MEDIA**SHOW**

INSTRUCTION MANUAL

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MEDIA**SHOW** is a media display software application that uses a button-box interface to enable the user to show images and video in a display window, and even launch other applications. It was developed primarily for fixed and portable planetariums but can be used in a variety of settings. The app has two versions:

> **Pro**: full-featured windowed version (1000 x 758 px) best used in setups with 2 video outputs
>
> **Mirror**: minimized interface version (1400 x 60 px) for single displays and mirror projection setups

MEDIA**SHOW** can display and manipulate a variety of image types. It can also play a sequence of images from a common directory over a fixed length of time, and even sync that sequence to an audio file. The primary purpose, however, is controlling and playing video clips. MEDIA**SHOW** supports a number of video formats (.avi, .mp2, .mp4, and QuickTime™ .mov provided the video uses the h.264 codec), and the user can control the start and end time of the video clip, in addition to displaying subtitles.

NOTE: MEDIA**SHOW** uses core video processes in OS X (AVFoundation) and Windows (DirectShow) to display video. No additional codecs or decoders are necessary. Windows users will notice a required filters support folder (/resources/filters) that should not be altered or moved.

Each edited group of buttons is saved as a buttonset, so multiple sets of shows can be prepared in advance by multiple users. That means a full selection of customized buttons can be easily loaded and accessed in an instant for playback.

MEDIA**SHOW** can even launch other programs when selecting a button (e.g. Stellarium or WorldWide Telescope), automatically dropping into the background.

The user interface is programmed to be easily accessed by mouse or touchscreen, and all interface elements have tool-tip rollovers to help guide the user.

MEDIA**SHOW** is available for Mac OS X (10.7+) and Windows OS (XP, Vista, 7, 8, 10).

INSTALLATION

Current operating systems have numerous features to restrict user access to certain directories and files. For that reason, we recommend that all users of MEDIA**SHOW** have system administrator rights on the install machine. In addition you may want to also disable virus protection software temporarily as it may cause problems with the install.

MAC : The OSX installation is distributed as a .pkg package bundle called "MediaShow_X.X_MAC.pkg". Launch the installer file, and follow the instructions.

The application and required resources are installed into "Applications".

```
HD:Applications:MediaShow:
```

The data directory containing "buttonsets" and "media" is installed into shared users

```
HD:Users:Shared:MediaShow:
```

WIN : The Windows installation is distributed as an installer executable called "MediaShow_X.X_WIN.exe". Launch the installer file, and follow the instructions. MEDIA**SHOW** will be installed into the "Program Files" directory.

The application and required resources are installed into "Program Files".

```
C:\Program Files\MediaShow\            (32bit)
C:\Program Files (x86)\MediaShow\      (64bit)
```

The data directory containing "buttonsets" and "media" is installed into shared program data

```
C:\Documents and Settings\All Users\Application Data\MediaShow\
C:\ProgramData\MediaShow\             (Vista and above)
```

NOTE: You can move the data directory from its default location to anywhere on your computer with read/write access. You must also change where MEDIA**SHOW** looks for that directory by going to SETUP and selecting the DATA button. The new data path will then be updated in the config file. In this manual, the location of the data directory will be referred to as {DATA}.

REGISTRATION

When you first launch the MEDIA**SHOW** application, it will ask you to confirm the licensing agreement. It will then ask you for a registration code. Enter your username and registration key, or select "Demo" for a 30-day trial. Contact register@spaceupdate.com or visit us online at spaceupdate.com to register and continue using MEDIA**SHOW** after the trial period.

SETUP

MEDIA**SHOW** stores settings for the target display window in an external binary configuration file located in the resources folder (/resources/display.cfg). Changes to these settings are made by selecting the SETUP button. MEDIA**SHOW** determines if you have 1 or 2 display devices connected and show you options for setting your target display window based on those detected displays.

> **NOTE:** MEDIA**SHOW** detects all attached display devices, but as it only supports single or dual display setups, it will only show options for the first two displays detected (typically the primary display + a secondary display or projector).

To change your display settings:

1. Select the SETUP button.

2. Use the SIZE menu to choose the desired resolution of the target display window.

3. Select which detected display to use with the mouse. If the size of the chosen target display window does not fill the selected display, you have the option to center the target window or align it with one of the 4 corners of the display.

4. To use the new display settings you must select either the DISPLAY or DEFAULT buttons.

   DISPLAY : the target display is updated to the new settings which will be used only in the current session.

   DEFAULT : the target display is updated to the new settings, and saved to the display config file, making them the new default every time MEDIA**SHOW** launches.

> **NOTE:** The first time you launch MEDIA**SHOW** (or if you change your display configurations) it may show an alert message about the configuration file being invalid. This is normal. When you select valid settings and SAVE AS DEFAULT that message will no longer appear.

To change the default location of your data directory:

1. Select the DATA button in SETUP.

2. Select the folder on your computer where you have moved your "buttonsets" and "media" folders.

The new data path will be saved to the /resources/mediashow_config.ini file and used as the new default location for buttonsets and media files.

SPLASH SCREEN

The splash screen (i.e. the image that shows on the target display when MEDIA**SHOW** launches or a media file isn't being displayed) can easily be changed from its default to any image you wish. Simply place any JPEG image named "splash.jpg" in the "/resources" folder, and restart the MEDIA**SHOW** application. That image will then be used, filling the width and aligned to the bottom of the display window while preserving the image aspect ratio.

> **NOTE:** The splash screen can only be customized in a registered version of MEDIA**SHOW**. During the DEMO trial period this feature is disabled.

USING MEDIASHOW

LOADING BUTTONSETS

Select the **LOAD SET** menu to load a buttonset, or create a new one and begin editing buttons. Select the desired buttonset name from the menu, or choose NEW in the menu to create a new set.

A sample buttonset (named "sample set") is provided as an example, with a variety of button types and config settings for files found in "{DATA}/media/samples".
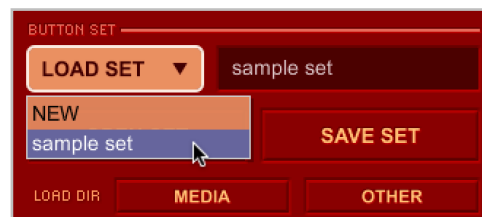
> **NOTE:** Buttonsets are stored and loaded from the "{DATA}/buttonsets" directory. Deleting a buttonset is done by removing the corresponding ".bst" file from this directory.

BUTTONSET NAMES

Name the buttonset by selecting and editing the default name in the buttonset name text box and then select **SAVE SET** to save.

CREATING BUTTONS

Begin creating buttons by using the **LOAD DIR** option buttons, or selecting a specific button to **EDIT**.

LOAD DIR : There are two options for auto-filling a buttonset – select the **MEDIA** button to fill available buttons with all images and video files from the "{DATA}/media" directory, or select **OTHER** to choose a directory, and MEDIA**SHOW** will fill available buttons with all supported images and video files found at the top level of that directory. This is a quick way to fill buttons which can then be edited and saved as a custom buttonset.

EDIT : To edit a specific button, select **EDIT** and then select any empty or occupied main button – or – select any occupied main button to load it and then select EDIT. Once a button is in editing mode, the config options are enabled and the button settings can be changed.

> **NOTE:** Each buttonset can have 100 total buttons (PRO: 5 pages of 20 buttons each, MIRROR: 20 pages of 5 buttons each). There is no limit on the number of buttonsets you can create.

EDITING BUTTONS

There are 4 ways to begin editing a main button.

