
Section 3: User Media

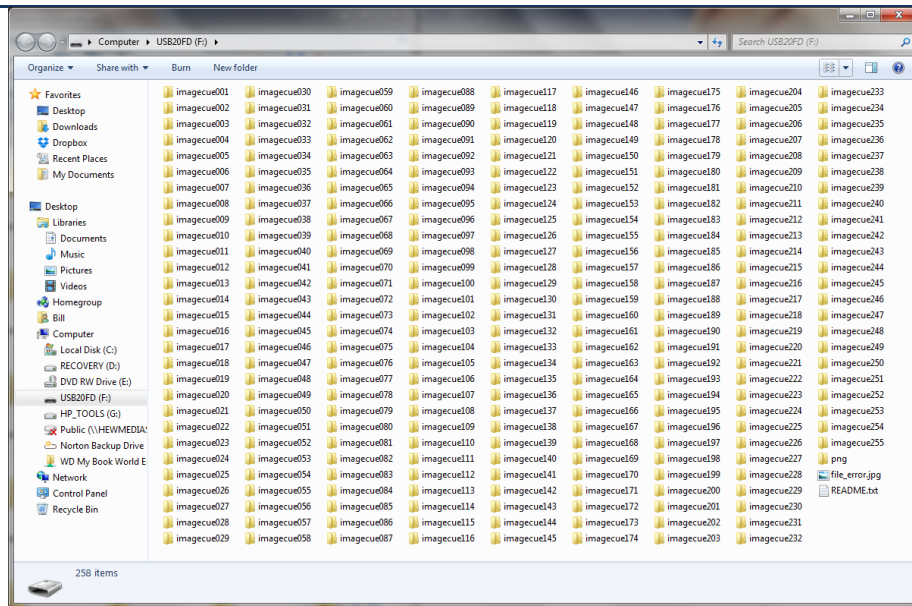
In this Section:

- ✓ Setting up the USB Flash Drive
- ✓ JPEG Images
- ✓ H264 Videos
- ✓ Using the *ImageCue*™ Utilities (Improved Utilities!!)
- ✓ PNG Overlays
- ✓ Copyrights

Setting up the USB Flash Drive

The new User Content USB Utility can set up the USB Flash drive with a click of a button. We strongly suggest you use this utility. See the "Using the *ImageCue*™ Utilities chapter later in this section for more information.

User content is stored on an external USB flash drive. The flash drive can be of any size large enough to hold the content. There is no limitation to the size of the drive (there are now 512GB and 1TB flash drives available). The flash drive must be formatted FAT32, which is the formatting normally found on the drives when purchased. Very large USB flash drives come in another format. You must ensure that the drive is formatted FAT32 for it to work with *ImageCue*™. The standard Windows® formatting utility will not format drives larger than 32GB with FAT32. A utility to format flash drives larger than 32GB is available from HP. A link can be found on the *ImageCue*™ website. *ImageCue*™ requires that user content be placed into a very specific file folder structure. We recommend that you use the User Content USB Utility to set up your USB flash drive. However, a down-loadable zip file template with an empty folder structure is available on the *ImageCue*™ website: <http://imagecue.lighting/support/downloads>. Once you have downloaded the template zip file, unzip it to the ROOT of your USB flash drive. All of the folders for *ImageCue*™ will be created on the drive. The "root" of the drive means that the file structure cannot be placed within a folder on the drive. Once you have completed the unzip process you should see a file structure like this:



The images, videos, and overlays you want to use with *ImageCue*[™] will be placed inside these folders. The “README.txt” file can be opened by any text editor and has details about file naming requirements. It is alright to have other folders on the USB drive other than the *ImageCue*[™] structure as long as they do not have the same name. **NOTE: File names used by *ImageCue*[™] must not have any spaces in them. *ImageCue*[™] uses a Linux based operating system and it does not like spaces in file names. Files with spaces in the name will most likely NOT be found by *ImageCue*[™] and result in the “Media not found” message displayed. We suggest using the “_” (underscore) character in the place of any spaces in your file names.**

The User Content USB Utility makes the process of copying your content to the USB flash drive much easier. It automatically numbers your files and replaces any space characters with an underscore character. See the “Using the *ImageCue*[™] Utilities” chapter later in this section for more information.

