, you have to start your ***TitleBox*** with **Net Control** function (**TitleBox** > **Network** > **Net Control**), where available (***TitleBox Light Edition*** *does not support this option*).

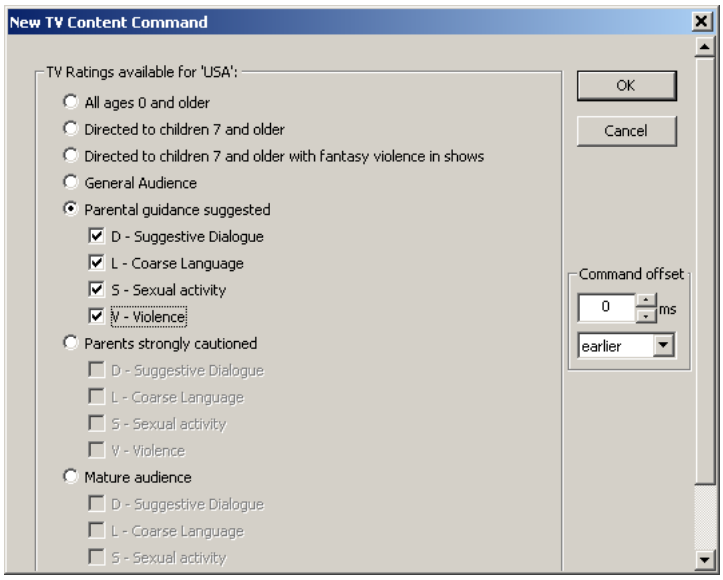
To control a project (its objects) from ***AirBox***, you have to create that project in ***TitleBox*** first, and export it as a template into the *Template folder* (***TitleBox*/Network** > **Export project as template**). The **Template folder** is created automatically during the ***TitleBox*** installation. If the ***AirBox*** module is installed on a different computer or you need to change the folder's location, then you have to start the **TitleBox Net Control Setup** (Programs > PlayBox Technology Ltd. > AirBox > PLNetInst.exe) after the installation of ***AirBox***.

Before clicking the ***Finish*** button in the TitleBox Net Control wizard, uncheck ***Split Command***. Thus, only one row will be inserted in the playlist.

***The screenshot below contains a Sample playlist, prepared with the Split Command option enabled*:** If you want to start **Crawl 1** (Row 15), **Roll 1** (Row 16)**,** and **Sequence 1 (Row 17)** from the **"*football*"** project, stop all objects, and clear the screen after two clips, the playlist should look like this:

TV Content Rating

This event allows the user to show a TV rating identification, depending on the country specific regulations. Be aware that if you select to insert such an event, you will be allowed to add content ratings for the country, configured in **Settings** > **Modules** > ***Remote Control*** > *TV Content Rating Configurations*.



Notice the example above. If you have selected USA for a TV content rating country, your event settings will look like this. In addition to the country specific settings that you can choose from, you can add a command offset by entering a value in the *ms* spin-box and selecting ***earlier*** or ***later*** from the drop-down menu.

Universal Matrix Plugin

This event activates *Universal Matrix Controller (UMC)*. For more information about the *UMC*, download the Universal Matrix Controller user manual, available at www.athensa.tv.

Utah Master Control Output

This event activates the **Utah Master Control Output**. Before adding/inserting such an event, you should enable the plug-in and configure the device from **Settings** > **Modules** > ***Remote control*** > *Utah Master Control Output.*

The graphic user interface mimics a physical control panel. Click the Off line/On line button to toggle operation mode.

The switcher buses section of the dialog (to the left) represents the output buses of the switcher - preview and program bus, as well as the presets bus.

PVW – preview bus (16 selection buttons)

PGM – master program bus (16 selection buttons)

PST – preset bus (16 selection buttons)

TIP: Ctrl + click a bus button to change its number/name. The new name will be applied to the corresponding buttons on the other buses as well.

The keyer control section of the dialog (top-right) contains 4 key inputs. Each key can operate in one of the following modes **Self** (the same input signal is used for key cut and key fill), **Ext** (external key signal is used, e. g. from a character generator), and **Logo**. You can select from up to 15 logo presets in

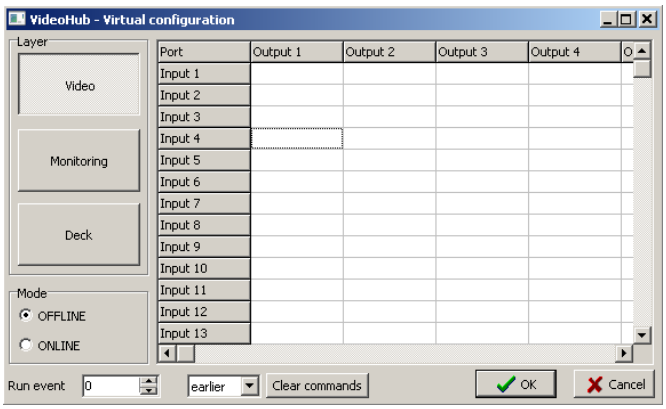
the drop-down menu below. The default key configurations matches the one of the physical device. To enable/disable a key, click the button below the ON AIR indicator to toggle between ON/OFF.

The transition controls section of the dialog contains 4 buttons for transition speed (top) and 4 buttons for transition type (bottom). The transition controls section of the dialog contains 4 buttons for transition speed (top row) and 4 buttons for transition type (bottom row).

The following transition types are available (from left to right) – **Cross-fade**, **V-fade**, **Fade-Cut**, **Cut-Fade**.

When you operate in offline mode, click ***OK*** to apply the changes in the event setup. In on-line mode, Click ***TAKE*** to swap from preset to program instantaneously.

VideoHub Switcher Output

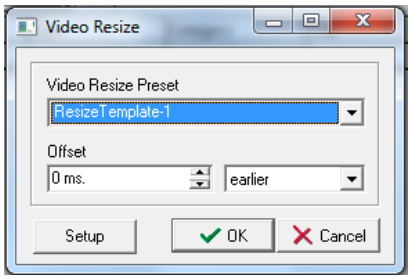


This event activates the **VideoHub Switcher**. Before adding/inserting such an event, you need to configure its settings from **Settings > Modules > *Remote control*** > *VideoHub Switcher Output*.

The ***Configuration*** dialog consists of three main Layers: ***Video***, ***Monitoring***, and ***Deck***. Click on the respective buttons to set their individual matrices. The ***Video*** and the ***Monitoring*** layer are controlled by an *SDI Input/Output*. They share the same Input port but have different Output ports. The Deck layer, on the other hand, is controlled via serial port *RS-422*.

Other than that, the **VideoHub** matrix is operated in the same way as all other external event matrices.

VideoResizeCtrl Output



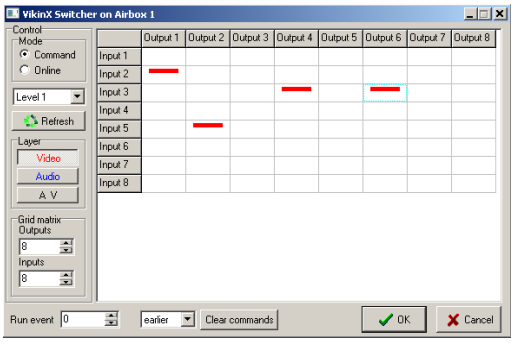
This event will resize the video output according to the pre-defined preset, selected from the **Video Resize Preset** drop-down list.

From the options below you can specify the event offset in milliseconds, as well as whether the event offset should be applied before or after the beginning of the clip that follows the event in the playlist.

The *Video Resize Presets* drop-down list contains all presets created in the **Settings** > **Modules** > ***Remote control*** > *Video Resize Ctrl Output* configuration dialog. When you use this option for the first time, the list will be empty. You can also access the configuration dialog through the ***Setup*** button in the **Video Resize Control event** dialog.

NOTE: The Video Resize option is available only for the **Multi-format playout** plug-ins in ***AirBox.***

VikinX Matrix Switcher Output



This external event controls *VikinX*, a *NetworkElectronics model switcher*. Similar to other matrix switchers, it has two operation modes: *Command* and *Online*.

While in ***Command*** mode, you can configure the combination of the matrix switcher and click *OK* to add the event in the playlist.

In *Online* mode, you can control the inputs/outputs in real time, just by clicking the relevant cell in the switcher grid.

You can specify the number of inputs/outputs in the grid by using the relevant buttons in the dialog. In its lower left part, specify the delay/precession of the event in milliseconds.

Using switcher servers

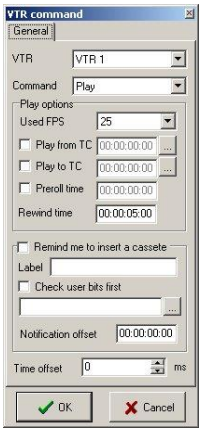
You can control one switcher from numerous ***AirBox*** servers by using a ***switcher server*** add-on.

EXAMPLE:
Configuring a Quartz matrix plug-in to send commands to the ***Quartz Server*** add-on:
On the **Settings** menu, go to **Modules**, then go to the ***Remote*** tab. Select the *Quartz Matrix Switcher output* row. Click ***Configure*** to open the setup dialog, select *Remote switcher mode* and enter the IP address and port of the switcher server.
The ***switcher server*** will receive all commands, coming from ***AirBox*** units in the local area network, and will control the switcher accordingly.

The plug-in configuration steps in the example above are similar for all switchers. For more information about each particular plug-in, go to the plug-in description in the Settings > Modules > Remote control section.

NOTE: When using a matrix server, you have to start the server before running the ***AirBox*** channels that will send commands to it.

VTR Control plugin



Although ***AirBox*** was designed as a file-based playout engine, now you can control up to 2 external VTRs through *RS422* for tape-based playout. All you have to do is insert a VTR control event in the playlist.

The VTR command dialog consists of two tabs – General and Advanced. In the ***General*** tab you have to specify to which VTR ***AirBox*** will send the command and the action to be executed upon its receipt (Play or Stop). The Play-related settings are situated below:

Select the temporal resolution of the tape in the *Used FPS* drop-down list (frames per second).

If you would like to play a tape from one point to another, check ***Play from TC*** and ***Play to TC***, and specify the initial and the final timecode. In this case you will have to specify the maximum Rewind time (in milliseconds). Make sure not to insert another VTR control event for this particular VTR within the framework of this period (here -60000 msec.). Otherwise, a tape position conflict might occur and the earlier event will not be executed properly.

When you check the ***Remind me to insert a cassette*** box, you will be prompted to insert a cassette. Enter a note in the string to the right. Use the ***Check user bits*** checkbox to define the user bits of the cassette. You can also browse for them by clicking the … button to ensure that the right cassette has been inserted. In the ***Notification offset*** string specify how much time before the event ***AirBox*** will remind for the cassette insertion.

Different VTR brands have different command reaction times. Find out how many milliseconds it takes your VTR to react to the command, sent from ***AirBox*** and enter this value in the *Time offset* spin-box. Once you do this, the command will be sent a little bit earlier, to guarantee seamless switching from ***AirBox*** to VTR playout.

TIP: You will need a switcher to change between the ***AirBox*** and the VTR playout. Therefore, a Switcher Event should always be present in the playlist before or after the VTR control event, unless you decide to switch manually. You could use the Complex events feature to create presets for later use (see the Complex Items section further in this manual).

NOTE: Like all other External events, the VTR plug-in must be enabled first in the **Settings** > **Modules** > ***Remote Control*** tab.

NOTE: Since the VTR control is executed through the PC COM port, you will need an RS232 to RS422 converter, such as Addenda or Leitch.

WARNING: The Deck Control connector, supplied on the DeckLink breakout cable is NOT supported!

STATUS BAR

The status bar is located at the bottom of the ***AirBox*** window:

The *Total Duration* field shows the total playlist duration.

The *End At* field shows the time, when the playlist will end (if not looped, of course).

If there is a ***question mark*(?)** after *Total Duration* and *End At*, this means that there are missing files in the playlist, and their duration is included in the total duration (i.e., the actual total length of the playlist is less than and the end-time is earlier than displayed). You can choose whether the duration of missing files should be included or excluded from the total length by checking the relevant box in **Settings** > **General** > ***Missing Files*** > *Show duration of missing files*.

NOTE: In case there is a question mark in the *Total Length* and *End At* fields, the displayed total duration and end-time are NOT the real ones, since the missing files will be skipped during the playback.

If there is an ***exclamation mark* (!)** after *Total Duration* and *End At*, this means that there are missing files in the playlist, and their duration is not calculated in the total duration (i.e., the duration of the missing files is considered to be zero in the playlist).

TIP: You can set ***AirBox*** to notify for the existence of missing files in the playlist by blinking the *Total Duration* and *End at* cells in red. Besides, an audio alarm can be set off through the PC sound card. See **Settings** menu description > **General** section for details on how to enable these notifications for Missing files.

The *Selection* field displays the cumulated duration of the currently selected items in the playlist.

The fourth field of the **Status Bar** shows the hardware module that is currently used for playout. If it displays [None], please, check whether the appropriate module is selected in **Settings** menu > **Modules** > ***Output*** tab.

PLAYBACK CONTROL AND COUNTERS

- The **Master counter** shows the elapsed time of the current playout session. Clicking the ***Stop*** button resets the counter. The title of the currently playing clip is displayed below the running time code. This is quite useful in case the row played is out of the visible grid range.

TIP: To view the currently playing clip in the beginning of the grid, just click on the **Master counter**. This will shift the playlist items by placing the currently playing clip at the top of the list. If you want to view the clips before it, use the arrow keys on your keyboard.

- The **Clip counter**s situated under the master counter. It can operate in two modes, count-up and count-down mode. Just double-click on it to switch between them!

The playback control buttons are situated below the Clip counter:

- ***Play*** – starts the playback
- ***Stop*** – terminates the playback
- ***Pause/Resume*** – temporary interruption/resuming of the playback. The playback resumes from the same point.
- ***Next*** – immediately stops the currently playing clip and switches to the next clip in the playlist. This happens with a smooth cut without any sound or visual artifacts.
- ***Return*** – this button is active only after a **Jump** has been executed. Use this button to return to the position before the last Jump.
- ***Jump*** – immediately terminates the currently playing clip and starts playing the one that is selected, regardless of its position in the grid.
- ***Cue*** – interrupts the playback and pauses on the first frame of the selected clip. You can also activate it by holding down the **<Ctrl>**key and clicking the ***Jump*** button at the same time. Use this to prepare a playback clip while displaying its first frame on the output. Since this is a machine-and-decoder-dependent function, you may have to increase the *Cue Delay* time from the **Settings** dialog box **(Settings** > **General** > ***General***→*Cue delay*).
- ***Automation*** –this button allows you to enable/disable the incoming external triggers (GPI input, DTMF tones). When Automation is OFF, the incoming commands will be ignored.
- ***Reset hardware*** – resets the hardware driver. If, under any circumstances (bad MPEG media or bad system setup), playback is distorted so badly that normal ***PLAY*** and ***STOP*** commands cannot help, use this button to reset the hardware decoder.

NOTE: This button is not visible by default! In order to show it, go to **Settings** menu > **General** > ***Interface*** tab and uncheck *Hide reset hardware button*.

WARNING: Clicking the ***Reset hardware*** button will interrupt the playback!

PLAYLIST CONTROL BUTTONS

Most of these buttons actually duplicate the commands, found in the **File** menu and **Edit** menu. Position the mouse pointer over any of the buttons to see a hint with its name. Playlist control buttons/ commands include the following:

New playlist (open ***ListBox***);

Open existing playlist;

Save playlist/ ***Save*** playlist ***as…***

Save playlist ***as Daily***. This button will be greyed-out if you have not specified a daily playlist folder in the **Settings menu > Start Up.**

Add clip at the end of the playlist/***Insert*** a clip above the currently selected line.

Delete the currently selected clip from the playlist.

Clear playlist (remove all lines from the playlist).

Use these buttons to ***Move*** the currently selected clip(s) up (before the previous clip) or down (after the next clip) the playlist even during playback.

NOTE: You cannot move a clip above the currently playing one.

Reset playlist position. If the current playlist has been started and then stopped, the clips that are already played are colored in grey and their order cannot be changed. Moreover, next time you click the ***PLAY*** button, playback will start from the first black (not played yet) clip. If you press **#**, the playlist will be reset, and the next time you click ***PLAY***, the playback will start from the very beginning of the playlist. Simply put, this is a kind of "playlist rewinding".

Randomize selection – click it to re-arrange the currently selected clips in a random manner.

This button will display the ***Properties*** of the currently selected line.

While a clip is selected in the playlist grid below, click this button to open the ***Clip Trimmer***.

Undo up to 6 latest actions.

THE VOLUME SLIDER

Probably the less noticeable part of the user interface is the *Volume slider*. It is situated between the multi-purpose zone and the playback control buttons. It is used to compensate for different sound volume in separate clips. You can control it with the [+] and [–] numeric keys on your keyboard, or just by dragging the slider. Check the box under it to mute the output sound.

This Volume Slider is connected to the slider, situated in the Volume control window. If you move the slider from here, it is moved in the Volume Control window too.

TRIMMER SERVER

The trimmer server starts upon ***AirBox*** start-up. It was developed for two major purposes:

1. To enable working with the main ***AirBox*** interface while the Clip Trimmer is open.
2. To eliminate the possibility of interfering with the on-air playback process.

The Trimmer is described in details in the Clip Trimmer chapter further down this manual.

NOTE: You can open only one Trimmer per instance!

MENU BAR

FILE MENU

The File menu contains all playlist file-related commands:

New Playlist

This command evokes the ***ListBox*** module – it opens a new blank playlist for editing.

Load playlist

Loads an existing playlist file (**.ply*). You can also open a *Dalet Automation XML* playlists (**.xml*).

WARNING: Loading a playlist on the currently playing ***AirBox*** window will stop the playback. A warning dialog will appear each time you try to do so.

Append playlist

This item appends another playlist to the end of the currently loaded playlist.

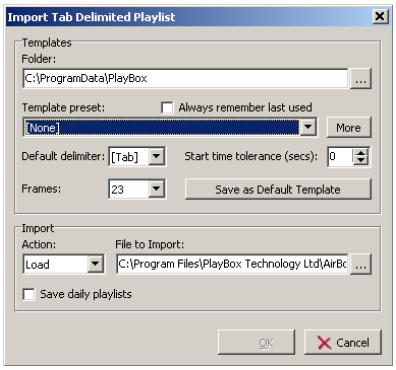
Insert playlist

This menu item inserts another playlist in the currently loaded playlist, above the currently selected row.

Import playlist

By using this feature you can import third-party playlists in ***AirBox***.

Import a tab-delimited file



This menu item allows importing all kinds of tab-delimited text files. All you have to do is "tell" ***AirBox*** what the different columns of the imported file contain. The dialog to the right appears upon selecting this menu item. The ***OK*** button will not be active until you fill in all the strings.

The ***Import Tab Delimited Playlist*** operates by using playlist structure templates, previously created by you.

Use the browse button to the right of the *Folder* string to specify the location for saving your templates. You can check *Always remember last used*.

The *Template preset* drop-down list contains all of the templates, saved in this folder. When you open it for the first time, there will be no templates to load and [None] will appear in the string. You will have to create them first (see next page).

The *Default delimiter* is used to select how the columns are separated in the file to be imported (tabs, semi-colons, etc.).

The *Start time tolerance* spin box is designated for usage when the playlist for import contains fixed start time entries. This means that if there are some conflicting start times that are out of the allowable tolerance, then no fixed start time events will be created during the playlist import. This value is valid both for earlier, and for later start tolerances.

EXAMPLE: If you enter 10 seconds here, this will be interpreted as ± 10 seconds.

The *Frames* drop-down list allows you to select the number of frames per second in the files to be imported.

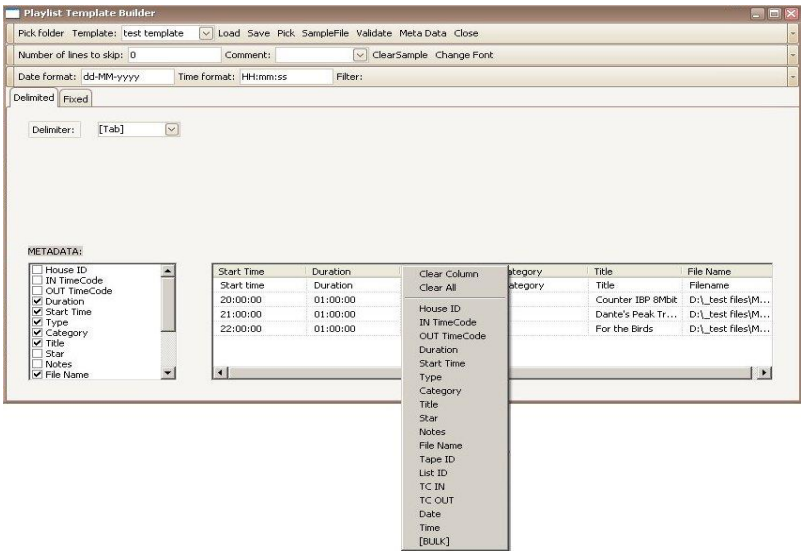
In the *Action* drop-down list select whether to ***Load***, ***Insert***, or ***Append*** a playlist.

If you check ***Save daily playlists***, the dialog will become extended, so that you can specify a folder and *Playlists start time*.

In the *File to Import* field select the file you wish to import via the browse button next to it.

You can save the imported playlist as a default template by clicking the ***Save as Default Template*** button.

Click the ***More*** button in the *Templates* field to create/modify your playlist template. The following dialog will open:



In the *Template* field, enter the template name. Use the ***Sample File*** button to select an example of the text file that will be imported with this template.

In the *Number of lines to be skipped* cell, enter the relevant figure (for example, -1). The skipped lines will be colored in red.

Comment– fill in a symbol to appear in the beginning of a row to be skipped from the playlist.

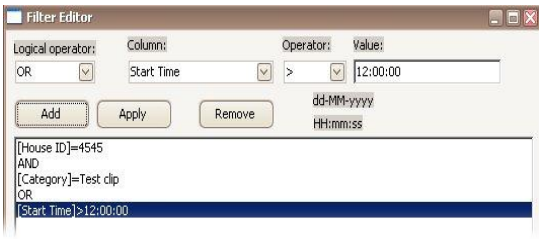
Go to the uppermost cell of each column, click once on it and "tell" the ***Template Builder*** what it contains (select from the drop-down list). Use [BULK] for the fields to be skipped (such as duration, etc.) to comply with the ***AirBox*** playlist structure.

When you are ready, click ***Save***.

Pick – click it to use the current template for the file you are going to import.

If you already have some templates and you select one of them from the drop-down list, click the ***Load*** button to load it (its settings will be displayed in the grid).

Validation – click to verify that your template is compatible with the file you are going to import (a browse dialog will open for you to print to that file).



If you need to use another sample file, click the ***Clear Sample*** button and then load the new sample. If you do not clear the old sample first, the new file will be appended to the end of the old one.

The third uppermost row of this dialog is dedicated to the daily playlists. There you can see the date and time format for su ch represented lists. In case you have to import playlists that are longer than 12 hours, use the ***Filter*** button to split them. Upon clicking it, the following dialog opens:

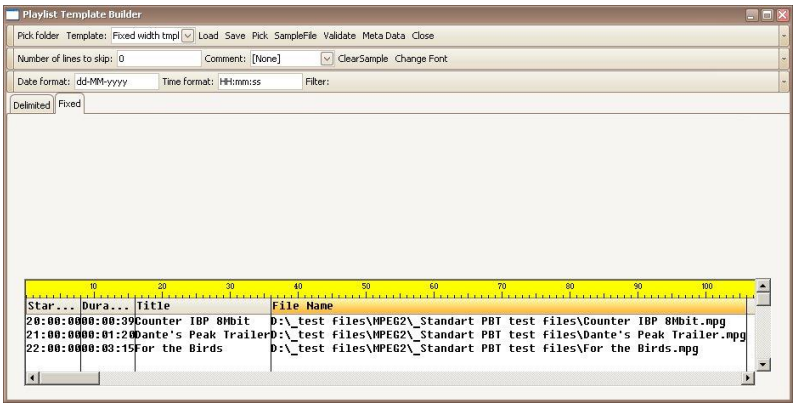
Here you can indicate some values of the clip, which will be used as a split point (for example, [House ID], [In] and [OutTC], [Category], [Title], etc.). Use the ***Add*** button to add these values as filtering conditions for splitting the playlists, and the ***Apply*** and ***Remove*** buttons respectively to confirm the usage of the created conditions, or to remove them.

Back in the first dialog, select a template preset from the drop-down list (now you should have at least one, built in the ***Template builder***). Click the ***browse*** button to point to the *File to Import* and click ***OK***.

You can set the currently selected *Templates folder* and *Template preset* as default, by clicking the ***Save as Default Template*** button.

Import playlists with fixed-width data fields

In addition to the existing schedule import engine for tab-delimited or **.csv* (Comma Separated Values) files, a new schedule type will be available for import – flat text with fixed-width data fields. For importing such playlists, go to **File Menu** > **Import playlist...**. Then, click on the ***More*** button and select the ***Fixed*** tab, situated in the fourth uppermost horizontal bar to open the dialog below:



Here you can set/modify a template, which tells ***AirBox*** how to interpret the fixed width text file, containing the playlist. In the *Template* drop-down list, type the template name. Click on the ***Sample File*** button to select an example of the text file that will be imported with this template. This text file will be loaded in the data preview field, which is situated at the lower part of the ***Playlist Template Builder*** dialog. The actual columns in this sample text are

not separated. Each of them contains a fixed number of symbols. To define the columns' width, you have to signify column breaks. For the sake of convenience, there is a symbol-related ruler.

- To create a break line, left-click in the desired position.
- To move a break line, click on it and drag it.
- To delete a break line, double-click on the line.
- To increase and decrease the width of the created grid, use the mouse scroll.
- When you move the mouse along the window, an indicator will be displayed near the mouse pointer. It counts the symbols, including spaces and special characters, from the beginning of the ruler to the current position of the mouse pointer.
- After separating the columns, left-click within the bar under the ruler to specify what kind of data the relevant column contains (for example, **Title**, **Filename**, **Duration**, etc.). Click on the ***Save*** button to save the template, and on the ***Pick*** button to load it.

Save playlist

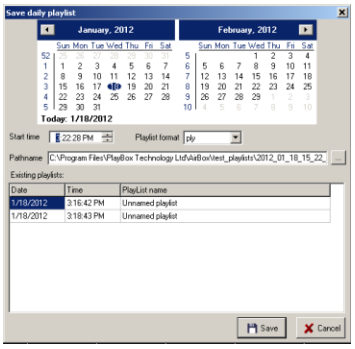
This command saves the current playlist file. The saved file contains the names of all clips arranged by their running numbers in the grid, as well as some additional attributes, like *playlist name, loop status*, etc.

Save as

This command saves the current playlist to a file. Except for our generic playlist format (**.ply*), now you can save your playlists to XML files as well.

NOTE: The XML playlist has a generic ***AirBox*** format. Therefore, you cannot load any XML file as a playlist!

Save daily playlist



This menu item saves the current playlist in compliance with the naming requirements for daily playlists. This saving option will not be active if you have not specified a *Daily playlist folder* (see **Settings** menu > **Start Up... >** Start Up playlist).

WARNING: When using fixed time events in daily playlists, the playlist should start and end within the same calendar day (i.e., the daily playlist should not go beyond midnight). Otherwise, we cannot guarantee the proper operation of the fixed time logics and the daily playlist logics.

WARNING: We strongly DO NOT recommend using stop events and live streams without duration in daily playlists. The reason is that in case of accidental shut down, there is no way to calculate the duration of these items and thus, to determine the insertion point. So, ***AirBox*** will not be able to catch up with the schedule. You can still use them in daily playlists, but at your own risk.

To avoid daily playlist logic conflicts, make sure your settings meet the requirements below:

1. Playlist pre-cache should not be longer than the playlist change period.

EXAMPLE: If playlists are changed every 10 minutes, the pre-cache must be shorter than 10 minutes. If the precached time is set to 1 hour, then the playlist change interval must be longer than 1 hour.

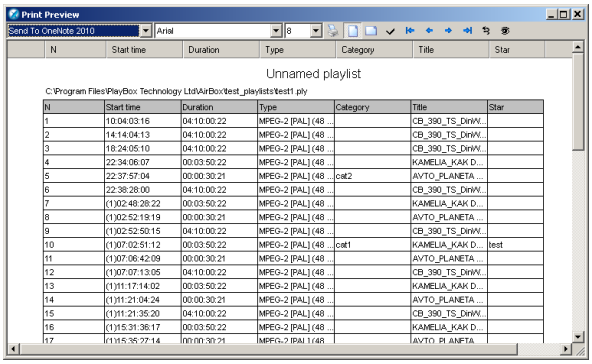
2. Playlist startup tolerance must not be longer than/equal to the playlist change interval.

EXAMPLE: If playlists are changed every 10 minutes, the startup tolerance must be shorter than 10 minutes. If the startup tolerance is set to 1 hour, then the playlist change interval must be longer than 1 hour.

3. Playlist change interval must not be shorter than the longest clip in the playlist.

4. Playlist precache time must be longer than the longest clip in the playlist.

Print playlist



Both ***AirBox*** and ***ListBox*** provide the option of printing the current playlist. After choosing the **Print** command, a ***Print-Preview*** window opens and displays the current playlist**.** The columns and their order of appearance are the same, as in the grid.

In the ***Print Preview*** dialog, you can change the columns' size and adjust the following settings:

The drop-down list to the left contains all currently connected printers. Here you can select which printer to use.

To the right of it, you can select the *Font type* and *Font size* of the printed document

- ***Print*** – click this button to start printing the playlist.
- ***Page Orientation*** buttons – you can choose between Portrait and Landscape.
- ***Selection*** button – click to print only the rows that have been previously selected in the grid.
- The ***Name*** of the printer (it may be a local or a network-connected printer).
- ***First page/Last page*** buttons – respectively go to the first and the last page of the content to be printed
- ***Go to previous page/Go to next page*** buttons – respectively visit the previous and the next page of the content to be printed
- ***Refresh Table*** button – click it to update the view.
- ***Auto-size Columns*** button – click it to automatically fit the columns' width to their content.

Export playlist as XLS

Use this option to export your playlists to comma-separated value (CSV) **.xls* files.

Export Logs in XLS files

If you need to convert the tab-delimited log files to XLS format, click on this menu item. A browse dialog will open for you to select which log to export – just select it and click ***Open***. The resulting **.xls* file will be saved to the same directory.

Export capture list

If there are missing files in the playlist, invoking this command will create a list of missing clips for capturing in a **.cap* file. Exported **.cap* files are ***CaptureBox*** compatible.

Reload graphic Rules

The graphic rules are saved in a **.dat* file in the ***AirBox*** program directory. The graphic rules of the first ***AirBox*** instance (channel) are saved in the *GraphRules1.dat* file. The rules for the second ***AirBox*** instance are saved in a *GraphRules2.dat* file, and so on. This **.dat* file is loaded upon ***AirBox*** startup. If you want to change the graphic rules without stopping the program, overwrite the relevant *Graphrules#.dat* file first. Then, go to **File** menu > **Reload graphic rules.**

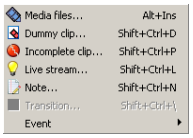
Rescan file duration

Use this command to rescan the durations of all files in the playlist.

EDIT MENU

This menu contains all playlist- and clip-editing commands, available in ***AirBox***. You can find the most important of them also in the drop-down menu that appears upon right-clicking in the playlist grid.

Add/Insert

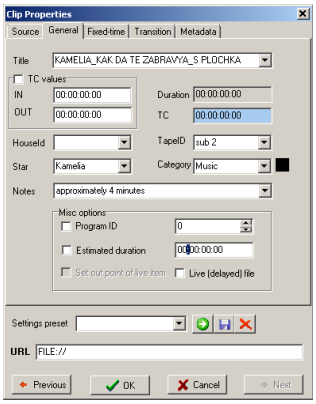


Both commands provide the same action list. The difference is in the insertion point in the playlist. While an **Add** command will add the selected event at the end of the playlist, the **Insert** command will insert the selected event above the currently selected line.

Media Files

Adds/Inserts existing clip(s) in the playlist. Browse in the dialog opened to point which clip(s) you would like to append or insert.

Dummy Clip



The **Dummy Clip** opens a dialog box for adding or inserting "virtual" clips in the playlist. You can use this option when you want to build your playlist prior to receiving a clip, whose properties are already known. ***AirBox*** will mark it as *Missing*, but when it becomes available, it could be used right away.

Use the ***Source*** tab to fill in the Location of the clip. You can read more about it in the ***Clip Properties*** dialog > ***Source*** description.

In the ***General*** tab, fill-in the *Title* of the clip. The *IN* and *OUT* points, the *Duration*, and the *Timecode* are also editable. If you want you can write the *Category*, *Star*, and *Notes*. You can make the module remember each last string entry by checking the box next to its row. If you want, you can select the *File type*, or leave it as *Auto*. Read more about it in the ***Clip Properties*** dialog > ***General*** description.

NOTE: If you do NOT know the *Duration* of the clip you would like to add as a **Dummy Clip**, you can put a random number in the Duration field. When the clip is present, ***AirBox*** will automatically update its duration, as long as the following conditions are satisfied:

1. The *Auto update clip's duration* option is checked in **Settings** menu > **General** > ***General*** tab.
2. The following phrase is added in [HKEY_CURRENT_USER\Software\DigitalMediaTechnologiesLtd.\PlayBox\2.0\AirBox 1]:"OverwriteOutpointOnAutoUpdate"=dword:00000001
3. Steps 1 and 2 are done for each ***AirBox*** instance, for which you would like to use that option.

If one or more of the above conditions are not fulfilled and the *Duration*, set for the **Dummy Clip** does not correspond to the actual duration of the clip, the clip will be trimmed accordingly.

Use the ***Fixed-time*** tab if you would like the **Dummy Clip** to start at a specific point in time. Check the ***Clip Properties*** dialog > ***Fixed-time*** description for details on fixed-time settings.

Use the ***Transition*** tab to define transition settings for your dummy clip, if you wish. You can read more about it in the ***Clip Properties*** dialog > ***Transition*** description.

Add some more info about the file in the ***Metadata*** tab. You can use this info later, in the graphic rules functionality. Check the ***Clip Properties*** dialog > ***Metadata*** description for details about Metadata description.

Incomplete Clip

Just as the **Dummy Clip**, this menu item opens the Clip Properties dialog.

Usually, the incomplete clip is still being captured at the moment of playback. You need to create such an *Incomplete clip* entry in the playlist and check *Live (delayed) file*. At a given time you start capturing this clip to the specified location, and once there are a few seconds of it, available on the storage, ***AirBox*** marks it as a valid clip and it can be played immediately. Thus, capturing and playback proceed simultaneously. If you want to predefine the file length despite its real length, check *Set out point of live item*. With this setting the file will be played exactly until the time you have specified, even if it is longer.

NOTE: The TDIR option is hardware-dependent. See also Using the TDIR option in the Capture Mode section.

