DAKTRONICS
SHOW CONTROL & VISICONN SYSTEM
MEDIA FILE RECOMMENDATIONS

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Introduction

This document discusses the recommended practices for working with player compatible media files in a Show Control System and Visiconn System. It discusses helpful guidelines to follow when creating media files; what types of files a system can support; tips and guidelines for working with different types of fonts; and steps for how to import media files from a portable storage device.

> **Note:** **7**, **8**, and **15** are used throughout this document to identify information which only applies to certain digital media players. Information tagged with a **7** applies to DMP-7000 systems, information tagged with an **8** applies to DMP-8000 systems, and information tagged with a **15** applies to DMP-1500/M3 systems.

Media Item Creation Guidelines

It is recommended to follow the below guidelines when creating display content to ensure the best results when the content is played.

General Recommendations

- Filenames of content files which are to be played on DMP-7000 or DMP-8000 signs may not exceed 32 characters (requirement to use ERTD commands)

- Content resolution should be 72 DPI and should equal the pixel dimensions of the display the content is designed for. This will ensure that the content does not appear distorted on the display.

- Create content in RGB (red, green & blue) color space.

- Content created for 360-degree fascia displays should be repeated a minimum of four times across the display to ensure visibility from all seats.

- Optimal length for content is 10 – 15 seconds. This allows the message to be conveyed effectively to the greatest number of spectators before their attention is focused elsewhere.

Design Tips

- The most important principle for creating effective content is visual prioritization of the message. Define the items you want to communicate and prioritize each piece.

- Make sure motion does not get in the way of comprehension or readability. Hold text long enough for viewers to read and comprehend the message.

- Presentations containing multiple animated or video media RTD fields that play simultaneously may cause degraded system performance. If you notice that your system lags or is otherwise slow to respond when playing such presentations, please consider reducing the number of RTD elements in your content.

Text Tips

- Try various fonts to find the one that works best and is easiest to read on your sign.

- Outlines and drop shadows applied to text can greatly increase legibility.

- Using too many fonts may make a message appear cluttered and busy.

- A script font may make a message more difficult to read.

- Use the following recommendations to determine the appropriate size for text:

Text Height Recommendations

Distance from display (in feet)	LED Resolution (in mm)	Minimum text height (in inches)
5-50	3-8	1-2
50-100	6-12	2-4
100-200	12-25	4-8
200-300	25-34	8-10
300-350	34-66	10-15
350-500	34-66	15-20
500-600	66-76	20-24
600+	76-90	24-40

Color Tips

- Vivid, high-quality logos, images and text should appear in front of a contrasting background.

- Dark backgrounds allow logos to capture the viewer's attention and can have a simple clean look.

- Bright and saturated colors work better than pastel or low-contrast color.

Animation Tips

- Content which is intended to be played continuously should loop or transition smoothly 1 time from end to beginning to provide a seamless loop for consecutive playback.

Audio Tips

- Audio should always be uncompressed (PCM).

- Audio should be interleaved with the video frames of the video file.

- The file should preload 500 ms – 2 seconds of audio before the video starts and the audio should be interleaved between each frame of video.

- Audio can be mono or stereo, but surround sound modes are not currently supported.

Image and Video File Support

The Show Control System is designed to support a wide variety of the most commonly used image, animation, and video file types. There are three levels of Show Control file support:

1. **Native Player Support**

   File types which are categorized as **Native Player Support** files can be loaded directly onto a supporting digital media player for playback. No manipulation or conversion of these files is necessary.

2. **Content Studio Support**

   File types which are categorized as **Content Studio Support** files can be imported into Content Studio for inclusion into media presentations and will be converted to a native player support file format when saved. For a quick and convenient way to convert a group of files, refer to **Converting a group of media files at once**.

   File types with an "(Open)" notation (M2M and VMPF) are able to be opened and edited within Content Studio.

3. **Not Supported**

   File types which are not categorized as Native Player Support or Content Studio Support are not able to be played by a digital media player or imported into Content Studio without being converted into a supported file format. For Daktronics' recommendations for converting **Not Supported** files into a supported format, refer to the **Video File Conversion** section.

File Format Recommendations

The below chart details Show Control's support for common media file types. File types which are listed in **boldface** are recommended.

	Content Studio Support	DMP-7000 Native Support	DMP-8000 v5 Native Support	DMP-1500/M3 Native Support
AVI	•	See Video File Support	See Video File Support	See Video File Support
BMP	•	•	• * See **Table Key**	•
CMP		•		
CUR		•		
DIB		•		
EPS		•		
GIF	•	•	•	•
ICO		•		
JPG	•	•	•	•
M2M	• (Open)			•
MAC		•		
MOV	•	** See **Table Key**	•	** See **Table Key**
MP3			•	
MP4	•		•	
MPG	•		•	
MP4V	*** See **Table Key**			
PCD		•		
PCM		•		
PCT		•		
PCX		•		
PDF		•		
PNG	•	•	•	•
PSD	**** See **Table Key**			
RAS		•		
SQ7	***** See **Table Key**	•		
SWF			•	
TGA		•	•	
TIF	•	•	•	•
VMPF	• (Open)		•	

	Content Studio Support	DMP-7000 Native Support	DMP-8000 v5 Native Support	DMP-1500/M3 Native Support
VMPL 1.x			•	
WAV		•	•	
WMV	Refer to Video File Conversion section for conversion directions.			

Table Key:

(Open) refers to the user's ability to open these types of files in Content Studio, as opposed to simply importing them into a presentation.

* About BMP files: For Visiconn Systems with DMP-8000 players, only 24 bit BMP files are supported (16 and 32-bit BMP files are NOT supported).

** About MOV files: MOV files are supported by both Content Studio and natively supported by DMP-8000. If using an MOV file with DMP-7000 or DMP-1500, you must either use Content Studio to import the MOV file into a presentation, or convert the file into a format supported by the applicable digital media player (Refer to Video File Conversion section for conversion directions). Venus 7000 Sequence Editor can also convert MOV files.

