AIRBOX USER MANUAL

*(Version: **2.3**, March 2020)*

Current software versions:

AirBox Mega: 12184.0

This guide explains in detail all functionalities of the ***AirBox*** modules.

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Preface

Dear *PlayBox* 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 **PlayBox** 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:

support@playboxtechnology.com

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**
  - *Terms are defined in the Glossary at the end of the manual*
- 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.

Introduction

GETTING STARTED

Quick Start

- Verify all connections and start the workstation;
- Make sure that you have suitable content available in the media folders;
- If you do not have any available, use the sample clips from the **PlayBox CD**;
- Launch **AirBox**;
- Click on the **Add** button;
- Select the files you wish to playout and click on the **Open** button;
- Click on the **PLAY** button;
- You should now see **AirBox** video on your video output.

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

PREAMBLE

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).

Currently, there are 3 major modules:

Multi-format playout SD/HD

Multi-format playout allows including in the playlist 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 to the parameters set.

Depending on the hardware installed, there are several multi-format modules (plug-ins). Check our site https:/playboxtechnology.com for the latest supported hardware platforms and for their supported features.

Pumping playout

Pumping 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). Usually, the working module of **AirBox** is already selected and set up when you buy a turnkey system from **PlayBox Technology UK Ltd**.

In case, you are going to select a working module alone, go to **AirBox Menu** -> Settings -> Modules window and select the preferred module.

The **AirBox** playout is defined in the **AirBox ➔ Settings ➔ Output** menu.

Live input

Live Input playout allows you to configure up to 128 live presets, which are global for the machine, and therefore can be used with any client, for example **AirBox**, **CaptureBox**, and the **Multi AirBox Manager**, configuring many different live inputs. There are two major types of life sources that can be set here – fixed and dynamic. The properties of the first type are fixed, i.e., the video parameters and the number of streams cannot be changed. The same parameters of dynamic sources, on the other hand, change during playout. Check how to define your live inputs in the relevant section below.

USER INTERFACE

The main interface window is divided into several areas:

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Title Bar

This is the topmost horizontal bar of the **AirBox** window. It contains abbreviations of all options, enabled on the dongle, the **AirBox** channel number, and the name of the currently executed playlist file. If the playlist has been changed, but not saved, there is an asterisk (*) after the playlist name.

Menu Bar

The **MENU BAR** is described in detail in the [Menu Bar section](#).

Multi-purpose zone

The multi-purpose zone is situated to the left of the master counter. It consists of several tabs that allow quick navigation through the most frequently used functionalities in **AirBox.**

Use the arrows in the upper right corner to scroll the tabs.

> **TIP (!)** To show/hide tabs in this zone, right-click on it and check/un-check the ones you need.
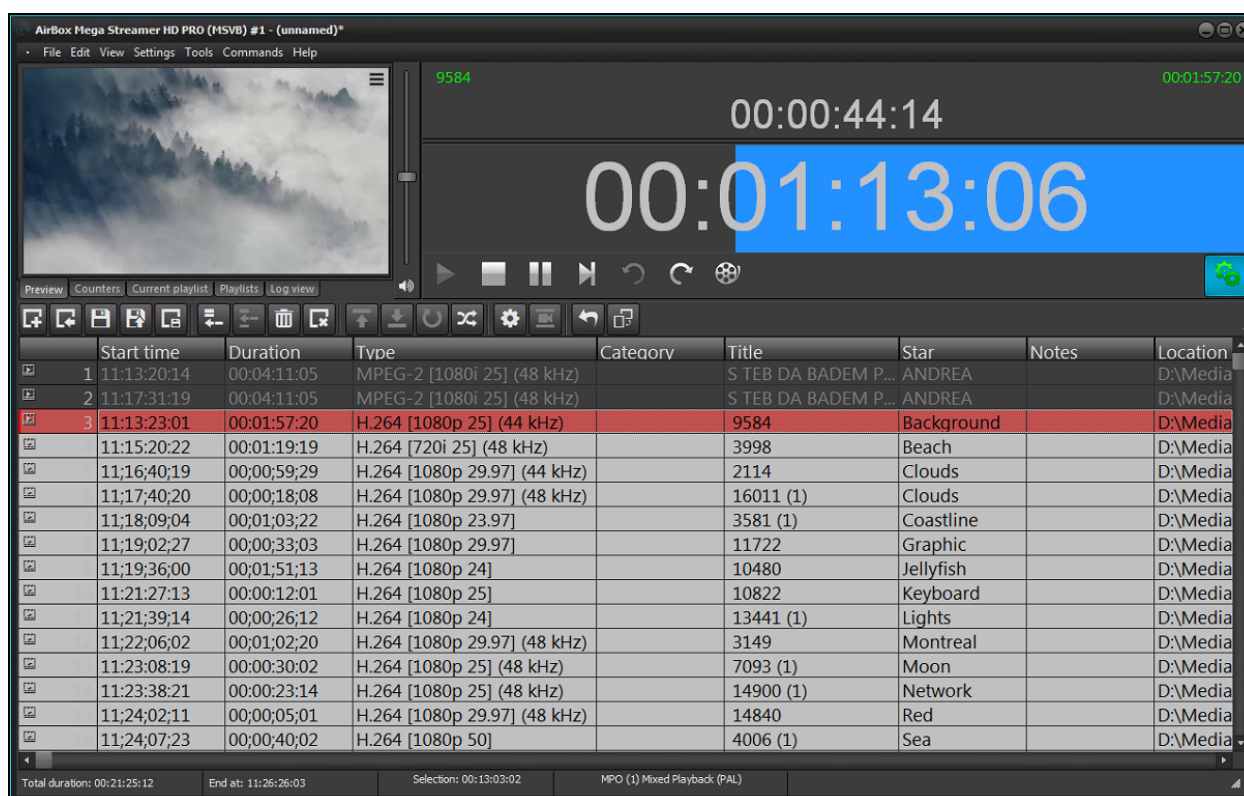

Preview

This tab shows the currently playing video.

The Video window can be moved outside the main window by checking *External video window* from the **View** menu. If you accidentally close the window, you can view it again by checking the *Show external video window* in the **View** menu.

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

In some cases you might want to disable the window, since it consumes additional resources from the system. Then you will have to uncheck *Show External Video Window* in the **View** menu.

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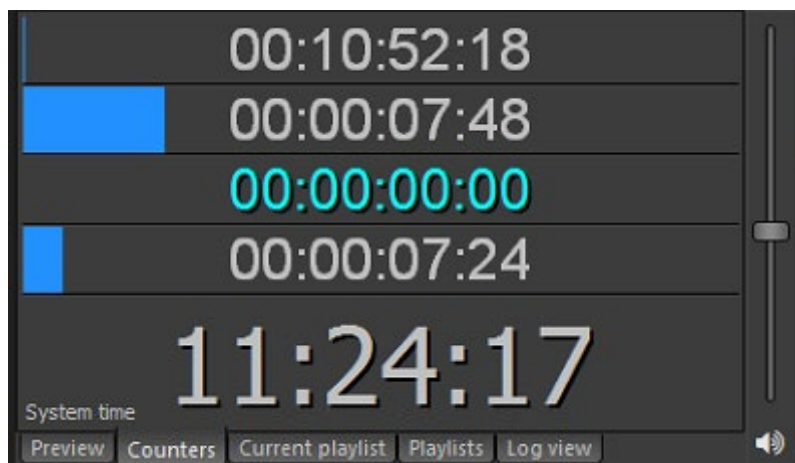
Counters

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 invoke a context menu to switch it to count-down mode.

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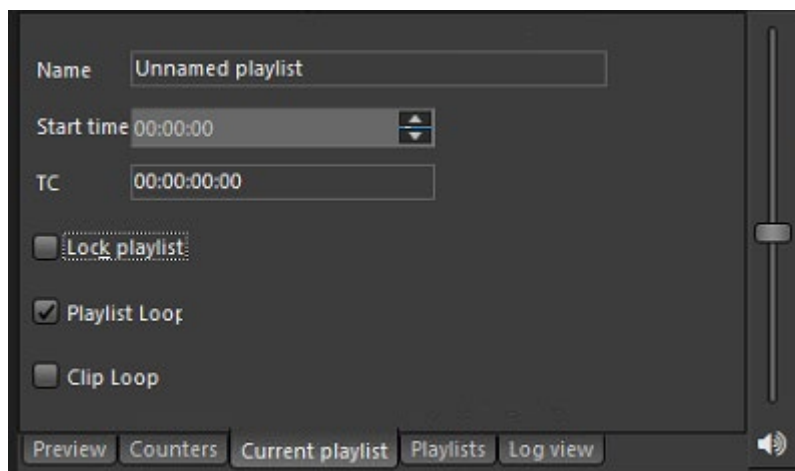
Current Playlist

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

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.

> **IMPORTANT!** 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 unchecked. When **AirBox** is in stop mode, this check will loop the first clip to be played after resuming the playout (i.e. the last played before pushing the **Stop** button).
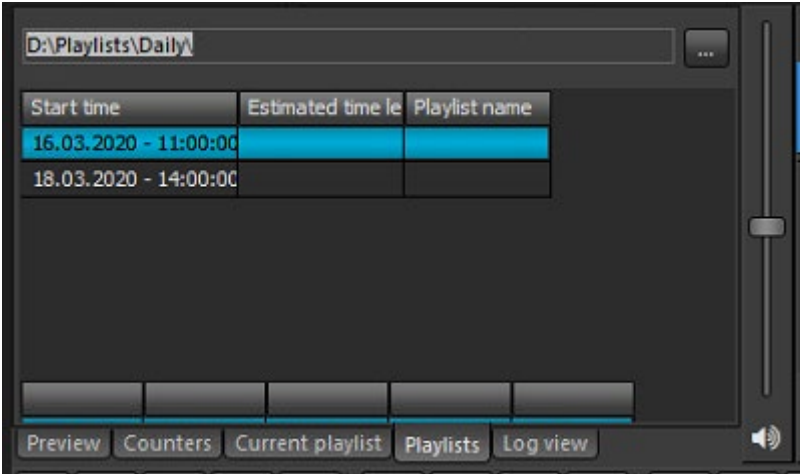

Playlists

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 view

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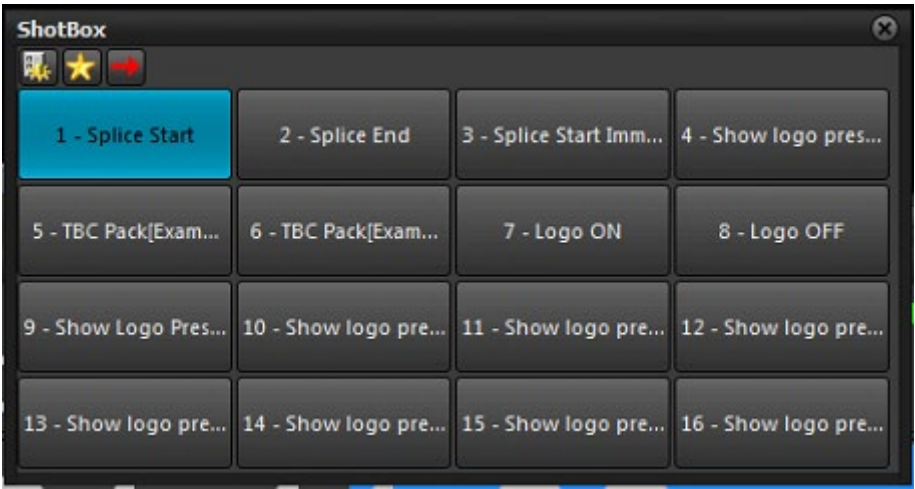
ShotBox

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.

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AirBox Playlist

AirBox works with play playlists (play order).

You can easily create a playlist manually, just by drag-n-dropping files into ***AirBox*** grid (or in ListBox).

It is also possible to create a playlist with any third party application software. It is necessary that this application can create playlists in a format, compatible with ***AirBox***.

The ***AirBox*** playlist format is described in details in ***AirBox SDK***. For obtaining ***AirBox SDK***, please contact our ***PlayBox*** support team (support@playboxtechnology.com).

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.

> ***For example,*** if the name of the playlist is "2019_11_20_14_00_00.ply", it will be loaded exactly on November 20th, 2019 at 14.00 h (2.00 pm).

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 pressed. 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 could be entered manually from the user into the playlist or could be fed from some outstanding database (for example **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 select ☑*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 is taken 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 *drag-n-dropping* them.
>
> **(!) TIP** A double-click in the first column that contains the items' numbers will invoke 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 from 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.
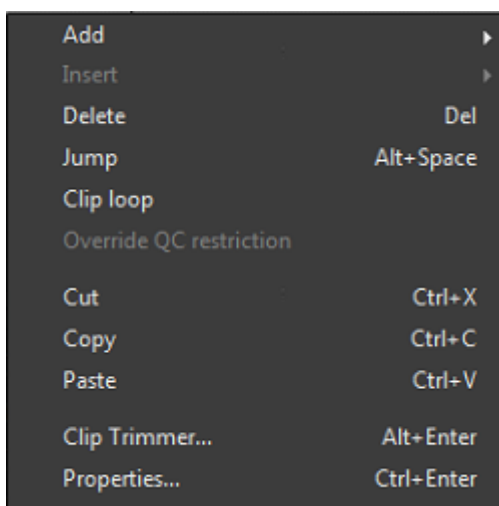
Drag-n-Drop!

One of the main features of the grid is the *drag-n-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.

Pointing with the mouse cursor at a playlist's row displays a hint containing the clip's file name and IN /OUT timecode values.

Double-click over a clip invokes 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 this user's manual.

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

Add	▶
Insert	▶
Delete	Del
Jump	Alt+Space
Clip loop	
Override QC restriction	
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Clip Trimmer...	Alt+Enter
Properties...	Ctrl+Enter

Right-click

Right-mouse click over a rowinvokes a pop-up menu of playlist and events 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 this option is cancelled. To remove the check, just right-click in the clip and choose *Loop* again.

> **NOTE:** This action differs from the *Clip Loop* button **#**, which loops the currently *playing* clip (not the currently *selected* one).

▪ **Auto update** – use it to include the currently selected clip(s) in the automatic file duration checking. It will update the duration of your clips if the files associated with them have been, or will be, changed.

> **NOTE:** You have to enable this option first in **Settings➜General** ⇨ *General* ➜☑*Auto update duration of marked files*. The file checking interval should also be set there.

▪ **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 section of the same name at the end of this manual.

▪ **Properties** – opens a window with clip's properties.

Clip Properties

Most of the playlist consists of clips. All metadata, connected with any clip, could be found in the *Clip Properties* window. It is opened by right-mouse-clicking over the clip, or through the **Edit Menu**.

The *Clip Properties* window has five tabs: *Source*, *General*, *Fixed-Time*, *Transition*, and *Metadata*.

All of these tabs allow you to save your settings, so that you do not have to define the settings for each file every time. In order to do that, once you have defined your desired settings, enter the ***Save current settings to new preset*** 🖫 button in the *Settings preset* field, and enter a name for the selected preset. Once you have saved some settings for your input, you can load them via the ***Apply settings from selected preset*** button. You can also remove a preset via the ***Delete selected preset*** ❌ button.

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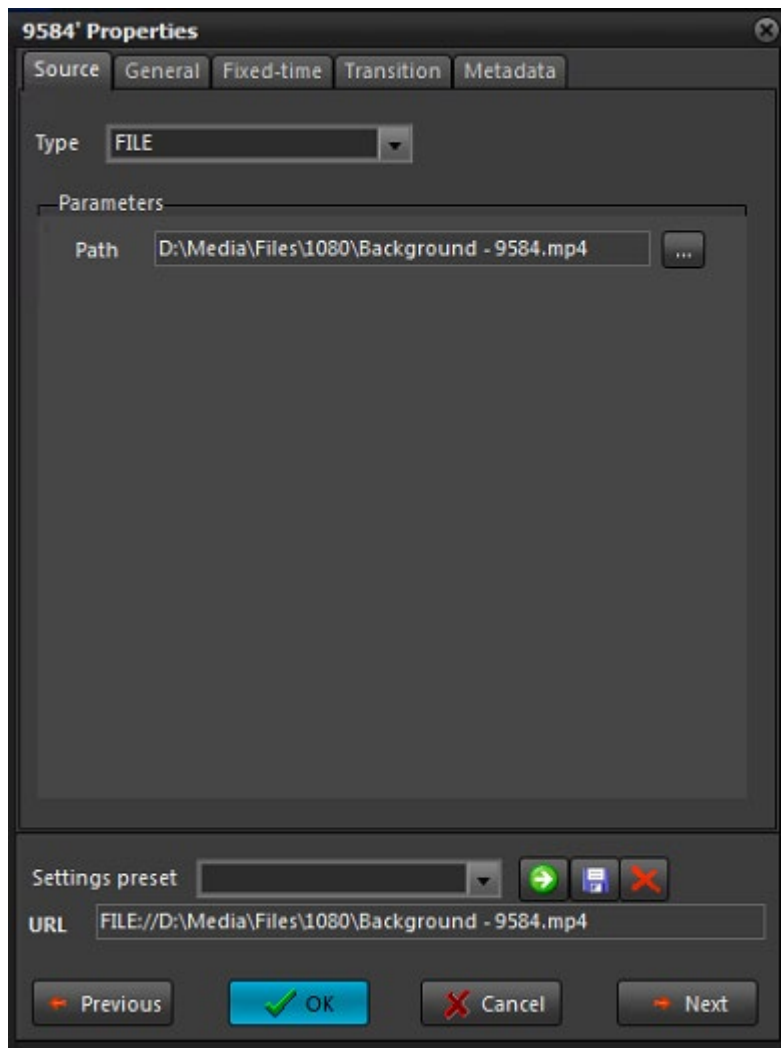
Source

The Source tab contains a basic clip description information. The *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 *TapeID* value – read more about this value in the **SubTitleBox** section further in this manual.

You can view and edit the *HouseID*, *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.

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> **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 have made to the current clip properties! If you want to discard them, please click **Cancel**.

Fixed time

The **Fixed-time** tab allows for setting an exact start time for the particular clip.

> **IMPORTANT:** If you do not choose any of the Custom settings for the fixed-time event, the Default settings will apply. A detailed description of the default settings is available in the _Fixed Time event_ **Settings** section further in the manual.
>
> **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.

When using fixed start times, you always have to account for the other fixed times in the playlist. Therefore, the first two lines in this tab contain information about the preceding fixed time event and its duration; and the fourth line prompts the start time of the following fixed event (if any). If you try to set a start time, which is in conflict with the surrounding events, the time-picker background will become red. A warning message will appear upon clicking **OK,** and the allowable start time will be prompted until you set it.

The two spin-boxes are situated between the _Previous_ and _Next fixed event_ rows describing the current fixed-time event. Check the ☑_Use fixed start time_ box and enter the time. In the _Day offset_ spin-box, enter the number of days to go prior to executing the fixed time event. Day offset zero means the date of the **AirBox** startup!

When using fixed start times, two types of time conflict might occur – overlapping of playlist items or gap in the playlist. In the first situation there is not enough time to playout all clips in the playlist before the fixed-time event starts. Therefore, you can choose between two ☑_Custom overlap resolving_ options:

⊙ **Skip currently running event** – when this option is selected, **AirBox** will skip all clips that cannot be played out as a whole. Let us assume that the time remaining till the fixed start is 2 minutes and all the clips before it are longer. **AirBox** will skip them and the 2-minutes gap will be filled with the ☑*Custom auto-fill category* (see below).

⊙ **Truncate currently running event** – **AirBox** will playout as many clips before the fixed time event as possible. The currently playing clip will be truncated when the fixed time comes.

In the second situation, when there is a gap in the playlist (either because the content is not enough or you have selected to skip the currently running events) you will need a ☑ *Custom auto-fill category*. This drop-down list contains all auto-fill categories, previously prepared by you, and a [Default Clip] entry. Check the *Auto-fill settings* section to learn how to create these categories.

In case you can accept some deviation of the fixed time, check the relevant ☑*Custom tolerances* box and describe it. In this way you can ease the complex operations when it comes to a few seconds differences.

☑ *Everyday fixed time*s needed in case you loop your playlists. If you leave this check-box empty, the fixed time will be executed only during the first loop.

> **NOTE:** Please, note that you cannot use simultaneously *Day offsets* and *Everyday fixed time*.
>
> **WARNING!** DO NOT use fixed time events within a bookmark's time range!

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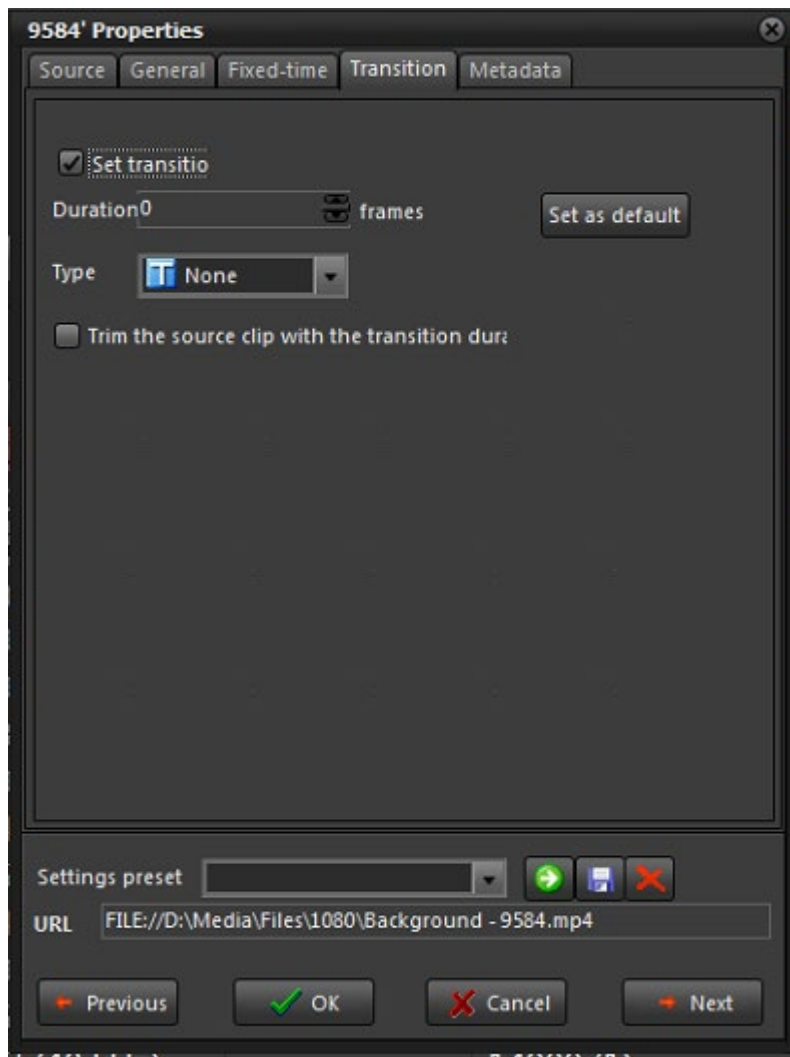
Transition

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* – This checkbox is enabled 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 this box is checked, the previous clip will be trimmed in accordance to the frames, set in the *Duration* spin-box when you press OK button.

For example, assume that your AirBox is running in PAL mode (25 frames per second), and you have set a new transition with *Duration* of 50 frames, i.e., 2 seconds, to Clip 2. Assume further that the preceding item in the playlist is Clip 1, which is 10 seconds long. Once you press OK button Clip 1 will be automatically trimmed, so that its duration is 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.
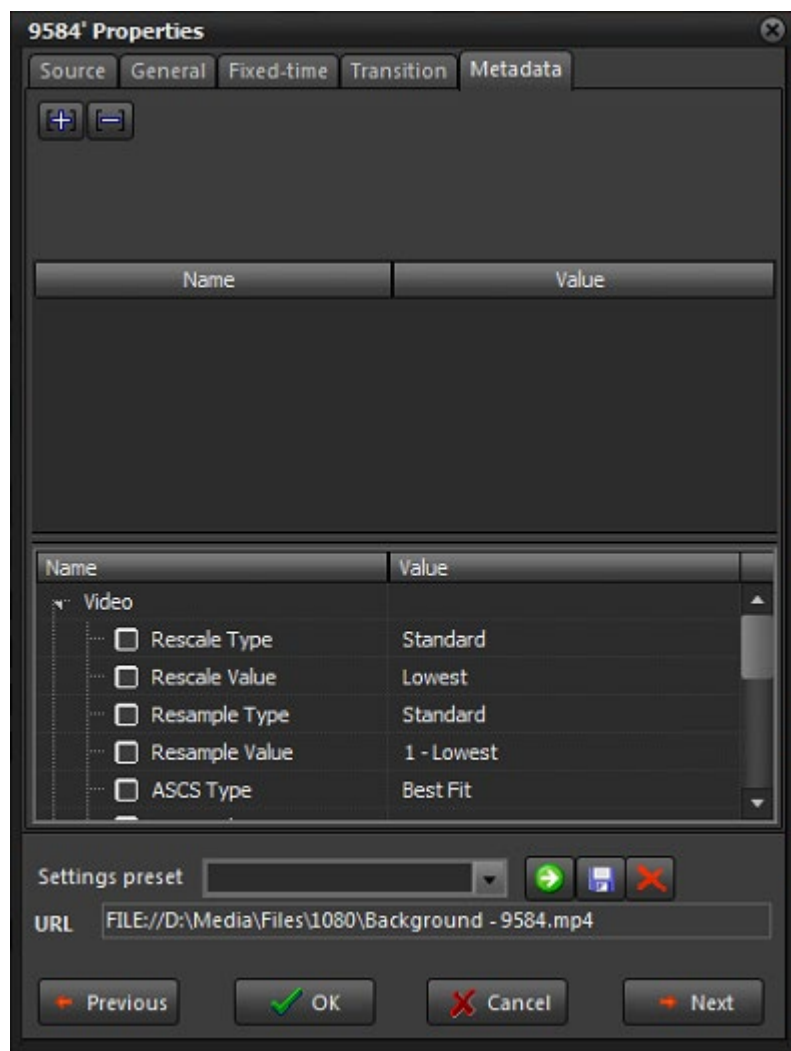
20

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

Metadata

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

Upper part of the window:

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.

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For example, the **Name** of a metadata category is [Producer] and the **Value** is [a person/ a company].Thus, 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.

Please, refer to the Graphic rules section for detailed explanation about the 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.

All you have to do here is:

1. Specify the Metadata name in the left column

For example: [new picture]

2. Specify the file path to the new media to load in the column to the right.

For example: [E:\Pictures\pic\A Dark Night.jpg]

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

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.

IMPORTANT: Make sure not to use tab characters in the metadata fields! Otherwise, the saved metadata will not be interpreted correctly.

Lower part of the window

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 main categories – [Video], [Mixing], and [Audio].

Video Metadata:

☑ *Rescale Type* – rescaling type for the video.

☑ *Rescale value*– if the rescale type is *Custom*, then you can add a specific rescale value in this field.

☑ *Resample Type* – resampling of the video bitrate. If the resample type is *Custom*, then you can add a specific resample value from the next field

☑ *Resample value* – if the resample type is *Custom*, then you can add a specific resample value in this field.

☑ *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.

<u>*Mixing*</u>

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.

<u>*Audio metadata*</u>

☑ *Language*– the language of the sound

☑ *Level* – the audio level of the current clip in dB.

> **(!) TIP:** By using audio level metadata, you can specify a different audio level for each file in the playlist.

> **For example**, you can use it to decrease only the audio level of the commercials in the playlist.

> **NOTE:** On playout, the clip metadata (if there is such) settings have a higher priority than the output settings, created in the **Output settings** dialog.

> **For example**, if the aspect ratio in the main video output is set to 4x3, and the ASCS (Aspect/size conversion strategy) is set to "*Balanced/Letterbox*". This means that if there are files with an aspect of 16x9 in the playlist, they will letterboxed at the output.

Let us assume that 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.

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.
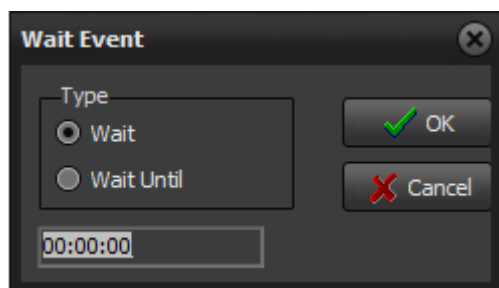

<u>Internal Events</u>

<u>Stop event</u>

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). For 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). For example, 14:00:00 means that the playback will start at 14:00:00 o'clock.
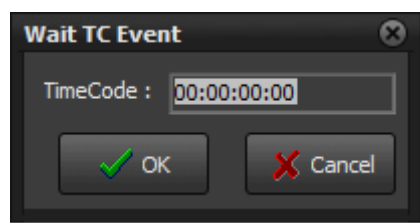

Wait TC event

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.

IMPORTANT: 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

AirBox User Manual
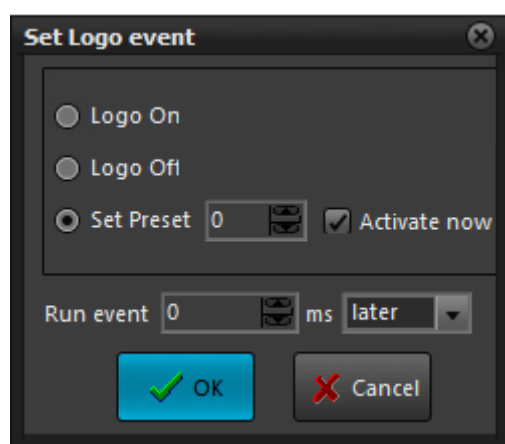
◉ **_Logo On_** – Starts displaying the logo, set in the preceding _Logo Preset event_**.** If there is no preceding _Logo Preset event,_ the first logo preset from the list (in **Settings ➔ Logo...→**_Logo Presets_) will be displayed.

◉ **_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. For example, if you have a movie in your playlist, and at a certain time you decide to jump to a block of commercials somewhere in the playlist, and then go back to the same position in the movie, 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 before the jump.

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](#).

|	
Acappella switcher output...	Shift+Ctrl+E
Concerto switcher output...	Shift+Ctrl+E
GMixer Control...	Shift+Ctrl+G
DTMF Output...	Shift+Ctrl+D
Elpro Switcher Output...	Shift+Ctrl+O
GPI Output...	Shift+Ctrl+G
Kramer Switcher Output...	Shift+Ctrl+K
Kramer Matrix Switcher Output...	Shift+Ctrl+M
Leitch Matrix Switcher Output...	Shift+Ctrl+H
MirandaRouter output...	Shift+Ctrl+R
NetworkElectronics switcher output...	Shift+Ctrl+N
NetSender Output...	Shift+Ctrl+E
Ocelot Switcher Output...	Shift+Ctrl+E
Quartz Matrix Switcher Output...	Shift+Ctrl+Q
Relay GPI Switch Output...	Shift+Ctrl+R
SCTE 35/104 Output...	Shift+Ctrl+T
SierraVideo switcher output...	Shift+Ctrl+S
Snell switcher Output...	Shift+Ctrl+L
TitleBoxNetCtrl Output...	Shift+Ctrl+T
TV Content Rating...	Shift+Ctrl+T
Universal Matrix Plugin...	Shift+Ctrl+U
UtahMasterControl output...	Shift+Ctrl+Q
Utah switcher output...	Shift+Ctrl+U
VideoHub switcher Output...	Shift+Ctrl+V
VideoResizeCtrl Output...	Shift+Ctrl+Z
VikinX Matrix Switcher Output...	Shift+Ctrl+X
VTR Control plugin...	Shift+Ctrl+Y

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 ⇨ _Remote Control_** section first.

AirBox User Manual
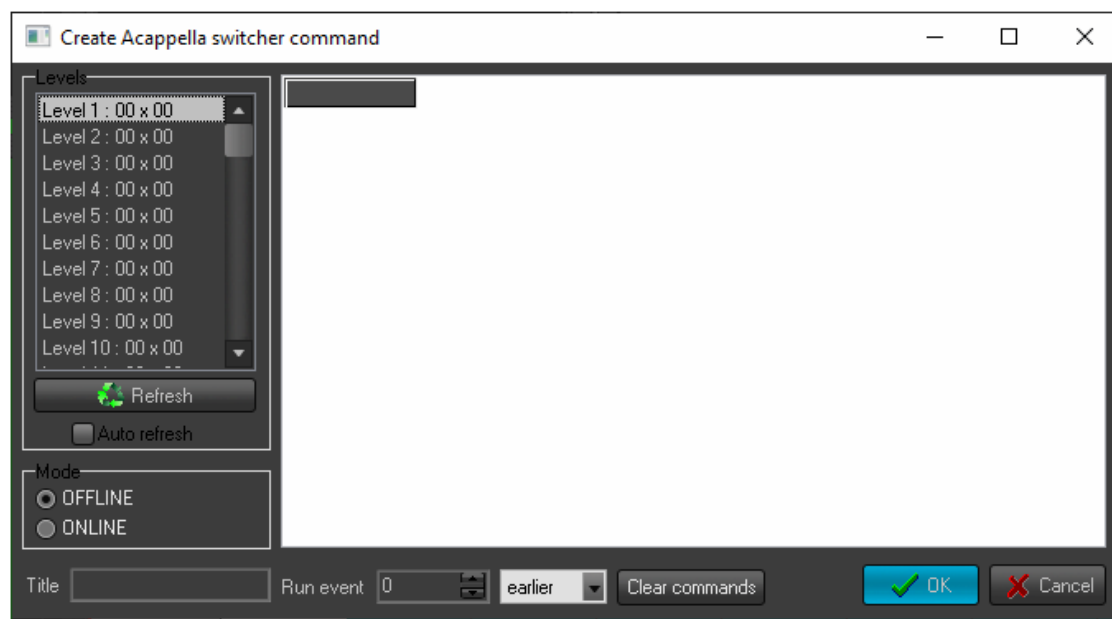

Acappella Switcher Output

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. Press **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.
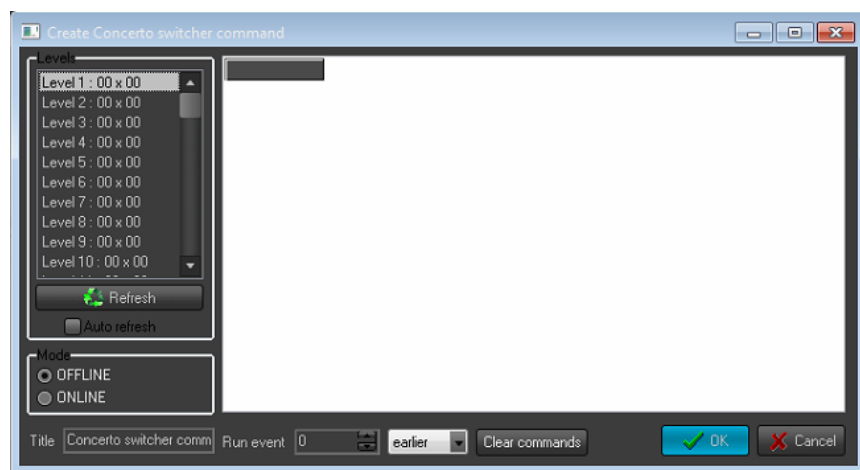
Concerto Switcher Output

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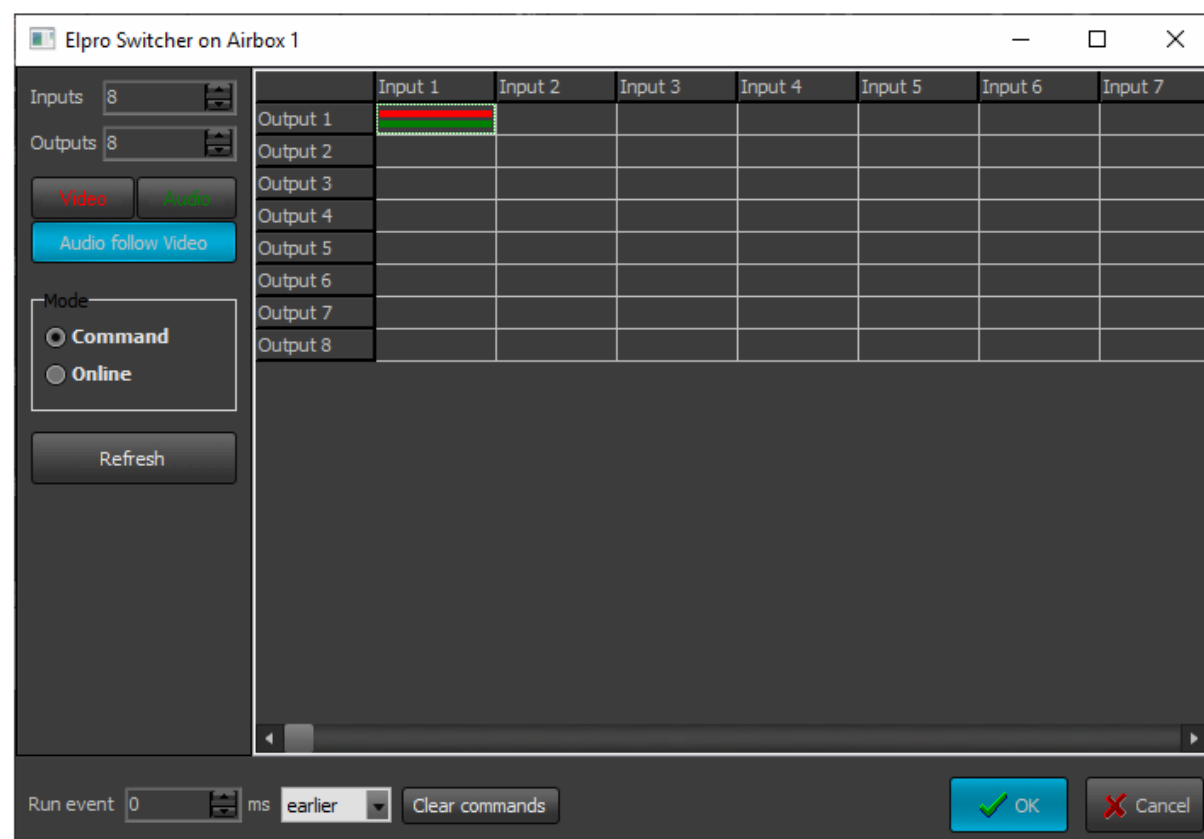
DTMF output
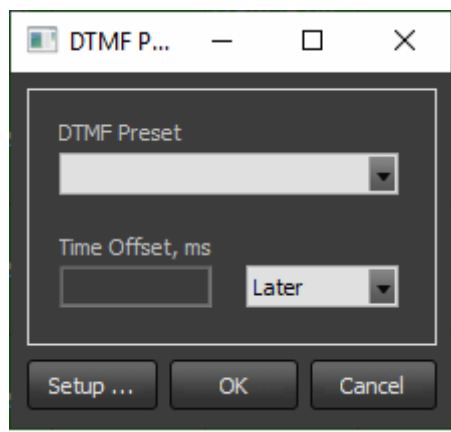
This event inserts a line in the playlist to activate the *DTMF signal*. The following dialog box appears:

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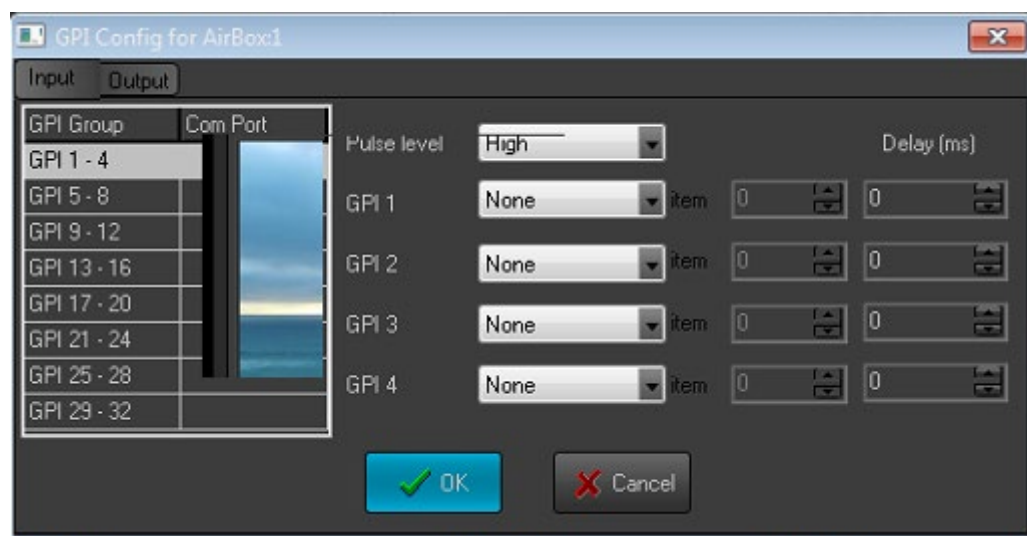
You can select the *COM*-port from the available *COM*-ports, listed in the main window area. To configure them, go to **Settings ➔ Modules ⇨ Remote Control** tab, select the GPI Output, and press the ***Configure*** button.