Live stream

A live event could be either a UDP stream, or a Live video stream, as selected in the *Type* field of the ***Source*** tab. The live video stream comes from a video source, defined in ***Live Input*** from **Settings** menu > **Output** > ***Live Inputs*** tab.

NOTE: The name is case sensitive.

If you are going to use some transition in the beginning of the event, select the ***Transition*** *Type* and ***Transition*** *Duration* in the relevant fields in the ***Transition*** tab.

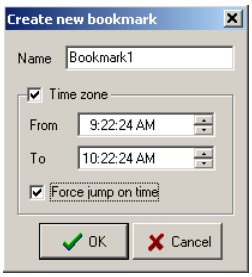
The *URL* field (the command for ***AirBox***) is generated automatically as you type in the above fields (for ***UDP*** or for ***Live*** stream). You could also enter a command directly in the *URL* field.

If you use streams (***UDP or Live***) that come from the same sources, you could create some presets via the *Preset* field at the bottom of the dialog window. Thus, the next time you need the stream, you can just insert the relevant preset instead of setting up the whole information again. Read more about the preset option in the ***Clip properties*** section above.

You can also configure the ***Fixed-time***, ***Transition***, and ***Metadata*** settings of the above events. For detailed information about these options, please read the relevant sections above.

Live Viewer is a tool, which shows a preview of the defined streams in ***AirBox***. First you have to define streams in ***AirBox***, then, after starting ***Live Viewer***, you can select your desired streams.

Bookmark



This is a special virtual item that can be used as a target point for incoming triggers (GPI input or DTMF input) or by itself. It will cause ***AirBox*** to **Jump** to the following item in the playlist, according to several additional conditions as described below.

The bookmark properties dialog contains a *Name* string and a *Time zone* area. When inserting bookmarks, you must enter a *Name*, and you can optionally enter a *Time zone* as well, depending on your needs.

The time zone represents a validity period of the relevant bookmark. It can act as a target for GPI or DTMF input (when [Jump to bookmark in time range] is selected as a command in the relevant setup dialog).

When *Force jump on time* is checked, the bookmark will act as a fixed time event and ***AirBox*** will jump to it when its time is through. This can happen in two cases: if the expected trigger does not arrive until the time specified in the *To* string, or when you are using bookmarks alone in the playlist.

EXAMPLE: A jump operation will be executed to the bookmark in the screenshot at 16:36:32 o'clock, if the expected trigger has not arrived by that time.

WARNING: Please, note that the *To* string will force ***AirBox*** to jump and execute the following items in the playlist. This might interrupt the playback order, so be careful when checking *Force jump on time* in bookmarks!

There are several possible scenarios when using bookmarks and **DTMF/GPI** triggers combined:

When the **bookmark Name** is used as a reference, i.e. the DTMF/GPI command is Jump to bookmark:

- If there is a Time range, specified in the bookmark's properties and the trigger comes within this time range – ***AirBox*** will jump to this bookmark.
- If there is a Time range, specified in the bookmark's properties and the trigger comes outside this time range – ***AirBox*** will ignore the command.
- If there is no Time range, specified in the bookmark's properties, ***AirBox*** will jump to that bookmark unconditionally upon receiving the trigger tone/pulse.

When the **Time zone** is used as a reference, i.e. the DTMF/GPI command is **Jump to bookmark in time range**:

- If the trigger comes within the time range – ***AirBox*** will jump to this bookmark
- If the trigger comes outside the time range – ***AirBox*** will jump to the nearest following bookmark, according to the system clock.

WARNING: Please, make sure to set the *Time zones* correctly, since late arrival of the DTMF tone will cause ***AirBox*** to jump to the next bookmark, thus possibly skipping some of the items that are situated between the two bookmarks, as in the following example:

If a bookmark's *Time zone* is set From 15:36:32 To 16:36:32 and the DTMF tone does not arrive, ***AirBox*** could jump to the following item in the playlist at 16:36:32. If the DTMF tone arrives at 17:00:00, ***AirBox*** will jump to the next bookmark in the playlist that has a later *Time zone*, thus skipping some of the clips that are between the two bookmarks.

WARNING: DO NOT use fixed time events within a bookmark's time range!

Note

Adds/Inserts a comment line in the playlist.

Transition

This feature **Adds/Inserts** a transition into the playlist. You can read a more detailed description of ***AirBox*** events in Clip Properties > Transition.

Event

This feature **Adds/Inserts** events into the playlist. You can read more detailed descriptions of ***AirBox*** events in the section AirBox Events.

Delete Commands

Delete current from list

This item removes the currently selected clip from the playlist.

Delete unsupported clips

This command will remove all unsupported clips from the current playlist. It is used mainly when you import online media library files in your playlist. The OML files might contain **.avi* and **.wav* files. Both types are inserted in the playlist (using the Import tab delimited functionality from the **File** menu). ***AirBox*** will consider the **.wav* files as an unsupported format, so use the **Delete unsupported clips** command to cleanup your playlist.

Clear List

This command removes all clips from the playlist.

Clip Trimmer

Opens the Clip Trimmer. It allows previewing, non-destructive trimming, and exporting parts of the currently selected clip to new files.

Clip Properties

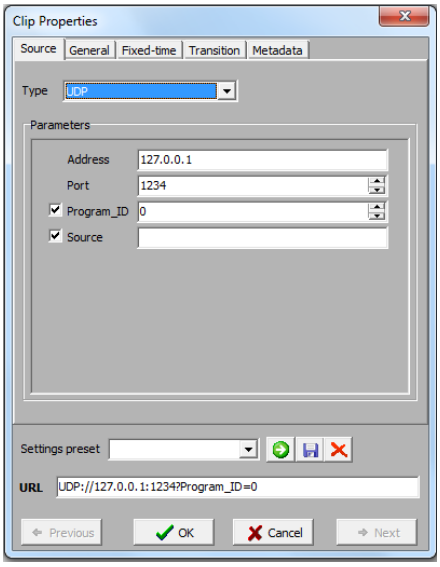
Playlists consist of clips and events. General information about each clip is displayed in the playlist grid. For additional clip properties, including metadata, right-click on the clip in the playlist grid and select Clip Properties from the drop-down menu.

The *Clip Properties* window has five tabs: ***Source***, ***General***, ***Fixed-Time***, ***Transition***, and ***Metadata***. Each tab is described in detail below.

You can also access the clip properties dialog via the **Edit Menu**.

TIP: Click the down-right corner of the dialog window and drag to resize it if the text in the fields is too long to be displayed in full.

Source



The **Source** tab contains a basic clip description. Select the type of *Type* fields shows whether the input is from a ***File***, a ***Live***, or a ***UDP*** source.

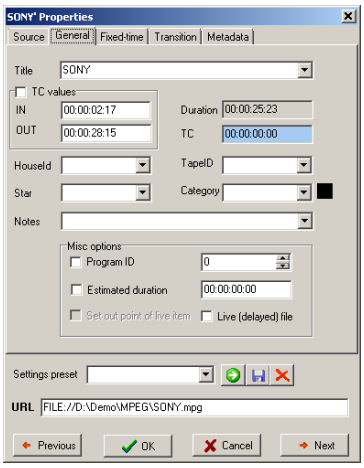
If the input is a ***File***, the *Parameters* field shows the file *Path*.

If it is a ***Live*** source, then the *Address* of the source is indicated in the field below. This Address corresponds to the *Name* of the live stream, as it is defined in the **Settings** > **Output** > ***Live Inputs*** tab.

When the Type of the source is ***UDP***, by default, and the user can enter the *IP Address* of the source machine and the number of the *Port*, which receives the input. There are also two additional options for this type of input:

Program ID – if you check this box, you can to choose which program to be output by ***AirBox***, if the stream has more than one channel.

Source – check this box if the source broadcasts more than one stream, to be able to enter the *Source* Address of your desired stream.



General

The first line in the ***General*** tab contains the *Title* of the selected playlist item.

The *IN*, *OUT* and *Duration* strings contain the IN point, OUT point, and clip duration data. You can change these values in order to make your clips shorter. The *Duration* is calculated automatically from the *IN* and *OUT* values. Furthermore, if you change the *Duration*, the *OUT* point will adjust accordingly.

If there is information about the time-codes of the first and last frame in the clip, you can check the *TC Value* check-box and then into the *IN* and *OUT* strings you will see these time-codes.

The *TC* field is necessary when there are subtitles to be displayed together with the clip, as the time code is the reference for displaying them. If you change the *TC* value, it will be saved in the playlist for future use.

When you use subtitles, you should also enter a *Tape ID* value – read more about this value in the **SubtitleBox** section further in this manual.

You can view and edit the *House ID*, *Star*, and *Category* information in the relevant strings. The colored square next to the *Category* string represents the color, which will be displayed in the **Category** column of the playlist. You can change this color by double-clicking in the square.

Use the *Notes* string to type your notes about the clip.

NOTE: Content metadata fields, like *Category, Star, Notes,* could be filled directly into the ***AirBox*** playlist. In this case, the information is saved only for the current playlist. If you use the same file in the new playlist, you have to enter metadata again, unless you have saved it via the *Settings preset* field.

It is also possible to keep all metadata in ***DataBox***. Then, when you create a playlist by drag and drop files from ***DataBox***, the metadata will be transferred too. You just need to define in ***DataBox*** options the fields for transfer.

Another possibility is to use external user's database (traffic, MAM, etc.) for preparing playlist. Then you can transfer metadata from this database to playlist. The exact metadata transfer depends on the term of integration of this third party database.

Keep in mind, that if you change some metadata inside the playlist, the change will be valid only for the current playlist. The changes will NOT be transferred back to the original database.

ProgramID is checked when the stream is MPTS (it could be a live MPEG2 stream coming from the network or a file). Type the *ProgramID* (for example, 12060), not the number of the program (i.e., not 1, 2 or 3).

If you are going to playback a clip while it is being captured, check the *Live (delayed) file* check-box. If necessary, specify the *Estimated duration* of this live playback and then check the *Set out point of live item* box.

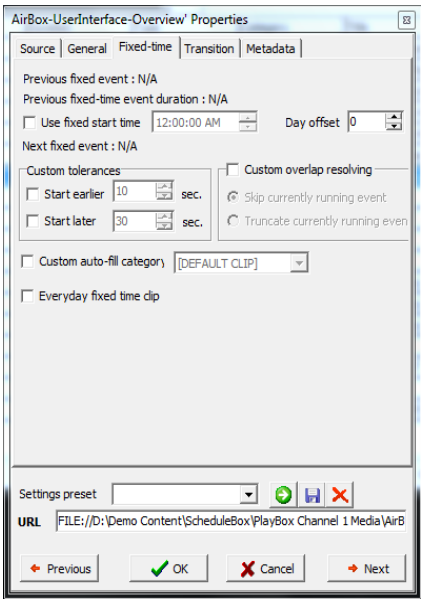
WARNING: Enable the *Estimated duration* option ONLY when your source video is a live stream. Otherwise, an error will most likely occur.

Most of the properties in this window will be displayed in the playlist grid. If you save the playlist, these values will be saved as well.

NOTE: Clicking ***Previous***, ***OK*** or ***Next*** will apply all changes you made to the current clip's properties! To discard the changes, click ***Cancel***.

Fixed time

In the ***Fixed-time*** tab you can set an exact start time for the selected clip.



NOTE: If you make no settings in the **Fixed-time** tab, the default settings will apply. For a detailed description of the default settings, go to the *Fixed Time event* section further in this manual.

To avoid start-time conflicts with fixed start times, you must account for other items with fixed start times in the playlist. The start time and duration of the preceding fixed time event (if available) are displayed at the top of the **Fixed-time** tab.

Check **Use fixed start time** to set a specific starting time for the clip and set that time in the time-picker to the right. Click a value of the time-picker and use the arrows to increase/decrease it, or enter new values directly from the keyboard.

NOTE: The time-picker displays the time in the 12-hour format!

Use the **Day offset** spin-box to postpone the fixed start time of the clip with a number of days. If **Day offset** is set to zero, the settings will apply to the date of ***AirBox*** startup!

Following fixed-start clips in the playlist (if available) are displayed below.

If you try to set a start time, which is in conflict with the surrounding events, the background of the time-picker will turn red. If you click ***OK,*** a warning message will be displayed and you will not be able to proceed until you enter a non-conflicting time.

WARNING: DO NOT use fixed time events within a bookmark's time range!

Two types of time conflicts might occur with fixed start times – overlapping of playlist items or gap in the playlist.

Overlapping occurs when there is not enough time to play all clips that precede the fixed-time clip in the playlist before that time. To resolve such conflicts, enable the **Custom overlap resolving** option and select one of the following:

Skip currently running event – ***AirBox*** will skip all clips that cannot be played out to the end.

EXAMPLE: If the time remaining to the fixed start is 2 minutes and the preceding clip(s) are longer, ***AirBox*** will skip them and the 2-minutes gap will be filled with clip(s) from the *Custom auto-fill category*.

Truncate currently running event – ***AirBox*** will play as many of the clips that precede the fixed time event as possible. The clip, which is still playing at the time of the fixed start will be truncated.

Playlist gaps occur when there is not enough content preceding the fixed-start clip, or when you skip clips, which cannot be played to the end. To resolve such cases, enable the **Custom auto-fill category** option and select a category from the drop-down list. Gaps will be filled with clips from the selected category. The drop-down list contains a default autofill clip, as well as all user-defined auto-fill categories. For more information about auto-fill categories, go to the Auto-fill settings section further in this manual.

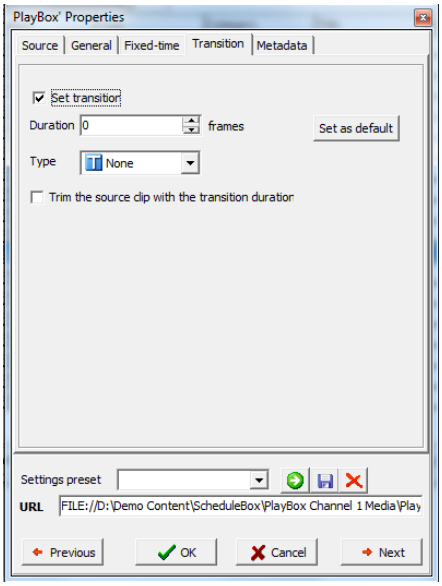
In case some deviation in the fixed start time is acceptable, enable one of the options under *Custom tolerances* option and specify time limits. This will ease complex operations with only a few seconds difference.

Everyday fixed time clip – check this option to set the clip to start at a fixed time each day, if you loop your playlists. If the option is not enabled, the dip will start at the specified time during the first loop of the playlist only.

WARNING: When using fixed time events, the playlist should start and end within the same calendar day (i.e., the playlist should not go beyond midnight). Otherwise, we cannot guarantee the proper operation of the fixed time logic.

Transition

The ***Transition*** tab accommodates settings, related to transitions between clips in the playlist. The transition settings are applied to the beginning of the currently selected clip.



Check *Set transition* to enable the transition.

Specify the transition *Duration* (in frames) in the spin-box below.

The *Type* drop-down list contains all currently supported transitions. Choose the one you need from here.

Trim the source clip with the transition duration – should be checked only when you apply transition for the first time. Check this box to shorten the previous clip with the duration of the transition ensuring that enough video and audio content will be available for the transition. When checked, the previous clip will be trimmed in accordance to the frames, set in the *Duration* spin-box when you click OK button.

EXAMPLE: If ***AirBox*** is running in PAL mode (25 frames per second), and you set a new transition with *Duration* of 50 frames (2 seconds) to Clip 2. The preceding item in the playlist is Clip 1, which is 10 seconds long. Once you click OK, Clip 1 will be automatically trimmed – its duration will be reduced by 2 seconds, to 8 seconds. Thus, when Clip 2 starts, it will begin with a transition, displaying the last 2 seconds of Clip 1.

NOTE: The clips that precede clips with applied transition in the playlist are trimmed immediately after OK button of dialog applying transition is clicked. Thus, if you want to change any transition duration during playout, you have to trim its preceding playlist item manually, by modifying the duration settings in the General tab of the Clip Properties dialog.

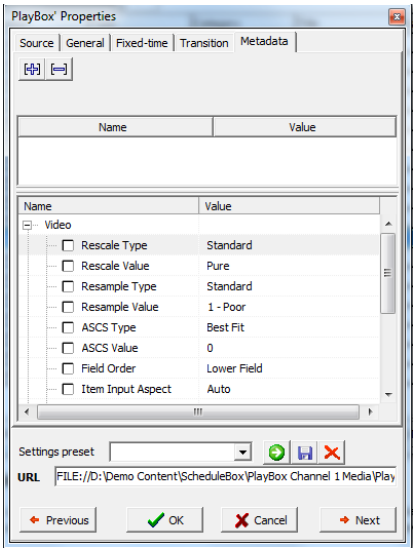
NOTE: Even if you have set the *Type* of transition to **None**, the clip preceding the transition will still be trimmed if the source clip with the transition duration option is checked.

If you want to keep these settings for other transitions in the playlist, click ***Set as default***.

NOTE: Transitions are supported only for the new mixed playout plug-ins!

Metadata

The ***Metadata*** tab provides room for additional information fields related to the currently selected clip.



In the upper part of the window you can include additional metadata, related to the content of the clip. This information can be entered manually or by dragging from ***DataBox***. In all cases you need to specify some metadata categories that will accommodate the relevant metadata values.

EXAMPLE: The **Name** of a metadata category is [Producer] and the **Value** is [a person/ a company]. If you have the producer's name in ***DataBox*** [Person] and map it to ***AirBox*** [Producer], that information will be transferred automatically when you drag clips from ***DataBox*** to the playlist grid.

You can use these fields in graphic rules, to present information that does not appear in the playlist columns.

Click on the [Metadata name] cell to enter the name that will be used as reference in the ***Graphic Rules***. In the [Metadata value] cell enter the additional information that should be presented in the graphics while this clip is on air.

Refer to the Graphic rules section further in this manual for detailed explanation about metadata implementation.

Except for showing information about the currently playing clip, metadata categories can be used for changing the links to picture and sound objects in ***TitleBox***. Thus, you can change the image, shown in a picture object, or the sound that is played in a sound object.

EXAMPLE:
1. Specify Metadata name in the left column: [new picture]
2. Specify the file path to the new media to load in the right column: [E:\Pictures\pic\A Dark Night.jpg]

NOTE: The file path should be local for the ***TitleBox*** server!

Thus, you will have [new picture] [*E:\Pictures\pic\A Fantastic Voyage.jpg*] in one of the rows. Then, go to **Settings** > **Graphic rules** and set the conditions and action offset time. Please, check the Graphic rules section for details.

NOTE: Do not use tab characters in the metadata fields or the saved metadata will not be interpreted correctly.

The lower part of the ***Metadata*** window is used for entering specific metadata, related to video parameters of the current clip.

The metadata is grouped in three categories – [Video], [Mixing], and [Audio].

Video Metadata:

Rescale Type – select the rescaling type for the video.

Rescale value – if the ***Rescale Type*** is *Custom*, select a specific rescale value.

Resample Type – select the resampling type of the video bitrate.

Resample value – if the ***Resample Type*** is *Custom*, select a specific resample value.

ASCS (Aspect/Size Conversion Strategy) – this is a type of conversion of video files with a different aspect ratio than the one, set for the global playout. The values here are the same as those in the Output Video Setting dialog.

Field order (input) – this is the field order of the input file. If there is no info about the field order in the file, or if it is wrong, you can enter it here.

Item input Aspect – the aspect ratio of the current clip. If there is no info about the aspect ratio of the file, or if it is wrong, you can enter the value here.

EXAMPLE: If the aspect ratio of the main video output is set to 4x3, and the ASCS (Aspect/size conversion strategy) is set to *Balanced/Letterbox*, files with an aspect of 16x9 in the playlist will be letterboxed at the output.

If you have a particular file with aspect 16x9 in the playlist, which you do NOT want to be letterboxed, but rather you want it to be zoomed. Then, in the properties of this particular file, check the *ASCS* check-box and select "*Fullscreen/Zoom*" in the respective value field.

NOTE: Values in *Field order* (input), as well as *Item input Aspect* metadata do not have any effect on the playout. These fields are connected to the file in the playlist and are used if the information for "*Field order*" and "*Aspect ratio*" of the file is not available in the file itself, or if it is wrong.

Mixing

This metadata is used only if a *Shift Transition* is selected in the ***Transition*** property tab. Here you can define the *Shift Type* and the *Shift Direction* of the shift transition.

Audio metadata

Language – the language of the audio

Level – the audio level of the current clip in dB

TIP: You can use the audio level metadata to specify a different audio level for each file in the playlist, e.g. to decrease only the audio level of the commercials in the playlist.

NOTE: For playout, clip metadata settings (if available) have higher priority than settings from the ***Output settings*** dialog.

Clip Property Presets

The changes you apply in each tab of the Clip Properties dialog can be added to a preset. Presets allow you to apply a certain collection of properties to a clip, instead of defining each property manually.

The property preset controls are located at the bottom of each tab of the dialog:

To load an existing preset, select it from the drop-down menu and click the ***Apply settings from selected preset*** button.

To create a new preset, make the desired changes and click the ***Save current settings to new preset*** button. You will be prompted to enter a name for the preset.

To remove a preset, select it from the drop down menu and click the ***Delete selected preset*** button.

Other Edit Commands

Undo

Use it to cancel up to five recent actions.

Cut

Removes the selected object(s) and keeps it (them) in the buffer-memory.

Copy

Saves a copy of the selected object(s).

Paste

Pastes the buffer content.

Randomize

This command randomizes the order of all selected clips (highlighted in the playlist). It is quite useful for music video channels.

Apply Transition

This command is used to apply a default transition to a select item (items). You can set a transition to be a default one from the **Clip Properties > *Transition*** tab.

Playlist loop

This command duplicates the checkbox that loops the playlist for continuous playback.

Clip loop

This button will loop the currently selected clip when ***AirBox*** reaches it. This functionality is not the same as the Loop checkbox in the main ***AirBox*** window (see the Playlist and Clip Buttons section above).

Select all

Selects the whole playlist.

Deselect

Deselects the whole playlist.

Invert selection

Inverts the selection in the playlist.

Find/Replace

This is a searching/replacing function of the playlist.

VIEW MENU

System Timer

This is a system time clock. It could be shown as a digital or analog clock. Right-click on it and select the desired appearance from the context menu. You can also set whether the date to be visible, or not.

Clip Timer

This is a clip-related timer. Its accuracy depends on the *MPEG2* decoder used. Right-clicking over it opens a context menu, in which you can choose the timer mode (time elapsed/remaining). If you check the [✓ Count down] item, the timer will show exactly how much time remains until the end of the currently playing clip. The background is black and a blue progress bar indicates what portion of the clip has already passed. If you uncheck the [✓Count down] row, the **Clip timer** will start counting up, showing the elapsed time from the beginning of the clip. The colors of the progress bar and the digits will reverse.

TIP: The color of the progress bar and that of the digits can be changed in **Settings** > **Colors** > ***Timers*** by clicking in the relevant fields there.

Block Timer

This is an ***event-related countdown*** timer. It shows how much time remains until the selected playlist event or until the [End of the playlist]. Choose the event type to display from the drop-down list: [Stop], [Stop Cue], [Wait], [WaitUntil], etc. If there are several uniform events in the playlist, they are shown in a pop-up list, arranged by their playlist line numbers so you can choose one of them. If you do not select an *event*, by default, the timer will show the time remaining till the end of the playlist.

A progress bar indicates how much of the time has already passed. The color of the progress bar and that of the numbers can be set from **Settings** > **Colors** > ***Timers***.

Timecode Timer

The timecode timer displays the timecode received from the LTC Reader plug-in, if available. The incoming LTC should be connected to the sound card of the playout server.

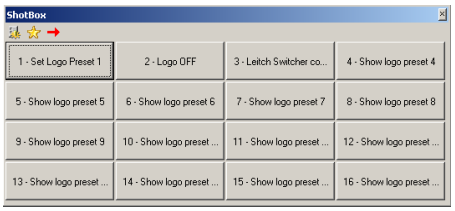
Daily playlist viewer

The Daily Viewer is a tool that will help you manage your daily playlists. In the area above you can view all daily playlists. The number in the brackets in front of the start time represents the number of days remaining till the start.

EXAMPLE: **(2)12:00:00** means that the playlist will start in two days, twelve o'clock.

When you click once on a daily playlist row, its items will be displayed in the grid below. Double-clicking on a daily playlist line will load it immediately. Please, note that this will interrupt the playback!

ShotBox



Selecting this **View** menu item will show/hide an additional window with buttons for fast switching/insertion of custom events.

All clipboard buttons can operate in two modes:

Execute mode – clicking a button while in this mode will execute the event, assigned to it immediately. In case a live stream is assigned to this button, a live stream row will be inserted in the playlist, and the playback will jump to it.

NOTE: No offsets will be applied to the events while in this mode!

NOTE: In execute mode, a complex item is treated as an events container. All events assigned to it will be executed immediately, with no offsets.

Insert mode – clicking the button will insert the event assigned to it in the playlist. You can specify the point of insertion by using the ***location toggle*** button:

Insert as next – will insert the event after the currently playing clip. If ***AirBox*** is in Stop or Pause mode, the event line will be inserted as the next line to be executed after resuming the playback.

Append at playlist end – will add the selected command to the end of the playlist.

TIP: If you need to insert an event line in another position in the playlist, just drag and drop the relevant button to the line, in which you would like to insert it.

TIP: Hold down the Alt key while clicking on a button to toggle the current mode of operation. Thus, you will switch between Execute/Insert modes for this particular command.

To change the buttons' number and appearance, click the ***Settings*** button. In the **Custom buttons settings** dialog, enter the number of buttons on the **ShotBox**, as well as their distribution in rows and columns (i.e. matrix).

NOTE: If the matrix settings you enter cannot be accommodated on the **ShotBox**, a warning message will pop-up. Changes will not be applied.

For emergency execution of certain items in the playlist, you can assign a Jump shortcut to a button. The "jump to" target can be a playlist item number or a bookmark name.

NOTE: You cannot drag these shortcuts to the playlist! They work only in execute mode!

TIP: Instead of going to **View menu**, you can press **<Ctrl>** + **<G>** to open the ***Clipboard*** window.

TIP: Instead of clicking a button, you can press the **<Ctrl>** + number key to execute the command, assigned to that button.

Right-clicking on a button in the ***ShotBox*** opens a context menu, which allows you to do the following:

Assign event:

Logo event - see a detailed description of the Logo event here.

Media - see a detailed description of the insertion of media files here.

Complex event - see a detailed description of the insertion of Complex items here.

Playlist - opens a browse dialog, in which you can assign a playlist to be loaded when the **ShotBox** button is clicked.

Jump shortcut - opens a dialog, through which you can assign a jump command to a specified item, designated by its index number in the playlist, or a jump command to an existing bookmark in the playlist, designated by its name.

Unassign - Use this command to disable an already assigned event to the respective button.

Edit - Use this command to edit an already assigned event to the respective button.

Set title - Use this command to set a title to appear on the respective button.

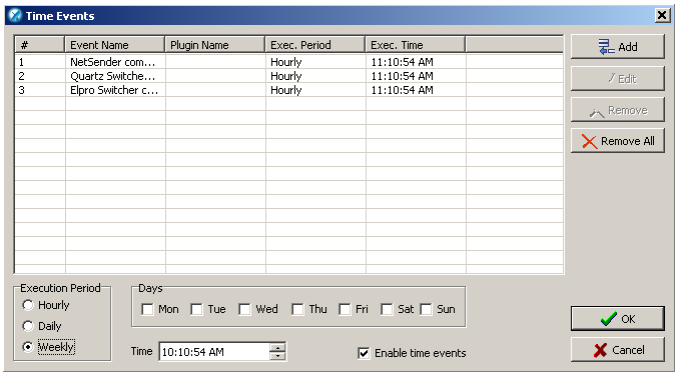
Set hint - Use this command to set a hint to appear when the pointer is positioned on the respective button.

Picture:

Assign picture - opens a browser dialog, in which you can select a picture to be loaded as a logo when the ShotBox button is clicked.

Clear picture - this command will remove the picture, selected in the assign picture option above.

Time Events



This is used for preparation of time schedules for events' execution.

In the ***Time Events*** window first you have to *Enable time events* by checking the relevant check-box at the bottom of the window.

Select the **Execution Period** – ***Hourly***, ***Daily*** or ***Weekly***, as well as *Time* for executing the event.

Click the ***Add*** button and a list of all available events will appear. Select the desired event and define it, as it is done in the ***Add/Insert event*** dialog.

In the example above, a ***Kramer switcher*** event will be executed each day at 15:00 h. and at 18:00 h. Also, a ***Logo*** preset 1 will be started each day at 19.00h.

If you want to edit an entry, select it and click the ***Edit*** button.

If you want to remove the entry, select it and click the ***Remove*** button.

Log

Selecting this item in the **View** menu will open a **Log View** window. It is used to show the events that have occurred during the ***AirBox*** operation.

TIP: All windows can be freely resized and moved around the screen, staying on top of other windows.

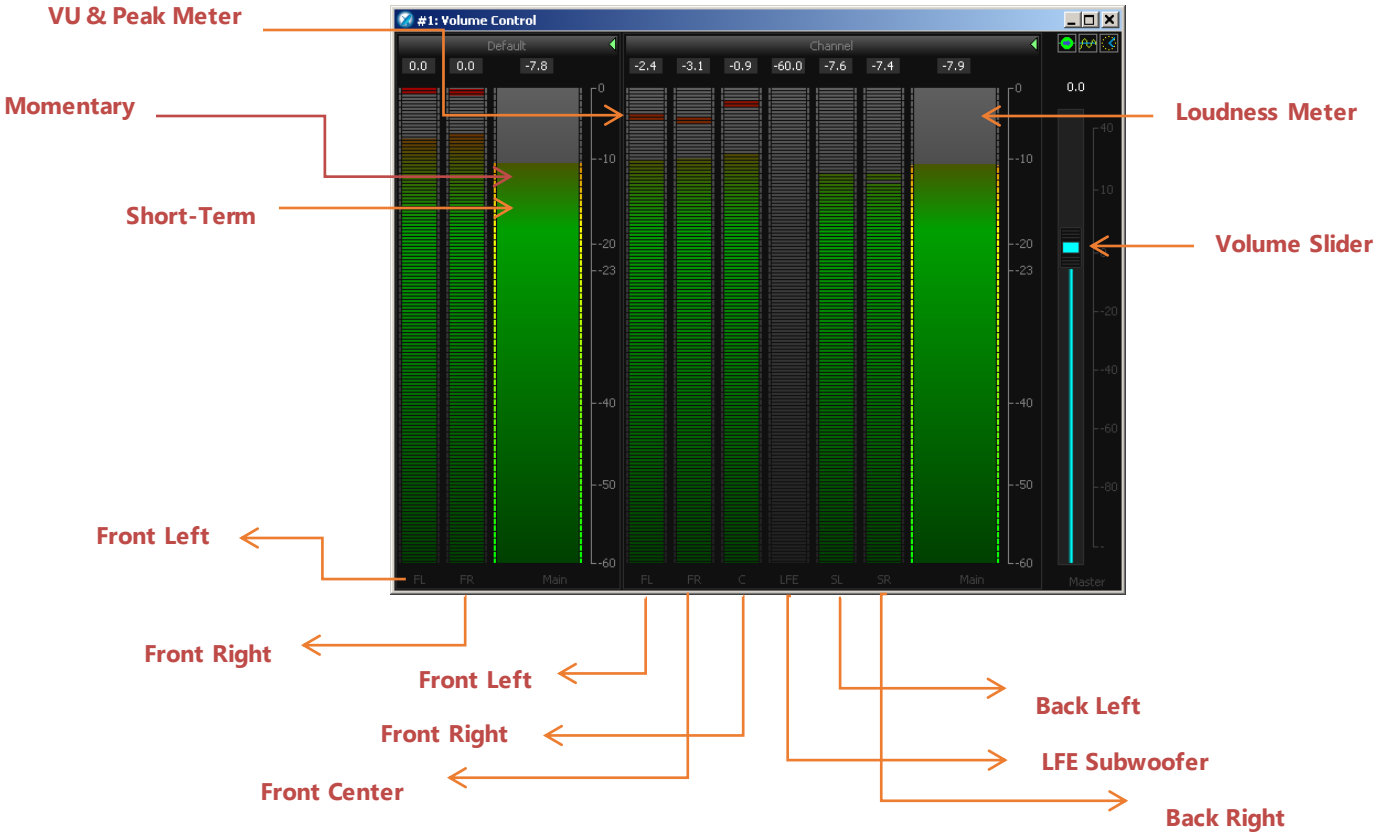
<Ctrl>+click on a Timer window will change its appearance. Check it out!

Right-clicking on any timer window opens a drop-down menu. Select **Can Snap** in it to lock the timer position to the main window

Plug-in windows

Select this item to display the additional windows, available with the currently used output module.

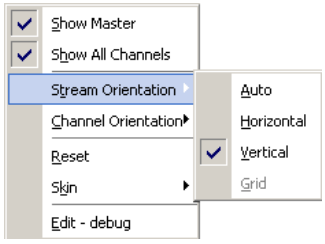
- ✓ Volume control window



This is an additional window, which appears close to the main ***AirBox*** window. You can resize it by stretching its edges.

The image to the right shows the ***Volume control*** window of an ***AirBox*** that has two different audio configurations. The first one is for stereo, i.e., a left and a right audio channel – the [Default] section to the left. The second one is for 5.1 audio, i.e., 5 audio channels – the [Channel] section to the right. Notice that the [Default] section shows only two channels, as it represents a stereo output, while the [Channel] section shows six channels, as it is for 5.1 output.

The colored fields in the window are *volume & peak meters*. The narrower band shows the peak levels in each separate channel, and the wider one to the right shows the overall peak levels. The blue scroll to the right shows is the [Master] volume slider. This Volume slider also is visible in the main ***AirBox*** interface (between the multi-purpose zone and the playback control buttons). If you move the *slider* from the ***Volume Control*** window, it is moved in the main interface too.



Right-clicking on the *Volume Meter* area opens a context menu, like the one shown below

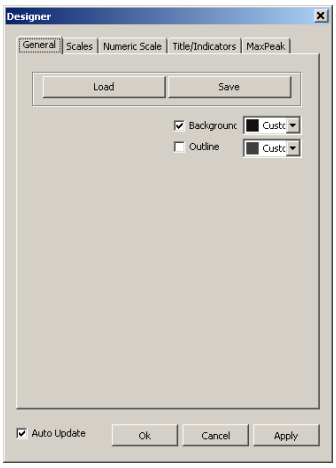
The **Show Master** and **Show All Channels** commands allow you to hide / unhide the master and the channel bars respectively.

In the **Stream** and **Channel Orientation** menus you can select the direction of the stream and the peak bars respectively.

The **Reset** command nullifies the peak values and the **Skin** option allows you to select a skin color for your peak bars.