*** About MP4V files: MP4V files are supported by Content Studio. If using an MP4V file with DMP-8000, DMP-7000 or DMP-1500, you must either use Content Studio to import a MP4V file into a presentation, or convert the file into a format supported by the applicable digital media player (Refer to Video File Conversion section for conversion directions). Venus 7000 Sequence Editor can also convert MP4V files.

**** About PSD files: PSD files are supported by Content Studio. If using an PSD file with DMP-8000, DMP-7000 or DMP-1500, you must either use Content Studio to import a PSD file into a presentation, or convert the file into a format supported by the applicable digital media player (Refer to Video File Conversion section for conversion directions). Venus 7000 Sequence Editor can also convert PSD files.

***** About SQ7 files: When Content Studio saves a new DMP-7000 presentation it will create both an SQ7 and VMPF file, but it is only able to open the VMPF file for editing. Subsequent Content Studio saves of the presentation will also update the SQ7 file. Note that SQ7 files which were created using V7 Sequence Designer cannot be opened and edited in Content Studio.

File Extensions:

AVI:	Audio Video Interleave	**BMP:**	Bitmap image
CMP:	Lead Compressed	**CUR:**	Cursor image
DIB:	Device Independent Bitmap image	**EPS:**	Encapsulated PostScript image
GIF:	Graphics Interchange Format image	**ICO:**	Icon image
JPG:	Joint Photographic Experts Group image	**M2M:**	Venus 1500 Message file
MAC:	MacPaint image	**MOV:**	Apple QuickTime Movie file
MP3:	MPEG-1 or 2 Audio Layer III audio file	**MP4:**	MPEG-4 video
MPG:	MPEG (Moving Picture Experts Group) video	**PCD:**	Kodak Photo CD image

PCM:	Pulse Code Modulation audio file	**PCT:**	Macintosh PICT image
PCX:	Paintbrush Bitmap image	**PDF:**	Portable Document Format file
PNG:	Portable Network Graphic image	**PSD:**	Adobe Photoshop image
RAS:	Sun Raster Graphic image	**SQ7:**	Venus 7000 Sequence file
SWF:	Small Web Format (Flash Movie) file	**TGA:**	Targa Graphic image
TIF:	Tagged Image File	**VMPF:**	Venus Media Presentation File
VMPL:	Venus Media Presentation Language file	**WAV:**	Waveform audio file
WMV:	Windows Media Video file		

SCS with DMP-7000 Video File Support

Tech Note:	Filenames for DMP-7000 content files cannot exceed 32 characters.

File	Codec Compression includes encoder setting	Parameters	Frame rates	Location	Color Depth	Audio	Notes	Export Settings	Transcode Settings
AVI	Uncompressed	None	29.97 fps in North America 25 fps in rest of world	V-Max 4 or 720P	24 bpp	PCM (uncompressed)	Uncompressed files are larger but provide the best image quality.		
AVI	WM9 • Use: default "One-pass quality VBR"		29.97 fps in North America 25 fps in rest of world	V-Max 4 or 720P	24 bpp	PCM (uncompressed)	The Venus 7000 can only play compressed files that are less than 2 GB in size.		

SCS with DMP-8000 Video File Support

Tech Note:	• DMP-8000 using Advance Scripting: Filenames for content files cannot exceed 32 characters. • DMP-8000 with CPP Control: Filenames for content files cannot exceed 168 characters.

File	Codec Compression includes encoder setting	Parameters	Frame rates	Location	Color Depth	Audio	Notes	Export Settings	Transcode Settings
AVI	XVID		29.97 fps	US Video	24 bpp	PCM (uncompressed)	Loss of Quality: see **Additional Notes** that follow this table.		
			30 fps	LCD (VGA/DVI)					

File	Codec Compression includes encoder setting	Parameters	Frame rates	Location	Color Depth	Audio	Notes	Export Settings	Transcode Settings
			59.94 fps	US Video					
			60 fps	LCD (VGA/DVI)					
			25 fps	Euro Video (PAL)					
			50 fps	Euro Video (PAL)					
AVI	HUFF YUV	Default: "Predict median" "Predict gradient"	29.97 fps	US Video	24 bpp or 32 bpp for keying	PCM (uncompressed)	V-Net Pro only.		
			30 fps	LCD (VGA/DVI)					
AVI	Uncompressed	None	59.94 fps	US Video	24 bpp or 32 bpp for keying	PCM (uncompressed)	V-Net Pro only. Uncompressed files are larger but provide the best image quality.		
			60 fps	LCD (VGA/DVI)					
MKV	Not directly supported by the DMP-8000 player. Files with the .mkv format, must be taken into Content Studio. Content Studio can then convert the .mkl file into another format that is supported by the DMP-8000 player.								
MOV	H.264	None	25 fps	Euro Video (PAL)	24 bpp	PCM (uncompressed)	MP4 is the preferred file format. If MOV needs to be used it should be encoded with H.264 at a bit rate of < 25 mbps.		
			50 fps	Euro Video (PAL)					
			29.97 fps	US Video					
			30 fps	LCD (VGA/DVI)					
			59.94 fps	US Video					
			60 fps	LCD (VGA/DVI)					

