

# BrightSign™

# User Guide

## HD600 and HD2000

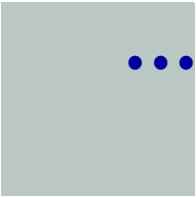
### **MATCHES:**

- BrightSign Software Version: 1.1.28 (HD600); 2.0.94 (HD2000)
- AutoPlay Script Version: 1.1.7b (HD600); 2.0.0.43 (HD2000)

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# Chapter 1

## Introduction



### What is BrightSign?

BrightSign HD600 and BrightSign HD2000 are standalone digital signs or kiosk controllers that play content from standard Flash memory cards. You can use BrightSign with almost any standard or high-definition monitor or TV to play continuous video or image loops. With the addition of a touch screen or input device, such as a button board or keyboard, you can also use BrightSign for interactive presentations, and since BrightSign is compatible with standard media authoring software, you can choose the tools you use to create your content.

Because BrightSign has no moving parts, it is durable, reliable, and an ideal replacement for a PC in information kiosks, tradeshow, retail displays, and other applications. And best of all, BrightSign enables you to maintain or improve the quality of your presentations. Using professional-quality decoding and scaling, BrightSign delivers crisp, clean, high-definition still images as well as 1920 x 1080 interlaced video from your high-definition MPEG sources.

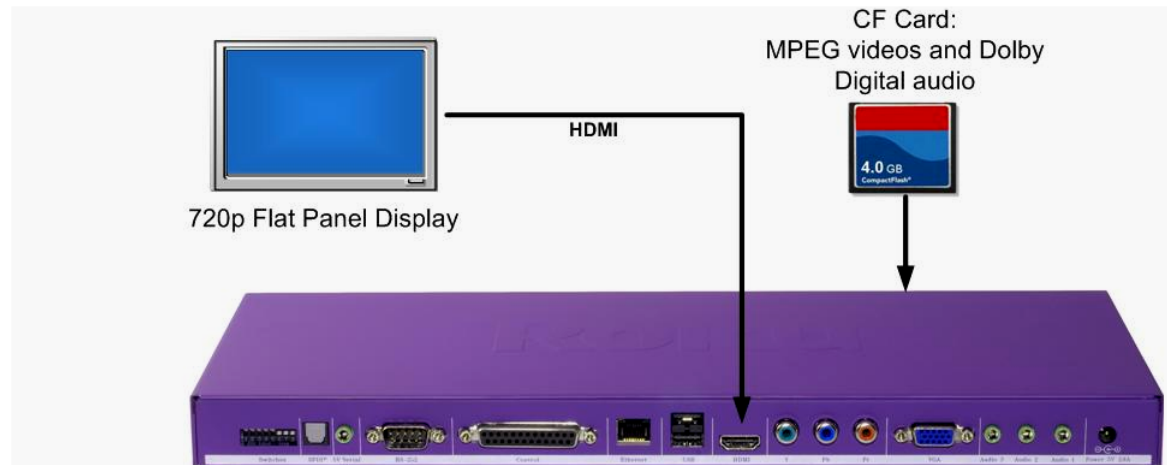
## Sample BrightSign setups

You can connect BrightSign to a wide-range of devices based on your audio, video, and interactivity needs.

### Video or slide show loop

Place a video or set of still images on a CompactFlash card, and connect BrightSign to a display. You can use any of the following methods to connect to a display:

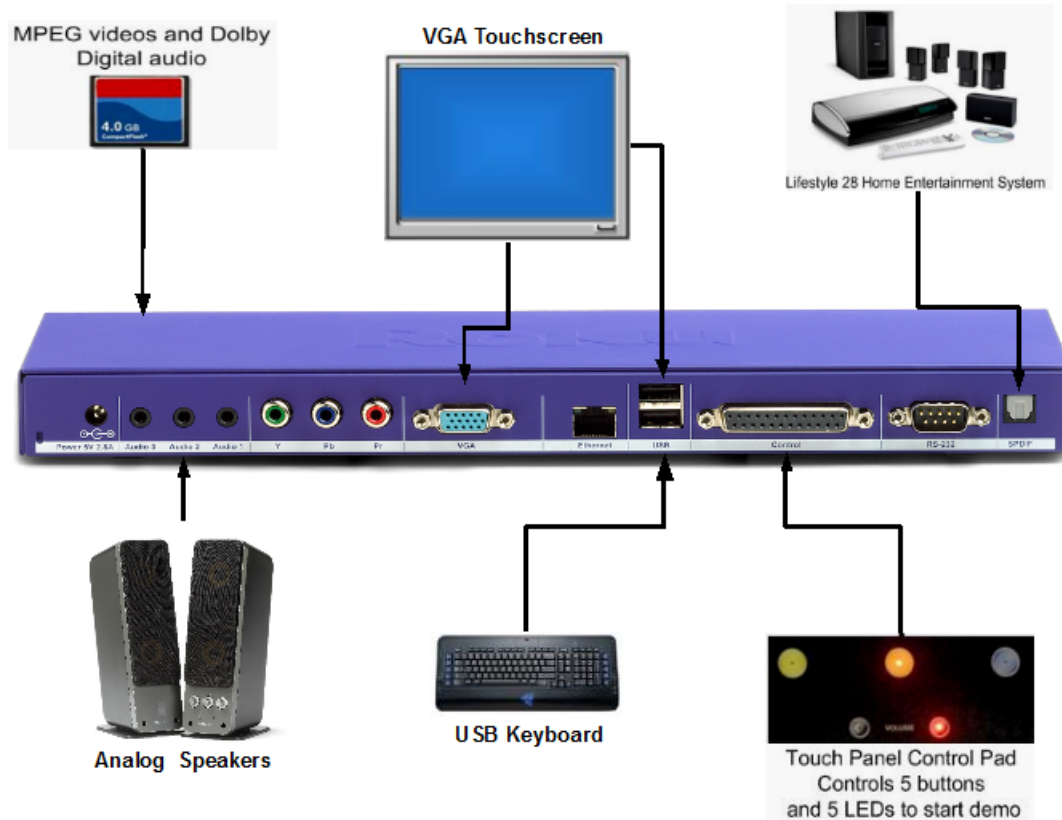
- Use a composite cable to connect to a standard definition display (HD600 only)
- Use a VGA cable to connect to a flat panel monitor
- Use an RGB component cable to connect to a high-definition display (such as a plasma TV)
- Use an HDMI cable to connect to a high-definition display





## Interactive presentation

By connecting powered speakers to BrightSign, you can add audio to your display, and you can add interactivity by connecting an input device such as a keyboard, touch screen, button board, or LED. The example below uses an off-the-shelf USB keyboard.



## Examples

Here are some examples of what you can do with BrightSign:

- Display a looping video with *DVD+* quality on a variety of monitor types
- Display a looping video with HD quality on a variety of display types
- Display a looping slide show in high definition
- Play looping music
- Display videos and images simultaneously in different parts of the screen (also referred to as *zones*)—videos in one zone, slideshow in a second zone, and an RSS feed in a third zone
- Schedule any of the above to play at a specific time (hour, day, month, year)
- Combine any of the above
- Create interactive presentations that play video, photos, or audio in response to input from a touch screen, mouse, keyboard, remote, or a custom button board that you create
- Create a playlist with audio, video, and images





## Chapter 2 Getting Started

### Step 1: Get the hardware you need

To start using your BrightSign, you need the following hardware:

**Display** Any monitor, TV, or Elo touch screen with one of the following types of inputs:

- VGA
- Component
- Composite (HD600 only)
- HDMI (HD2000 only)

**Storage card** Either of the following:

- CF card (see [Selecting Compact Flash cards](#) for more info)
- USB Flash card (HD2000 only)
- SD card (HD2000 only)

**Card Reader/Writer** The card reader/writer must be connected to your Mac or PC and must be compatible with your storage card.

**Optional Accessories** Add any of the following items:

- USB keyboard
- USB mouse

- GPIO (General Purpose Input/Output) button board

**TIP:** To use the BrightSign demo you need one of the following: GPIO button board, ELO touch screen, or USB mouse.

- SoundBridge Remote
- Null modem cable

## Step 2: Get the latest BrightSign software

Depending on when you purchased your BrightSign, you may need to download and install the latest software from the BrightSign web site.

**TIP:** Watch the BrightSign web site for information on BrightSign software updates so that you can take advantage of all the latest features.

- 1 Check your current software version.
  - a Connect a video monitor to your BrightSign.
  - b Start BrightSign without a Compact Flash or SD (CF/SD) card inserted.
  - c Look for the version number below the Roku logo on your screen. If you don't see a software version below the logo, your software is older than version 1.1.

**Tip:** You can also check the BrightSign software version using the shell (see [BrightSign shell](#) for details).

- 2 Download the latest software.
  - a Go to the BrightSign web site [www.brightsign.biz/support](http://www.brightsign.biz/support).
  - b Click the **Software Downloads** link.
  - c Compare the software version number with the number on your BrightSign screen.
  - d If your BrightSign software is older than the software on the web site, click the **Software** link for the appropriate model (HD600 or HD2000) to download the latest software.



- 3 Extract the software update file onto your CF/SD card. (The file name is UPDATE.ROK.)
- 4 Insert the CF/SD card into your BrightSign and apply power.
  - **HD600:** Wait for your BrightSign to boot. (The display will be blank.) After several seconds one of the LEDs on the front panel starts to flash. When the LED stops flashing, the upgrade is complete and BrightSign reboots automatically.
  - **HD2000:** Wait for your BrightSign to boot. (The display will be blank, but the LEDs on the front panel light as the unit boots.) Wait for the red upgrade LED to light up. During the upgrade, the connector activity LEDs turn on and off to indicate that the upgrade is in progress.

**NOTE:** *When the update finishes, BrightSign deletes the UPDATE.ROK file and reboots the unit. However, if the card was formatted with NTFS or HFS+, then BrightSign does not delete the UPDATE.ROK file and the unit doesn't reboot after the update. Instead, the Video Mode LEDs flash.*

### Step 3: Try the demo

The BrightSign demo shows an example of an interactive digital sign that displays still slides and video clips, and responds to input from a button board, touch screen, or mouse. It's easy to try if you have a BrightSign. Follow these steps:

- 1 Go to [www.brightsign.biz/support/download.php](http://www.brightsign.biz/support/download.php).
- 2 Click the **Demo** link under HD600 or HD200 and download the demo file.
- 3 Unzip the **BrightSignDemo.zip** file and copy the contents into the root directory of a Compact Flash or SD (CF/SD) card.
- 4 Connect your BrightSign to either of the following:
  - Elo touch screen
  - Standard monitor and USB Mouse
  - Standard monitor and Roku Button Board
- 5 Insert the CF/SD card.
- 6 Turn on the power.

- 7 Use the touch screen, mouse, or button board to select one of the four hot spots.



You can also use the demo to try BrightSign with different types of monitors:

- 1 Connect your BrightSign to a monitor or TV using a VGA, component, or HDMI connection.
- 2 Make sure your monitor is configured to receive input from the cable you're using.
- 3 Start the demo by inserting the CF/SD card you created in the previous set of steps.

You should now see the demo in various video modes. Note how BrightSign automatically scales the images and that it supports both widescreen and 4x3 formats.

## Step 4: Get the results you want

Now you're ready to start using your BrightSign. Just add your content (see [Supported media types](#) for details on the types of files you can use) and follow the directions in [Playing Media with BrightSign](#) to play your presentation.

# Chapter 3

## Playing Media with BrightSign

### Ways to play media

There are several ways to play media files on a BrightSign device:

- Play media automatically from a CompactFlash or SD (CF/SD) card when you turn on a BrightSign
- Play media via a script on a CF/SD card
- Use the serial shell commands to test media playback

**NOTE:** *The HD600 outputs video through the VGA connector in 1024x768 resolution, unless you change this in your playlist, interactive playlist, or script, or by using the front panel video mode button.*

*The HD2000 outputs video through the Component and HDMI connectors and the default video resolution is 720p. If the resolution of a still image file does not exactly match the display resolution (videomode), then BrightSign scales the image to fit or it centers/crops the image, depending on the imagemode you selected (see [Playlist commands](#) and [Keywords](#) for details). Video files are always scaled to fit. (The video mode button is not currently supported on the HD2000.)*

BrightSign can autoplay the following types of media:

- **MPEG-2 video.** You can use a single file as a loop, or multiple files. For the HD600, files must contain an audio track; if you don't need audio, include a silent audio track.
- **MP3 Audio.** Any audio (in a video or mp3 file) must have a sample rate of 48KHZ (or 44.1KHZ on the HD2000).
- **WAV Audio** (HD2000 only). WAV files must contain 16 bit linear PCM data.
- **Bitmap files.** For still images, use an 8-bit, 24-bit, or 32-bit BMP file format. You can also use PNG and JPEG files on the HD2000.

**NOTE:** *To use 8-bit bitmap files, you must have an HD600 with software version 1.1 or later or an HD2000 with software version 1.0.4 or later.*

- **A playlist.** A playlist is a simple text file that contains the file names of still slides, video clips, or audio files to play. See [Working with Playlists](#) for more information.
- **An interactive playlist file.** BrightSign uses interactive playlists as a description of an interactive sign that responds to buttons, touch screen, mouse, track balls, etc. The BrightSign demo uses this method. Interactive playlists are very powerful and easy to create without any scripting. You can create an interactive playlist using Microsoft Excel (or any editor that supports CSV files, such as OpenOffice or the editor hosted at <http://csved.sjfrancke.nl/index.html>). See [Creating interactive presentations](#) for more information.
- **A custom BrightScript file.** A script is a simple program that controls behaviors based on events, and is appropriate for arbitrarily complex interactive media sequences. See [Working with Scripts](#) for more information.

**NOTE:** *If you're using AUTORUN.BAS v1.1 or later and you want to autoplay a list of images on startup, you must use a playlist or interactive playlist.*

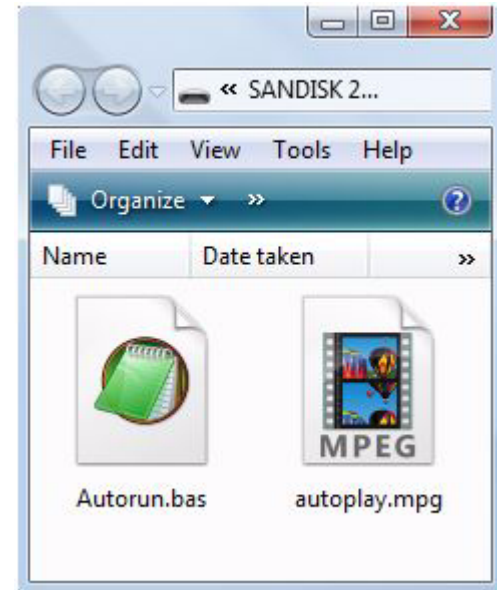




## Auto-playing a video upon power-up

To autoplay a video file on power-up or reset, do the following:

- 1 Copy the video file into the root directory of a CF/SD card and name it **AUTOPLAY.VOB** or **AUTOPLAY.MPG**.
- 2 Go to [www.brightsign.biz/support](http://www.brightsign.biz/support) and click the **Software Downloads** link.
- 3 Click the **AutoPlay Script** link under the appropriate model (HD600 or HD200) to download the **AUTOPLAY.ZIP** file.
- 4 Expand the **AUTOPLAY.ZIP** file, which contains a script named **AUTORUN.BAS**.
- 5 Copy **AUTORUN.BAS** into the root directory of your CF/SD card.
- 6 Insert the CF/SD card into your BrightSign.
- 7 Turn on your BrightSign. After a few moments, BrightSign plays the video and repeats it automatically to create a loop.