The **Edit – debug** command opens the **Designer** dialog, where you can configure the overall appearance of the ***Volume Control*** window. The **Designer** dialog contains the following tabs:

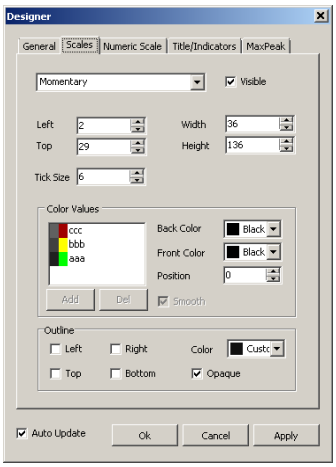
The ***General*** tab allows you to ***Load*** and ***Save*** custom skins for your ***Volume Meter***. Here you can also set your *Background* and *Outline* colors.



Note that when you configure your desired settings, you need to click the ***Apply*** button in order to change the appearance of the ***Volume Meter*** window.

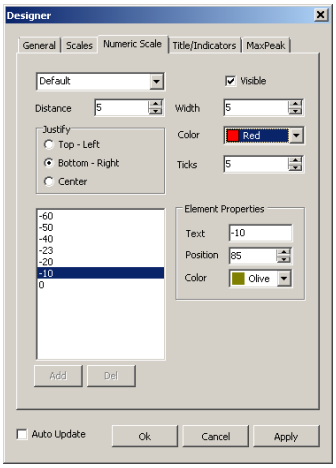
Furthermore, you can dynamically view how the appearance of the ***Volume Meter*** changes if you place a check in the *Auto Update* box.

In the ***Scales*** tab you can show / hide the scales via the *Visible* box and set the scales type to Momentary or Short Term.



Use the *Left* / *Top* / *Width* / *Height* / *Tick Size* spin-boxes to edit the appearance of the bars.

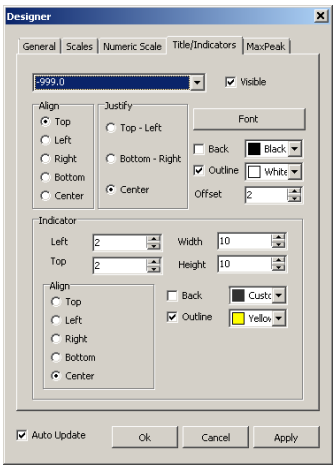
The Color Values field allows you to edit the bar colors, depending on the peak levels. Finally, use the Outline field to set borders in your desired positions and / or colors.



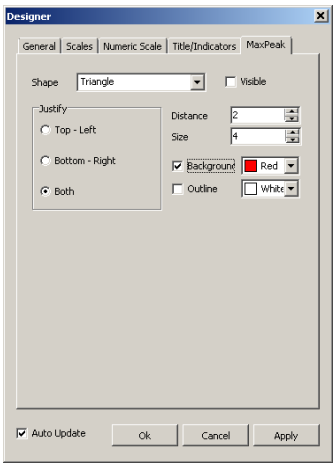
The ***Numeric Scale*** tab allows you to configure the appearance of the numeric scales in the ***Volume Meter***. You can show / hide it via the *Visible* check-box, set its *Width*, *Distance*, *Position*, and *Color*. Furthermore, you can choose the number of Ticks (values) shown in the scale via the respective spin-box.

This tab also allows you to set the *Color*, *Position*, and *Text* of the number values.

Use the ***Title/Indicators*** tab to configure the position and appearance of the *Titles* and *Indicators* in the ***Volume Meter*** window. You can set the *Alignment*, *Justification*, *Font*, and *Color* of the *Titles*. For the indicators you can change their position in the dialog, *Color*, and *Alignment*.



Finally, in the ***MaxPeak*** tab configure the *Shape*, position, and colors of the max peak indicator.



External video window

Click to enable this option and move the video preview window outside the multi-purpose zone in ***AirBox***. To resize the external video window, right-click somewhere over it and select one of the zooming options available.

TIP: To resize the external video window freely, click its bottom-right edge and drag.

Show external video window

This options shows/hides the external video preview window. Click to enable/disable it.

Arrange windows

Click to align all open **timer windows** with the main ***AirBox*** window.

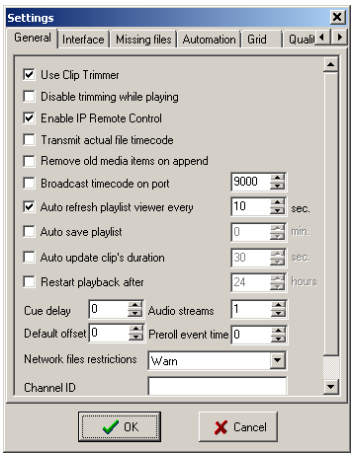
SETTINGS MENU

The **Settings menu** contains the most important settings for the ***AirBox***.

General

This ***Settings*** dialog box is divided into several tabs.

General



General tab contains general functionality options:

Use Clip Trimmer – if checked, ***AirBox*** will open the ***Clip Trimmer*** upon double clicking over a clip. If this flag is not checked, the ***Clip Properties*** dialog will open instead.

Disable trimming while playing – restricts changes in the currently playing list.

Enable IP Remote Control – enables or disables ***AirBox LAN*** remote control (using IP address and the **Multi AirBox Manager**).

Transmit actual file timecode – ***AirBox*** transmits the actual file timecode, embedded in the clip file. This timecode can be used by external applications, such as ***SubtitlePlus***.

Remove old media items on append – removes already played files from the old playlist when appending a new one

Broadcast timecode over network – if checked, ***AirBox*** will broadcast the playlist time code, the current clip timecode, and the relative timecode (from the beginning of the playout session) over the network (via ***UDP***).

Auto save playlist – saves the playlist automatically at predefined intervals.

Auto update clip's duration – check it to enable automatic updating of clips' duration in case of file change. If not checked, ***AirBox*** will remember the duration of the original file, and if you change this file with a longer one, it will be truncated.

Restart playback after – resets the hardware counter, which is displayed at the **Master** (green) **counter**. This option is necessary due to various platform and format limitations.

NOTE: Decoder restarting may cause a few black frames in playback.

Cue delay – this option concerns the **Cue** function (freeze at a first clip frame). It defines the delay (in milliseconds) before pausing on the first frame, since different decoders behave differently in regards to the first clip frame. This function is both decoder- and computer-dependent. You will have to find the most suitable one for your setup via testing.

NOTE: This affects only some old Playout plug-ins.

Audio Streams –depending on the hardware platform used, ***AirBox*** can playout more than one audio stream.
Default Offset – this is a general offset (measured in milliseconds) that will apply to all newly-inserted external events. The positive values mean later execution of the events and the negative values mean earlier execution. This offset will appear in the **Notes** column in the playlist upon inserting an external event.
Pre-roll event time – The command reaction times for external events is different, depending on the devices. Still, if you find out an acceptable compromise value that will serve your needs, you can set a general offset value to be applied in run-time to each external event you add in the playlist. Thus, you will not have to enter the same values each time you create an event. This offset will not appear in the playlist!

NOTE: Do not forget to account for the pre-roll event time when you set additional offsets in the events' properties dialogs. The offsets and the pre-roll event time are summed up in runtime.

The next field**,** *Network Files Restrictions*, is designed to specify the procedure upon insertion of files that are not saved locally in the ***AirBox*** machine. This is a precaution option: The playback could stop upon network failure if your whole content is remote, or the playlist could end earlier – if some of your files are stored locally and the network fails, ***AirBox*** will label all remote files as missing, skip them, and hence, the end time of the playlist will be reduced by the duration of all missing files.

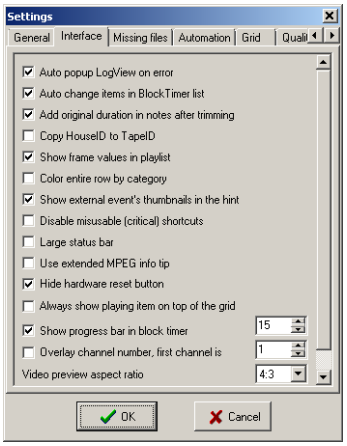
When ***Warn*** is selected, the rows of all network-stored files in the playlist will become dark-green. A note [Remote file] will appear in the **Type** column.

When ***Allow*** is selected, you will not be notified whether your files are stored remotely or locally. Thus, you will take the chance to trust your network.

If ***Reject*** is selected, the rows of all network-stored files in the playlist will become red (brown when selected). A note *Rejected remote file [Remote file]* will appear in the **Type** column. These files are considered missing and will be skipped during playback. If you have left the *Show duration of missing files* flag unchecked, the playlist time will be recalculated accordingly (see the *Missing files* section below).

Channel ID – enter the ID of the output Channel here
Default code page – select the default text encoding

Interface



The ***Interface*** tab provides the following user interface options:

Auto popup LogView on error – displays the *LogView* window automatically when an error occurs.

Auto change items in Block Timer list – the block timer will follow the subsequent events in the playlist (as selected in the block timer dialog box). If not checked, the timer will remain fixed at the selected event in the list. After this event has passed, the block timer will read negative values, since the origin point will remain fixed in the past.

Add original duration in notes after trimming – if checked, when you trim a clip ***AirBox*** will automatically insert information about its original duration in the **Notes** column in the playlist.

Copy HouseID to TapeID – a convenient way to automate assigning reference information, needed for subtitles insertion.

Show frame values in playlist – check to view the number of frames at the end of the duration value in the *Duration* column.

Color entire row by category – fills the entire row in the playlist with the *Category*-field color of the relevant clip. This option refers to categories in ***DataBox***. You can change the category color in ***DataBox*** > **Options** > ***Default values*** > *Colors to AirBox*

NOTE: You will have to drag and drop entries from the ***DataBox*** grid into the ***AirBox*** grid to view their category color.

Show external event's thumbnails in the hint – by default, you will be able to view thumbnails of all ***TitleBox*** templates used in the **TitleBox Net Control** events in the playlist. If you do not need them, just go to this check-box and uncheck it.

Disable misusable (critical) shortcuts – replaces regular keyboard shortcuts of important playback commands with alternative F-keys, as in the table below:

Playback command	From	To
PLAY	<Space>	<F5>
	<Alt> + <P>	
	<P>	
STOP	Double <Esc>	<F7>
	<T>	

Playback command	From	To
PAUSE	<Space>	<F8>
NEXT	<Ctrl> + <Space>	<F9>
	<Alt> + <N>	
	<N>	
JUMP	<Alt< + <Space>	<F10>
	<Alt> + <J>	
	<J>	

Large status bar – enlarges the status bar at the bottom of the ***AirBox*** window

Use Extended MPEG info tip – enables showing detailed file information in a hint/tooltip when the mouse pointer is positioned over a clip in the playlist

Hide hardware reset button – checked by default, uncheck to be able to see the ***Reset hardware*** button below the counters in the ***AirBox*** window

Always show playing item on top of the grid – scrolls the playlist grid so that the currently playing item is on top of it

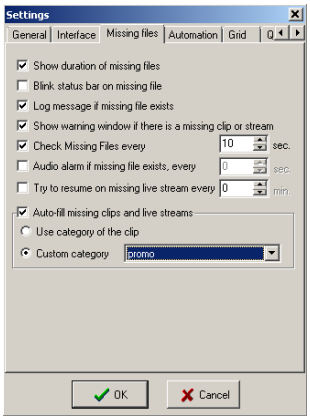
Show progress bar in block timer ... sec. – defines the time before a clip's end for showing the progress bar inside the block timer (see **View > Block Timer**). For instance, if a 15-second value is set, the progress bar will be visible in the last 15 seconds of the clip playout. During the rest of the time, the progress bar will not be displayed, just the counter itself

*Overlay channel number, first channel is***–** a big figure showing the ***AirBox*** instance will be displayed in the grid background. You have to set the number of the first channel. The numbers of all subsequently open channels will be updated automatically. You just have to check the *Overlay channel number* box in the **Settings** of each ***AirBox*** if you want to view it in the grid.

Video preview aspect ratio – select the aspect ratio for the ***Video preview*** window. This is necessary because some decoders cannot report the aspect ratio of the playing content, so this must be selected manually, in order to properly preview content.

Frame rate – this entry is necessary for estimating all kinds of time values (i.e., end time, playlist duration, etc.), while there is no accessible frame rate of a currently played file (for example, ***AirBox*** is in **Stop** mode).

Missing files



Missing files is the third tab in the **Settings** dialog box. It refers to automatic handling of missing files in the playlist.

Show duration of missing files – if there are any missing files in the playlist, their real duration or zero-duration can be displayed. This will affect the playlist's *Total duration* and *End time* that are shown in the *Status Bar* at the bottom. If this option is checked, a question mark will appear after [Total Length] and [End at] in the *Status Bar*. If it is not checked but there are missing files, an exclamation mark will appear after [Total Length] and [End at] in the *Status Bar*.

Blink status bar on missing file– in case there are missing files in the playlist, the *Total Length* and *End at:* cells in the status bar will become red and will start blinking.

Log message if missing file exists – check it to include the list of missing files in the log window.

Show warning window if there is a missing clip or stream – checking this box will ensure that a warning dialog will pop-up to prompt the operator that there is a missing clip/stream in the playlist.

Check Missing Files every ...sec. – When you prepare your playlist, you can add files to it that are not available in the online storage yet. They appear in ***AirBox*** as red-colored lines. Check this box to let ***AirBox*** auto-check whether the missing files are already available or not.

Audio alarm if missing file exists, every ...sec. - use this option to enable an audio alarm if there are missing files in the playlist. Thus, you will be alerted if there are missing files, or if you accidentally delete a clip, related to the current playlist.

NOTE: The alarm is output on the PC speaker!

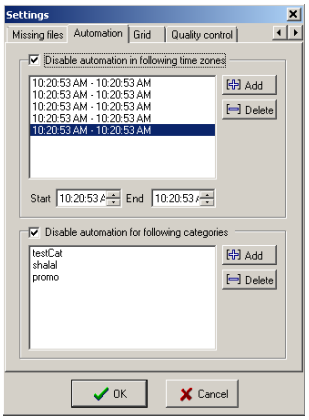
Try to resume on missing live stream every...min **–** automatically checks if a missing live stream has been reconnected to ***AirBox*** in a period of time defined by the user

Auto-fill missing files and live streams – ***AirBox*** will look for the auto-fill category, according to your preferences:

Use category of the clip – ***AirBox*** will use the auto-fill category, as specified in the missing file's properties. In case there is no such category, the default auto-fill clip will be played out.

Custom category – here you can select from your own categories, prepared in advance in **Settings** menu > **Auto-fill** dialog.

Automation



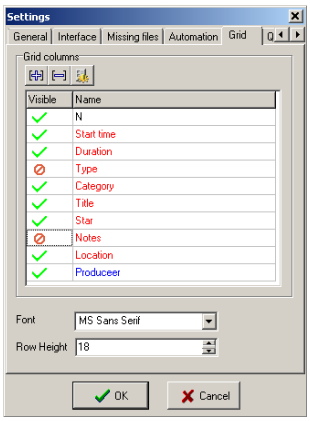
This tab allows you to manage the ***Automation*** settings that you have defined in your playlist.

Disable automation in following time zones – can list the time zones to disable the execution of commands, related to external triggers. First specify the *Start* and the *End* time of a zone and then click ***Add*** to add it to the list. To remove a time zone from the list, select it and click ***Delete***.

Disable automation for following categories – define categories, for which to disable the execution of commands, related to external triggers. The category names correspond to the *Categories*, set in **Clip Properties** > ***General*** tab for each playlist item.

WARNING: The automation has a higher priority than the Automation graphic rules and the **Automation** event in the Edit menu! The latter will both not operate properly when using Automation, so please do not use them simultaneously!

Grid



The ***Grid*** tab allows you to control the columns that appear in the playlist grid.

You can add new columns by clicking the ***Add*** button above the list. Generally, a new column will contain a Metadata name (as it appears in the first column of the clip properties). Thus, once you enter some metadata for a clip, its value will appear in the corresponding column in the grid.

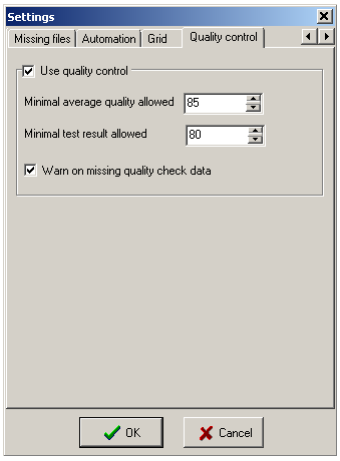
All columns are **Visible** by default. Double-click in the green checkmark to turn them **Invisible**.

To remove a column from the list, click on the ***Remove*** button.

Click to restore the default settings.

Change the *Font* and the *Row Height* settings through the respective fields.

Quality control



The ***Quality control*** tab accommodates settings, related to playlist media files, which have been passed through quality control tests. Such tests are performed by the ***QCBox*** tool. For more detailed information, related to ***QCBox***, please, refer to the relevant chapter further in this manual.

In brief, the ***QCBox*** tool performs content verifications, such as loudness-related tests, checking for missing audio or video samples, etc.

The test results are defined in percentage from 0 to 100%, while 0% means that the media source has not passed the test successfully.

After that ***QCBox*** stores the results as metadata into a file with extension **.mtd*. Such a file will be generated for each media file tested.

If the *Use quality control* checkbox is checked, after loading the playlist, ***AirBox*** will read the **.mtd* files, created by ***QCBox***. According to the quality data, provided in the **.mtd* file, ***AirBox*** will play or skip a media file.

The *Minimal average quality allowed* spin-box is designed to indicate the average value of all quality tests performed.

EXAMPLE: If a media file is tested, using three testing plug-ins in ***QCBox***, each separate plug-in will rate this file with a value from 0 -100%. If all the ratings are summed up as 250%, the average value will be equal to 250 ÷ 3 = 83 (whereas 3 is the number of plug-ins, used for tests performing).

NOTE: If the *Minimal average quality allowed* of a tested media file is under the specified value in the **Settings** menu > **General** > ***Quality control*** tab, ***AirBox*** will not represent the file.

The *Minimal test result allowed* spin-box refers to the minimal value in percentage which is permissible per an individual test.

If you check *Warn on missing quality check data*, ***AirBox*** will generate a warning message if there is no applicable Metadata available for a certain playlist item.

Access Restrictions

This General Settings tab allows you to add restrictions for non-administrator users, i.e., users who do NOT have the admin password, defined in the Admin section of the settings menu. The following restrictions can be added from here:

Change settings - if checked, this option restricts the user from changing any ***AirBox*** settings

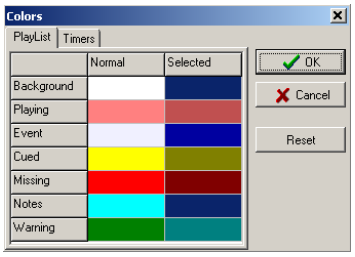
Change playlist - if checked, this option restricts the user from changing the playlist

Change playback status - if checked, this option restricts the user from changing the playback status, i.e., selecting a play, stop, or a pause command

Colors

This option allows users to define the colors, used in the ***AirBox*** playlist for color- coding, as well as for timers.

Playlist colors:



Background – playlist background.

Playing – currently played clip.

Event – event rows.

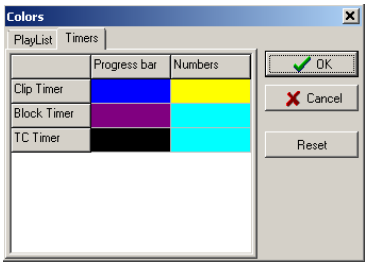
Cued – a clip prepared for playback.

Missing – missing file rows.

Note– note (comment) line.

You can define colors for *Normal* and for *Selected* status of each playlist row.

Timer colors:



Clip timer – colors for the progress bar and the letters in the *Clip Timer*.

Block timer – colors for the progress bar and the letters in the *Block Timer*.

TC (timecode) timer – colors for the progress bar and letters in the *TC Timer*.

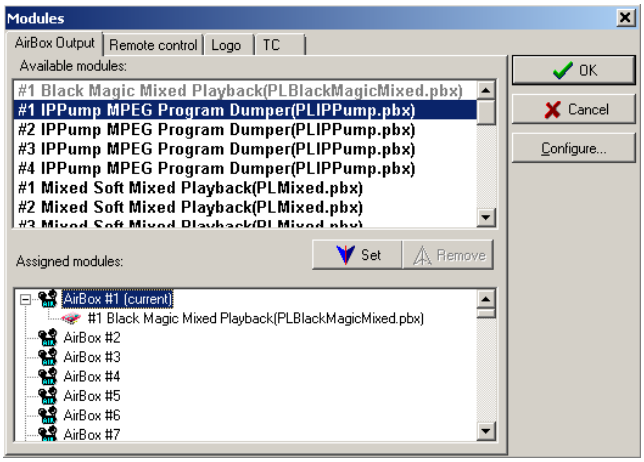
Clicking on the desired color box enables a combo-box for selecting a color or defining a custom one.

The ***Reset*** button resets the selected field to default colors.

All screenshots in this User's Manual are made with default ***AirBox*** colors and all explanations are in accordance to them.

Modules

AirBox Output



To set an active playback module for an ***AirBox*** instance:

1. Click the module's name in the list of available modules
2. Click an ***AirBox*** instance/channel in the list of Assigned modules
3. Click ***Set***

This option allows you to run multiple ***AirBox*** instances on a single workstation, using one of the following playback modules:

IP Pump MPEG Program Dumper

This plug-in uses *MPEG2* source files and directly pumps the content without recompression to a network IP address. The IP Pump uses standard UDP data transfer. For more information about this module, go to the **Settings >** Output section further in this manual.

NOTE: This module does not support VGA Overlay preview. This module does not support graphics insertion.
NOTE: The IP Pump is an optional plug-in and it is not a part of the standard ***AirBox*** functionality.

MixedSoft Playback

This is a software-based playout of files with different compressions and frame rates in the same playlist. Used mostly for demonstration purposes, it represents all features available in hardware playback, except for the video signal output. If you have a dual-head video card with TV output, the video overlay preview can be monitored through it.

MPO Mixed Playback

This plug-in provides simultaneous playout of different types of media (SD, HD, 25fps, 30 fps, etc.) and different outputs (SDI, Analogue, IP Streaming etc.) from a single ***AirBox*** playout server. Basically, the Multi Parallel Outputs (MPO) module allows broadcasters to provide parallel outputs in any combination needed to deliver content. For detailed information on the configuration and use of this plug-in, go to the Settings > Output section further in this manual.

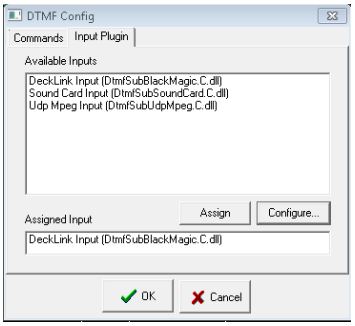
Remote Control

All of the available modules for remote control in ***AirBox*** are listed in the remote control tab, like ***GPI*** (General Purpose Interface), ***DTMF***, video matrices, and video switchers, ***TitleBox NetControl***, ***Graphic Mixer***, resizing, etc.

These modules correspond to events in the ***AirBox*** playlist. First, you have to enable the module from **AirBox Menu** > **Settings** > **Modules** > ***Remote Control*** and configure it. Then, you can put it as an event in the ***AirBox*** playlist.

Here is a list of available modules:

DTMF Input/Output plug-ins

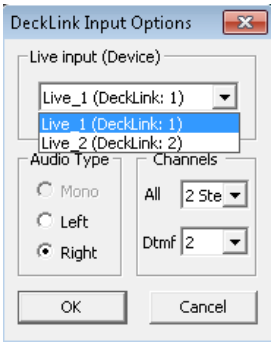


DTMF stands for **Dual-tone multi-frequency signaling.** ***DTMF*** tones are used in ***AirBox*** as triggering signals for some specific action in ***AirBox***.

EXAMPLE: ***DTMF*** tones are used by some cable television networks to signal the local cable company/network station to insert a local advertisement or station identification.

Also, in ***AirBox*** you can create a ***DTMF*** signal and send it to the PC's sound device.

DTMF Input plug-ins



DTMF input is setup if ***AirBox*** receives a DTMF signal.

There are several Input sub-plugins for reading the DTMF tones, depending on the audio device, which receives the signal.

In the ***Input Plug-in*** tab select the receiving audio device. Currently, there are three options: ***Sound Card Input, UDP Mpeg Input,*** and ***DeckLink Input***.

After selecting the DTMF Input from Modules list, click the ***Configure*** button to open the configure dialog. Here you can select the desired live input, as configured in the Live Inputs Editor. The device, to which the input is connected is written next to it. Select the *Audio Type* and audio *Channels* from the fields below.

Sound Card Input

This plug-in is to be used for analog audio tones, received on your PC sound card (coming from an IRD, for example). Select this line and click ***Assign*** to load it. Then, click ***Configure*** to select the sound input device and configure it:

Mono – select it if the incoming signal is mono;

Left – select it if the incoming audio signal is stereo, but you would like ***AirBox*** to read only the tones, coming in the left channel;

Right – select it if the incoming audio signal is stereo, but you would like ***AirBox*** to read only the tones, coming in the right channel.

UDP MPEG-2 Input

This plug-in decodes ***DTMF*** tones that come through ***UDP*** in the ***MPEG2Transport Stream***.

Select the ***UDP Mpeg input*** from the ***DTMF*** plug-in list and click ***Assign***. Then, click ***Configure*** to specify the source of the cue tones (*Host IP Address* and *Port*), and the *Stream ID*. The DTMF tones could come in three different ways:

Analog DTMF – the cue tones arrive as a separate audio stream in the TS. The PID of this stream should be entered in the Stream ID box.

When the *Analog* DTMF is selected, to the left you can specify the source audio channel.

Digital Cable (DVS-253) – the US implementation of digital signaling for splice points, the points are described in SI tables.

Digital TV (SMPTE-312M) – the European implementation of digital signaling for splice points, the points are described in SI tables.

After configuring the plug-in, click ***OK*** and go to the ***Commands*** tab. It contains all possible actions that can be executed upon receiving a certain DTMF sequence. Please, check the details in the next page.

DeckLink Input

This plug-in allows for reading DTMF tones, embedded in an SDI video signal, or coming through the analog audio inputs of a *Blackmagic DeckLink board*. Select it in the plug-ins list and click ***Assign***.

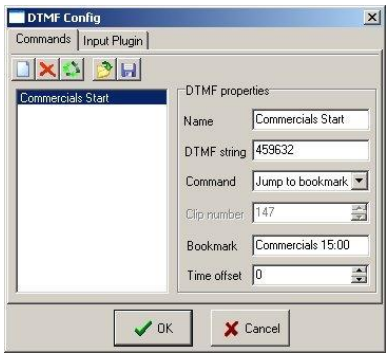
Then, click on ***Configure*** to setup the input.

If there are more than one DeckLink boards installed on your system, please choose which of them to use for capturing the cue tones.

NOTE: You cannot use the same *DeckLink board* for DTMF capturing and playback at the same time!

Below you can select which audio pair contains the cue tones and whether they are coming in the *Left* or in the *Right* channel. Click ***OK*** to save your settings.

When you are ready with the plug-in setup, you can go to the ***Commands*** tab to create the necessary presets.



In this tab you have to specify what ***AirBox*** should do upon receiving a certain sequence of DTMF tones.

Enter a *Name* for the command and specify the DTMF sequence that will trigger it. Then, select what should happen upon receiving this tone sequence in the *Command* drop-down list. Most commands are self-explanatory, but there are several that need to be clarified:

Jump to / Cue to – when assigning this command, you have to specify the *Clip number*, to which it refers.

Reset – resets the master counter in the main ***AirBox*** window (equal to stop & play command). This event is executed between two clips and does not affect the playback.

Hardware reset– resets the hardware platform!

WARNING: This command will interrupt the playback! After resetting the hardware, ***AirBox*** will remain in Stop mode!

Cue – same as the ***Cue*** button in the main ***AirBox*** interface, this command will pause the playback on the first frame of the currently selected clip in the playlist.

WARNING: This command will interrupt the playback!

Jump to bookmark in time range – this command applies only to bookmarks that have some Time zone specified in their properties. ***AirBox*** will not care about the bookmark's names. There are two possible occasions when working with this command:

- If the cue tone arrives within the Time range, specified in the properties of any bookmark in the playlist, ***AirBox*** jumps to the relevant bookmark according to the current system time.
- If no bookmark in the playlist has a Time range that includes the time of arrival of the cue tone, ***AirBox*** ignores the command.

NOTE: Please, make sure not to create bookmarks with overlapping time zones. Otherwise, ***AirBox*** will jump to the first bookmark in the playlist that is assigned for the relevant time zone.

Jump to bookmark – this command uses bookmarks' names for reference. You must specify the *Bookmark* name in the string below, so ***AirBox*** would "know" where to jump to.

There are two possible occasions when working with this command:

1) If there is a Time range specified in the bookmark's properties, and:

- the tone arrives within the time range =>***AirBox*** will jump to this bookmark
- a trigger arrives outside the time range =>***AirBox*** will ignore the command

Thus, you can have more than one bookmark in the playlist that is assigned for the same time range.

2) If there is NO Time range, specified in the bookmark's properties, ***AirBox*** will jump to that bookmark unconditionally upon receiving the trigger tone.

Please, check the Bookmarks description in the Edit menu section above for more details.

Offset – use this spin-box to postpone the execution of the specified command. The value here is in milliseconds!

NOTE: This string can contain only positive values!

WARNING: All DTMF sequences (strings) must have the same length! Otherwise, make sure that longer sequences do NOT comprise some of the shorter sequences! Otherwise, we cannot guarantee the correct execution of the assigned commands.

TIP: You can save your DTMF commands settings in a file. Thus, you can load them on other servers without having to configure the same settings numerous times.

Click the ***Save*** button to save the settings. To load them on another server, copy the settings file (**.dts*) to it. Then, open **Settings** > **Modules** > Remote > DTMF Plug-ins configuration and click the ***Load settings*** button. Browse for the **.dts* file and click ***Open***.

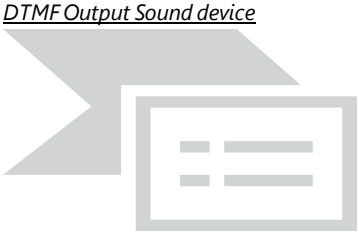
DTMF Output Plug-ins

These plug-ins generate the ***DTMF*** tones and send them via the selected sub-plugin. Once it is configured, you can use it to add DTMF Output events in your playlist.

Select the ***DTMF Output Plug-in*** row and click the ***Configure*** button. The dialog, shown above will appear. Go to the ***Sub-Plugins*** tab first, to select the output audio device. Click the ***Toggle*** button to activate it.

Currently, there are two possibilities – ***DTMF Output Sound Device*** and ***DTMF Output Virtual Driver***:

DTMF Output Sound device



When you activate this sub-plug-in, the DTMF tone is sent to a device, defined into the plug-in configuration. Select the plug-in and click the ***Setup*** button. The configuration window will open.

In the *Output Settings* area you can define the parameters of the DTMF tone: *Frequency*, *Bits per sample*, number of *Mono Channels*, and *Channel Mask*. Depending on the channel Mask, the DTMF tone is sent to a specific audio channel. If Channel Mask is zero (0), the DTMF is not sent. If it is one (1), DTMF is sent to the 1st mono channel. If it is two (2), DTMF is sent to the 2nd mono channel. Note that the channel mask is a **bitmask**, where:

Stereo 1	**Stereo 2**
Left – 1	Left – 4
Right – 2	Right - 8
L + R – 3	L + R - 12

In the DTMF setting you can define:

Length of the standard *Symbol* in DTMF sequence – **numbers from 0 to 9 and letters A, B, C, D.**

Pause Length – length of the pause between symbols

Specific symbols length – Specific symbols are all symbols in the DTMF strings, different than numbers from **0 to 9** and **letters A, B, C, D.**

Level of the signal – the signal level in percent.

In the *Device select* field you can select which audio device to be used from a drop-down list. The list is created automatically, in accordance to the devices installed on your machine.

DTMF Output Virtual driver

When you select this driver, the DTMF tone is sent to a third party application (which can receive tones) instead of the computer audio device.

EXAMPLE: Go to **Settings** > **Output** > **Audio (General)** tab to create DTMF tones and send them to the video output.

When you define the plug-in, you can go back to the ***DTMF Presets*** tab. Click the ***Add*** button to create a new preset. Enter the name of the preset and the DTMF string for it.

Relay GPI Switch Input/output

This plug-in allows using of the ***GPI Relay*** card.

The ***GPI Relay*** card is a special hardware card designed for receiving and sending GPI signals. Each Relay supports up to 4 GPI inputs/outputs. One or more relays could be installed on the same machine.

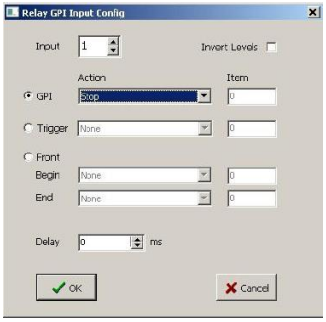
You can read more information about the ***Bypass Relay card*** in Appendix in this Manual.

The use of the ***GPI Relay*** could replace the use of a COM port for receiving and sending GPI signals.

The ***GPI Relay*** functionality is optional and it is not a standard part of the ***AirBox*** module. In order to use it, you must obtain a relevant license.

If you have a licensed ***Relay GPI*** option, you can define which mode (Input and/or Output) to be enabled by double-clicking on the *Enabled* field. You can configure the ***Relay GPI*** further by clicking the ***Configure*** button:

Relay GPI In



In the *Input* field select the GPI input number to be configured.

By default, the GPI signal has a High pulse level. If you want to transform the signal to a Low level, check the *Invert Levels* check-box. In this way the action will be executed when the GPI relay is switched OFF, and it will be terminated when it is switched ON.

Check the ***GPI*** radio-button to execute an ***AirBox*** action upon receiving a pulse on the Relay input. In the next *Action* field, define the ***AirBox*** action [Play, Stop, Pause, Resume, Next, etc.]. The next *Item* field becomes available if you have selected the [Cue to] or [Jump to] action. Then, in the *Item* field, you can specify the number of the playlist item to cue to or jump to.

If you want the same ***AirBox*** action to be triggered at the beginning of the GPI pulse and at the end of the GPI pulse, click the ***Trigger*** radio-button. If the action is [Cue to] or [Jump to], then in the *Item* field you can specify the number of the playlist item to cue to or jump to.

If you want different ***AirBox*** actions to be triggered at the beginning and at the end of the GPI pulse, select the ***Front*** radio button. In the *Begin* field, enter the ***AirBox*** action to be executed upon the pulse beginning. Respectively, in the *End* field, enter the ***AirBox*** action to be executed upon the pulse ending.

Delay – this is the delay of the ***AirBox*** action in milliseconds.

Relay GPI Out

The ***Relay GPI Output*** is performed via dedicated output events in the playlist. When the playback reaches the event, the Relay GPI trigger is activated.

In this setup window define the GPI *Output* number – the number of the GPI output, where the GPI signal will be sent.

Check the *Invert level* check-box to set the level of the pulse to be Low.

WatchDog Plug-in

The ***WatchDog*** Plug-in detects if some malfunction of the application occurs. When a malfunction takes place, ***WatchDog*** runs "activated" Sub-Plug-ins from its sub-Plugin list

Activate the preferred sub-plugin by selecting it and clicking the ***Toggle*** button. When the sub-plugin is activated, you can click the ***Setup*** button to configure it.