File	Codec Compression includes encoder setting	Parameters	Frame rates	Location	Color Depth	Audio	Notes	Export Settings	Transcode Settings
MOV	Quicktime	None	25 fps	Euro Video (PAL)	24 bpp	PCM (uncompressed)	None		
			50 fps	Euro Video (PAL)					
			29.97 fps	US Video					
			30 fps	LCD (VGA/DVI)					
			59.94 fps	US Video					
			60 fps	LCD (VGA/DVI)					
MPEG MPG		None	25 fps	Euro Video (PAL)	24 bpp	PCM (uncompressed)	None		
			50 fps	Euro Video (PAL)					
			29.97 fps	US Video					
			30 fps	LCD (VGA/DVI)					
			59.94 fps	US Video					
			60 fps	LCD (VGA/DVI)					
MPEG-4 MP4		None	25 fps	Euro Video (PAL)	24 bpp	PCM (uncompressed)	Recommendation for DMP-8000 Professional Edition: Render 1920x1080 content into an MP4 file container with H.264 encoding. Use encoding settings*: • Main Profile, Level 4.2 • Set target encoding rate		
			50 fps	Euro Video (PAL)					
			29.97 fps	US Video					
			30 fps	LCD (VGA/DVI)					
			59.94 fps	US Video					

File	Codec Compression includes encoder setting	Parameters	Frame rates	Location	Color Depth	Audio	Notes	Export Settings	Transcode Settings
			60 fps	LCD (VGA/DVI)			to 20 Mbps (20,000 kbps) • Set maximum rate to 25 Mbps (25,000 kbps). *These were the settings available in Adobe After Effects and may not be offered on other creation tools.		
MP4V	MP4V files are **not supported** by DMP-8000. Use Content Studio to import a MP4V file into a presentation, or convert the file into a format supported by the applicable digital media player (Refer to **Video File Conversion** section for conversion directions.)								
WMV	**Utility** available on Dakfiles for transcoding								

Additional Notes: **Loss of Quality** - Using XVid file compression can result in a dramatic loss of quality depending on the profile or CG solution being used. If the Show Control System includes a DMP-8000 Professional Edition it is recommended to:

- Use the file uncompressed (DMP-8000 Professional Edition is designed to handle uncompressed content).

- Use HuffYUV codec for file compression.

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SCS with DMP-1500 Video File Support

A Show control System with M3 Player supports the following recommended media file types.

File	Codec Compression includes encoder setting	Parameters	Frame rates	Location	Color Depth	Audio	Notes	Export Settings	Transcode Settings
M3 Displays This display group is M3 controlled and managed through Venus 15000 software. Galaxy Pro Displays (see below) are not included in this group.									
AVI	Supports uncompress only		Imports up to 300 frames/message; Entire file size cannot exceed 1 MB.				Can only be imported into graphic frames.		
Galaxy Pro Displays This display group is also M3 controlled and managed through Venus 1500 software, but differs in its frame and capacity solutions from the M3 Displays group above.									
AVI	Supports uncompress only		Supports up to 1200 message frames; file size of 64MB (600 frames for Windows 98/ME)				Can only be imported into graphic frames		

Text Input Support

This section discusses procedures and recommendations regarding Show Control font support and foreign language support.

Font File Support

The Show Control System supports True Type fonts. Daktronics loads a pre-selected set on each system. While other True Type fonts may work well in a Show Control System, the ones listed below have been qualified with Show Control.

Qualified True Type Fonts

Arial	**Impact**
Arial Black	Kartika
Arial Black Italic	`Lucinda Console`
Arial Bold	Lucinda Sans Unicode
Arial Italic	Microsoft Sans Serif
Arial Narrow	Palatine Linotype
Arial Narrow Bold	Modern
Arial Narrow Bold Italic	*Monotype Corsiva*
Arial Narrow Italic	Roman
Book Antiqua	Script
Book Antiqua	Sylfaen
Book Antiqua Italic	Σψμβολ (Symbol)
Bookman Old Style	**Bold** Tahoma
Bookman Old Style Bold	**Tahoma Bold**
Bookman Old Style Bold Itali	Times New Roman
Bookman Old Style Italic	**Times New Roman Bold**
Century Gothic	***Times New Roman Bold Italic***
Century Gothic Bold	*Times New Roman Italic*
Century Gothic Bold Italic	Trebuchet MS
Century Gothic Italic	**Trebuchet MS Bold**
Comic Sans MS	***Trebuchet MS Bold Italic***
Comic Sans MS Bold	*Trebuchet MS Italic*
`Courier New`	Verdana
`Courier New Bold`	**Verdana Bold**
`Courier New Bold Italic`	***Verdana Bold Italic***
`Courier New Italic`	*Verdana Italic*
Franklin Gothic	▶🏠 ✿ ♥ ①●■? (Webdings)
Georgia	(Wingdings)
Garamond	(Wingdings2)
Garamond Bold	(Wingdings3)
Garamond Italic	

Notes:

- Note that a font's point size follows print standards. For example, an 8-point selection is smaller than a 24-point selection, but 8 points does not equal 8 pixels.

- True Type fonts are best used with higher resolution displays, such as matrix sizes greater than 40 pixels high.

- In addition to True Type fonts, DMP-1500 systems support Venus fonts.

Install Additional Fonts

To add additional fonts, use the font installation procedures recommended by the Microsoft Corporation for the version of the Windows operating system that your Show Control System equipment is running. The font must be loaded on both the Display Studio / Content Studio user station(s) and the Digital Media Player machine.

Note: Please ensure that you have any required permissions and all necessary licenses to use any fonts that you will be adding to a Show Control System.

For Windows XP systems, refer to http://tinyurl.com/InstallFontXP.

For Windows Vista systems, refer to http://windows.microsoft.com/en-US/windows-vista/Install-or-uninstall-fonts.

For Windows 7 systems, refer to http://windows.microsoft.com/en-US/windows7/Install-or-delete-fonts.

Notes:

- Fonts with a license which restricts their embeddability cannot be used with Content Studio.

- OpenType fonts are not supported for use in a Show Control System.

Install Foreign Language Support

Complete the below steps to add support for foreign languages to your Show Control System equipment.

Note: You may need to use the Windows® 7, Vista, or XP installation disc while specifying initial settings.