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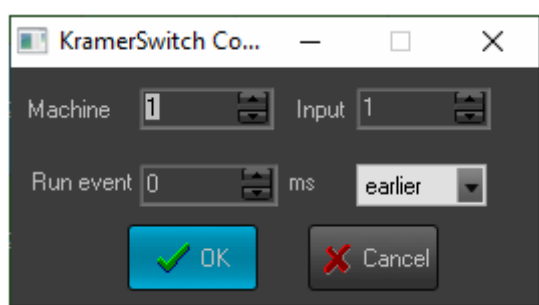
Activates a *Kramer Switch Output*. A dialog box appears to define the Kramer Switcher commands:

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.

IMPORTANT: The *PlayBox* modules do NOT support the Deck Control connector, supplied on the DeckLink breakout cable.

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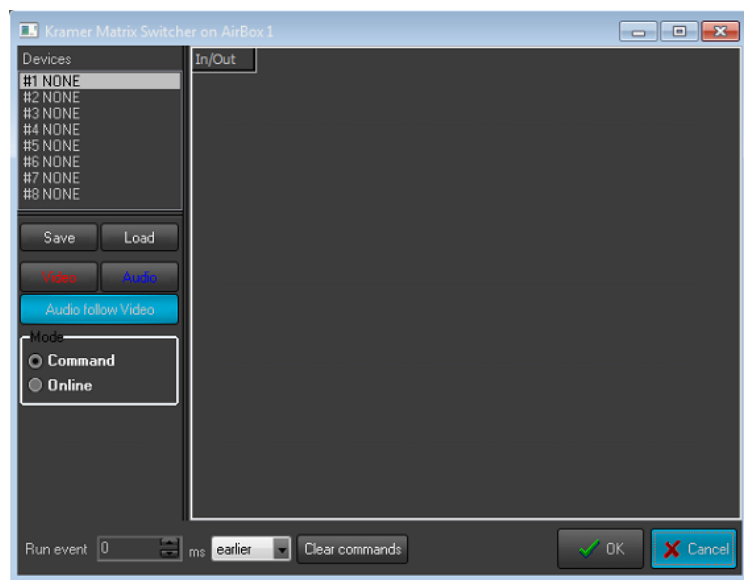
It is used for all Kramer switchers that use Protocol 2000.

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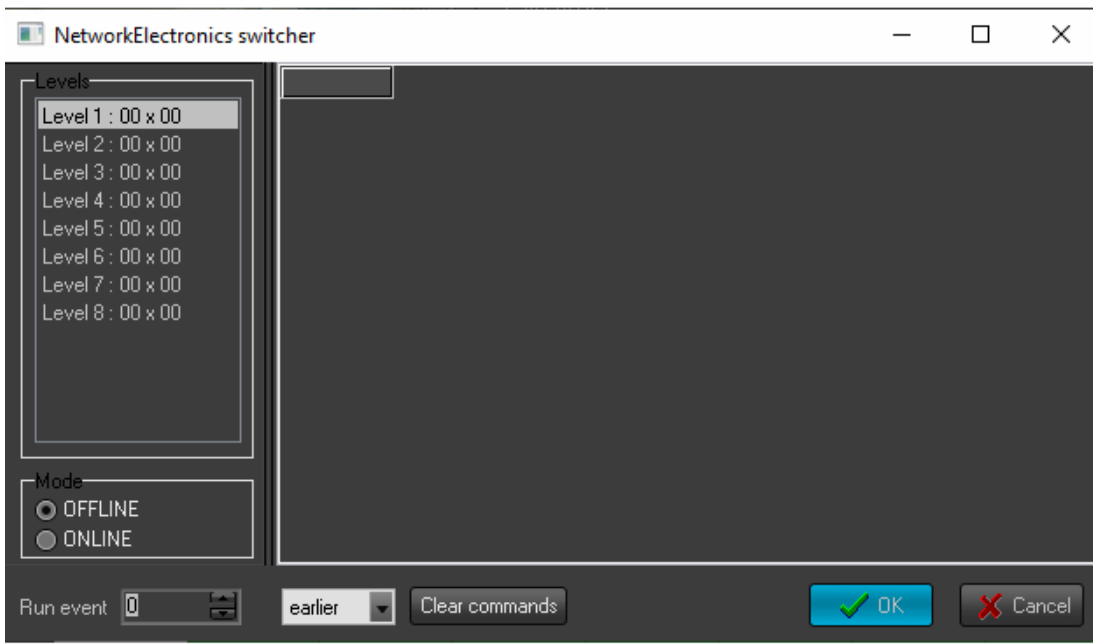
Leitch Matrix Switcher Output
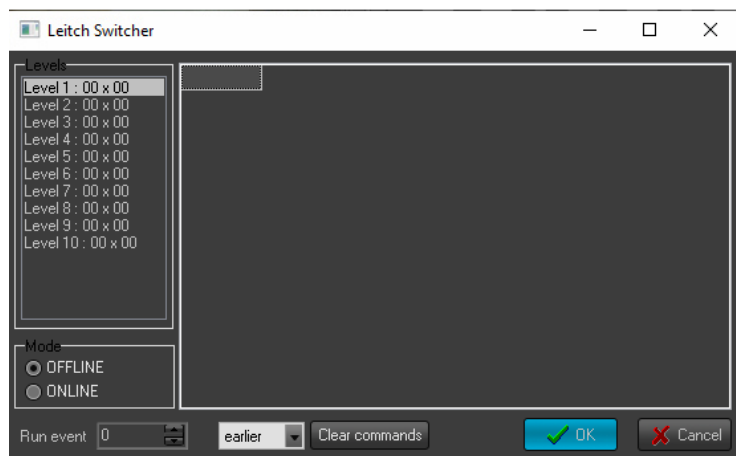
This is another optional plug-in for **AirBox**. When you choose to insert a *Leitch Matrix event*, the dialog to the right is displayed. Double-click on the relevant level to configure it (i.e. to specify the number of inputs and outputs in it) and click *OK*.

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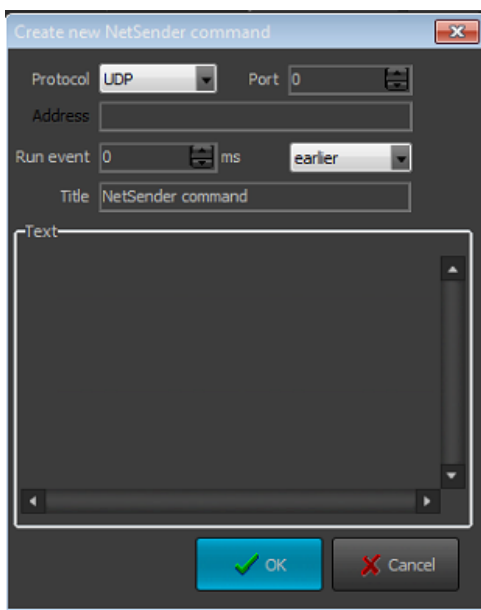
The Net Sender Outputevent will send any text message via UDP. Thus, you could control IP-enabled third-party devices. All you have to do is specify the port, to which the message will be broadcast and type in the text. **AirBox** will send the message on the specified port when it reaches the event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

NOTE: The maximum size per message is 512K.

Ocelot Switcher Output

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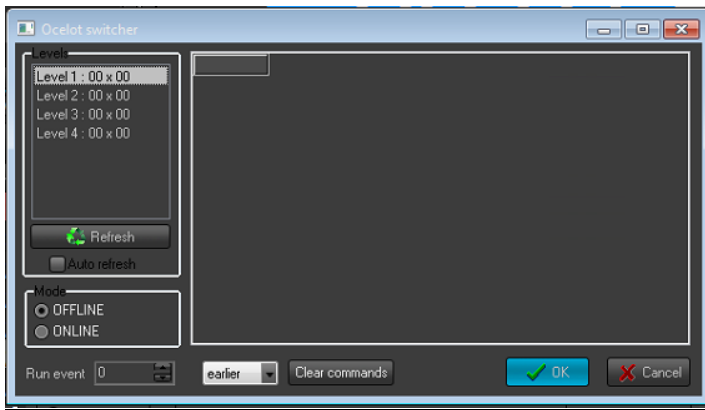
It activates the *Ocelot Switcher* output dialog, where you can define the switcher's commands.

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 invokes 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 mouse-click. Double-clicking on a column/row header invokes 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 pressing 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.
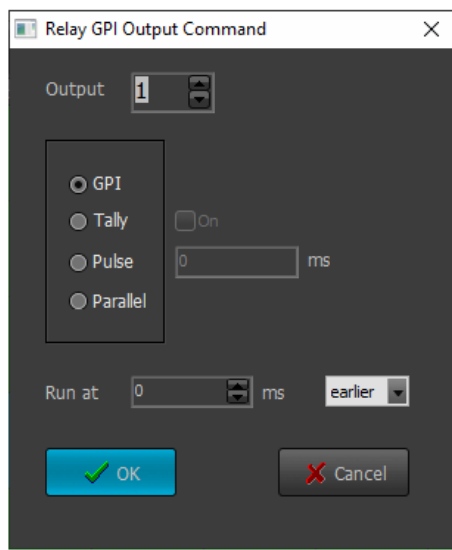
Quartz matrix switcher Output
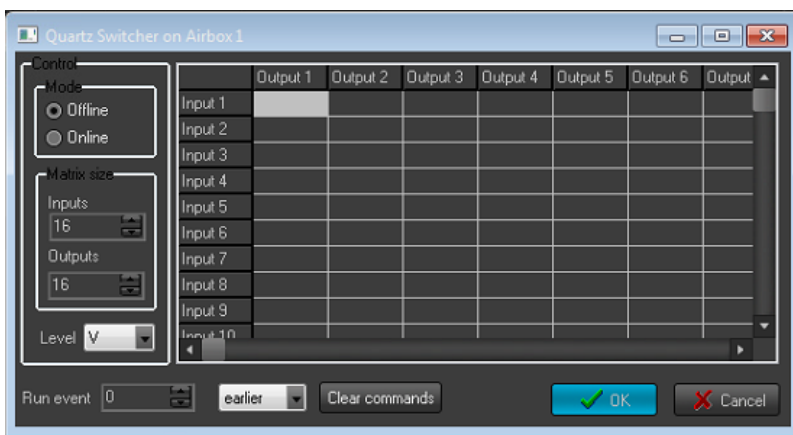
As in all other switcher events' properties, you can rename the Inputs and Outputs in the interface for easier navigation. For renaming, just double-click on the Input/Output and type the new name.
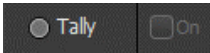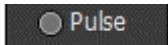
Relay GPI Switch output

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
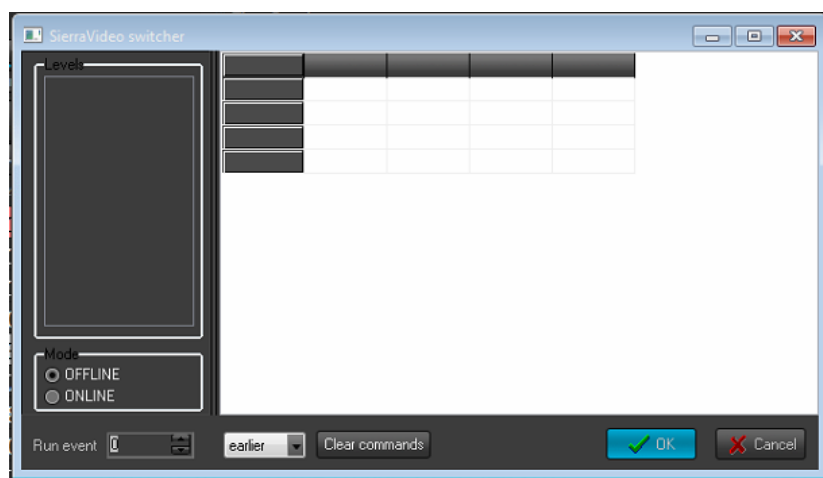
The Sierra Video Switcher Output event is another optional AirBox plugin. When you choose to insert such an event, the dialog to the right is displayed. Double-click on the relevant level to configure it (i.e., to specify the number of inputs and outputs in it) and click *OK*. Then, specify the commands in the grid (it will reflect your *Configure* settings). If you select the *Command* mode, you will have to press 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
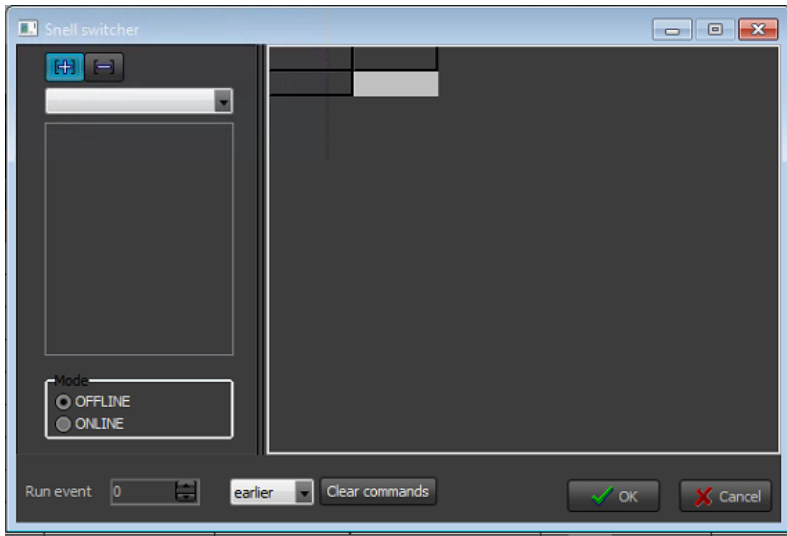
This optional plugin is used to control Snell devices that comply with the SW-P-08 protocol. It uses RS-485 cables. COM port settings may vary for different devices. The matrix is configured in the same way as the Sierra Video Switcher event's one above. The only difference is that here you can set more 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* 3
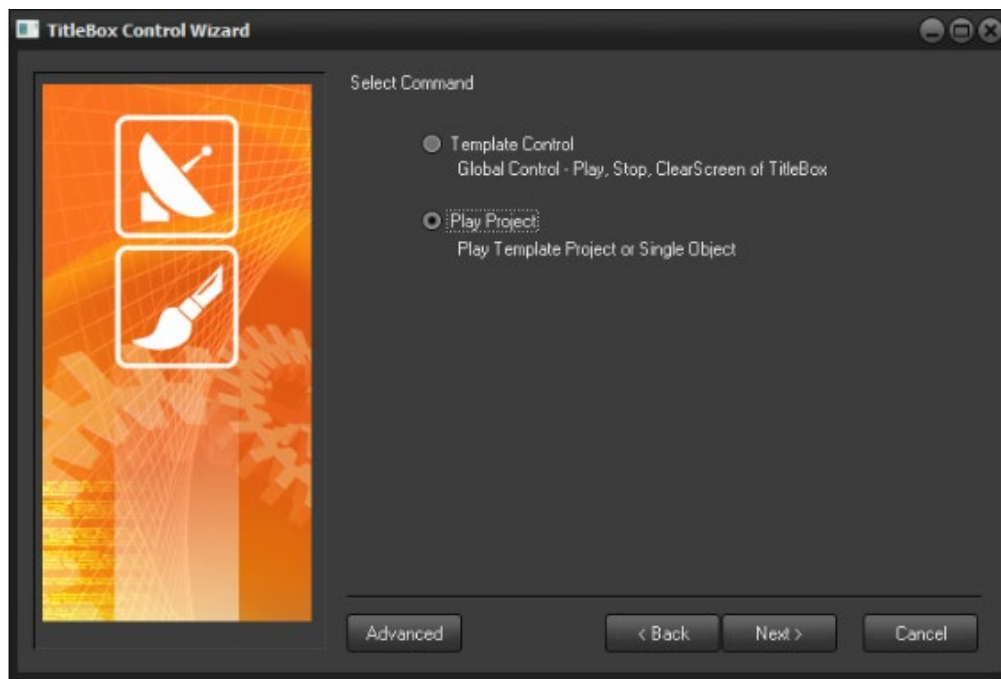
The **TitleBox** *Control Wizard* appears after selecting **Edit ➔ Add/Insert ➔ Event ➔ TitleBox NetCtrl Output….** It will guide you through creating a **TitleBox Net Control Output** event. Follow the instructions and select the **TitleBox** project and/or object, and the desired action. You can evoke 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 press 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:
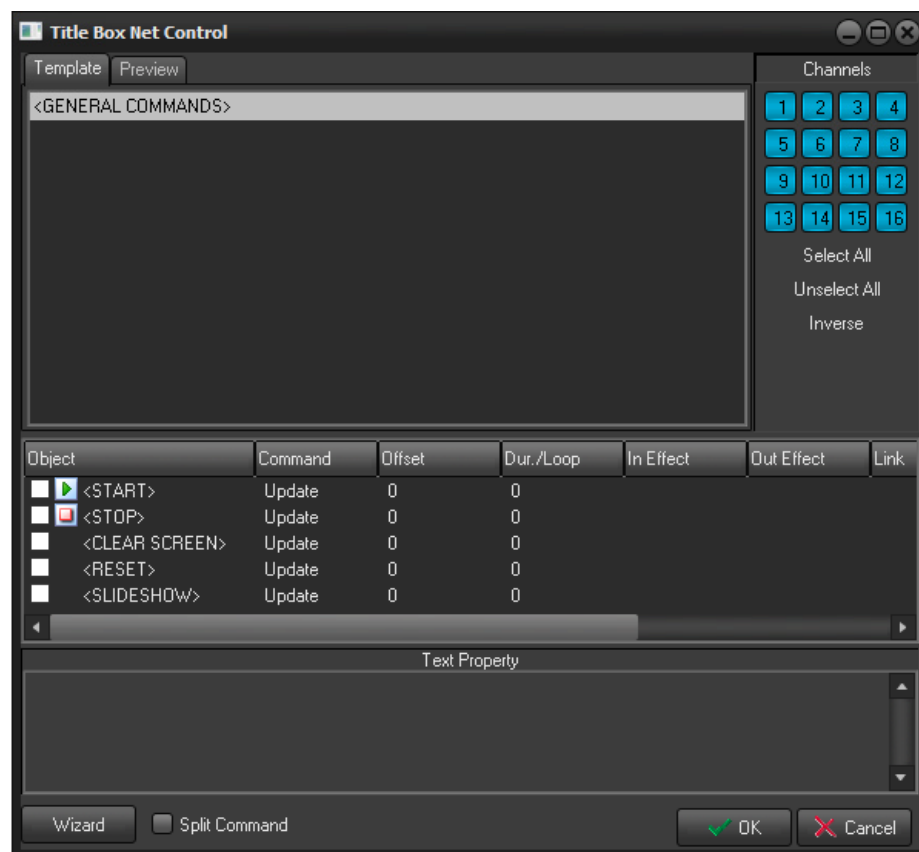
Template area: Here you can see the [General Commands] and a list of the available projects. Only the projects that have been previously saved as templates in **TitleBox** (**Network** menu ➔ *Export project as Template*) could be managed from **AirBox**.

<ins>General Commands:</ins>

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!

For 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, press 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), press 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**.

		Start time	Duration	Type	Category	Title	Star	Notes	Location
▣	1	12:10:58:13	00:01:57:20	H.264 [1080p 25] (44 kHz)		9584	Background		D:\Media
▣	2	12:12:56:09	00:01:19:19	H.264 [720i 25] (48 kHz)		3998	Beach		D:\Media
▣	3	12:14;16;04	00;00;59;29	H.264 [1080p 29.97] (44 kHz)		2114	Clouds		D:\Media
▣	4	12:15;16;04	00;00;18;08	H.264 [1080p 29.97] (48 kHz)		16011 (1)	Clouds		D:\Media
▣	5	12:15;45;11	00;01;03;22	H.264 [1080p 23.97]		3581 (1)	Coastline		D:\Media
▣		12:16;38;10	00;00;33;03	H.264 [1080p 29.97]		11722	Graphic		D:\Media
▣	7	12:17;11;11	00;01;51;13	H.264 [1080p 24]		10480	Jellyfish		D:\Media
▣	8	12:19:03:00	00:00:12:01	H.264 [1080p 25]		10822	Keyboard		D:\Media
▣	9	12:19;15;01	00;00;26;12	H.264 [1080p 24]		13441 (1)	Lights		D:\Media
▣	10	12:19;41;17	00;01;02;20	H.264 [1080p 29.97] (48 kHz)		3149	Montreal		D:\Media
▣	11	12:20:44:06	00:00:30:02	H.264 [1080p 25] (48 kHz)		7093 (1)	Moon		D:\Media
▣	12	12:21:14:08	00:00:23:14	H.264 [1080p 25] (48 kHz)		14900 (1)	Network		D:\Media
▣	13	12:21;37;25	00;00;05;01	H.264 [1080p 29.97] (48 kHz)		14840	Red		D:\Media
▣	14	12:21;42;47	00;00;40;02	H.264 [1080p 50]		4006 (1)	Sea		D:\Media
▣	15	12:22;22;29	00;00;49;21	H.264 [1080p 30]		8558	Ski		D:\Media
▣	16	12:23;12;20	00;00;28;03	H.264 [1080p 29.97] (48 kHz)		7328	Snowy Trees		D:\Media

Text Property area

You can type new texts of text objects in it.

> **IMPORTANT:** 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 pressing the **Finish** button in the TitleBox Net Control wizard, uncheck the ☐*Split Command* **box**. Thus, only one row will be inserted in the playlist.

The following paragraph contains an Example playlist, prepared with ☑ Split Command: If you want to start **Crawl1**, **Roll1,** and **Sequence** from the "**football**" project, stop all objects, and clear the screen after two clips, the playlist should look like this:

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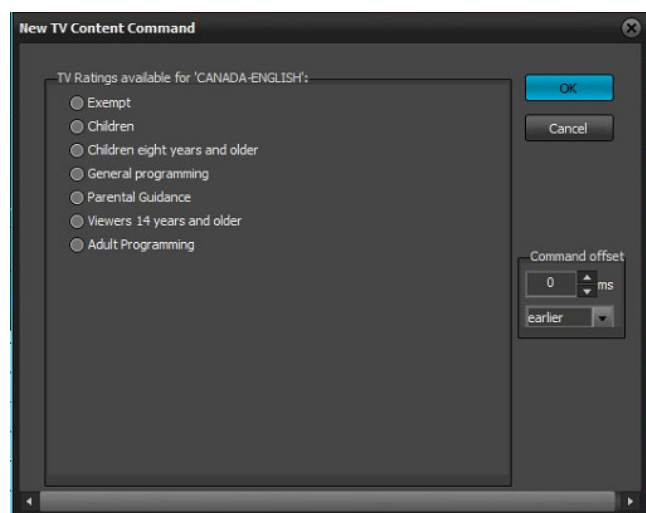
This event allows the user to show a TV rating identification, depending on the country specific regulations. Be aware that if you select to insert such an event, you will be allowed to add content ratings for the country, configured in **Settings ➔ Modules ⇨ *Remote Control* ➔ *TV Content Rating Configurations***.

Notice the example to the left. 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)*. You can read more about the *UMC* in section Universal Matrix Controller further in this manual.

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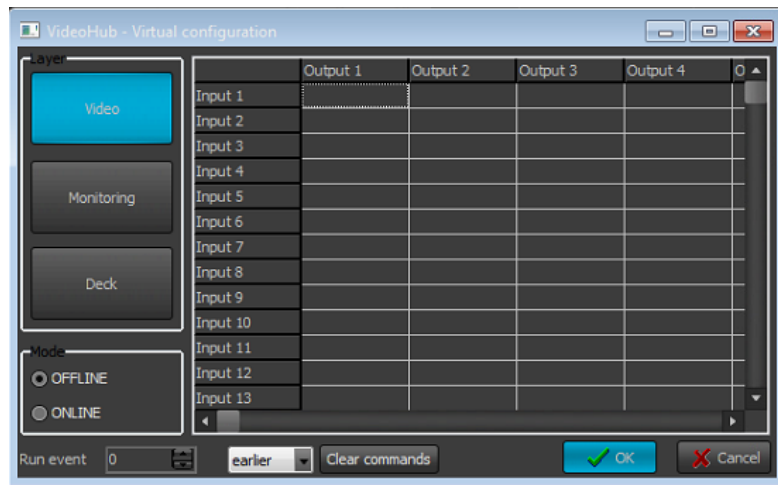
This event activates the **VideoHub Switcher**. Before adding/inserting such an event, you need to configure its settings from **Settings ➔ Modules ⇨ *Remote control* ➔ *VideoHub Switcher Output***.

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

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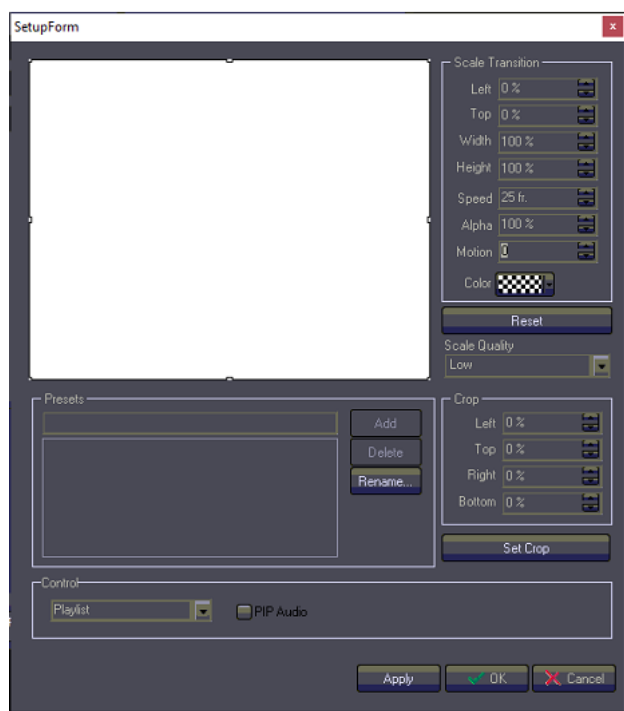
This option allows resizing the video output using pre-defined presets.

> **IMPORTANT:** The Video Resize option is available only for **Multi-format playout** plug-ins in **AirBox**

The *Video Resize Presets* drop-down list contains all previously created presets in **Settings ➔ Modules ⇨ Remote control ➔ *Video Resize Ctrl Output*** window. When you activate this function for the first time, this list will be empty.

If you do not have any previously prepared presets, you can now create one from current window by pressing the **Setup** button. A set-up form will open:

The largest area in the **Setup Form** is designed for preset previewing. Use your mouse to squeeze and drag around the preset, or resize it using the transition spin-boxes to the right (see their description below). Write the name of the new preset in the *Preset* string and press **Add** to enter it in the list of available presets.

If you want to view the settings of a preset from the list, click on its name. You can change it and then press the **Apply** button to save the changes. If you want to remove an already existing preset, select it and press the **Del** button.

The **Scale Transition** field to the right contains tools for precise positioning and resizing of the video output. All values are preset-specific:

- **Left** – this percentage represents the offset from the left margin of the monitor. The video portions that remain unseen are still being rendered.
- **Top**–the offset percentage from the top of the monitor.
- **Width** – Shows the ratio between the scaled video size and the original one. Decreasing this value "shrinks" the video both to left and right.
- **Height**– Decreasing this percentage "shrinks" the video both to left and right.
- **Speed** – 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).
- **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 – use this button to go back to the original settings while creating/editing a preset. This button practically acts as an undo function for all unsaved changes in the **Scale Transition** field.

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Scale quality – This is an obsolete selection box. Please, leave it to the default "Low" setting, as it is the one, which currently produces the best results.

> **NOTE:** Once you select it from the drop-down list, this setting will apply to all resize events.

Crop – You can crop the original video by percentage from *Left, Right, Top* and *Bottom*.

> **NOTE:** The crop will be executed right after you press the **Set Crop** button. This functionality is not preset-dependent!

Video Server

This option is used when you want to have a **Picture-in-Picture** functionality. The second picture comes from **AUX** source, as it is defined in the **Output** settings window.

Usually, the background picture is the output of ***AirBox***, and the overcome picture is the resized picture, coming from the **AUX** source.

Check the ☑ ***Use check-box*** to allow this functionality and enter the PC name of the ***AirBox*** PC.

Select the ***Layer*** – screen layer of the resized picture.

> **NOTE:** Screen layer should be 1 (the default value), if the resizing concerns the **AUX** source and it should be 16, if the resizing concerns the playlist.
>
> **IMPORTANT:** While ***Video Server*** ☑ **Use** is checked and you want to resize both playlist and **AUX** source, you must first define an **AUX** source resizing event into the playlist, and then a playlist resizing event.
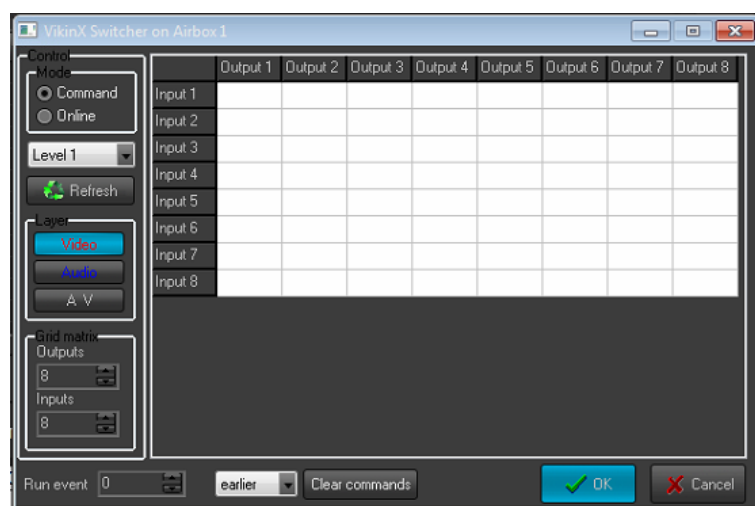
Audio control – this option is used in conjunction with the previous option.

If a ***Video Server*** is used, then you have to determine if the audio from **AUX** source (i.e. the resized picture) will be used.

There are three options - **Full** (100%); **Mute** (0%) or **Mix audio** with the audio from ***AirBox*** output.

Layer – the same layer number, as for the video server.

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 press *OK* to add the event in the playlist.

In *Online* mode, you can control the inputs/outputs in real time, just by pressing 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.

TIP (!)*Switcher Servers*

You can control one switcher from numerous **AirBox** machines by using the relevant **switcher server** add-on.

In the following example we will configure the Quartz matrix plug-in to send commands to the **Quartz Server** IP: Go to **Settings** menu ➔ **Modules** ⇨ **Remote** tab and select the Quartz Matrix Switcher output row.

Pressing the **Configure** button will invoke a setup dialog. You can specify the IP address in it.

The **switcher server** will receive all commands, coming from **AirBox** units in the local area network, and will control the switcher accordingly.

Currently, we can offer switcher servers for Kramer matrix switchers, VikinX matrix switchers, Elpro switchers, and Quartz matrix switchers. The setup principles are similar for all of them.

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

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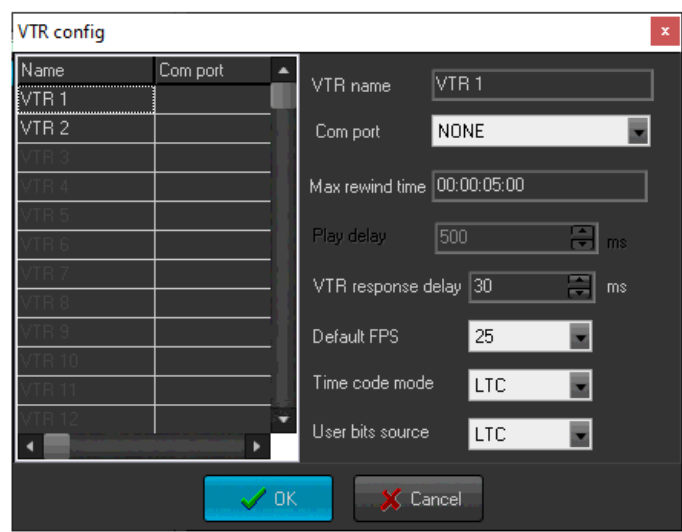
Although **AirBox** was designed as a file-based playout engine, now you can control up to 2 external VTRs through *RS422* for tape-based playout. All you have to do is insert a VTR control event in the playlist.

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 not___n 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 pressing 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.
>
> **IMPORTANT:** Since the VTR control is executed through the PC COM port, you will need an RS232 to RS422 converter, such as Addenda or Leitch.
>
> **IMPORTANT:** The PlayBox modules DO NOT support the Deck Control connector, supplied on the DeckLink breakout cable!

Status Bar

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

| Total duration: 00:13:03:02 | Loop at: 12:37:04:18 | Selection: 00;00;33;03 | MPO (1) Mixed Playback (PAL) |

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*.

> **IMPORTANT:** 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.

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Playback Control and Counters

22:01:29:06
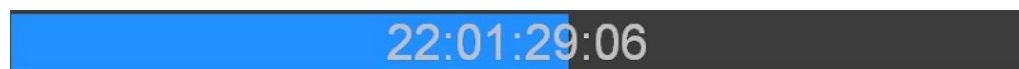
▪ The **Master counter** shows the elapsed time of the current playout session. Pressing the **Stop** button resets the counter. The title of the currently playing clip is displayed below the running time code. This is quite useful in case the row played is out of the visible grid range.

(!) 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.

00:01:46:18

▪ 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 on.

- ▪ **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 pressing 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.

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- **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 remove the tick ☑*Hide reset hardware button*.
>
> **WARNING!** Pressing the **Hardware reset** button will interrupt the playback!
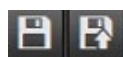
Playlist Control Buttons

Most of these buttons actually duplicate the commands, found in the **File** menu and **Edit** menu. All buttons provide hints. Here is a description of the playlist control commands:

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 hit the **PLAY** button, playback will start from the first black (not played yet) clip. If you hit **#**, the playlist will be reset, and the next time you hit **PLAY**, the playback will start from the very beginning of the playlist. Simply put, this is a kind of "playlist rewinding".

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

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

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

Undo up to 6 latest actions.

Change the *Orientation*

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.

Clip Trimmer

The Clip Trimmer 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
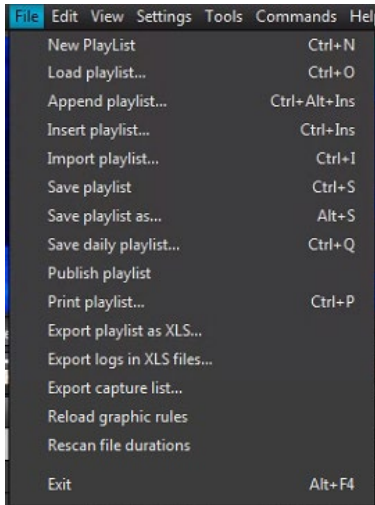
File Menu

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 box will appear each time you try to do so.

Append playlist

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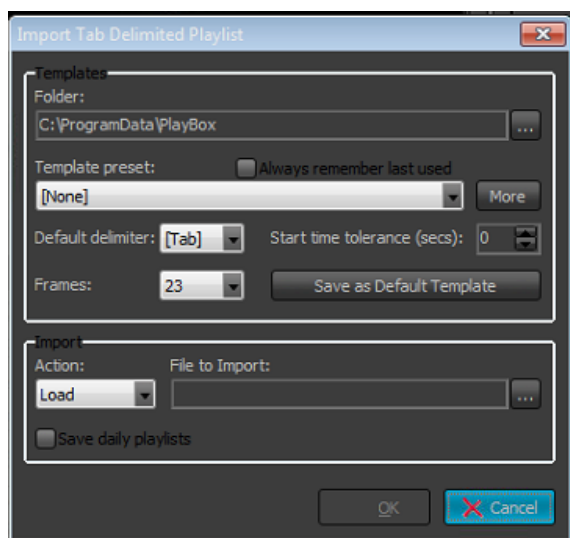
Insert playlist

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. For 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 the ☑ **Save daily playlists** box, 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 pressing the **Save as Default Template** button.