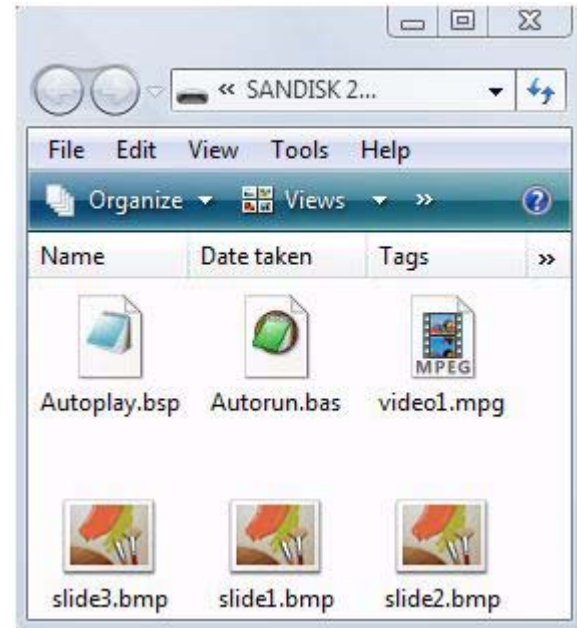
**EXAMPLE 1:** CF/SD card with auto-play files

## Auto-playing a playlist upon power-up

A playlist is a text file that describes the items you want to play and the order in which you want to play them. A playlist can include still images, video clips, or audio clips. For details on creating playlists, see [Working with Playlists](#).

To autoplay a playlist file on power-up or reset, do the following:

- 1 Create a playlist file and name it **AUTOPLAY.BSP** (see [Working with Playlists](#) for details).
- 2 Copy the playlist file into the root directory of a CF/SD card.
- 3 Copy any still graphics, audio files, or video files you included in the playlist into the root of your CF/SD card.
- 4 Go to [www.brightsign.biz/support](http://www.brightsign.biz/support) and click the **Software Downloads** link.
- 5 Click the **AutoPlay Script** link under the appropriate model (HD600 or HD200) to download the **AUTOPLAY.ZIP** file.
- 6 Expand the **AUTOPLAY.ZIP** file, which contains a script named **AUTORUN.BAS**.
- 7 Copy **AUTORUN.BAS** into the root directory of your CF/SD card.
- 8 Insert the CF/SD card into your BrightSign.
- 9 Turn on your BrightSign. After a few moments, BrightSign plays the playlist and loops it automatically.



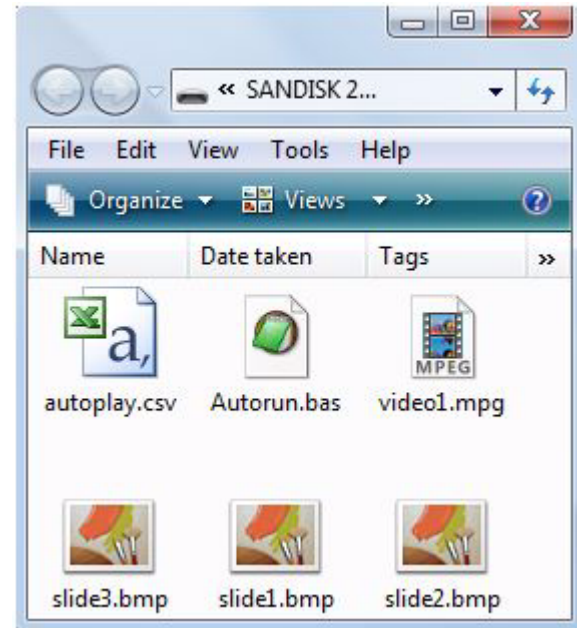
**EXAMPLE 2:** CF/SD card with playlist files

## Auto-playing an interactive playlist upon power-up

BrightSign can also play a sophisticated presentation that is described in an interactive playlist. An interactive playlist is a simple text file that contains a table of information. Using Microsoft Excel, you can easily create a file that describes a sophisticated interactive presentation. The interactive playlist describes which media to play upon power-up, and which media to play when a user presses a button or triggers other events.

To autoplay an interactive playlist on power-up or reset, do the following:

- 1 Create an interactive playlist using Microsoft Excel and name the file **AUTOPLAY.CSV** (see [Creating interactive presentations](#) for details).
- 2 Copy your media files and your interactive playlist into the root directory of a CF/SD card.
- 3 Go to [www.brightsign.biz/support](http://www.brightsign.biz/support) and click the **Software Downloads** link.
- 4 Click the **AutoPlay Script** link under the appropriate model (HD600 or HD200) to download the **AUTOPLAY.ZIP** file.
- 5 Expand the **AUTOPLAY.ZIP** file, which contains a script named **AUTORUN.BAS**.
- 6 Copy **AUTORUN.BAS** into the root directory of your CF/SD card.
- 7 Insert the CF/SD card into your BrightSign.
- 8 Turn on your BrightSign. After a few moments, BrightSign runs the interactive playlist and plays the media referenced in the file.

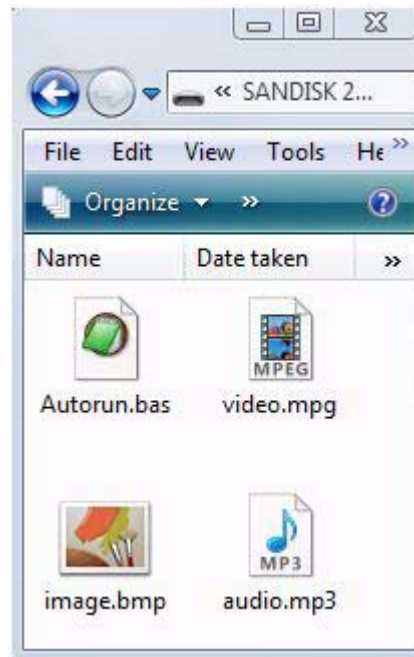


**EXAMPLE 3:** CF/SD card with interactive playlist files

## Auto-playing a script upon power-up

Creating a BrightScript script gives you the most control over your interactive presentation. To autorun a script, do the following:

- 1 Create a script using a text editor and name the file **AUTORUN.BAS** (see [Working with Scripts](#) for details).
- 2 Copy the script into the root directory of your CF/SD card.
- 3 Insert the CF/SD card into your BrightSign.
- 4 Turn on your BrightSign. After a few moments, BrightSign runs the script and plays the media referenced in the script.

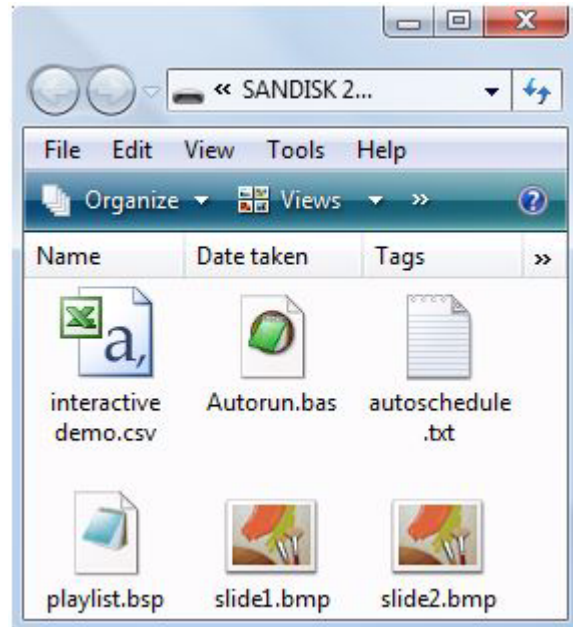


**EXAMPLE 4:** CF/SD card with script files

## Auto-playing content at a scheduled time (HD2000 only)

To play videos, still images, playlists, or interactive playlists at scheduled times, do the following:

- 1 Create a scheduling file using a text editor and name the file **AUTOSCHEDULE.TXT** (see [Scheduling playback \(HD2000 only\)](#) for details).
- 2 Copy **AUTOSCHEDULE.TXT** into the root directory of your CF/SD card.
- 3 Copy all video, still image, playlist, and interactive playlist files listed in **AUTOSCHEDULE.TXT** into the root directory of the CF/SD card.
- 4 Go to [www.brightsign.biz/support](http://www.brightsign.biz/support) and click the **Software Downloads** link.
- 5 Under HD2000, click the **AutoPlay Script** link to download the **AUTOPLAY.ZIP** file.
- 6 Expand the **AUTOPLAY.ZIP** file, which contains a script named **AUTORUN.BAS**.
- 7 Copy **AUTORUN.BAS** into the root directory of your CF/SD card.
- 8 Insert the CF/SD card into your BrightSign.
- 9 Turn on your BrightSign. After a few moments, BrightSign plays the appropriate content.

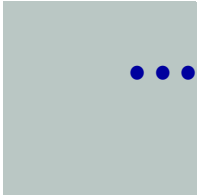


**EXAMPLE 5:** CF/SD card with interactive playlist files



# Chapter 4

## Working with Playlists



### What is a playlist?

A BrightSign playlist is a text file that ends in BSP (BrightSign Playlist). It contains the names of the files you want to play and the order in which you want to play them. Files in a playlist are played in sequence, one after the next. This means that you cannot use a playlist to play files simultaneously. For example, you cannot play an audio file and a video file at the same time unless you add your audio to your video file.

A simple playlist might contain just these lines:

```
slide1.bmp  
slide2.bmp  
slide3.bmp
```

This playlist would play SLIDE1.BMP, then SLIDE2.BMP, then SLIDE3.BMP, and then it would repeat to create a loop.

The files in a playlist don't have to be bitmaps; you can use video or audio files too. You can also mix media types in a single playlist and trigger GPIO (General Purpose Input/Output) pins. In addition to filenames, there is a set of about 16 commands that you can use in a BrightSign playlist. For example, if you want the playlist to pause for 5 seconds between images, the slideshow playlist above could be modified like this:

```
slideinterval 5  
slide1.bmp  
slide2.bmp  
slide3.bmp
```

To pause five seconds between slides 1 and 2, and two seconds between slides 3 and 4, modify the playlist like this:

```
slideinterval 5  
slide1.bmp  
slide2.bmp  
slideinterval 2  
slide3.bmp  
slide4.bmp
```



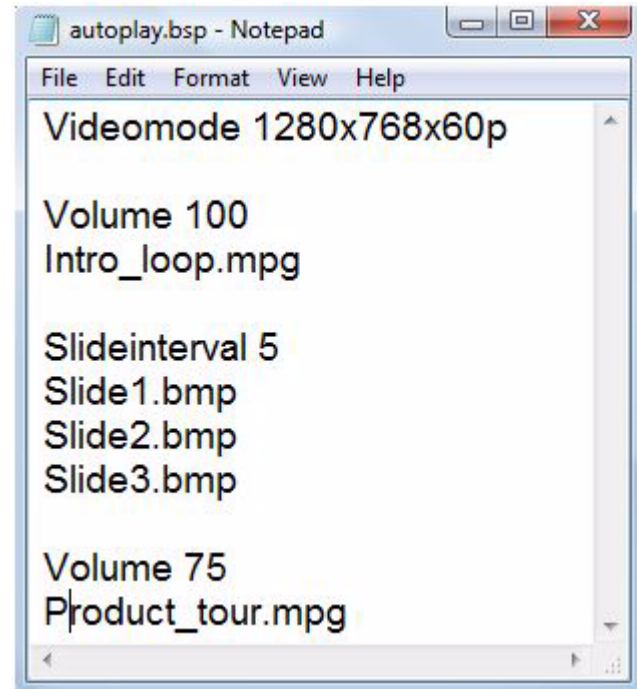


## Creating a playlist

- 1 Using a text editor, such as Notepad, enter the names of the files you want to play in the order in which you want them to play.
- 2 (Optional) Enter any commands you want to add to your playlist. See the next section, [Playlist commands](#), for a description of available commands.
- 3 Use the **Save As** command to the file with a **BSP** extension.

**NOTE:** *By default, most text editors automatically save files with a TXT extension, so you need to override the default file extension when saving the playlist file.*

- 4 Copy the following files to your CF/SD card:
  - Your playlist (the file you created in steps 1-3)
  - Media files referenced in your playlist
  - AUTORUN.BAS
- 5 Do either of the following:
  - Play the playlist automatically upon startup (see [Auto-playing a playlist upon power-up](#) for details).
  - Play the playlist at a scheduled time (see [Auto-playing content at a scheduled time \(HD2000 only\)](#) for details).



**EXAMPLE 1:** *Playlist file*

## Playlist commands

Here is the list of commands that you can use in a playlist:

### **BMP, MP3, MPG, VOB, PNG (HD2000 only), JPG (HD2000 only)**

Any line that is a file name and that ends in one of these extensions is valid. Names may contain spaces.

### **debug**

Use this command to view debug information on the display (serial port).

### **rem <comment>**

Any line starting with rem is ignored, so you can include comments in your playlist. Rem is short for *remark*.

### **print <line to print to console>**

Use this command to send a line of text to the display. This command is useful for debugging.

### **audiomode #** (*default is 1*)

BrightSign provides 5.1 audio decoding that is controlled via the audiomode command. If your audio source is a video file, you can use any of the following audiomode commands:

- **audiomode 0:** Provides decoded 5.1 surround sound (via USB or all six analog outs).
- **audiomode 1:** Mixes down 5:1 surround sound to stereo.
- **audiomode 2:** Mutes the audio.



### **audiooutput #** *(default is 0)*

BrightSign has 5 different audio outputs. If an output is not specified, BrightSign uses analog audio 0 in stereo as the default. Of the 5 outputs, there are five audiooutput modes that are set with the audiooutput command. The audiooutput command can have one of the following values:

- **0:** Outputs analog audio.
- **1:** Outputs USB audio.
- **2:** Outputs SPDIF audio in stereo PCM.
- **3:** Outputs SPDIF audio in raw AC3.
- **4:** Outputs analog audio with SPDIF mirroring raw AC3.

### **audiochan #** *(default is 2)*

Since there are three analog outputs, you must also use the audiochan command if you selected analog audio output:

- **audiochan 2:** Sets output 1 (this is not a typo).
- **audiochan 1:** Sets output 2.
- **audiochan 0:** Sets output 3.

### **volume #** *(default is 100)*

You can set the volume level by specifying a value between 0 and 100. For example: `volume 100` is full volume.

## **videomode <mode>** (HD600 default is 1024x768x60p; HD2000 default is 1280x720x60p)

Set the output framebuffer format. The options are:

### **VGA:**

- 1024x768x60p
- 640x480x60p (HD600 only)
- 800x600x60p (HD600 only)
- 1280x768x60p (HD2000 only)

### **Component:**

- 720x480x60p
- 720x576x50p (HD2000 only)
- 1280x720x60p
- 1280x720x50p (HD2000 only)
- 1920x1080x60i (HD2000 only)

### **Composite (HD 600 only):**

- NTSC
- PAL

## **Viewmode <setting>** (default is 0)

You can use a view mode that is different from the default by setting the mode prior to starting video playback. The view\_mode values are:

- **0:** Scales the video to fill the screen without maintaining the aspect ratio. Images may appear stretched.
- **1:** Centers the image and adds black borders. This is also referred to as *letter boxed* video. The aspect ratio is maintained.
- **2:** Centers the image and fills the screen. The aspect ratio is maintained.



### **imagemode #** *(default is 0)*

The `imagemode` command specifies whether the image is scaled to the display.

- **imagemode 0:** Centers the image without scaling (may result in cropping if the image is larger than the current videomode resolution).
- **imagemode 1:** Scales the image to fit the display. The whole image is displayed as large as possible with correct aspect ratio.
- **imagemode 2:** Scales the image to fill the display while maintaining aspect ratio.
- **imagemode 3:** Scales the image to fill the screen without maintaining aspect ratio.

### **slideinterval #** *(default is 3)*

Set the number of seconds between slides. The number must be an integer. For example: `slideinterval 3` inserts a 3-second pause between slides.

### **transition #** *(default is 0)*

Set the transition between images. Transition commands include:

- **0:** Changes images immediately with no transition.
- **1 to 4:** Wipes the image from top, bottom, left, and right.
- **5 to 8:** Explodes the image from the center, top left, top right, bottom left, and bottom right.
- **10 to 11:** Divides the image into vertical and horizontal venetian blinds.
- **12 to 13:** Comb the image both vertically and horizontally.
- **14:** Fades the image to the background color.
- **15:** Fades between the current image and the new image.
- **16 to 19:** Slides the image from top, bottom, left, and right.