1. Select **EDIT** and then select any empty main button. Then select a button type (IMG, SEQ, VIDEO or APP) to assign to the button.

2. Select **EDIT** and then select any occupied main button. This will load the button and enable editing mode and all the button config options.

3. Select any occupied button to load it. It may begin auto-playing depending on its settings. Then select **EDIT** which will enable editing mode and all the button config options.

4. Selecting any main button while holding down the Option/Alt key triggers a shortcut popup-menu that allows quick access to assign either IMG or VIDEO to the button. (NOTE: this is the only **EDIT** feature available in MEDIA**SHOW**-Mirror)
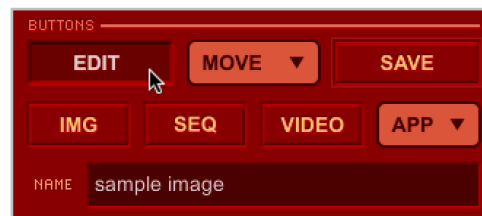
ASSIGNING MEDIA

Once a button is in editing mode, a media type must be assigned if it is not already. Select either **IMG** (image file), **SEQ** (image directory), **VIDEO** (video file) or the **APP** menu (application file). An Open/Save dialog box will appear initially pointed to the "{DATA}/media" directory. You may choose media from there, or navigate anywhere else on your computer.

The following media file types are supported:

IMG	BMP, JPG, GIF, PNG, TIF
	Maximum image width is **4095 pixels**. Larger images are resized when imported. **72 dpi** is the recommended resolution for speed, memory and compatibility with the user interface. Higher resolutions are supported but may cause memory issues, longer load times, and or confusing display results. Images should be created with the target display resolution in mind.
SEQ	Any directory containing a file sequence of supported images.
	For a sequence to load properly, all images in the directory should be named alphabetically in the order they are to appear. (e.g. "hst25_01.jpg", "hst25_02.jpg", "hst25_03.jpg", …)
	*The SEQ option for button assignment is only available when using MEDIA**SHOW** PRO. Sequence buttons saved in PRO are however available in MIRROR for playback.*
VIDEO	MP2, MP4, AVI, QuickTime® (saved with H.264 codec)
	For the best cross platform playback using MEDIA**SHOW**, use an MP4 format saved with H.264 (video) and AAC (audio) codecs.
APP	**MAC** : Menu choices are the ".app" packages in the "Applications" directory and one level of sub-directories, or you can manually locate any application on the hard drive.
	WIN : Menu choices are the ".exe" files in the "Program Files" directory, or you can manually locate any executable application on the hard drive.
	*The APP option for button assignment is only available when using MEDIA**SHOW** PRO. Application buttons saved in PRO are however available in MIRROR for playback.*

NOTE: If media files are moved from their original location when they were saved to a button, an error message stating "*The source media for this button has changed or is missing*." The solution is to return the media to its original location, or re-edit the button and reassign the media file(s).

BUTTON NAMES

A default name is created for any new button based on the media file name. To edit the button name, select the name in the button name text box and make changes to the text.

BUTTON ICONS

The icon for a button can be set while the button is being edited. To set the icon, click on the icon graphic inside the button. An image button's icon is set to the current display of the image (nudge, zoom and rotate). A video button's icon can be set to a particular frame by first advancing the movie to that frame using the playback slider and controls, and then selecting the icon graphic to update it.

BUTTON MOVE / DELETE / COPY / SWAP

While a button is in editing mode, it can be moved or deleted with the **MOVE** popup menu. Moving a button inserts it at the target button location (default is on the current button page), shifting the surrounding buttons up or down depending on the direction of the move. (*Occupied buttons are marked in the list with an asterisk*).

Use the keyboard with this menu to enable several useful options:
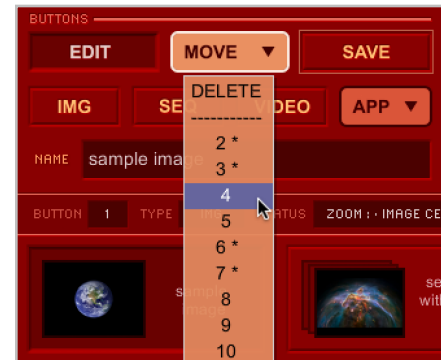
SHIFT + **MOVE** : insert button on ANY button page

OPTION/ALT + **MOVE** : **COPY** button to empty button location on current button page

SHIFT +OPTION/ALT + **MOVE** : **COPY** button to empty button location on ANY button page

CONTROL + **MOVE** : **SWAP** button with button location on current button page

SHIFT +CONTROL + **MOVE** : **SWAP** button with button location on ANY button page

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NOTE: Remember to save changes to buttons and buttonsets. The **SAVE** button saves ONLY the state of the button being edited, and disables the editing mode. It does NOT save the overall buttonset. Select **SAVE SET** to save any button changes before saving the buttonset to disk.

CONTROLLING MEDIASHOW

WINDOW LAYERING

The MEDIA**SHOW** PRO interface is a movable window that launches initially in front of the display window, if they are on the same computer display. Selecting the target display window will bring it to the foreground which can hide the control window interface. To toggle the windows between foreground and background, use the "D" key ("*D*" *for* "*display*"). The PRO interface can also simply be moved out of the way if needed.

The MEDIA**SHOW** MIRROR is intended for single display setups using display mirroring with a projector system. Its interface is fixed as a strip at the top of the primary computer display. This control strip interface cannot be moved. Depending on the mirror system setup, it may not need to be hidden if it displays outside the view of an audience. It can however be hidden behind and brought back in front of the target display window just like the PRO version by using the "D" key on the keyboard.

QUITTING

To quit MEDIA**SHOW** PRO simply close the control window, hit the ESC key, or hit CONTROL+Q (Windows OS) or COMMAND+Q (Mac OSX). In MEDIA**SHOW** MIRROR select the EXIT button.

CONFIGURING AND CONTROLLING MEDIA FILES

Buttons can be configured to display images, image sequences, and video can be configured to display just how you want them to. The following sections describe the configuration options and playback controls for these media types.

> **NOTE:** The active playback controls are limited by the config settings you save for a given button.

IMAGE CONFIG

MEDIA**SHOW** buttons can be configured to control the zoom and rotation of an image. These image display options are made using the CONFIG settings when editing an image assigned button.

ZOOM	
ZOOM POINT MENU	Menu sets the point on the display window that the zooming of the image is locked to.
	The following options are fixed zooms that disable zoom controls and image rotation:
	fit to window : locks the image to the window center and zooms to fit preserving aspect ratio
	fill window X : locks the image to the window center and zooms to fill screen horizontally
	fill window Y : zooms image to fill the display window height
	The following options are user variable zooms that allow image rotation:
	image center : locks the center of zooming to the center of the image
	window center : locks the center of zooming to the center of the window
	window left : locks the center of zooming to the left edge of the window
	window right : locks the center of zooming to the right edge of the window
	window top : locks the center of zooming to the top edge of the window
	window bottom : locks the center of zooming to the bottom edge of the window
MIN SLIDER	Slider sets the min zoom percentage allowed for the image (range = 0% to MAX)
START SLIDER	Slider sets the start zoom percentage allowed for the image (range = MIN to MAX)
	TIP : Click the START value to set the START zoom to the CONTROL zoom value.
MAX SLIDER	Slider sets the max zoom percentage allowed for the image (range = MIN to 400%)
ROTATE	
ROTATE POINT MENU	Menu sets the point on the screen about which the image can be rotated. The options are only available when there is a user variable zoom point setting:
	image center : locks the center of rotation to the center of the image
	window center : locks the center of rotation to the center of the screen
MIN SLIDER	Sets the minimum rotation in degrees allowed for the image (range = 0% to MAX)
START SLIDER	Sets the start rotation in degrees allowed for the image (range = MIN to MAX)
	TIP : Click the START value to set the START rotation to the CONTROL rotation value.
MAX SLIDER	Sets the maximum rotation in degrees allowed for the image (range = MIN to 359°)

IMAGE CONTROL

When an **image** button is selected and loaded, MEDIA**SHOW** can control the nudge, zoom and rotation of the image during playback with the image CONTROL buttons and sliders.