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

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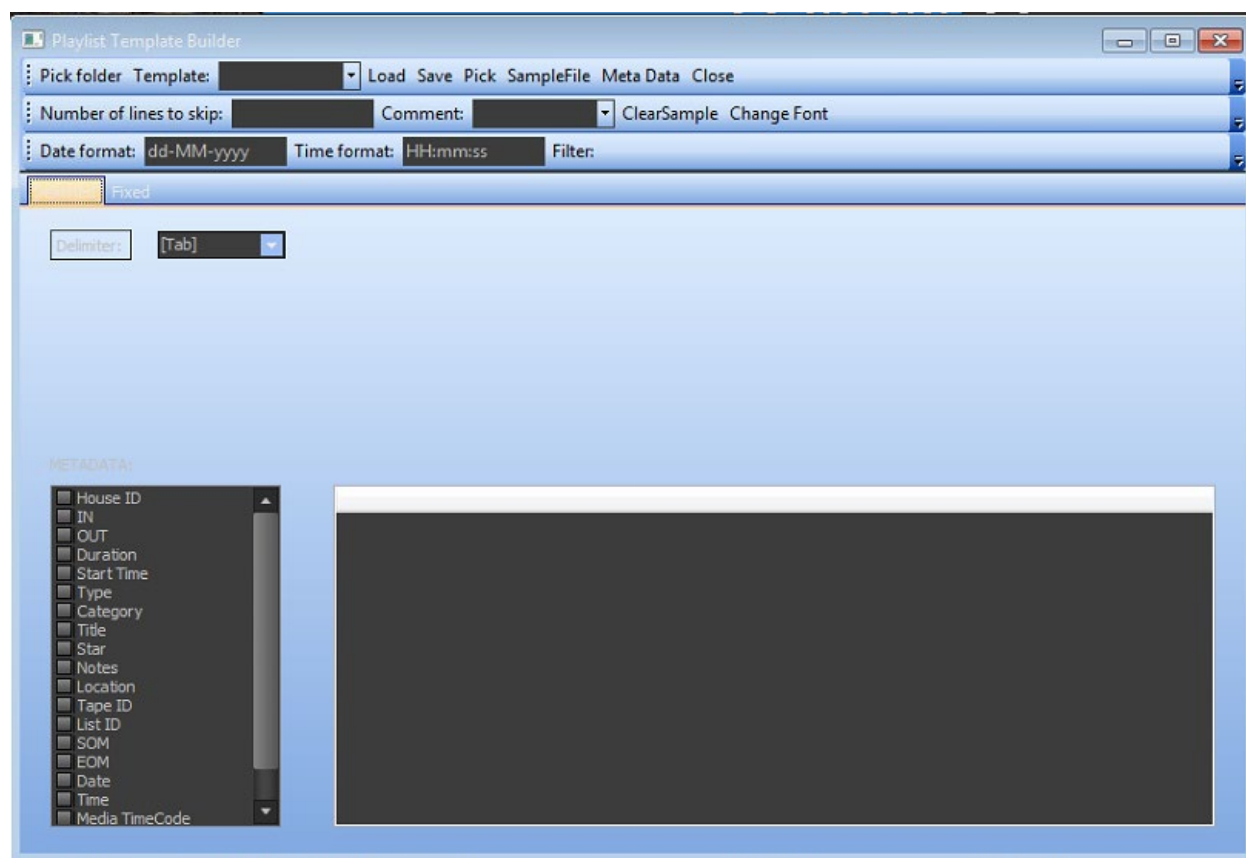
In the *Template* field, enter the template name. Use the **Sample File** button to select an example of the text file that will be imported with this template.

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, press **Save**.

Pick– press 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, push the **Load** button to load it (its settings will be displayed in the grid).

Validation – press it, if you to ensure 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).
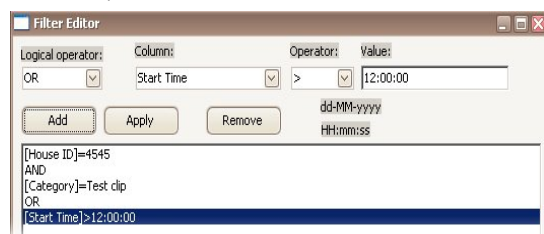
If you need to use another sample file, push the **Clear Sample** button and then load the new sample. If you do not clear the old sample first, the new file will be appended to the end of the old one.

The third uppermost row of this dialog is dedicated to the daily playlists. There you can see the date and time format for such represented lists. In case you have to import playlists that are longer than 12 hours, use the **Filter** button to split them. Upon pressing 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**). Press 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 pressing the **Save as Default Template** button.

Import playlists with fixed-width data fields
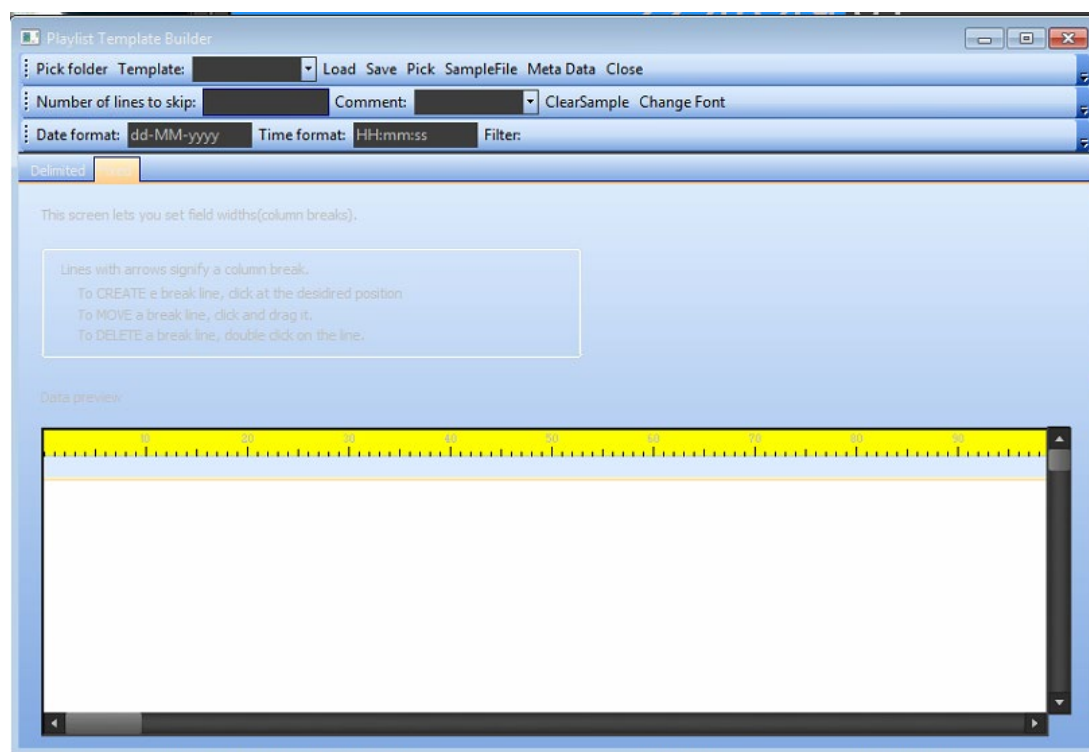
In addition to the existing schedule import engine for tab-delimited or *.csv* (Comma Separated Values) files, a new schedule type will be available for import – flat text with fixed-width data fields. For importing such playlists, go to **File Menu→Import playlist....** Then, click on the **More** button 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.
- While sliding the mouse within the data preview window, close to the pointer you can see an indicator of the symbols, passed from the start of the ruler. For example: `24` .
- 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.
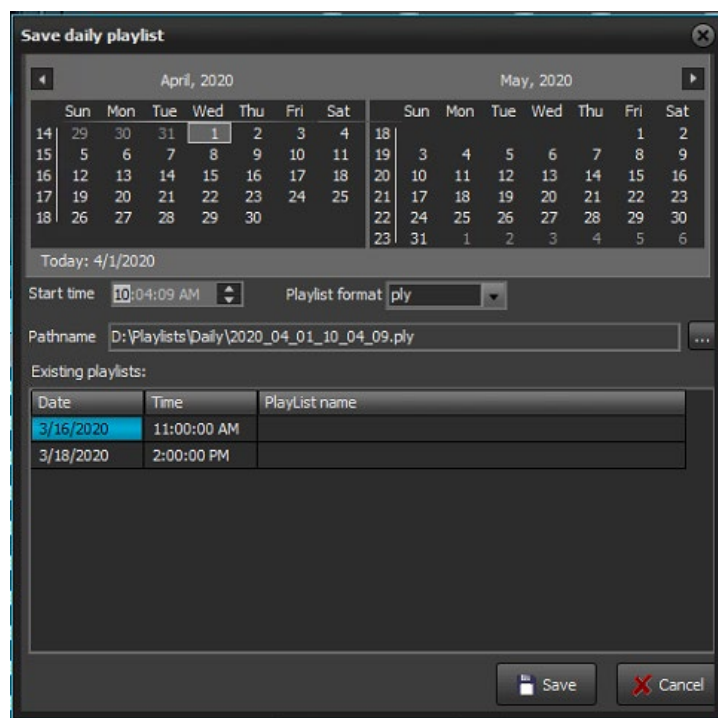
Save as

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 **PlayBox** 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.

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** – press this button to start printing the playlist.
- ▪ **Page Orientation** buttons– you can choose between Portrait and Landscape.
- ▪ **Selection** button– push it 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 – press it to update the view.
- ▪ **Auto-size Columns** button – press 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

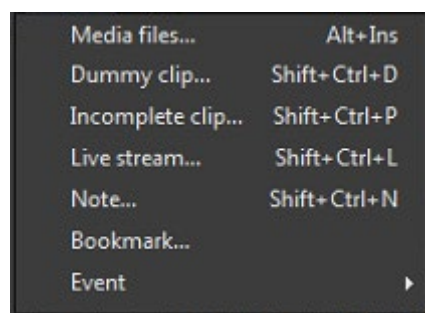Use this command to rescan the durations of all files in the playlist.

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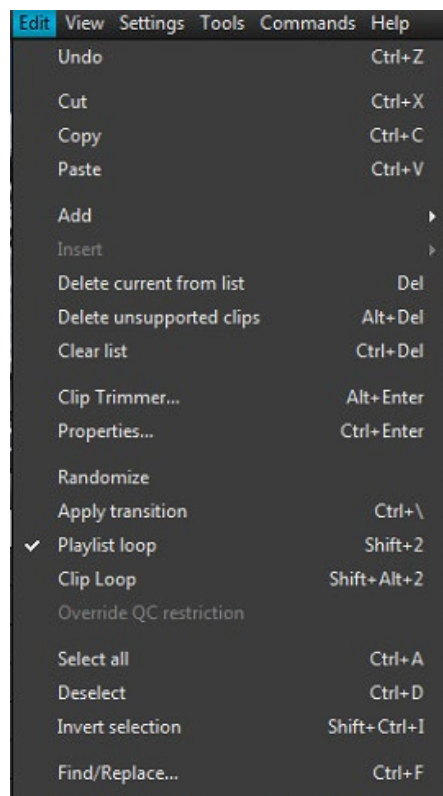
This menu contains all playlist- and clip-editing commands, available in **AirBox**. You can find the most important of them also in the drop-down menu that appears upon right-clicking in the playlist grid.

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 <u>above</u> 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** invokes a special 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.
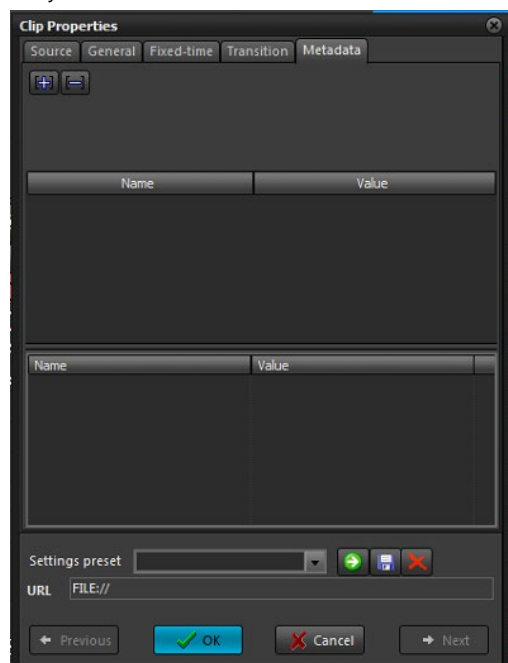
Use the **Source** tab to fill in the Location of the clip. You can read more about it in the **Clip Properties** dialog ➔ **Source** description.

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\Digital Media Technologies Ltd.\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.

<u>Incomplete Clip</u>

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, just 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.

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.

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 **forAirBox**) 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.

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

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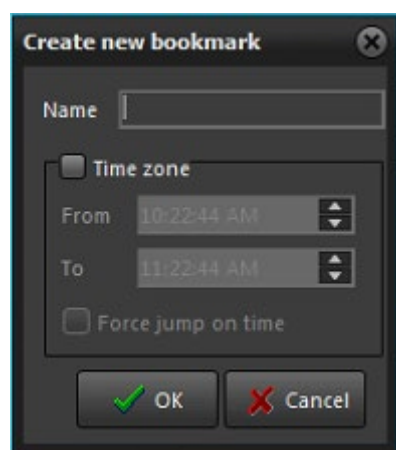
This is a special virtual item that can be used as a target point for incoming triggers (GPI input or DTMF input) or by itself. It will cause **AirBox** to **Jump** to the following item in the playlist, according to several additional conditions as described below.

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.

> For 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

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

Properties

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

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

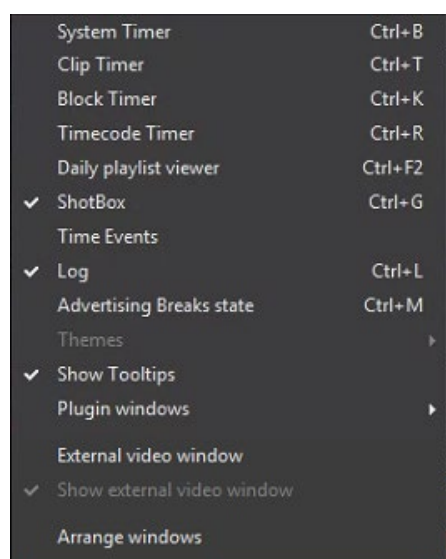Selects the whole playlist.

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 invokes 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.

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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
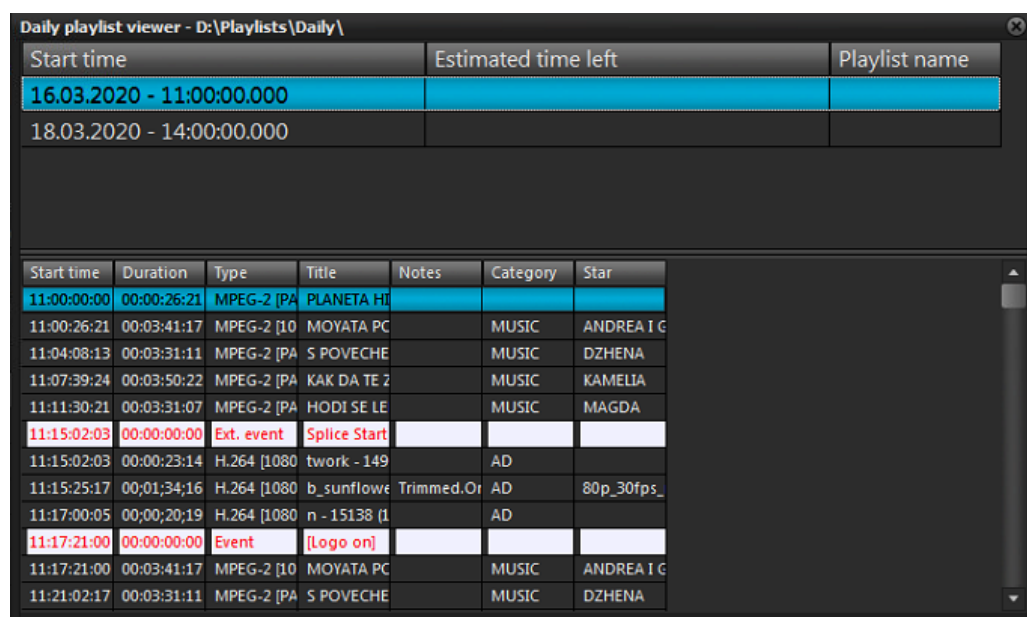
The Daily Viewer is a tool that will help you manage your daily playlists. In the area above you can view all daily playlists. The number in the brackets in front of the start time represents the number of days remaining till the start. For example, if there is a two in the brackets and then 12:00:00, this means that the playlist will start in two days, twelve hours.

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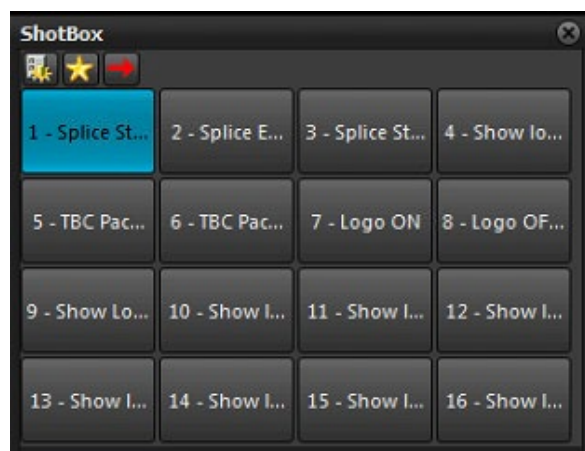
Selecting this **View** menu item will show/hide an additional window with buttons for fast switching/insertion of custom events.

All clipboard buttons can operate in two modes:

Execute mode ⭐ – pressing 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 🔄 – pressing the relevant 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 <u>Stop</u> or <u>Pause</u> 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-n-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, press the gear-wheel button 🔧. The buttons setup dialog will pop up. Define the dimensions at your will.
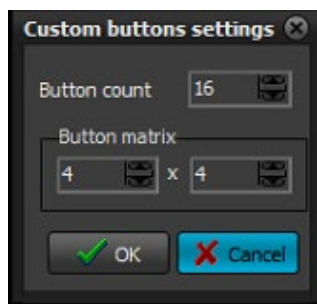
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TIP (!) Instead of going to **View menu**, you can press **<Ctrl>** + **<G>** to open the ***Clipboard*** window.

TIP (!) Instead of pushing a button, you can press the **<Ctrl>** + number key to execute the command, assigned to the relevant button.

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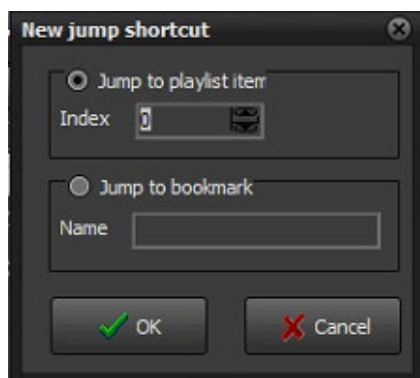
Assign event:

Logo event - view a detailed description of the Logo event <u>here</u>.

Media - view a detailed description of the insertion of media files <u>here</u>.

Complex event - view a detailed description of the insertion of Complex items <u>here</u>.

Playlist - invokes a browser dialog, through which you can assign a playlist file to be loaded upon pressing the respective button.

Jump shortcut - invokes 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.
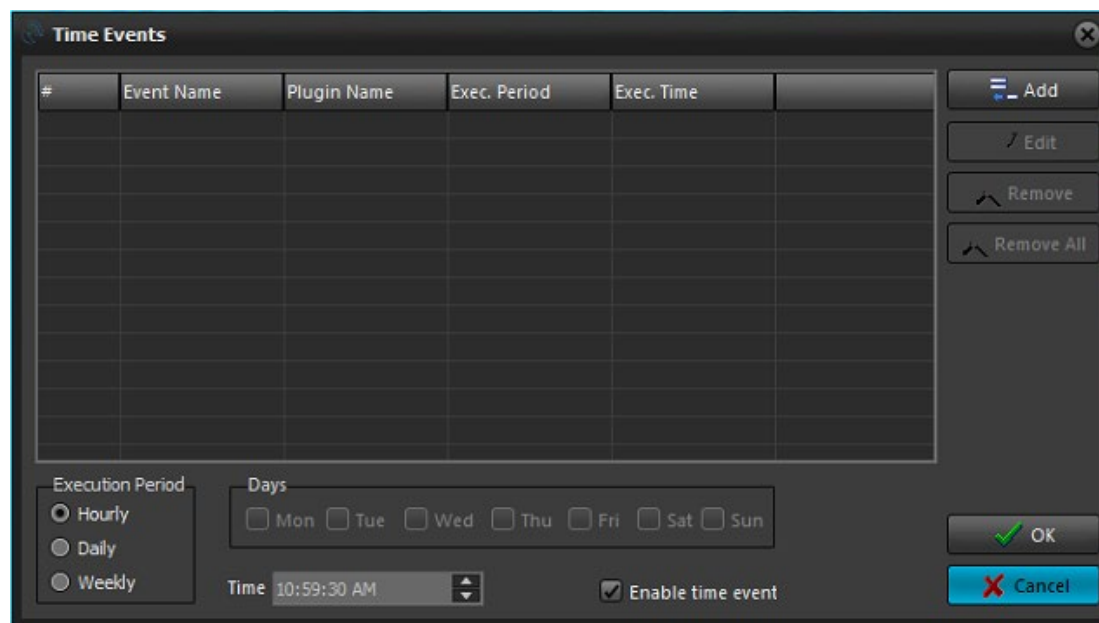
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Picture:

Assign picture - this menu option opens a browser dialog, from which you can select a picture to be loaded as a logo upon pressing the respective button.

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.

Press 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 press the ***Edit*** button.

If you want to remove the entry, select it and press 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.

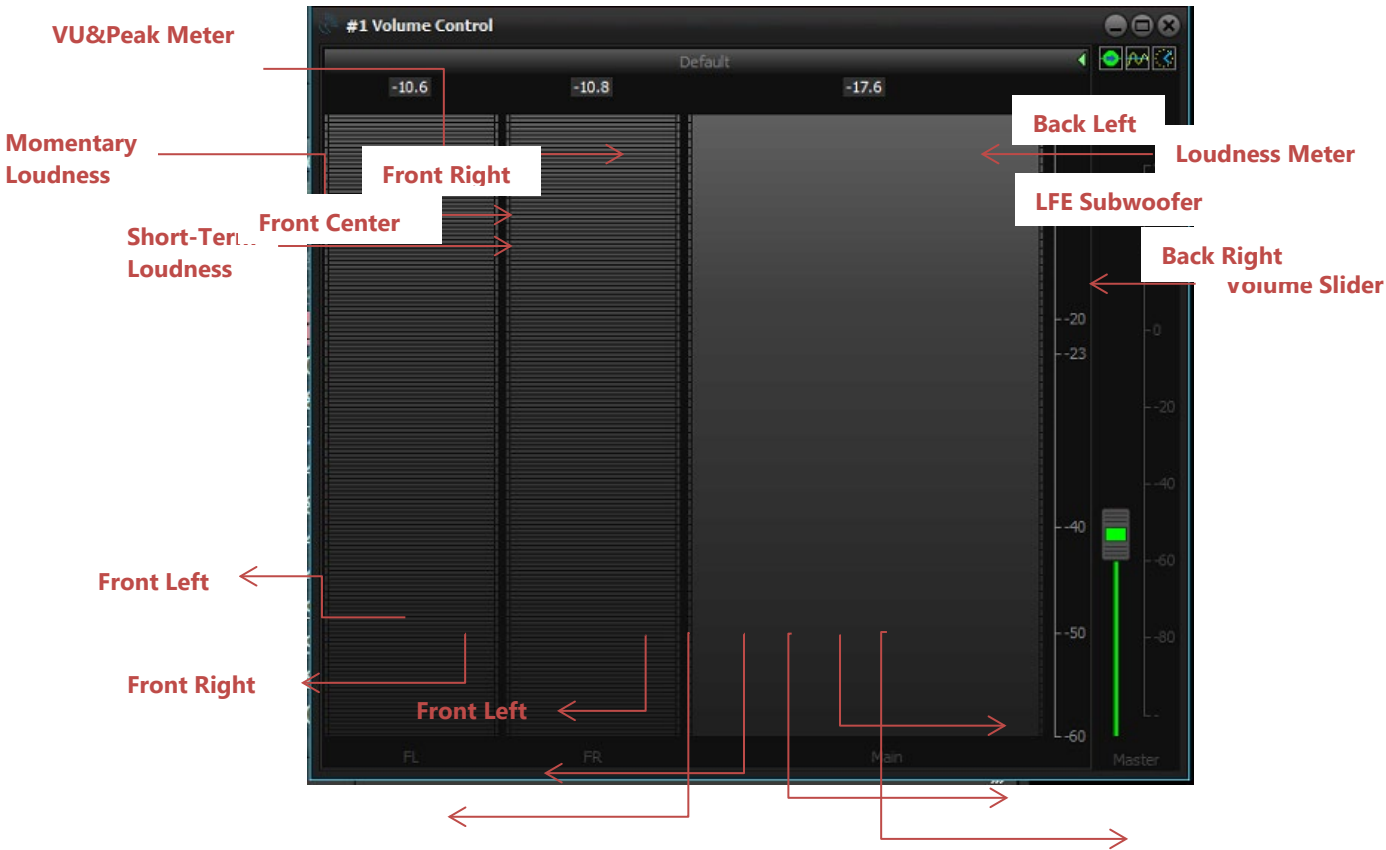**<Ctrl>+click** on a Timer window will change its appearance. Check it out!

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 contro**l 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 and 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 mouse-clicking on the *Volume Meter* area opens a context menu, like the one shown below
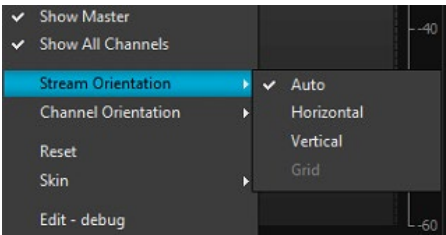
The **Show Master** and **Show All Channels** commands allow you to hide / unhide the master and the channel bars respectively.

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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 invokes a dialog, which allows you to configure the overall appearance of your **Volume Control** window, named the *Designer* window. This window contains five tabs.
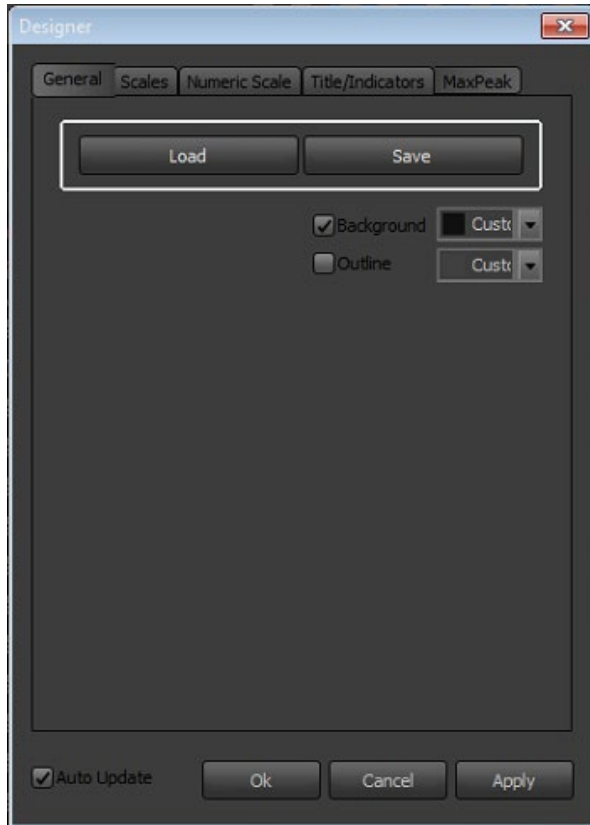

The *General* tab allows you to *Load* and *Save* custom skins for your **Volume Meter**. Here you can also set your *Background* and *Outline* colors.

Note that when you configure your desired settings, you need to press 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.
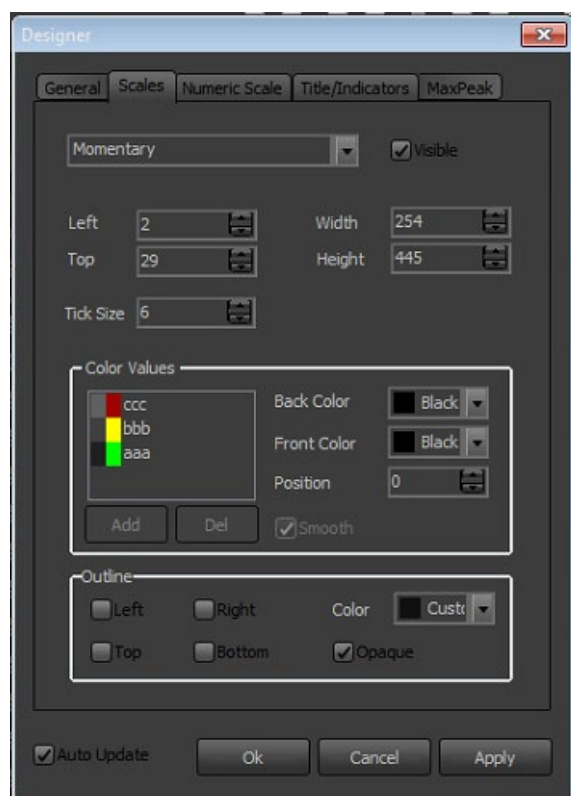
The Color Values field allows you to edit the bar colors, depending on the peak levels. Finally, use the Outline field to set borders in your desired positions and / or colors.
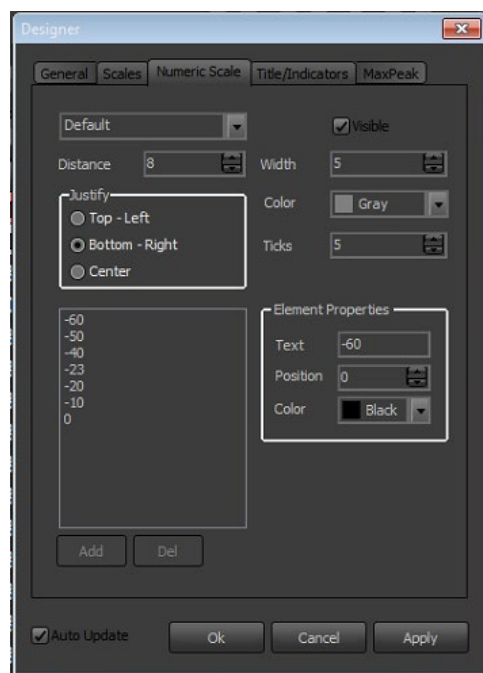
The **Numeric Scale** tab allows you to configure the appearance of the numeric scales in the **Volume Meter**. You can show / hide it via the *Visible* check-box, set its *Width*, *Distance*, *Position*, and *Color*. Furthermore, you can choose the number of Ticks (values) shown in the scale via the respective spin-box.

This tab also allows you to set the *Color*, *Position,* and *Text* of the number values.
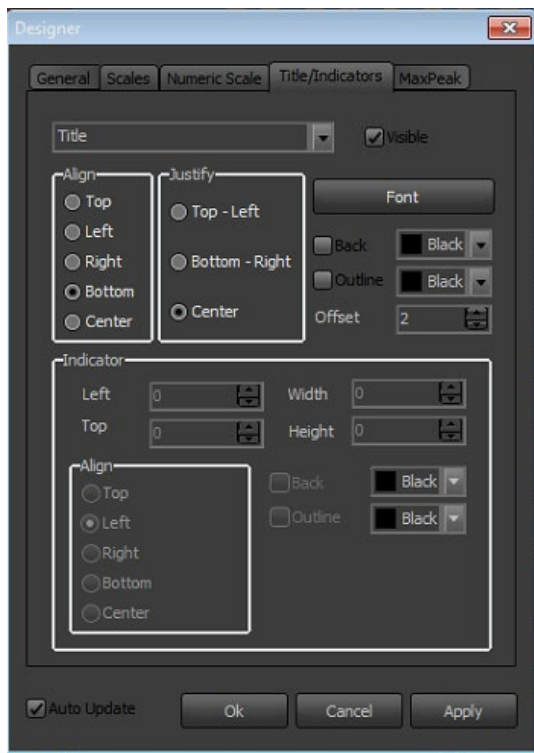
Use the **Title/Indicators** tab to configure the position and appearance of the *Titles* and *Indicators* in the **Volume Meter** window. You can set the *Alignment*, *Justification*, *Font*, and *Color* of the *Titles*. For the indicators you can change their position in the dialog, *Color*, and *Alignment*.
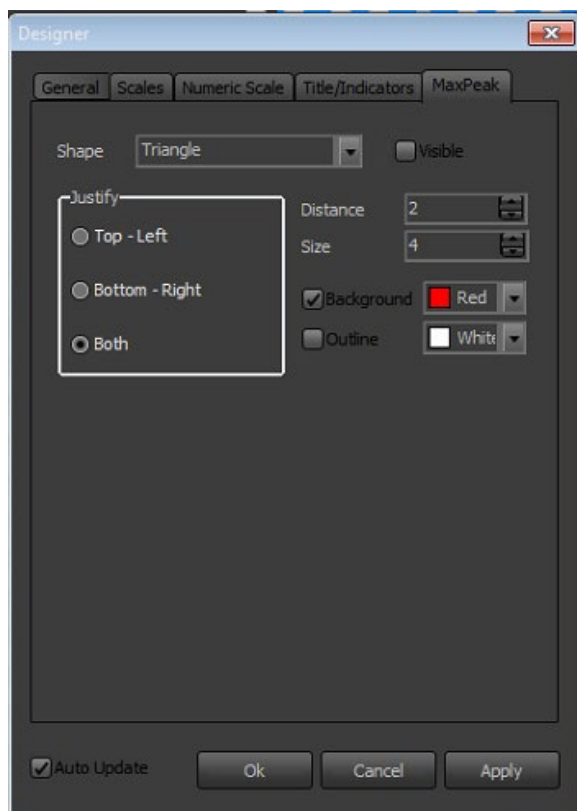
Finally, in the **MaxPeak** tab configure the *Shape*, position, and colors of the max peak indicator.

External video window

Check it to move the video window outside the main **AirBox** window. You can resize the video window by pulling its edges with the mouse pointer, or by right-clicking on it (a drop-down menu will suggest several zooming options).
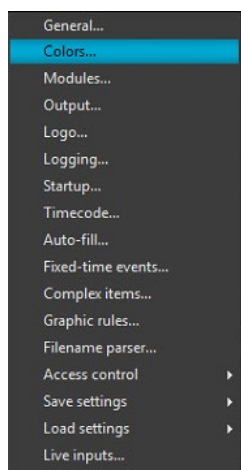
Show external video window

If you have closed the external video window, you can view it again by ✓checking this line. Pressing it once again will hide the window back.

Arrange windows

Clicking on this line will align all open timers around the main **AirBox** window.

Settings Menu

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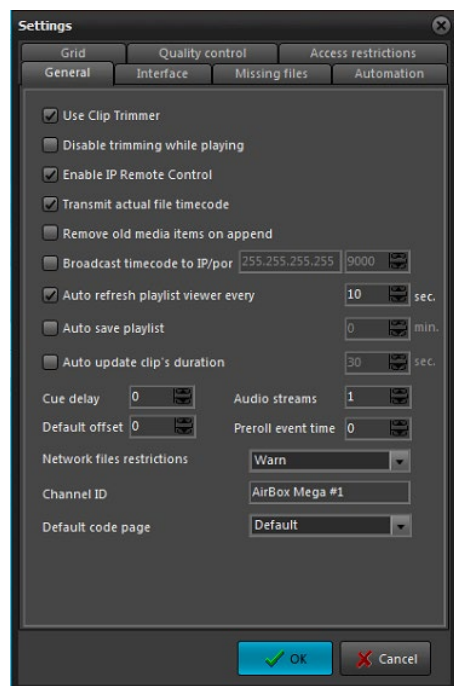
General

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

<u>General</u>

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 <u>IP address</u> and the <u>Multi AirBox Manager</u>).

☑*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 **SubTitle Plus** (<u>www.subtitleplus.com</u>).

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

☑*Broadcast timecode over network*– If this one is 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 duration of marked files* – 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. After you have checked this box, go to the playlist, and highlight the files you would like to update (you can use multi-selection). Right-click and choose **Auto update**. Thus, all "auto update" files will be checked in accordance to the set interval, and their durations will be updated accordingly.

☑*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.

▪ *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.

▪ *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!

▪ 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.

Type
H.264 [1080p 25] (44 kHz)
H.264 [720i 25] (48 kHz)

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

AirBox User Manual
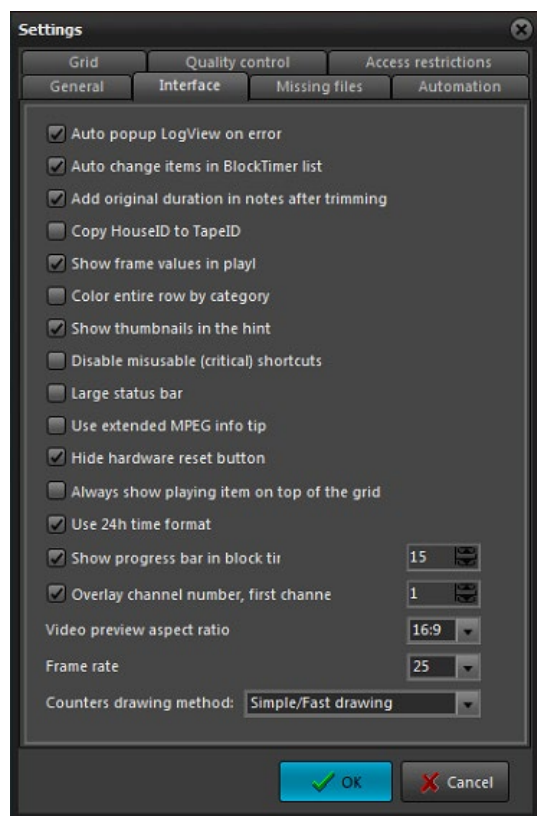
Interface

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, once you trim a clip, **AirBox** will automatically insert information about its original duration in the **Notes** column in the playlist. If you do not want to see this information, just leave this box unchecked.

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

☑*Show frame values in playlist* – check it 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-n-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 shortcuts of "dangerous" playback commands with alternative ones, as in the table to the left.

☑ *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 the hint when sliding the mouse pointer over a clip in the playlist

☑ *Hide hardware reset button* – checked by default, uncheck this box to be able to see the **Reset hardware** button under the counters in the main **AirBox** interface

☑ *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).

AirBox User Manual
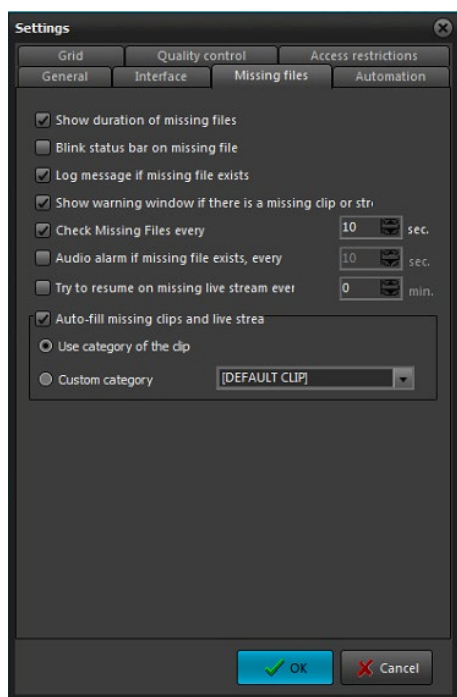
Missing files

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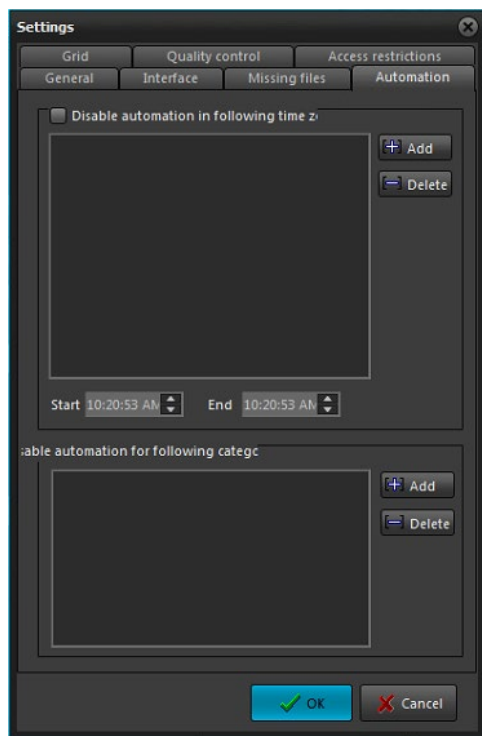
This tab allows you to manage the **Automation** settings that you have defined in your playlist.