You are now ready to start putting your content on the flash drive. Images (jpeg files) and videos (h264 files) are put into the “imagecue###” folders depending on the SOURCE value you want to use for playback. Image files and video files may be intermixed within a folder. The only constraints being: 1) Every file within a folder must have a unique numeric 3 character prefix from 001 to 255; and 2) every file must have a suffix indicating the file type as either “.j”, “.jpg”, “.jpeg”, “.J”, “.JPG”, “.JPEG” for image files, and “.h”, “.h264”, “.H”, “.H264” for video files. Obviously, the actual file content must match the file type suffix. Overlay PNG files must be placed in the “png” folder and have a numeric prefix from 001 to 200. The overlay files must have a suffix of “.p”, “.png”, “.P”, or “.PNG”. Starting with software version 1.0.1.8, when operating *ImageCue*[™] in Personality 2, media container files may also be used. The video stream in the container MUST be encoded as H264. The currently supported container files have a suffix of “mov”, “mp4”, “mkv”, “m4v”, “MOV”, “MP4”, “MKV”, or “M4V”.

Occasionally, when swapping the USB flash drive from *ImageCue*™ to a Windows PC you may get a warning window to scan the drive. You may choose to scan the drive for errors or skip the scan. This occurs because *ImageCue*™ does not require you to take special steps to shut it down and the USB drive is not officially unmounted before a shutdown.

The USB drive should be installed in the *ImageCue*™ USB port **BEFORE** powering up *ImageCue*™. If you have selected an image/video from the USB drive before you power up *ImageCue*™ the boot sequence can take up to 10 seconds longer in order to mount the drive completely and display the selected image/video. If you insert the USB drive into the *ImageCue*™ USB port after power up, it may take up to 15 seconds for the drive to be recognized and mounted. If you have selected an image/video from the USB drive prior to it being recognized and mounted, you may have to deselect that image and reselect it in order for it to appear. Removing and replacing the USB drive while *ImageCue*™ is powered up is not recommended and may result in unpredictable behavior.

JPEG Images

The User Content USB Utility will automatically check your JPEG files for compatibility and can also convert other picture formats to JPEG for *ImageCue*™. See the “Using the *ImageCue*™ Utilities chapter later in this section for more information.

Still images used in *ImageCue*™ must be in standard JPEG format. Progressive jpegs cannot be processed and may not be used. There is a free image viewing utility called Irfanview that can tell you if a jpeg is progressive or standard. Load the jpeg into Irfanview, and then select “Image” on the top menu, and then “Information” from the drop down menu. The window that opens has a line showing “Compression”. If the jpeg is progressive it will be indicated on this line. Irfanview is also a utility that can be used to batch resize jpegs. There are some applications available that can convert progressive jpegs to standard, including Imagemagick.

For best performance, jpegs used with *ImageCue*™ should be in the same resolution as the output resolution of *ImageCue*™. Normally this is 1920 x 1080 pixels. **Jpegs should never be larger than 1920 x 1080 pixels.** Jpegs at a higher resolution than 1920 x 1080 pixels should be resized using a resizing utility such as Irfanview or Fotosizer before putting them on the USB flash drive. Both of these utilities allow for batch resizing of files. Note that the *ImageCue* User Content USB Utility and *ImageCue* JPEG Utilities can be used to properly format your jpegs as well. See the “Using the *ImageCue*™ Utilities chapter later in this section for more information.

Scaling and aspect ratio: *ImageCue*™ resizes jpeg images up or down to fit the closest screen dimension while maintaining the aspect ratio of the original image. Some examples: If the *ImageCue*™ resolution is set to 1920 x 1080 and the jpeg image is 1280 x 720, the image will be scaled up to 1920 x 1080. However, if the jpeg image is 720 x

720, the image will be scaled up to 1080 x 1080 and centered on the screen. On either side of the image the background (color layer if it is behind the image) will show through. Extreme scaling up of images will result in poor image quality and is not recommended. As a rule of thumb it is always better to match the current resolution or scale down rather than scale up. When scaling down, *ImageCue*[™] maintains the aspect ratio and scales to the closest full screen dimension.