POSITION	
ARROW BUTTONS	Arrow buttons nudge image left, right, up or down by 10 pixel increments. SHIFT+select these buttons nudges image by 1 pixel increments. The center button with inward facing arrows restores the nudge values to (0,0).
X / Y INPUTS	Values for nudging the image can be manually entered using the X and Y input boxes. Select the button with the solid square icon or hit the RETURN key to set the nudge of the image to the entered values.

ZOOM	
SLIDER	The zoom slider controls the current image zoom value between the MIN and MAX config settings. This slider is inactive when the image is set to a fixed zoom in the CONFIG options.
- / + BUTTONS	These buttons control the zoom of the image with finer control. Select these buttons to zoom the image by ± 10%. SHIFT+select these buttons to zoom the image by ± 1%.

VALUE	Select the displayed zoom value to get a shortcut popup menu, if zooms are not disabled, with the following options:
	
	        start zoom : saved button zoom value
	    fit to window : zooms image to fill display window preserving aspect ratio
	    fill window X : zooms image to fill the display window width
	    fill window Y : zooms image to fill the display window height
	        full size : zooms image to its 100% full size

ROTATE	
SLIDER	The rotate slider controls the current image rotation value between the MIN and MAX config settings. This slider is inactive when the image is set to a fixed zoom in the CONFIG options.
LEFT / RIGHT BUTTONS	These buttons control the rotation of the image with finer control. Select these buttons to rotate the image by ± 10°. SHIFT+select these buttons to zoom the image by ± 1°.
VALUE	Select the displayed rotation value to get a shortcut popup menu, if rotations are not disabled, with the following options: **0°, 30°, 60°, 90°, 120°, 150°, 180°, 210°, 240°, 270°** : rotate image by N degrees

SEQUENCE CONFIG

MEDIA**SHOW** buttons can be configured to display a folder of images as an image **sequence**. The position, zoom and rotation settings made with the sequence config options are used for all images in the sequence.

ZOOM / ROTATE	
ARROW BUTTONS	Arrow buttons nudge sequence images left, right, up or down by 10 pixel increments. SHIFT+select these buttons to nudge sequence images by 1 pixel increments. The center button with inward facing arrows restores the nudge values to (0,0).
X / Y INPUTS	Values for nudging the sequence images can be manually entered using the X and Y input boxes. Select the button with the solid square icon or hit the RETURN key to set the nudge of the sequence images to the entered values.
ZOOM POINT MENU	Menu sets the point on the display window that the zooming of the image is locked to. The following options are fixed zooms that disable zoom controls and image rotation: **fit to window** : locks the image to the window center and zooms to fit preserving aspect ratio **fill window X** : locks the image to the window center and zooms to fill screen horizontally **fill window Y** : zooms image to fill the display window height The following options are user variable zooms that allow image rotation: **image center** : locks the center of zooming to the center of the image **window center** : locks the center of zooming to the center of the window **window left** : locks the center of zooming to the left edge of the window **window right** : locks the center of zooming to the right edge of the window **window top** : locks the center of zooming to the top edge of the window **window bottom** : locks the center of zooming to the bottom edge of the window *NOTE: This is the preferred setting for most videos shown with a mirror projection system. For flatscreen movies to be shown as widescreen with minimum distortion, set the zoom to 40-50%.*
ZOOM SLIDER	Slider sets the zoom percentage for the sequence images (range = 0% to 400%)
ROTATE POINT MENU	Menu sets the point on the screen about which the image can be rotated. The options are only available when there is a user variable zoom point setting: **image center** : locks the center of rotation to the center of the image **window center** : locks the center of rotation to the center of the screen
ROTATION SLIDER	Slider sets the rotation for the sequence images (range = 0° to 359°). This slider is inactive when a fixed zoom setting is selected in the ZOOM POINT menu.
SEQUENCE	
IMAGE DELAY SLIDER	Slider sets the delay in **seconds** between image sequence transitions – i.e. the time a sequence image is displayed. This option is disabled if an audio file is selected and the SYNC preset is selected. The delay is automatically set to time the sequence to the length of the audio file.

AUDIO FILE MENU	Optional menu selects an audio file from the **{DATA}/media/audio** directory to play while image sequence is running.
	If SYNC preset is selected, the delay is automatically set to time the sequence to the length of the audio file. If SYNC is not selected then the audio file will loop until the image sequence is complete.

PRESETS	
AUTOPLAY	Sets whether the sequence begins automatically when the main button is selected
LOOP	Sets whether the sequence loops and repeats when completed
SYNC	Sets whether the sequence is synced to the selected audio file (*disabled if no audio file selected*)

SEQUENCE CONTROL

When a **sequence** button is selected and loaded, **MEDIASHOW** can control the play/pause and specific image in the sequence using the sequence CONTROL buttons and sliders.

PLAYBACK	
CONTROL SLIDER	Slider advances as the sequence is played. It can be selected and dragged, which pauses the playback, and changing the current time and image of the sequence.
CONTROL BUTTONS	These playback buttons control the playback of the sequence. **rewind** : rewinds sequence to the beginning **step back** : backs up sequence by 1 image, adjusting elapsed time and audio **play / pause** : play or pause the sequence **step forward** : advances sequence by 1 image, adjusting elapsed time and audio **forwind** : advance the sequence to the end **loop** : sets the looping of the sequence – *overrides the LOOP preset*
VOLUME MENU	Sets the volume of the sequence audio file. Options are 0 - 10 (off - MAX).
PLAYBACK VALUES	The sequence playback values update here as the sequence executes. **sequence count** : image number / image sequence total **sequence time** : image elapsed time before transition to next in sequence (MM:SS)

> **NOTE:** The left and right arrow keys are used to pause and advance the image sequence. All keyboard shortcuts available to control a sequence are listed in APPENDIX B.

VIDEO CONFIG

MEDIA**SHOW** buttons can be configured to display a variety of video file types. The start and stop times, zoom and position onscreen, and even a background image file can all be set using the video CONFIG options. In addition, if there are subtitle files, their size, location and language selection (if multiple languages found) can all be set.