Windows 7 and Windows Vista machines:

1. Click the **Start** button.

2. Click **Control Panel.**

3. From the **Control Panel,** navigate to **Regional and Language Options.**

To set how programs format numbers, currencies, dates, and times:

4. Click the **Formats** tab.

5. Select the desired format from the available list and click **Apply**.

To configure your desired input language(s):

6. Click the **Keyboards and Languages** tab.

7. Click **Change keyboards...** to open the **Text Services and Input Languages** dialog box.

8. The **Installed Services** list indicates the languages that are currently supported for inputting information into the computer. To add additional languages, click **Add...** to open the **Add Input language** dialog box.

9. Place a checkmark in all checkboxes applicable to the languages you wish to add.

10. Click **OK**. Click **Apply**.

11. Click **OK**.

To configure non-Unicode support for added languages:

12. Click the **Administrative** tab.

13. In the **Language for non-Unicode programs** group, click the **Change system locale...** button.

14. Select the desired locale from the drop-down list. Click **OK**.

15. Restart your computer to apply changes.

An icon appears in the desktop taskbar (usually located at the bottom right of the screen). The icon indicates the current input locale as an abbreviation.

Windows XP machines:

1. Click the **Start** button.

2. Click **Control Panel.**

3. From the **Control Panel,** navigate to **Regional and Language Options.**

To set how programs format numbers, currencies, dates, and times:

4. Click the **Regional Options** tab.

5. In the **Standards and Formats** group, select the desired format from the available list and click **Apply**.

To configure your desired input language(s):

6. Click the **Languages** tab.

7. Click **Details...** to open the **Text Services and Input Languages** dialog box.

8. The **Installed Services** list indicates the languages that are currently supported for inputting information into the computer. To add additional languages, click **Add...** to open the **Add Input language** dialog box.

9. Select the desired **Input language** from the drop-down list.

10. Select the desired configuration and click **OK**. Click **Apply**.

To configure supplemental language support (languages not typically installed with Windows):

11. To **Install files for complex script and right-to-left languages (including Thai)**, place a checkmark in the appropriate checkbox. Click **Apply**.

12. To **Install files for East Asian languages**, place a checkmark in the appropriate checkbox. Click **Apply**.

To configure non-Unicode support for added languages:

13. Click the **Advanced** tab.

14. Select the desired language from the drop-down list in the **Language for non-Unicode programs** group. Click **Apply**. Restart your computer to apply changes.

An icon appears in the desktop taskbar (usually located at the bottom right of the screen). The icon indicates the current input locale as an abbreviation.

Switch a machine's input language

Complete the below steps to switch the input language of the machine you're working on, such as if you wish to use foreign language text to create a Content Studio presentation.

1. In the Windows taskbar, click the **Language icon EN**.

2. Select the desired language from the pop-up list.

> **Note:** If creating a Content Studio presentation, before saving the presentation, make sure to switch the input language back to English.

Converting a group of media files at once

In instances where you have a group of media files that you would like to play on your display but which are not natively compatible with your digital media player, Content Studio's batch converter can help you save a great deal of time and effort in the preparation of these files for playback. This tool allows you to quickly and easily convert a group of media files into one or more Content Studio presentations so that

they will be supported by your Show Control System.

Note: This section will step you through creating and processing a batch conversion session for the first time. Subsequent uses of the batch converter will begin with step 5.

1. From within Content Studio, click the **Content Studio Button** and select **Batch Conversion** to open the **New Presentation Wizard**.
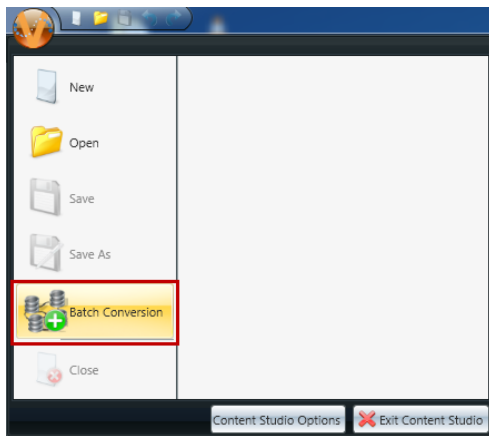
2. Select whether you wish to complete a batch conversion for a particular **Display** or for a **Display Type**.

    To help you with the decision, consider the following:

    - If you want to convert content that you intend to only play on one specific display, select **Display**.

    - If you have multiple displays that use the same type of digital media player and have the same dimensions, and you want to convert content that will be able to be played on any of those displays, select **Display Type**.
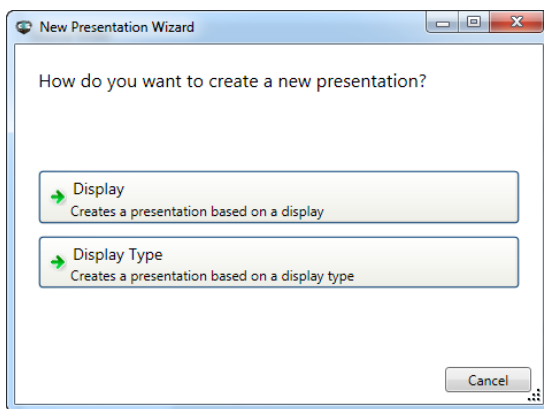
3. Next, select the display or display type that you wish to create a presentation for. Click the desired display or display type, and click **Finish** to continue.

4. In the **Save As** dialog box, choose where you would like to save your batch conversion session file, provide it with a filename, and click **Save** to be taken to the **Batch Conversion** window.

Note: The batch conversion session file is simply the settings that you configure for the batch conversion session – it does not contain your media file(s) or Content Studio presentation(s).

5. When taken to the Batch Conversion window, you will be presented with the **Main** options, where you will be able to specify which file(s) you wish to convert, and where you would like the Content Studio presentation(s) containing the file(s) to be saved.