Currently, there are three possible sub-plugins:

WD Dialog Plug-in.

When this sub-plugin is activated, a text message appears on the user's screen.

Relay GPI switch Plug-in.

This Sub-Plugin switches to the ***Bypass Relay card***. You can activate it and set it up if you have the ***Bypass Relay card*** installed on your machine.

Click the ***Setup*** button to enter the necessary configuration for the relay. In the *Device Select* field you will see the list of the installed ***Bypass Relay cards***. Select the necessary card and click ***OK***.

NOTE: Even if there is only one ***Bypass Relay card*** installed, select it in the *Device Select* field and click the ***OK*** button for the setting to take effect.

You can read more information about the ***Bypass Relay card*** in Appendix in this Manual.

Restart Plug-in

Activating this sub-plugin will restart ***AirBox***.

Elpro Switcher Output

The Configuration dialog for the ***Elpro switchers*** contains two radio buttons:

Local mode – select it if the switcher is connected to one of the PC COM ports (select it from the drop-down list below).

Network mode – select it if the ***Elpro switcher*** is connected to another ***AirBox*** server, somewhere in the local area network (specify the *Server* address in the string below).

NOTE: In order to control an ***Elpro switcher*** from more than one ***AirBox*** instance, you need the ***Elpro Switcher server***. The ***Elpro Switcher server*** application is an add-on, which is not included in the standard ***AirBox*** bundle

Acappella Switcher Output

This configuration dialog contains only a drop-down list.

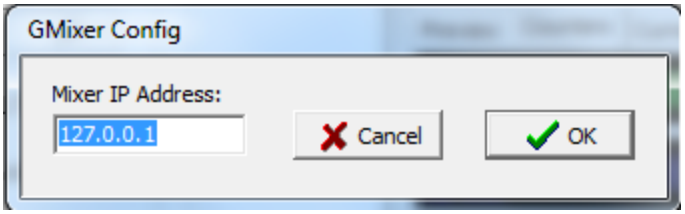
Here you have to specify the *COM port* that will interface the switcher control cable.

Concerto Switcher Output

The configuration dialog represents the *LAN* setup for controlling Concerto switchers. Fill in the *IP address* and *Port number* of the switcher and click ***OK***.

GMixer Control

In the ***Graphic Mixer Control*** configuration dialog, enter the IP address of the server where the mixer is located and click ***OK***. By default, the IP address is local host (127.0.0.1).



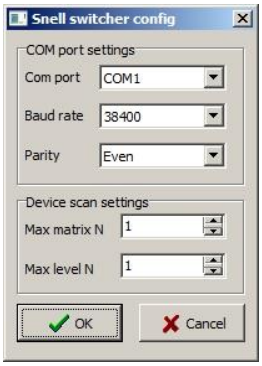
Quartz Matrix Switcher Output

There are two possibilities for controlling the switcher:

Local mode – select it if the switcher is connected to one of the PC COM ports (select it from the drop-down list below).

Remote switcher mode – select it if the ***Quartz Matrix Switcher*** is connected to another ***AirBox*** server, somewhere in the local area network. Specify the Server *IP address* and the *Port* number and click the ***OK*** button.

Snell Switcher Output



This is an external plug-in used to control Snell devices that comply with the *SW-P-08* protocol. It uses *RS-485* cables. The COM port settings may vary for different devices.
The ***Snell switcher*** configuration window contains the following settings:
COM port – specify which *COM port* you would like to use for connecting to the switcher. All of the available COM ports are listed in this drop-down list.

Baud rate – set the information carrying capacity of the port measured in bits/s.

Parity – this is a method used for error-detection in transmission. When parity is used with a serial port, an extra data bit will be sent with each data character. The parity bit in each character can be set to:

No Parity – this means that no parity bit will be sent at all.

Mark – this means that the parity bit is always set to the mark signal condition (logical 1) and, likewise, the ***Space*** parity always sends the parity bit in the space signal condition. Aside from the uncommon applications that use the 9th (parity) bit for some form of addressing or special signalling, mark or

space parity is uncommon, as it adds no error detection information.
Odd parity is more common than ***Even***, since it ensures that at least one state transition occurs in each character, which makes it more reliable.

The most common parity setting, however, is ***No Parity***, with error detection handled by a communication protocol.

NOTE: The settings, made into the *COM port settings* field of the ***Snell switcher configuration*** dialog have to correspond to the ones, made into the switcher itself.

NOTE: If you have more than one device, it is necessary to specify the *Max Matrix/Level* value in the *Device scan settings* field, situated at the lower part of the dialog. Otherwise, they will not be discovered in *Online mode*.

GPI Input/Output

AirBox has two GPI modes - GPI Input, where ***AirBox*** works as a *GPI Slave*, and GPI Output, where ***AirBox*** works as a *GPI Master*.

The GPI (General Purpose Interface) functionality is optional and it is not a standard part of the ***AirBox*** module. In order to use it, you must obtain a relevant license. If you have a licensed GPI option, you can define which mode to be enabled (or both of them) by double-clicking the *Enabled* field. You can configure the GPI further by clicking the ***Configure*** button:

GPI Input

The column to the left contains a list of **GPI Groups** (four different GPI pulses per COM port). The *GPI 1* stands for the CST pulse (input on pins 8 and 5), the *GPI 2* is DSR (pin 6 and 5), the *GPI 3* is RI (pin 9 and 5), and the *GPI 4* is CD (pin 1 and 5).

Specify the COM port for each group in the **Com Port** column. In the fields to the right you can define the desired ***AirBox*** function (Play, Stop, Pause, Resume, Next, etc.) for the respective GPI.

If you select ***Cue to*** or ***Jump to***, the setup window will expand for you to specify the number of the playlist item to cue or jump to.

If you select just ***Cue***, the playback will pause on the first frame of the currently selected item in the playlist.

NOTE: The ***GPI Input plug-in*** and the ***DTMF plug-in*** provide identical sets of commands.

GPI Output

Here you have to specify the **GPI groups** and the respective **COM ports**, too.

The *Pulse Level* field defines the level of the trigger pulse.

The *Pulse duration* field defines the duration of the trigger pulse in milliseconds.

The GPI ***Output*** is performed via dedicated *GPI output events* in the playlist. When the playback reaches a *GPI event*, the GPI trigger is activated for as many milliseconds, as defined in the *Pulse duration* field. After that the playback continues. If you do not want to continue the playback, just insert a *Stop*, *Wait*, or *Fixed-time event* after the *GPI event*.

NOTE: You can find detailed information about the ***AirBox GPI plug-ins*** in Appendix further in this manual.

NOTE: The Deck Control connector, supplied on the DeckLink breakout cable, is NOT supported!

Network Electronics switcher output

The configuration dialog represents the setup for controlling the switcher. Fill in the *IP address* and *Port* number of the switcher and click ***OK***.

Kramer Switcher Output

The ***Kramer Switch*** module allows you to control all x01 and x11 Kramer Switchers. ***AirBox*** controls them via the old protocol only. Protocol 2000 is NOT supported in this plug-in! The switchers may be controlled via *RS-232* and/or *RS485/422* communication ports.

The ***Kramer Switch output*** functionality is not a standard part of ***AirBox.*** If you have a license to use ***Kramer Switch output***, ***Enable***, and ***Configure*** it.

In the configuration window, you can define:

Model – the model of the Kramer Switcher used. You can select it from the pop-up list of the available ones.

Protocol – the protocol used for the respective switcher. You can select it from the pop-up list.

COM Port – the COM-port used for connecting to the switcher. You can select it from the available COM-ports.

Baud rate – the baud rate of the port.

Kramer Matrix Switcher Output

The ***Kramer Matrix Switcher*** module allows you to control Kramer Matrix Switchers from ***AirBox***. This plug-in is also optional.

AirBox supports the entire series of Kramer matrix switchers. They provide switching between 16, 12, 10, 8, 6, or 4 video and balanced/unbalanced audio and video inputs to 16, 12, 10, 8, 6 or 4 outputs (video and audio). The matrices are controlled via *RS-232* and/or *RS485/422* communication ports. Just select the appropriate *COM Port*. For more detailed information about various Kramer matrix switchers, please, visit http://www.kramerelectronics.com

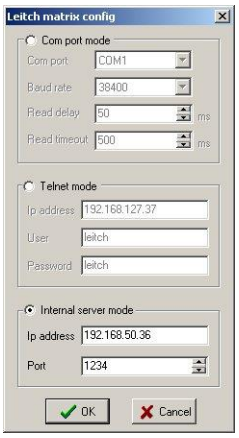
TIP: Use the ***Remote mode*** to send commands to the Kramer Matrix server. Thus, you could control one matrix from several ***AirBox*** channels simultaneously.

NOTE: This plug-in also supports all Kramer switchers that are protocol 2000 compatible, such as *Kramer VS-1201xl, VS-1001xl, VS-801xl, VS-601xl, VS-401xl* and *VS-1211, VS-1011, VS-811, VS-611, VS-411*. They provide switching between 12, 10, 8, 6 or 4 video and balanced/unbalanced audio inputs to one output (video and audio).

Please, check your device documentation for instructions how to change the control protocol.

NOTE: The Deck Control connector, supplied on the DeckLink breakout cable, is NOT supported!

Leitch Matrix Switcher Output



AirBox can control Leitch Matrix Switchers either through the computer COM port or using the IP address of the matrix (via TCP/IP protocol). The configuration window is divided into three areas – one per each mode.

For the ***COM port mode*** you should set:

COM Port – the *COM-port* you will use for connecting to the switcher. All available *COM-ports* are listed in the drop-down list.

Baud rate– set the information carrying capacity of the port, measured in bits

Read delay–the delay between the command given to the matrix switcher and its execution. By default, it is 50 milliseconds, and it is not recommended to change this value.

Read timeout – the time, for which the switcher reports status.

If you choose to control the matrix via the TCP/IP protocol, select ***Telnet mode,*** and enter the relevant *IP Address* at the bottom of the configuration dialog.

Check the factory-provided *User* name and *Password,* and type them in the relevant strings.

TIP: The default user/password for the ***Leitch Integrator*** is Leitch/Leitch. For the Panacea series these are Leitch/Leitch Admin respectively.

The ***Internal server mode*** is used to send commands to the Leitch Matrix Server. The Matrix Server is an add-on application, which provides possibilities to control one matrix switcher from several ***AirBox*** channels simultaneously. In the *IP address* field type the address of the machine, where the Switcher server is. Below, enter the Port you will use to connect the switcher.

Net Sender Output

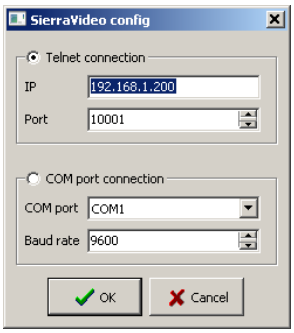
This is a plug-in that allows you to send any text message via UDP. The parameters of this plug-in are set during event insertion. Please, check the relevant **External events > Net Sender Output** section for further details.

Ocelot Switcher Output

Another type of switchers, supported by ***AirBox,*** are the Ocelot switchers. The only thing you can set in their configuration window is the *COM port* used for connecting to the switcher. You will find the available *COM ports* in the drop-down list.

NOTE: The Deck Control connector supplied on the DeckLink breakout cable, is NOT supported!

SierraVideo Switcher Output



Clicking the ***Configure*** button while the ***SierraVideo Switcher Output*** row is selected will evoke a setup dialog, where you can setup the connection to this switcher. You can select from two types of connections:

Telnet connection – if you select this type of connection, you need to fill in the *IP* address and the *Port* number in the respective fields, in order to connect to the switcher.

COM port connection – if you select this type of connection, use the drop-down list of available *COM ports* to select the one that will be connected to the switcher, and fill in the *Baud rate* in the respective field.

TitleBox Net Control output

This function allows managing the ***TitleBox*** objects from ***AirBox***. This is done by inserting external events (**TitleBox Net Control Output** events) in the playlist.

Click the ***Configure*** button to configure further the ***TitleBox*** control. You can set the connection port for this UDP communication (it is set to 8012 by default). If there is more than one ***TitleBox***, controlled through ***AirBox*** in your network, set the ***TitleBox*** channel, to which ***AirBox*** commands should refer.

If you check *Broadcast*, the commands will be sent throughout the entire network. If unchecked, the commands will be sent only to the specified ***TitleBox*** Server.

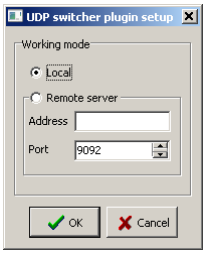
For a detailed step-by-step guide on how to integrate ***TitleBox*** with ***AirBox,*** see *APPENDIX – Integration of AirBox with TitleBox.*

TV Content Rating

This plug-in allows you to set a TV content rating identification to your output, which is done by adding / inserting such events to yo ur playlist.

After you enable the plug-in from the **Enabled** column, click the ***Configure*** button and select the country, which rating system you would like to apply to your output. Depending on your configurations here, you will be able to add a specific external event in your playlist.

UDP Switcher



The ***UDP Switcher Plugin*** is used to set-up the connection to ***UDP switcher***.

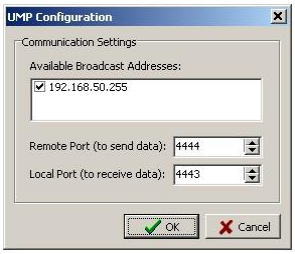
The UDP switcher is a server application, which runs separately. It communicates with its clients via a ***UDP Switcher Plugin*** (***UMP***).

In the configuration dialog, select ***Local***, if the server application is running on the same machine.

Select ***Remote Server*** if the server application is running on a remote machine. For ***Remote Server*** you have to enter the *IP Address* of the machine, where the *UDPSwitcher.exe* is installed, and the port number.

NOTE: The port number must be 9092, as it is by default!

Universal Matrix Plug-in



This plug-in is related to the use of the ***Universal Matrix Controller (UMC).*** For more information about the *UMC*, download the Universal Matrix Controller user manual, available at http://www.athensa.tv/.

The **UMC** is a **server** application, installed on a separate server(s). It is an intermediary in the communication between ***AirBox*** and the video matrices in the local network. It communicates with all type of matrices known from ***AirBox*** - Kramer Switcher, Elpro Switcher, Acappella, Concerto, etc.

In the near future, the ***Universal Matrix Plug-in*** will replace all currently existing matrix plug-ins in ***AirBox.***

Communication settings:

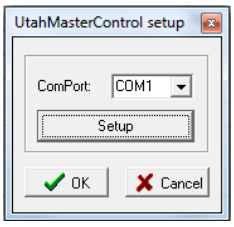
- *Broadcast addresses* – The ***UMC*** automatically scans the network and locates the available broadcast addresses. You can enable or disable broadcasting to a specific address by checking/un-checking the respective checkbox.
- *Ports* – The default port for sending data to the clients is **4443**. The default port, listened to by ***UMC*** is **4444**.

Utah Master Control Output

This is an external plug-in, used for control of Utah switchers by Utah Scientific.

On the Settings menu, go to ***Modules*** and then go to ***Remote control***. Find the plug-in name in the list and double click over the value in the **Enabled** column to toggle between No/Yes.

Select the plug-in and click ***Configure*** to open the setup dialog. In the dialog, select the COM port to which your device is connected and click ***OK*** to start working with the default settings.



To make additional changes in the device configuration, click ***Setup***. In the dialog that follows, make the following settings:

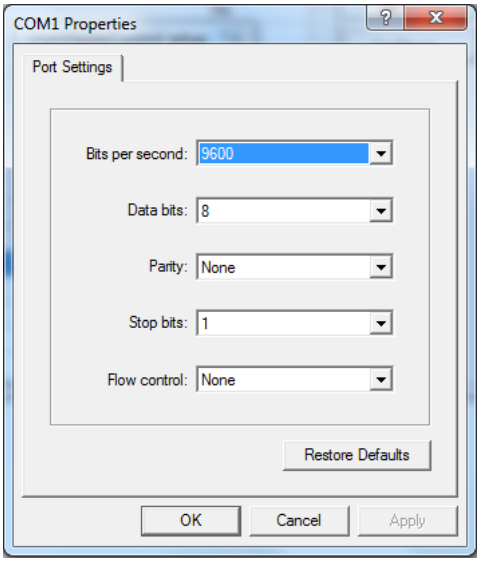
Bits per second – specifies the data transmission speed in bits.

Data bits – specifies the number of bits that represent one character of data.

Parity – specifies the type of parity bit used for detection of errors in transmission. Available options are: **Even** (even parity bit), **Odd** (odd parity bit), **None** (no parity bit is added and error detection is handled by the communication protocol), **Mark** (parity bit is always 1, present but not used), **Space** (always 0, present but not used).

Stop bits – specifies the number of bits, sent at the end of every character. Stop bits are used by the receiving device to resynchronise with the character stream.

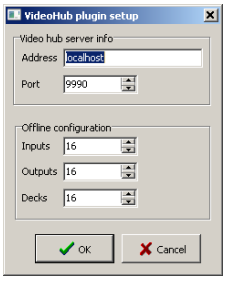
Flow control – specifies the method for control of the data transmission rate between the COM port and the device, used to prevent issues if data is sent faster than the device can receive it.



The ***Restore defaults*** button returns the default values of each field at any time, even after the changes have been applied.

NOTE: Please check the documentation, provided by the device manufacturer for recommended settings. If unsure, leave the default values.

VideoHub Switcher Output



This is an external plug-in, used for control over VideoHub broadcast routers, produced by Blackmagic Design Pty. Ltd.

The configuration dialog of the ***VideoHub control plug-in*** is divided in two fields:

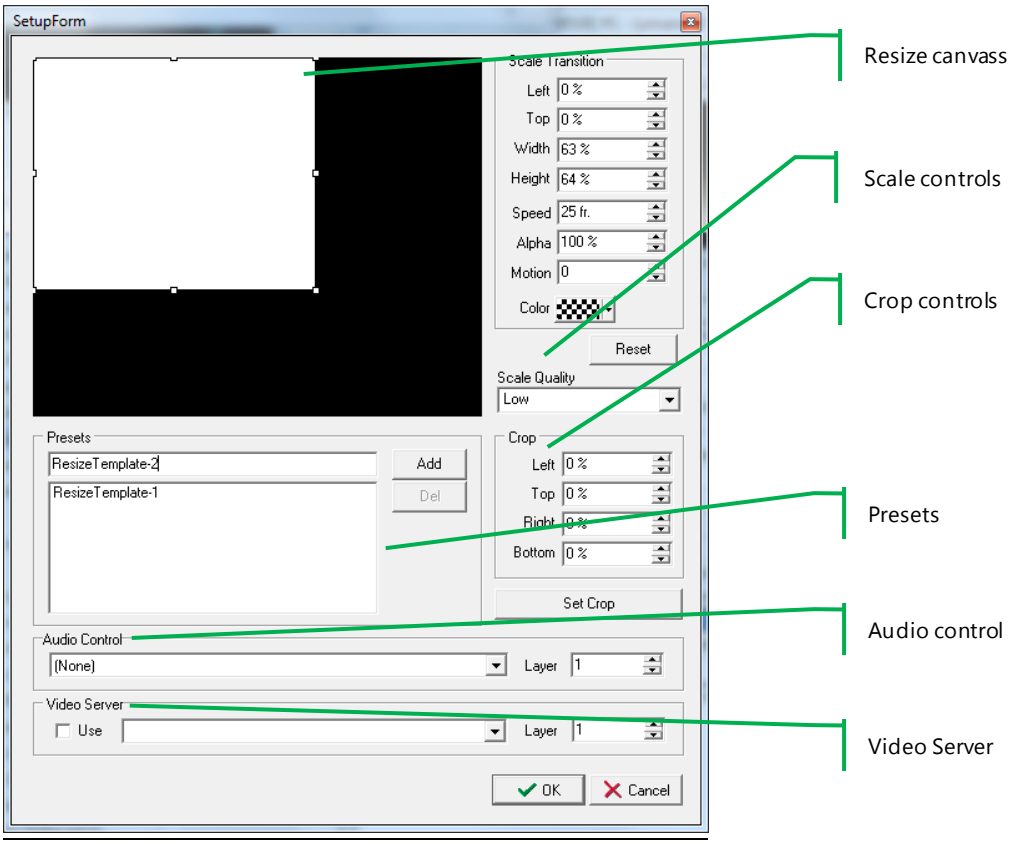
In the *VideoHub server info field*, specify the *Address* and *Port* of the router.

The *Offline configuration* field is used in case the matrix is not physically available.

EXAMPLE: When you use ***ListBox,*** and you would like to create an event for controlling the switcher, you have to create a virtual configuration of the switcher. Based on it, the relevant command will be created. In the *Offline configuration* field, specify how many *Inputs*, *Outputs*, and *RS-422 Serial control ports (Decks)* the router has. When ready, click ***OK***.

Video Resize Control Output

In the configuration dialog of the Video Resize Control Output, you can create custom video resize presets to use with Video Resize Control events which provide automated scaling of the video output.



In the **Resize Canvass** of the setup form you can preview the changes you make to the video output size, as well as to move and resize the video output by hand. Click any of the anchor points, situated at the corners and side middles of the white rectangle, which represents the unscaled video output, and drag to resize. Changes you make will be reflected in the **Scale Transition** spin boxes to the right. You can also enter percentage values to the spin boxes for precise resizing, as follows:

Left – the offset from the left margin of the monitor. Video parts that remain unseen are still being rendered.

Top – the offset percentage from the top of the monitor.

Width – the ratio between the scaled video size and the original size. Decreasing this value shrinks the video to the left and right.

Height – Decreasing this percentage shrinks the video to the left and right.

Speed – The time (in frames) for transition from the previous video layout to the current resize preset.

Alpha – sets transparency to the video (in percent).

Motion – Select the transition effect for the current resize preset from the drop-down list. This is the way the video will move while resizing. The available options are: ascending effect (positive digits), descending (negative digits), and linear appearance (the zero value)

Color– Set the color for the surrounding area of the scaled video. This part is usually used as a background for graphics insertion (i.e. in info channels).

Reset – clears all unsaved changes in the **Scale Transition** section.

Scale quality – specifies the scale quality. It is recommended to leave the default value.

All scaling options are preset dependent.

You can also crop the original video from the four sides of the rectangle, using the spin boxes in the crop controls section below. Cropped sections from the video will not be displayed to the output.

NOTE: The video will be cropped immediately after you click the ***Set Crop*** button. This functionality is not preset-dependent!

Under **Presets**, you can enter a name of your new preset in the empty textbox. Click ***Add*** to save your preset to the list of available presets below. This list will be empty when you first open the configuration dialog.

To change the settings of a preset from the list, click its name. Click the ***Apply*** button to save the changes you make to the preset. If you want to remove an existing preset, select it and click the ***Del*** button.

Video Server – used for the Picture-in-Picture functionality. The second picture comes from an auxiliary source, set in Settings > Output > AUX Source.

Usually, the background is the output of the current ***AirBox***, and the overlaying video is the resized picture or video, coming from the auxiliary source.

Check the **Use** check-box to allow this functionality and enter the name of the server, where ***AirBox*** is installed.

NOTE: Enter 1 (the default value) for **Screen layer** to resize the auxiliary source and 16 to resize the playlist clip(s).

NOTE: To resize both playlist and AUX source when **Video Server - Use** is checked, you must first define an AUX source resizing event into the playlist, and then a playlist resizing event.

Audio control – when Video Server is used, specify whether the audio from the AUX source will be used. Select one of the following options:

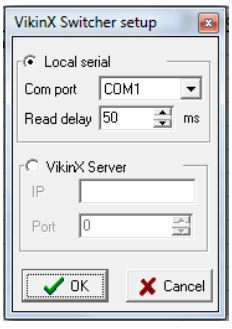
Full (100%) - only audio from the AUX source will be output;

Mute (0%) – audio from the AUX source will be muted;

Mix audio - audio from the AUX source will be mixed with the audio from the **AirBox** output.

Layer – enter the same layer number, as the one entered for the video server.

VikinX Switcher Output



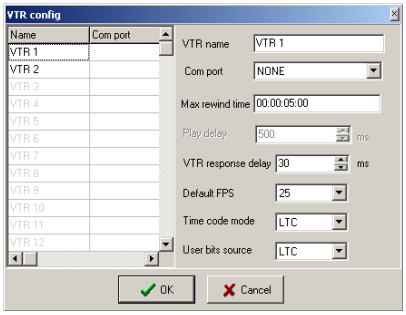
In the **VikinX Switcher** configuration dialog, select the switcher operation mode from the following options:

Local serial – if the switcher is connected to a COM port of the current server, and select the port number from the drop-down list. Specify the *Read delay* between the sending of a command to the switcher, and its response. The default value is 50 milliseconds. It is not recommended to change this value.

VikinX Server – if you will be using the **VikinX Server** and specify the IP address and connection port of the station, where the **VikinX Server** is installed.

For more information about switcher servers, go to the Using switcher servers section in this manual.

VTR Control Plug-in



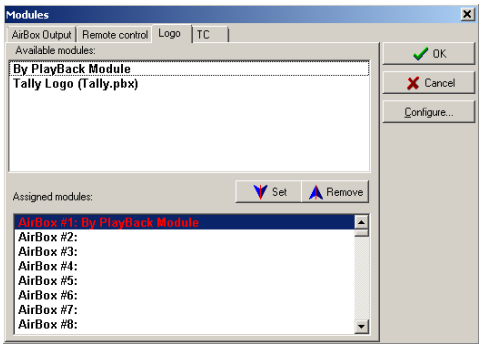
You can use it to control up to two VTRs for combined file-based/tape-based playout. Enable it and click ***Configure***. A dialog will open for you to make the necessary setting. First, enter the **VTR Name** and the **COM port**, to which it is connected. Then, specify the maximum rewind time. Please, note that in the playlist you do not have to insert VTR events that are overlapping in relation to the maximum rewind time!

Below you can make some VTR-specific fine-tuning: *Play delay* and *VTR response delay*.

Further, set the default frame rate of the output in the *Default FPS* field. Finally, specify the *Time code mode* and the *User bits source*.

For details on how to insert VTR control events in the playlist, please see the relevant section above.

Logo



This option allows displaying a logo over the clips, played in ***AirBox.*** You may select a logo source from the list and assign it to the appropriate ***AirBox*** channel.

By Payback Module

This is an internal logo generator that keys the selected logo over the output video. This is the option to be used in most cases.

Clicking the ***Configure*** button while the ***Logo*** tab is selected will open the *Logo configuration* dialog box, where you can define *Logo Presets* to be used later in ***AirBox*** (see the **Logo** section of the **Settings** menu description, further in this manual).

Tally Logo

This plug-in will raise or lower the output voltage on a specified COM port when playback reaches a logo event line. This is designed to control external

logo generators that support GPI input.

As only two pins on a COM port can be used for the GPI output, you can have only two different logo commands per port. Thus, you will be able to switch between Logo 1 and Logo 2 on COM 1; Logo 3 and 4 will be assigned to COM 2, and so on.

The pulse level is defined in the *Active level* drop-down menu. It is used to control the logo ON and logo OFF commands.

EXAMPLE: If the active level is [High], a Logo ON event turns on the output voltage, and a Logo OFF event turns it off.

NOTE: No logo will be displayed in the ***AirBox*** output!

Click ***Configure*** while the ***Tally logo*** is selected to setup the **COM port** for outputting the GPI pulse.

TC Generator

This plug-in allows for outputting LTC on the ***AirBox*** server sound card. Thus, you can synchronize external devices to the time code coming from ***AirBox***.

To enable this plug-in, double-click in the **Active** column to the right.

AirBox can output time code from most of its counters. You have to click ***Configure*** to select it. The available *Counters* are listed in the lower-right corner of the ***LTC Generator*** dialog. You can select the counting mode (for counters that support this feature) in the *TC direction* drop-down list.

Above you can select the output *Device* and set the output channel type and sampling rate.

The left-hand side of this dialog contains some basic LTC-related settings:

Time Code – this string shows the currently running timecode.

User Bits – Depending on the selected *User Bits* format (see below), you can preview and edit the output user bits here.

Format – these options are User-bits-related and reflect the most widely-used standards.

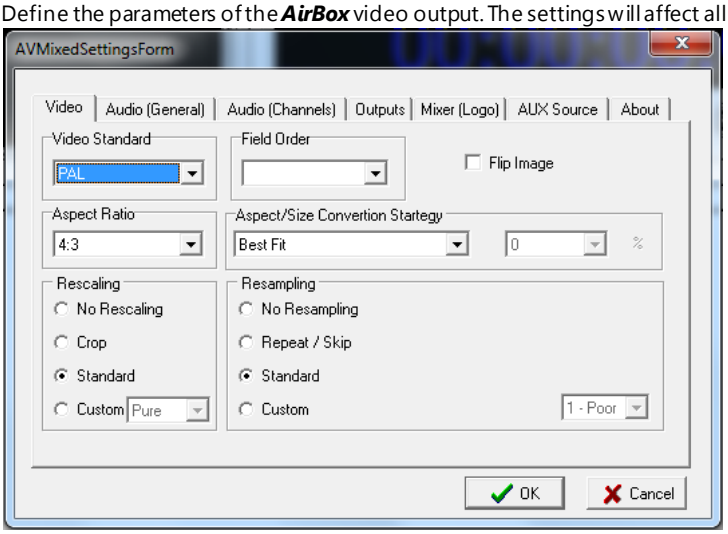
Output (in MPO and Mixed Soft)

This dialog contains configuration options for the active playback module. Some of the described options might be unavailable, depending on your hardware configuration and license.

NOTE: All settings, applied through this dialog are saved per ***AirBox*** instance.

Video tab

Define the parameters of the ***AirBox*** video output. The settings will affect all files in the playlist!



- *Video Standard* - specify output video standard
- *Field Order* – this option corrects the order of the field
- *Flip Image* – check this box to flip the video vertically

NOTE: *Flip Image* will affect ALL files in the playlist!

- *Aspect Ratio* – the aspect ratio of the video output.

- *Aspect/Size Conversion Strategy* – it is used to define how the output video will look like if the output aspect ratio is different from the aspect ratio of the files in the playlist.

EXAMPLE: Use this option if the output aspect is set to ***4:3***, but the clips in the playlist are with a ratio of ***16:9***.

The following options are available:

Best fit – will keep the real size of the image. Two horizontal black bars will be added above and under the video to fill-up the remaining part of the screen. The horizontal size of the video is preserved.

Balanced Letterbox – the horizontal black bars will be smaller. Small parts at the two sides of the video will be left out of the screen.

Full screen/Zoom – the vertical size of the video will be preserved. Video will be cut equally to the left and to the right.

Stretch – using this setting, there will be no black bars on the screen, but a little change in the form of the shapes.

Custom – it is used for custom settings. When you select it, the drop-down box at the right side of the *Aspect/Size* will become active, as well as the *Conversion Strategy* box. The latter allows you to adjust what portion of the image and what portion of the black bars will be visible in percentage.

EXAMPLE: If you select ***50%***, the result would be like the ***Best Fit Aspect/Size ratio***. At ***100%*** the result will be like ***Full screen/Zoom,*** and at ***0%*** – like ***Letterbox***.

- *Rescaling* – In case the source file has a different resolution than the output resolution, there might be some Rescaling of the video.

No Rescaling – if selected, there will not be any rescaling.

Crop – if the source file has a higher resolution than the output resolution, only the middle part of the video will be visible. If the input video has a lower resolution, the remaining part of the output picture is filled with a black color.

Standard – this setting corresponds to the Low one from the *Custom* list.

Custom – if selected, specify the quality of rescaling from the drop-down list to the right.

NOTE: Working with higher video quality requires more CPU power.

- *Resampling* – In case the source video has a different frame rate than the output one, the following *Resampling* options are provided:

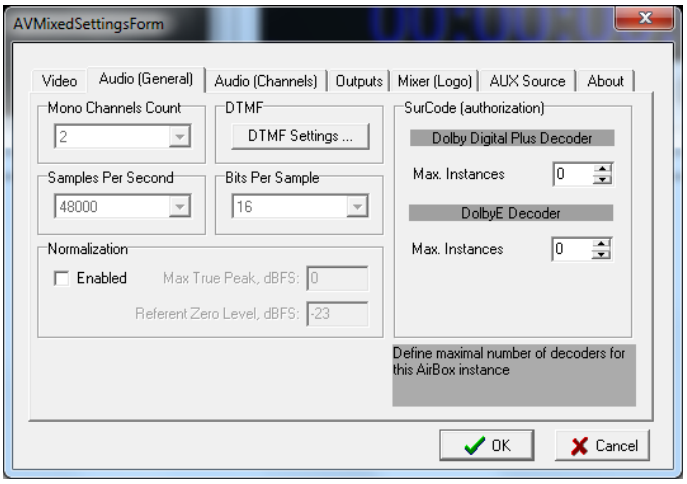
No Resampling – there will be no resampling.

Repeat/Skip – for example, if the output video standard is set to NTSC, but you have to play a file, which belongs to the PAL standard, some frames will be repeated, in order to fill up the frame number to 30. By analogy, some frames could be skipped.

Standard – corresponds to the ***9-Very High*** quality from the *Custom* list.

Custom – if selected, you have to select an item by your choice from the drop-down list near this radio-button

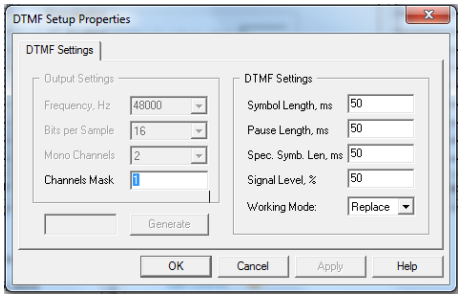
Audio(General) tab



Here you can define some settings for the audio output.

DTMF settings

AirBox can generate and output DTMF tones. Click ***DTMF settings*** button to open the DTMF configuration dialog.



Under *Output settings*, define the parameters of the DTMF tone – *Frequency*, *Bits per sample*, number of *Mono Channels*, and *Channels Mask*.

Depending on the *Channels Mask*, the DTMF tone is sent to a specific audio channel. If *Channels Mask* is zero (0), the DTMF is not sent. If it is one (1), DTMF is sent to the 1st mono channel. If it is two (2), DTMF is sent to the 2nd mono channel.

Length of the standard *Symbol* in DTMF sequence **– numbers from 0 to 9 and letters A, B, C, D**

Pause Length **–** length of the pause between symbols

Specific Symbols Length **–** Specific symbols are all symbols in the DTMF strings, different from numbers from **0 to 9,** and letters **A, B, C, D**

Signal Level % **–** the signal level in percent

Working Mode **–** the DTMF can be Mixed with the output audio, or to Replace the output audio

Normalization

This functionality is developed in accordance with *EBU Rec. R 128*. It provides monitoring and control over the perceived loudness of audio sources and reduces the loudness differences between programmes, when the loudness of audio content changes frequently, e.g. in commercial breaks. ***AirBox*** performs the audio normalization based on loudness metadata, provided by ***QCBox***.