CLIP	
START SLIDER	Slider sets the **start** time/frame of video clip, displayed to the right.
	TIP: *Mouse-click the text START values to set the clip START to the current time/frame as controlled by the main playback slider.*
END SLIDER	Slider sets the **end** time/frame of video clip, displayed to the right.
	TIP: *Mouse-click the text END values to set the clip END to the current time/frame as controlled by the main playback slider.*
ZOOM - / + BUTTONS	Sets the zoom of the video (default = 100%). This feature is useful for displaying non-warped video on warped systems at a smaller size to minimize distortion. Use BUMP to shift the video towards the bottom or top of the display.
BUMP - / +BUTTONS	Sets the vertical location of the video as a percentage from the bottom of the display window, dependent on the zoom setting of video. This feature can be used in conjunction with ZOOM to position a small video on the display.
BACKGROUND MENU	Optional setting selects a background image from the **{DATA}/media** directory to be shown behind the displayed video. This feature is useful when displaying videos zoomed smaller than fullscreen.
MAX VOLUME SLIDER	Optional maximum volume limit setting for video (range 0-10, default = 10)
	NOTE: *The purpose of this optional setting is to limit the maximum volume of a video that might be too loud if played at full volume – the CONTROL volume setting options will then range from 0 to this MAX VOL setting.*

SUBS	
FONT SIZE - / + BUTTONS	Sets the subtitle font size (in points)
	NOTE: *The subtitle size onscreen will depend on the size and resolution of the display – e.g. a 24pt subtitle will look large on a small display window, and small on a fullscreen HD display.*
POSITION - / + BUTTONS	Sets the bottom of the subtitles as a percentage of display height measured from the bottom of the display (range 0% - 100%)
LANGUAGE MENU	Sets the subtitle language if subtitle files are found – options are NONE and all properly named and formatted subtitle files found in same directory as video file (see section on SUBTITLES)

PRESETS	
AUTOPLAY	Sets whether the video begins automatically when the main button is selected
LOOP	Sets whether the video loops and repeats when completed
SUBTITLES	Sets whether the video uses subtitles when the main button is selected and loaded

VIDEO CONTROL

When a **video** button is selected and loaded, MEDIA**SHOW** can control all aspects of video playback, including looping, subtitles (if available) and volume using the **video** CONTROL buttons and sliders.

PLAYBACK	
CONTROL SLIDER	Playback slider advances automatically during playback. Select and drag to set the time/frame of the video clip (range = MIN - MAX frame)
CONTROL BUTTONS	These playback buttons control the playback of the video. **rewind** : rewinds video to the beginning **step back** : backs video up by the "frame SKIP" setting SHIFT+button: backs video up by "frame STEP" setting **play / pause** : play or pause the video **step forward** : advances video by the "frame SKIP" setting SHIFT+button: advances video up by "frame STEP" setting **forwind** : advances the video to the end **loop** : sets the looping of the video – *overrides the LOOP preset*
SUBTITLE BUTTON/MENU	Toggles subtitles on/off if available and SUBTITLE preset is enabled. In addition this button acts as a menu if multiple subtitle language files are found, allowing the user to change languages during playback from the one selected by the CONFIG settings.
VOLUME MENU	Audio volume popup menu (range = 0 - MAX VOL)
PLAYBACK VALUES	The video playback values update here as the video plays. **video time** : current time of video file (MM:SS) **video frame** : current time of video file

AUTOPLAY

A **SEQ** or **VIDEO** button that is set to **AUTOPLAY** (*see the PRESETS config options for sequences and video*), will automatically begin playing when that main button is pressed. If the next button in the buttonset is also set to **AUTOPLAY**, it will automatically play after the first has completed playback. Using this feature a series of buttons can be created to play one after the other creating an entire show of images and video.

IMG buttons do not have an **AUTOPLAY** option. The image remains on the target display until the next button is selected.

APPENDIX B : KEYBOARD SHORTCUTS			
DISPLAY			
	D		toggle display screen to foreground or background
	K		toggle kiosk mode which covers the controls
	B		toggle visibility of menubar (MacOS) or taskbar (WinOS)
EDITING			
SHIFT	MOVE button		insert button at location on ANY button page
OPTION/ALT	MOVE button		COPY button to empty button location on current button page
SHIFT + OPTION/ALT	MOVE button		COPY button to empty button location on ANY button page
CONTROL	MOVE button		SWAP button with button location on current button page
SHIFT + CONTROL	MOVE button		SWAP button with button location on ANY button page
BUTTONS			
	1,2,3,4,5,6,7,8,9,0		directly select buttons 1-10 on current button page (Pro, 1-5 in Mirror)
SHIFT	1,2,3,4,5,6,7,8,9,0		directly select buttons 11-20 on current button page (Pro)
OPTION/ALT	MEDIA buttons		activates EDIT options for selected media button
	[		next loaded button
	]		previous loaded button
IMAGE			
	← → ↓ ↑		nudge image left, right, down, up 10 pixels
SHIFT	← → ↓ ↑		nudge image left, right, down, up 1 pixel
	R		reset the image nudge values to 0 (i.e. nudge center)
SHIFT	R		reset the image nudge, rotate and zoom to saved button settings
	A		zoom image IN by 10%
SHIFT	A		zoom image IN by 1%
	Z		zoom image OUT by 10%
SHIFT	Z		zoom image OUT by 1%
	.		rotate image right/clockwise by 10°
SHIFT	. (>)		rotate image right/clockwise by 1°
	,		rotate image left/counter-clockwise by 10°
SHIFT	, (<)		rotate image right/counter-clockwise by 1°

	C	set image center as ZOOM point
	X	set image center as ROTATE point
	S	set screen center as ROTATE point
	F	set image to fill screen (zooms to fit image preserving aspect ratio)

SEQUENCE

	←	pause and go to previous image in sequence
	→	pause and go to next image in sequence
	SPACEBAR	play/pause the sequence
	L	turn looping on/off

VIDEO

	←	step backward by frame SKIP setting
	→	step forward by frame SKIP setting
SHIFT	←	step backward by frame STEP setting
SHIFT	→	step forward by frame STEP setting
	R	rewind video to beginning frame
	F	forwind video to end frame
	SPACEBAR	play/pause video
	L	turn looping on/off
	A	turn audio on/off
	S	turn subtitles on/off
CONTROL	1,2,3,4,5,6,7,8,9,0	set video volume level from 1 - 10 (min - max)

BUTTON SET
LOAD SET ▼
OPEN SET (1) SAVE SET
LOAD DIR MEDIA OTHER
BUTTONS
EDIT MOVE ▼ SAVE
IMG SEQ (2) VIDEO APP ▼
NAME

CONFIG
CONTROL
CLIP — START / END / ZOOM / BUMP / MAX VOL (3)
FONT SIZE / POSITION
AUTOPLAY / LOOP / SUBTITLES
PLAYBACK (4)

BUTTON – TYPE – STATUS – MEDIA – (5)

(6)