H264 Videos

The User Content USB Utility will automatically check your video files for compatibility and will convert and extract them to H264 RAW for *ImageCue*. See Section 3 for more information.

Please note that this section describes the use of video files without audio for instantaneous playback with close to zero latency on *ImageCue*[™]. Starting with software version 1.0.1.8 it is possible to play video/audio content directly from media container files such as mp4 and mov in Personality 2. When playing back a container file directly there can be latency before playback commences. Personality 2 adds two additional DMX512 channels for audio volume control and playback control. A playback control feature allows container files to be “pre-rolled” in the background to eliminate the latency. More information may be found in Section 5 of this guide.

ImageCue[™] only accepts video files in H264 RAW format except in Personality 2 as described above. In nearly all cases it will be necessary to extract the H264 RAW video stream from a multimedia container file. **SIMPLY RENAMING THE CONTAINER FILE WITH THE FILE TYPE “.h264” WILL NOT WORK.** Video files that have not been created with the H264 codec will need to be transcoded to H264 before extraction.

Video resolution, bit rate, and frame rate: For optimal performance of *ImageCue*[™] there are some considerations that should be made in the selection and/or the creation of video content. As with jpegs, video content should be in the same resolution as the selected output resolution of *ImageCue*[™]. With 1920 x 1080 content *ImageCue*[™] is capable of decoding video smoothly with bit rates up to 60Mbps. We recommend bit rates in the range of 10Mbps to 40Mbps at 1920 x 1080 for best performance. Video content that is highly compressed with extremely low bit rates may be slower to load and exit than content with less compression and higher bit rates. The frame rate (FPS) of content can also affect performance. *ImageCue*[™] will decode and play videos with frame rates from 24FPS up to 60FPS. For optimal performance the frame rate should be 30FPS.

Video scaling and aspect ratio: *ImageCue*[™] was designed and optimized for HD format video, 1920 x 1080 or 1280 x 720. Using content in these formats with a matching output resolution of *ImageCue*[™] will achieve the best performance. *ImageCue*[™] scales all video content up or down to fit the screen resolution being used while maintaining aspect ratio. Some examples: A source video with a resolution of 1280 x 1080 will stay at 1280 x 1080 with transparent areas on either side if the output resolution is set for

1920 x 1080. A standard definition (SD) video with a resolution of 720 x 480 will be stretched equally in both directions to 1620 x 1080 if the output resolution is set for 1920 x 1080, again with transparent areas on either side. The video will fill the screen however it will lack the sharpness of a true 1920 x 1080 HD video. The resizing of video content by *ImageCue*[™] is very processor intensive and should be avoided if at all possible to achieve the best performance.

Interlacing: *ImageCue*[™] does not support interlaced video. The utility, VLC, can also determine if your video is interlaced. Many of the same tools used to re-encode video to H264 can also de-interlace video.

PNG Overlays

PNG images are similar to JPEGs except that they can contain a transparency attribute. This can be extremely useful as a way to overlay text, graphics, and effects on another image or video without having to modify the image or video content. *ImageCue*[™] does not scale PNG images. In order to make the PNG Overlay process as fast and efficient as possible, *ImageCue*[™] has some strict constraints on the attributes of PNG files for use as Overlays.

Resolution and size: The *ImageCue*[™] Overlay function supports only one image size and resolution depending on the current output resolution being used. If the output resolution is set to 1920 x 1080 the PNG Overlay must be EXACTLY 1920 x 1080 in size/resolution. For all other output resolutions, the PNG Overlay must be EXACTLY 1280 x 720 in size/resolution. Images that do not conform to this specification will result in the "Overlay not found" message being displayed. The User Content USB Utility will take care of any necessary resizing of PNG files for the "png" folder based on the resolution setting in the utility.

Color: *ImageCue*[™] only supports PNG overlay files that are 24 bit color and 24 bit color + transparency (32 bits total). 8 bit color and monochrome (Black & White) files will produce unpredictable results. Even if you are using black and white, save your PNG image as 24 bit color or 24 bit color + transparency. Technically, this is color types 2 or 6 with a bit depth of 8.

Interlacing: *ImageCue*[™] does not support interlaced PNG Overlay files.