### **lighton # or lightoff #**

Use the `lighton` and `lightoff` commands to set or clear one of the GPIO outputs. The number can be any integer between 17 and 22. For example: `lighton 17` sets LED 0 on the button board.

### **waitbuttonany**

Use this command when you want the playlist to pause until any GPIO buttons is pressed.

### **pause #**

Use this command when you want the playlist to pause for a specified number of seconds. The number must be an integer. For example, to pause for 5 seconds, the command would be:

```
pause 5
```

### **stop**

Use this command to stop playback of the playlist.

## **Creating interactive presentations**

With BrightSign you can create presentations that respond to input from the user. For example, you can let customers choose which video to watch by pressing the button associated with the video of their choice. Interactive presentations also respond to user input from touch screens, mice, serial or USB keyboards, and barcode scanners (see [Supported input devices](#) for a complete list of supported input devices). To accomplish this with BrightSign, you need to specify the input device, and you need to do either of the following:

- Use Microsoft Excel to create a control table and use the BrightSign interactive playlist mode (see the next section, [Using Excel to create interactive presentations](#) for details).
- Create a custom control script (see the next chapter, [Working with Scripts](#) for details).



## Using Excel to create interactive presentations

BrightSign can play a sophisticated sign that is described in an interactive playlist. An interactive playlist is a simple text file that contains a list of information separated by commas. Using Microsoft Excel, you can create an interactive playlist to describe a sophisticated interactive sign using a text table. The table describes which media to play, and which media to play when a user presses a button or triggers other events.

A good example of an interactive playlist is the one used in the BrightSign demo. You can run the demo to see what it does, and then modify it to meet your needs.

- 1 Run the demo as described in the introduction.
- 2 Find the file **AUTOPLAY.CSV** in the zip file and copy it onto your desktop.
- 3 Double-click **AUTOPLAY.CSV** to open it into Microsoft Excel (you must have Excel installed on your computer. If not, you can load it into any text editor, but the file won't display in table format).
- 4 Edit the file to meet your needs (see Keywords for a description commands you can include in your interactive playlist file).
- 5 Use the **Save As...** command to keep your changes and select **CSV** as the file format.

**NOTE:** Brightsign requires a comma-separated CSV file. If you're outside the United States, check the regional settings in Excel and make sure the list separator is a comma and the decimal separator is a period. Brightsign requires a comma-separated CSV file with periods as the decimal separator (international defaults may vary).

Below is a section of the AUTOPLAY.CSV file from the BrightSign demo. Due to space limitations, it does not include all the columns. The columns not shown here are similar to the 5 right-hand columns, and they describe what happens when the user presses buttons or when a video finishes or a slide times out.

VIDEOMODE	1024x768x60p					
IMAGEMODE	1					
EVENTS		elo:110:180:350:200	elo:510:180:350:200	elo:110:400:350:200	elo:510:400:350:200	elo:0:0:1024:768
STATE	demo_menu.bmp	Dalmations.mpg	art1.bmp	cars.mpg	bs1.bmp	
STATE	Dalmations.mpg					demo_menu.bmp
STATE	Cars.mpg					demo_menu.bmp
STATE	art1.bmp					demo_menu.bmp
STATE	art2.bmp					demo_menu.bmp
STATE	art3.bmp					demo_menu.bmp
STATE	art4.bmp					demo_menu.bmp
STATE	bs1.bmp				bs2.bmp	
STATE	bs2.bmp				bs3.bmp	
STATE	bs3.bmp				bs4.bmp	
STATE	bs4.bmp				bs5.bmp	
STATE	bs5.bmp				bs6.bmp	
STATE	bs6.bmp				bs7.bmp	
STATE	bs7.bmp				bs8.bmp	
STATE	bs8.bmp				bs9.bmp	
STATE	bs9.bmp				bs10.bmp	
STATE	bs10.bmp				demo_menu.bmp	





## Keywords

You can include any of the following keywords at the beginning of your playlist file:

### VIDEOMODE – HD600

- ntsc
- pal
- 640x480x60p
- 800x600x60p
- 1024x768x60p
- 720x480x60p
- 1280x720x60p

**NOTE:** *If you set the VIDEOMODE, this locks the front panel button on your BrightSign. If you leave this option off, BrightSign defaults to 1024x768 VGA, and you can use the front panel button to change the video mode.*

### VIDEOMODE – HD2000

- 720x480x60p
- 720x576x50p
- 1024x768x60p
- 1280x768x60p
- 1280x720x60p
- 1280x720x50p
- 1920x1080x60i

**NOTE:** *The front panel button is not supported on the HD2000. If you use a script to change the video mode, BrightSign reboots and sets the video mode based on the script.*

## IMAGEMODE

- **0:** Centers the image and no scaling takes place. If the image is bigger than the screen, BrightSign crops the image.
- **1:** Scales the image to fit so that it is fully viewable with its aspect ratio maintained.
- **2:** Scales and crops the image so that it totally fills the screen with its aspect ratio maintained.
- **3:** Scales the image so that it fills the screen and the whole image is viewable. This means that the is stretched and the aspect ratio may not be maintained.

## VIDEOPLAYERAUDIOMODE <audio mode> (HD2000 only)

Sets the audio mode used when playing a video

- **0:** Sets the audio to AC3 surround.
- **1:** Mixes AC3 surround audio down to stereo.
- **2:** Mutes the audio.

## VIDEOPLAYERAUDIOOUTPUT <audio output> (HD2000 only)

Sets the audio output when playing a video

- **0:** Outputs analog audio.
- **2:** Outputs SPDIF audio in stereo PCM.
- **3:** Outputs SPDIF audio in raw AC3.
- **4:** Outputs analog audio with SPDIF mirroring raw AC3.

## VIDEOPLAYERAUDIOSTEREOMAPPING <stereo mapping> (HD2000 only)

Sets the analog output when playing a video. Use this parameter when the VIDEOPLAYERAUDIOOUTPUT parameter is set to **0** – Analog audio.

- **0:** Maps stereo audio to Audio 3.
- **1:** Maps stereo audio to Audio 2.
- **2:** Maps stereo audio to Audio 1.



### **VIDEOPLAYERAUDIOVOLUME <volume> (HD2000 only)**

Sets the volume when playing a video. The volume parameter can be any number between 0 and 100.

### **AUDIOPLAYERAUDIOOUTPUT <audio output> (HD2000 only)**

Sets the audio output when playing an audio file.

- **0:** Outputs analog audio.
- **1:** Outputs USB audio.
- **2:** Outputs SPDIF audio in stereo PCM.
- **3:** Outputs SPDIF audio in raw AC3.
- **4:** Outputs analog audio with SPDIF mirroring raw AC3.

### **AUDIOPLAYERAUDIOSTEREOMAPPING <stereo mapping> (HD2000 only)**

Sets the analog output when playing an audio file. Use this parameter if the AUDIOPLAYERAUDIOOUTPUT parameter is set to **0** – Analog audio.

- **0:** Maps stereo audio to Audio 3.
- **1:** Maps stereo audio to Audio 2.
- **2:** Maps stereo audio to Audio 1.

### **AUDIOPLAYERAUDIOVOLUME <volume> (HD2000 only)**

Sets the volume level when playing an audio file. The volume parameter can be any number between 0 and 100.

## FLIPELO

Reverses the coordinates of the touch screen. This keyword isn't used in the example above, and it should be used only if the touch screen coordinates appear to be reversed.

FLIPELO		
IMAGEMODE	2	
EVENTS		elo:110:180:355:210

## REGISTRYSECTION <registry section name> (HD2000 only)

Specifies the registry section where registry input is stored. If the registry section name is not specified in the interactive playlist, registry input appears in the **User** section of the registry. See [Using the registry \(HD2000 only\)](#) for additional information.

## DELETEREGISTRYSECTION <registry section name> (HD2000 only)

Deletes the specified registry section and all registry keys and values within this section.

## DELETEREGISTRYKEY <registry key> (HD2000 only)

Deletes the specified registry key from the current registry section. The corresponding registry value is also deleted.



## EVENTS

After the keywords, the first line of the interactive playlist is the EVENTS row. For every event type you want to respond to, you must make an entry in this row. You do not need to enter events you don't use. BrightSign supports the following event types:

### elo

Triggers with a USB Mouse or Elo Touch Screen press within a rectangular touch area. Use this format to define the touch area:

`elo:x:y:width:height`

- **x:y** represents the starting position, where 0,0 is in the upper left
- **width:height** represents the width and height of the area in pixels based on a 1024 x 768 resolution

You can have as many elo events as you wish. Events can overlap touch areas, but in this case, you should only use one at a time (see the demo example and how it uses a touch area that covers the entire screen when not in the main menu).

**NOTE:** You can also use **elor** instead of **elo**. They are interchangeable.

### eloc

Triggers with a USB Mouse or Elo Touch Screen press within a circular touch. Use this format to define the touch area:

`eloc:x:y:radius`

- **x:y** represents the center of the circular region
- **radius** represents the radius of the circular region, in pixels

## button

Triggers on a GPIO Control Port button press. Use this format to define the button number:

`button:number`

- **number** represents a number between 0 and 12.

## timeout

You can use a timeout event when a video or slide is displaying, or an audio file is playing. For example, use timeout when you want to advance a slide show to the next slide or to exit a looping video after a certain number of seconds of playback. You can have only one timeout event per interactive playlist. The format is:

`timeout:seconds`

- **seconds** represents the number of seconds after the video/image/audio starts that the event will trigger.

## mstimeout (HD2000 only)

This event is similar to timeout, but you can have multiple mstimeout events per interactive playlist. The format is:

`mstimeout:milliseconds`

- **milliseconds** represents the number of milliseconds after the video/audio/image starts that the event will trigger.

## videoend

This event triggers when a video finishes playing. You can use this event to move on to another state after the video ends. The format is: `videoend`. There are no parameters.

## audioend

This event triggers when an mp3 file finishes playing. You can use this event to move on to another state after the audio ends. The format is: `audioend`. There are no parameters.

**TIP:** See [Using rollover regions](#) for two additional events you can use with interactive playlists.



## STATE

After the EVENTS row, the interactive playlist may include one or more STATE rows. These rows begin with the keyword STATE. The first cell after the STATE keyword is the name of the video or image file to display, or audio file to play. When the state is entered, this file starts playing. The remaining cells describe what state to jump to when the corresponding event happens. For example, in the demo example, the first state is DEMO\_MENU.BMP. While in this state, the main menu for the demo appears on the display. If the user presses the elo touch screen or clicks the mouse in the right spot to trigger the elo:110:180:350:400 event, then BrightSign jumps to the new state CARS.MPG. Look at the STATE rows in the demo example; notice one of these rows starts with CARS.MPG. It is also important to note that there can be only one state with a particular file.

To understand this better, open the demo's AUTOPLAY.CSV file in Excel while playing the demo on your BrightSign. As you select options on your BrightSign, look at the interactive playlist to see how it tells your BrightSign what to do. You can then edit the autoplay interactive playlist in Excel and Save As... a CSV file to create your own applications.

## Controlling GPIO outputs from an interactive playlist (HD2000 only)

To control GPIO output for a particular state, add a GPIO command to the second column of the state specification in the interactive playlist.

The general syntax is:

```
<state name>:<gpio command>(<gpio_num>;<gpio_num>;gpio_num)
```

Enter the state name followed by a colon, then the gpio command, then a list of GPIO's separated by semicolons inside parentheses. GPIO 0 corresponds to the first LED on the button board.

The GPIO commands are:

- **gpiosOn:** Turns on the specified GPIO's; unspecified GPIO's are unchanged.
- **gpiosOff:** Turns off the specified GPIO's; unspecified GPIO's are unchanged.
- **gpios:** Turns on the specified GPIO's; unspecified GPIO's are turned off.

## Examples

```
Demo_menu.bmp:gpios(1;3;5)
```

When BrightSign enters the demo\_menu.bmp state, LED's 1, 3, and 5 are turned on; the other LED's are turned off.

```
aq.mpg:gpiosOn(2)
```

When BrightSign enters the aq.mpg state, LED 2 is turned on and the other LED's are unaffected.

```
ppt10.bmp:gpiosOff(0;2;4)
```

When BrightSign enters the ppt10.bmp state, LED's 0, 2, and 4 are turned off; and the other LED's are unaffected.

```
product1.bmp:gpios()
```

When BrightSign enters the product1.bmp state, All LED's are turned off.

## Preloading images

The autoplay script preloads still images so that appear automatically when a user triggers their display. Here are the rules that apply to preloading an image:

- If a state row only has one possible next image state, then the next image is preloaded.
- If a state row has more than one possible next image state, and one of them is the next row in the state table, then the image associated with the next state is preloaded. Therefore, if you have a sequence of images that display one after the other and you want them to preload, put them in sequential rows in the state table. To see an example of this, look at the BS1.BMP, BS2.BMP, etc. state rows in the interactive playlist demo.





## Simultaneous states within a single interactive playlist (HD2000 only)

Within a single interactive playlist, you can create an interactive presentation with simultaneous states. For example, you can:

- Play an HDMI slide show at the same time as an analog audio file.
- Plays a video with English audio in the main speakers, French audio in headphone #1, and Spanish audio in headphone #2.

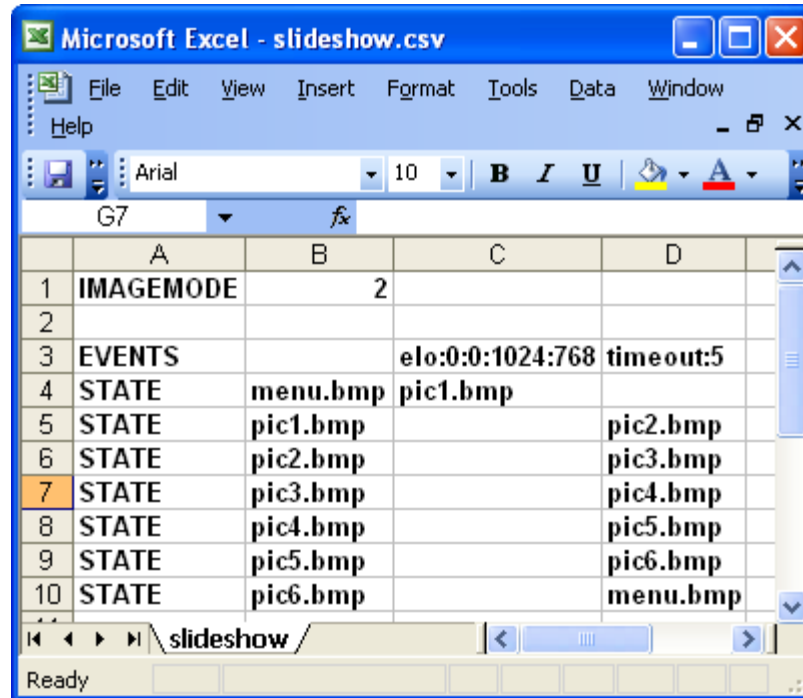
The various states can run simultaneously and independently. To use simultaneous states, insert the keyword **NEXT** in the first column of the first row that follows all of the primary STATE rows. You can then add other keywords, followed by the states for the simultaneous activities. You can use this process to add up to four states.

When using simultaneous states, only the first state can include video and images. Additionally, the states must use independent resources. For example, if state 1 is using analog output Audio 1, then this output channel is unavailable to other states– therefore, another state would use analog output Audio 2.

See [EXAMPLE 5: Simultaneous states in a single interactive playlist](#) for an example of an interactive playlist with simultaneous states.

## Interactive playlist examples

The BrightSign demo shows that you can design powerful interactive signs using interactive playlists. The following examples illustrate how easy it is to use and understand interactive playlists.