SETUP (7) (8) MEDIASHOW (9) ◀ PREV NEXT ▶
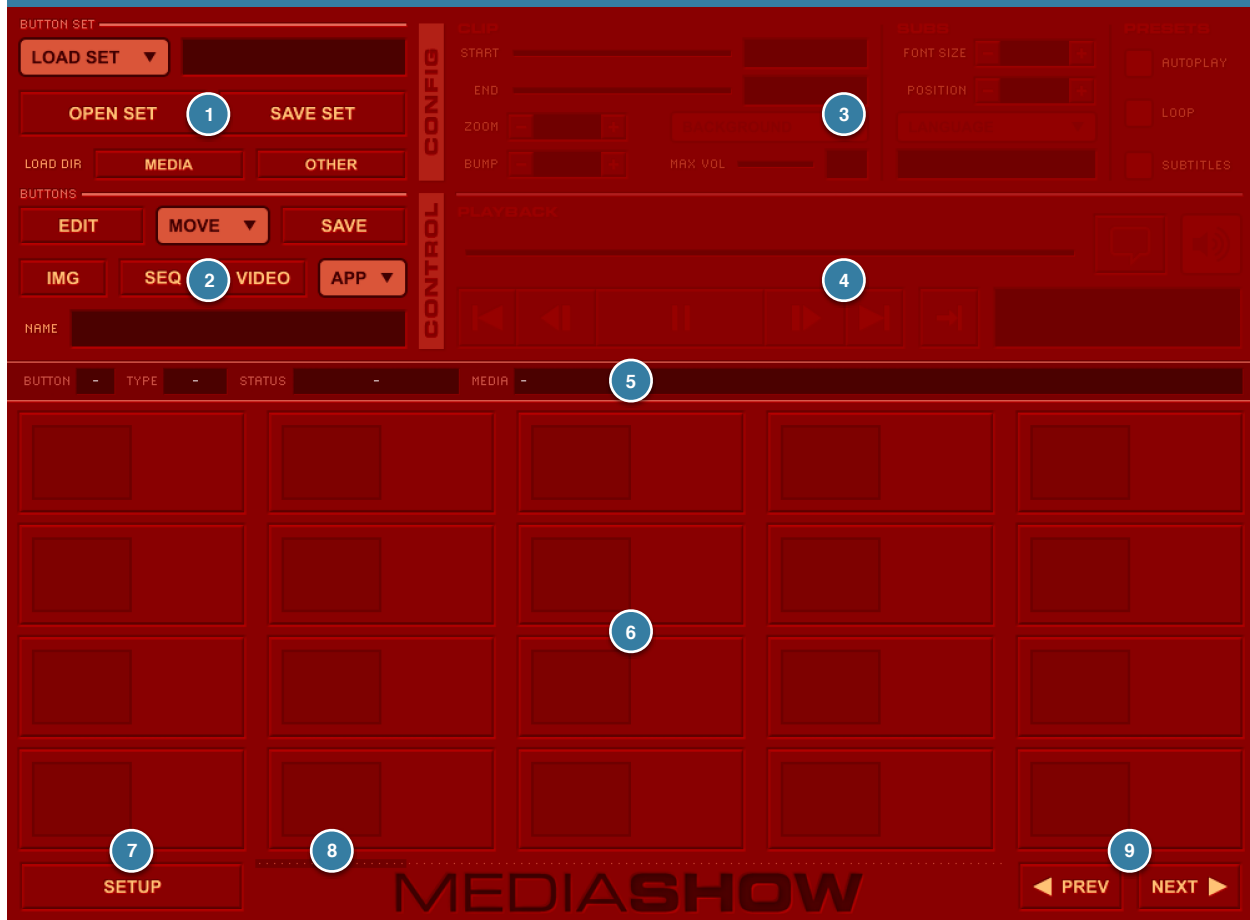
MAIN   INTERFACE GUIDE

1	Controls for buttonset loading, opening, saving and auto-filling from media directories
2	Controls for button editing, moving, saving, media association, and naming
3	This area contains the configuration settings for a selected button media type (active only when the button is being edited)
4	This area contains the playback controls for the active button
5	Displays the active button number, type, status and media path
6	Main media buttons [20 per page, 100 per buttonset]
7	SETUP button used to configure the display window settings, and change the default data directories
8	Graphic detailing the state of all buttons and marking the current button page (dots = empty, squares = loaded). Selecting sections along this line will jump to that button page.
9	PREV and NEXT advance through the pages of buttons in the buttonset
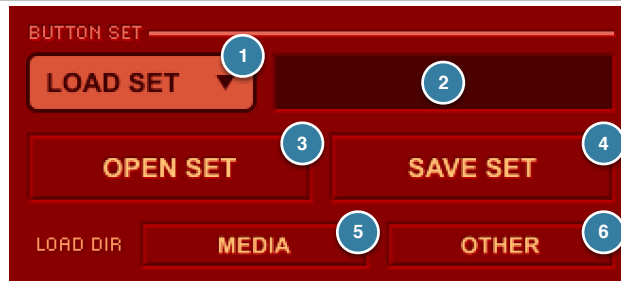
1	Load buttonset from saved {DATA}/buttonsets directory
2	Buttonset name - select to edit
3	Open buttonset from any directory
4	Save the currently open buttonset - this also automatically saves any active button being edited
5	Auto fill the main buttons from the {DATA}/media directory
6	Auto fill the main buttons from a user selected directory

1	Edit selected main button - editing mode remains active until button or buttonset are saved
2	While editing, used to insert the button to a button location on the current button page. Other options: SHIFT + **MOVE** : insert button on ANY button page OPTION/ALT + **MOVE** : COPY button to empty button location on current button page SHIFT +OPTION/ALT + **MOVE** : COPY button to empty button location on ANY button page CONTROL + **MOVE** : SWAP button with button location on current button page SHIFT +CONTROL + **MOVE** : SWAP button with button location on ANY button page
3	Save settings for the current button being edited
4	Create an IMAGE button using a user selected image for the current button being edited
5	Create an SEQUENCE button using a user selected image directory for the current button being edited
6	Create an VIDEO button using a user selected video for the current button being edited
7	Assign an APPLICATION to launch by the current button being edited
8	Button name - select to edit (defaults to media file name for IMG and VIDEO, and directory for SEQUENCE)

1	Sets the image zoom point - the point from which the image zooms in or out.

The following options are fixed zooms that disable zoom controls and image rotation:

fit to window : zooms image to fill display window preserving aspect ratio
fill window X : zooms image to fill the display window width
fill window Y : zooms image to fill the display window height

The following options are user variable zooms that allow image rotation:

image center : zooms from center of image
window center : zooms from center of display window
window left : zooms from left edge of display window
window right : zooms from right edge of display window
window top : zooms from top edge of display window
window bottom : zooms from bottom edge of display window (*Best for mirror projection systems*)

2	Sets the minimum zoom percentage allowed for the image (range = 0% to MAX)

3	Sets the start zoom percentage allowed for the image (range = MIN to MAX)

4	Sets the maximum zoom percentage allowed for the image (range = MIN to 400%)

5	Set the image rotate point - the point around which the image can be rotates left or right.

The following options are only available when there is a user variable zoom point setting:

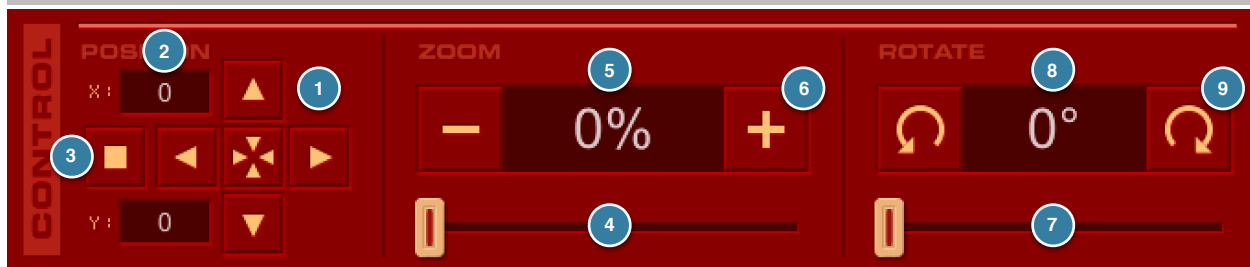**image center** : rotates image around its center
window center : rotates image around the center of display window