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

☑ *Disable automation for following categories* – here you can 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!

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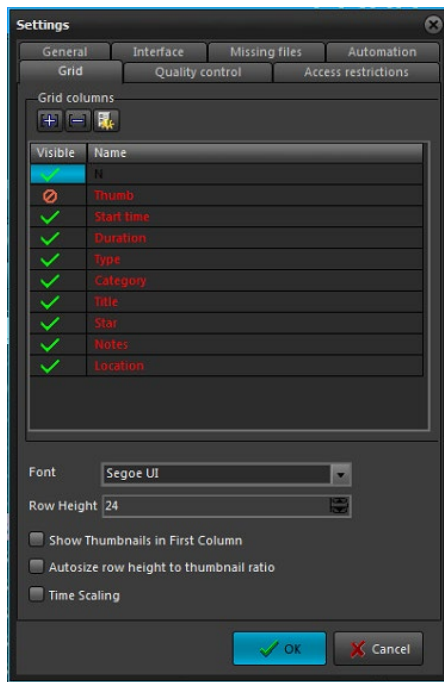
Grid

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

You can add new columns by pressing the **Plus** 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 tick-mark to turn them **Invisible**.

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

Click to restore the factory defaults.

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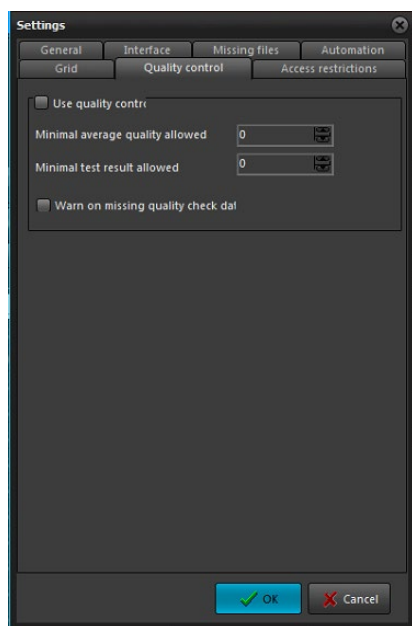In brief, the **QCBox** tool performs content verifications, such as loudness-related tests, checking for missing audio or video samples, etc.

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 ticked, 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. **For 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 place a check in the ☑*Warn on missing quality check data,* **AirBox** will generate a warning message if there is no applicable Metadata available for a certain playlist item.

<u>**Access Restrictions**</u>

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.

<u>**Playlist colors:**</u>
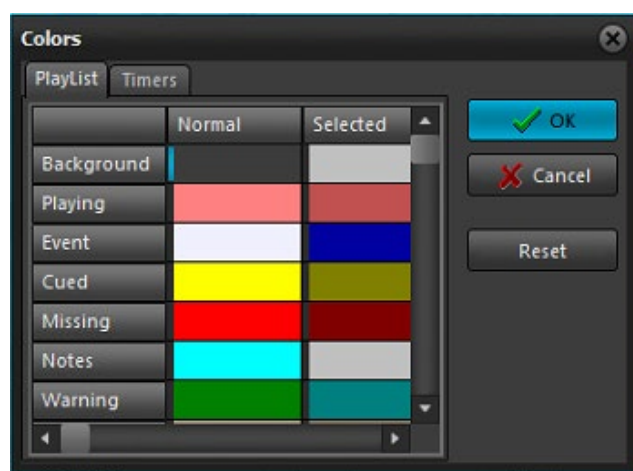
Background – playlist background.

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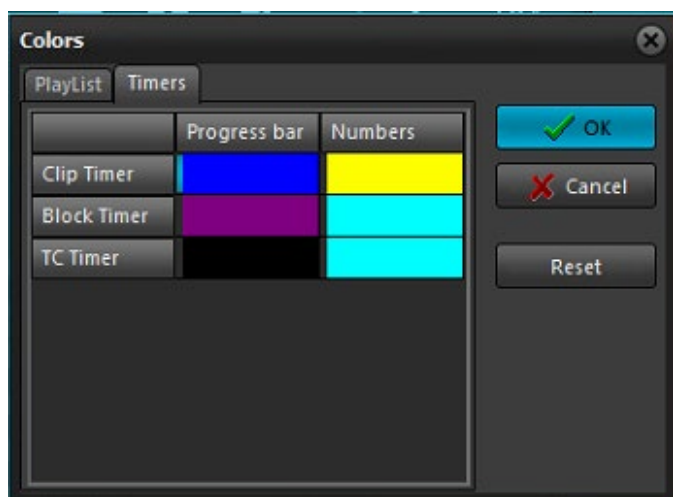
Clicking on the desired color box enables a combo-box for selecting a color or defining a custom one.

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

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

Modules

AirBox Output
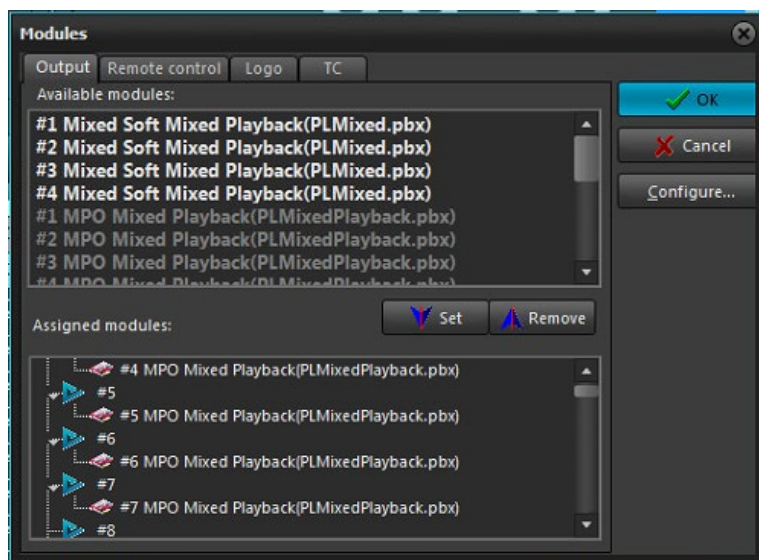
Here you can select the active playback module, depending on the installed hardware platform. Check the latest list of platforms, supported in **AirBox** in **https:/playboxtechnology.com**, or write to info@playboxtechnology.com

Select the desired module from the list of available modules in the upper window, and assign it to the corresponding **AirBox** channel in the lower window by double-clicking on the module, or by pressing the **Set** button. This option allows you to start multiple **AirBox** applications on different hardware decoders at the same workstation.

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> **NOTE:** Depending on the active module, **AirBox** may recognize some files as invalid, if these files are not supported by the respective hardware used.

If there is no hardware platform installed, there are still several options:

IP Pump MPEG Program Dumper

This plug-in uses *MPEG2* source files and directly pumps the content without recompression to a network IP address, instead of a decoder. The IP Pump uses a standard UDP mechanism for data transfer. Please, see the settings menu description in **Settings ➔**Output menu.

> **IMPORTANT:** There is no VGA Overlay preview in this mode. There is no graphics insertion in with this plug-in!
>
> **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 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.

MPO Mixed Playback

This plug-in allows for simultaneous playout of different types of media (SD, HD, 25fps, 30 fps, etc.) and different outputs (SDI, Analogue, IP Streaming etc.) to run at the same time from a single AirBox playout server. Basically, with the Multi Parallel Outputs (MPO), AirBox allows broadcasters to provide parallel outputs in any combination needed to deliver content. For more detailed information on how to use the MPO Mixed Playback, please, check the relevant section below. If you still have any questions, related to the configuration of this **AirBox** module, contact our support team at support@playboxtechnology.com.

Mixed Stream Playback

This plug-in sends the playback stream to a network IP address or ASI output, instead of a video output. Its advantage, in comparison to the IP Pump plug-in, is that it provides the possibility of inserting graphics in the stream and there is a preview of the output video. Please, check the setup details, in the **Settings** -> Output -> Streaming menu.

> **NOTE:** The Streaming module is an option. It needs an additional license.

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**, 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**.

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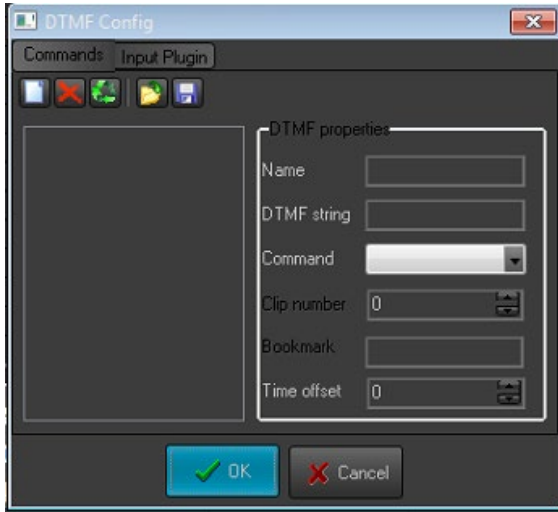
> *For example*, **DTMF** tones are used by some cable television networks to signal the local cable company/network station to insert a local advertisement or station identification.

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

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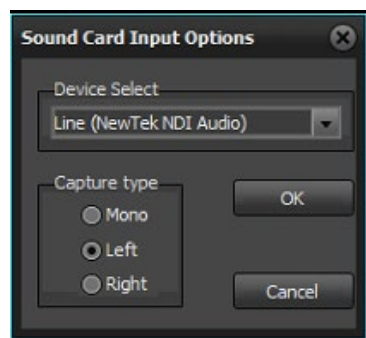
This plug-in is to be used for analog audio tones, received on your PC sound card (coming from an IRD, for example). Select this line and press **Assign** to load it. Then, press **Configure** to select the sound input device and configure it:

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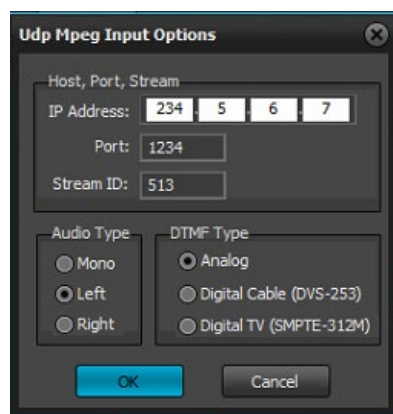
This plug-in decodes **DTMF** tones that come through **UDP** in the **MPEG2Transport Stream**.

Select the **UDP Mpeg input** from the **DTMF** plug-in list and press **Assign**. Then, press **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.

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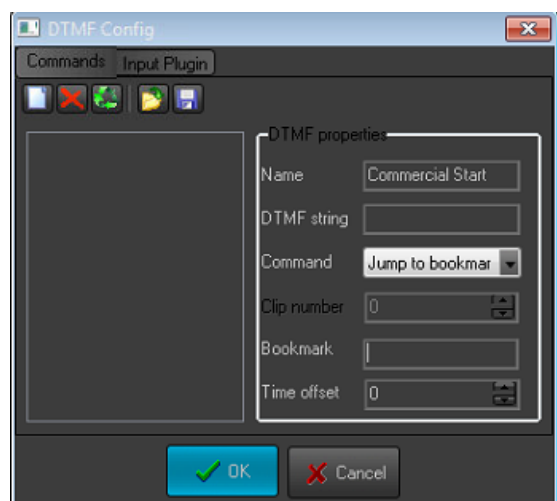
In this tab you have to specify what **AirBox** should do upon receiving a certain sequence of DTMF tones.

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 <u>Time zone</u> 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 <u>Time range</u>, 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 <u>Time range</u> that includes the time of arrival of the cue tone, *AirBox* ignores the command.

> **IMPORTANT:** 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 <u>Time range</u> 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 <u>Time range</u>, 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.

Press 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 press the 📂 *Load settings* button. Browse for the **.dts* file and click *Open*.

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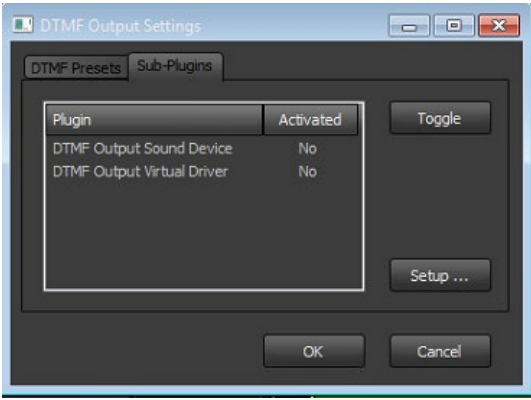
These plug-ins generate the **DTMF** tones and send them via the selected sub-plugin. Once it is configured, you can use it to add DTMF Output events in your playlist.

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

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

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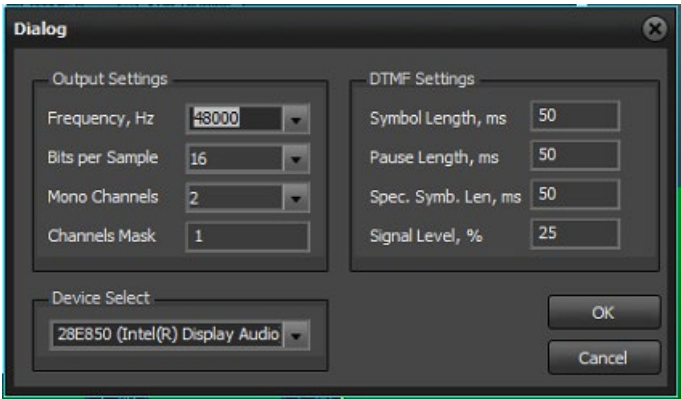
When you activate this sub-plug-in, the DTMF tone is sent to a device, defined into the plug-in configuration. Select the plug-in and press the **Setup** button. The configuration window will open.

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

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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 some third party application (which can receive tones) instead of the computer audio device.

For example, such an application is **AirBox** itself. It can be set from **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. Press 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 **PlayBox GPI Relay** card.

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

You can read more information about the **PlayBox Bypass Relay card** in Appendix 4 in this Manual.

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

The **PlayBox 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 pressing the **Configure** button:

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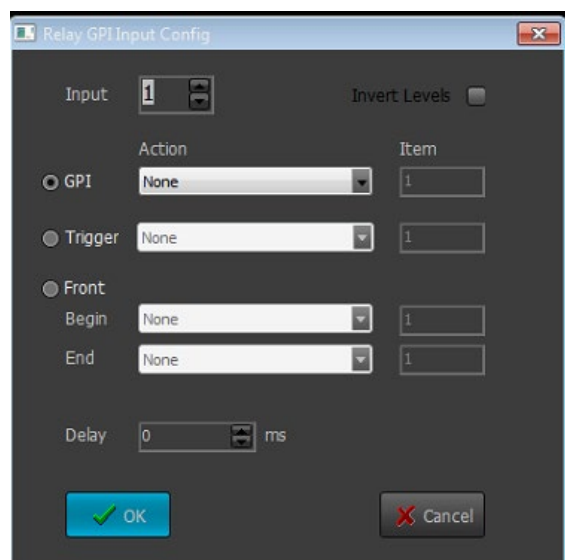
In the *Input* field select the GPI input number to be configured.

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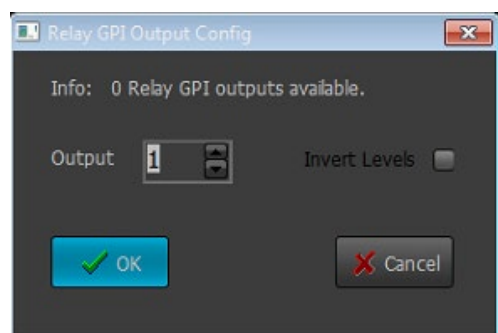
The **Relay GPI Output** is performed via dedicated output events in the playlist. When the playback reaches the event, the Relay GPI trigger is activated.

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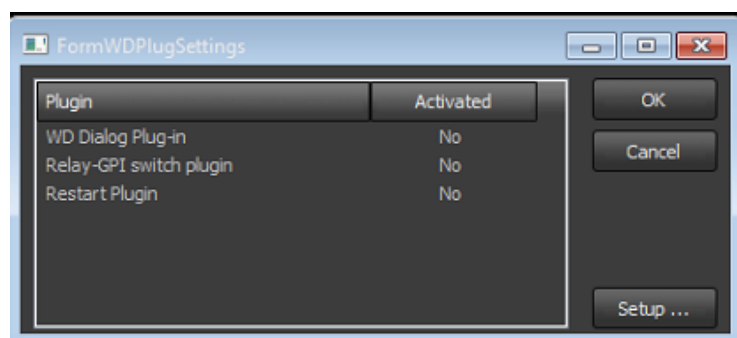
The **WatchDog** Plug-in detects if some malfunction of the application occurs. When a malfunction takes place, **WatchDog** runs "activated" Sub-Plug-ins from its sub-Plugin list

Activate the preferred sub-plugin by selecting it and pressing the **Toggle** button. When the sub-plugin is activated, you can press 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 **PlayBox Bypass Relay card**. You can activate it and set it up if you have the **Bypass Relay card** installed on your machine.

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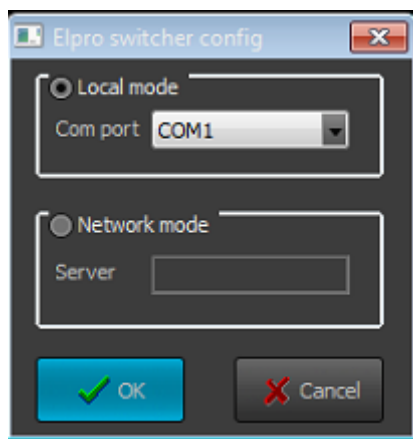
> **IMPORTANT:** Even if there is only one **Bypass Relay card** installed, select it in the *Device Select* field and press the **OK** button for the setting to take effect.

You can read more information about the **PlayBox Bypass Relay card** in Appendix 4 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** – check it if the switcher is connected to one of the PC COM ports (select it from the drop-down list below).

⊙ **Network mode** – check 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
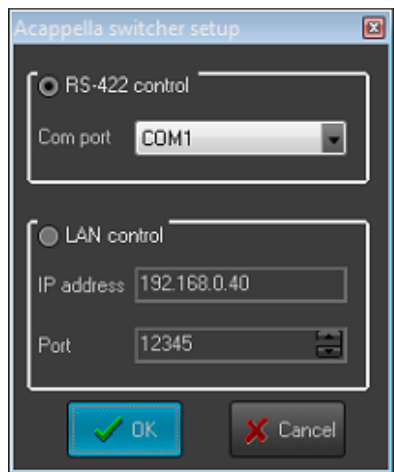
This configuration dialog contains only a drop-down list.

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 press **OK**.
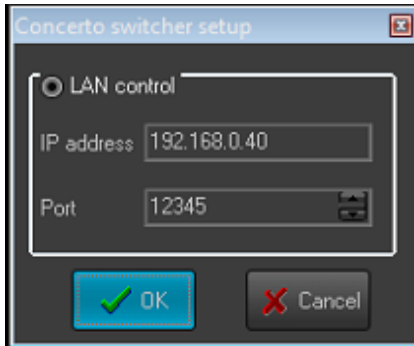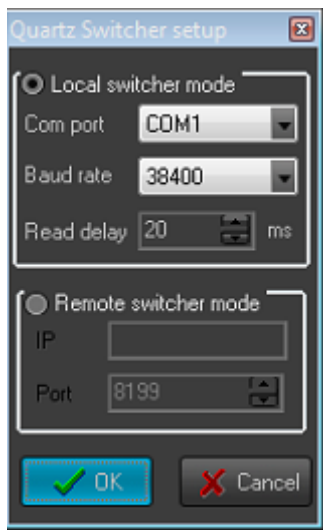

Quartz Matrix Switcher Output

There are two possibilities for controlling the switcher:

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

⊙ **Remote switcher mode** – check 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 press the **OK** button.

Snell Switcher Output

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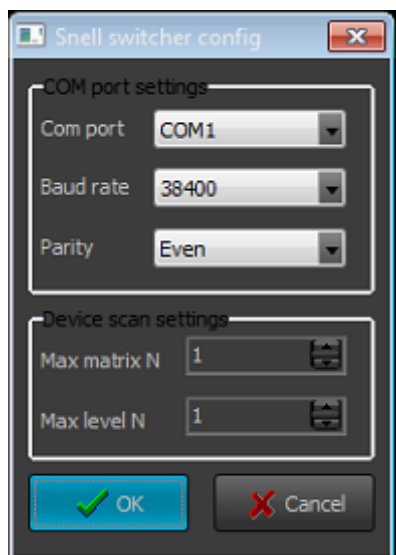
This is an external plug-in used to control Snell devices that comply with the *SW-P-08* protocol. It uses *RS-485* cables. The COM port settings may vary for different devices.

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.

Network Electronics switcher output

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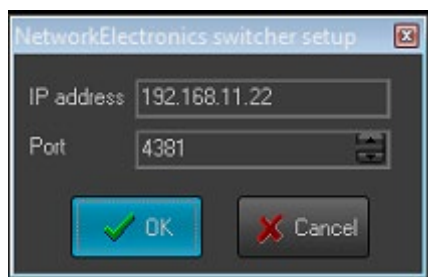
The configuration dialog represents the setup for controlling the switcher. Fill in the *IP address* and *Port* number of the switcher and press **OK**.

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 pressing 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

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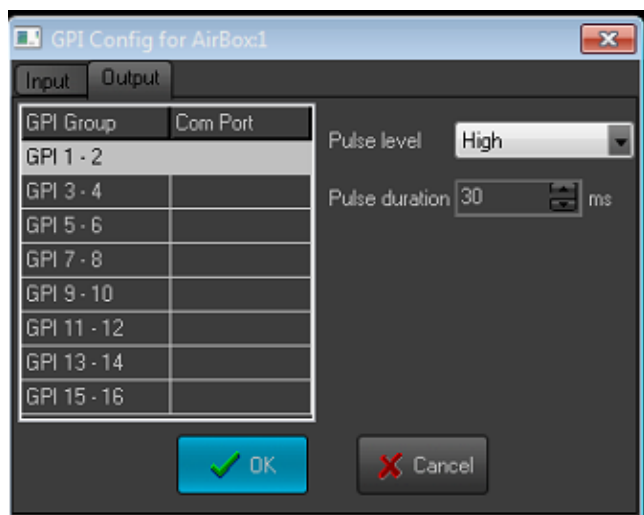
Here you have to specify the **GPI groups** and the respective **COM ports**, too.

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 1, further in this manual.

IMPORTANT: The *PlayBox* modules DO NOT support the Deck Control connector, supplied on the DeckLink breakout cable!

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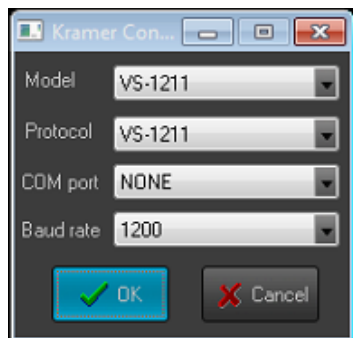
The **Kramer Switch** module allows you to control all x01 and x11 Kramer Switchers. *AirBox* controls them via the old protocol only. Protocol 2000 is NOT supported in this plug-in! The switchers may be controlled via *RS-232* and/or *RS485/422* communication ports.

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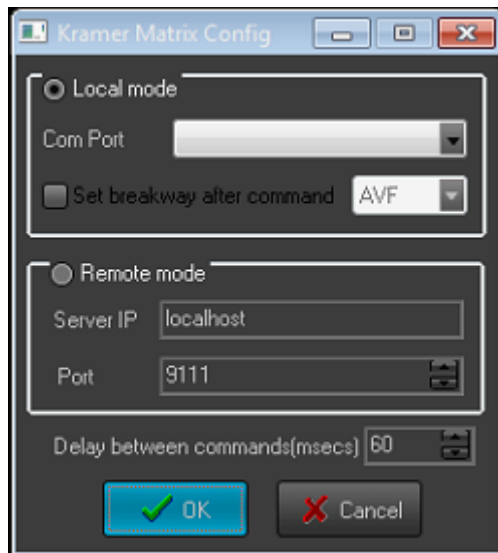
COM Port – the COM-port used for connecting to the switcher. You can select it from the available COM-ports.

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 switcher manual for instructions on how to change the control protocol, or contact support@playboxtechnology.com .

IMPORTANT: **PlayBox** modules DO NOT support the Deck Control connector, supplied on the DeckLink breakout cable!

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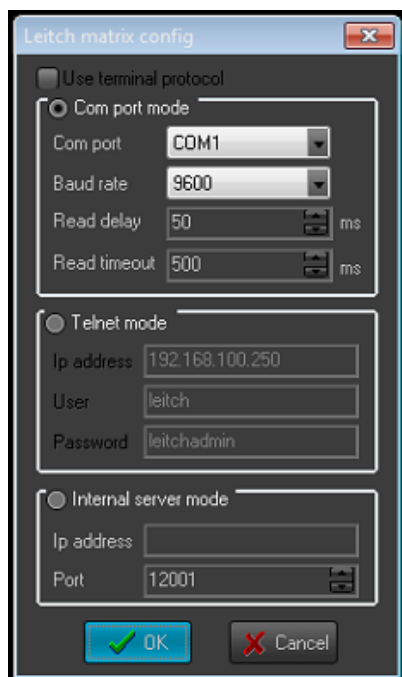
AirBox can control Leitch Matrix Switchers either through the computer COM port or using the IP address of the matrix (via TCP/IP protocol). The configuration window is divided into three areas – one per each mode.

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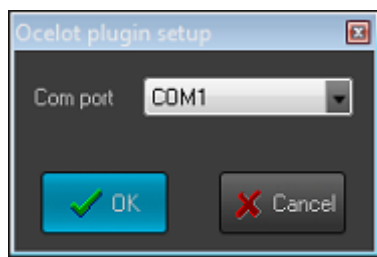
Another type of switchers, supported by **AirBox,** are the Ocelot switchers. The only thing you can set in their configuration window is the *COM port* used for connecting to the switcher. You will find the available *COM ports* in the drop-down list.

IMPORTANT: The *PlayBox* modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

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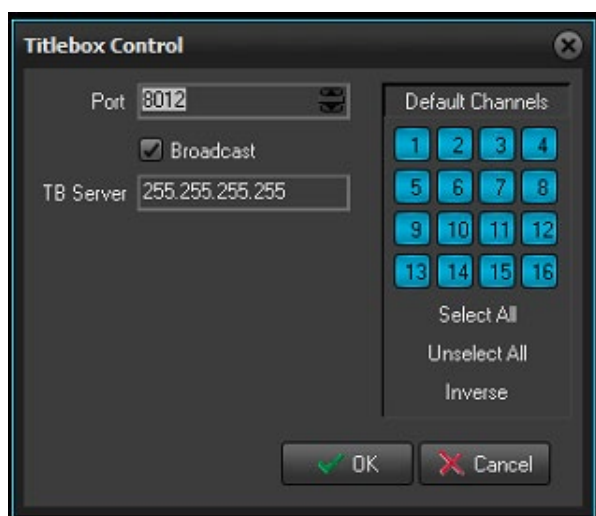
This function allows managing the *TitleBox* objects from *AirBox*. This is done by inserting external events (**TitleBox NetControl Output** events) in the playlist.

Press 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 3 – Integration of AirBox with TitleBox* .

<u>TV Content Rating</u>

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

After you enable the plug-in from the **Enabled** column, press 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.

Universal Matrix Plug-in
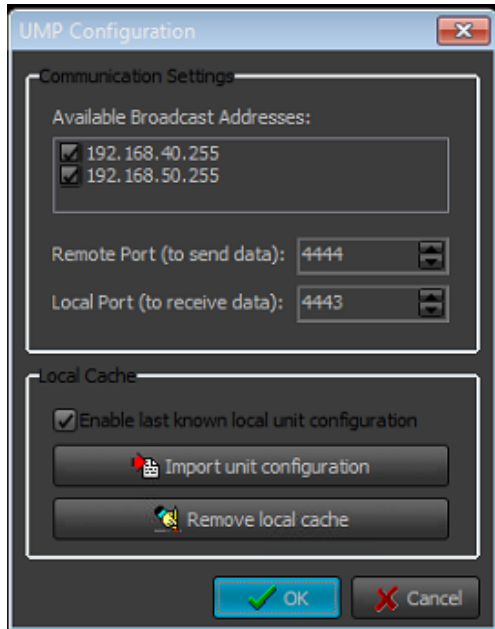
This plug-in is related to the use of the **Universal Matrix Controller (UMC).** You can read more about it in the**Universal Matrix Controller** section, further in this manual.

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**.

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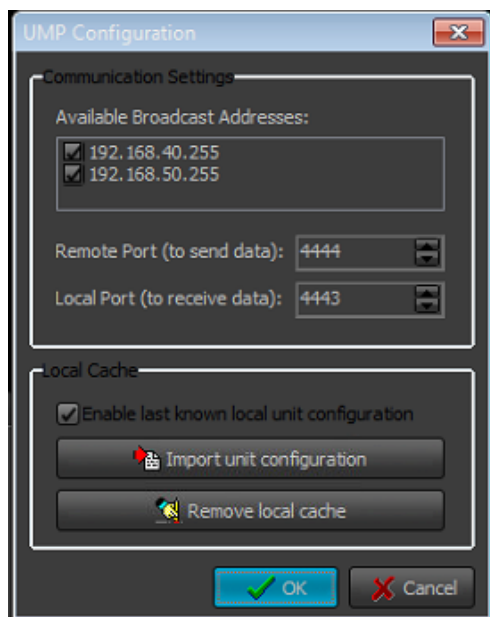
The **UDP Switcher Plugin** is used to set-up the connection to **_UDP switcher_**.

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.

> **IMPORTANT:** The port number must be 9092, as it is by default!

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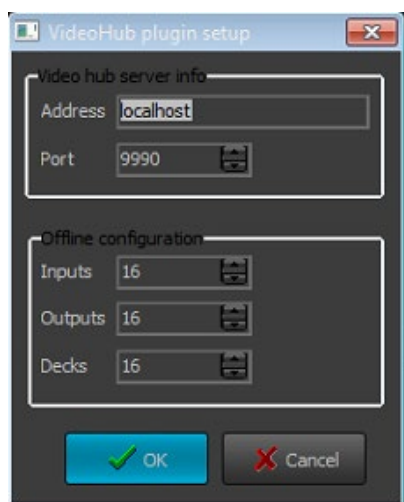
This is an external plug-in, used for performing control over VideoHub broadcast routers, produced by Blackmagic Design Pty. Ltd.

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. *For 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, press **OK**.

> Video Resize Control Output

This is an event that ensures automated scaling of the video output. Press the **Configure** button to open the **Set-Up** form, and create your video resize presets.

For more information, check the **AirBox Edit** menu ➔**Add** ➔ **Events** ➔*Video Resize Control Output* section above in this chapter.

> VikinX Matrix Switcher Output
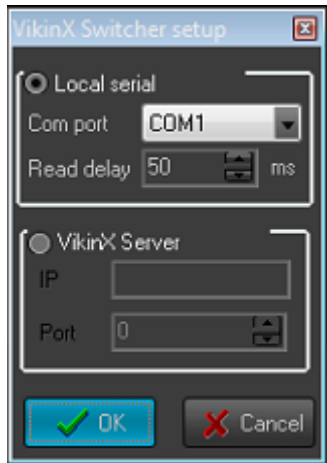
Pressing the **Configure** button while the **VikinX Switcher** row is selected will evoke a setup dialog, where you can define the following:

COM Port – Use the drop-down list of available COM-ports to select the one that will be connected to the switcher.

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

Once you have set these configurations, you will be able to add VikinX Switcher events in your playlist.

VTR Control Plug-in
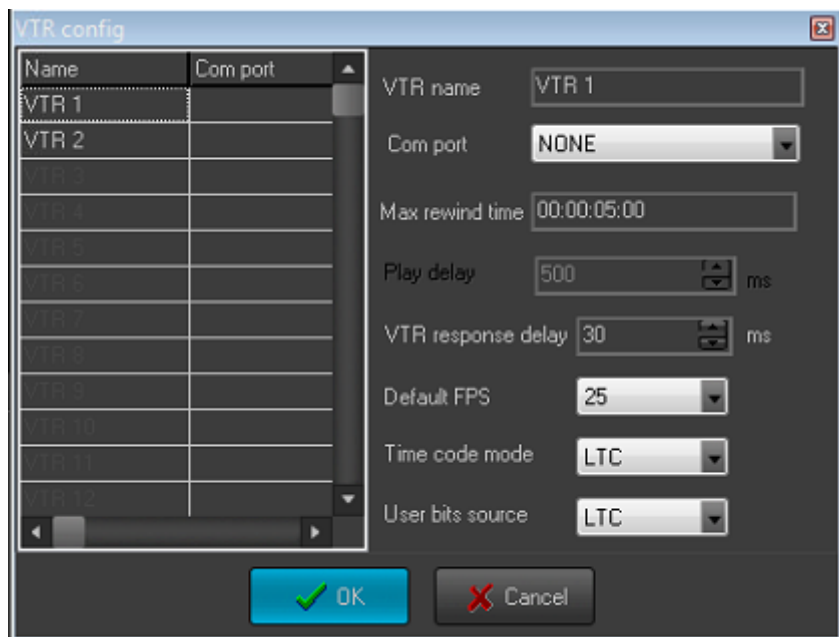
You can use it to control up to two VTRs for combined file-based/tape-based playout. Enable it and press **Configure**. A dialog will open for you to make the necessary setting. First, enter the **VTR Name** and the **COM port**, to which it is connected. Then, specify the maximum rewind time. Please, 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.

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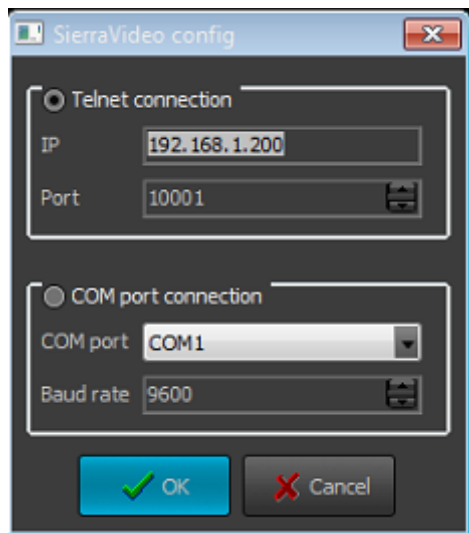
Pressing the **Configure** button while the **SierraVideo Switcher Output** row is selected will evoke a setup dialog, where you can setup the connection to this switcher. You can select from two types of connections:

⊙ **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.

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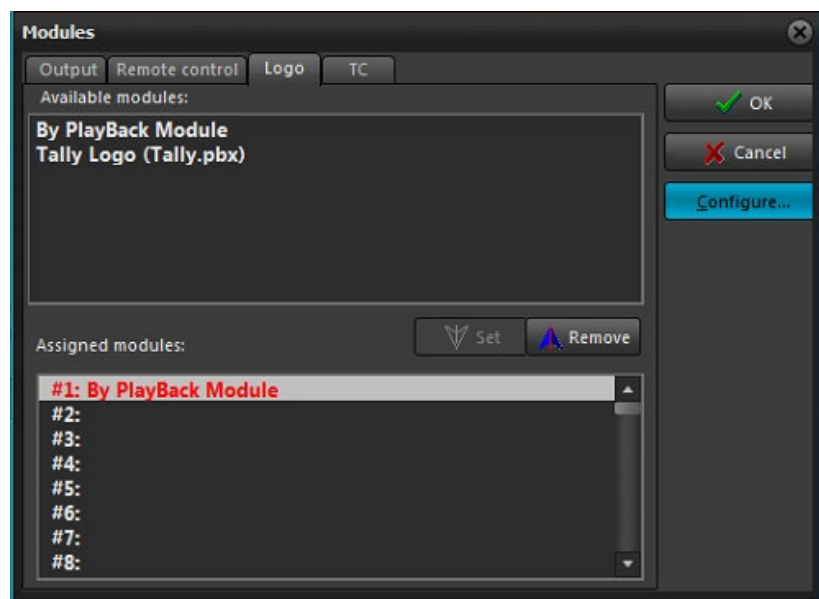
<u>Logo</u>

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.

Pressing 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** <u>section</u> 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 <u>two pins</u> 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. For example, if the active level is [High], a Logo ON event turns on the output voltage, and a Logo OFF event turns it off.
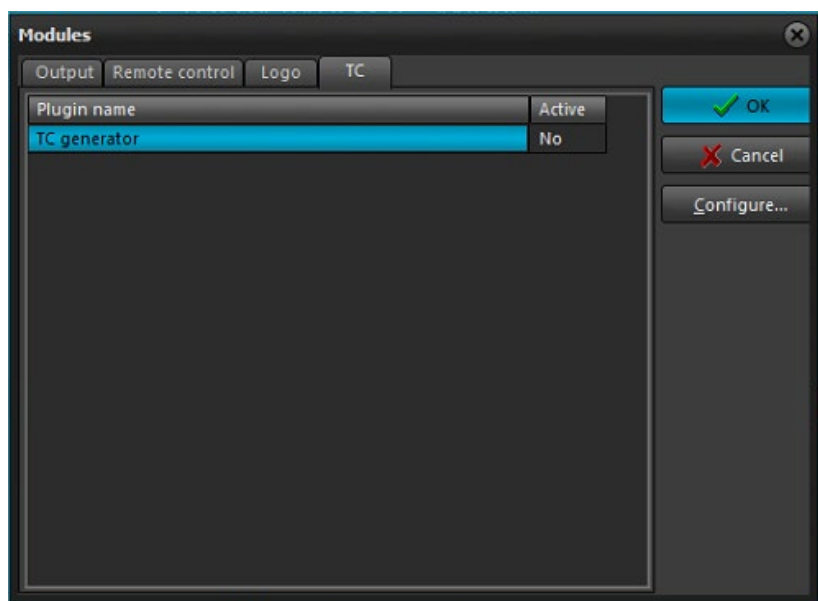
> **IMPORTANT:** No logo will be displayed in the *AirBox* output!

Press **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 press **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.
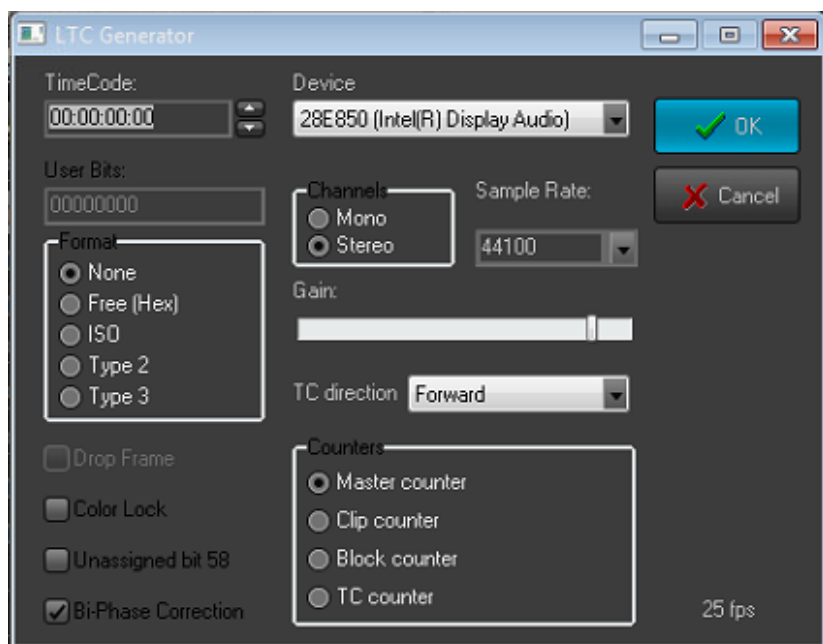
Above you can select the output *Device* and set the output channel type and sampling rate.