The screenshot shows a Microsoft Excel window titled "Microsoft Excel - slideshow.csv". The window displays a table with the following data:

	A	B	C	D
1	IMAGEMODE	2		
2				
3	EVENTS		elo:0:0:1024:768	time out:5
4	STATE	menu.bmp	pic1.bmp	
5	STATE	pic1.bmp		pic2.bmp
6	STATE	pic2.bmp		pic3.bmp
7	STATE	pic3.bmp		pic4.bmp
8	STATE	pic4.bmp		pic5.bmp
9	STATE	pic5.bmp		pic6.bmp
10	STATE	pic6.bmp		menu.bmp

The table is displayed in a grid with columns A through D and rows 1 through 10. The cell containing "pic3.bmp" in row 7, column B is highlighted in orange. The status bar at the bottom of the window shows "Ready".

**EXAMPLE 2:** *Slideshow that advances automatically after the first slide plays*

Example 2 contains two events: an elo event (used for ELO touch screens or any mouse input) and a timeout event. The clickable/touch area is defined as the whole screen. One touch or click starts the slideshow.

When this demo starts, BrightSign displays MENU.BMP since it's in the first STATE position.

- There is no timeout entry for MENU.BMP, so if there is no mouse or touch screen input, MENU.BMP remains onscreen forever.
- MENU.BMP has one touch/click event. When MENU.BMP is currently being displayed and there is a mouse click or touch screen input anywhere onscreen, BrightSign displays PIC1.BMP.
- Pictures 1 – 6 all have timeout entries. Each image displays for 5 seconds before the next image plays. The timeout entry for the last image is MENU.BMP.
- There is no elo entry for pictures 1 – 6, so nothing happens until the timeout is reached even if there is mouse or touch screen input while the images are playing.

	A	B	C
1	IMAGEMODE	2	
2			
3	EVENTS		elo:0:0:1024:768
4	STATE	menu.bmp	pic1.bmp
5	STATE	pic1.bmp	pic2.bmp
6	STATE	pic2.bmp	pic3.bmp
7	STATE	pic3.bmp	pic4.bmp
8	STATE	pic4.bmp	pic5.bmp
9	STATE	pic5.bmp	pic6.bmp
10	STATE	pic6.bmp	menu.bmp

**EXAMPLE 3:** Slideshow that advances only when a click / touch occurs

Example 3 has only 1 event, the same elo event as Example 2.

- There is an elo event entry for each image, so the next image plays when there is a mouse click or touch activity anywhere onscreen.
- There are no timeout events in this demo. Because Example 3 only has an elo event, and no timeout events, the user must click or touch the screen to advance the slideshow.

	A	B	C	D	E	F	G
1	IMAGEMODE	2					
2							
3	<b>EVENTS</b>		<b>button:1</b>	<b>button:2</b>	<b>button:3</b>	<b>timeout:10</b>	<b>videoend</b>
4	STATE	menu.bmp	attract.mpg	showcase.mpg	slide1.bmp	attract.mpg	
5	STATE	slide1.bmp		slide2.bmp	menu.bmp		
6	STATE	slide2.bmp	slide1.bmp	slide3.bmp	menu.bmp		
7	STATE	slide3.bmp	slide2.bmp		menu.bmp		
8	STATE	attract.mpg	attract.mpg		menu.bmp		menu.bmp
9	STATE	showcase.mpg	showcase.mpg		menu.bmp		menu.bmp
10							

**EXAMPLE 4:** Video and slide playback using button input

Example 4 plays two videos and three images and it contains five events: three button events, a timeout event, and a videoend event. When Example 4 starts, BrightSign displays MENU.BMP, since it's in the first STATE position.

- If the menu is being displayed, pressing button 1 starts the attract video; pressing button 2 starts the showcase video; and pressing button 3 starts the slideshow. If no button is pressed, the attract video starts automatically after 10 seconds.
- If the attract or showcase video is playing, pressing button 1 restarts it.
- If the attract or showcase video is playing, pressing button 3 returns to the menu. Since there is no entry under button 2 for either video, button 2 is ignored. When either the attract or showcase video ends, the menu is displayed, as indicated under the videoend event.
- For the slideshow, button 2 advances to the next slide, and button 1 goes back to the previous slide. Button 3 returns to the menu.

Microsoft Excel - autoplay.csv

File Edit View Insert Format Tools Data Window Help

Type a question for help

Arial 10 B I U

Reply with Changes... End Review

Merge and Center

	A	B	C	D	E	F	G
1	VideoMode	1024x768x60p					
2	ImageMode	2					
3	VideoPlayerAudioOutput	2					
4							
5	EVENTS		button:0	button:1	button:2	videoend	audioend
6	STATE	demo.bmp	v1.mpg				
7	STATE	v1.mpg	v2.mpg			demo.bmp	
8	STATE	v2.mpg	demo.bmp			demo.bmp	
9							
10	NEXT						
11							
12	AudioPlayerAudioOutput	0					
13	AudioPlayerAudioStereoMapping	1					
14							
15	STATE	m1.mp3		m2.mp3			m2.mp3
16	STATE	m2.mp3		m1.mp3			m1.mp3
17							
18	NEXT						
19							
20	AudioPlayerAudioOutput	0					
21	AudioPlayerAudioStereoMapping	0					
22							
23	STATE	m3.mp3			m4.mp3		m4.mp3
24	STATE	m4.mp3			m3.mp3		m3.mp3
25							

autoplay /

Ready

**EXAMPLE 5:** Simultaneous states in a single interactive playlist

Example 5 contains three simultaneous states.

- The first state specifies the video mode, image mode, and audio output for video. In this case, the keyword `VideoPlayerAudioOutput` directs BrightSign to output stereo PCM via the SPDIF audio connector. This machine uses button 0 and the `videoend` event to control the videos and the image.
- Note the `NEXT` keyword on line 10; it signals the beginning of another state.
- The second state uses analog audio output through the Audio 2 connector. It uses button 1 and the `audioend` event to control the audio playback.
- The `NEXT` keyword on line 18 indicates the start of the third state.
- The third state uses analog audio output through the Audio 3 connector, and it uses button 2 and `audioend` events to control its audio playback.

## Using rollover regions

In the previous section, [Using Excel to create interactive presentations](#), you learned that you can create touchable (clickable) areas on the screen using `elo` (`elor`) and `eloc` keywords in the `EVENTS` row of an interactive playlist. You can then use these regions like buttons to playback content. You can also set up any touch region as a rollover region. Rollover regions enable you to create more dynamic and interactive presentations that accept mouse and touch input and that are also sensitive to cursor movement. A rollover region has an `ON` image and an `OFF` image. Whenever the cursor is within a rollover region, BrightSign displays the `ON` image, and when the mouse cursor is outside the rollover region, BrightSign displays the `OFF` image. Therefore, rollover regions enable you to include features such as highlighting buttons as the user moves the cursor moves over them.

## Using rollover events

You can define either a rectangular or circular rollover region. To setup a rollover region, use either of the following keywords in the events row:

**NOTE:** *When the `x_origin` : `y_origin` are set to `-1:-1`, the starting position for the ON and OFF images are also the starting coordinates for the rollover region. This is true for both rectangular and circular rollover regions.*

### Relor

Define a rectangular rollover region using this format:

`relor:x:y:width:height:enable_rollover:on_bitmap:off_bitmap:x_origin:y_origin`

- **x:y** represents the starting position of the rollover region, where 0,0 is in the upper left corner of the display.
- **width, height** represents the width and height of the touch area in pixels.
- **enable\_rollover:** 1 enables rollovers; 0 disables rollovers
- **on\_bitmap** represents the name of the bitmap image that displays when the mouse is within the defined region.
- **off\_bitmap** represents the name of the bitmap image that displays when the mouse is not within the defined region.
- **x\_origin,y\_origin** represents the starting position for the rollover image.

### Reloc

Define a circular rollover region using this format:

`reloc:x:y:radius:enable_rollover:on_bitmap:off_bitmap:x_origin:y_origin`

- **x, y** represents the center of the touch area.
- **radius** represents the radius of the touch area in pixels.
- **enable\_rollover:** 1 enables rollovers, 0 disables rollovers
- **on\_bitmap** represents the name of the bitmap image that displays when the mouse is within the defined region.





- **off\_bitmap** represents the name of the bitmap image that displays when the mouse is not within the defined region.
- **x\_origin,y\_origin** represents the coordinates for the center of the rollover image.

```
relor:765:674:96:43:1:next_ON.bmp:next_OFF.bmp:-1:-1
```

**EXAMPLE 6:** *Rectangular rollover region*

Example 6 shows what you would enter in the interactive playlist to define a rollover region. In this example:

- Starting position is 765, 674
- Rollover region is 96 pixels wide and 43 pixels high
- Rollover region is enabled
- On and off images are NEXT\_ON.BMP and NEXT\_OFF.BMP
- Rollover images are displayed in the same location as the rollover region

Normally, the on and off image have the same dimensions as the rollover region (width, height), and the same starting position (x,y). However, if your on and off images are larger than the touch region you use to activate the on and off images, you can use the rollover origin (x\_origin, y\_origin) parameters to specify a different starting position. You may also want to adjust the rollover origin if you have a menu with thumbnail images on the left side, and you want a larger image to appear on the right side of the screen when the user places the cursor over a thumbnail image on the menu.

	A	B	C	D	
1	IMAGEMODE	2			
2					
3	EVENTS		relor:765:674:96:43:1:next_lit.bmp:next_notlit.bmp:-1:-1	relor:643:674:95:43:1:back_lit.bmp:back_notlit.bmp:-1:-1	time out:10
4	STATE	menu.bmp	slide1.bmp		slide1.bmp
5	STATE	slide1.bmp	slide2.bmp	menu.bmp	slide2.bmp
6	STATE	slide2.bmp	menu.bmp	slide1.bmp	menu.bmp
7					

**EXAMPLE 7:** *Slideshow, with next and back buttons that light up when the mouse is over them*

Example 7 plays a simple slideshow with three images. It has two rectangular rollover region events and one timeout event. Examples 7.1 and 7.2 are the same as Example 7, but they are expanded to make them easier to read.

- If nothing is clicked or touched, the slide show starts automatically after the 10 second timeout, and then returns to the menu after it finishes.
- Similar to a standard elo entry, entering the rollover area, advances to the next slide until you reach MENU.BMP.
- Entering the second rollover area takes you back to the previous slide.

	A	B	C	
1	<b>IMAGEMODE</b>	<b>2</b>		
2				
3	<b>EVENTS</b>		<b>relor:765:674:96:43:1:next_lit.bmp:next_notlit.bmp:-1:-1</b>	<b>relor:6</b>
4	<b>STATE</b>	<b>menu.bmp</b>	<b>slide1.bmp</b>	
5	<b>STATE</b>	<b>slide1.bmp</b>	<b>slide2.bmp</b>	<b>menu.</b>
6	<b>STATE</b>	<b>slide2.bmp</b>	<b>menu.bmp</b>	<b>slide1.</b>
7				

**EXAMPLE 7.1:** *3 images with rollover regions*

Example 7.1 emphasizes that each of the three images have a rollover region that is 96 pixels long by 43 pixels tall.

- When the cursor is outside this area, BrightSign displays NEXT\_NOTLIT.BMP.
- When the cursor is inside this area, BrightSign displays NEXT\_LIT.BMP.



	D	E
<b>relor:643:674:95:43:1:back_lit.bmp:back_notlit.bmp:-1:-1</b>		<b>timeout:10</b>
		<b>slide1.bmp</b>
	<b>menu.bmp</b>	<b>slide2.bmp</b>
	<b>slide1.bmp</b>	<b>menu.bmp</b>

**EXAMPLE 7.2:** *3 images with rollover regions*

Example 7.2 shows that each of the 3 images has a rollover region that is 95 pixels long by 43 pixels tall.

- When the cursor is outside this area, BrightSign displays BACK\_NOTLIT.BMP.
- When the cursor is inside this area, BrightSign displays BACK\_LIT.BMP.

## Scheduling playback (HD2000 only)

You can play videos, still images, and playlists at scheduled times using the autoschedule.txt file. This file specifies the date/time for the event as well as the file you want to play.

The syntax of the date/time specification is as follows:

**Year "/" Month "/" Day "-" Day of Week "-" Hour ":" Minutes**

For example, a date/time specification for December 23, 2009 at 3:20 PM is defined as:

**2009/12/23-\*-15:20**

In this example, the Day of Week parameter is a wildcard defined with an asterisk. All date/time parameters not used must be defined as wildcards using an asterisk (\*).

Valid syntax for Date/Time parameters:

- **Year:** 4 digit integer from 2000 to 2038
- **Month:** 2 digit integer from 01 to 12
- **Day:** 2 digit integer from 01 to 31
- **Day of Week:** the following 3 letter abbreviations: Sun, Mon, Tue, Wed, Thu, Fri, Sat
- **Hour:** 2 digit integer from 00 to 23
- **Minute:** 2 digit integer from 00 to 59

In the AUTOSCHEDULE.TXT file, the line following a date/time specification must be an interactive playlist file, playlist file, video file, or image file. When the date/time event occurs, BrightSign stops playing the current file and begins playing the new file.

The following is an example AUTOSCHEDULE.TXT file:

```
* / * / * - MON - 01 : 00  
weekday .mpg
```

```
* / * / * - SAT - 01 : 00  
weekend .mpg
```

In this example, the WEEKDAY.MPG file launches on Monday at 1:00 AM and plays continually during the week; on Saturday at 1:00 AM, the file WEEKEND.MPG launches and plays until Monday at 1:00 AM.



Another example AUTOSCHEDULE.TXT file:

```
2009/12/15-*--15:20  
image.png
```

```
2009/12/25-*--16:16  
music.bsp
```

```
2010/1/*--WED-16:00  
video.mpg
```

```
2010/1/*--*-07:00  
breakfast.bsp
```

```
2010/1/*--*-14:00  
demo.csv
```

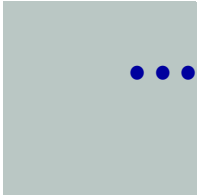
In this example, BrightSign displays the image IMAGE.PNG starting on December 15, 2009 at 3:20 PM. On December 25, at 4:16 PM, the playlist MUSIC.BSP starts. The next specification indicates that VIDEO.MPG starts playing at 4:00 PM every Wednesday in January, 2010. The playlist BREAKFAST.BSP starts playing at 7:00 AM during January, 2010. Finally, DEMO.CSV launches every day in January, 2010, at 2:00 PM.

**NOTE:** *You can insert blank lines in an AUTOSCHEDULE.TXT file to make it easier to read. You can also add REM lines to annotate these files.*



# Chapter 5

## Working with Zones

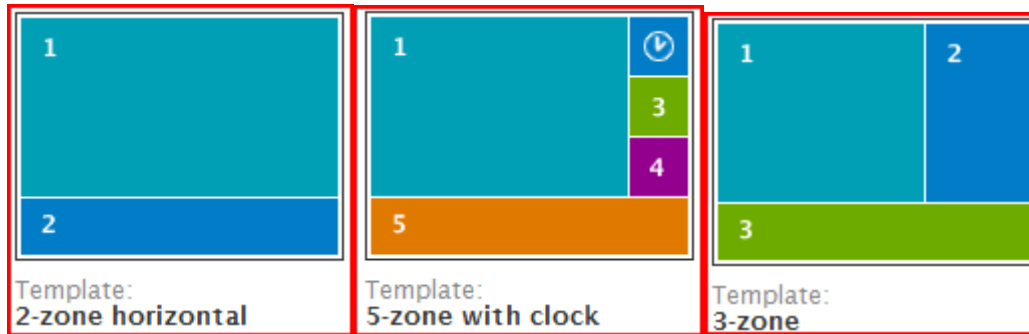


### What are zones?

With BrightSign zones you can divide the screen into rectangles and play different content in each rectangle. You can create the following types of zones:

- **VideoORImages:** This zone supports videos and images. This is the only zone that supports videos.
- **Images:** This zone supports playback images. You create multiple image zones.
- **RSS:** This zone supports playback of a single RSS feed.
- **Text:** This zone plays static text.
- **Clock:** This zone displays the time and it requires the RESOURCES.TXT file.

Below are a few examples of zone layouts, but there are many other ways to arrange your zones on the screen. The only rule you need to keep in mind is that Image zones cannot overlap. If there are additional zone types you would like to see or additional widgets (Text, RSS, Clock, etc), please email your suggestions to BrightSign.