	Notes:
	• If you wish to open an existing batch conversion session, click **Open Session**, and select the session in the **Open** window.
	• If you wish to create a new batch conversion session, click **New Session**, and start with Step 2.
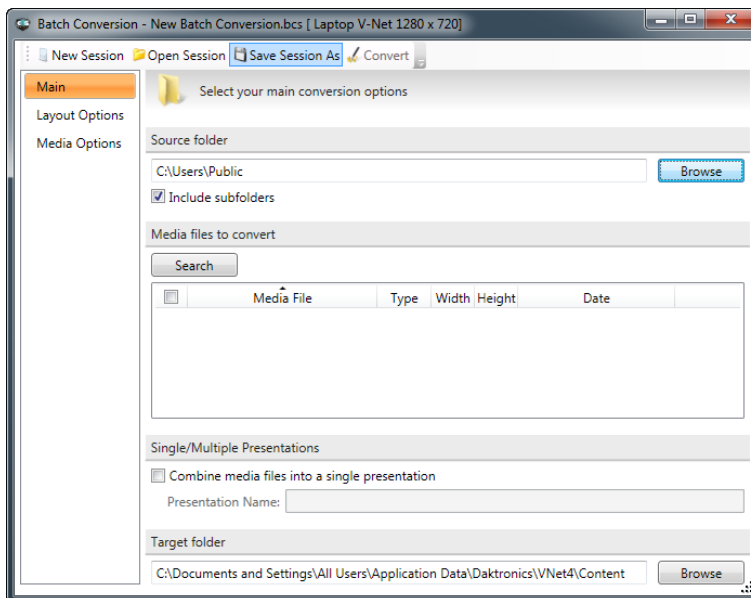
a. In the **Source folder** portion of the window, click **Browse** to open the **Browse For Folder** window. Select the folder which contains the file(s) you wish to convert, and click **OK**. Any files in that folder which are capable of being converted will appear in the **Media files to convert** box.

b. In the **Media files to convert** box, place checkmarks next to each file you wish to convert.

c. By default, Content Studio will convert each of your files into its own separate Content Studio presentation (meaning that if you convert 10 files, you will end up with 10 separate Content Studio presentations). If you would prefer to have all of the files combined into a single presentation (meaning that if you convert 10 files, you will end up with a single Content Studio presentation with 10 layouts), place a checkmark next to **Combine media files into a single presentation**, and specify a filename for the presentation in the **Presentation Name** field.

d. In the **Target folder** field, the default content folder for your selected display/display type's digital media player will be pre-populated. To choose a different destination folder for the presentation(s), click **Browse** to open the **Browse For Folder** window. Select the folder which

contains the file(s) you wish to convert, and click **OK**.

e. To configure additional options for how your presentation's layout(s) are going to be created and/or for how file(s) are to be imported into the presentation(s), proceed to Steps 6 and/or 7. Otherwise, proceed to Step 8.

6. To configure additional options for how your presentation's layout(s) are going to be created, click the **Layout Options** tab.
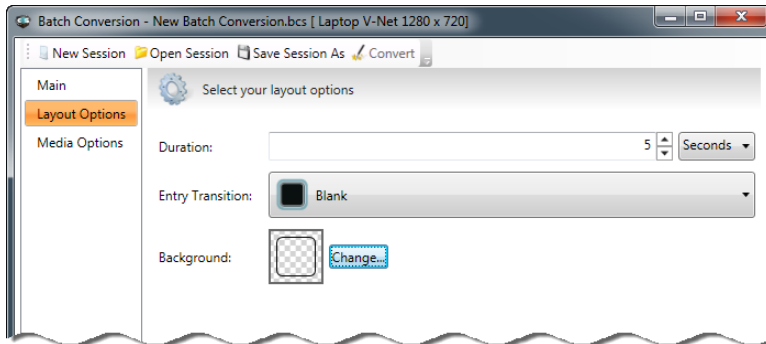
a. Specify how long you wish for your layout(s) to last in the **Duration** field. Enter the desired length of time in the textbox and select the appropriate unit of time using the provided drop-down list.

b. If you wish to add a transition effect to the beginning of the layout(s), use the **Entry Transition** drop-down list to select the desired transition.

c. If you wish to add a background color to your layout(s), click **Change** to open the **Background Fill** window. Select the desired background color and click **OK** to continue.

d. To configure additional options for how file(s) are to be imported into the presentation(s), proceed to Step 7. Otherwise, proceed to Step 8.

7. To configure additional options for how your file(s) are to be imported into the presentation(s), click the **Media Options** tab.
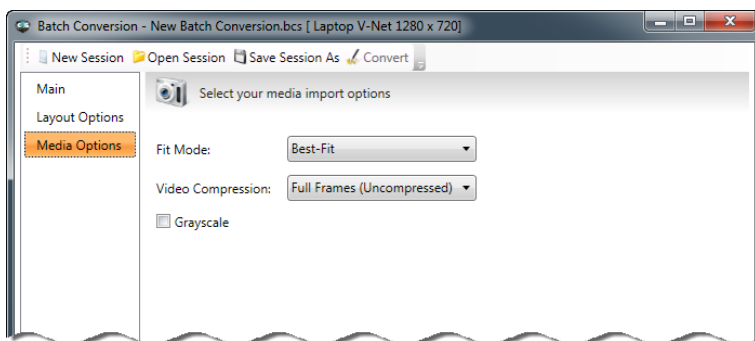
a. To specify how you wish for the media file to be fit on your layout, select the desired option from the **Fit Mode** drop-down list. Select from the following options:

Best-Fit: The content will be resized to fit the layout while maintaining the content's aspect ratio. To the extent the content does not fill the whole layout, transparent areas will be added to the

layout (which would allow the layout's background fill or other elements behind the content to be visible).

Stretch: The content will be resized to take up the entire layout, without maintaining its aspect ratio. Content imported in this mode may become distorted.