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

This window contains information about the settings of the currently active plug-in and allows its fine-tuning. The **Output Setup** dialogs may vary depending on the decoders' models. Usually, these settings are defined at the factory, so you do not have to adjust them, unless advised by our support team.

As explained in the Preamble section above, there are two major playout modules, supported by **AirBox**.

The **AirBox** playout is defined in the **AirBox ➔ Settings ➔ Output** menu, described below.

Multiformat playout

Depending on the supported hardware for video/stream output, the following Multi-format plug-ins are available: **Blackmagic DeckLink plug-in, DELTACAST HD plug-in, streaming plug-in** (LAN/ASI card based) and **Software plug-in** (VGA card based).

The software module is used mainly for demonstration or test purposes.

The settings for multi-format playout are the same for all of the supported hardware. There are just small differences, which will be described separately.

You can open the output-settings window from the **AirBox Menu ➔ Settings➔Output**.

  Common settings

The common settings are valid for all of the supported hardware.

Video tab
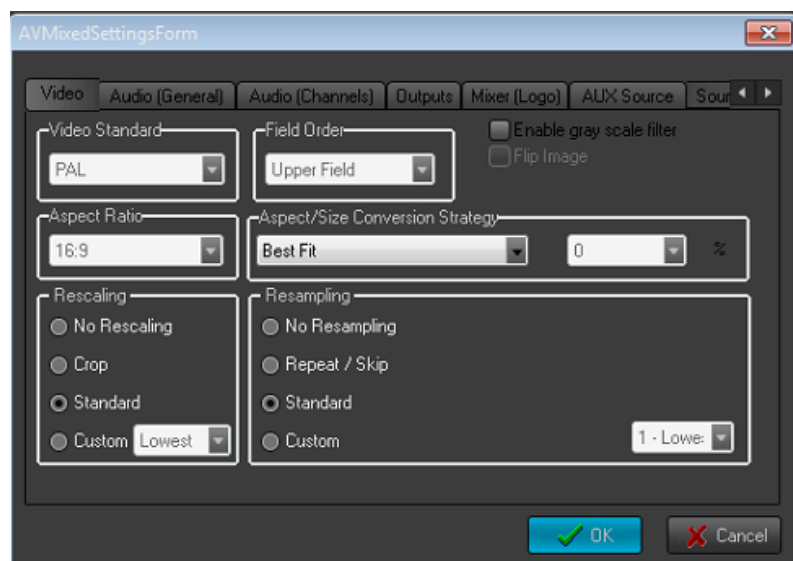
Here you can define the parameters of the AirBox video output. The settings will affect all files in the playlist!

- *Video Standard* - specify PAL or NTSC video standard
- *Field Order* – 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.

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The following settings 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.

For 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 pressed, the user has to choose the type of quality from the drop-down list near the relevant radio-button.

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*

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Here you can define some settings for the audio output.

DTMF settings.
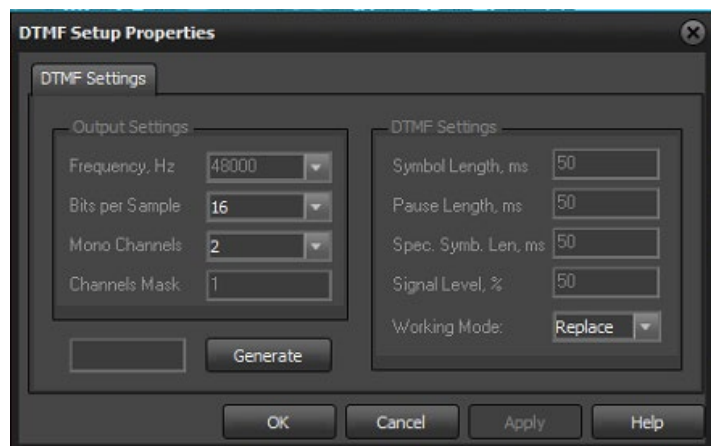
Here you can define an output DTMF signal to be generated by the **AirBox** application. Press the **DTMF settings** button to open the **DTMF set-up window**.

- ▪ *Output settings:* Here you can 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 **–** here you can set the DTMF to either be <u>Mixed</u> with the output audio, or to <u>Replace</u> the output audio

The Normalization field

This new functionality is developed in accordance with *EBU Rec. R 128*. It is designed for our clients to benefit from the following:

- ▪ Performing monitoring and control over the perceived loudness of audio sources.

- ▪ Reducing the loudness differences between programmes. This is applicable when the nature and content of audio matherial(s) changes frequently. *For example*, such a problem most commonly occurs at the breaks for advertising, when there is a jump between audio levels.

AirBox performs the audio normalization by using a loudness metadata that describes how loud each programme is. The <u>loudness</u> metadata is provided by the **QCBox** tool.

QCBox performs quality control tests of the media content. After that it stores the test results as metadata into a file with extension *.mtd*. Such an *.mtd* file is generated separately for each media file tested.

Based on the metadata, provided by **QCBox** for each media file, **AirBox** will adjust the audio levels of all media sources separately.

IMPORTANT: *AirBox* does not process the audio by applying any permanent modification of the source content (such as compression, peak limits, EQ). It just changes the audio during playout by adjusting the audio levels.

A basic explanation of the workflow of the entire process is described below:

✓ Loading the playlist

✓ Accessing the *.mtd* files, which correspond to the content and are created by the **QCBox** tool for reference

✓ Reading the Programme Loudness values, described for each *.mtd* file. Programme Loudness refers to the <u>average</u> loudness of a programme.

Based on that, **AirBox** performs a correction of the audio, in order to reach the referent -23/-24 LUFS. This value is configurable through the output settings, provided into this window, as follows:

Tick the ☑ *Enabled* check-box in order to activate the normalizing process.
When normalizing, the operations, described below will follow:

▶ <u>Performing a level shifting</u>

AirBox does not perform any processing of the source sound internally. It normalizes the loudness of the whole programme (file-based playout channel) by the means of level adjusting. **For example,** if there is a source file with average programme loudness of **-32 dBFS**, it will be increased with **9 dB** in order to reach the referent **-23 dBFS,** specified in the **AirBox** output adjustments.

▶ <u>Keeping   track</u> of the *Maximum True Peak level* of the audio. If the maximum peak level exceeds **zero dB**, there will be a clipping introduced. Therefore, if the maximum true peak level exceeds the value, specified in the **AirBox** **Output Settings**, **AirBox** assumes that the source is not prepared in a good manner by the sound engineer. In such a case **AirBox** will not reproduce the relevant media source.

Let us *follow the latter example* with the source media file, having average programme loudness of **-32 dBFS**. If the maximum true peak level of this file is **-8 dB**, when increased with **9 dB** the peak will jump to **1** (above zero). As mentioned above, exceeding the zero may 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.

A value of **-23 dBFS** corresponds to the *Referent Zero Level* (by default). This is a target level, according to which the programme loudness levels should be normalized, as recommended in *EBU Tech. Rec. R 128*. There is a tolerance of **±1.0 LU,** which exists for programmes, where an exact normalization is not achievable in practice.

For the *Max True Peak dBFS* string you should indicate the maximum TPL allowed. According to *EBU R 128,* it is **-1dBTP** (measured with a **True Peak** meter).

For more detailed information, please refer to the chapter, dedicated to **_QCBox_** and *Example 1* in *Appendix 7* further in this manual.

Audio (Channels) Tab
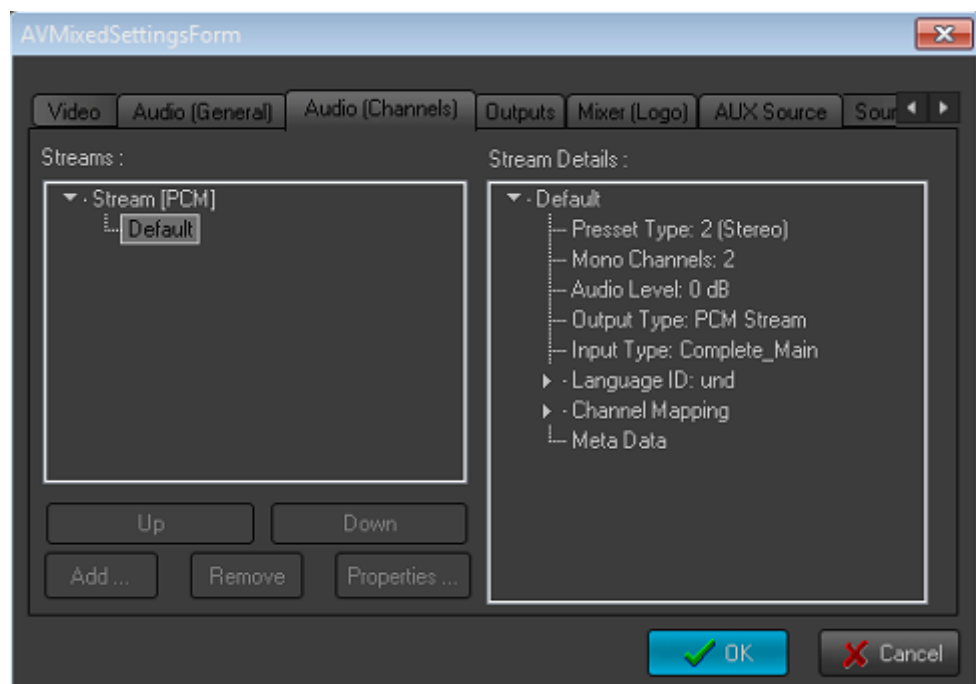
It contains the following settings:

- ▪ **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, press 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 press the ***Add*** button, the set-up window will open.
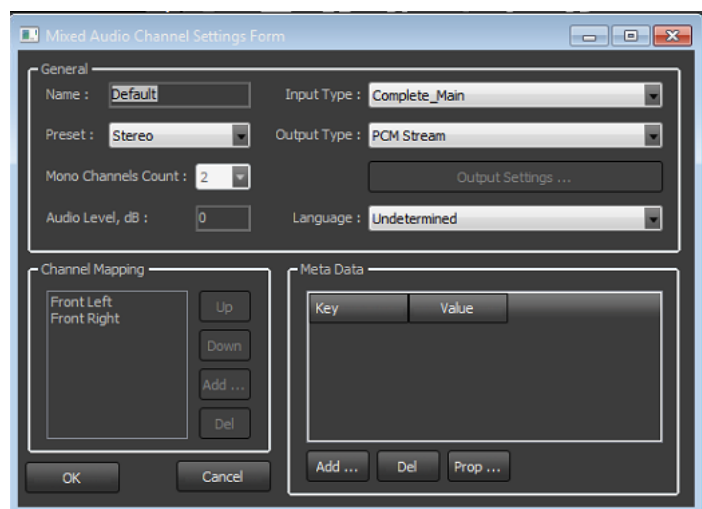
- ▪ Enter the name of the new stream in the *Name* field.

- ▪ In the *Preset* field you can select a preset for a channel mapping from a drop-down list. Here you can see a list of the most popular channel mappings.

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- In *Mono Channels Count* enter the number of mono-channels, included in this stream.

NOTE: If you have selected some preset from the *Preset* list, then the number of the mono channels appears automatically, and you cannot change it.

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*
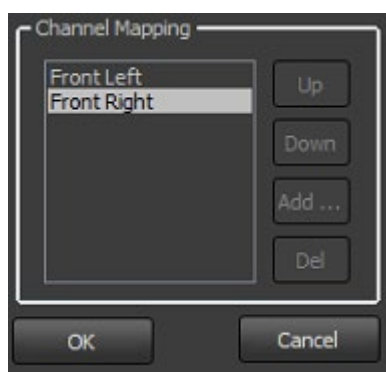
By default, when you select some number of mono channels, in the *Channel Mapping* field, you will see the most popular mapping types for them.
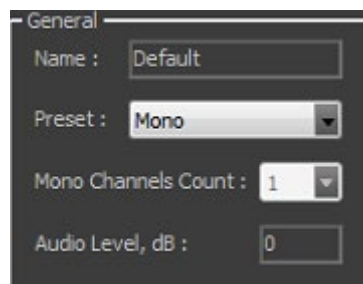
NOTE: There is an option, in which the Channel Mapping could be disabled. If you would like to disable these settings, please, contact our support team at support@playboxtechnology.com.

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 pressing the **Del** button to the right of the *Channel Mapping* area. Then you can add a new channel for audio mapping, by pressing the **Add** button.

To change the channels' order, just select one of them and move it up or down in the list, by pressing the **Up** or **Down** button.

NOTE: If you have selected some preset from *Preset* list, then you cannot edit the *Channel Mapping*

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- *Audio Level in dB* – Enter a value here for changing the output audio level of the current stream. The default value is zero (0), which means that there is no change. If you enter one (1), the output audio level will increase by one (1) dB. If you enter minus one (-1), the output audio level will decrease by one (1) dB.

- In the *Input Type* field, you can select from a drop-down list a type for the sound in this audio stream, like "dialogue", "music and effects", "commentary", "voice over", etc.

- In the *Output type* field 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. *For example,* default volume, copyrights, etc.

You can **Add**, **Delete**, or **Edit** metadata by selecting it and pressing the **Add/Del** or **Prop** button respectively.

When you are ready, press the **OK** button at the bottom of the **Mixed Audio Channel Settings** window. The newly defined audio stream will appear in the stream list.

Please, check *Examples 2 – 19* in *Appendix 5* further in this manual for a more thorough understanding of the functionalities of this *AirBox* feature.

Logo Tab

This tab contains two fields – *General* and *Fade*.

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.

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).
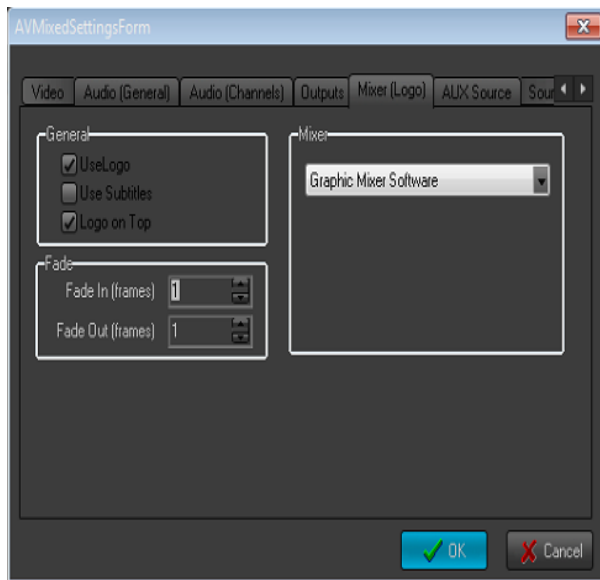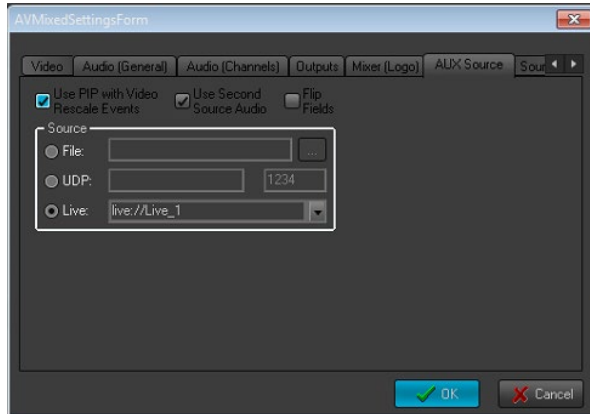
To allow the PiP functionality, you have to check the ☑*Use PIP with Video Rescale Events* box. The video files from the playlist will be treated as a background video. The live source video will be resized in accordance to the settings, made within the *Video Resize Control event* (for more information, 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.

IMPORTANT: 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.

Settings for Deltacast HD Mixed Output

Video settings

The Deltacast playout module supports the creation of *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.

Press 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.

Audio settings

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 press **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.

- Dolby Surround Mode

- **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.

Settings for MPO Mixed Playback

When you have selected the MPO Mixed Playback in **Settings➜Modules⇨*AirBox Output***, an additional tab, named ***Outputs***, will appear in the ***AirBox*Settings** menu ➜**Output** dialog. This tab allows you to add, remove, and edit different outputs.

NOTE: The hardware devices are pre-configured to be viewed by ***AirBox*** by our staff duging installation. This is done by an application, called ***Device Manager***.

NOTE: The resources, which are reserved by the ***Device Manager***, are visible here.

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.
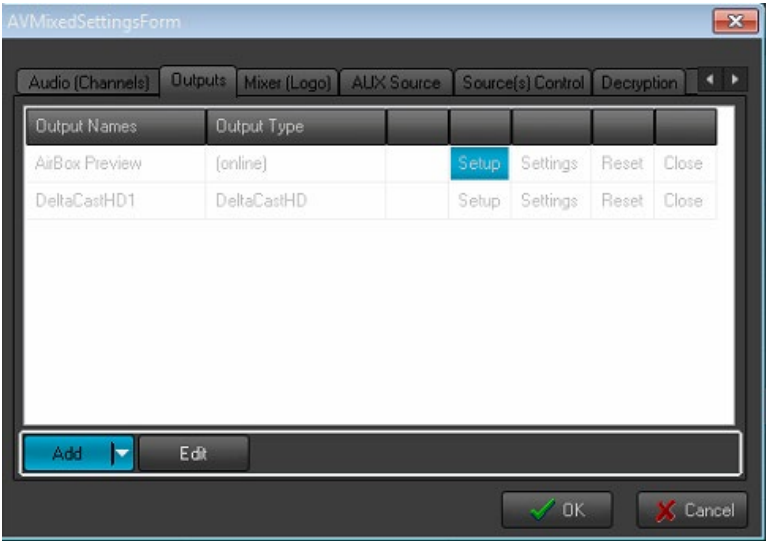
The **Clock** column (third one from the left) allows you to select the clock of which hardware device to be used. Note that if you only have one hardware device configured, it will be used by default. If you set the clock of non-hardware output to be used, AirBox will simply use the system timer. Be aware that in this case an additional timebase correction may be necessary. In the example to the left the clock of the Decklink platform is selected.
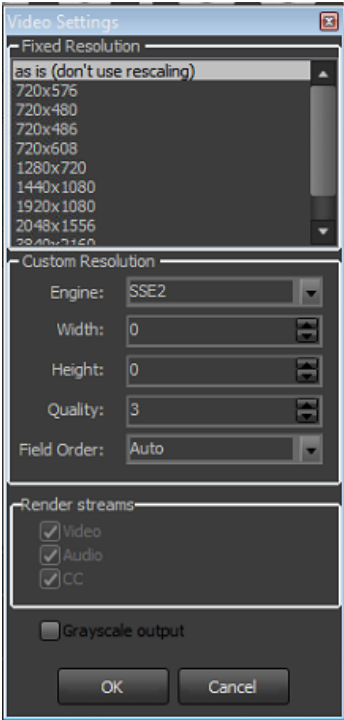
The **Setup** column allows you to invoke the setup dialog of each separate output. To do that, simply double click on the corresponding [Setup] row and a dialog will appear, depending on the type of output.

The next column, fifth from the left, invokes a dialog like the one shown to the right. Here you can set the resolution of the output.

The sixth column from the left is used for refreshing the output, and the last one – for removing it.

DeltaCastHD
Virtual Output
XMS Streaming Output
Unified IP Output
Unified SDI Output
MPEG Transport Streaming
Preview
Decklink DMT
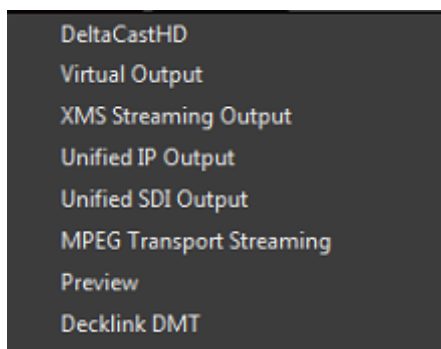
To add a new output preset, simply press the Add button at the bottom. You can select from one of the following types of outputs: **Deltacast HD**, **MPEG Transport Streaming**, **Decklink**, **Preview,** or **Decklink DMT**. Depending on your selection, a different setup dialog will appear.

Adding DeltaCastHD or Decklink
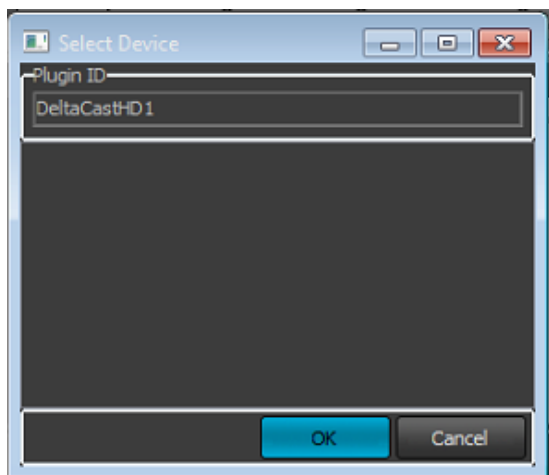
If you select **Decklink** or **Deltacast HD**, a dialog, as the one above will appear. Here you can simply enter the name of your output, and choose an existing Decklink platform from the list. Once you are done, press **OK**.

Adding MPEG Transport Streaming
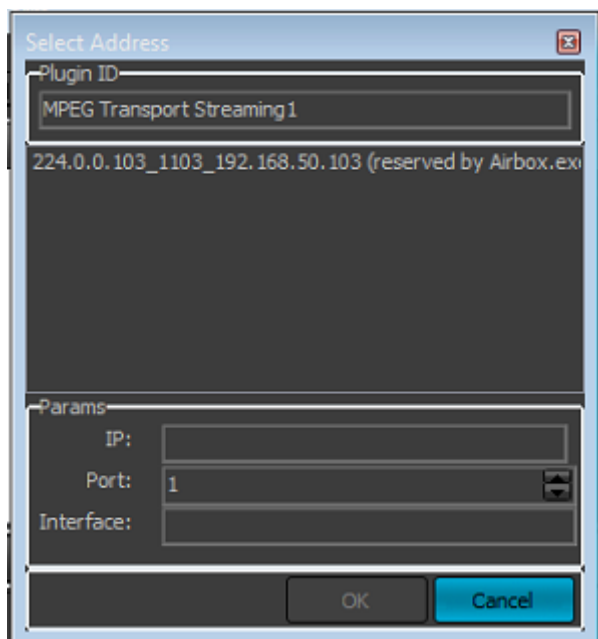
If you add an **MPEG transport streaming** output, a dialog like the one above will appear. Enter the *IP* address, *Port* number, and *Interface* name of the respective *AirBox*, to which you wish to send the transport stream.

Adding Preview
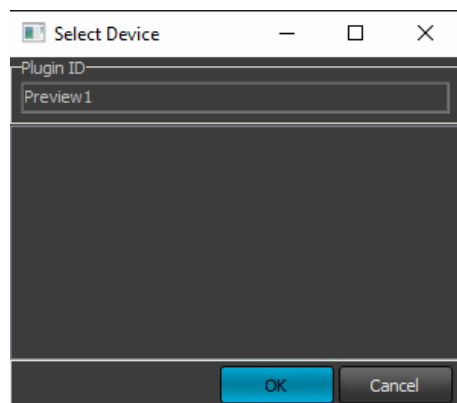
If you select a **Preview** output, a dialog as the one to the right will appear. Select the Video Renderer Type from the drop-down list and place a check next to the streams you wish to output (Video / Audio).

NOTE: If there are Closed Captions in the content that is played, you will be able to see them in the preview window.

Pressing the **Plugin Setup** for a predefined **MPEG Transport Stream** in the *Outputs* tab invokes a dialog, like the one below.
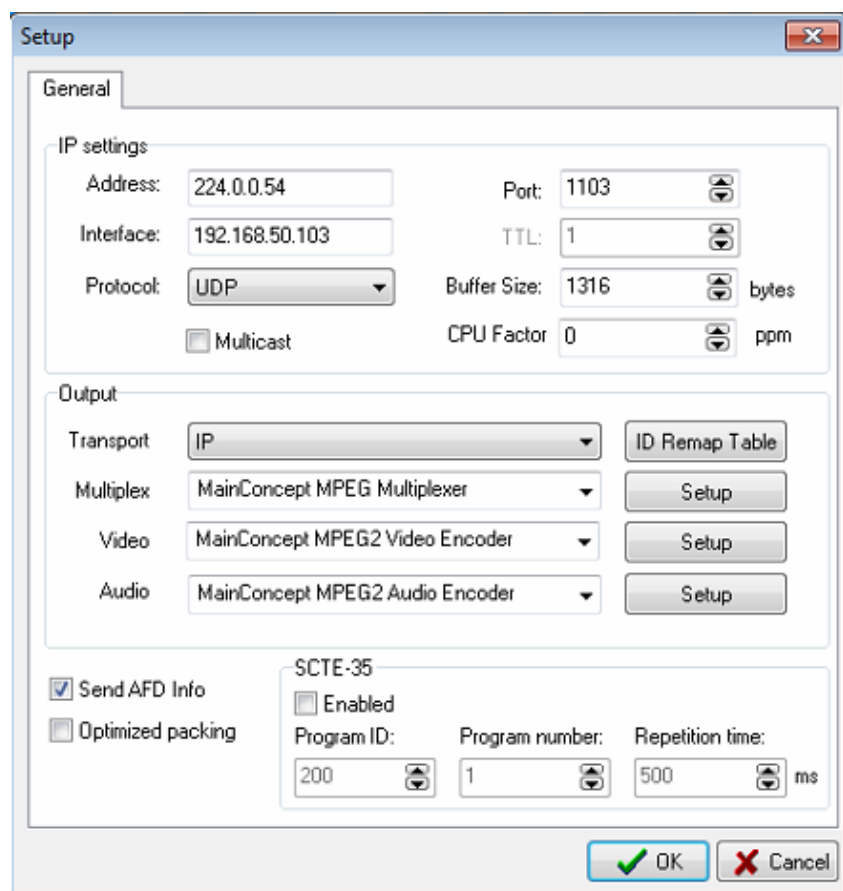
- In the *IP settings* field configure the following:

- *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 click on ⊙ **Program stream**, the protocol will be switched automatically to ⊙ **UDP**. With ⊙ **Transport stream** you can choose between a ⊙ **UDP** and an ⊙ **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.

Pressing 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.

The Video Encoder Settings and the Audio Encoder Settings are described below.

Adding Decklink DMT

If you select **Decklink DMT**, a dialog will appear, where you can simply enter the name of your output and choose an existing Decklink platform from the list. Once you are done, press **OK**.


NOTE: DMT Decklink Output only works with driver 9.7.2 or later.

Pressing the **Plugin Setup** for a predefined **Decklink DMT** in the **Outputs** tab invokes a dialog, like the one below:
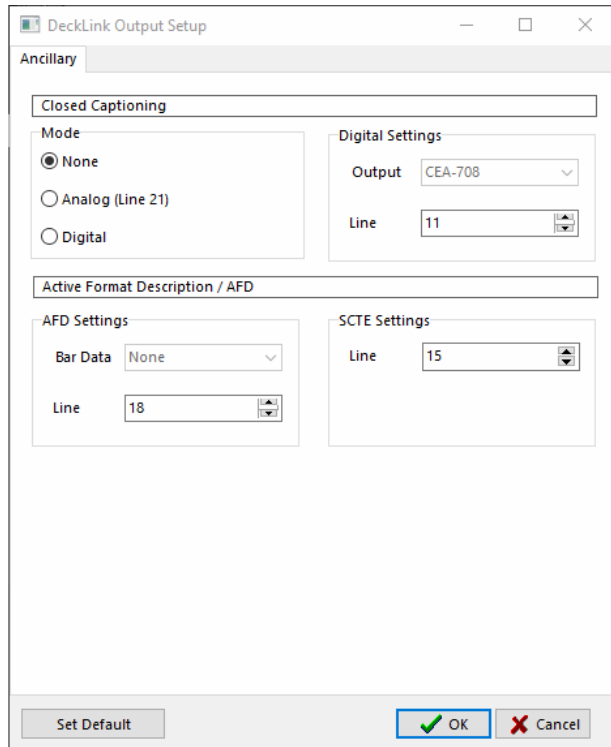
This dialog contains two tabs – **Audio** and **Ancillary**.

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

Settings for Streaming Mixed Output

The streaming plug-in sends the playback stream to a network IP address or an **ASI** (Asynchronous Serial Interface) output, instead to a video output board.

Currently, the supported streams are **ASI** (Asynchronous Serial Interface) stream and UDP stream (IP stream). For using ASI stream, you have to have a dedicated ASI card installed (currently the supported ASI card is Deltacast ASI).

For the steaming output, into the output settings window, there is an additional settings tab – **Streaming settings.**

As it is possible to run more than one **AirBox** instance (channel) on the same PC, you have to define the **AirBox** output channel number in the *Output* field (IP Stream # or ASI Stream #).

Then, for the run **AirBox** channel, define the output **Video Compression** type. It is possible to have *MPEG-2* or *AVC/H.264* video compression.

There are different streaming settings for *MPEG-2* and *AVC/H.264*.

MPEG-2 streaming settings
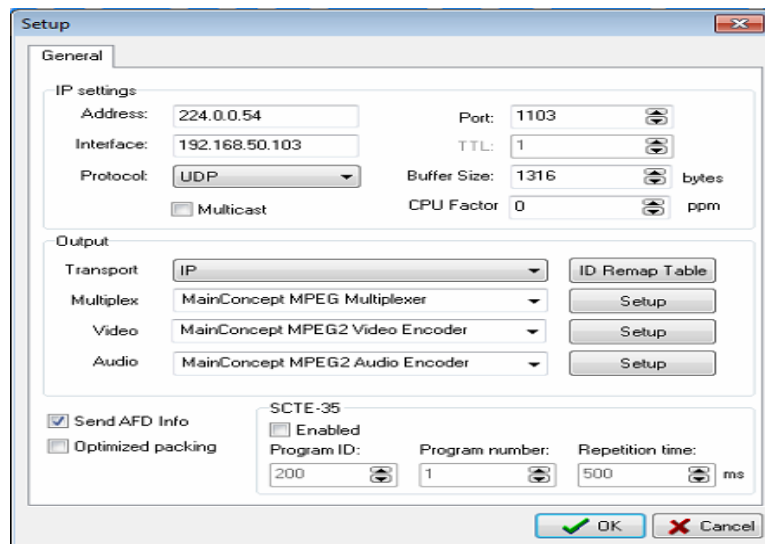
If you select MPEG-2 stream, the following setting window opens:

IP settings:

- *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.

If you click on ⊙ *Program stream*, the protocol will be switched automatically to ⊙ *UDP*. With ⊙ *Transport stream* you can choose between UDP and RTP.

MPEG settings:

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.

Pressing the **Mux Settings** button will open the dedicated setup dialog of installed Multiplexor module. Please, do not change the default settings here, before consulting with our support team.

Pressing the **Encoder Settings** button will open the setup dialog of the video codec properties dialog.
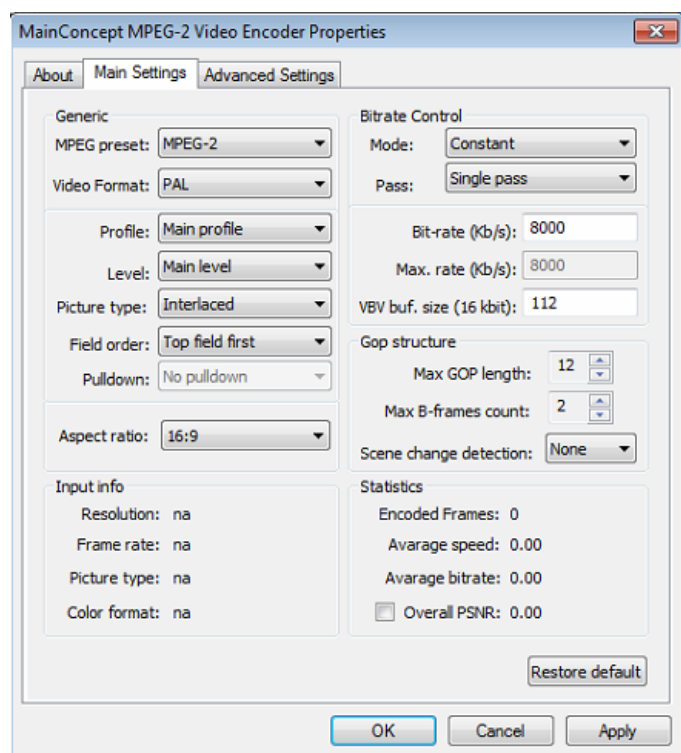
You can set some encoding video parameters here, like video bitrate, Video Profile, GOP structure, etc.

For reference, here is a brief description of the options for the MainConcept© video encoding.

In the *MPEG Preset* drop-down list all of the available MPEG video compression types in the Main Concept encoder are listed.

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The *Video Format* drop-down list provides a list of video formats – PAL, NTSC, SECAM, etc.

Below you can select the encoding Profile, Level, Picture type.

Further down you can specify the Field Order (bottom or top first) and the Pull-down mode. Pull-down is applied for conversion when the source bitrate and the output bitrate are different.

The Bit Rate Control field is situated to the right. There you can specify the bit rate Mode: *Constant, Variable,* or *Constant Quantization*. The specific bitrate values strings can be managed from the subfield below.

The *Pass* drop-down list is used to specify the multi-pass encoding mode:

Simple – encoding without gathering statistics

Analyze – encoding and gathering statistics for next pass

Encode – encoding using the gathered statistics and updating it.

In the GOP structure area, you can specify:

Max GOP length – the maximum length of any Group of Pictures. Larger numbers frequently provide better compression. Smaller numbers provide better error recovery and better access to the frames for editing.

Max B-frames count – the maximum number of B frames in a GOP. Some decoding situations, such as video conferencing, may require "no B-frames" for providing low communication delay.

Scene change detection – enables/disables the scene change detection.

The ☑ *Overall PSNR* check-box is situated in the lower right corner of the *Statistics* filed. It enables/disables the measuring the Peak Signal to Noise Ratio. This requires some CPU resources, so check it only if you need these statistics.

The **Advanced Settings** page contains more sophisticated options that should not be changed, unless advised by our support team!

AVC/H.264 streaming settings
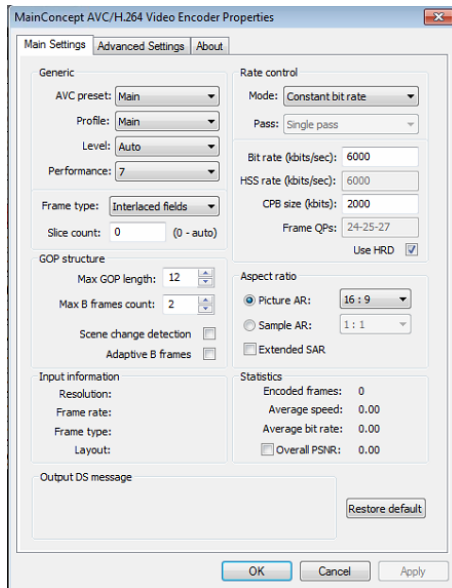
- The IP settings are the same as the Network settings in the MPEG2 Streaming plug-in, described above.

- Pressing the **Video Encoder Settings** button will open the video codec properties dialog.

You can check the description of the MainConcept©, video codec settings for reference.

- Pressing the **Audio Encoder Setting** button will open the audio codec properties dialog.
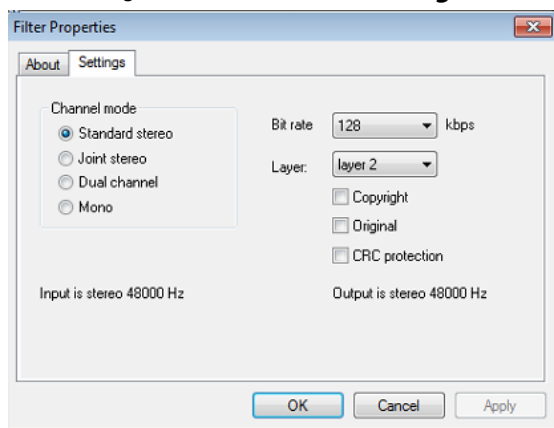
The MainConcept AAC Encoder© properties dialog is described below.

The *Bitrate Control* specifies the average output audio bitrate; the *Profile* sets the object type; and the *Header type* sets the output bit stream format (raw or with ADTS headers).

Check ☑ *High frequency cut-off* to reduce the encoded data.

- Pressing 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.

Pump playout

DataPump MPEG Program Dumper

This Plug-in is used for dumping the playlist into a single MPEG2 file.

Pressing the **Play** button will open a browse dialog for saving the resulting file.

There are no setup options for this plug-in.

> **NOTE:** This feature works faster than the real-time one. For example, a 15-minute playlist compiles as a single file for less than 10 minutes. The speed depends on the *HDD* performance and the input/output stream configuration.

<u>IP Pump MPEG Program Dumper</u>

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.

Use the ☑ *Dump to file* checkbox for recording the playlist to a file.

☑ *Fixed Mux Rate*: This check 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- as the name states, this 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.
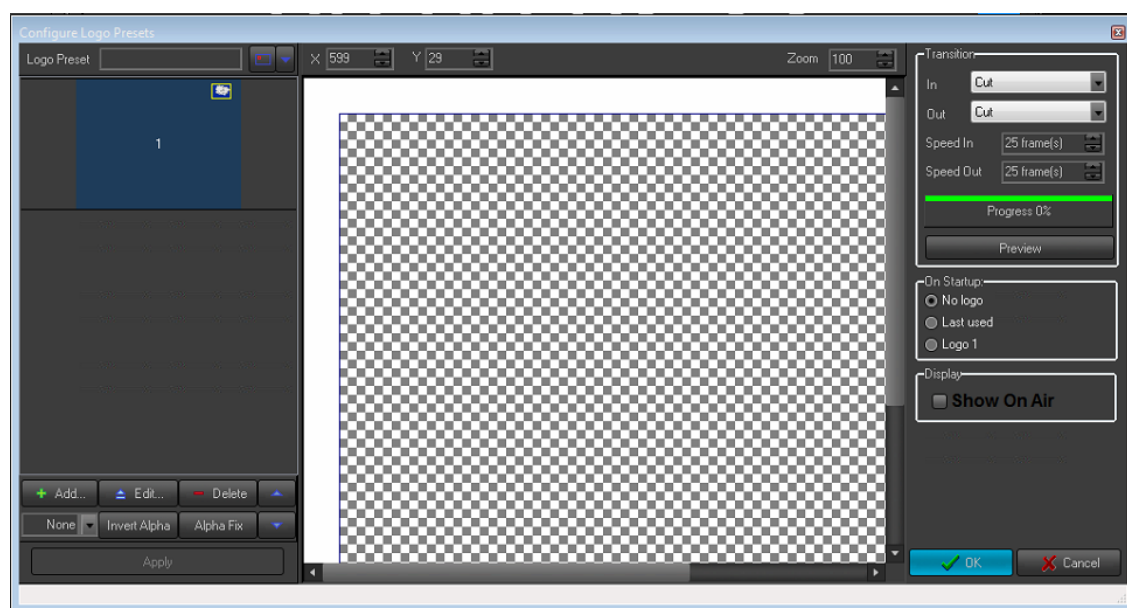
CPU Time Factor – in IP Pump we use the CPU clock to generate the PCRs of the Transport Stream. Enter the value from the stream analyzer here to compensate for the inaccuracy of the CPU clock frequency.