**EXAMPLE 1:** *Multi-zone examples*

## Can I customize the zones?

Here are some of the things you can customize in your zones:

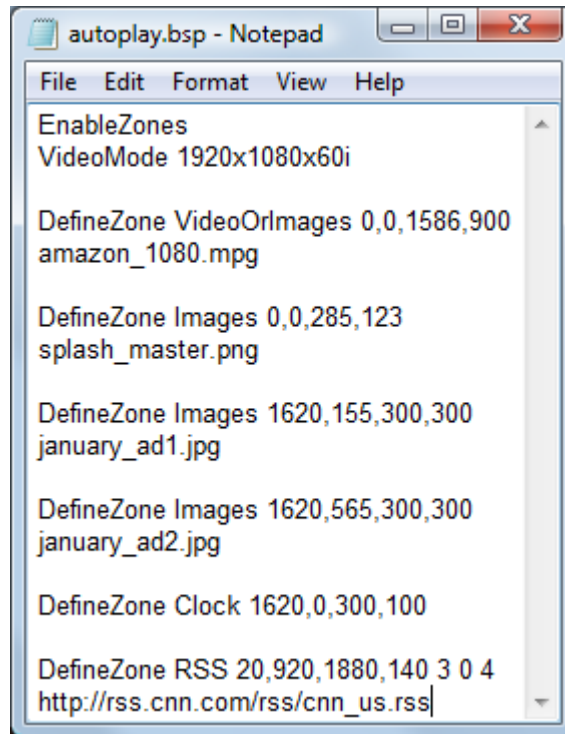
- **Background screen color:** Specify the background color for the display.
- **Font:** Choose a true type font for Text and RSS playback.
- **Parameters:** Control settings for RSS and Text zones. You can set the following:
  - Line count
  - Length of time to display text
  - Text Appearance—animated or static
- **Commands:** Use commands to control the following:
  - **Foreground text color:** Set the foreground text color for Text, Clock, and RSS.
  - **Background text color:** Set the background color for the Text, Clock, or RSS widget.
  - **Background bitmap:** Set a bitmap image that sits behind the zones.



## Using zones with playlists

The easiest way to use zones is with playlists. However, to use zones, you must update to the latest software and AUTORUN.BAS file from [www.brightsign.biz/support](http://www.brightsign.biz/support).

Here are a few examples of how to add zones to your playlists:



```
autoplay.bsp - Notepad
File Edit Format View Help
EnableZones
VideoMode 1920x1080x60i

DefineZone VideoOrImages 0,0,1586,900
amazon_1080.mpg

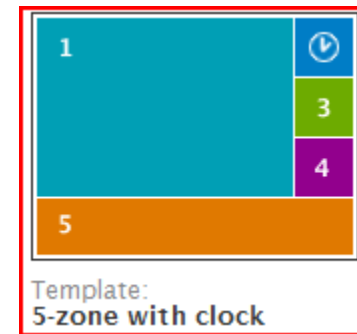
DefineZone Images 0,0,285,123
splash_master.png

DefineZone Images 1620,155,300,300
january_ad1.jpg

DefineZone Images 1620,565,300,300
january_ad2.jpg

DefineZone Clock 1620,0,300,100

DefineZone RSS 20,920,1880,140 3 0 4
http://rss.cnn.com/rss/cnn_us.rss
```



**EXAMPLE 2:** 5 zones with clock and RSS

Example 2 shows a presentation with five zones:

- Zone 1 is the a main video zone.
- Zone 2 is clock zone in the top right.
- Zones 3 and 4 are the two image zones to the right.
- Zone 5 is the RSS zone at the bottom.

The following explains each line in the Example 2 playlist:

- **EnableZones:** This **must be** the first keyword in your playlist when using zones.
- **VideoMode:** This keyword sets the video resolution (see [Playlist commands](#) for details).
- **DefineZone:** This keyword sets the location of the zones on the screen. For each zone, you specify the following:
  - Zone type (VideoORImages, Images, Clock, Text, or RSS; see [What are zones?](#) for details.)
  - Starting position (in pixels)
  - Width and height (in pixels)

The syntax for the DefineZone keyword is:

```
DefineZone <zone_type> <rectangle_spec> <zone_param1> <zone_param2>  
<zone_param3> <zone_param4>
```

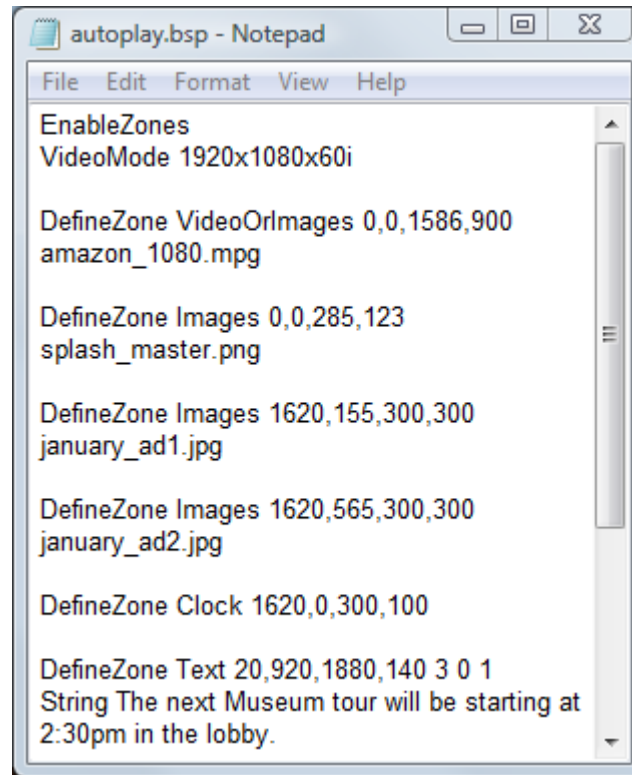
When you're defining an RSS zone, you must also specify the RSS feed you want to display in addition to the size and location of the zone. All of this information must appear in the same entry in the playlist. The syntax to define an RSS feed is:

```
DefineZone RSS 20,610,1250,90 3 0 4  
http://news.bbc.co.uk/rss/newsonline\_uk\_edition/sci/tech/rss.xml
```

The three numbers after the RSS dimensions represent the following:

- **3** (1<sup>st</sup> number): Represents the number of lines to display
- **0** (2<sup>nd</sup> number): Indicates whether the text is animated or static (0 for animated, 1 for static)
- **4** (3<sup>rd</sup> number): Represents the number of seconds to display each segment





```
autoplay.bsp - Notepad
File Edit Format View Help
EnableZones
VideoMode 1920x1080x60i

DefineZone VideoOrImages 0,0,1586,900
amazon_1080.mpg

DefineZone Images 0,0,285,123
splash_master.png

DefineZone Images 1620,155,300,300
january_ad1.jpg

DefineZone Images 1620,565,300,300
january_ad2.jpg

DefineZone Clock 1620,0,300,100

DefineZone Text 20,920,1880,140 3 0 1
String The next Museum tour will be starting at
2:30pm in the lobby.
```

**EXAMPLE 3:** *5 zones with clock and text*

Example 3 is similar to Example 2, but the RSS zone is replaced with a Text zone. The following explains the Text zone entry:

- **DefineZone TEXT:** This keyword creates a text zone. In addition to providing the size and location of the zone, you must also specify the strings you want to display by using the **STRING** keyword. You can use as many STRING entries as you want.

```
DefineZone RSS 20,610,1250,90 4 0 10  
String This is the first string  
String This is the second string
```

The three numbers after the Text zone dimensions represent the following:

- **4** (1<sup>st</sup> number): Represents the number of lines to display
- **0** (2<sup>nd</sup> number): Indicates whether the text is animated or static (0 for animated, 1 for static)
- **10** (3<sup>rd</sup> number): Represents the number of seconds to display each string

## Other keywords for zones

In addition to the keywords described in the previous section, you can also use the following keywords when adding zones to a playlist:

- **Backgroundbitmap:** This keyword adds a background bitmap image. You can add a background bitmap to Text, RSS, or Clock zones. The stretch parameter indicates whether the image stretches to the size of the window (0 for no stretch; 1 is stretched). The syntax is:

```
<.bmp file> <stretch>
```

```
Backgroundbitmap logo.bmp 1
```

- **Color:** The color keywords use RGB color values to indicate the density of color for the background screen color, the foreground text and background text. The color values syntax is:

```
r:g:b:a
```

When specifying the color values, the **a** (alpha) value is optional. If you don't specify an alpha value, it defaults to 255. The alpha value has no effect on the foreground text color or background screen color. However, the alpha value does effect the background color for individual zones (RSS, Text, and Clock) as well as the background text color. The alpha value is between 0 and 255 (0 [zero] is transparent and a value of 255 is opaque).

You can use the following color keywords:

- **BackgroundScreenColor <color values>**: Sets the background color for all zones.

```
EnableZones
VideoMode          1920x1080x60i
BackgroundScreenColor 181:181:181
```

- **ForegroundColor <color values>**: Sets the text color RSS, Text, or Clock zones.
- **BackgroundTextColor <color values>**: Sets the color of the background behind the text in RSS, Text, or Clock zones.
- **Font <font location & name>**: Sets the font. You can use any TrueType font.

```
DefineZone Text      160,890,1600,120 3 0 1
ForegroundColor      75:75:75
BackgroundTextColor  200:200:200:0
Font                  CF:/ComicSansMSBold.ttf
```

## Comix Tour example

The Comix Tour demo illustrates zones in action. This section provides the playlist that created the demo, so you can see how the playlist controls the demo. You can download the Comix Tour demo (1080i) at this location: [www.brightsign.biz/support/demos](http://www.brightsign.biz/support/demos).

**NOTE:** To view the Comix Tour demo, you need BrightSign software version 2.0.58 or higher.

Main Video Zone      Background color      Image Zone (playlist #1)

Image Zone (playlist #1)

Image Zone (playlist #2)

Text Zone with custom TrueType font

**EXAMPLE 4:** Screen capture of the Comix Tours demo

The sections that follow show the playlist for Comix Tours demo:

## Global settings

```
EnableZones
VideoMode 1920x1080x60i
BackgroundScreenColor 181:181:181 'color gray71
```

## Zone 1 – video or images

```
REM
*****
DefineZone VideoOrImages 40,60,1344,756
audiochan 0 'analog audio
NewEnglandFishingWithFlyByLogo-ZonesDemo.mpg
```

## Zone 2 - images

```
REM
*****
DefineZone Images 1384,100,420,420
Slideinterval 2 '2 seconds between images
Transition 15 ' Fades between current and new image
ZoneAfrica_00.png
ZoneAfrica_01.png
ZoneAfrica_02.png
ZoneAfrica_03.png
ZoneAfrica_04.png
ZoneAfrica_05.png
ZoneAfrica_06.png
ZoneAfrica_07.png
ZoneAfrica_08.png
ZoneAfrica_09.png
ZoneAfrica_10.png
ZoneAfrica_11.png
```

## Zone 3 - images

```
REM *****  
DefineZone Images 1384,520,536,356  
Slideinterval 4 '4 seconds between images  
Transition 19 ' slides from right  
ZoneWorld_00.png  
ZoneWorld_01.png  
ZoneWorld_02.png  
ZoneWorld_03.png  
ZoneWorld_04.png  
ZoneWorld_05.png  
ZoneWorld_06.png  
ZoneWorld_07.png  
ZoneWorld_08.png  
ZoneWorld_09.png  
ZoneWorld_10.png  
ZoneWorld_11.png  
ZoneWorld_12.png  
ZoneWorld_13.png  
ZoneWorld_14.png  
ZoneWorld_15.png  
ZoneWorld_16.png  
ZoneWorld_17.png  
ZoneWorld_18.png  
ZoneWorld_19.png  
ZoneWorld_20.png  
ZoneWorld_21.png  
ZoneWorld_22.png  
ZoneWorld_23.png  
ZoneWorld_24.png  
ZoneWorld_25.png
```





ZoneWorld\_26.png  
ZoneWorld\_27.png  
ZoneWorld\_28.png  
ZoneWorld\_29.png  
ZoneWorld\_30.png  
ZoneWorld\_31.png  
ZoneWorld\_32.png  
ZoneWorld\_33.png  
ZoneWorld\_34.png  
ZoneWorld\_35.png

## Zone 4 - text

REM \*\*\*\*\*

DefineZone Text 160,890,1600,120 3 0 1

ForegroundColor 75:75:75'silver 16

BackgroundTextColor 200:200:200:0

Font CF:/ComicSansMSBold.ttf

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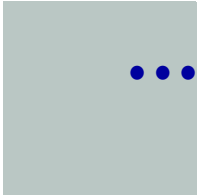
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# Chapter 6

## Working with Scripts



### What are scripts?

A script is a simple program that controls behaviors based on events, such as changing video playback when the user presses a button. Scripts are commonly used on PCs and Web Sites. For example, Microsoft Office macros are often Basic Scripts. Adobe Flash apps often rely on ActionScripts for their logic, and web pages are often driven by scripts written in PHP, Perl, or JavaScript.

You can use BrightSign without any knowledge of scripts to accomplish common goals such as playing video loops or slideshows (see [Playing Media with BrightSign](#)). By using interactive playlists, you can create more sophisticated presentations that include input from a touch screen or mouse. However, to create the most interactive presentations, you need to use scripts.

BrightSign has a built in scripting language (called BrightScript), similar in many ways to Basic found in Microsoft Office and Windows Script Hosting VBScript in Windows XP. Scripts can be as simple as one or two lines, and as complicated as thousands of lines.

If you don't have scripting skills in-house, you can hire an IT or Web developer to write scripts for you, or for a fee, BrightSign can also develop custom scripts and applications for you. For additional information, contact: [sales@brightsign.biz](mailto:sales@brightsign.biz).

## Sample script

Here is how to create a very simple script:

- 1 Using a text editor, create a file called **HELLO.BAS** by entering this line:  

```
print "hello world"
```
- 2 Save HELLO.BAS into the root directory of a CF/SD card.
- 3 Insert the CF/SD card into BrightSign.
- 4 Connect the serial port of BrightSign to your PC using a null modem cable.
- 5 On your PC, run HyperTerminal (see [BrightSign shell](#) for details).
- 6 Turn on BrightSign and wait for the **Roku>** shell prompt to appear.
- 7 Type:  

```
script /hello.bas
```

You should see "hello world" on your PC screen.

- 8 If you want the script to autorun upon boot, rename it **AUTORUN.BAS**.

## Roku Objects

As well as the BrightScript language itself, BrightSign relies upon a library of Roku Objects to expose the hardware to the scripting language. Each Roku Object provides access to certain capabilities. For example, there is a roVideoPlayer object and a roTouchScreen object. To create an object in a script, you need to use the CreateObject() function.

When writing scripts, refer to the following two manuals:

- **Roku BrightScript Reference:** Describes the scripting language
- **Roku Object Reference:** Describes Roku Objects, such as **roVideoPlayer**



## Examples

A good way to learn BrightScript is to look at or modify existing scripts. You can find links to example scripts at [www.brightsign.biz/support/demos](http://www.brightsign.biz/support/demos). On the demos web page, enter **brightsign** as the username and **demos246** as the password. The AUTORUN.BAS in the HD600 Demo is an example of a more sophisticated script.

You can also test BrightScript commands using the shell. Here is an example:

```
Welcome to the Roku Shell version 1.1.28 Release
```

```
Type '?' for help or 'help <command>' for help on <command>.
```

```
Roku> script
```

```
BrightScript Micro Debugger.
```

```
Enter any BrightScript statement, debug commands, or HELP.
```

```
BrightScript> print "hello"
```

```
hello
```

```
BrightScript> ? "hello"
```

```
hello
```

```
BrightScript> ?5+6
```

```
11
```

```
BrightScript> ?type(5)
```

```
rotINT32
```

```
BrightScript> if 1=1 then print"1 does equal 1!" else print "strange!"
```

```
1 does equal 1!
```

```
BrightScript> ?right("abcdef",3)
```

```
def
```

```
BrightScript> exit
```

```
Roku>
```

## Using the GPIO control port

BrightSign has a DB25 General Purpose Input Output (GPIO) Port. This port has 12 inputs that you can directly connect to buttons or switches, and 6 outputs that you can use to directly drive LEDs. To use this port you must create a simple but custom cable that connects a DB25 connector to your buttons or LEDs. See the *BrightSign Hardware Manual* for more information and example circuits. You can also purchase a test button/LED board from BrightSign to evaluate the GPIO port and test scripts that read these buttons or set these LEDs.