6	Sets the minimum rotation in degrees allowed for the image (range = 0% to MAX)

7	Sets the start rotation in degrees allowed for the image (range = MIN to MAX)

8	Sets the maximum rotation in degrees allowed for the image (range = MIN to 359°)

1	Nudge control buttons to move image left, right, up or down in 10 pixel increments. Center button resets the nudge values to (0,0). **NOTE:** *for finer control, SHIFT + left, right, up, down buttons = nudge image by 1 pixel increments*
2	X and Y values for nudging the image can be manually entered using these text inputs. Hit return to set nudge to entered values.
3	Sets the nudge values to those entered in the X and Y inputs. Same as hitting return after entering a value.
4	Zoom slider to control image zoom percentage from MIN to MAX settings (disabled for fixed zooms)

5	Current zoom percentage value.
	
	Also active as a shortcut popup menu, if zooms are not disabled, with the following options:
	
	        start zoom : saved button zoom value
	   fit to window : zooms image to fill display window preserving aspect ratio
	   fill window X : zooms image to fill the display window width
	   fill window Y : zooms image to fill the display window height
	         full size : zooms image to its 100% full size

6	"+" and "-" buttons zoom the image by 10% increments **NOTE:** *for finer control, SHIFT + "+" or "-" buttons = zoom image by 1% increments*
7	Rotation slider to control image rotation angle from MIN to MAX settings (disabled for fixed zooms)

8	Current rotation angle value.
	
	Also active as a shortcut popup menu, if rotations are not disabled, with the following options:
	
	           NONE : saved button rotation value
	  30°, 60°, ... : 30° increment values from MIN to MAX rotation settings

9	"left" and "right" buttons rotate the image by 10° increments **NOTE:** *for finer control, SHIFT + "left" and "right" buttons = rotate image by 1° increments*

1	Nudge control buttons to move sequence images left, right, up or down in 10 pixel increments. Center button resets the nudge values to (0,0). (ALL sequence images will use these values) **NOTE:** *for finer control, SHIFT + left, right, up, down buttons = nudge image by 1 pixel increments*
2	X and Y values for nudging the sequence images can be manually entered using these text inputs. Hit return to set nudge to entered values. (ALL sequence images will use these values)
3	Sets the nudge values to those entered in the X and Y inputs. Same as hitting return after entering a value.

4	Set the image zoom point - the point from which the image zooms in or out.
	
	The following options are fixed zooms that disable zoom controls and image rotation:
	
	        fit to window : zooms image to fill display window preserving aspect ratio
	        fill window X : zooms image to fill the display window width
	        fill window Y : zooms image to fill the display window height
	
	The following options are user variable zooms that allow image rotation:
	
	        image center : zooms from center of image
	     window center : zooms from center of display window
	         window left : zooms from left edge of display window
	       window right : zooms from right edge of display window
	         window top : zooms from top edge of display window
	    window bottom : zooms from bottom edge of display window

5	Sets the start zoom percentage allowed for the image (range = 0% - 400%)

6	Set the image rotate point – the point around which the image can be rotates left or right.
	
	The following options are only available when there is a user variable zoom point setting:
	
	        image center : rotates image around its center
	     window center : rotates image around the center of display window

7	Sets the start rotation in degrees allowed for the image (range = 0° - 359°)
8	Sets the delay in seconds between images in the sequence. This option is disabled and automatically calculated from the audio file length and number of sequence images if the SYNC preset is selected.
9	Optional selection of audio file from {DATA}/media/audio directory to play while image sequence is running. If SYNC is selected, the IMAGE DELAY will automatically be set to time the sequence to the length of the audio file. If SYNC is not selected then the audio file will loop until the image sequence is complete.
10	AUTOPLAY preset – sets whether the sequence begins automatically when the main button is selected
11	LOOP preset – sets whether the sequence loops and repeats when completed
12	SYNC preset – sets whether the sequence is synced to the selected audio file (disabled if no audio file selected)

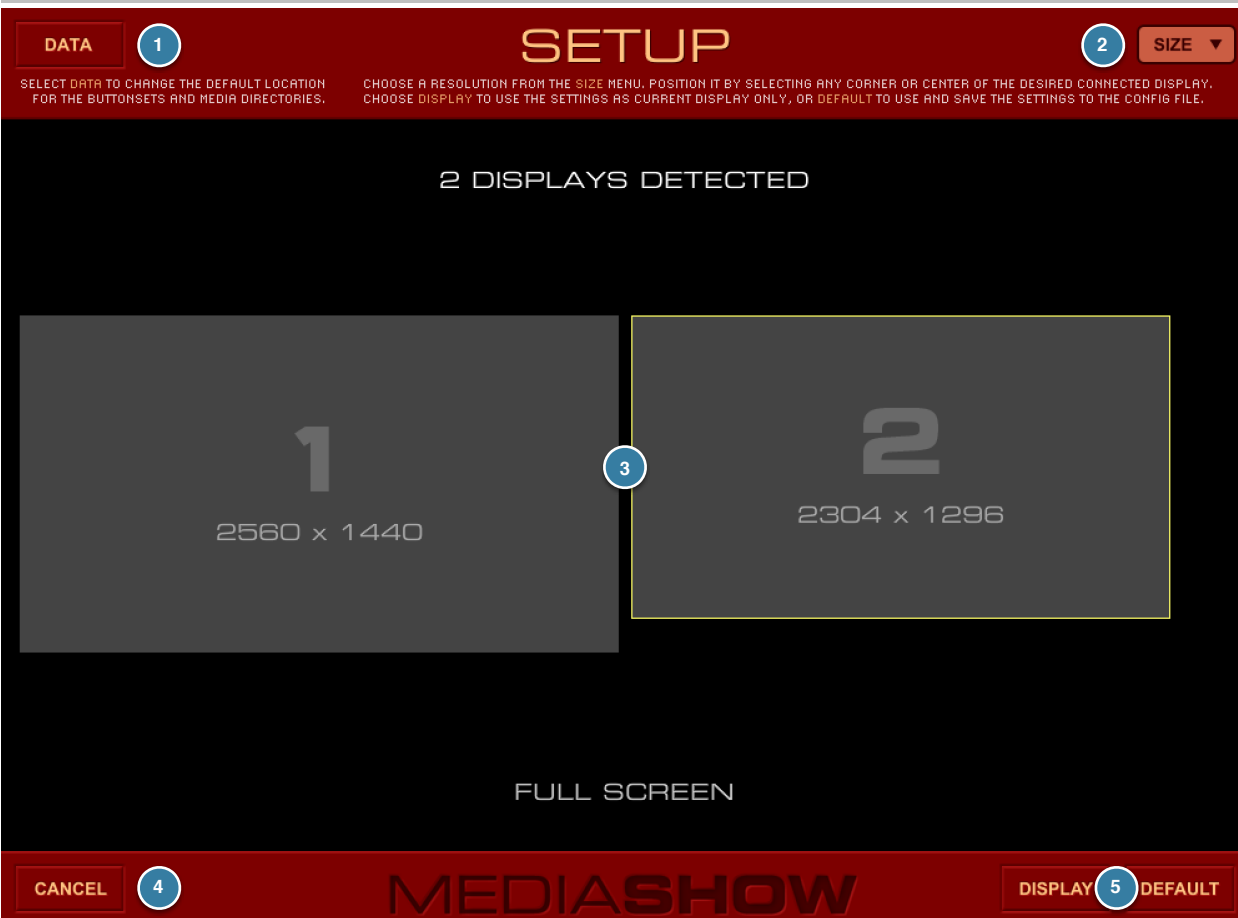| 1	Sequence playback slider – select and drag to change the time and image of the sequence
2	Rewind the sequence to the beginning
3	Back the sequence up by 1 image and adjusts elapsed time and audio to match
4	Play/Pause the sequence
5	Advance the sequence by 1 image and adjusts elapsed time and audio to match
6	Advance the sequence to the end
7	Sets the looping of the sequence – overrides the LOOP preset
8	Audio volume popup menu (range = 0 - 10). The value displays in the corner (**MEDIASHOW** Pro only).
9	Current image number and image total
10	Elapsed time for current image before transitioning to next image