> **WARNING!** Consult your network administrator prior to changing the network-related settings.
>
> **NOTE:** There is no overlay preview with this plug-in!

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Logo

The **Logo settings** dialog is used to configure logo images for displaying in **AirBox** (their position on the screen, transparency, etc.).

The *Logo Preset* field contains a list of logo presets available for use.

To load a new preset, press the **Load** button, and select a file. It will appear in the *Preview* area. If you approve it, press the **Apply** button to save the logo file in the preset list.

Invert alpha – inverts the alpha key of the logo (if the original picture file has an alpha).

Matte Color – this is the background color, which should be mixed with transparent colors, and thus, removed from the logo image.

Position – illustrates the logo position on the screen.

On Startup – these options are used to define the logo appearance upon pushing the **Start** button in **AirBox**:

⊙ **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.

☑ *Auto show* box – check it if you want to display the logo while you are editing it.

> **NOTE:** All changes will be shown on the screen immediately!

Show button – starts displaying the logo.

Hide button– hides the logo from the screen.

> **NOTE:** The picture format depends on the decoder. The 32-bit RGBA files are most preferable, but TGA, JPG and PSD files are widely supported too.
>
> **IMPORTANT:** You will not have fade transition when displaying Logo and Subtitles simultaneously on the DeckLink platforms!

Please, refer to the SubTitleBox section for more details on the subtitling options in **AirBox**.

Logging
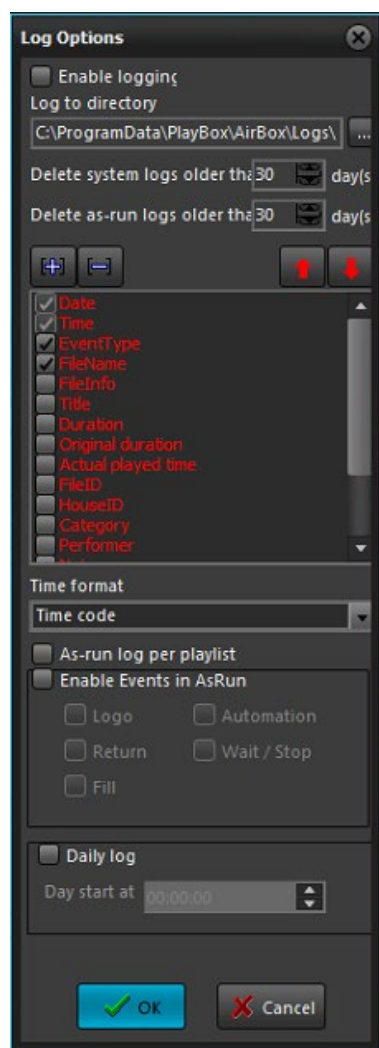
AirBox generates two types of log files: System logs and an As-Run log. A *Logs* directory is created upon **AirBox** installation. It contains a *System* subfolder by default. *Errors, System events, Events,* and *Event type* are logged in the *System log,* regardless of your preferences.

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:

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☑ *Insert date in first line of file* is used in daily logs, if you want to view the date in the first line of the log as well. When unchecked, the date is contained only in the filename, and the log itself contains only time entries.

☑ *Column headers* represent a line in the log that displays the log configuration under it. Thus, any time you change the log configuration (through the check-boxes and red the arrows) and click **OK**, a new column header line will appear in the logs.

☑ *Log Frames* will display the number of frames at the end of all time-containing values.

☑ *As-run log per playlist* – checking this box will create a separate as-run log each time a new playlist is loaded in **AirBox**.

☑ *Log metadata* – all metadata fields will appear as additional tab-delimited entries in the row of the relevant clip.

You can add new columns to the log by pressing the plus sign button. This allows for logging certain Metadata fields from the clip properties. All you have to do is specify the name of the Metadata you want to log (as it appears in the first column of the Metadata tab).

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 (for example, 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
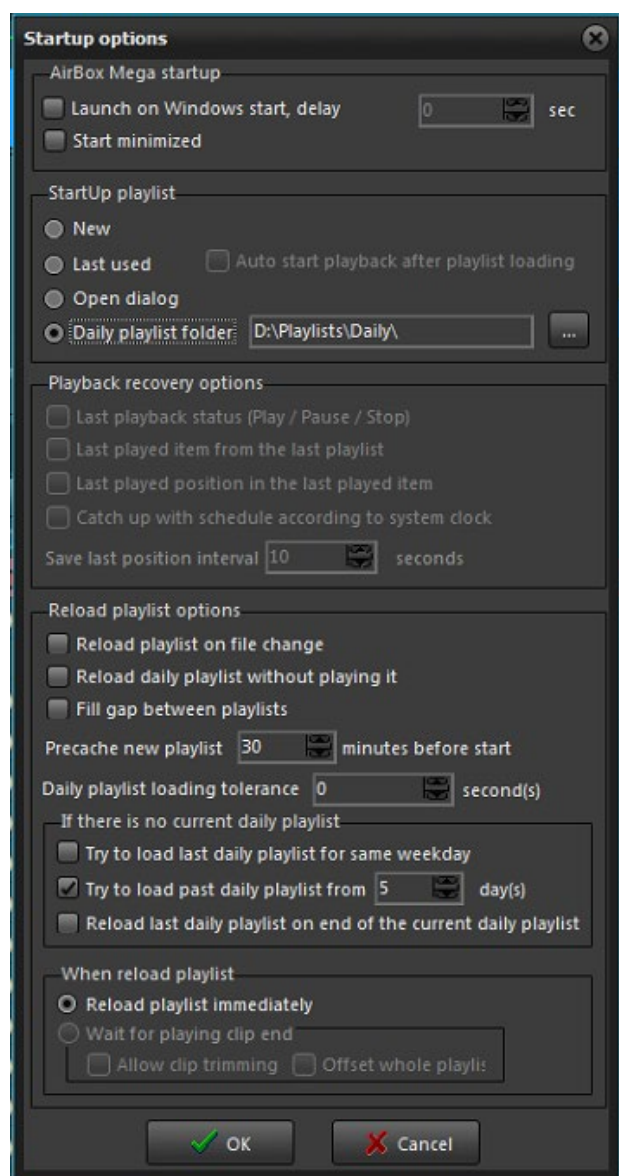
Here you can find useful options for setting the behavior of **AirBox** on module start-up: *StartUp Playlist*, various *Playback recovery options*, how playlists will be reloaded and two system options.

<u>AirBox startup</u>

At the top of the **StartUp** window, you can choose between two system options:

☑ *Launch AirBox on Windows start, delay* [30] *sec.* – you might need some delay, as the system might take some time to initialize the installed decoder. If **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 you place a check in this box, the **AirBox** will be automatically minimized on startup.

<u>StartUp playlist</u>

In this section you can choose a playlist to be loaded upon **AirBox** startup.

- ⊙ **New** loads a blank playlist;

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- ▪ Select the ⊙ **Last used** option and the next time you start **AirBox** it will load the last played list. In addition, you can check ☑*Auto start playback after loading* the last used playlist.

- ▪ ⊙ **Open dialog** invokes a query to choose a playlist from the last used playlist 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. An example name is "2003_11_20_14_00_00.ply," where 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.

> **IMPORTANT:** If you are using the ⊙**Daily playlist folder** option make sure that you have defined a folder, where the daily playlist folder is situated!
>
> **NOTE:** For more thorough understanding of the AirBox options, described above, please, check [Examples 20 – 28](#) in [Appendix 5](#) further in this manual.

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. *For example,* you start your playlist manually at 9:00 o'clock; and at 9:30 a power failure that persists till 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., for the above example, 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.

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☑ *Fill gap between playlists* – if there is a gap between the current playlist and the playlist after it, AirBox will use the <u>auto-fill</u> clip to compensate for this gap if this box is checked

Pre-cache new playlist `30` *minutes before start* – specify how many minutes before the playlist starts **AirBox** should cache it.

Daily Playlist loading tolerance `1` *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.

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* `5` *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).

☑ *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 –<u>Regular</u> or <u>Daily</u>, 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 <u>after</u> the currently played item. Instead of them, **AirBox** will load the items from the newly edited playlist.

> **IMPORTANT:** In daily playlist you can edit only those items, which come after the currently playing item!
>
> **IMPORTANT:** 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

> **NOTE:** For more thorough understanding of the AirBox options, described above, please, check *Examples 29 – 40* in *Appendix 5* further in this manual.

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
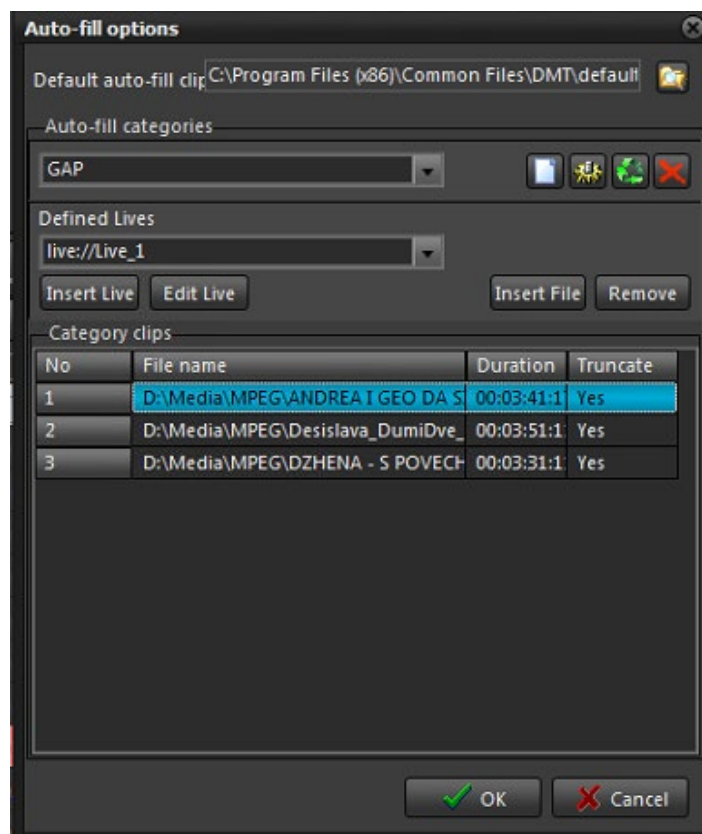
In the **Auto-fill options** dialog you can specify a default auto-fill clip, and create your own auto-fill categories, containing certain clips. These settings are necessary for the automatic filling of gaps that may appear in your playlist when using Fixed-time events.

On the top of this window you can see the *Default auto-fill clip* string.

Browse for it by pressing the folder button to the right.

The *Auto-fill categories* field is situated below. The drop-down list contains all previously prepared categories (hence, it will be empty when you open it for the first time). To create a new category, press the white sheet button to the right, and enter the name of the new *Category*. Click **OK**. You can rename your categories later by pressing the gear-wheel button.
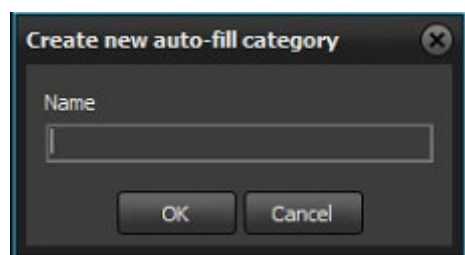
Now you have to add clips to your category. Press the folder button to open a browse dialog to locate the clip.

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Let us have a look at the clips' description below. The first three columns need no explanation, but the last one is very important. The **Truncate** column contains info on whether the respective clip can be truncated, or not (you can change [YES]/[NO] by double-clicking in the relevant cell). This is important because if you have a 2 minutes gap for example, and all of the clips in the auto-fill category are longer than 2 minutes and cannot be truncated, there will be a conflict. As a result, none of the clips will be played out and the default auto-fill will be executed instead.
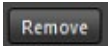

NOTE: When playing auto-fill categories, *AirBox* will first look for clips that can be played out as a whole, then for clips that can be truncated. Thus, if you have a two-minute gap and the auto-fill category contains the following:

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 playout Clip#3 first (since it can be played out to its end), and then Clip#1 (since it can be truncated). This comes to illustrate that the order of the clips in the category can be changed automatically, depending on the gap size.

To delete a clip from the current category, select it and press the [Remove] button. If you want to remove the entire category, press the delete category [X] button.

NOTE: If the user does NOT define any auto-fill clip, AirBox will use its own default auto-fill clip, which is simply an empty video, showing a black screen.

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:
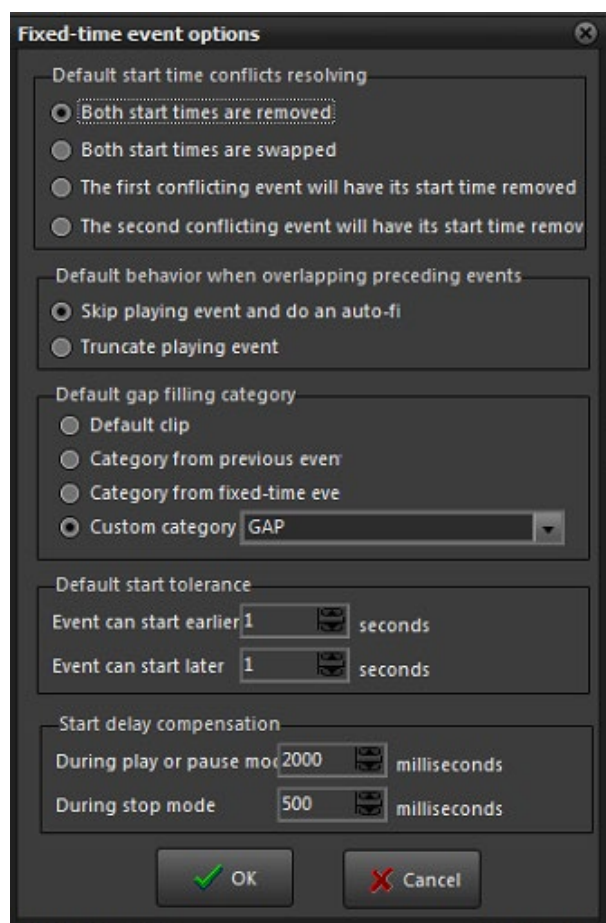
Default start time conflicts resolving

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 <u>fixed-time events</u>. 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 pressing **OK** will invoke a warning dialog.

Conflicting situations could also be caused by applying offset values to these items.

<u>**Default behavior when overlapping preceding events**</u>

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 (*for example*, 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).

<u>**Default gap-filling category**</u>

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.

<u>**Default start tolerance**</u>

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: Let us assume that 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.

To recapitulate, 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
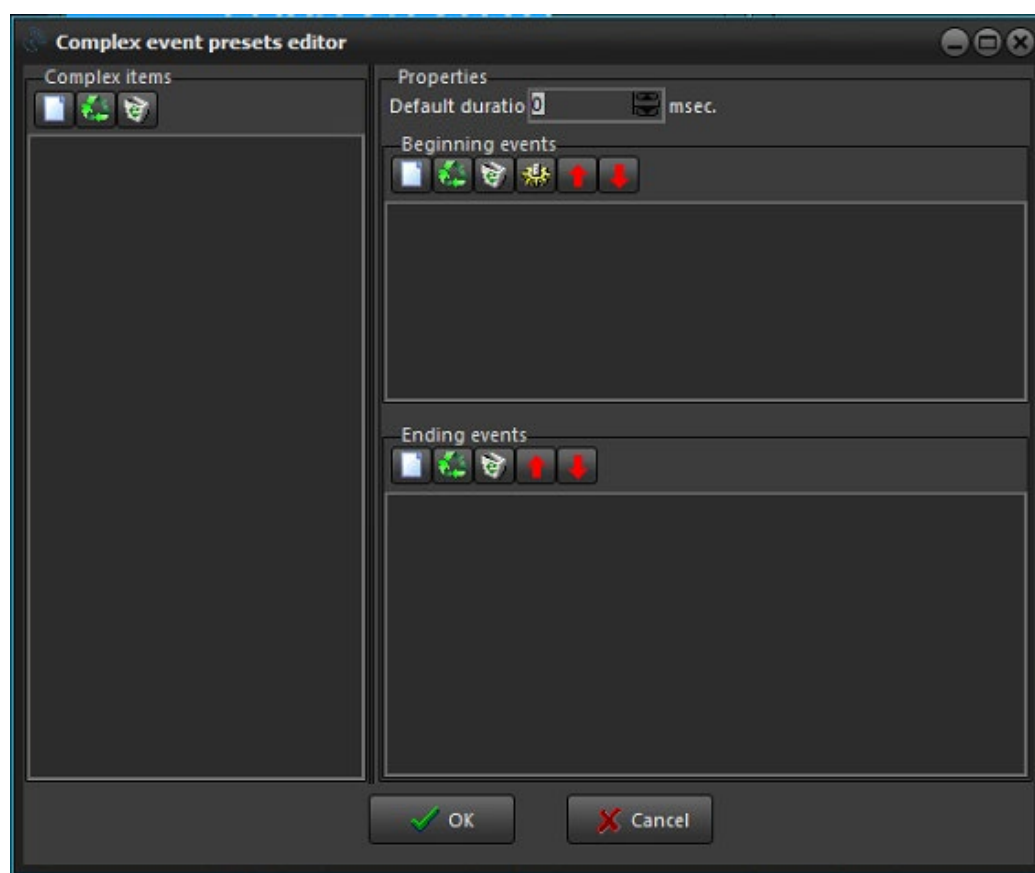
Two main ideas stand behind the complex events:

   1.) Avoiding insertion of numerous rows in the playlist when there are several external events that have to be executed at the same time (or one after another):

For 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.) Enabling creation of such complex events' presets, so the user will not have to insert the same external events one by one each time he needs them. Instead, he could pick up one of the available presets from the list he has created.

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So 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, press the **Create new complex item** button and enter its name in the **New Complex Item** dialog. You can edit this name later, by pressing the **Edit** button. To delete a Complex event from the list, press the **Bin** 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 pressing the **Add new external event** button in the Beginning/Ending events section respectively. Pushing these buttons invokes 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 press 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 press 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:

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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
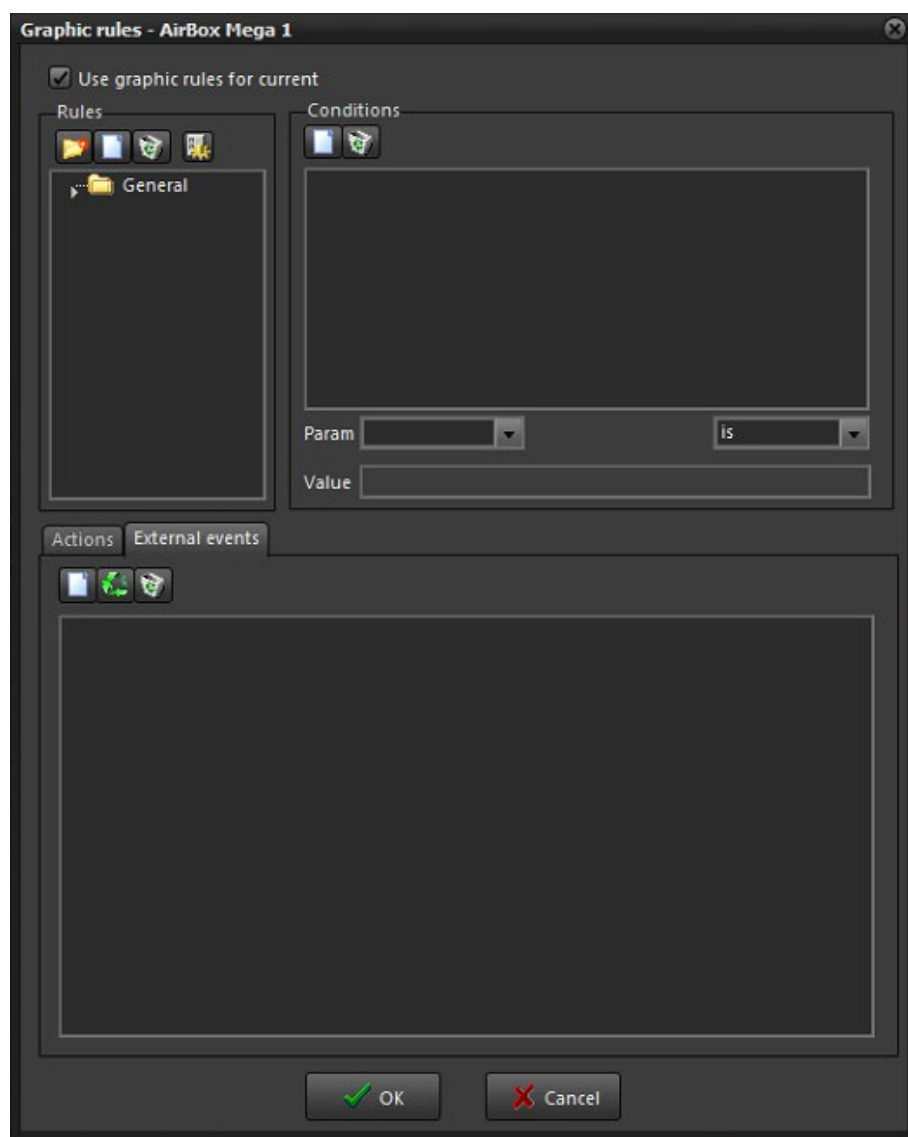
The information contained in the **AirBox** playlist can be displayed automatically over the video output through the **TitleBox Net Control** functionality. The main application of this feature is for music channels, to display the performers' names and song titles. .

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).

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Once the template is created and available in the templates folder (see TitleBox NetControl description <u>above</u>), 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** ![folder icon] 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 press the **New rule** ![button] button in the *Rules* field. Enter the name of your template and press **OK**.
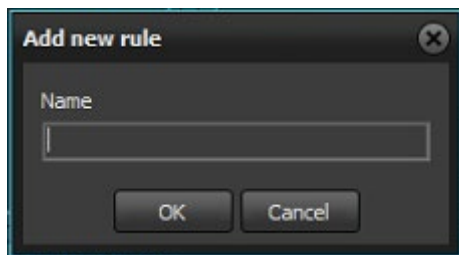
Then, go to the *Conditions* field to the right and set the conditions for executing **Actions** (we will set them later). In the example above, we have set the *Parameter* to **[Category]**, the *Operator* to **[is]**, and the *Value* to **[Music]**. Thus, when the condition **Category is Music** is fulfilled, the **Actions** below will be executed.

To add a new action, press the **New Action** ![button] button in the **Actions** tab, and enter its name (**[Clip_Start_Show]** in our example), then press **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-n-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**:
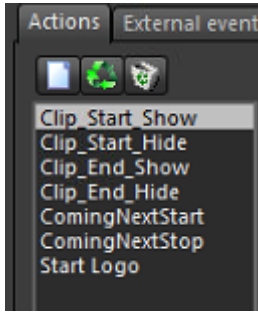
[LOAD_TEMPLATE=TB_Music.tmpl] – point out which template is addressed.

[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_**](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!

The same action script applies to directX objects:

dietX.MEDIA=%METADATA_value%,

where **[directX]** 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_value%] – this is a name of **Metadata** which contains the path to the clip.

or

dietX.MEDIA=%clip_location%,

where **[%clip_location%]** is a clip location taken from "location" property of the clip in the playlist.

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}%**.

> **NOTE:** If you are using daily playlists, the number **[+n]** for the next file could correspond to some file in the next day's playlist.

> *For example,* if you have: **%clip_title[+100]%**, and the current playlist ends after 90 lines, *AirBox* will continue to count the items from the next day's playlist until it reaches 100 (i.e., 10 more items). The number of playlists ahead, in which *AirBox* will continue searching, is five (5), by default.

If you want to change this number, please, consult with our *PlayBox* support team (support@playboxtechnology.com) for instructions.

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}%.**

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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.

> **IMPORTANT:** 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.

> **IMPORTANT:** Again, 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.
>
> **IMPORTANT:** 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!}**

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> **IMPORTANT:** 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 press the **_Enable/disable_** 🖼 button. If you want to disable the use of all graphic rules, just un-check ☐_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-n-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 pressing 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 available events will contain only the plug-ins that have been enabled in **Settings** menu ➔**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.
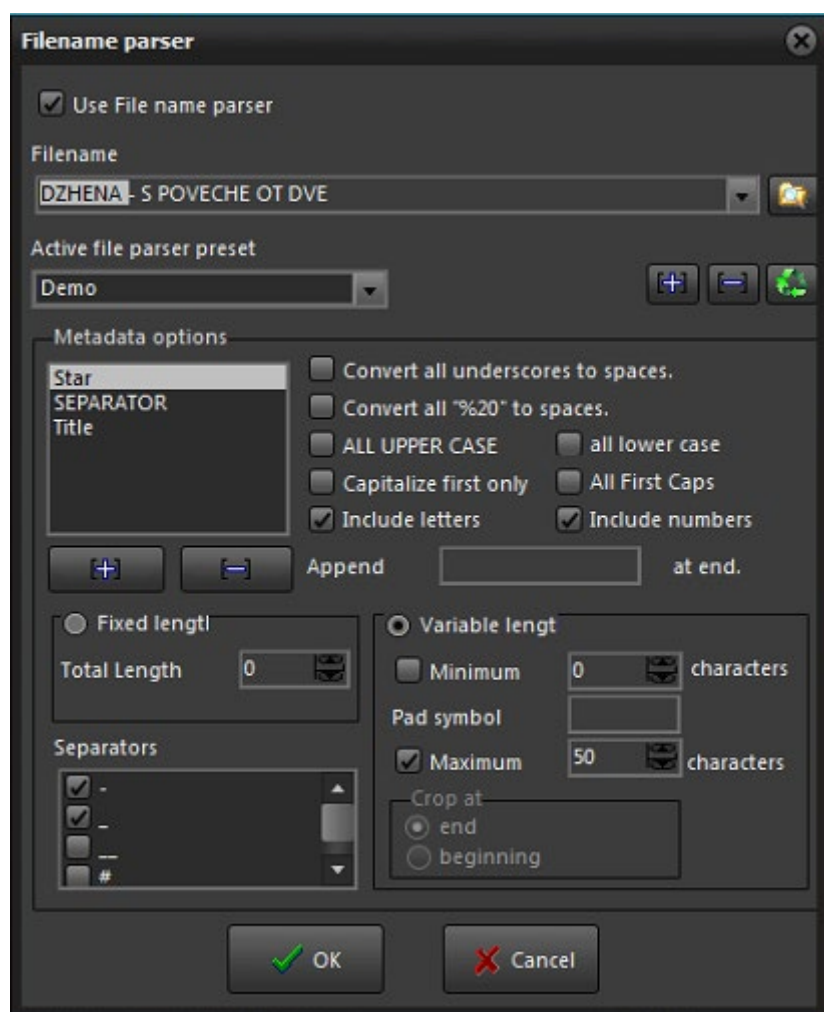
> **NOTE:** Negative offsets will not be executed!
>
> **IMPORTANT:** Please, make sure not to overlap later offsets with other clips' graphics rules!
>
> **NOTE:** To view a list of the commands, used in Graphic Rules, please, refer to Appendix 2 below

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.

For clarification, please, have a look at the following 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 pushing 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** (let us call it **Music**):

Push the **Plus** button, situated to the right of the *Active file parser preset* field. A dialog will prompt you to name the new preset. You can rename it later on by pushing the **Recycle** button, or delete it by pushing the **Minus** button.
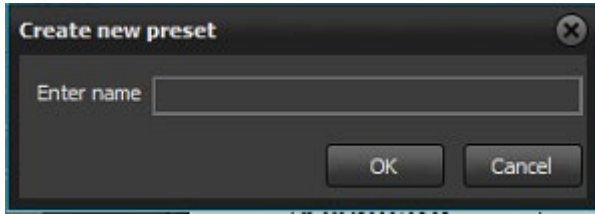
Once you have entered the preset name, you can start "explaining" the naming rules. Let us go back to the sample filename – you can see that its structure contains, in order of appearance, an abbreviation (**BG**), a category name (**Music**), a separator (**-**), a name of a performer/star (**Lime_Biscuit**), another separator (**-**), a title (**The_road_to_heaven**), one more separator (**-**), and a note (**live**), followed, of course, by the file format. This is what you have to "tell" **AirBox**. Here is how:

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In the Metadata options area, use the Plus [+] and Minus [−] buttons to add/remove parser fields. You can choose from the available types of fields. In our example, you have to enter one by one: **Note** (it will stand 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.
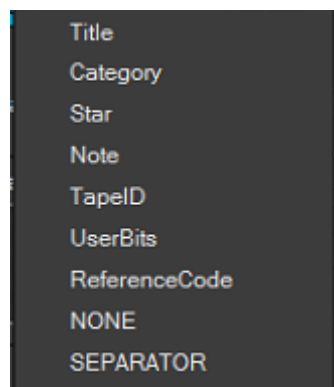
To the right of the *Metadata* fields list you can see a number of checkboxes that provide some conversion options:

☑ *Convert all underscores to spaces* - in our case **Lime_Biscuit** will become **Lime Biscuit**.

☑ *Convert all "%20" to spaces* is not applicable in our case, but otherwise you can use it for downloaded files (their names often happen to contain "%20" instead of spaces)

☑ *ALL CAPS* will turn all letters in the filename to upper 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 you uncheck some of them, the filename parser will ignore the relevant characters (i.e. will not include them in the field).

You have to set your preferences for each metadata field separately (select it by clicking on it).

Finally, you have to specify the length of each metadata field.

This is not a problem if you choose to name your files with fixed length for each field – ⊙check the *Fixed length* flag and specify the number of characters using the arrows. The corresponding characters in the *Filename* field will be highlighted in blue, so that you can see your setting.

However, setting variable lengths is a bit more complicated. ⊙ Check the *Variable length* flag in the lower right field and then specify minimum and/or maximum characters to be included in the relevant metadata field. If you have set a *Minimum* value, but the relevant metadata field contains fewer characters, you will need some *Pad symbol* to fill-in the gab.

If you have set a *Maximum* value, but the relevant metadata field contains more characters, you will have to insert a *NONE* field before the *SEPARATOR* field, thus, telling **AirBox** to ignore the remaining symbols to the separator.

Back to our example, **Lime_Biscuit**contains 12 symbols. If we set a minimum value of15 symbols and a Pad symbol (*) for the [Star] field, the Filename Parser will display **Lime Biscuit***** in the playlist grid. If we 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 drag-n-dropping them.

Append … at end field gives an opportunity to add characters to the end of a metadata field.

Some fields, like [Title], [Category], etc., are displayed directly in the **AirBox** grid.

Others, like [Tape ID] for example, may provide information to **SubTitle Plus** (www.subtitleplus.com) or **SubTitleBox** (see below) for proper display of the corresponding subtitles. When you use the filename parser to display subtitles, you have to create a preset with naming structure [Tape ID] and [SEPARATOR] and the fields' length should be set to *Variable*. In the clip's properties dialog fill in the same *Tape ID* as that in the subtitle file.

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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**.

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
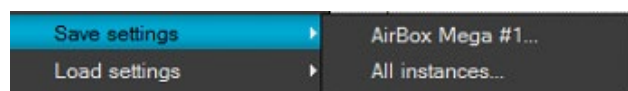
If you need to configure several playout servers in the same way, you can use these two options to copy settings and apply them to other machines. Thus, you will avoid configuring all your machines one by one.

You can export the settings of all **AirBox** channels on the machine, or you can only copy those of the currently open channel.

To export the settings of the current **AirBox** instance, go to **Settings** menu ➔**Save config**, and select the **AirBox #…** line. The resulting file has extension *.pb1*, which means that it contains settings for only one **AirBox** channel.

WARNING! Please, make sure to name the channel-setting file after the instance name, so that you know for sure which channel's settings are contained in it. Later, when you try to load the *.pb1* file on another system, **AirBox** will not be able to distinguish which channel's settings you load; therefore you need to recognize this from the filename.

To export the settings of all **AirBox** channels, select All **AirBox** instances. The resulting file has extension *.pb0*. Later, when you load it on another machine, it will affect all **AirBox** channels available there

Live Inputs

Opens the Live Inputs editor.
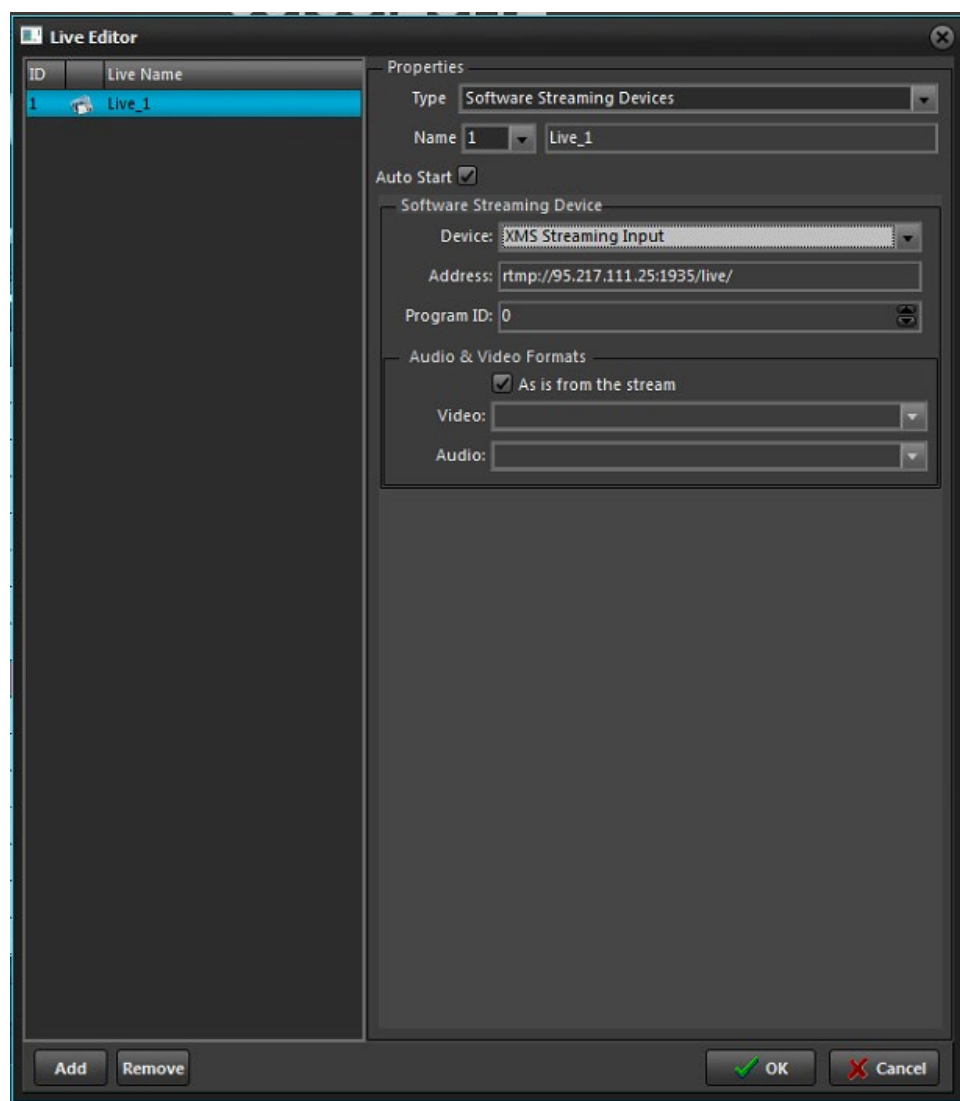
When you are using **AirBox** with a live input device, you have different configurations in the **Live Inputs** tab.

The **Live Inputs** dialog allows you to add as many live inputs as you wish and edit their settings.

The **Live Inputs** dialog contains a list of all available live inputs. They are designated by a Live name and an ID number. Clicking on the *Details* field to the right contains information about each separate input. In order to see the specifications about a given input, just select it from the list.

When you select a Live Input, the right area of the **PlayBox Live Editor** will show you its configuration properties. Two different types of inputs can be configured: CaptureDevice and UDP. Note that you can change the type of each separate input by selecting the desired option from the corresponding Type drop-down list.

The **CaptureDevice** properties are shown to the right. Set its ID number and *Name* from the corresponding field and ☑Enable / ☐Disable the ☑*Auto Start* option, which allows the input to be automatically initiated once it is set.

If you would like to capture closed captions, select the *Closed Captions* type to be captured from the drop-down menu – **Analog** or **Digital**. If you select **None**, closed captions will not be captured.

Further down the dialog select the video *Device*, used for this input, its *Format*, *Fields* order, and *Aspect* ratio.