Here is an example of a script that flashes an LED for half a second each time the user presses a button on the BrightSign button/led board.

```
print "BrightSign Button-LED Test Running"
p = CreateObject("roMessagePort")
tmr = CreateObject("roMessagePort")
gpio = CreateObject("roGpioControlPort")
gpio.SetPort(p)

event_loop:
    msg=wait(0, p)
    if type(msg)<>"roGpioButton" then event_loop
    butn = msg.GetInt()
    if butn > 5 then event_loop
    gpio.SetOutputState(butn+17,1)
    print "Button Pressed: ";butn
    msg = wait (500, tmr)
    gpio.SetOutputState(butn+17,0)

clear_events:
    msg=p.GetMessage():if type(msg)<>"rotINT32" then clear_events
    goto event_loop
```





## Chapter 7 Getting Help

### Learning more and support

The following resources can help you get the most from your BrightSign:

- Visit [www.brightsign.biz](http://www.brightsign.biz)
- Refer to each of the following BrightSign documents at [www.brightsign.biz/support](http://www.brightsign.biz/support):
  - Brightsign Installation and Regulatory Guide
  - BrightSign User Guide (this guide)
  - BrightSign HD600 Hardware Guide
  - BrightSign HD2000 Hardware Guide
  - BrightSign BrightScript Reference
  - BrightSign Object Reference
  - BrightSign Specifications
  - Example Scripts
- Visit the BrightSign community forums to discuss projects with other customers and BrightSign engineers: [www.brightsign.biz/support/forum.php](http://www.brightsign.biz/support/forum.php)
- Contact [sales@brightsign.biz](mailto:sales@brightsign.biz) for help with custom projects.

## Troubleshooting

If you are still having problems after following the troubleshooting tips in this section, contact customer support at [www.brightsign.biz/support](http://www.brightsign.biz/support) for assistance.

### Autoplay and general troubleshooting

#### **AUTOPLAY.MPG does not play automatically**

- 1 Make sure that **AUTOPLAY.MPG** is spelled correctly.
- 2 Make sure that **AUTORUN.BAS** and **AUTOPLAY.MPG** are both in the root of the CF/SD card.  
**NOTE:** *HD2000 1.3 software requires AUTORUN.BAS v1.3x or later, and HD2000 2.x software requires AUTORUN.BAS v2.x or later.*
- 3 There should only be one autoplay file in the root of the CF/SD card. Make sure that you do *not* have an AUTOPLAY.CSV or AUTOPLAY.BSP file in the root of the CF/SD card.
- 4 Set your PC to show file extensions and make sure that you did not accidentally name the AUTOPLAY.MPG file AUTOPLAY.MPG.MPG.
- 5 Use the BrightSign Shell to test video playback (see [BrightSign shell](#) for details).
- 6 See [General playback problems](#) for more troubleshooting help.

#### **Autoplay.bmp does not play automatically**

Naming your bitmaps AUTOPLAY1.BMP, AUTOPLAY2.BMP, etc is not supported under AUTORUN.BAS version 1.1 or later. Use a playlist to play images in a loop (see [Working with Playlists](#) for details).





## General playback problems

If you're having general problems playing content with BrightSign, try the following:

- 1 Make sure you have the latest **AUTORUN.BAS** file that is compatible with your BrightSign software. You can download the latest Autoplay script from [www.brightsign.biz/support](http://www.brightsign.biz/support)  
**NOTE:** *HD2000 1.3 software requires AUTORUN.BAS v1.3x or later, and HD2000 2.x software requires AUTORUN.BAS v2.x or later.*
- 2 Download the BrightSign demo and make sure it plays (see [Step 3: Try the demo](#) for details). If you're also having playlist problems, test the Playlist Demo.
- 3 Make sure your content meets the following specifications:
  - **Audio:** MP3, 48Khz sample rate (or 44.1KHZ sample rate on the HD2000), or WAV with 16 bit linear PCM data on the HD2000.
  - **Video:** Standard MPEG-2 program stream, with 48Khz audio layer (audio layer not required on the HD2000). Maximum resolution is 1920 x 1080 (HD2000) or 1280 x 720 (HD600).
  - **Image:** Bitmap, 8-bit, 24-bit, or 32-bit only or PNG/JPEG files on the HD2000
- 4 Reformat your CF/SD card as FAT32.
- 5 Copy your content, and any scripts, playlists, or interactive playlists to the CF/SD card again.
- 6 Download and install the latest BrightSign software. If you're already using the latest software, reinstall the software (see [Step 2: Get the latest BrightSign software](#) for details).
- 7 Try using a different brand and/or size CF/SD card.
- 8 Re-create content with different software, if possible.

### Video output includes artifacts, or video quality is poor

Make sure that the format of your video content matches the properties of the display resolution and that you've chosen the highest quality output possible. Since most video output modes are progressive, you need to encode video files as progressive MPEG-2 files for the highest quality video reproduction. Otherwise you may see video artifacts when the video is digitally interlaced on a progressive display.

## Video output is red

On an HD2000, if the video is configured for component / HDMI out and the HD2000 is connected to a VGA monitor, the video output displays in red. Since the video output defaults to component/HDMI out, you must set the video mode to 1024x768 when using a VGA monitor. For playlists (AUTOPLAY.BSP) and interactive playlists (AUTOPLAY.CSV), add the following line:

```
VIDEOMODE 1024x768x60p
```

## No audio during playback

The Autoplay script defaults to the Audio 1 output. This is the default output for your playlist, interactive playlist, and AUTOPLAY.MPG files.

- 1 Make sure your audio cable is firmly connected to the **Audio 1** output on your BrightSign.
- 2 Check the volume on your powered speakers / AV receiver.
- 3 Make sure the AV receiver is set to the correct input.
- 4 If you set the volume or audio output in your playlist, double-check the settings you used. For audio output, 0=Analog, 1=USB, and 2=Optical/HDMI.
- 5 If you're using a custom script (including a modified AUTORUN.BAS), make sure the audio output mode matches the outputs you're using on the back of your BrightSign. See the "roAudioPlayer" and "roVideoPlayer" sections in the *BrightSign Object Reference* for details.

## Playlists do not play properly

Download the latest Autoplay script from [www.brightsign.biz/support](http://www.brightsign.biz/support). Playlist support requires AUTORUN.BAS v1.1 or later.

- 1 Make sure **AUTOPLAY.BSP** is spelled correctly.
- 2 Make sure that **AUTORUN.BAS** and **AUTOPLAY.BSP** are both in the root of the CF/SD card.

**NOTE:** HD2000 1.3 software requires AUTORUN.BAS v1.3x or later, and HD2000 2.x software requires AUTORUN.BAS v2.x or later.



- 3 Make sure you do *not* have an AUTOPLAY.CSV or AUTOPLAY.MPG in the root of the CF/SD card. There should be only one autoplay file in the root of the CF/SD card. If you have more than one autoplay file in the root of the CF/SD card, you need to either rename or delete the extra autoplay files, or move these files to another folder on the card.
- 4 Do either of the following:
  - **Windows:** Set your PC to show file extensions and make sure that you did not accidentally name the AUTOPLAY.MPG file AUTOPLAY.MPG.MPG or AUTOPLAY.MPG.TXT.
  - **Mac:** Set the preferences for TextEdit to save as **plain text** by default. Also, on the **Open & Save** tab, select **Western (Windows Latin 1)**.
- 5 Use the BrightSign Shell to test video playback (see [BrightSign shell](#) for details).
- 6 See [General playback problems](#) for more troubleshooting help.

## Interactive playlists

Download the latest Autoplay script from [www.brightsign.biz/support](http://www.brightsign.biz/support). Playlist support requires AUTORUN.BAS v1.1 or later.

- 1 If you're outside the United States, check the regional settings in Excel and make sure the list separator is a comma and the decimal separator is a period. Brightsign requires a comma-separated CSV file with periods as the decimal separator (international defaults may vary).
- 2 Make sure **AUTOPLAY.CSV** is spelled correctly.
- 3 Make sure that **AUTORUN.BAS** and **AUTOPLAY.CSV** are both in the root of the CF/SD card.  
**NOTE:** *HD2000 1.3 software requires AUTORUN.BAS v1.3x or later, and HD2000 2.x software requires AUTORUN.BAS v2.x or later.*
- 4 Make sure you do *not* have an AUTOPLAY.BSP or AUTOPLAY.MPG in the root of the CF/SD card. There should be only one autoplay file in the root of the CF card.
- 5 Make sure your content is in the root of the CF/SD card, not in any subfolders.
- 6 Confirm the spelling of file names in the AUTOPLAY.CSV file. If you pasted the file names into the interactive playlist, check for any leading or trailing spaces in the name.
- 7 Confirm the spelling of any keywords in AUTOPLAY.CSV.
- 8 Use the BrightSign Shell to test video playback and see any errors reported by the autoplay script (see [BrightSign shell](#) for details).
- 9 See [General playback problems](#) for more troubleshooting help.



## BrightSign and accessories

### BrightSign isn't booting up properly / random lights lit

When BrightSign turns on, it cycles through the Connector Activity and Video Mode lights. The only two lights that should remain lit at the end of the startup process are the Video Mode light, normally 1024x768, and the Power light.

- 1 Download and reinstall the BrightSign software (see [Step 2: Get the latest BrightSign software](#) for details).
- 2 If reinstalling the BrightSign software doesn't fix the problem, contact BrightSign Customer Support at [www.brightsign.biz/support](http://www.brightsign.biz/support).

### BrightSign software update fails

- 1 Confirm that the update file is named **UPDATE.ROK**.
- 2 Make sure the update file is in the root of the CF/SD card, not in a sub-directory.
- 3 Reformat the CF/SD card in FAT32 format.
- 4 Use a different CF/SD card, if available.
- 5 Try updating from the BrightSign shell (see [Step 2: Get the latest BrightSign software](#) for details).

### CF/SD card works for playback, but can't update BrightSign

Your CF/SD card might not be compatible with the *safe mode* software on BrightSign. If that's the case, you can try manually updating the software from the BrightSign shell or using a different CF card to do updates. See [Updating BrightSign software from the BrightSign Shell](#) for details.

### **CF/SD card is not recognized by BrightSign**

If BrightSign doesn't see any content on your CF/SD card, that card may not be compatible with BrightSign.

- 1 Reformat your CF/SD card in FAT32 format.
- 2 Try a different brand and/or size card.
- 3 Once you find a working card, download and install the latest BrightSign software (see [Step 2: Get the latest BrightSign software](#) for details).
- 4 After you update the BrightSign software, try the problem card again.

### **Video selector switch does not work**

The video selector switch is not currently implemented on the HD2000.

On an HD600, the selector switch does not work if you manually set the video mode using a script, playlist, or interactive playlist. To verify if this is the case, turn on BrightSign without inserting a CF/SD card. If the video selector switch doesn't work without a CF card, try these steps:

- 1 Download and reinstall the BrightSign software (see [Step 2: Get the latest BrightSign software](#) for details).
- 2 If the selector switch still isn't working, contact BrightSign Customer Support, [www.brightsign.biz/support](http://www.brightsign.biz/support).



## USB mouse is not responding

BrightSign works with many different brands of USB mice. Before troubleshooting the mouse, download the BrightSign Demo, and try using your mouse with the demo (see [Step 3: Try the demo](#) for details). If the mouse works with the demo, then the problem is with your script or the coordinates used in the interactive playlist.

- 1 (HD600 only) Download and install the latest version 1.3 BrightSign software (see [Step 2: Get the latest BrightSign software](#) for details).
- 2 Unplug the mouse from BrightSign, and reconnect it.
- 3 If you're using a wireless mouse, reconnect the wireless transmitter, and replace the batteries in the mouse.
- 4 Connect your mouse to BrightSign using a USB hub.
- 5 Your mouse may not be compatible with BrightSign. Try a mouse from the list of tested mice (see [Supported input devices](#) for details).

## USB keyboard is not responding

BrightSign works with many brands of USB keyboards. To use a keyboard, you must write a custom script. The buttons supported by the AUTOPLAY.CSV are for input from the GPIO port.

- 1 Disconnect the keyboard from BrightSign and reconnect it.
- 2 Connect your keyboard to BrightSign using a USB hub.
- 3 Try a different USB keyboard.

## Elo touch screen coordinates aren't working properly

If the Elo coordinates appear to be reversed or flipped when using AUTOPLAY.CSV, try the following:

- 1 Download version 1.1 or later of the Autoplay Script.
- 2 Open **AUTOPLAY.CSV** and add the **FLIPELO** keyword to the top of the interactive playlist.

FLIPELO		
IMAGEMODE	2	
EVENTS		elo:110:180:355:210

- 3 Copy the updated **AUTOPLAY.CSV** and **AUTORUN.BAS** to your CF/SD card.
- 4 Insert the CF/SD card into your BrightSign and add power.





# Chapter 8

## Advanced Topics



### Selecting Compact Flash cards

When you use BrightSign, your content and scripts resides on a Compact Flash (CF) or Secure Digital (SD) card. Although the CF/SD interface is standardized, there are a wide range of performance, compatibility, and reliability issues among CF/SD card brands and models. BrightSign strongly recommends that you use *industrial rated* CF/SD cards with BrightSign. We have tested industrial rated CF/SD cards from the following brands:

- Transcend
- PQI
- Simpletech

### Avoiding CF/SD card corruption due to read fatigue

If you fail to use an industrial CF/SD card, the files on the CF/SD card may become corrupt after a period of time. This is due to the fact that CF/SD cards use NAND flash memory chips that are rated for a certain number of *block reads* before a particular block may develop a read error. Some types of NAND flash are more susceptible to read errors than others. For example, multi-level flash chips are much more susceptible to read errors than single level flash chips. CF/SD card controllers (the chip inside the CF/SD card that controls the flash memory and interfaces with the CF/SD connector) are responsible for eliminating these read errors as well as write errors through

various strategies. These strategies include *wear leveling* when writing, automatic error correction when reading, re-writing a block that is becoming susceptible to read errors, and moving blocks around in the NAND chip that are repeatedly read over and over.

A typical BrightSign application includes an *attract* video loop. If this video is fairly short, then a small number of flash blocks are read repeatedly. Over a month or so, the number of times the attract loop plays can be enough to trigger fatigue read errors if the CF card's controller chip is not designed to handle and eliminate these type of errors. Industrial rated CF/SD cards are designed with high levels of repeated use in mind. Whereas consumer CF/SD cards may be designed with lower cost or quality standards that assume a digital camera is the typical usage scenario.

## Speed

All modern CF cards we have tried have sufficient read speed for digital sign and kiosk applications with standard definition video. In general you need a card that can sustain read rates of over 3 megabytes per second for standard video. However for standard video, we recommend CF/SD cards with read rates of 4 megabytes per second, which are easy to find. For Hi-Def video, we recommend a card that can sustain read rates of over 6 megabytes per second. You can test a card's speed with BrightSign by placing a file on it, and using the BrightSign Shell **readperf** command.

## BrightSign compatibility

BrightSign is compatible with most CF/SD cards, but may not be 100% compatible with every model. Although there are standards for CF/SD card interfaces, most chips are slightly different. We have tested with a large number of chips, and at this point have high compatibility.

When deploying a group of BrightSigns into the field, BrightSign strongly recommends that you test the CF/SD card with the BrightSign software version you are using before deployment, and insist that your CF/SD card duplicator uses the same CF/SD brand and model number as the model number you tested.