**Normal:** The content will be imported exactly as-is with no resizing.

> **Note:** The content's **Fit Mode** can be changed after conversion takes place by opening the presentation and editing it in Content Studio.

b. To specify a video compression codec that should be used to import video, use the **Video Compression** drop-down list.

> **Tip:** If the resulting file size of your presentations is a concern, choose a video compression option other than **Full Frames (Uncompressed)**.

8. At any time, to save the settings that you have configured with a different filename, click **Save Session As** to open the **Save As** window. Choose the location where you wish to save the session and provide it with a file name, and click **Save**.

9. When ready to initiate the conversion process, click **Convert**. You will be taken to the **Confirmation** screen to view the conversion progress and results.
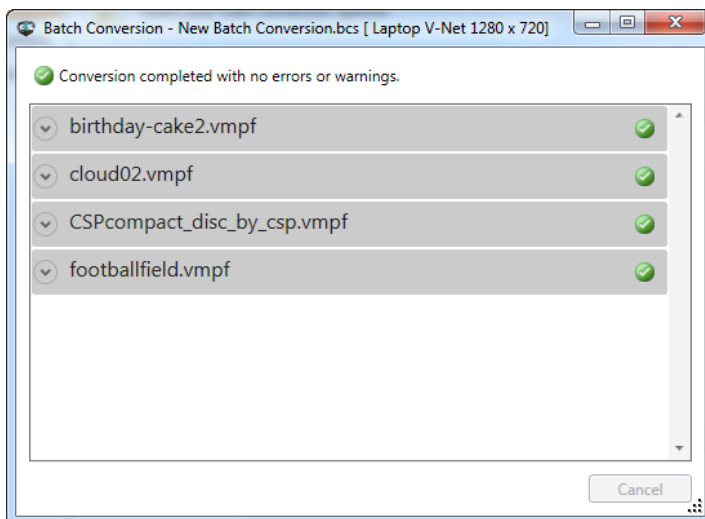
Adding content to digital media player

Follow the steps in this section to properly copy content to your digital media player so that it can be

played on a display.

7 8 DMP-7000 & DMP-8000

1. Plug the portable storage device into one of the user station's USB ports, or insert the CD, DVD or memory card into the appropriate drive.

2. In Windows, open Windows Explorer (accessible via the **Start Menu** or by pressing the **[Windows key + E]**).

3. In Windows Explorer, navigate to the portable storage device, and then the folder containing the media files.

4. Within the folder, select the media files to be transferred by clicking them with the mouse. Multiple files may be selected by pressing and holding **[CTRL]** while clicking.

5. After selecting the file(s), copy them to the Windows clipboard. (Copying may be done in Windows Explorer by choosing the **Edit** menu, and then by clicking on **Copy**; or by pressing **[CTRL+C]**.)

6. Locate the appropriate content folder for your Digital Media Player.

    DMP-7000

    In Windows Explorer, navigate to the DMP-7000 folder designated for the desired display, which is generally C:\V7000***Sign Folder******Content Folder***\; where ***Sign Folder*** refers to the folder which is designated for the desired display (Ex: 448x800 RGB16MB L Sign) and ***Content Folder*** refers to the folder where the media files are to be stored (Ex: Crowd Prompts).

	Notes:
	• A DMP-7000 Content Folder's name must end in .Lib for it to be recognized as a content library.
	• DMP-7000 may have its designated sign folder on the D drive.

    DMP-8000

    In Windows Explorer, navigate to the DMP-8000 content folder designated for the desired display, which is generally located at the following location:

    For Windows XP machines: C:\Documents and Settings\All Users\Application Data\Daktronics\VNET4\Content***Content Folder***; where ***Content Folder*** refers to the folder where you wish to store the particular media file(s) you are importing.

    For Windows 7 machines: C:\ProgramData\Daktronics\VNET4\Content***Content Folder***, where ***Content Folder*** refers to the folder where you wish to store the particular media file(s) you are importing.

7. Paste the files copied in Step 5 into the chosen folder. (Pasting may be done in Windows Explorer by choosing the **Edit** menu and then clicking on **Paste**, or by clicking **[CTRL+V]**.)

8. Repeat steps 3-7 as necessary until all media files have been transferred.

15 **DMP-1500**

1.   Ensure that the storage device containing the content is connected to your user station.

2. Using Windows Explorer, navigate to the storage device containing the content.

3. Select the content file(s) you wish to play on your DMP-1500 display by clicking them with your mouse. Multiple files may be selected by pressing and holding **[Ctrl]** while clicking.

4. Copy the selected files to the Windows Clipboard by opening the **Edit** menu and selecting **Copy** (or by pressing **[Ctrl+C]**).

5. Using Windows Explorer, navigate to a folder on your user station which is easily accessible, or where you wish to store the files.

6. Using Content Studio, import the files into a presentation.

7. Save the Content Studio presentation to your DMP-1500's database.

8. In Display Studio, use the M3 File Manager to copy your presentation(s) to your digital media player.

Video File Conversion / Encoding Guidelines

In order to convert/encode the video files, the following open source computer software is recommended and available for download on the Internet at no charge.

The type of computer system be used for conversion/endocing process (e.g. one running Microsoft Windows or Mac OS) will determine the software required. The desired conversion/encoding video resulting will depend on the control system or player that will be using it.

Show Control System - A Show Control System includes Display Studio, Content Studio and is associated with multiple types of digital media players (DMP-7000, DMP-8000, M3, etc). A Show Control System operates on a Microsoft Windows OS and requires converted/encoded video to be compatible with its OS, player and other components. While the video could be converted/encoded on a Mac OS computer, the result would have to meet the requirements of the player and other compoents in the SCS.

Visiconn - A system using Visiconn, such as a digital display network (bill boards) is operatored through the web. Such as system works with players and other components that operator on specific computer operating systems (usually Microsoft Windows OS). Video that will be uploaded into and scheduled through a Visiconn System, will need to be converted/encoded to meet the requirements the players and other components in the system. The conversion can take place on a computer with an OS that differs from the Visicon System's players and components, as long as the resulting video meets the requirements of the Visicon System's players and components.