QCBox is an application for quality control of media content. Test results are stored as metadata in an **.mtd* file. There is a separate **.mtd* file for each tested media file. Based on that metadata, ***AirBox*** will adjust the output loudness of all media files separately.

NOTE: With Audio normalization enabled, ***AirBox*** will only adjust audio levels in the playout. ***AirBox*** will not modify the source content (media file)!

Under Normalization, check ***Enabled*** to activate the option. You can enter custom settings for Max True Peak and Referent Zero Level. The defaults match the recommendations of the *EBU Rec. R 128* standard. There is a tolerance of **±1.0 LU** for programmes, where exact normalization is not possible.

The maximum TPL, specified in *EBU R 128*, it is **-1dBTP** (measured with a **True Peak** meter).

EXAMPLE: How audio normalization works in ***AirBox***:
1. AirBox loads the playlist
2. AirBox accesses the **.mtd* files, created by ***QCBox*** for each media file
3. AirBox reads the Programme Loudness value in each **.mtd* file. This is the average loudness!
4. AirBox performs a correction of the audio levels in order to reach the referent -23/-24 LUFS. The reference value can be configured!

Normalization includes the following operations:

Level shifting – as ***AirBox*** does not perform any processing of the source content, it normalizes the loudness of the whole programme (file-based playout channel) by level adjusting. For example, if the playlist includes a source file with average loudness of **-32 dBFS**, the loudness level will be increased by **9 dB** in order to reach the default **-23 dBFS**.

Maximum True Peak control – if the maximum peak level exceeds **zero dB**, clipping (waveform distortion) will occur. Therefore, if the maximum true peak level will exceed the value, specified in the ***AirBox*** **Output Settings**, ***AirBox*** assumes that the source is not prepared properly by the sound engineer. In such a case ***AirBox*** will not reproduce that media source.

EXAMPLE: A source media file has average programme loudness of **-32 dBFS** and maximum true peak level of **-8 dB**. When the level is adjusted by **9 dB** to reach the referent loudness level of 23 **dBFS**, the peak will reach **1** (above zero). As mentioned above, exceeding that value will introduce clipping or other audible distortions, and exceeding the Max TPL value, specified for the ***AirBox*** output settings (it is recommended for this value to be **-1 dB**), will cause skipping of the source's playback.

Audio (Channels) Tab

This tab contains options for adding and configuring different audio streams.

NOTE: Some audio channel options might be hardware or license dependent!

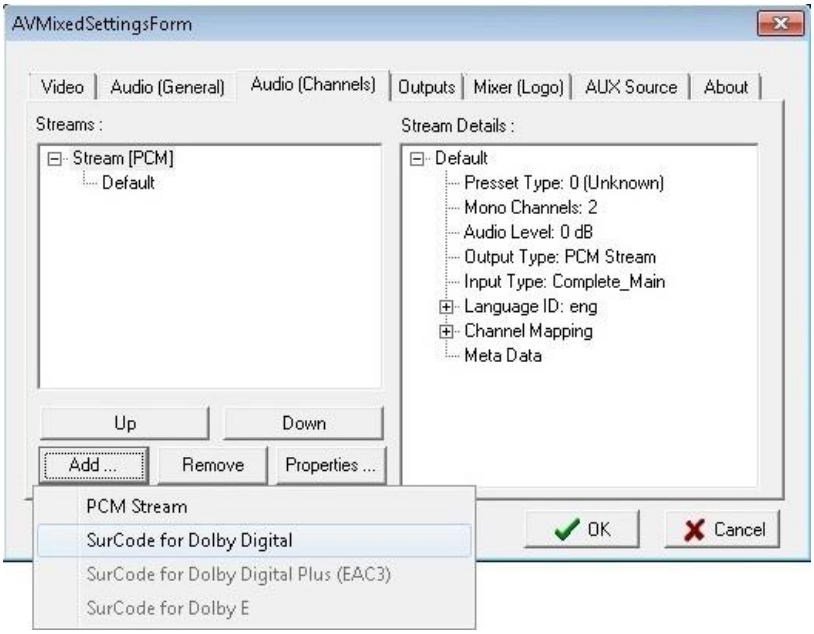
- **Streams** (audio tracks)

The list of streams is visible in the **Streams** window. When you select a stream from the list, you can see the details for this audio stream in the next **Stream Details** window.

To define/remove/edit a stream, click the ***Add/Del/Prop*** button respectively at the right side of the window.

To change the order of the streams in the stream list, use the ***Up*** and ***Down*** buttons.

When you click the ***Add*** button, you will see a drop-down menu with the following options:



- PCM Stream
- SurCode for Dolby Digital
- SurCode for Dolby Digital Plus (EAC3)
- SurCode for Dolby E

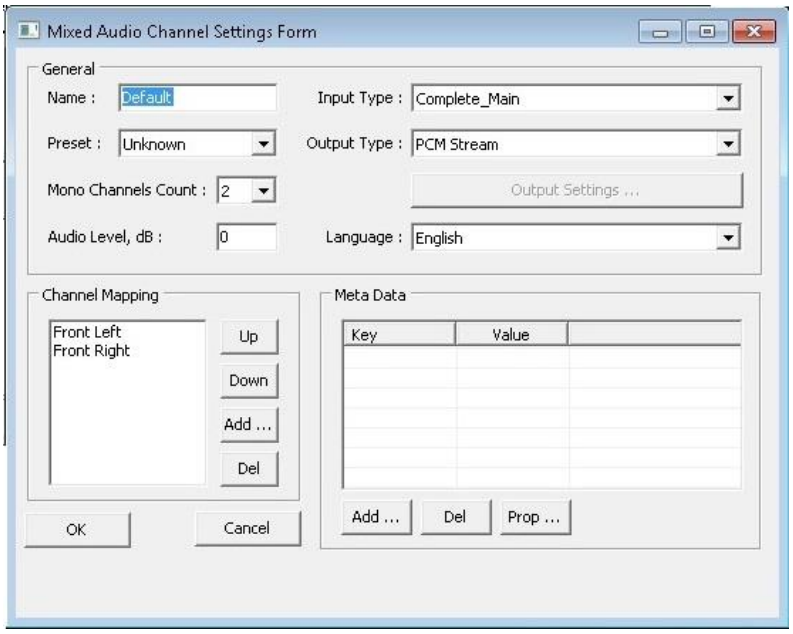
NOTE: Dolby E and Dolby Digital Plus is currently awaiting certification by Dolby Labs.

Adding PCM Stream

In the **Mixed audio channel settings** dialog box:

- Enter the name of the new stream in the *Name* field.

- In the *Preset* field, select a preset for a channel mapping from a drop-down list. The list includes the most popular channel mappings.



EXAMPLE: If you select ***Stereo***, the channel mapping will contain a [Front Left] and a [Front Right] channel. If you select ***3 front LFE***, there will be: [Front Left], [Front Right], [Front Center], and [LFE Subwoofer].

- In *Mono Channels Count* enter the number of mono-channels, included in this stream.

NOTE: If you select a preset from the *Preset* list the number of mono channels will be entered automatically and cannot be changed.

If you select the *Preset* to be ***Unknown***, you can enter the number of mono channels manually, and you can define your own channel mapping into the *Channel Mapping* area.

- *Channel Mapping*

By default, when you select some number of mono channels, in the *Channel Mapping* field, you will see the most popular mapping types for them.

NOTE: **Channel Mapping** options could be disabled.

If you select 2 mono channels, the *Mapping* will contain a [Front Left] and a [Front Right] channel.

If you select 4 mono-channels, the Mapping will be: [Front Left], [Front Right], [Front Center], and [LFE Subwoofer].

You can delete one or more of these mono-channels by clicking the ***Del*** button to the right of the *Channel Mapping* area. Then you can add a new channel for audio mapping, by clicking the ***Add*** button.

To change the channels order, just select one of them and move it up or down in the list, by clicking the ***Up*** or ***Down*** button.

NOTE: If you select a preset from the *Preset* list the channel mapping will be set automatically and cannot be changed.

NOTE: In case the number of in-file mono-channels different from the number of channels, selected for the output (e. g. the file contains 2 mono-channels, but 4 mono-channels are defined for the output), the re-mapping will be made according to the most popular re-mapping rules.

Audio Level in dB – changes the output audio level of the current stream. The default value is 0 (no change). If you enter 1, the output audio level will be increased by 1 dB. If you enter -1, the output audio level will be decreased by 1 dB.

Input Type – select the type of sound of the audio stream, e.g. "dialogue", "music and effects", "commentary", "voice over", etc.

Output type – select the output encoding method – *PCM* or *Dolby Digital*.

NOTE: Currently, *Dolby Digital* output is supported with a *Deltacast* card only.

- ***Output settings*** – This button is activated when the *Output type* is *Dolby Digital*. It provides a set-up window of the *Minnetonka SurCode for Dolby Digital*. Its detailed description is available further in the section Settings for Deltacast HD Mixed Output.
- The language of a sound could be selected from the *Language* field.
- *Meta Data* – this is a list of additional audio metadata for user-defined audio streams, default volume, copyrights, etc.

You can **Add**, **Delete**, or **Edit** metadata by selecting it and clicking the ***Add/Del*** or ***Prop*** button respectively.

When you are ready, click the ***OK*** button at the bottom of the ***Mixed Audio Channel Settings*** window. The newly defined audio stream will appear in the stream list.

NOTE: If you define more output audio streams than the file contains, the additional streams will be empty by default. It is possible to duplicate the first output audio stream into the extra streams.

Adding Dolby Digital stream

The Deltacast playout module supports **Dolby Digital** audio output type.

The Dolby Digital functionality is being provided by ***SurCode for Dolby Digital***. ***SurCode for Dolby Digital*** and is manufactured under a license from **Dolby Laboratories**. ***SurCode*** is a trademark of **Minnetonka Audio Software**.

Select a Dolby Digital as an Audio Output type in the audio-stream settings window, and then click ***Output settings*** button to open the ***SurCode for Dolby Digital*** window.

Below, there is a description of ***SurCode*** windows as per ***SurCode*** user's guides.

Main settings

- Audio Services
- **Audio Coding Mode –** from this pull-down window, you can select the input mode - mono, stereo, or surround input;
- **Data Rate -**it indicates/sets the sound file sample rate.
- **Bitstream Mode**

The Bitstream Mode parameter indicates the type of audio service that the bitstream conveys. Complete Main (CM) is the normal mode of operation and contains a complete audio program including dialog, music, and effects. The CM and ME Main Services can be further enhanced by means of Associated Services.

The Bitstream Modes and audio service types are:

Main Service: Complete Main (CM)

Main Service: Music and Effects (ME)

Associated Service: Visually-Impaired (VI)

Associated Service: Hearing-Impaired (HI)

Associated Service: Dialog (D)

Associated Service: Commentary (C)

Associated Service: Emergency (E)

Associated Service: Voice Over (VO) / Karaoke

Dialog Normalization (*dialnorm)*

The Dialog Normalization (*dialnorm*) value indicates how far the average dialog level of the encoded program is below digital 100% full scale (0 dBFS). Valid settings are *1 dB to -31 dB*. This parameter determines the audio reproduction level and affects other parameters and decoder operation.

Bitstream Information

The parameters in this group directly relate to the Dolby Digital Bitstream

Information (BSI) fields.

Center Downmix Level

The Center Downmix Level parameter indicates the nominal Lo/Ro downmix level of the Center channel with respect to the Left and Right channels. This parameter setting does not affect Lt/Rt downmixes.

This parameter *appears in the bitstream* only when three front channels are in use, i.e., only when the Audio Coding Mode is set to 3/0, 3/1, or 3/2

Surround Downmix Level

The Surround Downmix Level parameter indicates the nominal Lo/Ro downmix level of the Surround channel(s) with respect to the Left and Right channels (consistent with the ITU BR specification). This parameter setting does not affect Lt/Rt downmixes.

This parameter *appears in the bitstream* only when a Surround channel is in use, i.e., only when the Audio Coding Mode is set to 2/1, 2/2, 3/1, or 3/2. It is recommended that the parameter be user-adjustable only when one of these modes has been selected.

Audio Production Information Exists

The Audio Production Information Exists flag indicates whether the Mixing Level and Room Type parameters explained below exist within the Dolby Digital bitstream.

Room Type

The Room Type informational parameter indicates the type and calibration of the mixing room used for the final audio mixing session. The Room Type value is not normally used within the Dolby Digital decoder but can be used by other elements in the audio system. This parameter appears in the bitstream only when the Audio Production Information Exists parameter is set to 1, or yes.

Valid values for Room Type**:** *Large room; Small room; Not indicated*

Mixing Level

The Mixing Level informational parameter indicates the absolute Sound Pressure Level (SPL) of the audio program as heard by the original mixing engineer. This information makes it possible to replay the program at exactly the same loudness, or at a known difference in loudness. By knowing how much lower a program is played at home, for example, it is now possible to apply the correct degree of *loudness compensation*.

The value for Mixing Level represents the theoretical loudness of a full-scale (0 dBFS) tone in one channel.

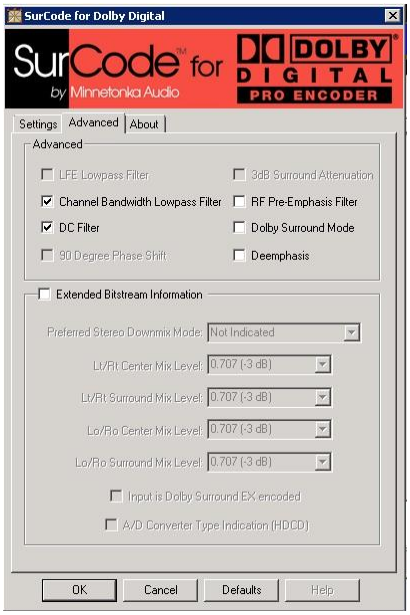
Copyright Exists

The Copyright Bit informational parameter sets the value of a single bit within the Dolby Digital bitstream. If this bit has a value of 1 (the check-box is checked), the information in the bitstream is indicated as protected by copyright. If it has a value of 0 (the check-box is not checked), the information is not copyright protected.

Original Bitstream

The Original Bitstream informational parameter sets the value of a single bit within the Dolby Digital bitstream. This bit has a value of 1 (the check-box is checked) if the bitstream is an original. If it is a copy of an original bitstream, it has a value of 0 (the check-box is not checked)

Advanced settings



LFE Lowpass Filter

The LFE Lowpass Filter parameter can be used to activate a 120 Hz low-pass filter applied to the LFE input channel. If the digital signal fed to the LFE input does not contain information above 120 Hz, this filter can be disabled. This parameter is user adjustable only when the LFE channel is enabled.

Channel Bandwidth Lowpass Filter

The Channel Bandwidth Lowpass Filter parameter can be used to activate a low-pass filter with a cut-off near the specified audio bandwidth that is applied to the main input channels. If the digital signal fed to the main input channels does not contain information above the specified audio bandwidth, this filter can be disabled.

DC Highpass Filter

This parameter can be used to activate the DC Highpass filter for all input channels. The DC Highpass filter should always be enabled unless the encoding engineer is absolutely sure that there is no DC in the input audio.

Surround Channel 90-Degree Phase-Shift

The Surround Channel 90-Degree Phase-Shift feature is useful for generating multichannel Dolby Digital bitstreams that can be downmixed in an external two-channel decoder to create a true Dolby Surround compatible output. This parameter is user-adjustable only when Surround channels are present in the bitstream, i.e., only when Audio Coding Mode is set to 2/1, 2/2, 3/1, or 3/2. The 90-Degree Phase-Shift parameter should always be left enabled except under specific conditions. These include, but are not necessarily limited to, system calibration, encoding of certain test signals, and in the *extremely rare* case when the discrete playback of highly coherent program material may be compromised.

Surround Channel 3 dB Attenuation

The Surround Channel 3 dB Attenuation function is useful for applying a 3 dB attenuation to the Surround channels of a multichannel soundtrack created in a room with film style calibration, when encoding it for consumer home theater playback. Cinema soundtrack Surround channels are mixed +3 dB relative to the front channels in order to account for cinema calibration standards. Home theater Surround channel gains are calibrated differently, and so a -3 dB adjustment to the Surround tracks is necessary. This parameter is user-adjustable only when Surround channels are present in the bitstream, i.e., only when Audio Coding Mode is set to 2/1, 2/2, 3/1, or 3/2.

RF Overmodulation Protection (RF Pre-emphasis Filter)

The RF Overmodulation Protection parameter determines whether or not an RF preemphasis filter is used in the overload protection algorithm to prevent RF overmodulation in set-top box decoders. It is primarily used for broadcast applications.

Digital De-emphasis

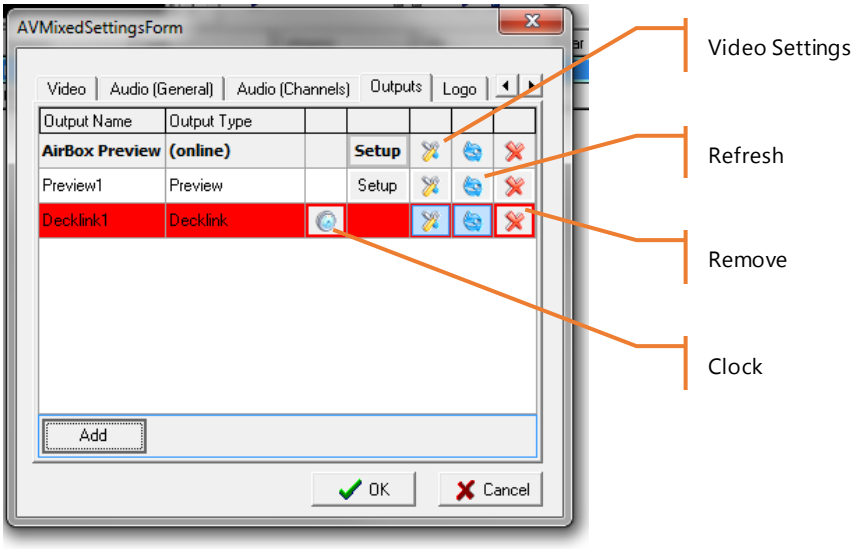
Dolby Digital encoders can allow activation of digital de-emphasis applied to the linear PCM input signals whenever it is detected that the input has been preemphasized. Detection is typically achieved by monitoring the pre-emphasis flags within the channel status data of the incoming digital audio signal (e.g., AES/EBU or S/PDIF). Since the value of this parameter depends on some other parameter(s) or condition(s), it does not require explicit user control and can be adjusted automatically by the encoder.

Extended Bitstream information (AC3 metadata)

About more information, please refer to the SurCode for Dolby Digital documentation.

Outputs

When the active playback module is set to MPO Mixed Playback (in **Settings > Modules > *AirBox Output)***, an additional tab, named ***Outputs***, will be displayed in the **Settings** menu > **Output** dialog. This tab allows you to add, remove, and edit different outputs.



As shown in the image to the left, the ***Outputs*** tab allows you to view a list of already configured outputs.

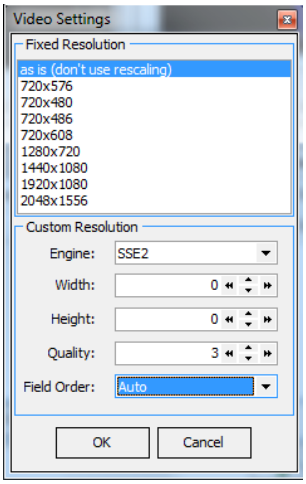
The **Output Name** column shows you the individual names you have given to each separate output.

In the **Output Type** column you can see the type of that particular preset.

The **Clock** column allows you to select the clock of which hardware device to be used. Note that if you only have one hardware device configured, it will be used by default. If you set the clock of non-hardware output to be used, AirBox will simply use the system timer. Be aware that in this case an additional timebase correction may be necessary. In the screenshot above, the clock of the Decklink platform is selected.

The **Setup** column allows you to open the setup dialog of each separate output. To do that, simply double click on the corresponding [Set up] row and a dialog will appear, depending on the type of output.

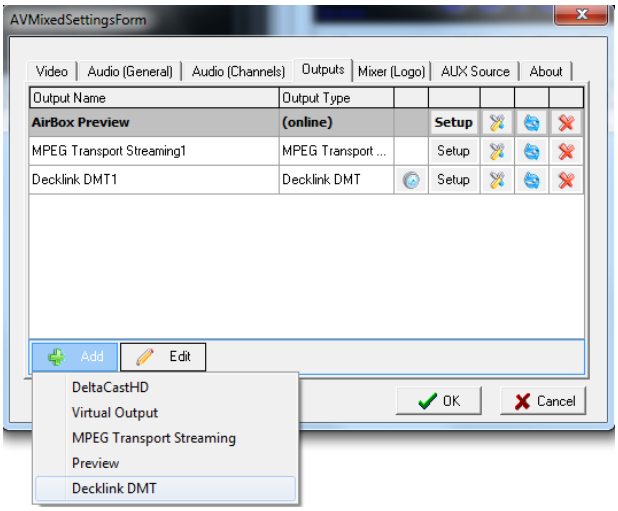
The next column, **Video Settings**, opens a dialog like the one below. Here you can set the resolution of the output. For custom resolutions, you can select the rendering engine, as well as video height, width, quality and field order.



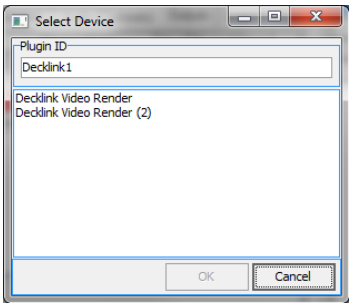
Click the symbol in the next column, **Refresh** to refresh the output.

Click the symbol in the last column, **Remove**, to delete the corresponding output.

To add a new output preset, simply click the Add button at the bottom. You can select one of the following types of outputs: **Deltacast HD**, **Virtual Output**, **MPEG Transport Streaming**, **Decklink**, **Preview,** or **Decklink DMT**. Depending on your selection, a different setup dialog will open.

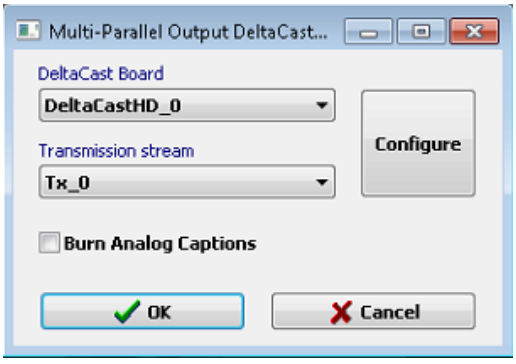


Adding DeltaCastHD



If you select **Deltacast HD**, a dialog, as the one above will open. Here you can simply enter the name of your output, and choose an existing Deltacast platform from the list. Once you are done, click ***OK***.

Deltacast Output setup

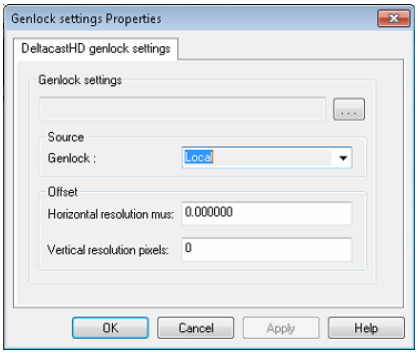


Select the Deltacast board and Transmission stream in the Setup dialog. Check Burn analog captions to enable this option.

In the Deltacast board coniguration

The Deltacast playout module supports *Genlock*. **GenLock** (short for **gen**erator **lock**) is a common technique, where the video output of one source, or a specific reference signal, is used to synchronize other television picture sources together.

Click the ***Genlock*** button in the video settings window to open the ***GenLock*** settings dialog.

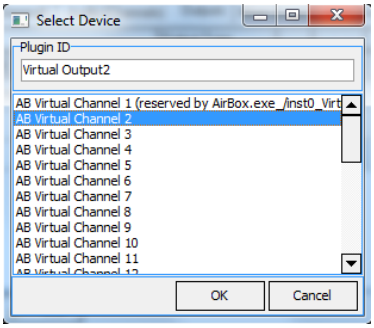


Here you can define a *Source Genlock* and *Offset* of *Horizontal* and *Vertical resolution*.

The *Genlock sources* could be ***Local*** (generated internally from the Deltacast HD card) or ***Blackburst*** (coming from an external source, connected to the black burst port of the card).

The *Offset* is defined in pixels.

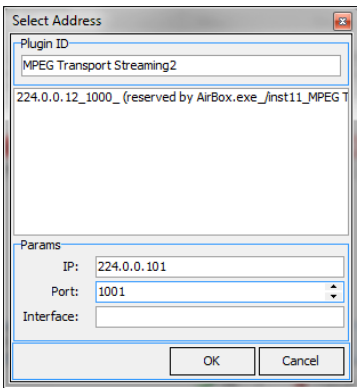
Adding Virtual Output



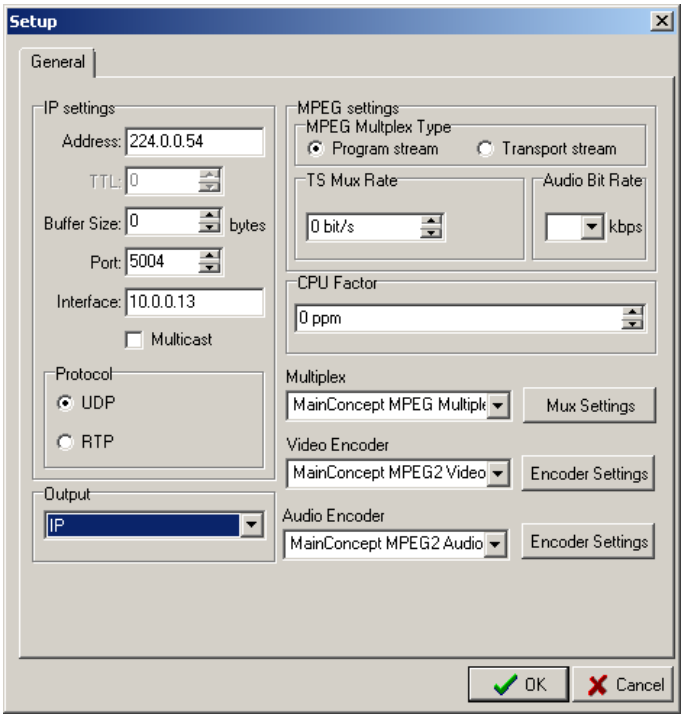
Virtual Outputs can be used for streaming. Virtual outputs, defined from this dialog box will be displayed as **MPO Video Capture source** in most video players that support such functionalities and can be previewed locally.

Adding MPEG Transport Streaming

If you add an **MPEG transport streaming** output, a dialog like the one above will appear. Enter the *IP* address, *Port* number, and *Interface* name of the respective ***AirBox***, to which you wish to send the transport stream.



MPEG Transport stream setup



Clicking the **Plugin Setup** for a predefined **MPEG Transport Stream** in the ***Outputs*** tab opens a dialog, like the one below.

- In the *IP settings* field configure the following:
  - *Address* – enter the IP address of the remote machine to receive the stream. If you check *Multicast*, i.e. streaming to multiple machines, you will have to enter a special multicast address in the *Address* field (the multicast addresses are in the range between 224.0.0.0 and 239.0.0.0).
  - *TTL* stands for time-to-live for the Internet packets. This spin-box is active only if the *Multicast* box is checked. The higher the *TTL* value, the longer the packets will "live" and pass through more network routers. By default the TTL is set to "1," which is enough for local networks.
  - *Buffer size* – in this spin-box you can specify the size of the IP packets to be sent along the network. This size should be a multiple of 188 bytes, which is the size of an MPEG-2 TS packet. We recommend a 1316 bytes buffer size, which will comply with the standard network MTU.
  - *Port* - define which communication port will be used for the streaming. By default it is 1234.
  - *Interface* - if there is more than one network card in the PC, you need to specify which one should be used for the streaming in this string. If you leave it empty, ***AirBox*** will stream through all of the available interfaces.
  - *Multicast* – check it to stream to all PCs in the network.
  - *Protocol* – the network protocol.
  - In the *Output* drop-down menu select whether the output to be sent over ASI or over IP
- In the *MPEG settings* field configure the following:

If you select ***Program stream***, the protocol will be switched automatically to ***UDP***. Under ***Transport stream*** you can choose between the ***UDP*** and ***RTP*** protocol.

The MPEG stream settings are situated at the right side of the window. There are two options for the *Multiplex Type*: Program or Transport stream.

When ***Transport stream*** is selected, the *TS Mux Rate* spin-box becomes active, so you could either select *Automatic,* or fix the Mux rate manually. The *Audio Bit Rate* is adjustable for both stream types. It is 192kbit/s.

If you select ***Program stream***, the network protocol will be switched automatically to ***UDP***.

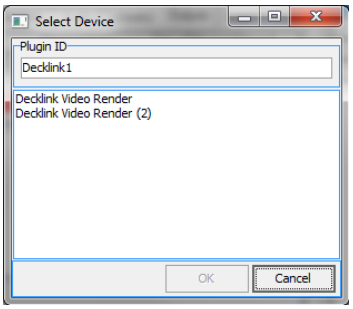
With ***Transport stream*** you can choose between UDP and RTP.

CPU time factor – similar to IP Pump, in IP Streamer we use the CPU clock to generate the PCRs of the Transport Stream. Enter the value from the stream analyzer in this spin box to compensate the inaccuracy of the CPU clock frequency.

Clicking the ***Multiplexer Settings*** button will open the MainConcept Multiplexer© properties dialog. You can view the parameters of the output MPEG-2 TS stream in it.

Adding Decklink DMT

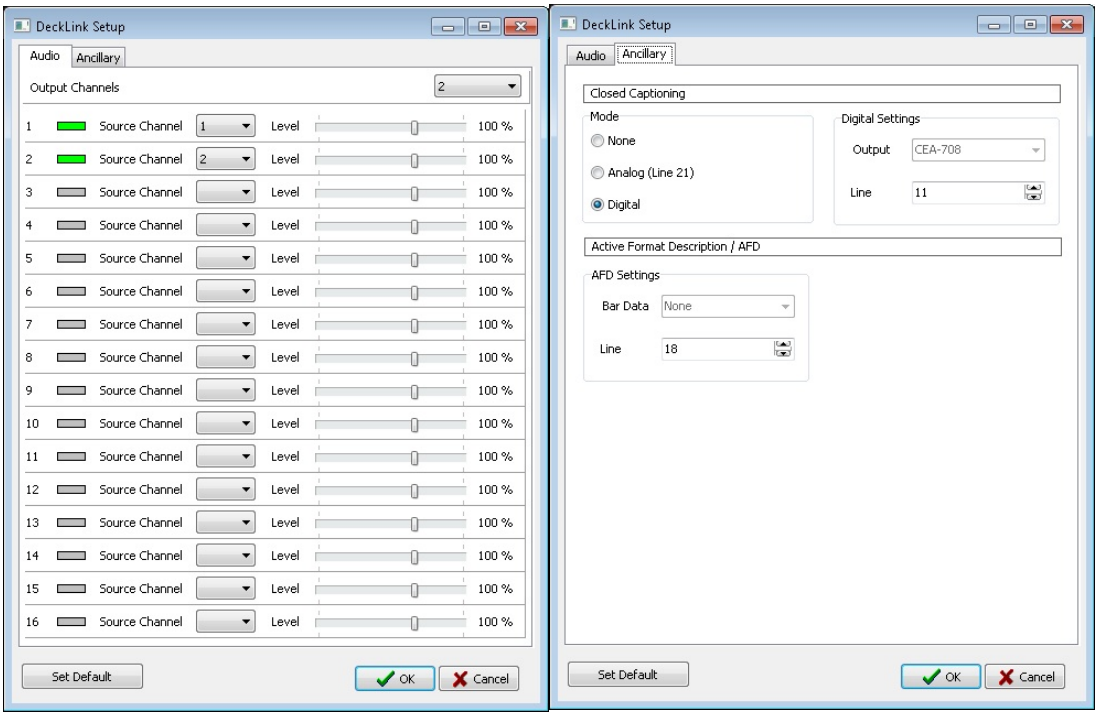
If you select **Decklink DMT**, a dialog will appear, where you can enter the name of your output and choose an existing Decklink platform from the list. Once you are done, click ***OK***.



NOTE: DMT Decklink Output only works with driver 9.7.2 or later.

Decklink Output setup

Clicking the **Plugin Setup** for a predefined **Decklink DMT** in the ***Outputs*** tab opens a dialog, like the one below:



This dialog contains two tabs – ***Audio*** and ***Ancillary***.

In the ***Audio*** tab you can configure the number of output audio channels to be used. This is done via the drop-down list in the top right corner of the dialog. Up to 16 audio channels are available here.

Once you configure the number of output audio channels, additional options for each channel are available in the list of channels. For each *Source Channel* in the list you can configure the corresponding output channel, as well as the volume *Level*.

Use the ***Set Default*** button at the bottom to return to the default configurations of the ***Audio*** tab.

In the ***Ancillary*** tab you can configure closed captions and AFD settings.

In the Closed Captioning field select the closed captioning mode:

None no closed captions will be output

Analog (line 21) analog closed captions will be output on line 21

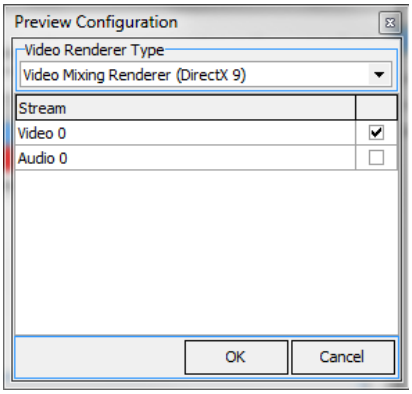
Digital - digital closed captions will be output. Notice that you can configure the digital closed captions in the next field – *Digital Settings*. Select the *Output* type from the drop-down list, both CEA 608 and 708 are supported. Use the Line scroller to select the line, on which you would like closed captions to be output. By default, line 11 is used here.

In the Active Format Description / AFD field you can configure the *Bar Data* type, as well as the output *Line* to be used.

NOTE: Please, note that for the correct usage of the AFD feature you have to set the following output configurations in **Settings** > **Output** > ***Video*** tab:
– *Aspect Ratio* = Auto
– *Aspect/Size Conversion Strategy* = Stretch

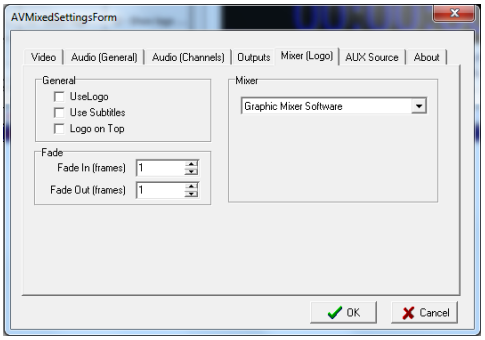
Adding Preview

If you select a **Preview** output, a dialog as the one to the right will appear. Select the Video Renderer Type from the drop-down list and place a check next to the streams you wish to output (Video / Audio).



NOTE: If there are Closed Captions in the content that is played, you will be able to see them in the preview window.

Mixer (Logo) Tab



This tab contains three fields – *General*, *Fade* and *Mixer*.