## Other ways to update your BrightSign software

- 1 Download the latest software.
  - a Go to the BrightSign web site [www.brightsign.biz/support](http://www.brightsign.biz/support).
  - b Click the **Software Downloads** link.
  - c Compare the software version number with the number on your BrightSign screen.
  - d If your BrightSign software is older than the software on the web site, click the **Software** link for the appropriate model (HD600 or HD2000) to download the latest software.
- 2 Extract the software update file onto your CF/SD card and give it one of the following names:
  - **UPDATE.ROK**: Use this file name if you want to auto-delete the update file after the update is complete. This is useful when you want to distribute the update to the field on the same CF/SD card that contains the presentation content. After the first boot, your BrightSign automatically runs any auto-run content on the CF/SD card.
  - **UPDATE\_SAVE.ROK**: Use this file name if you want to keep the update file on the CF/SD card after the update is complete. This is useful when you want to use the same CF/SD card to update multiple BrightSigns.
  - **UPDATE\_NEWER.ROK** (HD2000 only): Use this file name if you want to apply the update only if the version is newer than the version currently on your BrightSign. The update file is not deleted.
  - **UPDATE\_DIFFERENT.ROK** (HD2000 only): Use this file name if you want to apply the update only if the version does not match the version currently on your BrightSign. The file is not deleted.
- 3 Insert the CF/SD card into your BrightSign and apply power.
  - **HD600**: Wait for your BrightSign to boot. (The display will be blank.) After several seconds one of the LEDs on the front panel starts to flash. When the LED stops flashing, the upgrade is complete. If you're using the UPDATE.ROK method, BrightSign reboots automatically.
  - **HD2000**: Wait for your BrightSign to boot. (The display will be blank, but the LEDs on the front panel light as the unit boots.) Wait for the red upgrade LED to light up. During the upgrade, the connector activity LEDs turn on and off to indicate that the upgrade is in progress.

- If you named the file UPDATE.ROK, the file deletes when the update finishes and the unit reboots.

**NOTE:** *If the card was formatted with NTFS or HFS+, then the UPDATE.ROK file does not delete and the unit does not reboot after the update. Instead, the Video Mode LEDs flash.*

- If you named the file UPDATE\_SAVE.ROK, the Video Mode LEDs flash when the update finishes. The upgrade file does not delete and the unit does not reboot.

## Generating HD content for BrightSign HD2000 using Final Cut Pro

### From within Final Cut Pro:

- 1 Open an existing sequence or create a new one.
- 2 Add HD content to the sequence as needed.
- 3 Make sure audio tracks are enabled. If your project has no audio, add a *Slug* to one of the audio tracks.
- 4 Select the portion of the sequence you want to export.
- 5 Select **File > Export > Using Compressor**.

### In Compressor:

- 1 In the **Settings** window, go to the **Settings** tab.
- 2 Find **Apple:Formats:MPEG-2:Program Stream** and drag it onto your file in Compressor (where it says Drag Settings and Destinations Here).
- 3 Select the program stream you just dragged onto your file.
- 4 Select your file.



- 5 In the Inspector window, click **Encoder** (second button from the left) and make sure that the resolution, frame rate, and aspect ratio are correct.

**NOTE:** Most HD sources (HDCAM, HDV etc) set the resolution to 1440x1080. Therefore, if you're creating 1080i or 720p content, you need to click **Change** next to the **appropriate field** and adjust the settings for your content.

- 6 After you confirm that the settings are correct, click **Submit**.

### **From the Finder:**

- 1 Select the movie you want to compress (typically the exported master program).
- 2 Ensure that the movie contains an audio track. To confirm this:
  - a Open the movie in the QuickTime Player.
  - b Select **Window>Show Movie Properties** and make sure that a SoundTrack is displayed in the Properties window.
  - c If there is no audio track, go to Final Cut Pro and add audio as described in the previous section.
  - d To ensure that there is an audio track when exporting a movie from Final Cut Pro, click **File > Export > QuickTime Movie > Save** and be sure the **Include** option is set to **Audio and Video** in the Save dialog box.
- 3 Launch **Compressor**.
- 4 Drag and drop the movie file into Compressor (where it says **Drag Settings and Destinations**).
- 5 Find **Apple:Formats:MPEG-2:Program Stream** and drag it onto your file in Compressor (where it says **Drag Settings and Destinations Here**).
- 6 Select the Program stream you just dragged onto your file.
- 7 Select your file.

- 8 In the Inspector window, click **Encoder** (second button from the left) to confirm that the resolution, frame rate, and aspect ration are correct.

**NOTE:** Most HD sources (HDCAM, HDV etc) set the resolution to 1440x1080. Therefore, if you're creating 1080i or 720p content, you need to click **Change** next to the **appropriate field** and adjust the settings for your content.

- 9 After you confirm that the settings are correct, click **Submit**.

## BrightSign shell

BrightSign has a command line shell that can be accessed via the serial port. The shell enables you to type commands to trigger tasks such as running scripts, playing video, trying different video modes, etc. You do not need to use the shell. You can simply put your content on a CF/SD card and configure it to auto-play on power-up (see [Playing Media with BrightSign](#)).

### Accessing the BrightSign shell

You may find it useful to use the shell to test various options or for debugging. Follow these steps to access the shell:

- 1 Connect the DB9 connector on BrightSign to your PC's serial port using a null modem cable (available at Fry's, RadioShack, etc.).
- 2 Run a terminal emulator application, such as HyperTerminal on Windows XP (click **Start>All Programs>Accessories>Communications>HyperTerminal**.)
- 3 Configure the terminal with the following settings:
  - 9600 baud (HD600) or 38400 baud (HD2000)
  - 8 data bits
  - No parity
  - 1 stop bit
  - NO flow control
  - TTY mode enabled

- 4 Create a CF/SD card with some test files on it (BMP graphics, 48KHZ MP3 files, MPEG-2 video, etc), and then insert the card into the BrightSign unit you connected to your PC.
- 5 Connect speakers and/or a monitor to BrightSign.
- 6 Turn on your BrightSign.
- 7 After a few moments you should see the BrightSign shell appear. It should also show you the software version number. Verify that the version is 1.0.72 or greater.

**NOTE:** *The current version of BrightSign software does not support hot-swapping of CF/SD cards. You must insert the CF/SD card before applying power.*

## Shell commands

With the shell running, you can view a list of shell commands by typing: help <enter>. Type the command on a line by itself for more information on a particular command.

### Example shell commands: playing files and changing settings

All files on the CF/SD card should be referenced with a slash (/) in front of the filename.

For a Directory of the cards contents use:

```
dir /
```

To show the contents of a sub-directory named images, use:

```
dir /images
```

To play a video named MYVIDEO.VOB on the CF card, use:

```
videoplay /myvideo.vob
```

To play a video with a space in its name, such as MY VIDEO.VOB, use:

```
videoplay "/my video.vob"
```

To change the volume level (0 - 100) to 75% when playing a video or audio, use:

```
videoplay volume 75  
audioplay volume 75
```

To change the video mode, use this format with the videomode command:

```
videomode 1024x768x60p
```

To display an image, use this format with the imageplay command:

```
imageplay slide1.bmp
```

To specify an image mode, use this format with the imageplay command:

```
imageplay slide1.bmp 0  
imageplay slide1.bmp 1
```

## Referencing CF/SD cards (HD2000 only)

To list the contents of an CF card, enter any of the following:

```
dir  
dir cf:/  
dir ata:/
```

To list the contents of an SD card, enter:

```
dir sd:/
```

To explicitly refer to a card from within a script, use the following:

- For compact flash cards  
**CF:/**



- For SD cards

`SD:/`

When BrightSign runs an AUTORUN.BAS script, it sets the current drive to the drive containing AUTORUN.BAS, so references to files on the same card do not need the CF:/ or SD:/ prefixes.

## Testing CF cards

BrightSign works with most CF/SD cards, but is not compatible with all CF/SD cards. You can test your card by using the **dir** / shell cmd, and/or using the shell cmd **readperf**.

Examples:

```
dir /  
readperf bigfile.mpg
```

If the dir command fails, you get the following result:

```
Roku> dir /  
opendir[/  
Error: can't open dir
```

If the readperf command fails, you get the following result:

```
Roku> readperf bigfile.mpg  
SET FEATURES transfer mode SUCCEEDED
```

```
Unable to open file ATA:\autorun.bas
```

## Testing scripts, playlists, and interactive playlists

The BrightSign shell enables you to test playback and see debug output. From the BrightSign shell you can start your script manually and view output from the script.

### Manually starting a script

You can start a script from the shell by using the **script** command.

- 1 Follow the directions earlier in this section to connect BrightSign to your computer, and access it using HyperTerminal.
- 2 As your script runs, you see output in your terminal program including a variety of output such as mouse clicks or button presses, file names, audio and video settings, as well as any errors associated with incorrect use of functions or commands including the line numbers.

### Testing playlists

When your playlist contains the keyword **debug** the autorun.bas script provides detailed output to the BrightSign shell during playback. To begin testing playlists, do the following:

- 1 Copy your content, including your AUTOPLAY.BSP and AUTORUN.BAS files to your CF/SD card.
- 2 Open your AUTOPLAY.BSP (main playlist file) and add the keyword: `debug`
- 3 Insert your CF/SD card into BrightSign, and add power.



## Testing autorun and interactive playlist files

Running AUTORUN.BAS in debug mode provides detailed output to the BrightSign shell while the script is running. To begin testing the AUTORUN.BAS script in debug mode, do the following:

- 1 Copy your content, interactive playlist, and AUTORUN.BAS to your CF/SD card.
- 2 Open AUTORUN.BAS and find the following line near the top of the script:  
`debug=false` 'set to true to turn on debug prints; false to turn them off
- 3 Change this line to: `debug = true`
- 4 Rename AUTORUN.BAS so it doesn't start automatically. For example, rename it RUN.BAS.
  - If you are testing a playlist, the main playlist must be named **AUTOPLAY.BSP**
  - If you are testing an interactive playlist, it must be named **AUTOPLAY.CSV**
- 5 Insert your CF/SD card into BrightSign, and add power.
- 6 When the Roku prompt appears, type the following:  
`script run.bas`

## Testing custom scripts

To make troubleshooting your custom scripts much easier, we recommend adding check and print statements, like those found in the AUTORUN.BAS script. Here are a few examples:

- Add print statements telling you which portion of the script you are currently in
- Add print statements showing the type of event that just occurred
- Add print statements showing names of files read from the flash card
- Add print statements showing the coordinates of a mouse click

### To begin testing your custom script:

- 1 Copy your content and script file to the CF/SD card.
- 2 Name your script **RUN.BAS**. You can call it anything, as long as it's not AUTORUN.BAS, so it doesn't start automatically.
- 3 Add `debug = true` as the first line of your script. This command enables you to see output from the print statements you added to your script.
- 4 Insert your CF/SD card into your BrightSign and add power.
- 5 When the Roku prompt appears, type the following:

```
script run.bas
```

### Multi-run script limitations

Currently when a script terminates, BrightSign does not free resources allocated by Roku Objects. This means that if you use the **script** shell command to run a script, and the script exits, you may not be able to run it again successfully unless you reboot your BrightSign between script tests.

### Linux shell (HD2000 only)

The HD2000 has a Linux shell that you can access via the serial port. To access the Linux shell, enter the following at the Roku prompt:

```
exit
```

When you are done using the Linux shell, enter the following at the Linux prompt:

```
reboot
```



## Updating BrightSign software from the BrightSign Shell

BrightSign is pre-programmed with two primary software images: a *safe mode* and a *run mode*. The safe mode software image is write-protected, and you cannot change it once programmed by the factory. The main purpose of safe mode is to validate that the run mode ROM image is not corrupt and to boot your BrightSign. In addition, safe mode can upgrade or re-program the run mode ROM image.

The run mode software image is stored on a flash ROM and you can upgrade this software in the field. The update process is very safe (see [Step 2: Get the latest BrightSign software](#) for details updating the run mode software). If for some reason the update fails, for example if there is a power failure in the middle of the update, BrightSign boots in safe-mode and completes the update. BrightSign is always working on improving the BrightSign software, so check the BrightSign web site periodically for upgrades.

BrightSign works with most CF/SD cards, but is not compatible with all cards. Because the BrightSign safe mode software is normally older than the run mode software, more CF/SD cards are compatible with run mode than with safe mode. Therefore, BrightSign may not detect the UPDATE.ROK file on some CF/SD cards. It is impossible to tell by a CF/SD card's name, brand, or description if it is compatible. You must try it. (For details on testing your CF/SD cards and accessing the shell, see [Testing CF cards](#) and [Accessing the BrightSign shell](#).)

To manually update using the BrightSign shell:

- 1 Copy the UPDATE.ROK file onto your CF/SD card.
- 2 Insert the CF/SD card in your BrightSign and apply power.
- 3 When the **Roku** > prompt appears in the BrightSign shell, type the following:  
`update update.rok`

**NOTE:** *We are continuing to add support for more CF/SD cards.*

## Using the registry (HD2000 only)

BrightSign HD2000 has an I2C EEPROM with 2K bytes of memory that supports the storage of persistent settings. The BrightSign software uses the registry object to read and write BrightScript data to this eeprom. The purpose of the registry is to enable customers to store usage statistics and other small amounts of information that may change regularly.

Individual items are stored in the registry through the use of registry keys and values. For example, you use a registry key named "NumberOfButtonPresses" to count the number of times a button is pressed. Registry data can be organized into different registry sections if desired.

Interactive playlists support writing to the registry, deleting from the registry, and displaying the contents of the registry (see [Using Excel to create interactive presentations](#)). You can also display the contents of the registry from a playlist (see [Playlist commands](#)). In addition, you can access the registry by using a custom script that includes the **roRegistry** object (see the *BrightSign Object Reference Manual* for additional information).

The number of registry keys and values that you can use depends on a number of factors including the number of sections, the number of keys/values per section, and the size of the keys and values. In typical usage, there is room in the registry for about 50 keys.

## Writing to the registry from an interactive playlist (HD2000 only)

When using interactive playlists on the HD2000, you can use the registry to track the number of times that the system transitions from one state to another. To do this, add the following to the state name in an event column:

```
:counter(<registry key name>)
```

In the demo example, the elo:1 10:180:350:400 event column shows the state CARS.MPG is in. To track the number of times that the user activates this transition, enter `cars.mpg:counter(TouchToDemoMenu)` in place of CARS.MPG. Then, each time the user requests CARS.MPG, BrightSign increments the TouchToDemoMenu key value in the registry.



## Displaying registry contents from an interactive playlist (HD2000 only)

To display the contents of the registry from an interactive playlist, add a row to the table with the word **DisplayRegistry** in the column to the right of the keyword STATE. The remainder of the row is like any other row in the table – it contains other states to transition to when events occur. Elsewhere in the table, add the state **DisplayRegistry** in the column for the event that you want to trigger the registry to display. When the system transitions to this state, playback from the prior state stops and the contents of the registry display on the monitor attached to the BrightSign.

To display only a subset of the registry, use the following syntax:

```
DisplayRegistry-<registry section name>
```

## Copying registry contents from an interactive playlist (HD2000 only)

To copy the contents of the registry to a file onto a CF/SD card or a USB mass storage device, enter the following in the state table:

```
Execute(CopyRegistry <file-name>)
```

Examples of <file-name> include:

```
registry-output.csv
```

```
sd:/registry-output.csv
```

```
usb1:/registry-output.csv
```

Place the `Execute(CopyRegistry <file-name>)` entry in the appropriate row and column for the appropriate state or event in the interactive playlist. Unlike other entries in this part of the state table, this entry executes only the CopyRegistry command and does not transition to a new state. BrightSign simply copies the contents of the registry into a comma separated value format, so that you can easily import the information into a spreadsheet application.

## Setting the date/time on BrightSign (HD2000 only)

BrightSign HD2000 has a real-time clock that you can use to schedule content playback. In order to use the scheduling features, you must first set the date and time on BrightSign.

BrightSign has written a script that provides an interactive means for setting the date/time on BrightSign. The script is named SETDATETIME.BAS and is available at [www.brightsign.biz/support](http://www.brightsign.biz/support) in the software download section.