To help operators have a successful Show Control System and/or Visiconn experience, this section provides Daktronics' recommendations for converting video files into a format supported by these systems.

To request support for a new file type, contact Display Studio Support at 1-800-DAKTRONICS (1-800-325-8766) (U.S. & Canada) or +1-605-697-4000 (Outside U.S. & Canada).

Note: Video files can be converted in a wide variety of ways. This section simply contains Daktronics' recommendations for the most cost-effective methods for converting some of the most common video file formats into a format that your Show Control System can handle. To the extent that use of third-party software applications is recommended, users are encouraged to consult the help resources of those applications for further assistance.

Follow the proper flow for your digital media player:

For DMP-7000 Content:

1. Install Apple Quicktime
2. Install VirtualDub
3. Install Video File Converter Utility
4. Configure VirtualDub
5. Configure Video File Converter Utility
6. Using the Video File Converter Utility

For DMP-8000 Content:

1. Install Apple Quicktime
2. Install VirtualDub (Windows-based Systems)**, or**

   Install ffmpegX (Mac OS-based Systems)
3. DMP-8000 Settings (XviD)**, or**

   DMP-8000-PE Settings (HuffYUV)
4. Using VirtualDub to Convert Files (Windows-based Systems)**, or**

   Using ffmpegX to Convert Files (Mac OS-based Systems)

For DMP-1500 Content:

1. Install Apple Quicktime
2. Install VirtualDub
3. Configure VirtualDub
4. Using VirtualDub to Convert Files

Install Apple Quicktime

If you intend to convert MOV files, Apple Quicktime must be installed before file conversion may take place. This third-party application can be downloaded at no cost by visiting http://www.apple.com/quicktime/download/.

Install VirtualDub (Windows-based Systems)

Daktronics recommends using VirtualDub for converting video files to a supported file type in a Windows environment. VirtualDub is a third-party software application, and therefore must be downloaded from the Internet. Complete the steps in the following sections to install VirtualDub.

Installation

1. Navigate to VideoHelp.com's VirtualDub page at http://www.videohelp.com/tools/VirtualDub.
2. On the top row of the table, click the link for **Download (direct link)**.

3. When the File Download window opens, click **Open**.

4. When the Windows Explorer window opens with the contents of the ZIP file, click **Extract all files**. The Extraction Wizard will appear.

5. Follow the on-screen instructions provided by the wizard to extract the files. It is recommended that you extract the files to a location able to be easily located, such as C:\Tools\VirtualDub. Note that this will be the permanent location for your VirtualDub files.

6. In this VirtualDub folder, create two subfolders named **Plugins32** and **Plugins64**. This will help you in the next part of the process.

Plug-in Setup

To allow VirtualDub to work with the necessary video file formats, the appropriate plug-ins for these formats must be downloaded and loaded into VirtualDub. Complete the following steps.

1. Return to VideoHelp.com's VirtualDub page at http://www.videohelp.com/tools/VirtualDub.

2. Scroll down to **Import plugins**.

3. Download the plug-ins by clicking the appropriate link and saving the corresponding ZIP files to a location able to be easily located, such as your Desktop:

   a. MPEG2 import plug-in (MPEG2.zip)

   b. WMV import plug-in (WMV.zip)

   c. MOV import plug-in (Quicktime_VD_v.0.2.0.0_bin.zip)

4. Extract the ZIP files to a convenient location. Note that this will only be a temporary storage location for these files.

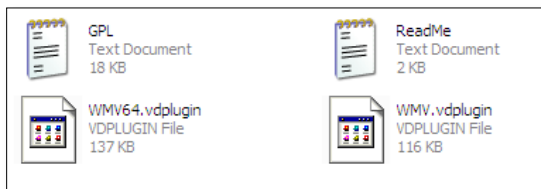5. Load the plug-ins into VirtualDub by completing the following steps.

   MPEG2 Plug-ins

a. Open the folder containing the files extracted from MPEG2.zip. The contents of this folder should resemble the following:
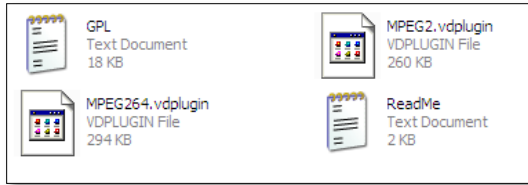
b. Move **MPEG2.vdplugin** to the **Plugins32** subfolder of your VirtualDub folder.

c. Move **MPEG264.vdplugin** to the **Plugins64** subfolder of your VirtualDub folder.

WMV Plug-ins

a. Open the folder containing the files extracted from WMV.zip. The contents of this folder should resemble the following:

b. Move **WMV.vdplugin** to the **Plugins32** subfolder of your VirtualDub folder.

c. Move **WMV64.vdplugin** to the **Plugins64** subfolder of your VirtualDub folder.

MOV Plug-in

a. Open the folder containing the files extracted from Quicktime_VD_v.0.2.0.0_bin.zip. The contents of this folder should resemble the following:
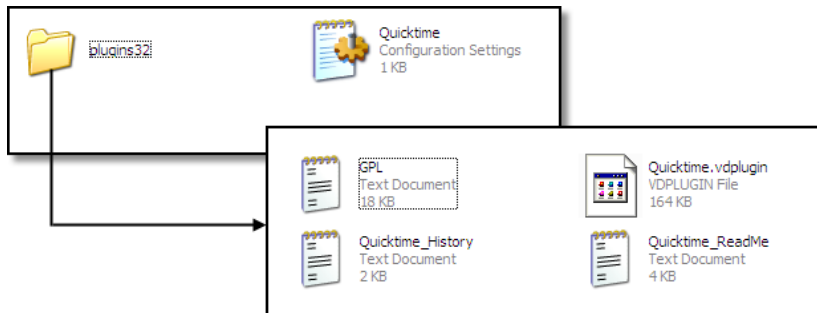
b. Move **Quicktime.ini** to your VirtualDub folder.

    c.   Move **Quicktime.vdplugin** to the **Plugins32** subfolder of your VirtualDub folder.