The first one contains the following check-boxes:

Use Logo – if not checked, the user will not be able to use logo.

Use Subtitles – check it to enable the usage of subtitles.

Logo on top – you can use it to avoid eventual overlapping of the logo and the subtitles.

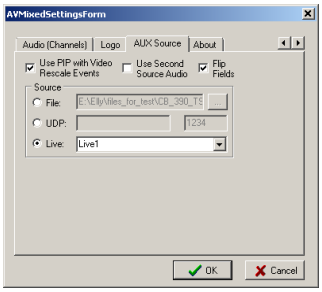
To adjust the duration of the *Fade In* and *Fade Out* effects when showing/hiding the logo, use the relevant spin-boxes, situated in the *Fade* field.

From the drop-down menu in the *Mixer* field, select the graphic library, which communicates with your GPU device to accelerate graphics rendering.

You can choose between four options:

- None – Use graphic layer
- Graphic Mixer Software
- Graphic Mixer Direct 3D
- Graphic Mixer Open GL

AUX Source Tab



There are settings for using an additional video source. There are three possible AUX *Sources*:

Previously prepared ***File*** – you need to enter its location here;

UDP stream – enter the IP address and port;

Live video – a video signal, coming from a ***Live Input***, as it is defined in the ***Live Input*** settings window. Here you have to enter the name of the live source, exactly like it is entered in the ***Live input*** window.

The additional video source is usually used for creating Picture-in-picture (PiP).

To allow the PiP functionality, you have to check the *Use PIP with Video Rescale Events* box. The video files from the playlist will be treated as a background video. The live source video will be resized in accordance to the settings, made within the *Video Resize Control event* (for more information, please, check the Video Resize Control Output description).

NOTE: Keep in mind that when creating the resize control event, you have to specify an offset of at least 1 second (1000ms).

Check the *Use Second Source Audio* box if you want the output audio to be the one, coming from the AUX source.

NOTE: It is recommended for the live stream video standard and fields order to be similar to the playlist input video.

NOTE: This plug-in supports the transition between clips in the playlist. Please, check the clip properties description for details.

Output (in IP Pump MPEG Program Dumper)

It is an optional playback plug-in that streams the content that is being played out to a network IP address. The IP Pump uses a standard UDP mechanism for data transfer.

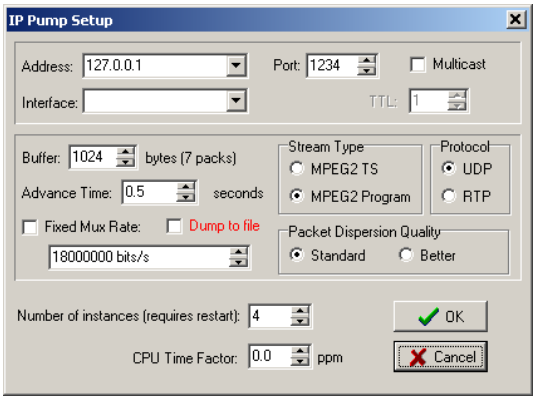
In the *Address* field, enter the IP address of the remote machine to receive the stream. If you check *Multicast*, i.e. streaming to multiple machines, you will have to enter a special multicast address in the *Address* field. Usually its first three digits are in between 224 and 239.

If you have more than one network connection, specify which one should be used for the streaming in the ***Interface*** string. If you leave it empty, ***AirBox*** will stream through all of the available interfaces.

In the *Port* field, define which communication port will be used for the streaming. By default, it is 1234.

TTL stands for time-to-live for the Internet packets. This spin-box is active only if the *Multicast* box is checked. The higher the *TTL* value, the longer the packets will "live" and pass through more routers. By default, it is "1," which is enough for local networks.

In the *Buffer Size* field you can specify the size of the IP packets to be sent along the network. It should be a multiple of 188 bytes, which is the size of an MPEG-2 TS packet.



The *Advance time* value represents the maximum time for buffering before initiating the streaming.

Check the *Dump to file* checkbox to record the playlist in a file.

Fixed Mux Rate – forces the plug-in to output a stream with fixed bit rate. This is done through zero packets, also known as "stuffing packets". It is applicable for transport stream output only!

NOTE: The mux rate must be set to at least 10% higher than the highest content bitrate.

Protocol – now RTP is supported along the UDP protocol. RTP is considered a more professional choice because of the time stamping in the packets' headers. It is applicable only for transport streams!

Packet Dispersion Quality - forces the plug-in to output better dispersed packets. This means that the jitter will be much lower, thus producing a more "professional" stream. *Better* should comply with the standard – MPEG-2 Real-Time Interface Specification (ISO/IEC 13818-9 [65]).

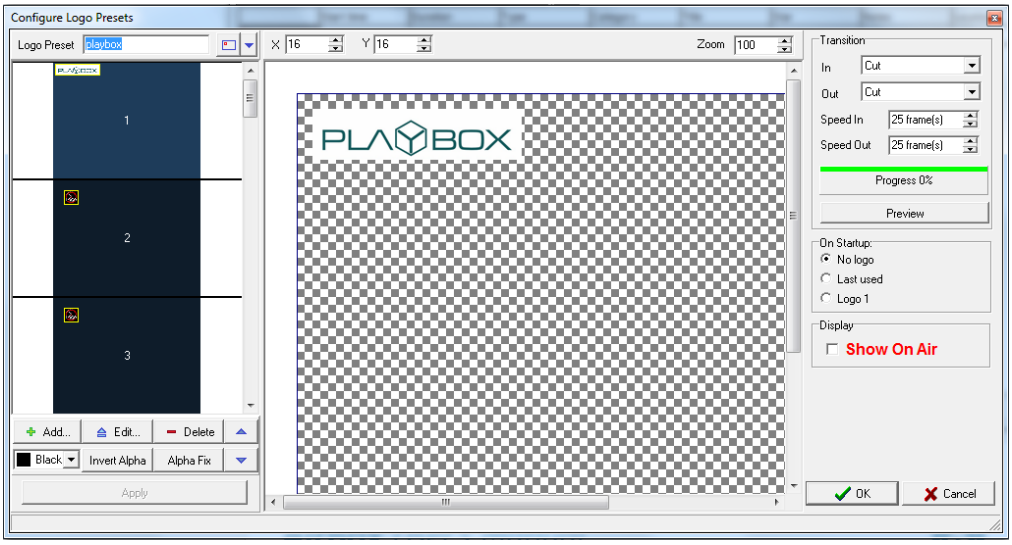
If you have multiple channel licenses, specify their number in the spin-box in the bottom of this dialog. Thus, you will be able to see the same number of IP pump plug-ins in **Settings** > **Modules** > ***Output***. By default, there are four IP pump plug-ins there.

CPU Time Factor – in IP Pump we use the CPU clock to generate the PCRs of the Transport Stream. Enter the value from the stream analyzer here to compensate for the inaccuracy of the CPU clock frequency.

WARNING: Contact your network administrator before changing network-related settings!

NOTE: This module does not support overlay preview!

Logo



Go to *Settings* > *Logo* to configure the channel logo which ***AirBox*** should output.

The *Configure Logo Presets* dialog is used to configure logo images for displaying in ***AirBox*** (image, screen position, transparency, etc.).

The dialog consists of three major sections - *Logo preset* (left), *Logo canvass* (middle) and *Output controls* (with Transition, Startup and Display) to the right.

Logo Preset

This section contains a list of available presets and buttons for preset control. By default there are 16 logo presets in the list, however, you can add an unlimited number of presets.

To add a new preset, click ***Add*** and select a logo image from the popup dialog. You will see the image *Canvass* area to the right.

To change an existing preset, select it from the *Presets list* and click the ***Edit*** button. To delete a logo preset, select it and click ***Delete***.

From the drop down list under the ***Add*** button, select the *Matte Color* – this is the background color, which should be mixed with transparent colors, and removed from the logo image.

The ***Invert alpha*** button – inverts the alpha key of the logo (if the original picture file has an alpha).

Use the up and down arrows to move between available logos presets. You can enter a preset name in the field at the top of th e preset list. Change the view of the list at any time from the drop-down menu next to the preset name field.

NOTE: To save the changes you made to a preset, click the ***Apply*** button in the *Logo Preset* section of the screen.

Logo Canvass

The logo canvass in the middle of the dialog window contains a preview of your logo, as output on the screen. Click and drag the logo to the desired position. You can enter the desired logo coordinates from the *X/Y* spinboxes at the top, as well as resize the preview in the canvass through the *Zoom* spinbox.

Output controls

In this section, set your logo transition preferences - entrance and exit effects and transition speed in frames. Click the ***Preview*** button to see the result in the canvass.

Both entrance and exit transition effects include: *Cut* (the logo appears immediately), *Fade* (the logo image dissolves to transparent/opaque), and *Fly* (from/to several directions).

NOTE: When the *Show on Air* checkbox below is checked, all changes to the logo will be output in real time!

On Startup – these options are used to define the logo appearance upon ***AirBox*** startup:

No Logo – no logo appears when ***AirBox*** is started.

Last used – If there are no Logo preset events in the playlist, the last used logo will appear when ***AirBox*** is started.

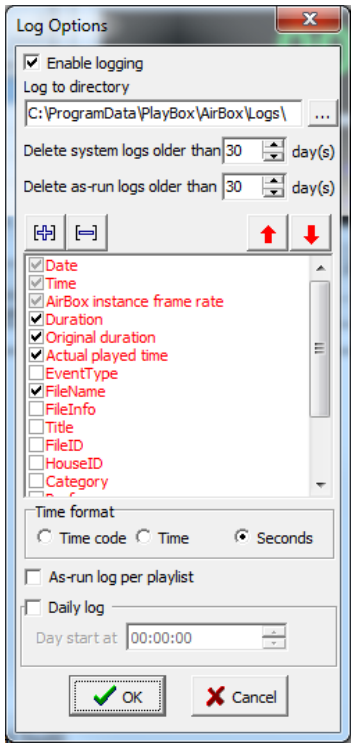
Logo 1 – If there are no Logo preset events in the playlist, Logo Preset #1 (from the list) will appear when ***AirBox*** is started.

Show on Air - check this box if you want to display the logo while you are editing it.

NOTE: Most widely used image formats are supported, including some native graphic software formats (e.g. *.psd *.psp, etc.). For flawless playout, it is recommended to use 32-bit RGBA files.

AirBox also supports animated logo files in the following formats: *.gif, *.tga, *.seq, *.seq2. The *.seq and *seq2 file formats are native for ***AirBox*** applications. You can create an animated sequence file from a collection of static images, using ***SeqMaker***. The SeqMaker.exe is included in you installation package. For more information about creating animated sequences, refer to the ***SeqMaker*** appendix further in this document.

Logging



AirBox generates two types of log files: System logs and an As-Run log. A *Logs* directory is created upon ***AirBox*** installation. It contains a *System* subfolder by default. *Errors, System events, Events,* and *Event type* are logged in the *System log,* regardless of your preferences.

In the ***Log Options*** dialog box you can select what playlist entry information will be included in the logs, if they should be created on a *Daily* basis or not, and you can create log-management settings.

If *Enable logging* is checked, an *As-Run* log file will be created. Otherwise, ***AirBox*** will not generate *As-Run* logs. When you first check this box, browse for a folder, in which to save your *As-Run* logs. If you do not select a folder, a subfolder *As-Run* will be created in the *AirBox\Logs* directory. Your *As-Run* log files will be saved there.

Delete system logs older than *days* – this option will help you manage your system log files by deleting the ones older than the number of days set in the spin-box. You can choose between 14 and 100 days.

Delete as-run logs older than *days* – this option acts in the same way as the one above but for the *As-Run* logs.

You can add info fields in the log by checking the relevant check-boxes in the list. Use the red arrows to change the position of the currently selected item in the *Log* file.

Some third-party applications require an exact number and content of the columns in the log file. Therefore, we have created several empty fields that can be inserted in the log to comply with such specific requirements.

Below the list of info fields, there are several selectable options:

Define Time format by selecting one of the following:

Time code – displays time in the format HH:MM:SS:FF, where H stands for hours, M for minutes, S for seconds, and F for frames)

Time – displays time in the format HH:MM:SS.MsMsMs

Seconds – displays the time in seconds only

Check *As-run log per playlist* to create a separate as-run log each time a new playlist is loaded in ***AirBox***.

You can also set the periodicity of log files – Daily log or aggregated files.

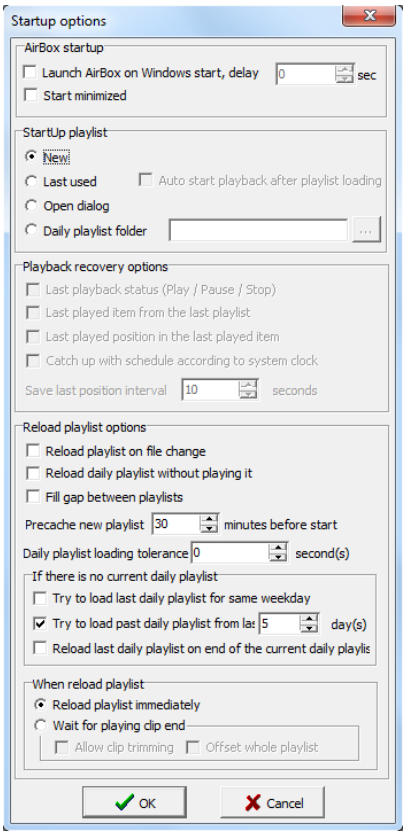
If *Daily log* is selected, a new *As-Run Log* file will be created each day. The *System logs* are always daily, despite this setting. The *Day start at* field determines when to start the new log. This setting is necessary, in case you wish to log 24-hour periods that start at your wish (e. g. at 02:00:00 o'clock, instead of 00:00:00)

The *Log* file is generated in simple Tab-delimited text format. It can be imported to various applications, text editors, etc.

TIP: You can easily export the logs to MS Excel format from **File** menu > **Export logs in XLS files...**.

NOTE: Regardless of the above settings, ***AirBox*** will generate System logs that are saved in the program directory. The minimum period for keeping the system logs is 14 days (see above).

StartUp



Here you can find useful options for setting the behavior of ***AirBox*** on module start-up: *StartUp Playlist*, various *Playback recovery options*, how playlists will be reloaded and two system options.

AirBox startup

At the top of the ***StartUp*** window, you can choose between two system options:

Launch AirBox on Windows start, delay *sec.* – you might need some delay, as the system might need some time to initialize the installed decoder. If playback

AirBox starts before that, it will not be able to perform normally, as the decoder will be "missing". Increase the delay to ensure that ***AirBox*** will not start before hardware initialization.

Start minimized – if checked, ***AirBox*** will be automatically minimized on startup.

StartUp playlist

Choose what playlist will be loaded next time you start ***AirBox*** from the following options:

New – will load a blank playlist

Last used – will load the last played playlist. If *Auto start playback after playlist loading* is checked, playback will start automatically after loading.

Open dialog – will open a dialog window to select a playlist from the last used location

Daily playlist folder gives an opportunity for some simple scheduling of playlists. Select a folder, in which you will place the daily playlists by filling-in its path, or just browse for it with the browse button. There you will save the playlists you want to schedule. They require a specific naming structure in order to be played on the desired date and time.

EXAMPLE: If the name is **2003_11_20_14_00_00.ply**, 2003 stands for the year, 11_20 is for MM_DD (month_day), and 14_00_00 is HH_MM_SS (hour, minutes, seconds). Only files with such a naming structure will be played automatically when ***AirBox*** is running in this mode. Now you can use the Save daily playlist feature in the ***AirBox*** **File** menu to achieve this naming automatically.

NOTE: If you are using the ***Daily playlist folder*** option make sure that you have defined a folder, where the daily playlist folder is situated!

Playback recovery options

Here you can specify what ***AirBox*** should do in case of accidental restart /abnormal termination of the module. The following options are available if ***AirBox*** is not running in daily playlist mode:

Last playback status (Play/Pause/Stop) – if checked, it resumes the last playback status of ***AirBox,*** depending on the status, in which it was before stopping.

Last played item from the last playlist – if checked, it resumes the last item from the playlist that was played by ***AirBox*** before stopping.

Last played position in the last played item – functions as the two previous options but it also remembers the position of the last item to resume status exactly at it is. The interval for saving the last position is changeable through the spin-box below.

Catch up with schedule according to system clock – this option allows playlist recovery after a failure and synchronizes it with the system clock.

When you set this option, you should bear in mind that the default start time for all playlists in ***AirBox*** is 00:00:00 hours. Therefore, if you have started your playlist manually, after a power failure, ***AirBox*** will resume playback from that point in the playlist, which corresponds to the initial time (00:00:00) plus the current system clock time.

EXAMPLE: If you start your playlist manually at 9:00 o'clock; and at 9:30 a power failure that persists until 10:00 occurs. After the power supply is recovered at 10:00 o'clock, ***AirBox*** will resume playback from the point in the playlist that is 10:00 hours away from its beginning (considering 00:00:00 as an initial start time). In short, ***AirBox*** will "forward" the playlist to the point of power supply recovery, taking 00:00:00 as initial time.

In order to overcome this, you should compile your playlists to start with wait events. The wait events' values should be set in hours from 00:00:00 to the desired start time of your playlist, i.e. your playlist should start with a "wait for 9 hours" event.

Thus, in case of power failure, ***AirBox*** will account for the initial time, set by you, and will resume playback from the point that corresponds to the power recovery time. Let us consider the example above. With this setting, at 10:00 o'clock ***AirBox*** will start from the point, which corresponds to one hour after the beginning of the playlist (set to 9:00 o'clock through a wait event).

NOTE: Playback recovery options will not be applied when ***AirBox*** is running in daily playlist mode! In daily playlist mode, ***AirBox*** will always try to catch-up with the schedule according to the playlist start time and the current system time.

Reload playlist

In this section you can adjust settings, related to the way ***AirBox*** handles playlist reloading.

Reload playlist on file change – reloads the current playlist automatically, if in the meantime it has been changed and saved by another user.

Reload daily playlist without playing it – in certain occasions playlists should not start playing when reloaded.

WARNING: When this box is checked, ***AirBox*** will not calculate the insertion point when reloading playlist on file change, either!

Fill gap between playlists – if there is a gap between the current playlist and the playlist after it, ***AirBox*** will use the auto-fill clip to compensate for this gap if this box is checked

Pre-cache new playlist *minutes before start* – specify how many minutes before the playlist starts ***AirBox*** should cache it.

NOTE: The pre-cache time value has to be AT LEAST equal to the duration of the last file in the old playlist plus the time of the gap between the two playlists.

NOTE: For long playlists, we recommend entering higher pre-cache time values.

Daily Playlist loading tolerance *second(s)* – specify the daily playlist loading tolerance in seconds. Loading a playlist always takes a few moments, depending on its length. ***AirBox*** calculates the exact point to start playback after the playlist is loaded. Thus, if there is an event in the beginning of the playlist, it might be skipped (as the event's duration is zero, its time could be considered to have passed after playlist loading). Therefore, you should set some loading tolerance to ensure the correct execution of the first event in the playlist (if any). Usually, one second should be enough, but it depends on the playlist length.

WARNING: Always enter a positive value in this spin-box. ***AirBox*** will not load a daily playlist at an earlier time!

NOTE: When the **Daily playlist loading tolerance** is set to zero, you must select the **Reload playlist immediately** option in the When reload playlist section below.

If you work in Daily playlist mode, it is important to clarify what will happen in the case *If there is no current daily playlist*. ***AirBox*** offers the following possibilities:

Try to load last daily playlist for same weekday – ***AirBox*** will search the daily playlist folder for old playlists for the same day of the week (i.e., Fridays), and will load the most recent one.

Try to load past daily playlist from last *days* – ***AirBox*** will search the daily playlist folder for old playlists in accordance to your settings and will play the most recent one (i.e., yesterday's, if available).

WARNING: The above function only applies for playlists, which are exactly 24 hours long!

Reload last daily playlist on and of the current daily playlist – ***AirBox*** will load the currently playing daily playlist again, as soon as it ends.

If you have checked *Reload playlist on file change*, it is important to define when the reloading will happen.

When reloading playlist

In the field below you can set two additional rules on playlist reloading – reload the playlist immediately, or reload the playlist after the end of the currently played clip.

⊙ *Reload playlist immediately:*

Depending on the playlist type – Regular or Daily, the behavior of ***AirBox*** is different:

Regular (not Daily) playlist operation:

There are two possible situations for reloading the playlist:

1) If the currently playing clip (its List ID) is available in the newly edited playlist, ***AirBox*** will reload the new playlist and will start playing it from the next item (next List ID). Thus, ***AirBox*** will jump to the next item in the playlist.

2) If the currently playing clip (List ID) is removed from the newly edited playlist, then ***AirBox*** will reload the new playlist and will start playing it from the beginning.

Daily playlist operation

AirBox will remove all items from the current playlist after the currently played item. Instead of them, ***AirBox*** will load the items from the newly edited playlist.

NOTE: In daily playlist you can edit only those items, which come after the currently playing item!

NOTE: You can save the changed playlist and reload it only if there is no pre-cashed file or playlist. A pre-cashed file is a file, locked for playout.

⊙ *Wait for playing clip end*

NOTE: This option is available only for **Regular (not for Daily)** playlists.

1) If the currently playing clip (its List ID) is available in the newly edited playlist, ***AirBox*** will finish playing it. Then, it will load the new playlist, and will start playing the next clip accordingly.

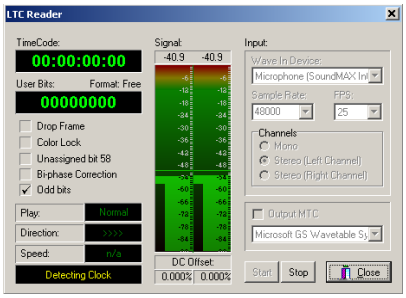
2) If the currently playing clip (List ID) is removed from the newly edited playlist, ***AirBox*** will reload the new playlist and will start playing it from the beginning.

When selecting this radio button, you have two additional options:

Allow clip trimming – check it if you would like the currently playing clip to be trimmed upon playlist reloading

Offset whole playlist – check it if you would like the whole playlist to be offset upon playlist reloading

Timecode

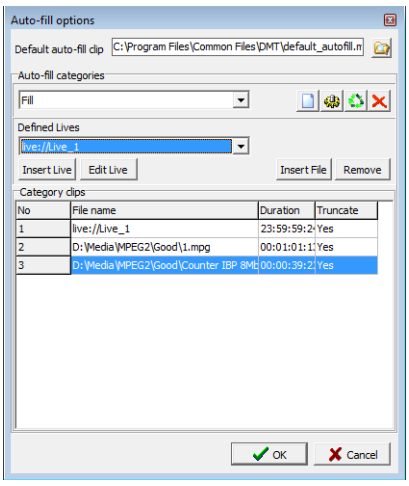


If you are licensed to use the ***LTC reader*** module and you have a *DirectSound* compatible sound card, you may use it to read LTC timecode from your transport device. The setup of this module is quite simple. Select your sound card device from the list. Select *Sample rate* and *Channels* and ***Start*** the module. The current timecode is shown in the *TC Timer*.

The timecode, fed into the LTC reader, will be used when inserting Wait TC events in the playlist. Thus, you can save the playout status of ***AirBox*** to an external TC generator.

WARNING: Do not type any values in the *Sample Rate* string! Select these values only from the *Sample Rate* drop-down list!

Auto-fill



Auto-fill options define logics for automatic filling of gaps in the playlist. Gaps might appear when using Fixed-time events. In the **Auto-fill options** dialog you can specify a default auto-fill clip, create custom auto-fill categories with selected clips, or define live input presets.

By default, gaps are filled with a black screen video clip. You can see the location of this clip in the *Default auto-fill clip* at the top of the dialog window. To change the default clip with a custom auto-fill clip, click the ***Browse*** button and browse to your custom file location.

In *Auto-fill categories* below, you can specify an auto-fill category, containing a set of clips. The drop-down list contains all previously prepared categories. The list will be empty when you start ***AirBox*** it for the first time.

To create a new category, click the ***Add new category*** button to the right, and enter a name of the new category.

To change the name of a category, select it from the drop-down list and click the ***Rename category*** button.

To delete an entire auto-fill category, select it from the drop-down list and click the ***Delete category*** button.

You can add clips (media files) and live events to each custom category. To add a predefined live input to the category, select it from the *Defined lives* drop-down list.

To define a new live input, click the ***Insert Live*** button below. An empty entry will be added to the category list. Select that entry and click the ***Edit Live*** button. The ***Live Inputs Editor*** dialog will open. Refer to the Live Inputs Editor section of this document for additional information on live input settings.

To insert a new media file in the auto-fill category, click the ***Insert File*** button and navigate to the file location. Use the ***Remove*** button to the right to remove selected file(s) and live inputs from the *Category clips* list.

NOTE: If you do NOT define any auto-fill clip or category, playlist gaps fill be filled with the default auto-fill clip, which is a black screen video.

In the *Category clips* list below, you can see the number, title and duration of each clip or defined live input of the selected category in a grid view. In the **Truncate** column, you can set you preferences on clip truncation. Double-click a cell in the **Truncate** column to toggle its value between *Yes* and *No*. When the value in the cell is *Yes*, the respective clip can be truncated.

Truncating clips is important for resolving duration conflicts. Clip duration conflicts occur when the total duration of the clips in the auto-fill category is greater than the gap duration. In such case, none of the clips in the category will be played and the default auto-fill clip will be played instead.

When truncation is allowed for at least one clip in the category, AirBox will calculate the mismatch between the total duration of the clips in the category and the gap, play as many whole clips as possible, and trim the final frames of the last (allowed for truncation) clip.

NOTE: Clips in the category will be reordered! When playing auto-fill categories, AirBox will first look for clips that can be played to the end and next - for clips that can be truncated.

EXAMPLE: To fill a 2 minute gap from an auto-fill category that contains the following clips:

Clip#1 with **Duration** 3:00, **Truncate** = [YES]
Clip#2 with **Duration** 2:05, **Truncate** = [NO]
Clip#3 with **Duration** 1:50, **Truncate** = [YES]/[NO]

AirBox will play Clip#3 (it can be played out to its end) first, and the initial 10 seconds of Clip#1 (it can be truncated) next. Clip #3 will not be played. Category clips will be reordered automatically.

NOTE: In ***AirBox*** versions 4.3.0 and below, auto-fill of live events is not supported. You can add clips to custom categories with the *Add new clip to selected category* button. To remove a clip from a category, select the clip in the list and click the *Delete selected clip* button.

Fixed-time event

When there is more than one fixed-time event in the playlist, they might be in conflict with each other (this can happen if you insert/append a playlist containing fixed-time events to the current playlist, which also contains fixed-time events).

The first section in this dialog is designed for setting the rules for automated resolving of such conflicts between consecutive fixed-time events:

Default start time conflicts resolving

Let us assume that there are two fixed-time events already inserted in the playlist, but the one that is programmed for later playback (hereafter called **the second**) has an earlier start time than the preceding fixed-time item (hereafter called **the first**). In other words, **the first** has a later start time than **the second**. This dialog provides four possible actions if there is such a case in the playlist:

⊙ ***Both start times are removed*** – if you check this option, the start times of **the first and the second** fixed-time events will be removed and they will be played-back as ordered in the playlist, without executing the defined start times.

⊙ ***Both start times are swapped***– check this and the items' start times will be exchanged. As a result, **the first** item will be played-back first, at the start time, set for **the second** item. **The second** item will be played-back after that, starting at the time, set for **the first** item.

⊙ ***The first conflicting event will have its start time removed*** – this will remove the fixed start time of **the first** item and it will be played-back in its turn, as an ordinary clip in the playlist. **The second** item will be played **after the first** one and will preserve its fixed start time.

⊙ ***The second conflicting event will have its start time removed*** – this will remove the start time of **the second** item and it will be played back in its turn, as an ordinary clip in the playlist (after the first item). **The first** item will be played back as fixed.

NOTE: The playlist is protected against engendering conflicting situations when inserting fixed-time events. You will not be allowed to set a fixed start time for an item, if there is an overlapping fixed-time already inserted in the playlist. If you try to enter a conflicting start time, the *Use fixed start time* field will become red, and clicking ***OK*** will open a warning dialog.

Conflicting situations could also be caused by applying offset values to these items.

Default behavior when overlapping preceding events

When using fixed-time events in the playlist, one can always come across some conflicts with the "ordinary content" (i.e., without fixed start times). There can be two major conflict types:

1.) The content to be played until the fixed start time is more than the time allowed (e.g. there are 15 minutes of clips and only 10 minutes until the fixed time) – **so there is overlapping**;

2.) There is not enough content to be shown until the fixed start time (say there are 5 more minutes of clips in the playlist before the fixed time row, and the fixed time itself will go on-air after 15 minutes) – **a gap is formed**.

It is up to you to precise the rule for automatic settling of this conflict.

The default behavior when overlapping preceding events could be one of the following:

⊙ ***Skip playing event and do an auto-fill*** – all preceding clips that cannot be played as a whole (i.e., from the beginning until the end) before the beginning of the fixed-time clip will be skipped. A gap will appear in the playlist as a result of this skipping. This gap will be filled in accordance with the auto-fill rules, set by you (see the Default gap-filling category below).

Let us assume that there are five minutes remaining until the fixed time and you have two clips to go (before the fixed time), both of which are 3 minutes long. In this case ***AirBox*** will not be able to play the whole second clip, so this clip will be skipped, and an auto-fill event (category or default clip) will be played-back instead.

⊙ ***Truncate playing event*** – ***AirBox*** will playout as much of the preceding clip as possible, and when the time comes, it will cut to the fixed-time event (see also default start tolerance below).

Default gap-filling category

Default gap-filling category is the third section of the ***Fixed-time event options*** dialog and it contains several options for automatic filling of gaps in the playlist:

⊙ ***Default clip*** – The default auto-fill clip must be an MPEG2 (if you are using an MPEG2 plug-in) or DV (if you are using a DV plug-in) file. Most often it is a program logo, animation, etc. The default auto-fill clip will be played-back each time there is a gap in your playlist and you have not specified anything else to be done in order to fill it (you have not set any auto-fill category, the clips from this category are missing for some reason, etc.).

In brief, the default auto-fill clip is always there in case something goes wrong with the other filling content.

You can specify this file in the **Settings menu > Auto-fill** dialog.

⊙ ***Category from previous event*** – sets the auto-fill category of the last played fixed-time event in the playlist (if such an event exists).

⊙ ***Category from fixed-time event*** – uses the category from the current fixed-time event (this corresponds to the auto-fill setting in the ***Clip Properties dialog*** of the fixed-time item).

⊙ ***Custom category*** – a sequence of clips created by you in the ***Auto-fill options*** dialog, which will be played-back if a gap appears.

Default start tolerance

In case you could accept some later or earlier start of your fixed-time events, specify the exact parameters here. Thus, if the time until the end of the previous clip is within the allowable *later start*, it will be played out without being truncated. Again, if it finishes earlier, within the allowable *earlier period*, the fixed time clip will start playing without the need to fill-in a several seconds' gap. This is NOT a fixed offset!

EXAMPLE: There are two items in the playlist – an ordinary clip, followed by a fixed-time clip. The first one finishes at 11.00.20, and the second one must start at 11.00.00. This is a time-conflict situation. However, if the fixed-time has set a later start tolerance of 30 seconds for example, ***AirBox*** will play the first item until its end and the fixed-time will start at 11.00.20.

Later tolerances allow playback of the previous item to the end, and earlier tolerances allow avoiding short gaps (if possible).

Start delay compensation

It allows for setting offsets to a fixed-time event to compensate the time needed for reaction of the hardware. The offsets may be:

- *During play or pause mode* - tries to compensate for the time (in milliseconds), necessary for executing commands like **Jump**, **Next**, and **Resume**.
- *During stop mode* – tries to compensate for the time, necessary for executing the **Play** command.

NOTE: These settings are hardware-specific, so their exact values have to be determined experimentally.

WARNING: When using fixed-time events, the playlist should start and end within the same calendar day (i.e., the playlist should not go beyond midnight). Otherwise, we cannot guarantee the proper operation of the fixed-time logic and that of the daily playlist logic.

Complex Items

Complex events are used in order to:

1.) Avoid the insertion of numerous rows in the playlist when several external events have to be executed at the same time (or one after an other):

EXAMPLE: When you need to run a program off-tape, you will have to insert a VTR event, plus two switcher events, one for cutting from ***AirBox*** video to VTR output, and the second one for performing the opposite. All of these can be part of a complex event, so basically, you have a single complex event, named "VTR1," for example, which would take care of sending signals to the matrix and to the VTR, when necessary.

2.) Enable the creation of complex event presets, so the user does not insert the same external events one by one:

EXAMPLE: If you have a matrix switcher, which needs to route IN5 to OUT2 in order to get ***AirBox*** on-air, and it needs to route IN2 to OUT2 in order to get live feed pass-through, you could predefine 2 complex events with custom names, such as "To AirBox" and "To Live". These complex events will contain the matrix switcher event with its IN/OUT configuration, as defined. Then you just need to insert the complex event by name.

Basically, a complex event represents a set of external events with their adjustments and offsets.

The ***Complex event presets editor*** window is divided in two sections:

The *Complex items* field to the left contains a list of available presets and several buttons for preset management.

To create a new preset, click the ***Create new complex item*** button and enter its name in the ***New Complex Item*** dialog.

You can edit this name later, by clicking the ***Edit selected complex item*** button.

To delete a Complex event from the list, click the ***Delete selected complex item*** button.

The *Properties* field in the right contains the "essence" of the complex event - a sequence of *Beginning events* and *Ending events*.

You can add beginning or ending events by clicking the ***Add new external event*** button in the Beginning/Ending events section respectively. Clicking these buttons opens a drop-down list of all enabled external events.

NOTE: To have any external event available in the list, make sure it is enabled in ***AirBox*** **Settings** menu > **Modules** > ***Remote control*** tab.

Each time an event is being added, its settings dialog opens for you to make the relevant adjustments (they can be edited further on) and specify its offset (if necessary). The events are executed in accordance with their offsets and regardless of their order in the Beginning/Ending events list.

NOTE: The beginning events can have earlier and/or later offsets, while the ending events can have only earlier offsets.

TIP: If you need to make some fine-tuning of a certain external event when inserting a *Complex item* in the playlist, select it and click the ***Gear-wheel*** button above it. Thus, each time you insert this complex item in the playlist, the settings dialog of this event (i.e., a switcher configuration dialog) will open for you to make the final touches. These changes will not be saved in the original complex event; they will be valid only for the current insertion.

TIP: If you want to change the events' order, select an event from the list and click the red ***Up/Down*** arrows to move it.

NOTE: If you have set the Default duration of the complex event, its execution will result in holding the ***AirBox*** playback during the event (as in a wait event). Besides, the offsets of the included external events will be calculated in relation to the complex event's start and stop points. Please, refer to the following *example*:

Let us assume that we have created a complex event with duration of 15 seconds. It includes 2 beginning events:

Event A with 3 seconds **earlier** offset, and

Event B with 2 seconds **later** offset,

As well as an Ending event (C) with 5 seconds **earlier** offset.