1	Slider sets the start time/frame of video clip assigned to button
2	Slider sets the end time/frame of video clip assigned to button
3	Values of the start and end times and frames for video clip **NOTE:** *selecting these text boxes will set the selected time/frame to the current time/frame of the displayed video as controlled by the main playback slider providing a shortcut to setting the start and end time/frames*
4	Zoom setting of video (default is 100%)
5	Bump setting as a percentage from bottom of display window and dependent on zoom setting of video
6	Optional background image displayed behind video **EXAMPLE:** *as a background framing a non-warped video clip on a dome where the user might choose to display the video at a reduced zoom percentage just above the horizon of the dome for minimum warping*
7	Optional maximum volume setting for video (range 0-10, default = 10) **NOTE:** *the purpose of this optional setting is to limit the maximum volume of a video that might be too loud if played at full volume – the control volume setting options will then range from 0 to this MAX VOL setting*
8	Subtitle font size **NOTE:** *the appearance onscreen will depend on the size and resolution of the display – e.g. a "24pt" subtitle will look large on a small display window, and small on a fullscreen HD display.* *Fonts appear ~3x larger on Windows than on Mac OS X for the same size setting due to how they are rendered onto the video. Because of this, only relative point sizes (1 - 30) are used as settings for subtitles. This is to make the same setting appear approximately the same size on both platforms.*
9	Subtitle location – percentage of display height measured up from bottom of display (range 0% - 100%)
10	Subtitle language – options are NONE, and all properly named and formatted subtitle files found in same directory as video file **NOTE:** *subtitles files must be in .srt format and follow the naming convention of videoFileName.xx.srt where videoFileName = same filename as the video without the file suffix, and xx = language code (see Appendix C)* *e.g. video = "Impact_clip.mp4", English subtitle file = "Impact_clip.en.srt"*
11	AUTOPLAY preset – sets whether the video begins automatically when the main button is selected
12	LOOP preset – sets whether the video loops and repeats when completed
13	SUBTITLES preset – sets whether the video uses subtitles when the main button is selected and loaded

1	Video playback slider – select and drag to change the time/frame of the video (range = MIN - MAX frame)
2	Rewind the video to the beginning
3	Back video up by the "frame SKIP" value set in /resources/mediashow_config.ini (default = 30 frames) **NOTE:** *for finer control, SHIFT + button = back video up by the "frame STEP" value (default = 1 frame)*
4	Play/Pause the video
5	Advance video up by the "frame SKIP" value set in /resources/mediashow_config.ini (default = 30 frames) **NOTE:** *for finer control,SHIFT + button = advance video up by the "frame STEP" value (default = 1 frame)*
6	Advance the video to the end
7	Sets the looping of the video – overrides the LOOP preset
8	Toggles subtitles on/off if they are available Select for shortcut menu of available subtitle languages for video
9	Audio volume popup menu (range = 0 - MAX VOL). The value displays in the corner (**MEDIASHOW** Pro only).
10	Elapsed time of video (MM:SS)
11	Current frame of video

DATA ①

SETUP

② **SIZE ▼**

SELECT DATA TO CHANGE THE DEFAULT LOCATION FOR THE BUTTONSETS AND MEDIA DIRECTORIES.

CHOOSE A RESOLUTION FROM THE SIZE MENU. POSITION IT BY SELECTING ANY CORNER OR CENTER OF THE DESIRED CONNECTED DISPLAY. CHOOSE DISPLAY TO USE THE SETTINGS AS CURRENT DISPLAY ONLY, OR DEFAULT TO USE AND SAVE THE SETTINGS TO THE CONFIG FILE.

2 DISPLAYS DETECTED

1

2560 x 1440

③

2

2304 x 1296

FULL SCREEN

CANCEL ④

MEDIASHOW

DISPLAY ⑤ **DEFAULT**

1	Set location of the default data directory containing "buttonsets" and "media" directories

2	Select the display window size on the selected target display. Options are based on size of detected displays:

FULL SCREEN : display window will fill the selected display
MAX 1x1 [1.00] : max size on selected display preserving a 1.00 aspect ratio
MAX 4x3 [1.33] : max size on selected display preserving a 1.33 aspect ratio
MAX 16x10 [1.60] : max size on selected display preserving a 1.60 aspect ratio
MAX 16x9 [1.78] : max size on selected display preserving a 1.78 aspect ratio
MAX UHD [1.90] : max size on selected display preserving a 1.90 aspect ratio

and depending on the size of the selected display, the following display sizes will be shown as options:

SVGA 800x600 [1.33]	WXGA 1366x768 [1.78]	FHD 1920x1080 [1.78]
XGA 1024x768 [1.33]	SXGA+ 1400x1050 [1.33]	WUXGA 1920x1200 [1.60]
SXGA 1280x1024 [1.25]	WXGA+ 1440x900 [1.60]	2K 2048x1080 [1.90]
WXGA 1280x800 [1.60]	UXGA 1600x1200 [1.33]	4K 4096x2160 [1.90]

3	Select a target display and location from the detected displays, including the option to choose a corner or centered if the selected display size is smaller than the target display

4	Cancel SETUP and return to the main interface with no changes to display settings

5	Use selected settings for the current DISPLAY, or use them to update the display.cfg config file making them the new DEFAULT for future launches of **MEDIASHOW**.

MEDIA**SHOW** default new button settings are controlled by the "/resources/mediashow_config.ini" file. This file can be edited to change the initial values of newly created buttons. Values can be changed later by editing the buttons with the exception of "frameStep", "frameSkip", and the WIN-only "videoRenderer" setting that can only be changed in this config file.

Only change the parameter values in the mediashow_config.ini file. Do NOT alter the parameter names or make changes to any comment lines that start with "#".

The settings available are:

PARAMETER	DEFAULT	RANGE	TYPE	DESCRIPTION
dataPath	DEFAULT	—	string	Path to the directory containing "buttonsets" and "media" folders
audioVolume	8	0..10	integer	Button audio volume setting 0 = Off
autoplaySet	1	0 , 1	boolean	Button autoplay setting (True / False)
loopSet	0	0 , 1	boolean	Button loop setting (True / False)
frameStep	1	1..frameSkip	integer	Number of frames to skip forward or backward in video using the fine frame skip control accessed by SHIFT+"frameSkip" button during video playback. Range is 1 to frameSkip value.
frameSkip	30	30..N(frames)	integer	Number of frames to skip forward or backward using the frameSkip buttons during video playback. Range is 30 to N (total frames in video)
subtitleFontSize	8	1..30	integer	Cross-platform relative font size value for subtitle text.
subtitleOffset	10	0..100	integer	Subtitle vertical position as a percentage offset from bottom of display window. 0 = bottom, 50 = center, 100 = top
videoRenderer	VideoRendererDefault	VideoRendererDefault VideoMixingRenderer9 EnhancedVideoRenderer	string	WIN-only setting that controls which DirectShow video renderer is used. Computers with high-end graphics cards can try EVR or VMR9, but in general the default setting should be used.