Instructions for using the date/time script:

- 1 Go to [www.brightsign.biz/support](http://www.brightsign.biz/support) and click the **Software Downloads** link.
- 2 Under HD2000, click the **SetDateTime Script** link to download the **SETDATETIME.ZIP** file.
- 3 Expand the **SETDATETIME.ZIP** file, which contains a script named **SETDATETIME.BAS**.
- 4 Copy **SETDATETIME.BAS** into the root directory of a CF/SD card and rename it **AUTORUN.BAS**.
- 5 Connect a USB keyboard or a GPIO button board to your BrightSign.
- 6 Insert the CF/SD card into your BrightSign and apply power.
- 7 Wait a few moments for the date/time screen to appear and enter the current date and time.

Once you set the date/time on BrightSign, the real-time clock maintains accurate time even if you turn your BrightSign off and on.





## Using a custom boot script and logo

With BrightSign software version 1.1, you can change the startup logo or add a boot script. Both the logo and boot script are stored in the internal FLASH and have a size limit of 200KB.

### Using your own boot logo

- 1 Save your logo in one of the following file formats: BMP, 8 bit indexed, or RLE encoded.
- 2 Copy your logo to a CF card.
- 3 Connect your BrightSign to a PC using a null modem cable (see [Accessing the BrightSign shell](#) for details).
- 4 Run a terminal emulation program such as HyperTerminal (see [Accessing the BrightSign shell](#) for details).
- 5 Insert the CF card into your BrightSign and apply power.
- 6 When the terminal prompt appears, type the following (where LOGO.BMP is the name of your logo file):  

```
writebootfile logo.bmp boot.bmp
```
- 7 Reboot BrightSign, and your logo should appear.

### Using your own boot script (HD600 only)

You can create your own boot script using a self-contained script file. For example, the boot script can't be used to play a playlist or interactive playlist. You can, however, use the boot script to play any content on your CF card (images, audio, and videos).

- 1 Save your boot script as MYSCRIPT.BAS.
- 2 Copy MYSCRIPT.BAS to a CF card.
- 3 Connect your BrightSign to a PC using a null modem cable (see [Accessing the BrightSign shell](#) for details).

- 4 Run a terminal emulation program such as HyperTerminal (see [Accessing the BrightSign shell](#) for details).
- 5 Insert the CF card into your BrightSign and apply power.
- 6 When the terminal prompt appears, type the following (where `myscript.bas` is the name of your boot script):

```
writebootfile myscript.bas autorun.bas
```

- 7 Reboot your BrightSign.

**NOTE:** *To restore the original boot files, reinstall the BrightSign software using UPDATE.ROK (see [Step 2: Get the latest BrightSign software](#) for details).*

## Widescreen vs. 4x3 discussion

You can use BrightSign with widescreen or 4x3 displays. However, you may find that using different display aspect ratios with the various BrightScreen options is confusing. In this section we try to clarify what you can expect.

### Displaying videos

BrightSign treats video and images a little differently. When a video is playing back, it is displayed by default in what is known in BrightSignese as *ViewMode 0*. In other words, BrightSign scales the video to fill the current output resolution (as set by the `videomode` command), whatever its aspect ratio. What this means from a practical point of view is that you should author the content for 16x9 if you intend to use a 16x9 display mode (any component mode). If you intend to use a 4x3 display mode (any VGA mode, for example 1024x768), then you should author the content for 4x3. If you author your video for widescreen, but play it back at 1024x768 or 640x480, it will look squashed. It isn't automatically letter-boxed like when played on a DVD player. For example, the aquarium video that is included in the BrightSign demo (that you can download from the BrightSign web site) is widescreen video. When you view the demo on a VGA display, it appears squashed, but it appears correct when you view it on a 720p display.



Using a custom script or modified `autorun.bas`, you can force a 16x9 video to be letter-boxed. Using `ViewMode 1` sets the video to be letter-boxed and centered while maintaining aspect ratio. You can read more about `ViewMode` in the *Object Reference Manual*. The following example assumes you have a `roVideoPlayer` object called `video`:

```
video.SetViewMode(1)
video.PlayFile("\Aq.mpg")
```

## Displaying images

When displaying images, BrightSign is smarter about the way the images display. It knows the image resolution, and it assumes that all VGA resolutions are in 4x3 mode, and that all component resolutions (except 480p) are widescreen. BrightSign then scales the image according to the `imagemode` setting. However, if you connect a widescreen VGA monitor to the VGA port, you can expect to see distorted images. This is because 1024x768 is a 4x3 mode, and your widescreen monitor stretches it. To avoid this confusion, for widescreen modes, it is best to use a component input monitor.

## Connecting Brightsign to your network

Brightsign HD2000 includes a built-in 10/100Mbps Ethernet port, and it supports DHCP for automatic network configuration. BrightSign uses `http` protocol to communicate over your network using port 80—the same way you browse the web. You don't need to open any special ports in your firewall.

## Configuring BrightSign using DHCP

To connect the Brightsign to your network:

- 1 Use an ethernet cable to connect your Brightsign to your network.
- 2 Insert your CF/SD card with your content and playlist into your BrightSign and add power. Brightsign automatically requests an IP address from your network when it boots.

## Using a manual IP configuration

If you do not want to use DHCP or you can't because of your network setup, you can manually set the IP address on BrightSign in one of two ways:

- Configure BrightSign from the system shell, by connecting the BrightSign to your computer using a serial cable.
- Use a manual IP configuration script.

We recommend the manual IP configuration script method because it is easier than using the system shell. You can download a manual IP configurations script from the BrightSign website.

Follow these steps to manually configure your IP settings:

- 1** Go to [www.brightsign.biz/support](http://www.brightsign.biz/support) and click the **Software Downloads** link.
- 2** Download and unzip the **MANUAL\_IP\_CONFIGURATION.ZIP** file, which contains an AUTORUN.BAS file.
- 3** Open **AUTORUN.BAS** with notepad or any text editor.
- 4** Edit **AUTORUN.BAS** to match the network settings on your network.
- 5** Copy **AUTORUN.BAS** to your CF/SD card.
- 6** Insert your CF/SD card into your BrightSign and add power.
- 7** When the option to press the video select button to choose DHCP appears, do not press the video select button. Wait 8 seconds, and BrightSign accepts the manual settings in your AUTORUN.BAS file.
- 8** When prompted, restart BrightSign to finish.



**TIP:** You can also copy and paste the following into a text file, and then change the network settings to match your own. After you make the changes, save the file as AUTORUN.BAS.

```
REM Start of script
nc = CreateObject("roNetworkConfiguration", 0)

nc.SetIP4Address(192.168.1.200)
nc.SetIP4Netmask(255.255.255.0)
nc.SetIP4Broadcast(192.168.1.255)
nc.SetIP4Gateway(192.168.1.1)

nc.AddDNSServer(192.168.1.1)
nc.AddDNSServer(208.67.222.222 )
nc.AddDNSServer(208.67.220.220)

nc.Apply()
a=RebootSystem()
REM End of script
```

## Proxy servers

There are three ways you might connect the BrightSign to a server on the Internet.

- **Direction connection:** BrightSign has a routeable IP address and is accessible to the outside world. We do not recommend this configuration.
- **Intercepting or transparent proxy:** BrightSign has a private IP address that is only routeable within the local network. This configuration is used in most home and corporate networks. We recommend this configuration.
- **HTTP / socks proxy:** BrightSign does not currently support HTTP proxy or socks proxy configurations. Although BrightSign has a private IP address, it cannot make connections to the Internet by itself. Instead it has to connect to a proxy server and ask it to make the connection to the Internet. This can either be a protocol specific proxy (like many web proxies/caches) or a protocol agnostic proxy (e.g. socks).

## Networking software options

After you connect your BrightSign hardware to your network and configure it to communicate with your network, you can choose whether you want to use Simple Networking software or BrightSign Network Manager to manage your BrightSign devices and content on your network.

The following is a brief description of the features offered by each of these networking software options:

- **Simple Networking:** This method provides an easy way to update BrightSign devices remotely. Create a BrightSign folder on your web server, place your new content in this folder, and then use BrightSign's Windows tool to create a sync file, so the BrightSign knows what's changed in the folder. When you use the NetworkTimer command in your playlist, BrightSign automatically downloads the content you place in your network folder.



- **BrightSign Network Manager:** This is a web-based solution that is designed for enterprise situations with a large number of BrightSign devices that require advanced networking features including:
  - **Reporting:** Track all BrightSign devices including the latest connectivity data, CF/SD card size, and current and upcoming presentations.
  - **Unit Organization:** Create groups and deploy content very quickly to one or more groups.
  - **Scheduling:** Pick the dates and times you want to deploy content to each group.
  - **Content Organization:** Upload audio, video, and image files to a central library for easy access.
  - **Presentation Creating:** Use a graphical interface to build playlists (with or without zones).

**NOTE:** *To use BrightSign Network Manager, you must first establish a network account with BrightSign.*

## Using the NetworkTimer keyword

When using the Simple Networking method, you need to add a NetworkTimer keyword to your playlists. You can use the NetworkTimer keyword with an RSS feed or the automatic content download feature. The NetworkTimer keyword can take the following forms:

- **NetworkTimerPeriodic:** Instructs BrightSign to check your network folder at regular intervals. For example, you can update an RSS feed every 15 minutes. The syntax is as follows:

```
NetworkTimer "Minutes" "Item to update"
```

```
NetworkTimer 15 RSS
```

- **NetworkTimer:** Instructs BrightSign to check your network folder for new content at regular intervals based on the date/time parameter you specify. For example, you can check for new content every Monday at 6AM. The syntax of the date/time parameter is as follows:

`Year "/" Month "/" Day "-" Day of Week "-" Hour ":" Minutes`

`NetworkTimer */*/*-MON-06:00 DOWNLOAD 'Mondays at 6AM`

- **NetworkTimerRange:** Instructs BrightSign to check your network folder for new content during a specific timeframe. For example, you can check for new content every day between 10AM and 2AM. The syntax is as follows:

`NetworkTimerRange 22 240 Download 'Every day between 10PM - 2AM`







<b>Video compression standards</b>	<b>HD600</b>	<b>HD2000</b>
MPEG-1	✓	✓
MPEG-2	✓	✓

<b>Picture formats</b>	<b>HD600</b>	<b>HD2000</b>
BMP	✓	✓
PNG		✓
JPEG		✓

<b>Audio formats</b>	<b>HD600</b>	<b>HD2000</b>
AC3 pass through	✓	✓
MP3 decode out to analog and SPDIF	✓	✓
WAV decode out to analog and S/PDIF		✓
5.1 Dolby digital decode (analog and USB output)	✓	✓

<b>USB device support</b>	<b>HD600</b>	<b>HD2000</b>
Touchscreen	✓	✓
Speakers	✓	✓
Mouse	✓	✓
Keyboard	✓	✓
Trackball	✓	✓
Barcode scanner	✓	✓
USB hub support	✓	✓





<b>Power</b>	<b>HD600</b>	<b>HD2000</b>
Typical power consumption	5 watts	10.5 watts

<b>Other features</b>	<b>HD600</b>	<b>HD2000</b>
Auto play and looping video support	✓	✓
Playlists	✓	✓
Interactive playlists (CSV files)	✓	✓
Scripting	✓	✓
Real time clock		✓
Single files larger than 4GB		✓
Upgradable software	✓	✓
Customer configurable DIP switches		✓
Scheduling playback		✓
Persistent data storage via eeprom		✓
USB mass storage device support		✓

## Supported media types

BrightSign supports the following media types:

**MPEG-2 video files (also called VOB or MPG files)** These are the same types of files that are found on DVDs. You can create MPEG-2 video files using any video editing software, such as Pinnacle Studio or iMovie. These video files should meet the following parameters:

- **Video size** up to 1080i (1920x1080 interlaced) on the HD2000 or D1 (720 x 480) on the HD600.
- **Bit rate** up to 25Mbps (HD200) or 9Mbps (HD600).
- **Scale.** During playback video is scaled in real time to the output resolution (which can be much higher definition). The files must contain program streams (transport streams are not supported).
- **Audio** (HD600 only) audio track with 48K sampling rate.

**TIP:** For additional information on authoring HD content for the HD2000, see [Generating HD content for BrightSign HD2000 using Final Cut Pro](#).

**Image files** You can create image files using most imaging software, such as Adobe PhotoShop, Macromedia Firefly, or even Paint, which comes with Windows. You can also save or convert any digital camera image to compatible formats.

The following image resolutions are supported:

- **HD600:** Up to 1280x720 (720p)
- **HD2000:** Up to 1920x1080 for HD output and up to 1024x768 for VGA output

The following image file types are supported:

- **8, 24, 32 bit BMP files**
- **PNG files** (HD2000 only)
- **JPEG files** (HD2000 only) *Baseline* JPEG files are supported. *Progressive* JPEG files are not supported.

**MP3 audio files** Stereo or mono files that meet the following parameters:

- 48KHZ (HD600)
- 44.1KHZ or 48KHZ (HD2000).

**NOTE:** *BrightSign has no sample rate conversion. Certain USB speakers only support a sample rate of 48 KHz. When using a USB speaker with this characteristic, BrightSign outputs all audio at this rate regardless of the sample rate it was recorded at.*

**WAV audio files** (HD2000 only) 16 bit linear PCM data.

**Dolby Digital (AC3) 5.1 audio in a video file** ○

- **5.1 AC3 audio playback from USB and analog outputs.** AC3 audio is decoded to PCM within BrightSign to 6 tracks over a single USB connector, or three stereo analog connectors.
- **5.1 AC3 audio playback from SPDIF and HDMI outputs (HD2000 only).** SPDIF audio output is sent in its compressed state to the SPDIF receiver. You can also set an option within the autoplay script to automatically mix the AC3 5.1 audio down to stereo PCM.



## Supported input devices

With BrightSign software version 1.x you can connect the following devices to a BrightSign:

**TIP:** *If you have specific requests for device support, contact [sales@brightsign.biz](mailto:sales@brightsign.biz). We are constantly adding new device support and the ones we pick are customer driven.*

- Elo Touch Screens
- Many brands of USB Keyboards
- Many brands of USB Speakers (HD600 only)
- Many brands of USB Mouse or Trackballs
- Many brands of USB Bar Code Scanners (these appear as a keyboard)
- Quadravox Serial Button Board
- Any GPIO button, signal, or LED (your custom board or led display). BrightSign has a test button board available for purchase on our estore.
- VGA Monitors
- Component-input TVs
- NTSC and PAL monitors (HD600 only)
- HDMI Monitors / TVs (HD2000 only)
- High Definition Monitors/TVs
- Speakers/Amplifiers with stereo line-level inputs
- Audio playback devices with SPDIF optical digital audio input
- PC via Serial Port
- IR Remote Control using the NEC protocol. You can purchase a compatible remote from BrightSign.

## USB mice

BrightSign has tested the following mice with BrightSign:

Type	Connection	Brand	Model	Name	Comments
Ball	Wired	Belkin	F8E841-BLK	MiniScroller Mouse	
Optical	Wireless	Belkin	F8E874	MiniWireless Optical Mouse	
Optical	Wired	Dynex	DX-OM20		
Optical	Wireless	Kensington	72216	PilotMouse Optical Wireless	requires USB hub
Optical	Wired	Logitech	M-BE58	First/Pilot Wheel Mouse	
Optical	Wired	Logitech	M-UV55A	Mini Optical Mouse	
Optical	Wired	Logitech	M-BT96a	Optical Mouse (3 buttons)	
Trackball	Wired	Logitech	T-BC21	Marble Mouse	
Optical	Wired	Logitech	M-BP86	MX310 Optical Mouse	requires USB hub
Optical	Wired	Logitech	m-bw112a	LX3 Optical Mouse	requires USB hub
Optical	Wireless	Logitech	RBS111	Cordless Mini optical mouse	requires USB hub
Optical	Wireless	Logitech	V200	Cordless notebook mouse	requires USB hub
Optical	Wireless	Logitech	LX5	Cordless Optical mouse	
Optical	Wired	Microsoft	69H-00001	Comfort Optical Mouse 1000	