Providing that your PNG file meets these constraints, all you need to do is rename the file with a 3 digit numeric prefix from 001 to 200, remove all spaces, and place it in the "png" folder of the USB flash drive. Selection of the PNG Overlay is through the OVERLAY SELECT parameter (channel 11). The OVERLAY OPACITY parameter (channel 12) controls the visibility of the Overlay. The Overlay will not be visible if the OVERLAY OPACITY value is 0 or very low.

Using the ImageCue Video Utilities

To make the process of inspecting, formatting, and preparing user content easier, *ImageCue*™ has created our own utility programs. You can download the utilities from the *ImageCue*™ website: <http://imagecue.lighting>. **Most of the utilities require that the application “ImageMagick” be installed on your computer. A link to download the app is available on the *ImageCue*™ website.**

The *ImageCue*™ utilities are:

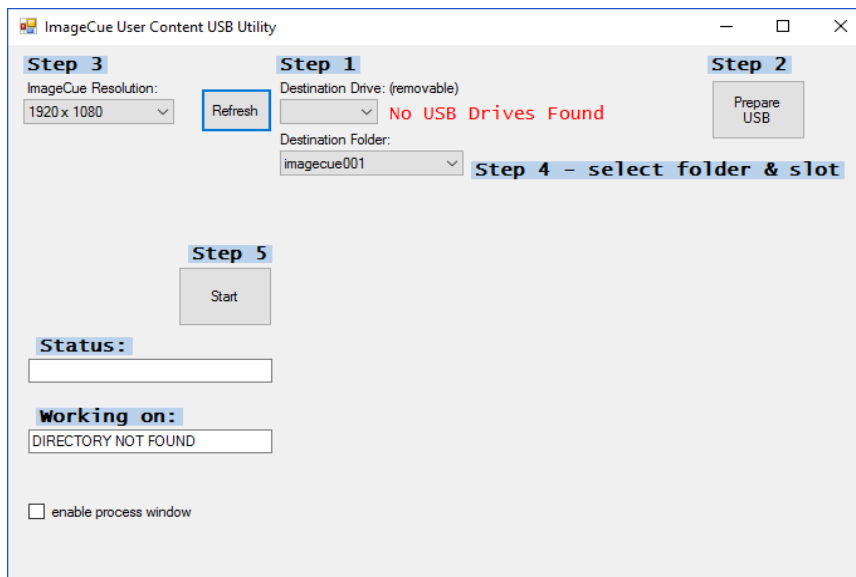
ImageCue™ User Content USB Utility

ImageCue™ JPEG Utility and *ImageCue*™ JPEG Batch Utility

ImageCue™ H264 Utility and *ImageCue*™ H264 Batch Utility

ImageCue™ PowerPoint PDF to JPEG Utility **In addition to “ImageMagick”, this utility requires the application “GhostScript” to be installed on your computer.**

ImageCue User Content USB Utility: This utility has been designed to help users prepare the USB flash drive and their content for use with *ImageCue*™ with minimal knowledge of file formats and codecs.

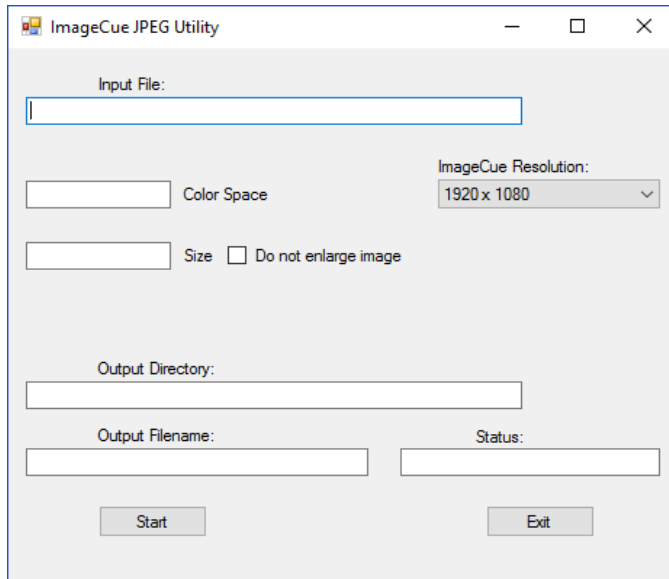


This utility is designed to work directly with a USB flash drive. It is not possible to use it with non-removable media (i.e. not a USB flash drive). When the utility is started it looks for any flash drives connected to the computer. If none are found it will display the “No USB Drives Found” message as shown above. To use the utility, follow these step-by-step instructions:

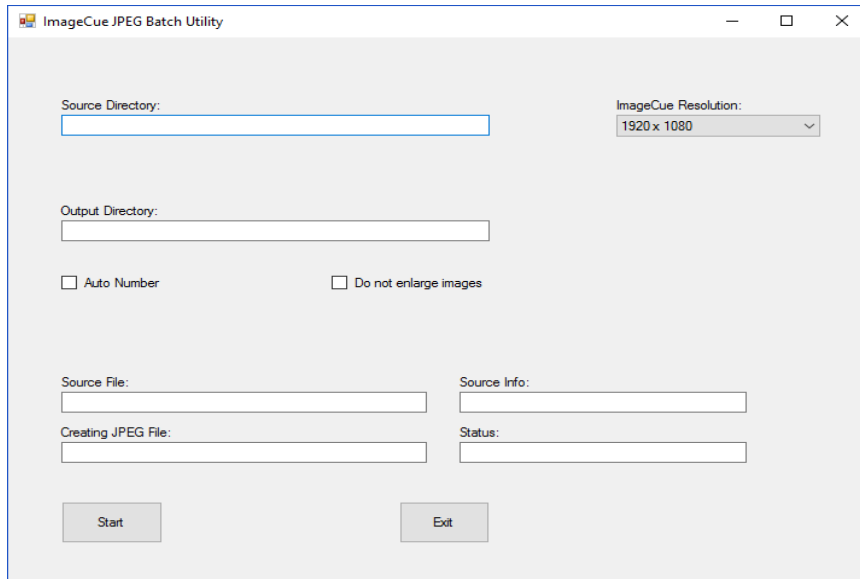
- 1) Insert your USB Flash drive. If you insert it after starting the utility, you will need to click the “Refresh” button for it to be found. If the drive is already set up for

ImageCue, the file structure and any existing files will be displayed. If the drive has not been prepared for ImageCue, the message "DIRECTORY NOT FOUND" will appear in the "Working on:" message box.

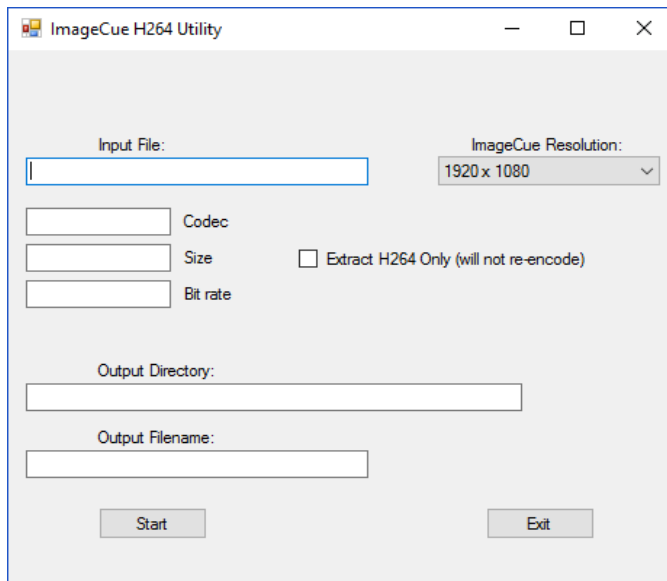
- 2) To prepare the USB Flash drive, click the "Prepare USB" button. Even if you believe your drive to be properly set up, you can click this button and the utility will verify that all necessary folders and files are present. The utility will NOT remove any existing data – ImageCue or otherwise – from the drive. The preparation of a blank USB drive will take about 10 seconds. The "Status:" message box will display "WORKING ON IT" while the preparation is being done. Once the drive is prepared, you will see the "slots" for your content. If the drive already contained content, you will see it listed in the associated slot in green text. If more than one file has the same numeric prefix, the message "MORE THAN ONE FILE STARTS WITH ###" will be displayed in red, with ### being the numeric prefix that is duplicated. You must manually delete or rename the offending files outside of the utility.
- 3) Use the "ImageCue Resolution:" drop-down menu to choose the same resolution setting you have selected on the ImageCue unit. The default setting is 1920x1080.
- 4) Select the "Destination Folder:" drop-down menu to choose the folder you want to work on. Note that the "png" folder is listed just below folder "imagecue001". **Important: Do not change folders before you complete Step 5 – "Start" or any file selection you have done will be lost. Your original files are not affected, but any conversion and file naming processes will not have occurred.** Click in any "slot" box to open the file browser to choose the desired content for the slot. Note that you can scroll down to all of the available slots using the scroll bar on the right. In the "imagecue###" folders you may select many different types of video containers and picture files. The browser is filtered to display only compatible file types. In the "png" folder, the browser will only display png file types. Note that you can select more than one file in the browser and the utility will place them in slots. The order of the files in a bulk selection is not controllable.
- 5) Once you have selected the desired content for the folder's slots, click the "Start" button. Depending on the number of slots to be done, and the type of content, this process can take a significant amount of time. The content is analyzed by the utility to determine what needs to be done in order for it to work best with ImageCue. For example, a portrait formatted picture will be placed on a black background so that the area on each side of the picture is not transparent. Videos are checked for bit rate and codec. Re-encoding will occur if either is not acceptable for ImageCue. The message windows "Status:" and "Working on:" will display appropriate messages as the utility works through the content. Note that the slot labels do not change until all have been processed. Any errors will be displayed in red. If the conversion is good, the new filename is displayed in green.
- 6) The "enable process window" tick box allows you to see a command window performing each conversion.