Default mediashow_config.ini file:

```
#-------------------- MEDIASHOW CONFIG ----------------------
# This configuration file can be edited to change aspects of
# software operation. Change only the parameter values.
# This file must be in the "resources" folder.
#------------------------------------------------------------
# Path to directory containing buttonsets and media [string]
# Default = DEFAULT
#------------------------------------------------------------
dataPath = DEFAULT
#------------------------------------------------------------
# New button AUDIO VOLUME setting [integer]
# Default = 8 (1..10, 0 = OFF)
#------------------------------------------------------------
audioVolume = 8
#------------------------------------------------------------
# New button AUTOPLAY setting [boolean]
# Default = TRUE
#------------------------------------------------------------
autoplaySet = 1
#------------------------------------------------------------
# New button LOOP setting [boolean]
# Default = FALSE
#------------------------------------------------------------
loopSet = 0
#------------------------------------------------------------
# Frame STEP setting [integer]
# Default = 1 (1..Nframes)
#------------------------------------------------------------
frameStep = 1
#------------------------------------------------------------
# Frame SKIP setting [integer]
# Default = 30 (30..Nframes)
#------------------------------------------------------------
frameSkip = 30
#------------------------------------------------------------
# Subtitle default font size [integer]
# Default = 8 (1..30)
#------------------------------------------------------------
subtitleFontSize = 8
#------------------------------------------------------------
# Subtitle default position (% offset) from display bottom [integer]
# Default = 10 (0..100)
#------------------------------------------------------------
subtitleOffset = 10
#------------------------------------------------------------
# VideoRenderer WIN ONLY [string]
# VideoRendererDefault | VideoMixingRenderer9 | EnhancedVideoRenderer
# Default = VideoRendererDefault
#------------------------------------------------------------
videoRenderer = VideoRendererDefault
```

MEDIA**SHOW** supports the **SRT** subtitle format for video files. It looks for subtitle files in the same directory as the video file, and the filenames must match that of the video file with the addition of a language code prior to the ".srt" suffix.

> Example: If the video file to be displayed is named "video_file.mp4", then MEDIA**SHOW** will recognize and load any valid SRT files that it finds in the same directory with the naming convention "video_file.XX.mp4" – where XX is the 2-letter language code of the subtitles (*See Appendix D: Foreign Language Codes*)

> {DATA}/media/samples/video_file.mp4   = MP4 video file
> {DATA}/media/samples/video_file.en.srt = **English** subtitles
> {DATA}/media/samples/video_file.es.srt = **Spanish** subtitles
> {DATA}/media/samples/video_file.hi.srt = **Hindi** subtitles
> {DATA}/media/samples/video_file.ko.srt = **Korean** subtitles

An **SRT** subtitle file is just a UTF-8 file containing timecode and subtitle text in a specific language. It consists of four parts, all in text:

1. A number indicating which subtitle it is in the sequence.
2. The time that the subtitle should appear on the screen, and then disappear.
3. The subtitle itself.
4. A blank line indicating the start of a new subtitle.

Here is an example **SRT** file:

```
1
00:00:01,300 --> 00:00:04,400
Millions of asteroids and comets
lurk among the planets

2
00:00:04,400 --> 00:00:07,740
left over bits and pieces from
the solar system's formation

3
00:00:07,800 --> 00:00:10,680
four and a half billion years ago.
```

SUBTITLE TOOLS

Aegisub (**www.aegisub.org**) is an excellent free, cross-platform open source tool for creating and modifying subtitles.

APPENDIX E : FOREIGN LANGUAGE CODES

Code	Language	Code	Language	Code	Language	Code	Language
ab	Abkhazian	gd	Gaelic; Scottish Gaelic	lb	Luxembourgish	sn	Shona
aa	Afar	gl	Galician	mk	Macedonian	ii	Sichuan Yi
af	Afrikaans	ka	Georgian	mg	Malagasy	sd	Sindhi
sq	Albanian	de	German	ms	Malay	si	Sinhala; Sinhalese
am	Amharic	el	Greek	ml	Malayalam	sk	Slovak
ar	Arabic	gn	Guarani	mt	Maltese	sl	Slovenian
an	Aragonese	gu	Gujarati	gv	Manx	so	Somali
hy	Armenian	ht	Haitian; Haitian Creole	mi	Maori	st	Sotho, Southern
as	Assamese	ha	Hausa	mr	Marathi	es	Spanish; Castilian
ae	Avestan	he	Hebrew	mh	Marshallese	su	Sundanese
ay	Aymara	hz	Herero	mo	Moldavian	sw	Swahili
az	Azerbaijani	hi	Hindi	mn	Mongolian	ss	Swati
ba	Bashkir	ho	Hiri Motu	na	Nauru	sv	Swedish
eu	Basque	hu	Hungarian	nv	Navaho, Navajo	tl	Tagalog
be	Belarusian	is	Icelandic	nd	Ndebele, North	ty	Tahitian
bn	Bengali	io	Ido	nr	Ndebele, South	tg	Tajik
bh	Bihari	id	Indonesian	ng	Ndonga	ta	Tamil
bi	Bislama	ia	Interlingua	ne	Nepali	tt	Tatar
bs	Bosnian	ie	Interlingue	se	Northern Sami	te	Telugu
br	Breton	iu	Inuktitut	no	Norwegian	th	Thai
bg	Bulgarian	ik	Inupiaq	nb	Norwegian Bokmal	bo	Tibetan
my	Burmese	ga	Irish	nn	Norwegian Nynorsk	ti	Tigrinya
ca	Italian	it	Nyanja; Chichewa; Chewa	ny	Tonga	to	Tonga
ch	Japanese	ja	Occitan (post 1500)	oc	Tsonga	ts	Tsonga
ce	Javanese	jv	Oriya	or	Tswana	tn	Tswana
zh	Kalaallisut	kl	Oromo	om	Turkish	tr	Turkish
cu	Kannada	kn	Ossetian; Ossetic	os	Turkmen	tk	Turkmen
cv	Kashmiri	ks	Pali	pi	Twi	tw	Twi
kw	Kazakh	kk	Panjabi	pa	Uighur	ug	Uighur
co	Khmer	km	Persian	fa	Ukrainian	uk	Ukrainian
hr	Kikuyu; Gikuyu	ki	Polish	pl	Urdu	ur	Urdu
cs	Kinyarwanda	rw	Portuguese	pt	Uzbek	uz	Uzbek
da	Kirghiz	ky	Pushto	ps	Vietnamese	vi	Vietnamese
dv	Komi	kv	Quechua	qu	Volapuk	vo	Volapuk
nl	Korean	ko	Raeto-Romance	rm	Walloon	wa	Walloon
dz	Kuanyama; Kwanyama	kj	Romanian	ro	Welsh	cy	Welsh
en	Kurdish	ku	Rundi	rn	Western Frisian	fy	Western Frisian
eo	Lao	lo	Russian	ru	Wolof	wo	Wolof
et	Latin	la	Samoan	sm	Xhosa	xh	Xhosa
fo	Latvian	lv	Sango	sg	Yiddish	yi	Yiddish
fj	Limburgan; Limburgish	li	Sanskrit	sa	Yoruba	yo	Yoruba
fi	Lingala	ln	Sardinian	sc	Zhuang; Chuang	za	Zhuang; Chuang
fr	Lithuanian	lt	Serbian	sr	Zulu	zu	Zulu

CREDITS

MEDIA**SHOW** is programmed entirely in Adobe® Director®

by Colin Law [colinlaw@me.com]

Special thanks to Valentin Schmidt
for AVFoundation and DirectShow code assistance

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