The *Audio* field also allows you to select a *Device* and *Format*. Furthermore, here you can add a number of streams, depending on your needs. Simply press the **Add** button to insert a new stream or the **Edit** button to change the settings of an already existing audio stream. The **Remove** button will delete the selected stream.
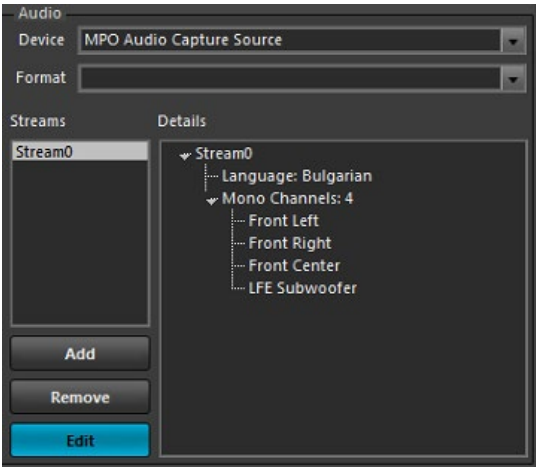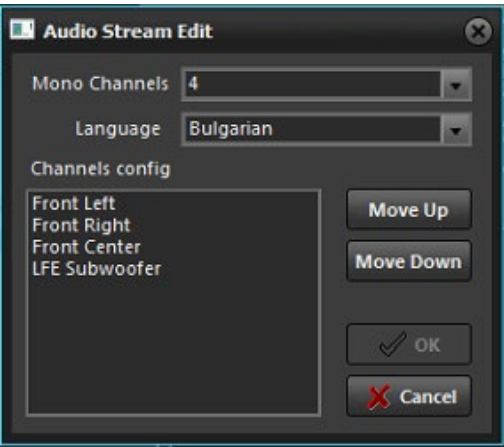
Pressing the **Add** / **Edit** button invokes the dialog to the right. Here you can select the number of *Mono Channels* and enter the language of the input.
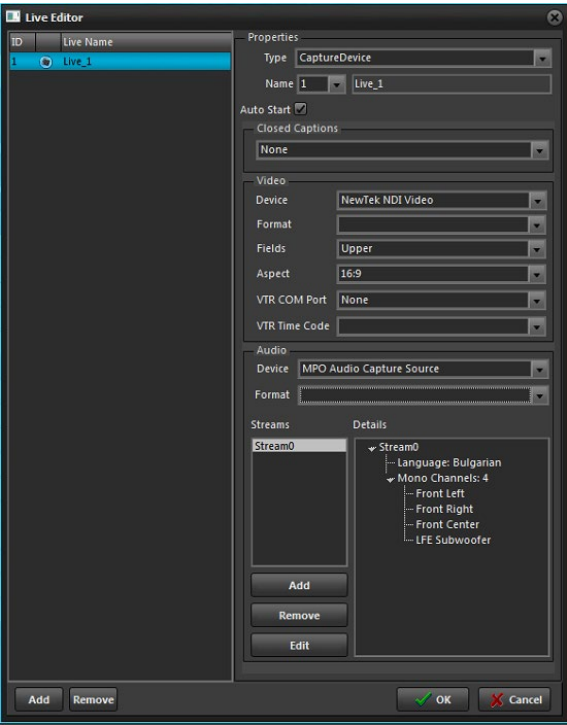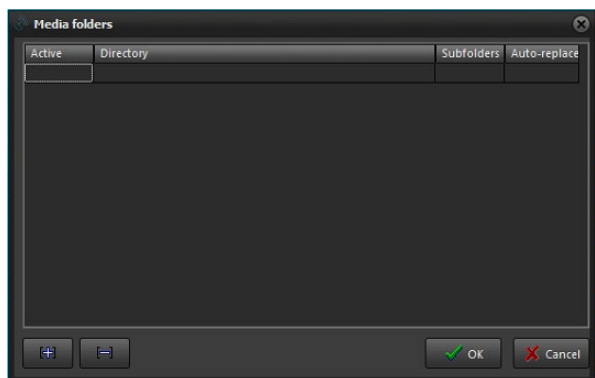
If you select **UDP** for an input type, a dialog as one to the left will appear. Here you should set the *UDP Address*, *Port*, and *Program ID*.
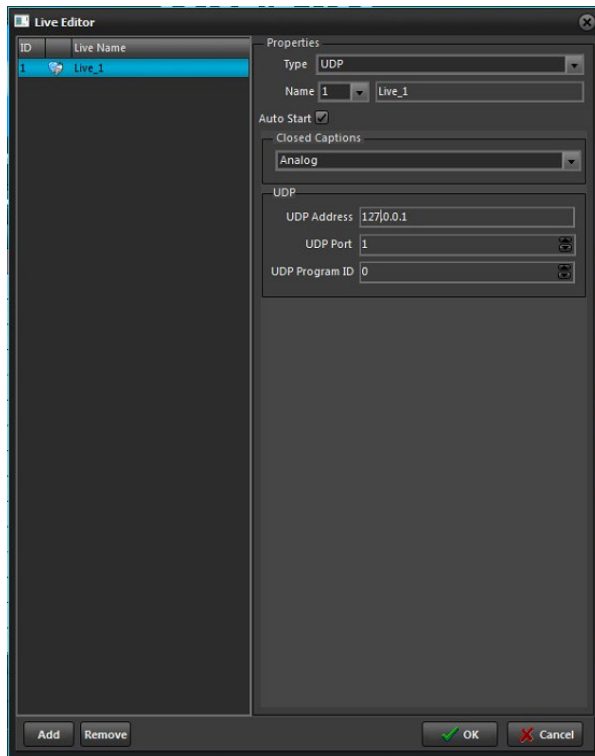
The live inputs, configured in **AirBox**, are visible in the Multi AirBox Manager and in the PlayBox Live Inputs View.

Tools Menu

This menu was created to accommodate some useful tools in **AirBox**.

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 pressed, the file paths are relocated, and this is reflected in the playlist immediately.

SubTitleBox
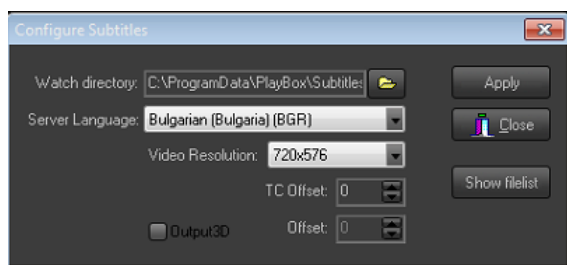
**SubTitleBox** is an optional plug-in for the **AirBox** module. It enables using subtitles together with your running clips. **SubTitleBox** does not provide any editing options; it just shows your subtitles synchronized with your clips. The supported subtitle formats are the ones, created by our own subtitling software **Subtitle Plus** – www.subtitleplus.com (*.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. Press the **Show filelist** button to view all the subtitle files, contained in the *Watch directory*:
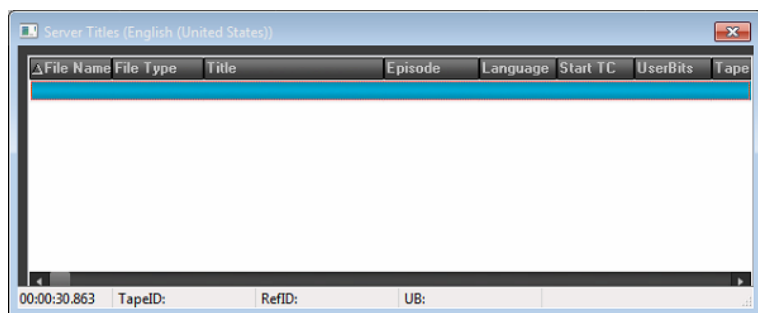
SubTitleBox will take care of broadcasting your subtitles in accordance to the playlist, loaded in **AirBox**.

> **NOTE:** Make sure the **Filename parser** is set to a preset with naming structure [Tape ID] and [SEPARATOR] before you load the playlist. Check the ⊙ **Variable length** radio button. In the clip's 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.

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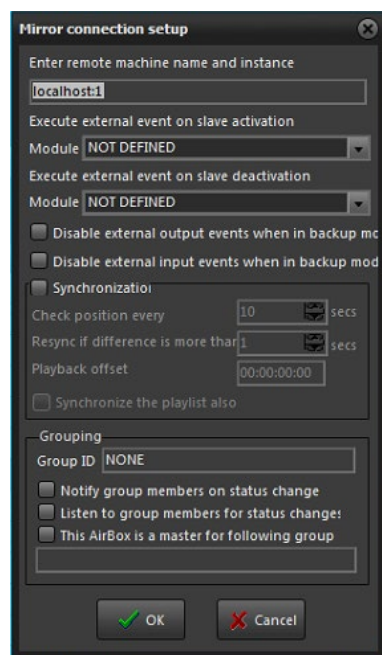
Mirror Mode

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.

<u>Failure actions:</u>

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. For 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.

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☑ *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.

The purpose of Grouping is described in the example below:

Let us assume that we have three **Master AirBox** channels. Their outputs are connected to one external device (let us call it **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, similar to that of the *Masters* (we will call this device **SlaveOut**).

The outputs of **MasterOut** and **SlaveOut** are connected to a switcher.

In case any of the masters fails (for example **AirBox2**); *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* (that 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**.

Therefore, we have implemented the option for grouping *Slave* machines. Thus, in case one of the slaves in the group starts playing, it will "tell the others to start playing too, and the switcher will be switched automatically from **MasterOut** to **SlaveOut**. Now you have the three signals 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**.

<u>Full Mode:</u>

The *Slave* and the *Master***AirBox** are always playing the same content simultaneously.

<u>Advantage:</u> The *Slave* channel always runs in perfect synchronization and you can switch over to it any time.

<u>Disadvantage:</u> This will double the network traffic, since the two **AirBox** servers will be transferring data at the same time.

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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 the ***SafeBox*** section 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, press **Tools➔Mirror Mode➔ Change Dongle,** and the new dongle will be recognized.

> **IMPORTANT!** The *BackUp* machine should run the same software version as the *Master* machine!

Playlist Checker
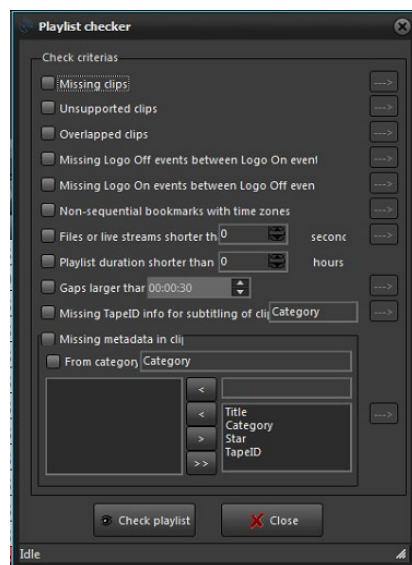
This tool checks the playlist for inconsistencies. Enable the criteria you need by checking the box in front of them.

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 to the left below. You can pick them from the list of presets to the right: Just select the Metadata name you need and press 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 press 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 press the [>] button.

To clear the whole check-list, press [> >].

If the **Check playlist** button finds an inconsistence, the relevant criterion turns red. The arrow to the right of it becomes active. Press it do view the list of inconsistencies, sorted by their position in the playlist.

Media Folders

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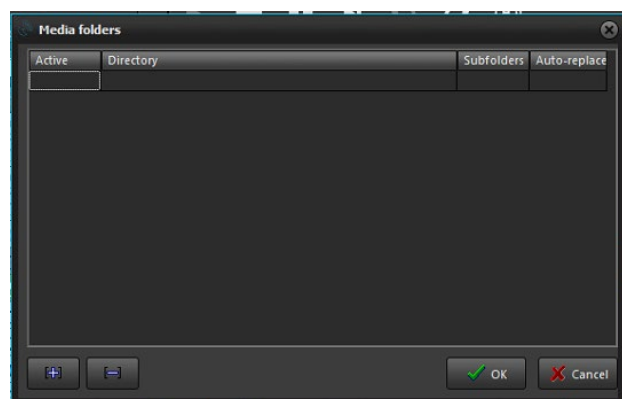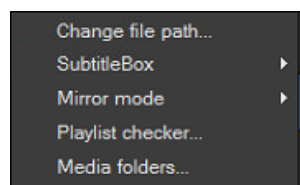
This tool was developed to allow for specifying watch folders that might contain media files. Thus, if there are missing files in a playlist, these folders will be automatically searched upon playlist loading.

> **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 tick-mark.
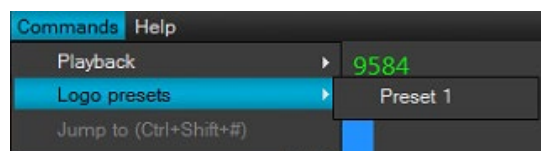
Auto-replace – this function will update the file paths of the missing files upon saving the playlist. If not enabled, the new location of files will not be saved in the playlist.

Commands Menu
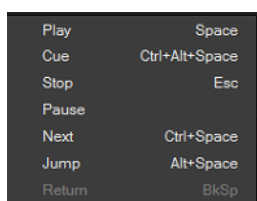
This menu contains commands, related to playback and logo presets. The available commands are:

Playback commands

This menu duplicates the playback control buttons, situated under 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 just a shortcut – <Ctrl+Shift+#>. By using it, you can jump to a clip at your will. Just press and hold down <Ctrl+Shift>, enter the desired clip's number, and then release the <Ctrl+Shift>.

Help Menu

This menu contains useful information about the *AirBox* module and the possibilities for getting technical support from us.

PlayBox Help

Opens the *AirBox* context-sensitive help.

PlayBox Doctor

This module gives the opportunity to generate easy-to-complete problem reports. It is integrated in each **PlayBox** module. It can gather almost all the information, needed for the **PlayBox** support team in order to provide you with the prompt answers, without too many questions about your system configuration.

The Basic User's manual contains a detailed description of the PlayBox Doctor Report and other functionalities. If you do not have the Basic manual, you can download it from our website –

About…

Displays the **About** box of the **AirBox** module. 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.
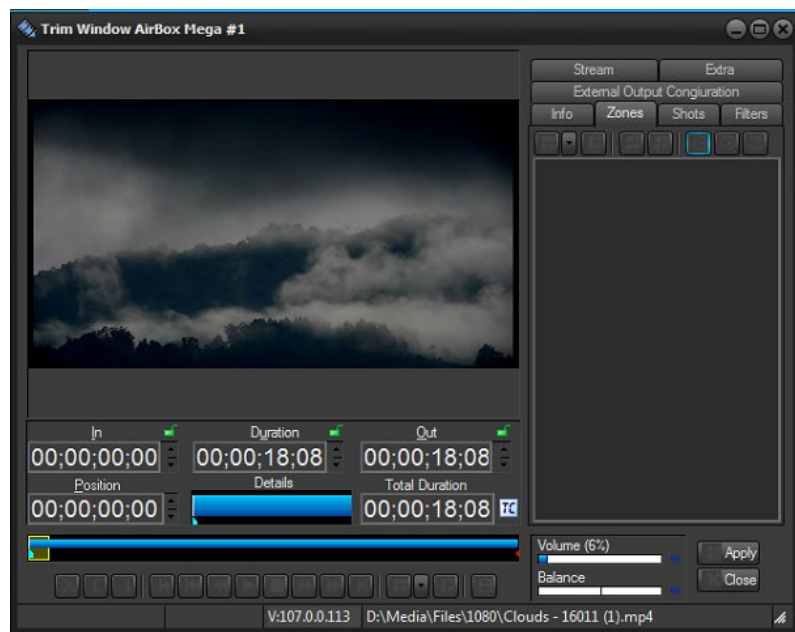
CLIP TRIMMER

The **Clip Trimmer** is used for previewing and trimming clips in **ListBox, DataBox** and **AirBox** modules. You can preview clips even during the on-air playback in **AirBox**.

Trimmer allows marking IN and Out points for video playout and then the player (**AirBox**) plays the video exactly between these points. This way no real cutting of the file is performed.

USER INTERFACE

It combines a *VGA* preview screen and tools for editing the *In* and *Out* points of *MPEG* clips. .

Clips are loaded into the **Trim Window** by double-clicking on them in **ListBox, DataBox** or **AirBox** modules.

The trimmer window has a number of keyboard shortcuts that are listed in the shortcuts leaflet in the PlayBox customer's package.

Preview Screen

The Preview screen occupies the largest part of the Trim Window. It shows the video clip which is being trimmed.

Pressing the right mouse button over the **Preview screen** invokes a context menu with the most frequently used commands in the **Trimmer**.

Trimmer Control
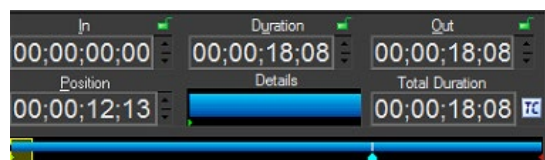
Once a clip is loaded, you can navigate and edit it, using the **Clip Trimmer** controls.

The following boxes are situated under the preview window:

In box – displays the In point timecode

Out box –displays the Out point timecode

Duration box – displays the clip duration. It is equal to the difference between *In* and *Out* points.

After entering the In and Out timecodes, the Duration value will be calculated automatically. Moreover, after entering the In and Duration values, the Out point timecode will be calculated automatically. It is possible to lock the In, Out or Duration value (but not all the three of them, of course) by clicking on the lock icon to the right of the box. Thus, you can protect their values from changing (by mistake, for example).

To enter values in the In, Out or Duration box, you can use the arrows beside them or type numbers in the boxes.

Position box 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 box – displays the original, untrimmed duration of the clip.

Details box – it shows the part of the clip, enclosed in the zoom frame.

The *Trim bar* visualizes the clip length and the clip markers.

The *Zoom frame* is a yellow square in the trim bar. It defines what part of the clip is being shown in the Detail View. It is quite useful for long clips. You can move or resize the zoom frame, by mouse dragging. You can define a new Zoom area by drawing a rectangle through dragging the mouse while holding its right button.
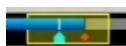

SPLIT button - splits the clip and thus defines separate sections in the clip. After splitting the clip, each new clip section appears as a separate row in the play list. You can play them separately, change their order, insert other clips between them, etc.

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 pressing repeatedly the **In/Out** buttons. Pressing the **In** button after an existing *Out* point, creates a new section after the existing one. Pressing 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 trim 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 (for ex. IPPUMP) will correct them to nearest I-frame for IN point or I- or P-frames for OUT point. Thus outputted duration could be shorter then specified.

Play button starts playing the clip. Then it transforms to pause/resume.

If you want to play only the trimmed part (i.e. between the *IN* and *OUT* points), press **<Shift>** + **Play**.

***Stop* button** ⬛ stops the playback and "rewinds" the clip to its beginning.

Pause ⬛ **/*Resume*** ⬛ button. It stops and resumes the clip playback from the same timecode position.

Button ⬛ - skips one frame forward

Button ⬛ - reverts to one frame backward

Button ⬛ - fast forward (if it is possible)

Button ⬛ - rewind (if possible)

Button ⬛ - moves to the next mark point (in/out/bookmark)

Button ⬛ - moves to the previous mark point (in/out/bookmark)

Add Zone button ⬛ - marks the beginning of a zone. A yellow point appears in the trim bar.

Delete Zone button ⬛ - deletes the selected zone point.

Open button will load a clip in the Trimmer window.

Export button ⬛ - opens a dialog box for exporting the trimmed clip as a file.

If you have divided 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 in front the relevant section. Besides, you can change their order using the up and down arrows.
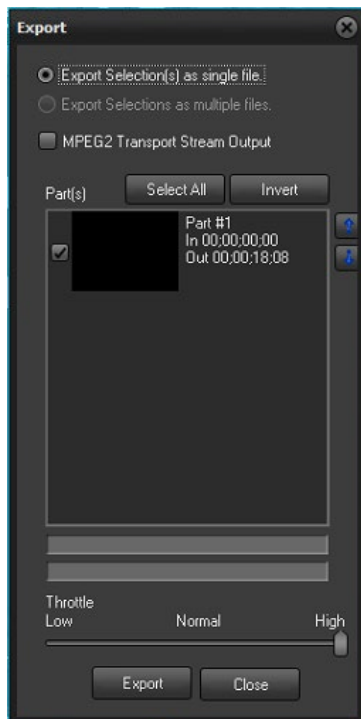
If you choose to export several parts at a time, you have to specify the way they should be exported: as separate files (⦿*Export selection(s) as multiple files)* or as a single file (⦿ *Export selections as a single file).*

Pressing the ***Export*** button in this dialog opens another dialog box for you to specify the file name and store location and 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.

The higher the priority, the slower the other simultaneously running processes on the machine, and the quicker the export made.

> **IMPORTANT!** 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 relevant sliders in the **Clip Trimmer**. The new values will not take effect in **AirBox** playback. These sliders are used for convenience during the trimming process.

Volume box – shows the volume level of the clip playback. There is a reset button beside the slider to restore the default value.

Balance box – shows the clip playback L-R balance. There is a reset button beside the slider to restore the default value.

Status Bar

It is located along the lowest part of **Trimmer** window.
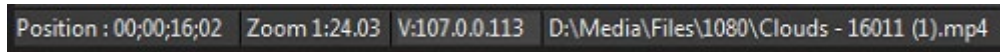
- The first field [Position] – shows the current timecode, when dragging over the trim bar.

- 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 PAGES

There are six pages on the right side of the **Trimmer** Window: **Info**, **Zones**, **Shots**, **Filters**, **Stream** and **Extra**.

Video Clip Info

This page 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
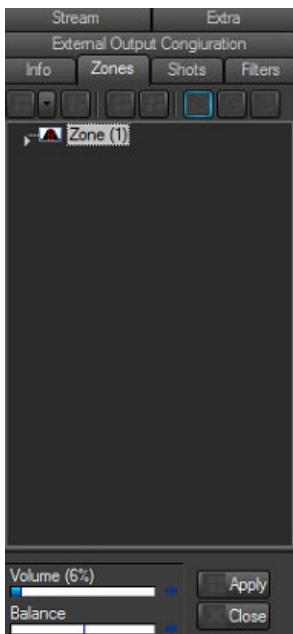
This page is used for registering a set of timecodes (points) in the clip. Thus, you can mark an initial or final timecode of an important zone in the clip. For example, in each movie there are predefined commercial break points that might be used later for automated commercial slot insertion. Those breakpoints can be defined in **Clip Trimmer** as single split points or zones (blank/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 press the ***Add Zone*** button in the page or in the main window. A yellow point appears in the trim bar, showing the beginning of the zone. You can define different zone types, pressing the black arrow of the ***Add Zone*** button. It opens a button menu:

- **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 a next marker in the **Zone**, press the ***Add Zone marker*** button. 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 press the ***Delete Zone marker*** button. 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 press the ***Delete Zone*** button from the page or from the main window.

By pressing the Clock buttons, you can choose a display mode of 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
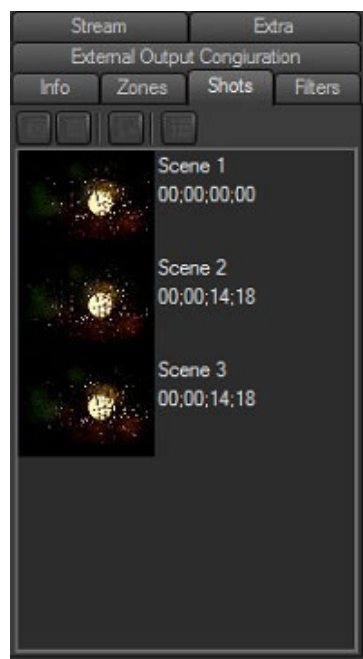
Use this page to extract shots from the video clip.

To create a shot, stop the play-head at the desired frame and press the **Add** button. The shot, as a thumbnail and its time-code are displayed in the tab. You can change the shot's name (Scene No., by default) manually.

To delete a shot, select it and press the **Delete** button.

To extract a shot to a file, select it and press the **Export** button. A browse window appears to select the file name, type (***.jpg** or ***.bmp**) and location.

To set a shot as thumbnail of a file, press the **Thumbnail** button.

Clip Streams
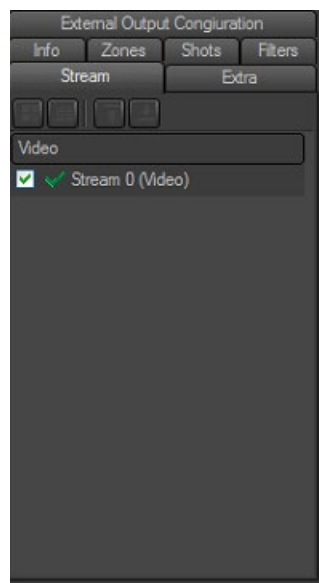
This feature is applicable in case the file contains more than one video and/or audio stream. Here you can choose which of them to view/listen during playback.

The check boxes ☑ in front the relevant streams show their playback status. The checked streams will be loaded in the playlist after clicking ✔ OK and will be played in their turn.

The green ticks serve for previewing the desired streams – if you click on the single tick, you will preview only the selected stream. If you click on the double tick, 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
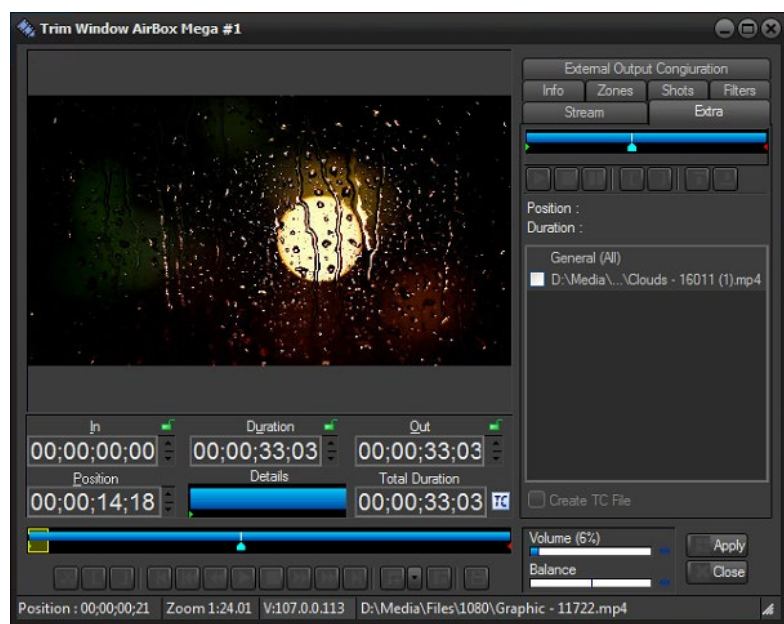
This "extra" will help you in managing multiple monitor video wall systems of up to 16 monitors. The files that are usually used for video walls end in ***.c#.mpg** or ***.c#.avi** (for example ***.c1.mpg** or ***c3.avi)**. Just load the first file in the playlist. **AirBox** will detect the others automatically.

The trim bar and the buttons above the list of files are designed for control of the entire bunch. The trim bar and the buttons under the preview window are used for control of the currently selected monitor (the one in the red dotted-line frame).

This feature will help you in synchronizing the video wall and will allow you to control each monitor separately. You can also rearrange the display positions of files by drag-and-dropping the relevant squares in the preview window (i.e. file #1 can be displayed on monitor#3, etc.) or by 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. This means that if there are 16 files in the bunch (the most possible), the first row will contain files #1 to #4, the second one will contain files #5 to 8#, etc.

The ☑*Create TC file* check box is situated at the bottom of the file list. If you check this box, a TC file will be created automatically, saving you settings, such as *In* and *Out* points, file order, etc. Thus you will be able to use your settings again the next time you open the relevant file.

Clip Filters

This tab provides information about the filters that participate in playing the current clip and an opportunity for changing the filters' settings.

The Windows Registry contains a key [*HKEY_CURRENT_USER\Software\Digital Media Technologies Ltd.\PlayBox\2.0\DXPresets*] in which you could create your own string values, containing groups of preferred filters (presets). All filters of the currently selected preset are displayed in **Filters** page.

There is a legend at the bottom of the page:

The ⊞ sign marks all filters from the preset.

The ⊞ sign marks filters that are included in the preset, but do not participate in executing the current particular file.

There is a **Property** button right under the tab name. Pushing it will open the property page (if any) of the selected filter. You could change the filter's setting there.

External Output Configuration
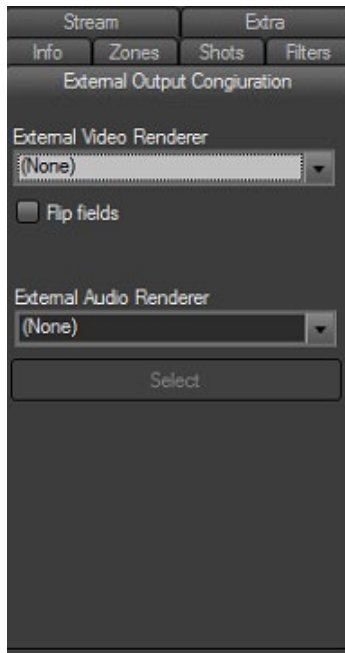
This tab allows you to select an *External Video Renderer*, as well as an *External Audio Renderer* from the corresponding drop-down lists. For the video renderer you are able to flip the fields of the output video by checking the ☑*Flip fields* box. In case the external audio renderer is multi-audio, then the first 8 audio channels are output in SDI. Once you are done selecting your external video and audio renderers, press the **Select** button.

PlayBox Live Inputs View

PlayBox Live Inputs View is an additional application which is installed together with *AirBox*.

GETTING STARTED

Installation

<u>**Where to install it**</u>

PlayBox Live Inputs View is usually installed under folder **C:\Program Files\PlayBox Technology Ltd\UDP Switcher**

The *PlayBox Live Inputs View* icon will appear in the **Toolbar**.

USER INTERFACE

The main purpose of the *PlayBox Live Inputs View* is to preview the video, which is defined as live event in *AirBox*.
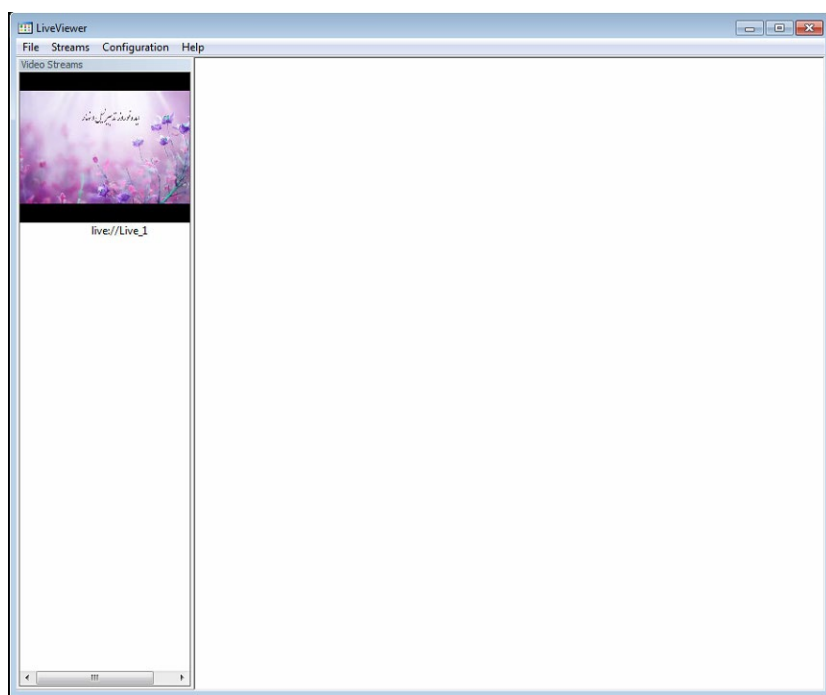
In order to see preview of the video source, first you have to set some video sources in *AirBox* from the **<u>*AirBox* menu ➔ Settings ⇨ *Live Inputs*</u>** tab.

IMPORTANT! You have to restart *AirBox* after setting up the video sources.

Now you are ready to open *PlayBox Live Inputs View*. Go to the **Streams** menu ➔**Add / Remove stream** and notice that a *Preview List* with already defined live video sources can be found there. It looks like the image to below:
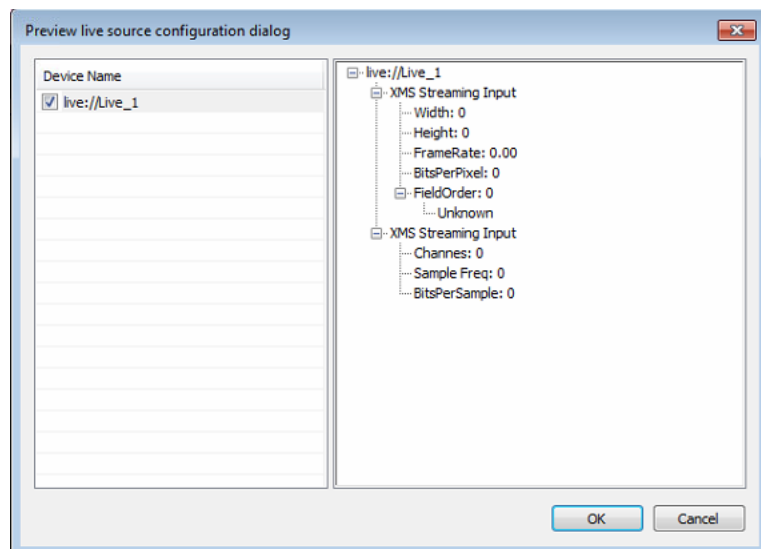
In the *Device Name* field check the respective source names of the sources you would like to preview in the *PlayBox Live Inputs View* and press **OK** button.

To remove a video source from a list, just un-check the device name from the list.

Into the left part of the main screen you will see small preview windows of all checked sources. By clicking on some of the small windows, you will see the preview of the respective source into the big screen to the right, as shown in the screenshot below.
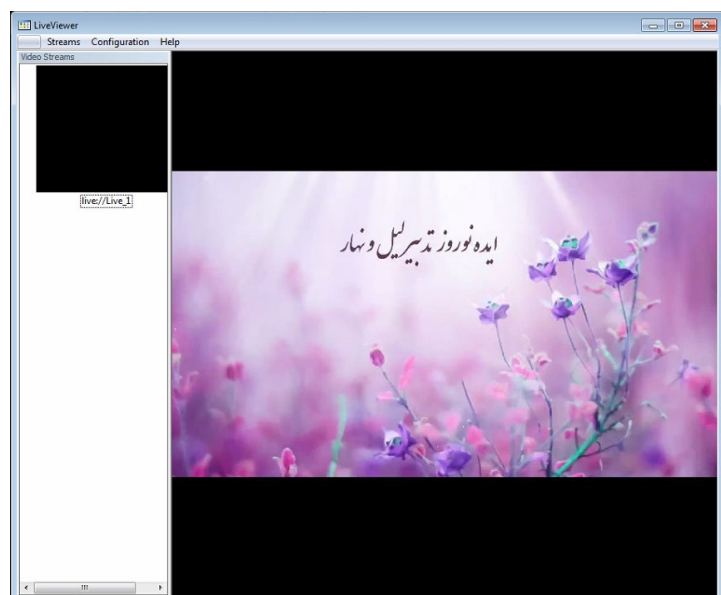
The position of the view-list of video streams could be changed by selecting the desired position from **Streams** menu➔**View orientation**. The **Video Renderer** context menu allows the user to select a video renderer to be used from the list of available presets. Here you can also enable / disable the audio of the configured stream via the **Audio Enabled** command.

Pressing **Configurations** menu ➔**Customize shortcuts** invokes the dialog, shown below:

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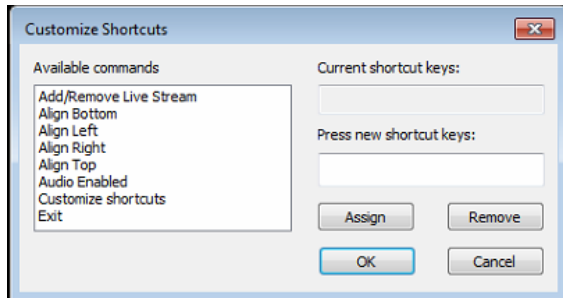
Here you can set a list of user's shortcuts for some main commands, like **Add/Remove streams**; **Alignment**, **Audio Enabling**, etc.

To the left, you will see the list of *Available commands*, and to the right the relevant shortcut will appear in the *Current keys* field. If you want to change the key combination for a certain command, select it from the *Available commands* list, go to the *Press new shortcut key* field, press the desired keyboard combination, and notice that it appears in the respective field. When you are done with the configuration of your shortcut keys press the **Add** button. The new key combination will be assigned to the respective command. To exit the dialog, press **OK**.

APPENDIX 1 - PlayBox GPI

GPI IN AIRBOX

GPI (General Purpose Interface) is implemented in **AirBox, TitleBox and CaptureBox** as a set of triggers, associated to certain pins on the standard *PC RS-232* Serial Ports (*COM1, COM2*, etc.). In order to function, the *COM* port should be correctly installed in the Windows environment (See Device Manager → Ports).

GPI-IN can be used to slave **AirBox, TitleBox** and **CaptureBox** to triggers from external devices or simple contact switches, 4 triggers per COM port.

GPI-OUT can be used to slave external equipment to events taking place in **AirBox** or **TitleBox**, 2 triggers per COM port.

GPI PINOUT

Each *COM* port accommodates 4 **GPI-IN** pairs and 2 **GPI-OUT** pairs, but not at the same time. A particular *COM* port can be assigned as either **IN, OUT** or **Unused**.

GPI-IN pairs are located at output pins *DTR&RTS* and input pins *DSR, CTS, RI, CD*. You can use any of the output pins for supplying voltage to the GPI circuit.

GPI-OUT pairs are located at output pins *DTR&RTS*, the first GPI trigger generates a pulse on *DTR*, and the second *GPI* trigger generates a pulse on *RTS*.

GPI-IN IMPLEMENTATION

The simplest triggering device would be a pair of wires running from the *COM* port *GPI* pair, soldered to a momentary contact switch. This switch can be either **Push Button Normally Open** (PBNO) or **Push Button Normally Closed** (PBNC). The trigger type is configured in *AirBox GPI Settings Panel* as **High** or **Low** pulse. Many external devices like switchers or mixers have dedicated *GPI* connectors or screw terminals with a description of what *GPI* trigger type (low or high pulse) was implemented. Depending on the trigger setup, a trigger can be a temporary closing or opening of the *GPI* circuit. High pulse means the *GPI* trigger is activated when the circuit is temporary closed. Low pulse means the *GPI* trigger is activated when the circuit is temporary opened.

According to the number of installed *COM* ports, **AirBox** supports up to 32 **GPI-IN** triggers (up to 8 *COM* ports with 4 **GPI-IN** triggers per port).

GPI-OUT IMPLEMENTATION

In order to control external devices by *GPI*, a simple 12V contact relay should be used. It should be connected to the corresponding *COM* port pin pair (4-6 or 7-8) and it should close or open the *GPI* circuit of the external device. Depending on the **AirBox** setup, the *GPI* trigger will generate a pulse (low or high, user-defined) to the corresponding output pin for a short user-defined period (pulse duration).

According to the number of installed *COM* ports, **AirBox** supports up to 16 **GPI-OUT** triggers (up to 8 *COM* ports with 2 **GPI-OUT** triggers per port).

AIRBOX AS A GPI SLAVE

A wide variety of **AirBox** actions can be associated to a *GPI* trigger:

- o Start playback

- o Pause/Resume playback

- o Stop playback

- o Jump to next clip

- o Jump to specific clip (predefined playlist index)

- o Jump to specific location in the clip/playlist (predefined timecode)

- o Playlist reset (during stop mode only)

- o Hardware reset (terminates the playback!)

- o Turn logo on

- o Turn logo off

- o Cue the selected clip

- o Cue to specific clip

- o Jump to bookmark in time range

- o Jump to bookmark name

AIRBOX AS A GPI MASTER

AirBox can activate a *GPI* trigger though specially designated GPI Output event. Please check the following page for GPI Output reference.

AIRBOX GPI SETTINGS PANEL

All **GPI-IN** triggers can be assigned to a specific *AirBox* action. From *AirBox Settings* ➜ *Modules*⇨*Remote Control*, select "GPI Input" **enabled**, to allow the **GPI-IN** trigger. Press the **Configure** button, to invoke a table for setting the *COM* ports, GPI groups and the available actions for them.

All **GPI-OUT** triggers can be activated by specific *AirBox* event: From *Settings* ➜ *Modules*⇨*Remote Control*, select "GPI Output" **enabled**, to allow the **GPI OUT** trigger. After that you can Add/Insert GPI Output event in the playlist, by right mouse clicking.

RS232 9-PIN D-SUB PINOUT REFERENCE

Pin	Name	Description	Direction
1	CD	Carrier Detect	In
2	RXD	Receive Data	In
3	TXD	Transmit Data	Out
4	DTR	Data Terminal Ready	Out
5	GND	System Ground	-
6	DSR	Data Set Ready	In
7	RTS	Request to Send	Out
8	CTS	Clear to Send	In
9	RI	Ring Indicator	In

GPI INPUT REFERENCE

(Triggers that control *AirBox, TitleBox*, and *CaptureBox*)

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GPI Input	Name	Contact Pins
GPI 1	CST	8 + 4
GPI 2	DSR	6 + 4
GPI 3	RI	9 + 4
GPI 4	CD	1 + 4

GPI OUTPUT REFERENCE

(Pulses sent out from *AirBox* and *TitleBox*)

GPI Output	Name	Contact Pins
GPI 1	DTR	4 + 5
GPI 2	RTS	7 + 5

APPENDIX 2 – Graphic Rules' Commands, Used for Communication between AirBox and TitleBox

In the table below you can find a list of commands, used in the AirBox Graphic Rules option.

> **IMPORTANT:** All of the commands used in Graphic Rules are CASE SENSITIVE!