ImageCue JPEG Utility:

This utility will prepare picture and graphic files for ImageCue. It can convert several file formats to JPEG: png, bmp, tif, gif, and ppm can be used as input files to the utility. To select an input file, click inside the "Input File:" text box. A file browser will open that allows you to navigate to the desired file. After the file is selected, information about the file is displayed in the "Color Space" and "Size" message boxes. You should make sure that the "ImageCue Resolution" drop-down menu selection matches the setting on your ImageCue. The default setting is 1920 x 1080. A tick box, "Do not enlarge image", allows you to maintain the image's current size, while placing it on a black background matching the size of the "ImageCue Resolution" setting. If an image is greater in size than the "ImageCue Resolution" setting, it will be reduced in size while maintaining the aspect ratio. The image is placed on a black background matching the "ImageCue Resolution" setting. The default setting for the "Output Directory:" is the same location as the "Input File:" with the sub-folder "/jpegs" added. To change the "Output Directory:", click in the text box and navigate to the desired location. The "Output Filename:" will default to the "Input File:" name with ".jpg" replacing the filename extension. You may rename the file by clicking in the "Output Filename:" text box and editing the name. Click the "Start" button to begin the file conversion. The "Status:" message box will indicate the action being performed by the utility. Upon completion, the message box will display "DONE!!". You may either "Exit" the utility or perform another conversion by choosing a new "Input File:" and repeating the above steps. Note that you can write files directly to your USB Flash Drive by selecting it in the "Output Directory:" step.

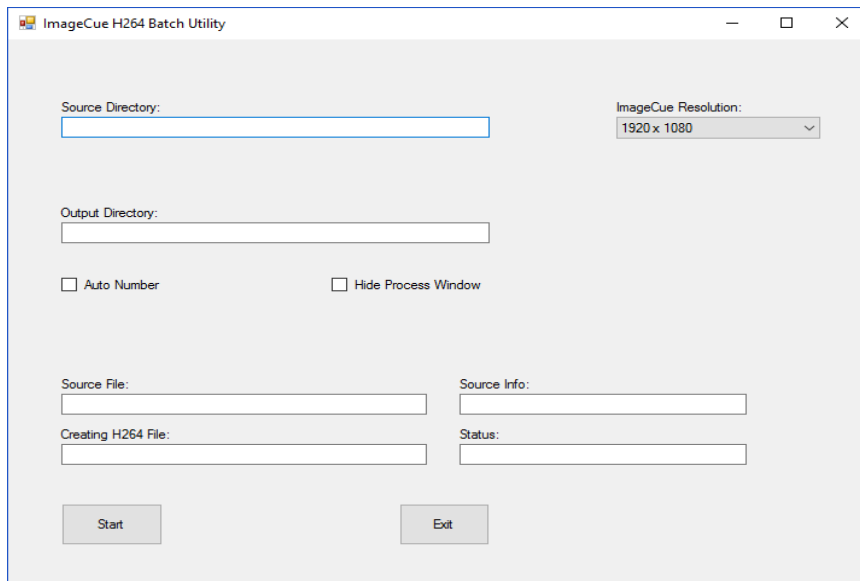
ImageCue JPEG Batch Utility:

This utility allows users to convert an entire folder of picture or graphic content in bulk. We recommend our batch utilities only for more advanced users. The selected folder must not contain any non-compatible image file types. It is also VERY IMPORTANT that the converted images are not sent to the same folder as the source folder. The desired output resolution matching the setting on ImageCue should be selected using the drop-down "ImageCue Resolution:" menu. Clicking in the "Source Directory:" text box will open a file browser to select the source directory. The "Output Directory" text box will default to the "Source Directory:" with the sub-folder "/jpegs" appended. To change this location, click in the "Output Directory:" text box and edit the location. File names can have the 3-digit prefix automatically added (starting at 001) by selecting the "Auto Number" tick box. To have ALL images retain their size if smaller than the "ImageCue Resolution" setting, select the "Do not enlarge images" tick box. All images that do not fill the selected "ImageCue Resolution" setting will be placed on a black background matching the selected resolution size. Images that are larger than the selected resolution size will be reduced in size to match the resolution setting. To commence the batch processing, click the "Start" button. The "Source File:", "Source Info", "Creating JPEG File:", and "Status" message boxes will indicate which file in the "Source Folder" is being processed. Upon completion, a message box window stating "Batch Job Completed..." will open waiting for you to select "OK" to continue. You can either "Exit" the utility or choose another folder to process.

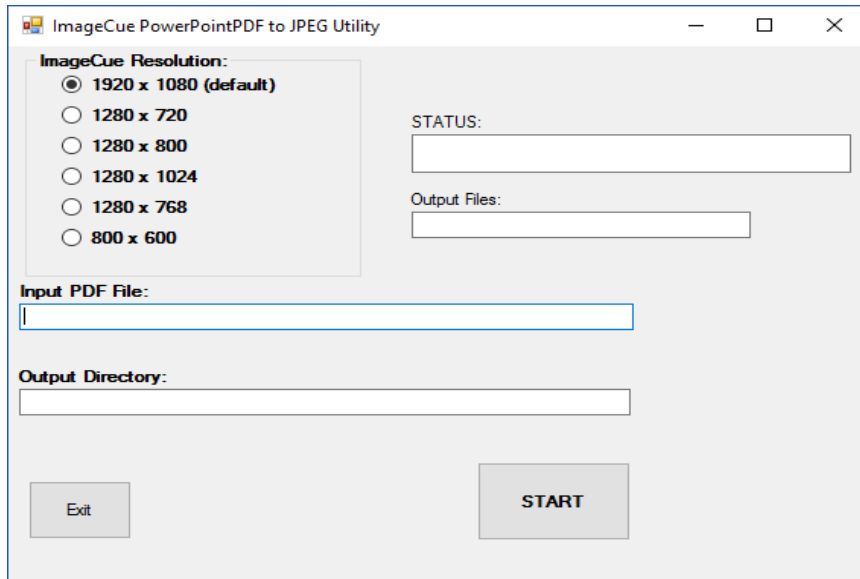
ImageCue H264 Utility:

This utility will process a single video file at a time. The utility is an improved version of our original H264 utility. It combines the ImageCue Info Utility with a powerful video conversion (transcoding) and extraction application. The desired output resolution should match the "ImageCue Resolution:" setting of your ImageCue by selecting the desired resolution in the drop-down menu. Click in the "Input File:" text box to open a file browser to select your video. The following file types are selectable: mov, mp4, and h264. Once a file is selected, the "Codec", "Size", and "Bit rate" message boxes will populate with information about the file. If all three of these parameters are compatible with the resolution setting and ImageCue, the "Extract H264 Only" tick box is automatically selected. The user can override this setting, but it is not recommended. Clicking in the "Output Directory:" text box will open a file browser to allow setting of the desired directory for the converted file. Note that clicking "Cancel" in the browser will select the "Input File:" directory. The "Output Filename:" text box will automatically populate with the "Input File:" name, with all spaces replaced with an underscore character, and the suffix ".h264" replacing the original file type. Click on the "Start" button to begin conversion and/or extraction. A command window will open that shows the actions being performed for the conversion and extraction. When the process is completed a new window will open with the message "Extraction Complete...", waiting for a click on "OK" to continue. You may either "Exit" the utility or perform another conversion/extraction by selecting a new "Input File:".