The Complex event, described above, will be executed as follows:

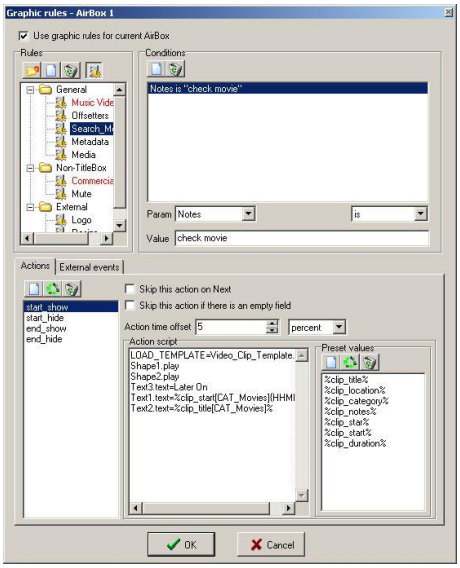
AirBox plays the clip, situated before the complex event in the playlist. 3 seconds before its end, Event A will be executed. 3 seconds later this clip will end, and a 15-seconds hold of the playback will start (the complex event duration has started). 2 seconds later, Event B will be executed. Event C will be executed after 8 seconds (5 seconds before the end of the complex event).

The next clip in the playlist will start playing 5 seconds later (the 15-second duration of the complex event has expired).

NOTE: When the complex event duration is zero, the included events' offsets will be calculated in relation to the surrounding clips. The ***AirBox*** playlist and playback will not be paused. Please, refer to the following *example*:

Let us assume that we have created the same complex event, but with zero duration: ***AirBox*** is playing the clip situated before the complex event in the playlist. 5 seconds before its end, Event C will be executed. Two seconds later (3 seconds before the clip's end), Event A will be executed. Three seconds later the clip ends and the next clip in the playlists starts playing. Two seconds after its beginning, Event B will be executed.

Graphic Rules



The information contained in the ***AirBox*** playlist can be displayed automatically over the video output through the **TitleBox Net Control** functionality. The main application of this feature is for music channels, to display the performers' names and song titles. .

First of all, you have to create a ***TitleBox*** template, with the objects that will display the information, contained in the playlist. In the example below we have created TB_Music.tmpl. It contains a background picture (we called this object Background); a text object for the performer's name (called Star), and a text object for the song title (called Title).

Once the template is created and available in the templates folder (see TitleBox NetControl description above), go to ***AirBox* Settings** menu > **Graphic rules**.

The rules for extracting playlist information and displaying it over the video are set here.

The Graphic rules dialog contains three fields: *Rules*, *Conditions*, and *Actions*.

The *Rules* field contains a list of all available rule presets.

Rules are organized in Groups. You can create new groups by clicking on the ***Folder*** icon in the *Rules* zone. By default, you will see a [General] group with an [Example] Rule in it.

The *Conditions* field contains the list of all necessary conditions that will enable executing the relevant actions below as per the currently selected Rule. In case you use Metadata (from the clip properties dialog) as a condition parameter, type its name in the cell to the right and then specify the operator.

In the *Actions* field there are three lists and a couple of check-boxes. The list to the left contains all actions, related to the currently selected rule. The *Action Script* list represents the commands that will be sent to ***TitleBox*** during the currently selected Action.

The *Preset values* list contains the variables that can be added to the script and are used most often.

For better understanding of the ***Graphic rules***, please, follow the example below.

To create a new rule, select the group folder, to which it should belong, and click the ***New rule*** button in the *Rules* field. Enter the name of your template and click ***OK***.

Then, go to the *Conditions* field to the right and set the conditions for executing ***Actions*** (we will set them later). In the example above, we have set the *Parameter* to [Category], the *Operator* to [is], and the *Value* to [Music]. Thus, when the condition **Category is Music** is fulfilled, the ***Actions*** below will be executed.

To add a new action, click the ***New Action*** button in the ***Actions*** tab, and enter its name ([Clip_Start_Show] in our example), then click ***OK***. This action will show the selected information from the play upon clip start.

In the *Action time offset* spin-box, specify the desired offset for execution. It can be in percentage from the clip duration or in milliseconds (select this in the spin-box to the right)

Finally, carefully describe the action in the *Action script* field:

[LOAD_TEMPLATE=TB_Music.tmpl] – This line describes which template will be used to show the text from the playlist.

[Background.play] – a **Play** Command for the picture object **Background**.

[Title.text=%clip_title%] – This line contains the name of the ***TitleBox*** object [**Title**] and a description of the text that it should contain (as you see, in this case we will extract information from the **clip_title** column of the relevant playlist entry).

You can drag and drop the *Preset Values* from the list to the right.

[Star.text=%clip_star%] – similar to the above, here we have described which cell contains the information to be displayed in the [Star] text object.

AirBox sends out this command to ***TitleBox*** through the net control option and the clip title and the performer name are displayed.

Now we have to send out another command to hide the graphics. We will call it **Clip_Start_Hide**:

[LOAD_TEMPLATE=TB_Music.tmpl] – point out which template is addressed.

[Background.stop] – A **Stop** command for the **Background** object.

[Title.stop] – A **Stop** command for the **Title** text object.

[Star.stop] – A **Stop** command for the **Star** text object

WARNING: All entries in the *Action script* field are case-sensitive, so enter them **exactly** as they appear in the ***TitleBox*** template project, including the name of the template itself.

In the example in the screenshot above, we have set four actions to be executed when the Category is Music:

Clip_Start_Show – to show the clip title and performer when 5% of the clip duration has passed.

Clip_Start_Hide – to hide the title and the performer when 20% of the clip have passed.

Clip_End_Show – same commands as in **Clip_Start_Show**, but with 80% *Action time offset* to show the title and the performer at the end of the clip.

Clip_End_Hide – same commands as in **Clip_Start_Hide**, but with 95% *Action time offset*, to hide the graphics when 95 percent of the clip has passed.

You can add more variables from the Metadata tab in the clip's properties dialog.

The preset value format for the metadata is [%metadata_MetadataName%], where MetadataName is the same as in the ***Metadata*** tab of the clip properties dialog (in the first column).Thus, if the metadata name is Producer, the preset value script will be [%metadata_Producer%]. Now you can create an Action script that will send this information to ***TitleBox*** (for example, [Producer.txt=%metadata_Producer%]).

Metadata categories can also be used for changing the file links in picture and sound objects in ***TitleBox***. Thus, you could control which picture(s)/sound(s) should appear over each video clip.

Let us assume that in one of the rows in the ***Metadata*** tab we have typed [new picture] [*E:\Pictures\pic\A Fantastic Voyage.jpg*].

With this example action script, ***AirBox*** will send a command to ***TitleBox*** to:

1. **Load** the project called [template.tmpl];

2. **Play** the object called [picture] and replace the currently loaded picture file with the one, specified in the ***Metadata*** tab of the currently playing clip, under metadata category [new picture]:

[LOAD_TEMPLATE=template.tmpl]

[picture.MEDIA=%METADATA_new picture%]

Where:

[picture.] is the name of the object that we want to control

[MEDIA] means that this command contains information about a new media file to be loaded in this object.

[%METADATA_new picture%] – This is the place, from which ***AirBox*** should "read" the new file path for the media file to be loaded. Again, the format is %METADATA_MetadataName%, where MetadataName is the same as in the ***Metadata*** tab of the clip properties dialog (in the first column).

The same action script applies to sound objects:

[LOAD_TEMPLATE=template.tmpl]

[sound.MEDIA=%METADATA_new sound%]

Thus, ***TitleBox*** will **load** project [template.tmpl], **play** the object called [sound], and **replace** the currently loaded file with the one, specified in the ***Metadata*** tab of the currently playing clip, under metadata category [new sound].

NOTE: The Metadata name is case sensitive! You must type it exactly as it appears in the file properties dialog!

You can display information about the **title of an upcoming clip** in the playlist. The preset value descriptor has the following format: %clip_title[+n]%. Afterwards, create a script to send this information to ***TitleBox***: Next.text=%clip_title[+1]%. Where Next is the name of the text object in ***TitleBox*** and [+1] is the index off-setter (to show the title of the following clip).

Moreover, a bookmark can be used as a reference for presenting information about an item in the playlist. Let us assume that the Bookmark name is Test1 and you want to display information about the title of the following clip. Then the descriptor value should be %clip_title[BM_Test1]%.

To display the **start time of an upcoming clip**, type %clip_start[+n]{HHMMSS}%. The command, sent to ***TitleBox*** could be Start.text=%clip_start[+3]{HHMM}%.

To show the start time and the title of an up-coming clip, create the following command:

Next.text=%clip_start[+4]{HHMM}% - %clip_title[+4]%, where Next is the name of the text object in ***TitleBox***, [+4] is the off-setter, {HHMM} is the time format.

The time format can also be {HH} or {HHMMSS} or {HHMMSSFF}.

As in NTSC mode, the start time appears as a drop-frame timecode in the playlist, it would be more convenient to display the start time according to the system time on the PC. There are two options for the system time script: {T} – for short system time (according to the Regional settings) and {TT} – for long system time (according to the Regional settings). Thus, instead of **Next.text=%clip_start{HHMM}%**, you should type **Next.text=%clip_start{T}%.**

Now you can show information about upcoming clips that belong to a certain category. The script format is [CAT_Category Name[±index]].

Title.text=%clip_title[CAT_Movies]% – %clip_start[CAT_Movies]%.

In the example above, the content to be displayed in ***TitleBox*** object Title is: the title of the next clip down the playlist that belongs to Category Movies, then a dash, and then the start time of this clip.

Text1.text=%clip_title[CAT_Movies+1]% – %clip_start[CAT_Movies+1]%

In the example above, the content to be displayed in ***TitleBox*** object Text1 is the title of the second clip down the playlist that belongs to Category Movies, then a dash, and then the start time of this clip.

NOTE: There should be no plus or minus signs in the category name!

Instead of **Category**, you could use the **Star** as an index modifier to show information about upcoming clips in the playlist. Thus, the scrip will look like this:

Text1.text=%clip_start[STAR_Madonna]% - %clip_title[STAR_Madonna]% - to show the stat time and title of the next clip in the playlist that has [Madonna] assigned as **Star**.

OR

Text1.text=%clip_start[STAR_Madonna+1]% - %clip_title[STAR_Madonna+1]% - to show the title of the second clip down the playlist that has [Madonna] assigned in the **Star** column.

NOTE: There should be no plus or minus signs in the Star name!

Besides **Category** and **Star**, you could use a clips' ***Metadata*** as an index modifier to display information about upcoming events. In such cases, the script should look like this:

Text1.text=%clip_start[METADATA_Show]% - %clip_title[METADATA_Show]%. Thus, ***AirBox*** will display information about the next clip in the playlist that has Metadata called Show in its properties (in the first column of the Metadata tab).

OR

Text1.text=%clip_start[METADATA_Show+1]% - %clip_title[METADATA_Show+1]%. Thus, you will display information about the second clip down the playlist that has Metadata Show in its properties. Replacing "+1" with "+2" will display information about the third clip down the playlist that has Metadata Show in its properties, and so on.

NOTE: Even if there is no value for this metadata (in the second column of the ***Metadata*** tab), it will be considered valid and ***AirBox*** will display information about that clip.

NOTE: There should be no plus or minus signs in the Metadata name!

Special actions in the ***Graphic Rules*** can control events, different from graphics events.

Thus, you can control the logo insertion for example. The commands can be assigned as separate actions, or as lines in other graphic rules actions.

The beginning of such an Action script is marked with an exclamation mark {!}. The script must end with an exclamation mark too {!}.

Inside the script, there can be three types of commands: **LOGO_OFF** (to stop showing the logo), **LOGO_ON** (to show the last used logo), or **SHOW_LOGO_PRESET_1...16** (to show one of the 16 logo presets as specified in **Settings** menu > Logo).

Here is an example of a command to stop the logo: **{!LOGO_OFF!}**

NOTE: The logo script is case-sensitive, i.e., it must be typed in capital locks!

Another couple of actions can switch the incoming triggers ON and OFF. Thus, the received GPI In pulses, DTMF tones, or Time Code will be ignored, and the commands assigned to them will not be executed during a certain clip.

These actions are called AUTOMATION actions. The possible commands are:

{!AUTOMATION_OFF!} – to disable the incoming GPI/DTMF triggers.

{!AUTOMATION_ON!} – to enable the incoming triggers.

WARNING: Do not use automation rules simultaneously with skip zones (**Settings** menu > **General** > Skip zones) to avoid conflicting logics!

TIP: If you need to switch the **AUTOMATION ON/OFF** manually, use the ***Automation*** button in the main ***AirBox*** window. If you need to switch **OFF** the **Audio output** of certain clips, you can use the following Action script: **{!MUTE_ON!}**. Type **{!MUTE_OFF!}** in the *Action* script to switch the audio back **ON**.

TIP: If you are using the **Next** command in ***AirBox***, all graphic rules that would have been executed in normal playback, will be executed at once. This might cause an unpleasant flickering of your graphics. To avoid this, check *Skip this action on Next*.

TIP: If some of the information that should be displayed in the graphics object is missing from the playlist, you can skip sending the whole command by checking *Skip this action if there is an empty field*.

TIP: To enable/disable a ***Graphic rule*** or an entire Rules group, select it and click the ***Enable/disable*** button. If you want to disable the use of all graphic rules, uncheck *Use graphic rules for current AirBox* at the top of the ***Graphic rules*** window.

TIP: You can rename a group or a rule by clicking on it while it is selected. To move rules from one group to another, just drag and drop them.

If you need to assign some events to be executed instead of the above actions, you can do that in the ***External events*** tab.

Like in other set-up dialogs, you can choose the event type after clicking the ***New event*** button.

The event settings dialog varies according to the event type you select.

Please, check the events' descriptions in the Edit menu section above.

NOTE: The list of events contains all native AirBox events (internal events), but only the external events for plug-ins, enabled in **Settings** > **Modules** > ***Remote Control***.

Please, note that by default, all events will be executed simultaneously. If you want to execute some of them later, please, specify the required positive offsets.

NOTE: Negative offsets will not be executed!

NOTE: Please, make sure not to overlap later offsets with other clips' graphics rules!

Filename Parser

This module will allow ***AirBox*** to Parse names of files and get information from them. It provides an easy way to use information, included in the file name, without using a database. You can make the most of this feature if you have a standard naming structure for your clips.

In this setting dialog box, you have to "tell" ***AirBox*** how you name files, so it will "know" what certain parts of your filenames mean. The dialog box is divided into three zones – the uppermost zone provides options to write/browse for a sample filename and to set general "parsing rules" – presets; in the middle zone you should "explain" the naming structure by including metadata fields; and in the lower zone you can specify the properties of each metadata field.

EXAMPLE: Let us pick a sample filename, like ***BGMusic-Lime_Biscuit-The_road_to_heaven-live.mpg.*** Enter the latter name in the *Filename* field. You could also browse for existing files or choose from the drop-down list of filenames after clicking the arrow button to the right of the *Filename* field. The drop-down list contains all filenames of the currently loaded playlist.

This is a possible way to name music files – **create a preset** (e. g. **Music**):

Click ***Add new preset...*** to the right of the *Active file parser preset* drop-down. In the dialog that follows, enter a name to the new preset. You can rename it later by clicking ***Edit name of selected preset...***, or delete it by clicking ***Remove selected preset*** button.

After you enter preset name, you can start setting the naming rules. The sample filename has a specific structure which contains, in the following order: language abbreviation (**BG**), category name (**Music**), separator (**-**), name of a performer/star (**Lime_Biscuit**), separator (**-**), title (**The_road_to_heaven**), separator (**-**), and additional notes (**live**), followed by the file extension. In order ***AirBox*** to recognize this naming structure, you should do the following:

In the Metadata options area, use the ***Add*** and ***Remove*** buttons to add/remove parser fields. You can choose from the available types of fields. For the sample filename, you have to enter one by one: **Note** (stands for the abbreviation **BG**), **Category**, **SEPARATOR**, **Star**, **SEPARATOR**, **Title**, **SEPARATOR**, and **Note**. If you want to skip some information in the filename, select **NONE** in the relevant position. Do not forget to set which symbols are regarded to as separators (check the relevant boxes in the lower left corner). Here, exclude the lower dash from the separators list as it represents the space within the separate fields.

To the right of the *Metadata* fields list you can see a number of checkboxes that provide some conversion options:

Convert all underscores to spaces - in our case **Lime_Biscuit** will become **Lime Biscuit**.
Convert all "%20" to spaces this option can be used for downloaded files (their names often contain "%20" instead of spaces)
ALL UPPER CASE will turn all letters in the filename to upper case.
all lower case will turn all letters in the filename to lower case.
All First Caps – capitalizes the first letter of each word in the relevant metadata field
Capitalize first only – capitalizes only the first letter of the relevant metadata field
Include letters and *Include numbers* are checked by default. If unchecked, the filename parser will not include the characters in the field.
Append ... at end field – enter characters to append automatically to the end of a metadata field.

Preferences for each metadata field are set separately (click the field to select). When ready, specify the length of each metadata field.

You can name your files with fixed length for each field – select the *Fixed length* option and specify the total number of allowed characters using the spinbox. The characters in the *Filename* field will be highlighted in blue to visualize the changes.

You can also set variable length for the fields. Select the *Variable length* option and specify minimum and/or maximum number of characters to be included in the metadata field. Specify a *Pad symbol* (e. g. asterisk *) to fill the gap if a metadata field contains fewer characters than the set.
If you set a *Maximum* value, but the metadata field contains more characters, insert a *NONE* field before the *SEPARATOR* field. This way ***AirBox*** will ignore the remaining symbols before the separator.

The sample filename, **Lime_Biscuit** contains 12 symbols. If you set a minimum value of 15 symbols and a Pad symbol (*) for the [Star] field, the Filename Parser will display **Lime Biscuit*** in the playlist grid. If you set a maximum of 9 symbols for the [Star] field, the *Metadata* fields list should contain "... [Star], [NONE], [SEPARATOR]...," instead of "... [Star], [SEPARATOR]...". You can change the positions of the metadata fields by dragging and dropping.

Some fields, like [Title], [Category], etc., are displayed directly in the ***AirBox*** grid. Others (e. g. [Tape ID]) provide information to ***SubTitle Plus*** or ***SubtitleBox*** for proper display of subtitles. When you use the filename parser to display subtitles, create a preset with a naming structure [Tape ID] and [SEPARATOR] and variable field length. In the clip properties dialog enter the same *Tape ID* as in the subtitle file.

NOTE: In order to use the ***Filename parser*** module you must set it before you add files to the playlist. The ***Filename parser*** cannot parse playlists, which are already loaded, since they contain all metadata for the clips.

WARNING: If the newly loaded playlist contains any information in the fields that are also used by the ***Filename parser*** preset, this information will be overwritten!

Admin

A new menu item, the **Admin...** aims at improving the security of ***AirBox***. The idea for password protection of some settings that might be crucial to playback performance is already a fact.

The first time you enter this menu item, you will have to go to the *Change password* row. Clicking on it will open a dialog box, containing three cells – *Old password*, *New password*, and *Confirm password*. As this is the first time you enter this menu item, leave the first cell empty, then write your password twice – in the second and in the third cells (your password can contain up to 256 symbols). Click ***OK***.

WARNING: Make sure not to forget the password!

Now you are already logged on. In order to restrict the access of all other users to the **Settings** menu, you just have to log off. Almost all menu items will become inaccessible – at any attempt to enter, a password will be required.

The only exceptions are **Colors** (as they will not affect the playback); *Enable* SubtitleBox (but not *Configure*); and Mirror mode (*Full mode*, *Idle mode*, *Change dongles*, also without configuration options access).

If you decide not to use password protection any more, just go to **Change password**, and enter the old password in the relevant field. Leave the *New password* and *Confirm password* fields empty and click ***OK.***

Save/Load Settings

If you need to configure several playout servers with identical settings, you can use these options to save all settings and apply them to other machines instead of configuring the servers one by one.

You can export the settings of all ***AirBox*** channels, available on the current server, or you can only copy those of the currently open channel.

To export the settings of the current ***AirBox*** instance, on the **Settings** menu, point **Save settings** and select **AirBox #X...,** where X is the number of the channel. In the dialog that follows, enter file name and location and click ***Save***. The file will be saved with a **.pb1* extension.

TIP: Name the settings file after the instance name in order to recognize which channel's settings it contains. When you load the **.pb1* file on another server, ***AirBox*** will not be able to distinguish which channel's settings you load, so you should know this from the filename.

To export the settings of all ***AirBox*** channels on a server, on the **Settings** menu, point **Save settings** and select **All AirBox instances**. Global setting files (i.e. for all channels) are saved with a **.pb0* extension. When you load a global settings file on another server, it will affect all ***AirBox*** channels.

Live Inputs

On the **Settings** menu, select **Live Inputs** to open the ***Live Editor***.

With the ***Live Editor*** you can add as many live inputs as you wish and edit their settings. The left pane of the ***Live Editor*** dialog contains a list of the available live inputs. They are designated by a Live name and an ID number. The *Properties* pane to the right contains additional information about the inputs. To see details about an input in the *Properties* pane, click on its name in the list.

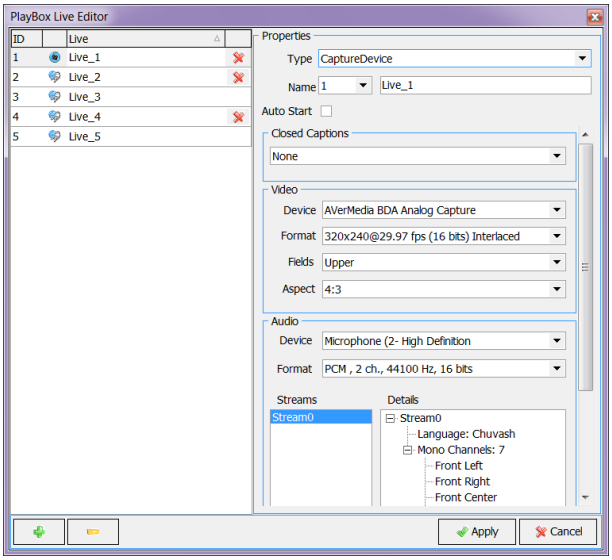
To create a new live input, click the plus-sign button at the bottom of the dialog window. Two different types of inputs can be configured: **CaptureDevice** and **UDP**. You can change the type of each input from the **Type** drop-down list in the right pane.

NOTE: Settings in the right pane are different for the different types of live input (**CaptureDevice** or **UDP**).

The screenshot below contains a sample configuration of a ***CaptureDevice*** live input. To configure the input, set its ID number and *Name* from the corresponding field and check the *Auto Start* option, which allows the input to be initiated automatically after it is set.

If your live source includes closed captions, select the type of the closed captions to be captured from the drop-down menu – *Analog* or *Digital*. If you select *None*, closed captions will not be captured.

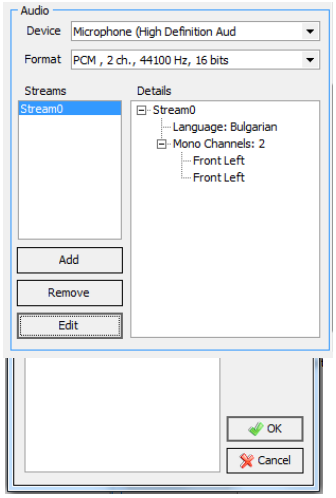
Under Video, select the video *Device*, used for the input and set its *Format*, *Fields* order, and *Aspect* ratio. All available video input/capture devices will be listed in the drop-down menu.



Under *Audio* below, select an audio input *Device* and *Format*. All available audio input/capture devices will be listed in the drop-down menu.

NOTE: Supported audio and video format are device-specific!

Next, add the number of audio streams as available in your live source. Click ***Add*** to insert a new audio stream or ***Edit*** to change the settings of an existing stream. Select a stream and click ***Remove*** to delete it.



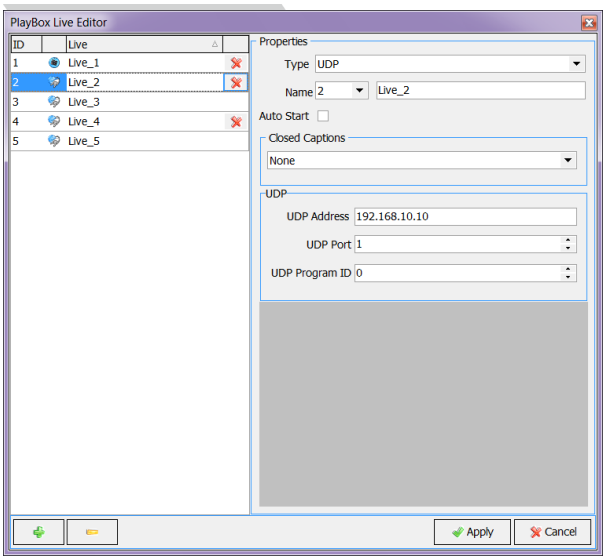
After you click ***Add***/***Edit*** the following dialog will open. Here you can select the number of *Mono Channels* and the language of the input, as well as make custom configurations to the audio channels in the stream.

If you select ***UDP*** for an input type, a dialog as the one below will appear. Here you should set the *UDP Address*, *Port*, and *Program ID*.

NOTE: The live inputs configured in ***AirBox*** will be available for use in other applications, like the ***Multi AirBox Manager*** and the ***LiveViewe***

TOOLS MENU

This menu accommodates tools for playlist checking, subtitling and more. Each command on the **Tools** menu is described in detail below.



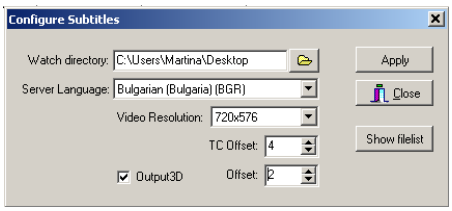
Change file path...

This module is intended for relocating file paths. If you have built a playlist and, for some reason, the file locations have been changed, here you can quickly relocate file paths. This can be done easily. Just fill in the *Old folder* field with the original location, and then fill in the *New folder* field with the new location. You may browse for path with the button. There are two view options:

- If you check *Show only files that exist in new folder*, only the files that are available in the *New folder* will be displayed in the list below;
- *Show only missing files* displays only the files from the playlist, which are *Missing*.

The *Selection* modes are self-explanatory and give opportunity for fast selecting/deselecting of all items, inverse, and missing only selection.

When the ***Change*** button is clicked, the file paths are relocated, and this is reflected in the playlist immediately.



SubtitleBox

SubtitleBox is an optional plug-in for the ***AirBox*** module. It enables using subtitles together with your running clips. ***SubtitleBox*** does not provide any editing options; it just shows your subtitles synchronized with your clips. The supported subtitle formats are the ones, created by our own subtitling software ***Subtitle Plus*** (**.sub*); Screen Subtitling/Win2020 (**.pac*); and EBU t3264 (**.stl*). It is best to use ***SubtitleBox*** with ***Subtitle Plus*** native files. They contain the *TapeID* (the reference to the corresponding media files), so ***SubtitleBox*** could "know" when to load and display the subtitles for each clip.

Enable the plug-in and configure it. The only thing you need to specify in the ***Configure...*** dialog box is the folder, where your subtitles are located (*Watch directory*), and the language you are using. Click the ***Show filelist*** button to view all the subtitle files, contained in the *Watch directory*:

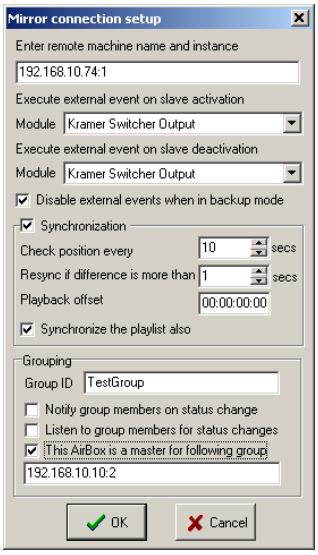
SubtitleBox will take care of broadcasting your subtitles in accordance to the playlist, loaded in ***AirBox***.

NOTE: Make sure the **Filename parser** is set to a preset with naming structure [Tape ID] and [SEPARATOR] before you load the playlist. Enable the ***Variable length*** radio button. In the clip properties dialog, fill in the same *Tape ID* as of the subtitle file. Otherwise, ***AirBox*** will not display the subtitles.

Use the *TC Offset* spin-box to apply an offset to the subtitles displayed. This offset is measured in frames. You can also use negative numbers here.

Check the *Output3D* box if you want to display 3D subtitles. The Offset spin-box here is used for depth measuring. If you set a positive number, the subtitles will appear deeper in the screen and vice versa.

Mirror Mode



The **Mirror mode** is another optional plug-in, available for ***AirBox***. The Mirror mode provides options for full redundancy of your main playout unit against system failures, such as power loss, broken motherboard or RAM, etc. In order to use this option, you must have two licenses for ***AirBox***, running on two different workstations with a network connection between them. For the sake of convenience, these are called *Master* and *Slave* hereafter. They communicate via TCP/IP protocol.

Failure actions:

There are two possibilities to back up your ***AirBox*** in case an unrecoverable failure of the Master ***AirBox*** occurs (the master ***AirBox*** server is down for a long period, faulty motherboard, CPU, RAM, etc.):

1. When there are two fully functional ***AirBoxes*** on both machines, plus one ***AirBox backup*** license on your *Slave* machine: In this scenario, you just have to uncheck the Mirror mode on the *Slave* machine and continue working with the full ***AirBox*** functionality.

2. When there is one fully functional ***AirBox*** installed on the *Master* machine and one ***AirBox backup*** (with limited functionality) on the *Slave* machine: In this scenario you will have to attach the full ***AirBox*** dongle to the *Slave* ***AirBox*** server and use the **Change Dongles** menu command in order to operate the full functionality on the *Slave* machine. Obviously, the master machine does not need a dongle while faulty.

NOTE: When ***AirBox backup*** is a stand-alone license, ***AirBox*** will start in **Mirror Mode** automatically. No full functionality available!

To set the *Master*, start ***AirBox*** and check *Enable IP remote control* in **Settings** > **General >** ***General***. Otherwise, the *Slave* machine will not be able to connect to the *Master*.

To set the *Slave*, go to **Tools** > **Mirror Mode** > **Configure...,** and do the following settings in the ***Mirror connection setup*** window:

In the topmost string, *Enter remote machine name and instance*, write the Remote machine IP address or name.

The BackUp can execute some external event upon connecting/disconnecting to the *Master*. This is useful, for example, for auto switching a video switcher to another input/output when the *Master* unit fails, or when you switch back to it.

Execute external event on slave activation – this event will be executed when the current ***AirBox*** is switched to BackUp mode.

EXAMPLE: If the *Master* has been down for some time and now it is running OK, so you want to start the main playback from it again.

Execute External event on slave deactivation – this event will be executed when the *Master* fails and the current *BackUp* takes over the playback.

NOTE: For switcher control upon connecting/disconnecting, you need the PRO option, enabled on your dongle.

Disable external events when in backup mode – check this box if you want to stop external events' control when the backup ***AirBox*** is initiated.

The lower half of this window concerns the synchronization between the *Slave* machine and the *Master* machine. Do not forget to check the *Synchronization* box, if you need it.

Set the frequency of position enquiries to be sent by the *Slave* to the *Master* in the *Check position every...sec* cell (the least allowable is 10).

Below you can set the maximum allowable difference (in seconds) between the *Master* and the *Slave* playback. If the difference goes beyond this value, the *Slave* machine will have to resynchronize to the *Master*.

Playback offset value compensates the delay that may occur due to some additional factors (e.g., the network communication delay or backup playback reaction time).

Check *Synchronize the playlist also* if you want to check the playlists at each resynchronization. This is a "double insurance," in case some playlist data is lost during the IP communication.

It is possible to **group** several *Slave* machines to operate together. The *Group*-related settings are situated at the bottom of the **Setup** dialog.

EXAMPLE:

If you have three ***Master AirBox*** channels and their outputs are connected to one external device called **MasterOut**, the output of **MasterOut** sends the three signals together (as a multiplexer would do).

There are three ***Slave AirBox*** machines, listening to the three *Master* machines. The outputs of the *Slaves* are connected to another external device (**SlaveOut**).

The outputs of **MasterOut** and **SlaveOut** are connected to a switcher.

In case ***Master AirBox2*** fails, *Slave 2* will take over the playout but the **MasterOut** device will be outputting only the signals coming from ***AirBox1*** and ***AirBox3***. The signal of *Slave 2* (which substitutes ***AirBox 2***) will be output on the **SlaveOut** device. In order to have all signals output on one device, we have to start the playout on *Slave 1* and *Slave 3* and switch from **MasterOut** to **SlaveOut**.

When you use the option for grouping *Slave* machines this is done automatically. In case one of the slaves in the group starts playing, it will trigger the others to start playing too, and the switcher will be switched automatically from **MasterOut** to **SlaveOut**. All three signals will be output together again.

Back in the **Mirror connection** dialog, there are three fields to setup *Grouping*:

Group ID – fill in the name of the group of *Slaves*. This name should be the same in all *Slave* machines that belong to this group, so you have to fill it in each *Slave*'s **Mirror connection** dialog.

Notify group members on status change – enable this so the current *Slave* will report its status to all other *Slaves* in the group. If you do not want this *Slave* to control the whole group, leave this box unchecked.

Listen to group members for status changes – check it if you want the current *Slave* to start/stop playing when any *Slave* in the group starts/stops. If you do not want this *Slave* to be affected by the status of other *Slaves* in the group, leave this box unchecked.

This AirBox is a master for following group - check it to define a current ***AirBox*** as a master of the group.

The Mirror mode has two major sub-modes: **Full mode** and **Idle Mode**.

Full Mode:

The *Slave* and the *Master**AirBox*** are always playing the same content simultaneously.

Advantage: The *Slave* channel always runs in perfect synchronization and you can switch over to it any time.

Disadvantage: This will double the network traffic, since the two ***AirBox*** servers will be transferring data at the same time.

Idle Mode:

The *Slave**AirBox*** is remains idle and listens to the *Master**AirBox*** activity. If the *Master**AirBox*** stops responding, the *Slave**AirBox*** will start playing immediately from the same point, at which the *Master**AirBox*** was last.

Advantage: No additional network traffic overhead.

Disadvantage: It might take up to a second to start the playback process from the point it failed. The information about all previously executed external events will not be preserved. Thus, if the *Master* was running in video scale mode before the failure, the *Slave* will precede outputting full-screen video.

In both modes, whenever you change anything in the *Master**AirBox*** playlist, the *BackUp**AirBox*** does the same automatically.

Regardless of the mode, you will always use content files that are stored either on local or on network storage.

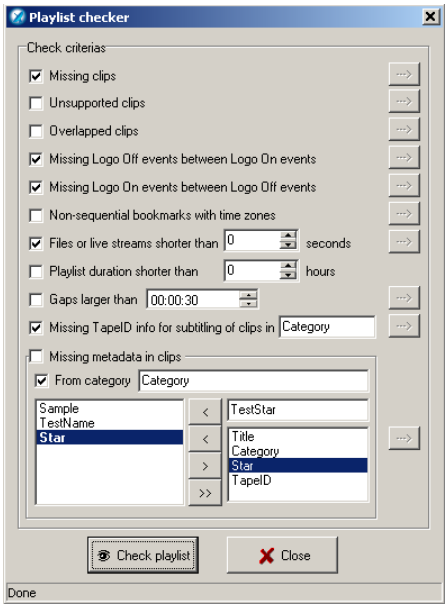
The easiest approach is to use content ONLY from a redundant network-attached storage (NAS) or SAN. This means that the *Slave**AirBox*** will use the same file path as the *Master**AirBox*** to locate the content files.