LOAD_TEMPLATE=TB_ProjectName.tmpl	Points out which template (created from a TitleBox project) is addressed.
ObjectName.play	Sends a play command for the corresponding TitleBox object, designated by its name.
ObjectName.stop	Sends a stop command for the corresponding TitleBox object, designated by its name.
ObjectName.text	Used for adding text to the corresponding TitleBox object, designated by its name.
ObjectName.media	Used for adding media to the corresponding TitleBox object, designated by its name.
PlaylistColumn.text=%clip_PlaylistColumn%	This line contains the name of the AirBox playlist column [PlaylistColumn] object [Title] and a description of the text that it should contain.
	For example, the line [Title.text=%clip_title%] contains the name of the TitleBox object [Title] and a description of the text that it should contain. I.e., in this case, we will extract information from the Title column of the relevant playlist entry.
%clip_title%	Use this line to show the text from the corresponding title field in the AirBox playlist.
%clip_location%	Use this line to show the text from the corresponding location field in the AirBox playlist.
%clip_category%	Use this line to show the text from the corresponding categofy field in the AirBox playlist.
%clip_notes%	Use this line to show the text from the corresponding notes field in the AirBox playlist.
%clip_star%	Use this line to show the text from the corresponding star field in the AirBox playlist.
%clip_start%	Use this line to show the text from the corresponding start time field in the AirBox playlist.
%clip_duration%	Use this line to show the text from the corresponding duration field in the AirBox playlist.
%clip_start_date%	Use this line to show the text from the corresponding start date field in the AirBox playlist.
%metadata_MetadataName%	Use this line to show the text from the corresponding metadata, designated by its name.

%clip_title[+n]%	Use this line to display information about the title of an upcoming clip in the playlist, where [+n] is the off-setter.
%clip_title[BM_Test1]%	Use this line if you want to use a bookmark for presenting information about an item in the playlist. Here Test1 is the Bookmark name and [+n] is the off-setter.
%clip_start[+n]{HHMMSSFF}%	Shows the start time and the title of an up-coming clip. Here Next is the name of the text object in TitleBox, [+n] is the off-setter, and {HHMMSSFF} is the time format to be used. Be aware that the time format can also be {HH} or {HHMMSS}.
	In case you are in NTSC mode, the start time is displayed in accordance to the PC system time. Thus, instead of {HHMMSSFF}, here you should use {T} or {TT}, where:
	{T} stands for short system time
	{TT} stands for long system time
%clip_title[CAT_CategoryName+n]%	Use this line to display the title of the next clip (if n=0) down the playlist that belongs to the category, designated by its name. You can also use [+n] as an off-setter.
%clip_start[CAT_CategoryName+n]%	Use this line to display the start time of the next clip (if n=0) down the playlist that belongs to the category, designated by its name. You can also use [+n] as an off-setter.
{!LOGO_ON!} / {!LOGO_OFF!}	Use this command to show / hide the logo from the screen.
SHOW_LOGO_PRESET_n	Use this command to display logo preset number [n], where [n] is between 1 and 16 and stands for the respective logo Preset, as configured in Settings ➔ Logo.
{!AUTOMATION_ON!} / {!AUTOMATION_OFF!}	Enables / disables the incoming GPI / DTMF triggers.
{!MUTE_ON!} / {!MUTE_OFF!}	Switches the audio on / off.

APPENDIX 3 – Integration of AirBox with TitleBox

TitleBox settings:

1) Run **Programs > PlayBox Technology Ltd. > TitleBox > PLNetInst.exe** and select a folder for your *TitleBox* templates.

2) Create your *TitleBox* projects.

3) Export them via **Network > Export project as template**, giving them respective names.

4) *.tmpl (template) files are exported in the templates folder.

5) Go to **Project\Options**, look at *Network* tab. Remember the TitleBox channel ID and Port values. Confirm any changes.

6) Go to **Network > Net control**. Run it.

That's all for *TitleBox*. Now it stays in 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.

AirBox settings:

1) Go to **Settings ➔ Modules**, then to *Remote control* tab. Enable TitleBoxNetCtrl Output setting with **Yes**. Click Configure.

Enter same Channel ID and Port values as in *TitleBox* settings. Confirm.

 2) Go to **Events ➔ Add/Insert event ➔** TitleBoxNetCtrl Output

3) There are two modes for event insertion - 'Wizard' or 'Advanced' (selectable through the ***Advanced*** button). You are recommended to choose the 'Wizard' mode for now. The functions are self-explanatory, but since this module is still under development, some of them are not functioning as desired...

4) In 'Wizard' mode you can choose between Template Control and Play Project - the first one is for global *TitleBox* control commands; the second one is for project/objects control commands.

5) If you have entered Play Project mode, further you can select your project by list - all exported template projects should appear in this list. Select a whole project or some objects from it.

6) Click ***Finish***. That's it!

Run *AirBox*. When the time for a *TitleBox* event approaches, respective commands are being sent to *TitleBox* and it runs the appropriate objects.

APPENDIX 4 – PlayBox GPI board and Bypass Relay board
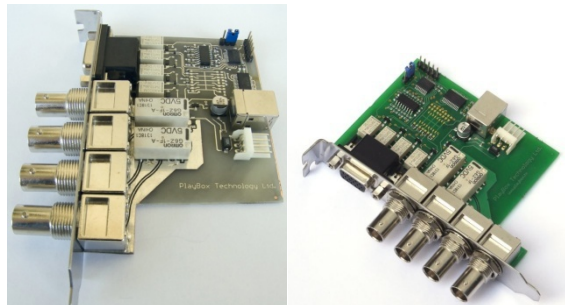
The PlayBox GPI Relay board has **4 GPI Inputs, 4 GPI Outputs with Relays, 1 Bypass relay (up to 2.6GHz)**

The following table is showing the pinout of the 15pin connector

Pin No	Signal Name	Remarks
1	NC	Not Connected
2	GPI OUT 3	Contact pin 2-7
3	GPI OUT 2	Contact pin 3-8
4	GPI OUT 1	Contact pin 4-9
5	GPI OUT 0	Contact pin 5-10
6	GND	Common Ground
7	GPI OUT 3	Contact pin 2-7
8	GPI OUT 2	Contact pin 3-8
9	GPI OUT 1	Contact pin 4-9
10	GPI OUT 0	Contact pin 5-10
11	+5V	5V DC From the board
12	GPI IN 0	Active - Short to +5V
13	GPI IN 1	Active - Short to +5V
14	GPI IN 2	Active - Short to +5V
15	GPI IN 3	Active - Short to +5V
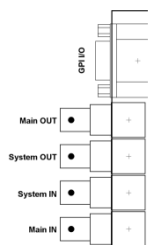
Main IN is the signal which is coming from outside the system

Main OUT is the signal which is going outside the system

System IN is the Bypassed system input

System OUT is the Bypassed system Output

All GPI inputs are using optocouplers.

All GPI outputs are relays. Both side of the contact are available on the 15pin connector.

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Connected BNCs in bypass mode | Connected BNCs in active mode
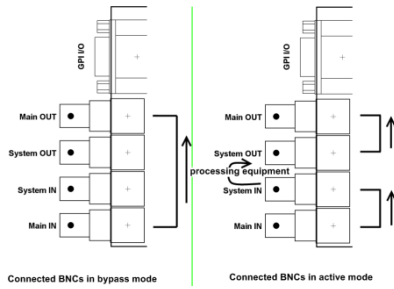
Technical Specification

Board size: 100x90mm

Bypass Relay:

    -Tested Resolutions: PAL, NTSC, 720p50/60, 1080i50/60/59.94

    -Contact switch time: 10ms

GPI Output:

    -Maximum switching current: 0.7A

    -Maximum switching Voltage: 220V AC

    -Maximum switching capacity: 40W

    -Minimum switching voltage: 250uV

    -Resistive load: min 100 000 operations

    -Contact switch time: 10ms

GPI Input:

    -Maximum voltage to the input: 12V

Board Power:

    -Using Floppy type connector from the machine

    -Board Maximum Current: without using the +5V VCC on the connector 300mA

Board control: Thru USB (using internal connector is highly recommended)

APPENDIX 5 – AirBox and ListBox Examples

Example 1.   Volume Normalization:

Suppose that you have enabled volume normalization and you have set the Referent Zero Level to -23 dbFS. Suppose further, that you have no metadata for the input file, and that the Volume Level at the output is above the referent level. Then, when you play the file, there will be no normalization, as there is no metadata file.

If you set metadata for your input file, the Volume at the output will be kept to the Referent Level, and it will be the same during the entire playout of the file.

Example 2.   No Language Descriptions:

Suppose that you have PCM to PCM audio with 8PCM Stereo audio stream at the output with languages, set to Undetermined in the Language field. However, suppose further, that the number of input channels is 16, so it is equal to the number of output channels, and that there is no metadata defined for the input audio stream file. Thus, your Mixed Audio Channel Settings Form will look like this:

When you play the input file, the input audio streams will be sequentially mapped to the output streams.

Example 3.   Remapping Strategy with Defined Languages:

Suppose that you have PCM to PCM audio with 7 PCM Stereo audio streams at the output and an input file with 16 channels, so the number of output channels is less than the number of input channels. However, you have defined languages for your output and an input file with language metadata, like this:

Output	Input
Channel 1-2 French Channel 3-4 Bulgarian Channel 5-6 German Channel 11-12 Bulgarian Channel 13-14 Spanish	Stream 1 (1-2) German Stream 2 (3-4) No language Stream 3 (5-6) Bulgarian Stream 4 (7-8) French Stream 5 (9-10) Russian Stream 6 (11-12) No language Stream 7 (13-14) No language Stream 8 (15-16) No language
Result after input file is played	
French goes to French → Stream 4 to 1-2 Bulgarian to the 2 Bulgarian streams → Stream 3 to 3-4 AND to 11-12 German to German → Stream 1 to 5-6 Spanish has no matching input stream, so it gets the 1st in order without a defined language	Stream 2 to 13-14 Undetermined output gets the available non-mapped input with language → Stream 5 to 7-8 All other unassigned streams will be mapped in sequential order: → Stream 6 to 9-10 → Stream 7 to 15-16 → Stream 8 is discarded

Example 4.   Remapping Strategy with no Language Description at the Input:

Suppose that you have have PCM to PCM audio with 7 PCM Stereo audio streams at the output and an input file with 16 channels, so the number of output channels is less than the number of input channels. Suppose further that the output languages are defined in the same way as in *Example 3* above, but the input file has no languages defined. As a result, when you play the input file, the input streams will be mapped to the output streams in sequential order, regardless of the language definitions for the output channels.

Example 5.   Remapping Strategy with no Language Description at the Output:

Suppose that you have have PCM to PCM audio with 7 PCM Stereo audio streams at the output and an input file with 16 channels, so the number of output channels is less than the number of input channels. Suppose further that the output languages are undetermined and the input file has the same

set of languages, as the one in *Example 3* above. As a result, when you play the input file, the input streams will be mapped to the output streams in sequential order, regardless of the language definitions of the input channels.

Example 6.   No Language Descriptions and Disabled Mapping:

Suppose that you have no defined languages for both the output and the input audio, and your mapping is disabled. Suppose further, that the number of input audio streams is 3, and the number of output audio streams is 8, all of which are Stereo. Thus, the input channels are less than the output channels. The result after you play the input file will be that your input audio streams will go to the first three output audio streams in sequential order and the other five audio output streams will play silence.

Example 7.   Input Language Descriptions and Disabled Mapping:

Suppose that you have defined 8 Stereo output streams with Undetermined languages and 3 input streams, of which only the third has a defined language, which is English. Suppose further, that your mapping is disabled. Since the input stream with English assigned has a higher priority than the streams with no language specified, when you play the input file, the 3rd stream of the input file will go to the 1st stream of the output. The other two streams of the input will go to streams 2 and 3 of the output in sequential order. The remaining 5 audio output streams will play silence.

Example 8.   Output Language Descriptions and Disabled Mapping:

Suppose that you have an output with 8 Stereo streams, the 4th of which has English assigned, and you have an input file with 3 streams, all of which have Undetermined language metadata. Suppose further, that your mapping is disabled. Since the output stream with language assigned has a higher priority than the streams with no language specified, when you play the input file, the 1st input stream will go to the 4th output stream, and the other two input streams will be mapped sequentially to the 1st and 2nd output streams. The remaining 5 output streams will play silence.

Example 9.   No Language Descriptions and Enabled Mapping:

Suppose that you have 8 Sterei output streams and 3 input streams, all of which have Undetermined language metadata. Suppose further, that your mapping is enabled. When you play the file, the input audio streams will go sequentiallyl to the first three output audio streams in the order they are defined. Furthermore, the audio of the 1st output stream (in English) will also go to the remaining 5 output audio streams, for which there is no input audio.

Example 10.   Input Language Descriptions and Enabled Mapping:

Suppose that you have an input file with 3 streams, the third of which is set to English, and the other two are undetermined. Suppose further, that your output has 8 Stereo streams, and that your mapping is enabled. Since the input stream with language assigned has a higher priority than the streams with no language specified, when you play the file, the 3rd input stream will go to the 1st output stream, and the other two input streams will go to the 2nd and 3rd output streams in sequential order. Furthermore, the audio of the 1st output stream (in English) will be copied to the remaining 5 output audio streams, for which there is no input audio.

Example 11.   Output Language Descriptions and Enabled Mapping:

Suppose that you have an input file with 3 streams, all of which have Undetermined language metadata. Suppose further, that you have defined 8 Stereo output streams , the 4th of which has English assigned, and that your mapping is enabled. Thus, when you play the file, 1st input stream will go to the 4th output stream, since it has a defined language and has a higher priority than the other streams. The other two input streams will go to the 1st and 2nd output streams in sequential order, and the audio of the 1st output stream (2nd input stream) will go to the remaining 5 output audio streams, for which there is no input audio.

Example 12.   Down Convert 5.1 to 2.0 with no Language Descriptions:

Suppose that your input file has the following audio streams:

Stream 1 - 5.1

Stream 2 - 2.0

Stream 3 - 5.1

Suppose further that none of the above streams have languages assigned, and that there are 8 PCM Stereo streams, defined at the output, which also have no languages assigned. When you play the file, the 2nd input stream will go to the 1st output stream with no language, and the 1st and the 3rd input streams

will go correspondingly to the 2nd and 3rd output streams. The rest of the output streams will either play silence, or will duplicate the 1st output channel, depending on your registry configurations.

NOTE: If you want to make a special registry configuration, related to Example 11, please, contact our support team at support@playboxtechnology.com.

Example 13. Down Convert 5.1 to 2.0 with Language Descriptions:

Suppose that you have the same input file, as the one in Example 11 above but it has English assigned for Stream 3. Suppose further, that the output has 8 PCM Stereo streams and English is assigned to the 3rd and the 4th. When you play the file, the 3rd input Stream (in English) will be down converted to Stereo 2.0, and will go to the 2nd output. Stream 2 from the input will go to the 1st output stream, and the 1st input stream will be down converted to Stereo 2.0, and will go to the 3rd output stream.

Example 14. Down Convert 5.1 to 2.0 with a Different Count of Language Descriptions:

Suppose that you have the following input:

Stream 1 - 5.1 → no language

Stream 2 - 2.0 → English

Stream 3 - 5.1 → English

Suppose further that your output has 8 PCM Stereo 2.0 streams with English assigned to the 2nd output stream. Since input Stream 2 matches output stream 2 both by language and by type, it will go to it. Input Stream 3, which is in English, has a higher priority than the input stream with no language. Thus, it will be down converted to Stereo 2.0 and will go to the 1st output stream without a language assigned. Finally, Stream 1 from the input will also be down converted to Stereo 2.0, and it will go to the 3rd output stream.

Example 15. Up Convert 2.0 to 5.1 with no Language Descriptions:

Suppose that you have the following output and input with no languages assigned:

Output	Input
Stream 1 (Channels 1 – 6) – 5.1	Stream 1 - 2.0
Stream 2 (Channels 7 – 12) – 5.1	Stream 2 - 5.1
Stream 3 (Channels 13 – 14) – 2.0	Stream 3 - 2.0
Stream 4 (Channels 15 – 16) – 2.0	

When you play the file, you will have the following result:

Input Stream 2 will go to the 1st output stream (Channels 1 – 6)

Input Stream 1 will go to the 3rd output stream (Channels 13-14)

Input Stream 3 will go to the 4th output stream (Channels 15-16)

The remaining 2nd output stream (Channels 7 – 12) will either play silence, or it will duplicate the 1st output stream (Channels 1 – 6)

NOTE: If you want to add a special configuration, related to the example above, please contact our support team at support@playboxtechnology.com.

Suppose that you have the following output and input:

Output	Input
Stream 1 (Channels 1 – 6) – 5.1 → no language Stream 2 (Channels 7 – 12) – 5.1 → English Stream 3 (Channels 13 – 14) – 2.0 → no language Stream 4 (Channels 15 – 16) – 2.0 → no language	Stream 1 - 2.0 → no language Stream 2 - 5.1 → no language Stream 3 - 2.0 → English
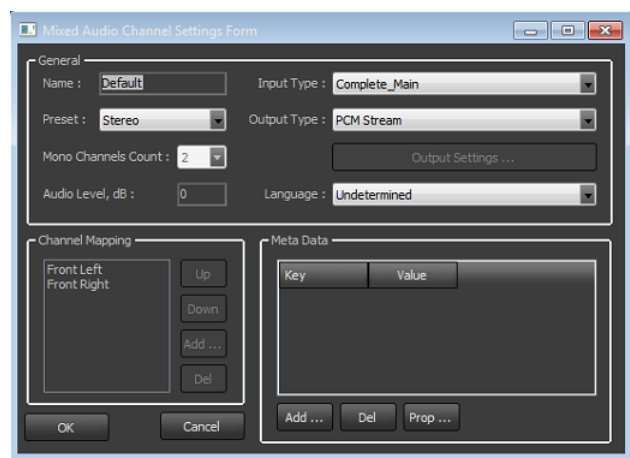
When you play the file, you will have the following result:

Input Stream 3 will be up converted to Stereo 5.1 and will go to Output Stream 2 (Channels 7 – 12)

Input Stream 1 will go to Output Stream 3 (Channels 13 – 14)

Input Stream 3 will go to Output Stream 4 (channels 15 – 16)

The remaining Output Stream 1 (Channels 1 – 6) will play silence.

Example 17. **AC3 Audio with no Language Descriptions:**

Suppose that your input file is in AC3 audio, and that you have the following output audio settings:

Stream 1 (Channels 1-6) – Default

Stream 2 (Channels 7-12) – preset 5 channels LFE and output type SurCode for Dolby

Stream 3 (Channels 13-14) – PCM Stereo

Stream 4 (Channels 15-16) – PCM Stereo

Suppose further, that you have no languages assigned for the output, nor for the input streams.

When you play the file, you will have the following result:

Input Stream 1 will go to Output Stream 1 (Channels 1-6)

Input Stream 2 will go to Output Stream 2 (Channels 7-12)

Input Stream 3 will be converted to PCM Stereo and it will go to Output Stream 3 (Channels 13-14)

Input Stream 4 will be converted to PCM Stereo and it will go to Output Stream 4 (Channels 15-16)

Example 18. AC3 Audio with Language Descriptions:

Suppose that your input file is in AC3 audio and it has English assigned for its 2nd Stream, as well as French for its 1st Stream. Suppose further, that you have the following output audio settings:

Stream 1 (Channels 1-6) – Default

Stream 2 (Channels 7-12) – preset 5 channels LFE, output type SurCode for Dolby, and English assigned

Stream 3 (Channels 13-14) – PCM Stereo and French assigned

Stream 4 (Channels 15-16) – PCM Stereo

When you play the file, you will have the following result:

Input Stream 1 will be converted to PCM Stereo, and it will go to Ouptut Stream 3 (Channels 13-14)

Input Stream 2 will go to Output Stream 2 (Channels 7-12)

Input Stream 3 will go to Output Stream 1 (Channels 1-6)

Input Stream 4 will be converted to PCM Stereo, and it will go to Output Stream 4 (Channels 15-16)

Example 19. PCM Input to AC3 Output:

Suppose that you have an input file with 8 PCM Stereo streams, and that you have an AC3 output. Suppose further, that none of the input streams, nor the output streams, have languages assigned.

When you play the file, you will have the following result:

Input Stream 1 will go to Output Stream 3 (Channels 13-14)

Input Stream 2 will go to Output Stream 4 (Channels 15-16)

Input Stream 3 will be up converted to 5.1, and it will go to Output Stream 1 (Channels 1-6)

Input Stream 4 will be up converted to 5.1 and it will go to Stream 2 (Channels 7-12)

Example 20. Creating a Regular Playlist:

Open *AirBox* and go to **File ➔ New Playlist.** Notice that *ListBox* is opened. In ListBox go to Settings – Modules – AirBox Output and double-click on the output plugin that matches the one, set for AirBox. Save your settings and notice that the ListBox output is configured according to the AirBox output plugin setup.

The next step is to add items to the playlist by drag-n-dropping. Select a media folder, containing the files you want to play and place them in the playlist area of the ListBox main window. Save your playlist from File – Save with your desired name. Close ListBox.

Example 21. Creating a Daily Playlist:

Press the Create New Playlist [icon] button in AirBox. Notice that ListBox is opened. Add your desired media files via drag-n-dropping them from the respective folder to the playlist grid. Go to File – Save daily playlist. The Daily Playlist dialog will open. Set your start time and select the folder, where the

daily playlist will be saved. Notice that the name of the playlist is created automatically. Press Save and verify that the specified folder contains a file with the name displayed in the Save Daily Playlist form.

Example 22.   Load a Playlist Manually:

Open AirBox and go to File – Load Playlist. Select the playlist, already created in Example 20 above and press Open. Verify that the properties of the items in the playlist, i.e., duration, type, and metadata are correct. Select the Playlist tab from the multi-purpose zone and double-click on a playlist from the list.

Start a new playlist by pressing the Create New Playlist button in AirBox or via the <Ctrl + N> key combination. Notice that ListBox is opened. There go to Settings – Modules – AirBox Output and double-click on NONE. Save your settings.

Add your desired media files via drag-n-dropping them in the playlist grid, save your playlist and close ListBox. Notice that all the files in the playlist have a duration of [00:00:00:00], the items are marked in red and the Type column contains the text [Unsupported media].

Go to AirBox and click on the Load Playlist from File button. Open the playlist that you have just saved in ListBox. The newly loaded files will have a duration of [00:00:00:00]. Go to Settings – General – check Auto update duration of marked files. Set the time for auto update to 1 minute and save your settings. Select some of the items in the playlist, right-click and select Auto update. The auto update symbol will appear in the first column of the selected items. In about a minute the duration of the selected files for auto update will change and become greater than [00:00:00:00].

Example 23.   Automatically Load a New Playlist on StartUp:

Open AirBox and go to Settings – StartUp. Verify that the New radio button is selected and save your settings. Restart AirBox and notice that when you restart AirBox an empty playlist will be displayed.

Example 24.   Automatically Load the Last Used Playlist:

Open AirBox and load a playlist. Go to Settings – Startup, select the Last used radio button and place a check in the Auto start playback after playlist loading box. Save your settings and restart AirBox. Notice that the last used playlist is loaded and the playout starts immediately.

Example 25.   Trigger the Open Playlist Dialog at Startup:

Open AirBox and go to Settings – Startup. Select the Open dialog radio button and save your settings. Restart AirBox and notice that the open playlist dialog appears automatically upon startup. Select your desired playlist and press Open.

Example 26.   Automatically Load an Existing Daily Playlist on StartUp:

Open AirBox and create several daily playlists (as shown in Example 21 above). Create one playlist for the current day, which starts 5 minutes after the current time, one for the next day, and one for the previous day. Save your playlists in the default folder, suggested by AirBox / ListBox. Go to AirBox Settings – StartUp and select the Daily playlist folder radio button. Verify that the Reload playlist immediately option is selected. Save your settings and restart AirBox. Notice that the daily playlist for the current day is loaded and the playout starts when the start time occurs.

Example 27.   Automatically Load an Existing Daily Playlist on StartUp:

Open AirBox and create two different daily playlists for the current day. Set the start time of the first one to be 5 minutes after the current time and that for the second one to be 10 minutes after current time. Go to AirBox Settings – Startup and in the field next to the Daily playlist folder option fill in the folder path, where your daily playlist are saved. Save your settings and restart AirBox. Notice that the daily playlist with start time closer to the current time (i.e., the one set for 5 minutes after the current time) is loaded and the playout starts when the start time occurs.

Example 28.   No Current Daily Playlist is Available:

Open AirBox and move all daily playlists for the day to a different folder. Then load a 24-hour playlist and save it as a daily playlist with a date, corresponding to 1 week before the current date and a start time of [00:00:01:00]. In AirBox Settings – Startup dialog verify that none of the boxes from the If there is no current daily playlists field is checked. Restart AirBox and notice that no playlist is loaded.

Revisit AirBox Settings – Startup dialog and check the Try to load last daily playlist for same weekday box and save your settings. Restart AirBox and notice that the playlist, saved for last week is loaded.

Another way to load the latter daily playlist automatically is to check the Try to load past daily playlist from last box and enter 10 days in the spin-box in AirBox Settings – Startup dialog. However, if you enter less than 7 days in this spin-box, the daily playlist that is 1 week old will not be played automatically.

Example 29.   Reload a Regular Playlist on File Change in AirBox:

Let us assume that you are using two AirBox instances, **AB#1** and **AB#2** and that the second instance is set to **Soft Mixed output plugin**.

Assume further that **AB #1** has the following configurations in Settings – Startup dialog:

- The New radio button is selected in the StartUp playlist field.
- The Reload playlist on file change box is checked and the Reload daily playlist without playing box it is NOT checked in the Reload playlist options field.
- The Reload playlist immediately radio button is selected in the When reload playlist field.

Imagine that we load the same **regular** playlist in both AirBox instances and start their playout. If we **delete** the currently played clip in **AB#2** and save the playlist, in **AB#1** the playlist will be reloaded without the deleted clip and the playout will start from the beginning of the playlist.

Furthermore, imagine that we insert a few media files after the currently played clip in **AB#2** and save the modified playlist. As a result, the playlist in **AB#1** will be reloaded, and the playout will continue with the next clip.

Example 30.   Reload a Regular Playlist on File Change in ListBox:

Let us assume that you are using AirBox together with ListBox. Assume further that you start ListBox, load the playlist currently played in AirBox, delete a few items before the currently played clip, and save the playlist. As a result, the playlist will be reloaded in AirBox, and the playout will continue with the next clip.

Now imagine that the Wait for playing clip end radio button is selected following in AirBox Settings – Startup and that you reset the playlist with the Reset button and press Play in AirBox. Furthermore, assume that you modify the playlist in ListBox and save it while AirBox is playing. As a result, the playlist in AirBox will be reloaded after the end of the currently playing clip and the playout will continue from the next clip.

Finally, suppose that you delete the currently playing clip in ListBox and save the playlist. As a result, the playlist in AirBox will be reloaded after the end of the currently playing clip, and the playout will start from the beginning of the playlist.

Example 31.   Reload a Daily Playlist Immediately on File Change in ListBox:

Open AirBox and create a daily playlist with start time a few minutes later than the current time. Go to Settings – Startup and select the Daily playlist folder radio button. Verify that the Reload on file change option is checked and select the Reload playlist immediately radio button. Set the Pre-cache new playlist to 30 minutes before start, save your settings, and restart AirBox. The playout of the daily playlist should start when its start time occurs. When this happens, open ListBox, insert a few media files after the currently played clip, and delete a few others with start time after the currently played clip. Save your playlist and notice that the daily playlist in AirBox is reloaded and the playout is resumed according to the current time.

Example 32.   Reload a Daily Playlist on File Change in ListBox While a New Playlist is Pre-cached:

Open AirBox and create a daily playlist with start time a few minutes later than the current time. Go to Settings – Startup and select the Daily playlist folder radio button. Verify that the Reload on file change option is checked and select the Reload playlist immediately radio button. Set the Pre-cache new playlist to 30 minutes before start, save your settings, and restart AirBox. Open the log view and monitor it until a message like this appears: [17:10:22:000 - Precaching playlist: D:\playlists*.ply 17:10:22:129 - Playlist D:\playlists*.ply is cached and ready for cue]. Next, open ListBox, modify the currently playing daily playlist and save it. Notice that the changed playlist is NOT reloaded and a warning message is displayed.

Example 33.   Reload a Daily Playlist on File Change in ListBox Without Playing it:

Open AirBox and go to Settings – Startup. Check the Reload daily playlist without playing it box, save your settings and restart AirBox. Next, open ListBox, modify the playlist and save it. Notice that in AirBox the playlist is reloaded and the playout is stopped.

Example 34.   Reload a Daily Playlist on File Change in ListBox Using the Wait for Playing Clip End Option:

Open AirBox and create a daily playlist with start time equal to a few minutes after the current time. While the playout is stopped, go to Settings – Startup and select the Wait for playing clip end radio button. Save your settings and restart AirBox. Next, open ListBox, modify and save the same playlist by deleting and / or adding items. Notice that in AirBox the playlist is reloaded after the end of the currently played clip and the playout is resumed according to the current time.

Example 35.   Overlapping Between Daily Playlists:

Suppose that you have two daily playlists in AirBox, set for the current day. Furthermore, suppose that in AirBox Settings – Startup dialog the Daily playlist folder radio button, as well as the Reload playlist immediately radio buttons are selected.

Now let us assume that an overlapping exists between the current and the new playlist. In other words, the first playlist is with short duration and a start time a few minutes after the current time, and the second playlist is with start time that overlaps the first one. Start playing the first daily playlist and notice how when the start time of the second playlist occurs the currently played clip is trimmed and the second playlist is immediately loaded and played.

Example 36.   Gap Between Daily Playlists:

Suppose that you have two daily playlists in AirBox, set for the current day, of which the first one starts a few minutes after the current time, and the second one starts a few minutes after the end of the first one. Furthermore, suppose that in AirBox Settings – Startup dialog the Daily playlist folder radio button, as well as the Reload playlist immediately radio buttons are selected.

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Now let us assume that there exists a gap between the current and the new daily playlist and the Fill gap between playlists box is checked in AirBox Settings – Startup dialog. Start the playout in AirBox and notice that after the end of the first playlist the corresponding auto-fill clip is played, and the playout of the second playlists begins when its start time occurs.

Note that if the Fill gap between playlists box is not checked and you perform the playout, described above, when the first playlist ends, the AirBox playout will be stopped and the new playlist will be in Cue mode.

Example 37.   Wait for Playing Clip End Option:

Open AirBox and go to Settings – Startup. Select the Wait for playing clip end radio button and save your settings. Suppose that you have two overlapping daily playlists, as in Example 35 above. Open AirBox and go to Settings – Startup. As a result, when you start the playout and the time for starting the second playlist occurs, the currently playing clip from the first daily playlist is played until the end ant all following clips are removed.

Suppose further that you have the above setting but you have defined a Daily Playlist Tolerance in AirBox Settings – Startup. Thus, when the start time of the second playlist occurs two things might happen:

If the start time of the second playlist is closer to the current clip end time, i.e., the time difference is shorter or equal to the tolerance, defined in the Startup Settings, the start time of the second playlist will be updated by adding the time difference.

If, however, the start time of the second playlist is closer to the current clip start time, i.e., the time difference is lower or equal to the tolerance, defined in the Startup Settings, the start time of the next clip will be updated by subtracting the time difference and the overlapping clip will be removed.

Furthermore, if the above tolerance subtractions are not enough to compensate for the time difference, the clip trimming will be taken into account.

Example 38.   Wait for Playing Clip End Option with Allow Clip Trimming:

Open AirBox and go to Settings – Startup. Select the Wait for playing clip end radio button, check the Allow Clip Trimming box and save your settings. Suppose that you have two overlapping daily playlists, as in Example 35 above and that you have defined a Daily playlist loading tolerance. Suppose further that when you start the playout and the time for starting the second playlist approaches it appears so that the end time of the currently playing clip is closer to the end time of the first clip from the second playlist. In other words, the end time of the first clip of the second playlists occurs sooner than the end of the currently playing clip. Now let us assume that the Daily playlist loading tolerance appears to be greater or equal to the above time difference. As a result, when you restart AirBox, the start time of the second clip in the new playlist will be updated by subtracting the time difference and the overlapping and the initial clip of the second playlist will be removed.

Example 39.   Wait for Playing Clip End Option with Offset the Whole Playlist:

Open AirBox and go to Settings – Startup. Select the Wait for playing clip end radio button, check the Allow Clip Trimming box and save your settings. Suppose that you have two overlapping daily playlists, as in Example 35. Suppose further that you have set a value for the Daily playlist loading tolerance and that the delay of the new playlist is within this value. As a result, when you start the playout and the start time of the second playlist approaches, the new playlist will be moved with the time difference between the two playlists.

Example 40.   Wait for Playing Clip End Option with no Clip Trimming, nor Offset:

Open AirBox and go to Settings – Startup. Select the Wait for playing clip end radio button. Suppose that you have two overlapping daily playlists, as in Example 35. Suppose further that you have set a value for the Daily playlist loading tolerance, which is less than the difference between the playlists. As a result, when you start the playout and the start time of the second playlist approaches, the overlapping clip from the new playlist will be removed and the gap between the current clip end and the start time of the next clip in the playlist will be filled with an auto-fill clip if the Fill gap between playlists option is checked. Otherwise, the playout of the second playlist will be Cued.

APPENDIX 6 – Windows Configurations for Using Non-English Object Names in AirBox – TitleBox Net Control Mode

The following instruction is applicable for users who work with non-English languages for TitleBox objects and use TitleBox together with AirBox. Execute the steps, provided below and you will be able to use TitleBox objects in your target language.

> NOTE: If you are using TitleBox and AirBox on different machines, make sure to make the following configurations on both machines.

1. Go to the **Windows Start Menu ➔ Control Panel ➔ Region and Language ➔ Location** tab.
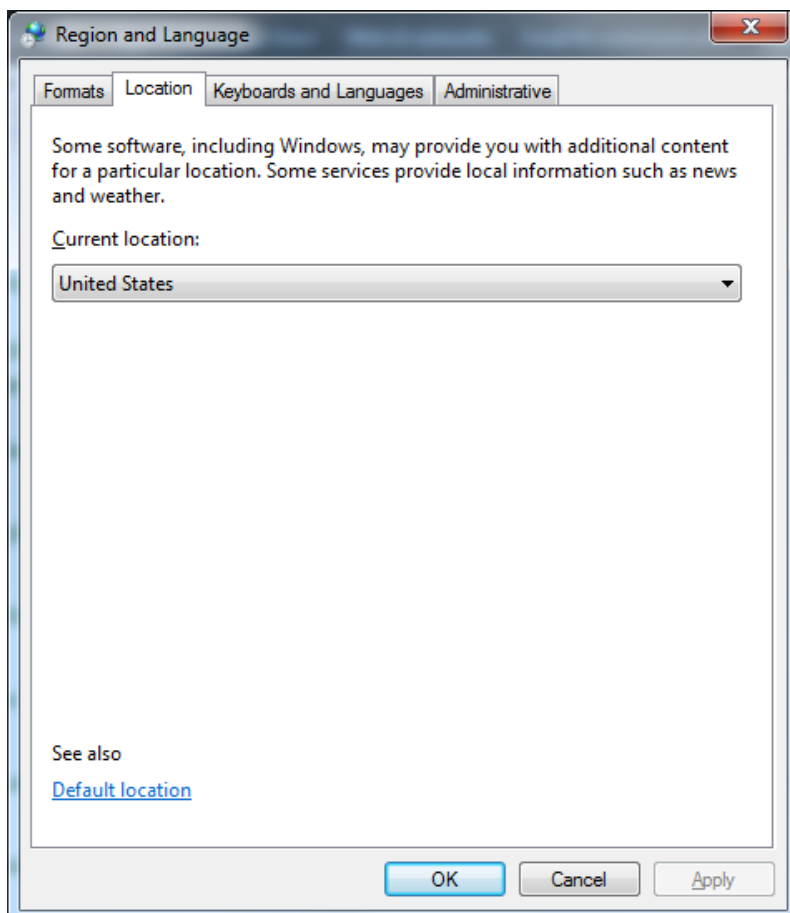
2. From the *Current location* drop-down list select the corresponding location, relative to the language you are using.
3. Go to the **Administrative** tab of the same dialog:
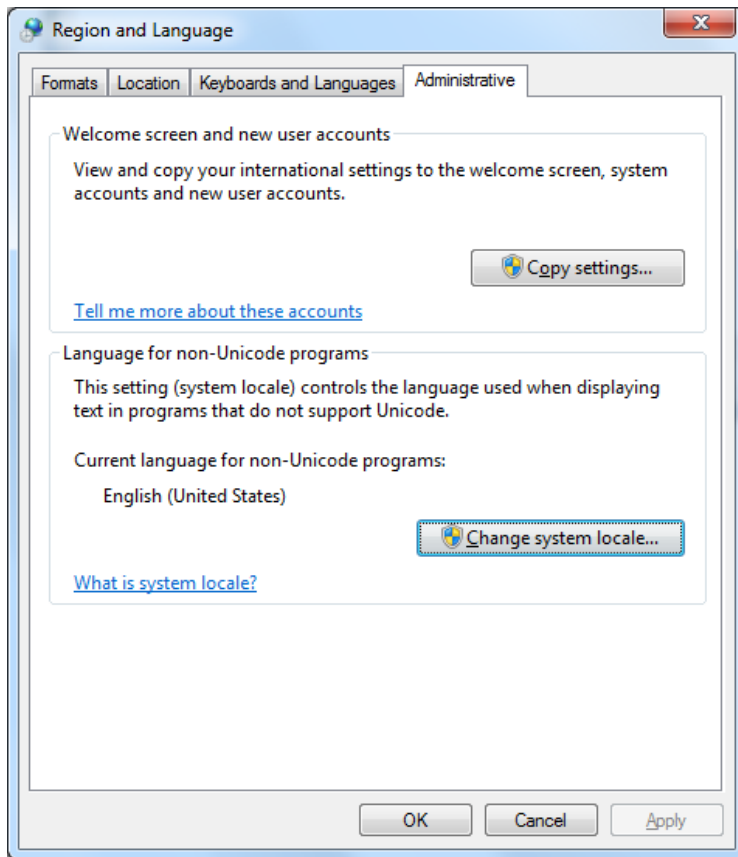
4.   Click **Change system locale...** A new dialog will be invoked:
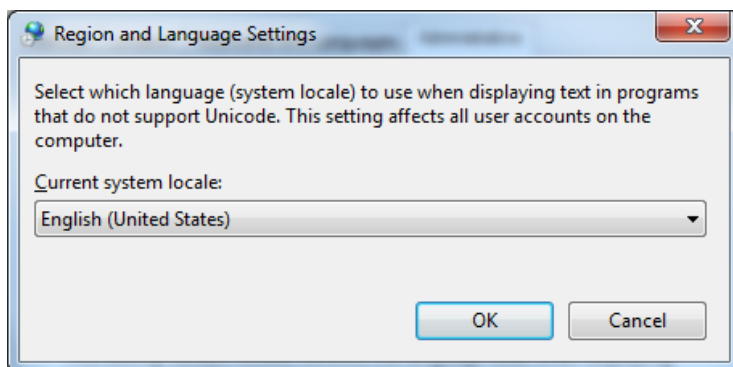
5.   From the dialog, displayed above, select the language you are using.

APPENDIX 7 – 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	

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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	

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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 8 – 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

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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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PLA BOX
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