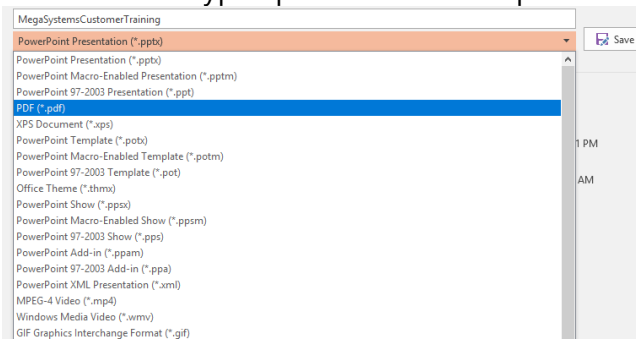
ImageCue H264 Batch Utility:



This utility is very similar in operation to the single file H264 utility however it can process all of the files within a single folder without user intervention. If you have more than just a few videos to transcode or extract, this utility can be a big time-saver. The output resolution of the extracted H264 videos can be selected using the drop-down "ImageCue Resolution:" menu. The selection should match the setting on the ImageCue unit. Select the desired content folder by clicking in the "Source Directory:" text box and using the file browser to locate the folder. Click in the "Output Directory:" text box to select the destination for the output files. Do not put the output files in the same folder as the source files!!! (This will result in an endless processing loop!) If you would like the output files to be numerically prefixed (starting with 001), select the "Auto Number" tick box. By default, each conversion opens a command window to display the conversion process. To disable this, select the "Hide Process Window" tick box. Click the "Start" button to begin the conversions. The "Source File", "Source Info", "Creating H264 File", and "Status" message boxes will provide information about the currently running process. Upon completion of the batch, a new window will open stating "Batch Job Completed..." and wait for a click on the "OK" button to proceed. You can either "Exit" the utility, or start another batch process by selecting a new source folder.

ImageCue PowerPoint PDF to JPEG Utility:

This utility provides the very useful feature of converting a PowerPoint presentation (without animation) into individual JPEG “slides” for use with ImageCue. The first step is to export the PowerPoint as a PDF file. This is done using PowerPoint. Open the presentation in PowerPoint and then open the FILE menu. Select SAVE AS. Then select PDF as the file type option from the drop-down menu.



Make a note as to where the file is saved!! Open the ImageCue PowerPoint PDF to JPEG Utility. Select the desired resolution using the “radio buttons” to match the resolution setting on the ImageCue unit. Click in the “Input PDF File:” text box to open a file browser and navigate to the location of your previously saved PDF file. Next, select the “Output Directory:” location. By default, this is set as the “Input PDF File:” directory (folder) in a sub-folder called “/output”. To change this location, click in the text box and navigate to the desired location. Click on the “START” button to begin the conversion. Note that the conversion can take a while depending on how many slides there are in the presentation. The “STATUS” message box will post messages as progress is made. Upon completion, a new window with the message “Conversion Complete...” will be displayed prompting you to click the “OK” button to continue. You can either exit the utility or perform another conversion by clicking in the “Input PDF File:” text box. The converted files are automatically numbered starting with 001, ready for use with

ImageCue. Just copy the files into one of the "imagecue###" folders on your USB Flash Drive. Note: You can select the USB Flash Drive and desired folder in the "Output Directory:" text box!

Copyrights

It is the end user's responsibility to observe all copyrights for any and all material they use in conjunction with *ImageCue*[™]. *ImageCue*[™] accepts no liability for the infringement of third party copyrights by end users of *ImageCue*[™]. Just because content has been downloaded from the Internet does not mean it is free of copyright.