If you are going to use local content files, or a mixed approach, then you should install ***SafeBox*** (see **SafeBox User Manual**, available at our site www.athensa.tv for details) on the *Slave**AirBox*** machine. Its task will be to automatically replicate (copy) the new-coming content from the *Master**AirBox***'s local storage to the local storage of the *BackUp**AirBox***.

The **Change dongles** option allows you to change the dongle (WIBU-key) of a currently playing unit without interrupting the work of the ***AirBox***. Thus, if your *Master* machine is down and you need the full functionality on your *Slave* machine, you will be able to change the dongle for the latter without interrupting its playback. After you have inserted the new dongle, click **Tools** > **Mirror Mode** > **Change Dongle,** and the new dongle will be recognized.

NOTE: The *BackUp* server should run the same software version as the *Master* server!

Playlist Checker



This tool checks the playlist for inconsistencies. Enable the criteria you need by checking the box in front of them.

Below you will find description of some of the checking criteria:

Missing clips – checks for missing clips in the playlist

Unsupported clips – checks for clips with an unsupported format in the playlist

Overlapped clips – this check is related to fixed-start time clips that overlap previous clips in the playlist.

Missing Logo Off events between Logo On events – checks if there is a Logo Off event between the Logo On events

Missing Logo On events between Logo Off events – checks if there is a Logo On event between the Logo Off events

Non-sequential bookmarks with time zones:

Bookmarks with time zones should be situated in sequential order, i.e., following the normal time flow. This means that bookmarks with earlier time zones should be situated up in the playlist, while bookmarks with later time zones should be placed down the playlist. This will ensure their correct execution.

Gaps larger than… – when using fixed-start times and there is not enough content to be played before them, gaps are formed in the playlist.

Missing TapeID info for subtitling of clips in [Category name] – Subtitles are shown based on the *TapeID* of the clip and the currently running time code. If a *Tape ID* is missing from a clip's properties, no subtitles will be displayed over it. Therefore, it is important to make sure that all *TapeID*s are in place. Just specify the category of clips that require subtitling and check if all of them have *TapeID*s in their properties.

Missing Metadata in Clips – this field contains settings for verifying the availability of all metadata, usually needed for Graphic rules.

Metadata is described in the clip properties. Each metadata has a name and value, where the name represents a category, and the value represents the information about this category. Please, check the Metadata description above. The playlist checker uses the metadata names as reference and checks the presence of the corresponding metadata values.

From category [Category name] – here you have to specify the category of the clips you want to check, like clips that belong to category [Music]

The list of metadata fields to be checked is situated in the left field at the bottom. You can pick them from the list of presets to the right: Just select the Metadata name you need and click the button to add it.

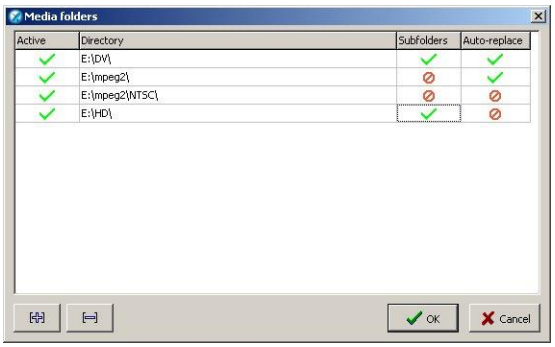
If the Metadata name is not available in the list of presets, create a custom name in the string above it, and click the button to add it to the left.

To remove a metadata name from the check-list, select it from the list to the left, and click the button.

To clear the whole check-list, click..

If the ***Check playlist*** button finds an inconsistence, the relevant criterion turns red. The arrow to the right of it becomes active. Click it do view the list of inconsistencies, sorted by their position in the playlist.

Media Folders



This tool was developed to allow for specifying watch folders that might contain media files. Thus, if there are missing files in a playlist, these folders will be automatically searched upon playlist loading.

NOTE: Media folders do not operate in run-time! You need to reload the playlist in order to check the watch directories.

To add a new watch directory, click on the plus sign and browse for it. As soon as it is inserted in the list, you can adjust its settings:

Double-click in the **Active** column to enable watching the folder, described in the line to the right.

If you want ***AirBox*** to parse the sub-directories of a selected watch folder, double-click on the **Subfolders** column to turn the closed sign into a green checkmark.

Auto-replace – this function will update the file paths of the missing files upon saving the playlist. If not enabled, the new location of files will not be saved in the playlist.

COMMANDS MENU

This menu contains commands, related to playback and logo presets. The available commands are:

Playback commands

This menu duplicates the playback control buttons, situated unde

r the master counter (***Play/Stop/Pause/Next/Jump/Return***). The commands are executed just by clicking on the appropriate field. For the user's convenience, a relevant shortcut is written to the right of each command.

Logo presets

Here you can trigger logo presets by clicking on them. The preset numbers correspond to those in the **Settings** menu > **Logo** dialog.

Jump to: This is a shortcut – <Ctrl+Shift+#>. Use this shortcut to jump to a clip in the playlist, using its number. Hold down <Ctrl+Shift>, enter the dip's number in the playlist, and then release the <Ctrl+Shift> keys.

HELP MENU

This menu contains help topics, system information reports through the ***Doctor*** and information about ***AirBox***.

Help

Opens the ***AirBox*** context-sensitive help.

Doctor

The ***Doctor*** is an integrated module, which can gather almost all the information, needed for the successful support.

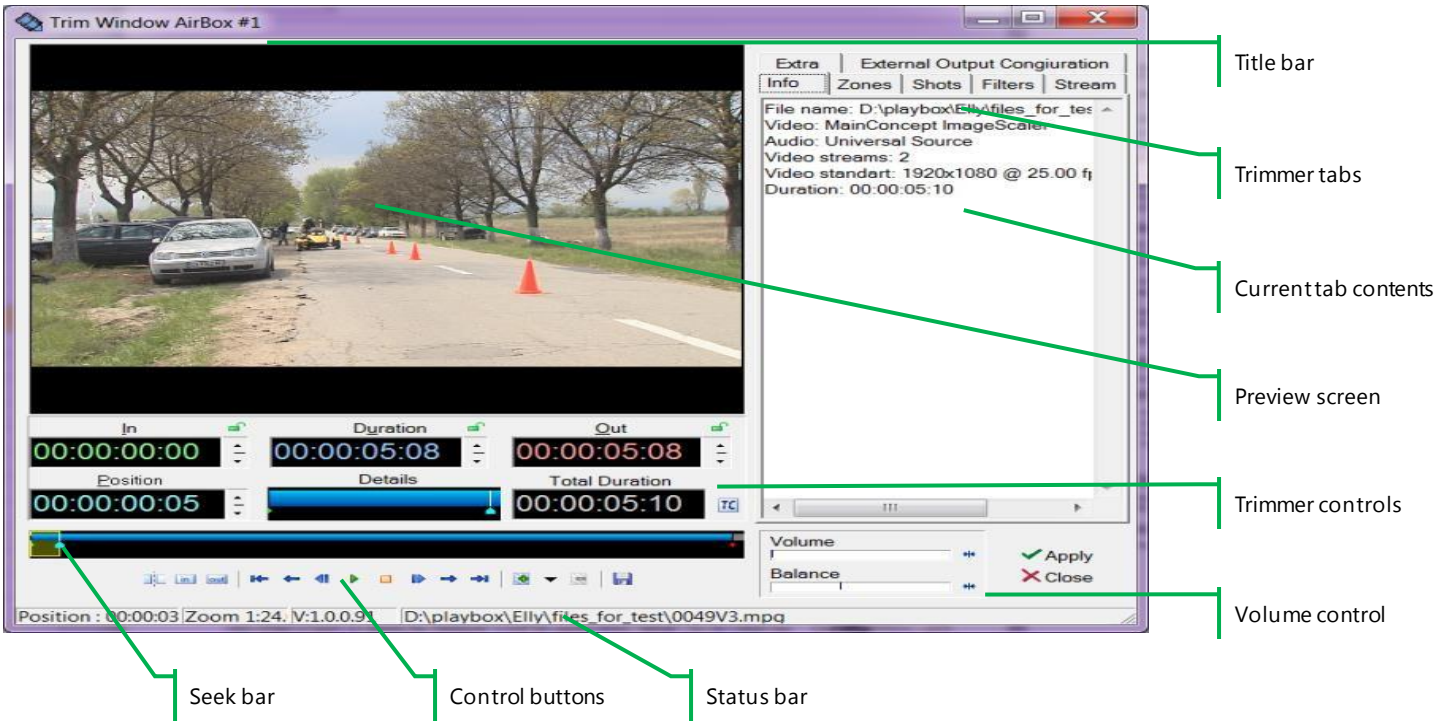
The *Basic User's Manual* contains a detailed description of the ***Doctor*** and other functionalities. The Basic manual is available on our website – www.athensa.tv

About...

Displays the initial splash of ***AirBox***. It contains useful information, such as: module version, WIBU Box number, mode, registration, etc. The name of the currently selected platform is displayed at the bottom. Press **<Esc>** to close the *About* splash.

APPENDIX - CLIP TRIMMER

USER INTERFACE



The ***Clip Trimmer*** combines a *VGA* preview screen and tools for editing the *In* and *Out* points of *MPEG* clips.

To load a clip into the ***Clip Trimmer*** window, double-click over the clip title in the ***ListBox, DataBox*** or ***AirBox*** grid.

Clip Trimmer features can be operated with the interface buttons, as well as through keyboard shortcuts. Available shortcuts are listed in the following Appendix.

Preview Screen

The **Preview screen** shows the video clip which is being trimmed. Right-click over the **Preview screen** to open a context menu with the most frequently used commands of the ***Trimmer***.

Trimmer Controls

Once a clip is loaded, you can navigate through the clip and edit it using the ***Clip Trimmer*** controls.

The controls section contains the following elements:

In spinbox – displays the In point timecode

Out spinbox –displays the Out point timecode

Duration spinbox – displays the clip duration. It is equal to the difference between *In* and *Out* points.

After the In and Out timecodes are entered, the Duration value will be calculated automatically. If you edit the In and Duration values, the Out point timecode will be calculated automatically. You can lock the In, Out or Duration value by clicking the padlock icon to the right of the box, in order to protect the value from being changed (e. g. by mistake). It is not possible to lock all three values simultaneously.

To enter values in the In, Out or Duration box, use the arrows to the right or type numbers from the keyboard. The *Position* spinbox contains the timecode of the currently selected point in the clip. If you type another timecode in this box and press ***<Enter>***, the marker will move to the relevant position.

Total Duration spinbox – displays the original, untrimmed duration of the clip.

Details box –shows the part of the clip, enclosed in the zoom frame.

Seek bar - visualizes the clip length and the clip markers.

The *Zoom frame* defines what part of the clip is shown in the **Detail view**. It is quite useful for long clips. Click and drag to move or resize. Right-click and drag to define a new zoom area.

SPLIT button - defines separate sections in the clip. After splitting the clip, each new clip section appears as a separate row in the playlist. You can play them separately, change their order, insert other clips between them, etc.

You can define *In/Out* points for each section of the split clip. The *In, Out* and *Duration* boxes display information about the selected section. Multiple In/Out definitions are used for skipping some parts of the clip during its playback. Thus, you can exclude existing commercials, titles, etc. from the original clip.

You can create separate sections also by clicking repeatedly the ***In/Out*** buttons. Clicking the ***In*** button after an existing *Out* point, creates a new section after the existing one. Clicking the ***Out*** button before an existing *In* point, creates a new section before the existing one.

IN button – marks the *In* point for start of playback in ***AirBox***. The *IN* point marker is colored green and by default it is at the beginning of the clip.

OUT button – marks the *Out* point for end of playback in ***AirBox***. The *OUT* point marker is colored red and by default it is at the end of the clip.

You can set an *In/Out* point, by dragging the *IN/OUT* marker on the seek bar or by entering timecode directly into the *IN/OUT* box.

The *IN/OUT* markers show the frame before/after (i.e. if the marker is on the *Out* point, you actually see the next frame, but not the last frame of the trimmed part).

NOTE: For MPEG files, the trimming is *GOP* accurate! *IN* points can be positioned only on I-frames, while OUT points can be positioned on I- or P-frames. Depending on the stream's *GOP* size, this may lead to a slight inaccuracy, limited to half a *GOP* for the *IN* points and a couple of frames for the OUT points. If the stream's *GOP* size is one (I-frames only), then trimming will be frame accurate.

NOTE: Even if you specify In and Out points in a particular timecode, some playout plug-ins (e. g. IPPUMP) will correct them to nearest I-frame for IN point and I- or P-frames for OUT point. In such case, the output duration could be shorter then specified.

Play starts playing the clip and transforms to pause/resume.

TIP: To play only the trimmed part (i.e. between the *IN* and *OUT* points), hold **<Shift>** and click ***Play***.

Stop stops the playback and rewinds the clip to its beginning.

Pause/Resume **-** stops and resumes the clip playback from the same timecode position.

- skips one frame forward

- reverts to one frame backward

- fast forward (if possible)

- rewind (if possible)

- moves to the next mark point (in/out/bookmark)

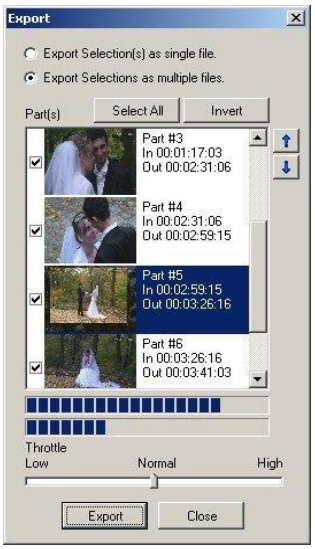
- moves to the previous mark point (in/out/bookmark)

Add Zone - marks the beginning of a zone. A yellow point appears in the seek bar.

Delete Zone - deletes the selected zone point.

Open will load a clip in the Trimmer window.

Export **-** opens a dialog box for exporting the trimmed clip as a file.



If you divide the clip into several sections, they will appear in the **Export list** as different parts. Select which of them to export by checking the checkboxes before them. You can change their order using the up and down arrows.

If you export several parts at a time, select one of the two options – to *Export selection(s) as multiple files)* or to *Export selections as a single file)*.

Click ***Export*** and in the following dialog box enter the file name and file location to begin the export.

To delete a clip section, select it and press **<Ctrl>**+**<D>**.

To reset the original clip length, press **<Ctrl>**+**<BkSp>**.

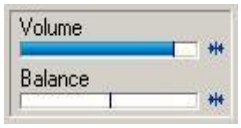
The *Throttle* has three levels – Low, Normal and High. Each of them tells the CPU what priority to give to the export process.

With higher priority the export will be completed quickly, but other processes, running on the same server will be slowed down.

NOTE: Export works only for MPEG2 files.

NOTE: Export is not frame accurate. It is *GOP* accurate! *IN* points can be positioned only on I-frames, while OUT points can be positioned on I- or P-frames. Depending on the stream's *GOP* size, this may lead to a slight inaccuracy, limited to half a *GOP* for the *IN* points and a couple of frames for the OUT points. If the stream's *GOP* size is one (I-frames only), then trimming will be frame accurate.

Volume control



You can change the audio volume and audio balance of the clip, using the sliders of the ***Clip Trimmer***. The new values will not take effect in ***AirBox*** playback. These sliders are used for convenience during the trimming process.

Volume – shows the volume level of the clip playback. Click the **Reset** button to the right of the slider to restore the default value.

Balance – shows the audio Left - Right balance. Click the **Reset** button to the right of the slider to restore the default value.

Status Bar

The status bar is located at the bottom of the ***Trimmer*** window.

- The first field [Position] – shows the current timecode, when dragging over the seek bar.

- The second field [Zoom Frame] – shows the scale of the Zoom zone.

- The third field [Version] – displays the current ***Trimmer*** version.

- The last field shows the clip's filename and location.

TRIMMER TABS

There are six tabs on the right side of the ***Trimmer*** Window: ***Info***, ***Zones***, ***Shots***, ***Filters***, ***Stream*** and ***Extra***.

All tabs are described in detail in the following sections.

Video Clip Info

This tab shows important system stream information, extracted from the file. It contains:

- Filename

- Video compression type

- Video stream information: number of streams; image width and height in pixels; video frame rate; video bitrate.

- Audio stream information: number of streams; audio compression type; audio sampling rate; audio channels; audio bitrate.

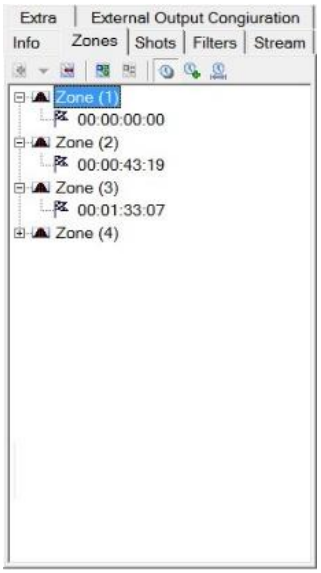
- Type of *MPEG* packages

- Type of *PES* (packetized elementary stream)

- Mux rate (the multiplexing rate in bps)

- Duration of the clip in HH:MM:SS.ms (hours: minutes: seconds. milliseconds)

Clip Zones



In this tab you can register a set of timecode points in the clip, in order to mark initial/final timecode(s) of important zones in the clip. For example, in each movie there are predefined commercial break points that might be used later for automated commercial slot insertion. Such breakpoints can be defined in ***Clip Trimmer*** as single split points or zones (blanks/stills) that will be skipped, and a commercial slot will be inserted instead.

To add a **Zone**, set the cursor at the appropriate point and click ***Add Zone*** in the tab or in the main window. A yellow point will appear in the seek bar, marking the beginning of the zone. To define different zone types, click the black arrow next to the ***Add Zone*** button. The following options are available:

Bookmark – creates a single split point at the current play head position. You can change the Zone name (Bookmark by default) and timecode manually.

Simple skip zone – creates a two-point zone. The first point is the current play head position, and the second is 5 seconds later, by default. You can change the Zone name and timecodes manually.

Advanced skip zone – creates a four-point zone. The first point is set at the current play-head position. By default the second point is 1 second later, the third point is 5 seconds later and the fourth point is 6 seconds later. You can change the Zone name (Advanced Zone by default) and timecodes manually.

To add another marker in the **Zone**, click ***Add Zone marker*** . It will add a marker 10 seconds after the last marker in that zone (by default).

To delete a marker from the **Zone**, select it and click ***Delete Zone marker*** . It will delete all markers, except the first one, which can be deleted only by deleting the whole zone.

To delete a **Zone**, select it and click ***Delete Zone*** in the tab or in the main window.

Click the clock buttons to choose a display mode for the markers:

Time – shows exact timecodes in HH:MM:SS:FF format

Offset value – shows the interval between the current marker and the first one

Duration – shows the time difference between two consecutive zone markers

Clip Shots

Use this tab to extract snapshots from the video clip.

To create a snapshot, stop the play-head at the desired frame and click ***Add*** . The snapshot thumbnail and time-code are displayed in the tab. You can change the snapshot's name (Scene No., by default) manually.

To delete a snapshot, select it and click ***Delete*** .

To save a snapshot to a file, select it and click ***Export*** . In the following dialog, enter file name, type (***.jpg** or ***.bmp**) and location.

To set a snapshot as a thumbnail for a file, click ***Thumbnail*** .

Clip Streams

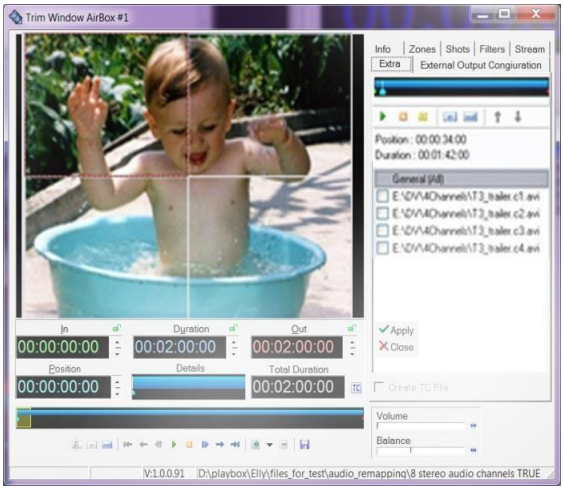
This is applicable for files which contain more than one video and/or audio stream. Here you can choose which of them to view/listen during playback.

The checkbox before each stream shows its playback status. If checked, after you click ***OK*** the stream will be loaded in the playlist and will be played in its turn.

The green checkmarks are used for preview – if you click on the single checkmark, you will preview only the selected stream. If you click on the double checkmark, you will preview all the streams simultaneously. If you preview several audio streams, they will be mixed-up. If the streams are video, the preview window will split according to the number of streams (up to 32).

Use the blue arrows to move streams up and down the list.

Extra



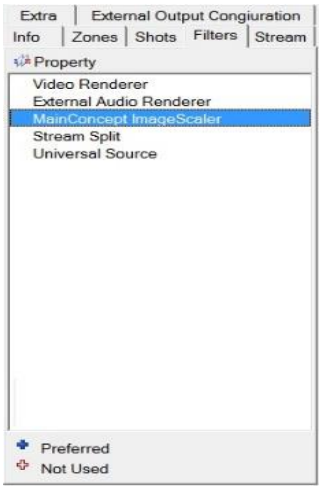
The options in the ***Extra*** tab are used for managing multiple monitor video wall systems (up to 16 monitors). The names of files, that are output to video walls usually end in ***.c#.mpg** or ***.c#.avi** (e. g. ***.c1.mpg** or ***c3.avi**). Load the first file in the playlist and ***AirBox*** will detect the others automatically.

The seek bar and the buttons above the file list are used for control of the entire set of files. The seek bar and the buttons under the preview window are used for control of the currently selected monitor (marked with a red dotted-line frame).

With this feature, you can synchronize the video wall and control each monitor separately. You can also rearrange the display positions of files by dragging and dropping the squares in the preview window (i.e. file #1 can be displayed on monitor#3, etc.) or using the blue arrows above the file list. The files in the preview window are arranged horizontally, in up to 4 rows of up to 4 files each. If there are 16 files in the set (the maximum number possible), the first row will contain files #1 to #4, the second row will contain files #5 to 8#, etc.

If you check the *Create TC file* check box at the bottom of the file list, a TC file will be created automatically. The file will contain your settings, such as *In* and *Out* points, file order, etc. These settings can be used again the next time you open the relevant file.

Clip Filters



Contains information about the filters, used for playing the current clip as well as options for changing filter settings.

The Windows Registry contains a key [*HKEY_CURRENT_USER\Software\Digital Media Technologies Ltd.\PlayBox\2.0\DXPresets*] in which you can create your own string values, containing groups of preferred filters (presets). All filters of the currently selected preset are displayed in ***Filters*** tab.

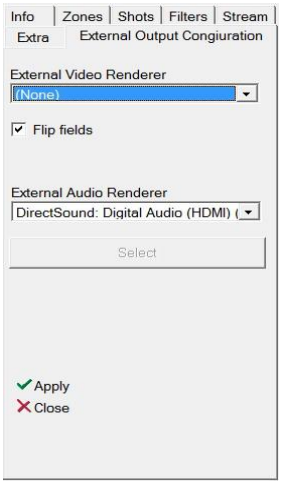
There is a legend at the bottom of the tab:

- marks all filters from the preset.

- marks filters that are included in the preset, but are not used for executing the current file.

Click the ***Property*** button under the tab name to open the **Property dialog** of the selected filter (if available), and change filter settings.

External Output Configuration



In this tab you can select an *External Video Renderer*, as well as an *External Audio Renderer* from the drop-down lists. For the video renderer you are able to flip the fields of the output video by checking the *Flip fields* box.

In case the external audio renderer is multi-audio, then the first 8 audio channels are output in SDI. When you are done selecting your external video and audio renderers, click ***Select***.

APPENDIX – INTEGRATION OF AIRBOX WITH TITLEBOX

AirBox settings:

1. On the **Settings** menu click **Modules**, and then select the *Remote control* tab.
2. Enable the *TitleBoxNetCtrl Output* setting by double-clicking the **No** cell on the corresponding row.
3. Click the ***Configure*** button.
4. Enter the same Port value as in the ***TitleBox*** settings. In the *TB Server* field type the following IP address: 127.0.0.1, and then click ***OK***.
5. Right-click somewhere on the ***AirBox*** playlist, select **Add/Insert**, point to **Event,** and then click **TitleBoxNetCtrl Output**.
6. The **TitleBox Cotrol Wizard** appears.
7. Select *Template Control* - for global ***TitleBox*** control commands, or *Play Project* - for project/objects control commands.
8. If you have selected the *Play Project* mode, add your project from the list (all exported template projects should appear in this list). Select a whole project or some objects from it.
9. Click ***Finish***.
10. Launch ***AirBox***.

TitleBox settings:

1. Open the *PlayBox Technology Ltd.* folder on your computer, select the ***TitleBox*** folder, and then open the *PLNetInst.exe***.**

2. In the **PlayBox Network Configurator** select a folder for your ***TitleBox*** templates.

NOTE: It is not recommended to set the ***TitleBox*** template folder on your station's drive C.

3. Launch ***TitleBox***.

4. Create your ***TitleBox*** project.

5. On the **Network** menu click **Export project as template** and type the name of your project, in order to save it.

6. A *.tmpl (template) file is created in the templates folder.

7. On the **Project** menu click **Options**, and then select the *Network* tab. Remember (or copy and paste in proper text document) the TitleBox channel ID and Port values. If you make any changes, click ***OK*** to confirm them.

8. On the **Network** menu click **Net control** to run it.

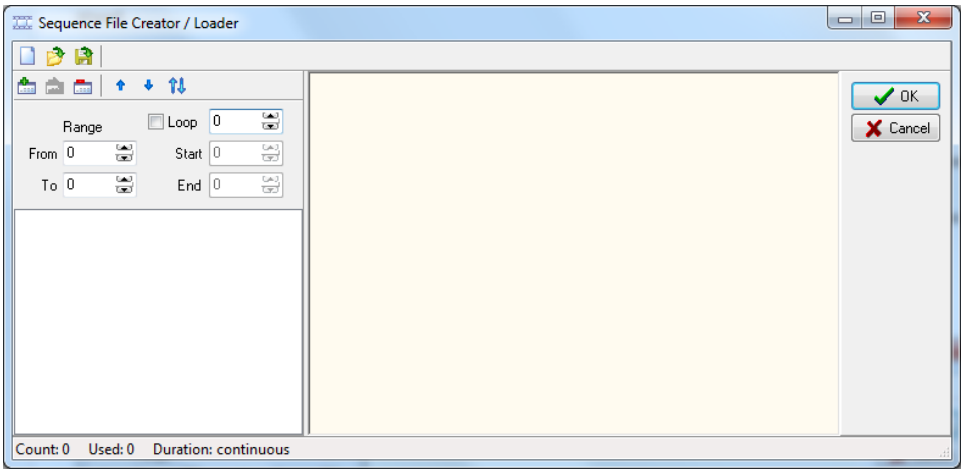
TitleBox is now in a standby mode and executes the commands coming from ***AirBox***. Please, note that it is not possible to edit objects in ***TitleBox*** while in this mode.

At the time of the ***TitleBox*** event, ***AirBox*** sends a command to ***TitleBox*** to run the selected projects or objects.

APPENDIX – ANIMATED SEQUENCES WITH SEQMAKER

SeqMaker is an additional application for creating animated files in *.seq and *.seq2 formats from image sequences. You can use such image sequences to output an animated logo with an ***AirBox*** channel.

To start ***SeqMaker***, click the ***Windows Start*** button, type ***SeqMaker*** in the search box and press <*Enter*>.



SeqMaker has a simple graphic interface, through which you can add, arrange and rearrange image files in a sequence to produce animated effect.

The top menu bar of ***SeqMaker*** includes the ***New/Clear***, ***Load sequence*** and ***Export sequence*** buttons.

TIP: Position the mouse pointer over any button in the user interface to see its name.

The ***Add images***, ***Insert images***, ***Delete selection***, ***Up***, ***Down*** and ***Reverse*** buttons are situated below.

To create a new animated sequence, click ***Add images***. Select the desired images in the popup dialog and click ***Open***.

Rearrange the images in the sequence, using the ***Up***, ***Down*** and ***Reverse*** buttons.

Use the ***Insert images*** button to add new images between existing ones.

NOTE: Supported image formats are *.jpg, *.bmp, *.tga.

Use the spinboxes below to specify start- and end-point frames (i.e. images) of the sequence. Check ***Loop*** if you wish the sequence to repeat infinitely.

When ready, click the ***Export sequence*** button to save the animated sequence to a *.seq file.

APPENDIX – BYPASS RELAY AND GPI/O BOARD

1. Bypass relay

Function: In case of software or hardware malfunction the input signal is transferred directly to the output. Used ONLY for emergency. The Bypass relay may be also used for triggering an alarm (e.g. send a contact closure to alarm system)– sound, light, etc.

Products: Currently supported by ***AirBox*** and ***TitleBox***.

2. GPI IN (4 inputs are available on 1 board)

Function: Used for playout control. One or all GPI inputs are connected to external GPI signal sources. As soon as a GPI signal is a vailable at certain input, a preconfigured command is triggered – Play, Stop, Resume, Jump on, etc.

Products: AirBox. The GPI inputs are configured via Relay GPI Input plugin.

Common applications: commercials insertion, Logo on / Logo off, Playout control from 3rd party equipment.

3. GPI OUT (4 outputs are available on each board)

Function: Generates GPI signals on one or all of the GPI outputs. Each GPI output may be configured to generate different type of GPI p ulse.

Products: AirBox. The GPI pulse generation is triggered by **Relay GPI Switch Output events** in ***AirBox*** playlist.

Application: GPI generator that can be connected to another ***AirBox*** machine or 3rd party equipment. May be part of commercial insertions workflow.

APPENDIX – AIRBOX KEYBOARD SHORTCUTS

PLAYLIST MANAGEMENT

Function	*Shortcut 1*	*Shortcut 2*
New playlist	Ctrl+N	
Load playlist	Ctrl+O	
Save playlist	Ctrl+S	Alt+V
Save daily playlist	Ctrl+Q	
Save playlist As	Alt+S	
Add media files	Alt+Ins	Alt+A
Insert media files	Ins	Alt+I
Add dummy clip	Shift+Ctrl+D	
Insert dummy clip	Ctrl+Alt+D	
Add live clip	Shift+Ctrl+V	
Insert live clip	Ctrl+Alt+V	
Edit media/event	Alt+Enter	Double click
Properties	Ctrl+Enter	
Delete current from playlist	Del	Alt+Del

Clear playlist	Ctrl+Del	Alt+C
Playlist loop	@	Shift+2
Insert playlist	Ctrl+I	
Append playlist	Ctrl+A	
Reset playlist	#	
Full Mirror Mode	Ctrl+M	
Idle Mirror Mode	Ctrl+E	
Insert Stop event	Ctrl+Alt+S	
Insert Stop Cue event	Ctrl+Alt+C	
Insert Wait event	Ctrl+Alt+W	
Insert Logo ON	Ctrl+Alt+L	
Insert Logo Preset	Ctrl+Alt+P	
Insert Logo Off	Ctrl+Alt+O	
Insert GPI event	Ctrl+Alt+G	
Insert Kramer Switch output	Ctrl+Alt+K	
Insert Kramer Matrix output	Ctrl+Alt+R	
Insert TitleBoxNetCtrl output	Ctrl+Alt+T	
Insert Note event	Ctrl+Alt+N	

Insert Return Event	Backspace	Alt + R
Add Stop event	Shift+Ctrl+S	
Add Stop Cue event	Shift+Ctrl+C	
Add Wait event	Shift+Ctrl+W	
Add Logo Off	Shift+Ctrl+O	
Add GPI event	Shift+Ctrl+G	
Add KramerSwitch output	Shift+Ctrl+K	
Add Kramer Matrix output	Shift+Ctrl+R	
Add TitleBoxNetCtrl output	Shift+Ctrl+T	
Add Note event	Shift+Ctrl+N	
Activate logo preset	Ctrl+ Num	
Jump to	Ctrl+Shift+Num	
Show Big timer	Ctrl+B	
Show Clip timer	Ctrl+T	
Show Block timer	Ctrl+K	
Show Log	Ctrl+L	
Show logo panel	Ctrl+G	
Show TC timer	Ctrl+D	

PLAYBACK CONTROL

Function	*Shortcut 1*	*Shortcut 2*
Play	Space	Alt+P
Scheduled Play	Alt+Y	
Stop	Double Esc	
Pause/Resume	Space	
Next	Ctrl+Space	Alt+N
Jump	Alt+Space	Alt+J
Reset hardware	Ctrl+Backspace	
Cue	Ctrl+Alt+Space	<F12>

VOLUME CONTROL

Function	*Shortcut 1*	*Shortcut 2*
Volume Up (fast)	Num +	
Volume Down (fast)	Num -	
Volume Up (precise)	Shift+Num +	
Volume Down (precise)	Shift+Num -	

GRID CONTROL (WHEN SELECTED)

Function	*Shortcut 1*	*Shortcut 2*
Page scrolling	PageUp/PageDown	
Jump to grid beginning	Home	
Jump to grid end	End	
Jump to line Num	Ctrl+Shift+Num	
Clip move (order change)	Shift+Up/down	Drag&drop
Clip copy	Ctrl+Drag&drop	
Scroll to playing clip	Click on the green counter	

APPENDIX – CLIP TRIMMER KEYBOARD SHORTCUTS

Function	Shortcut
PLAY / PAUSE / RESUME	Space
Play Selection	Shift + Space
Close Trimmer	Esc
Mark In	I
Mark Out	O
Get Scene / Annotation	Ctrl+S
Export Frame as file	Ctrl+E
Add Zone	Ctrl+Z
Add Marker in Zone	Ctrl+M
Split	R
Reset	Ctrl+BkSp
Delete clip section	Ctrl+D
Lock/Unlock In point	Ctrl+Alt+I
Lock/Unlock Out point	Ctrl+Alt+O
Lock/Unlock Duration	Ctrl+Alt+U

Go to In Point	Ctrl+I
Go to Previous Mark Point	Ctrl+Left
Go to Out Point	Ctrl+O
Go to Next Mark Point	Ctrl+Right
Go to Beginning	Home
Go to End	End
Go to Next Zone	Ctrl+Alt+Right
Go to Previous Zone	Ctrl+Alt+Left
Select Next Clip section	Alt+Right
Select Previous Clip section	Alt+Left
Go 1 frame earlier	Left
Go 1 second earlier	Shift+Left / Up
Go 10 seconds earlier	PageUp
Go 1 frame later	Right
Go 1 second later	Shift+Right / Down
Go 10 seconds later	PageDn
Goto	Type numbers and press Enter

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