       Note: The MOV plug-in does not have a 64-bit version.

6.   Once all files have been moved, all of the other files extracted from the ZIP files may be discarded.

8   Install ffmpegX (Mac OS-based Systems)

If using a Mac OS-based system, ffmpegX is the recommended utility for converting video files for your DMP-8000 to XviD AVI format. ffmpegX provides a GUI interface to three open source UNIX video encoding products. ffmpegX is free to use, however the author asks for a $15 donation.

1.   With your internet browser, navigate to http://www.ffmpegx.com/download.html to reach the ffmpegX download site.

2.   Click the **Download** link for the most recent version of ffmpegX.

3.   While you're on the download page, scroll down until you see the following text:
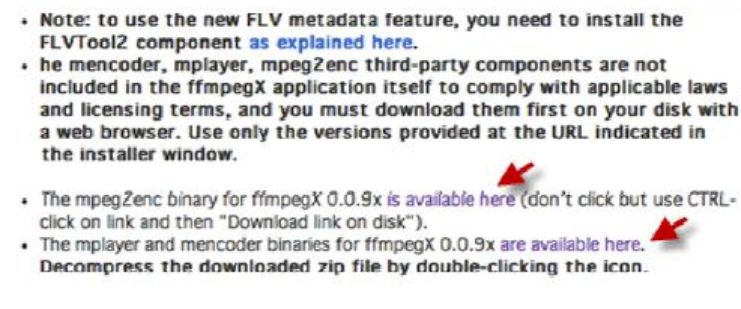
    Note: You will need to download the **mpeg2enc**, **mplayer**, and **mencoder** binaries.

4. While holding down the Control key, click the first link and select **Save Linked File As**. For ease of use, save the files to your desktop. You may simply click the second link and you will be directed to the download page.
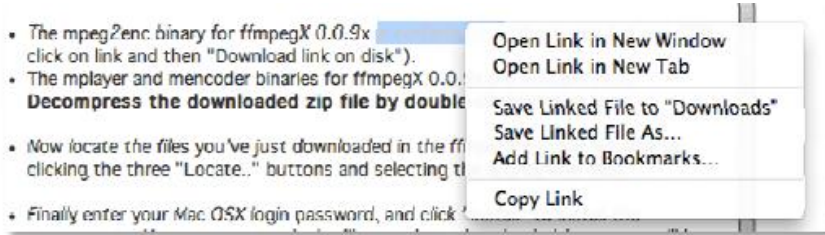

5. Once the program has downloaded, install ffmpegX by dragging the icon from your download location to your Applications folder.

6. Double-click to run the application for the first time. Depending on the version of Mac OS you're running, you may be prompted with a warning. Select **Open**.
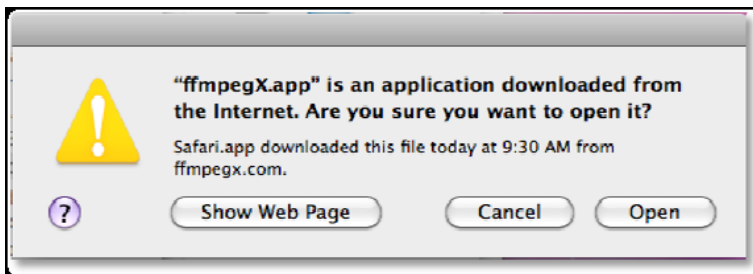
7. It's very likely that you will not have all of the UNIX binaries installed. If this is the case, you will be prompted with the screen below. Click the checkbox next to each associated plug-in and select **Locate**. For each plug-in browse to the file you saved in Step 4 of this tutorial. Once you've selected all three downloads, authenticate the installer by typing your password and selecting **Install**.

8. You should now see the following screen:
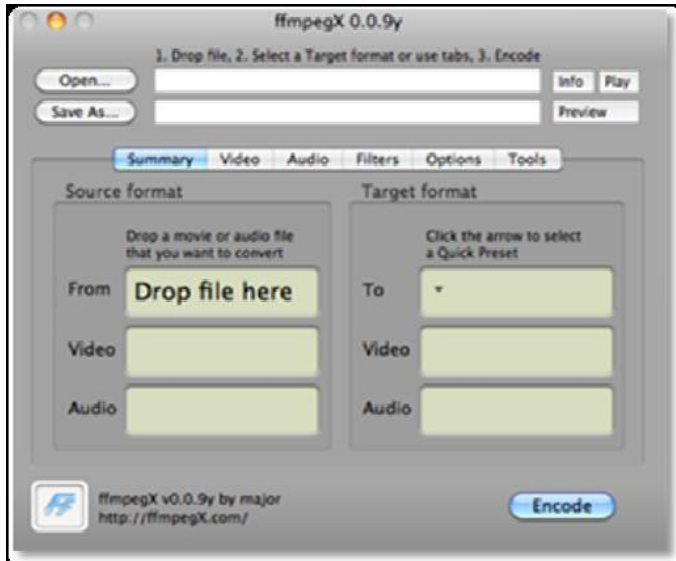
# 7 Install Video File Converter Utility (Windows-based Systems)

The Video File Converter Utility is an application which is designed to automatically convert video from any of a variety of file types into the AVI file format so that it can be played on a DMP-7000 display. This process is done completely "behind the scenes" and requires no user interaction – simply tell the utility what folder it should be monitoring, and anytime a new video file is placed in that folder, it will automatically perform the conversion so that those videos will be ready for use as quickly as possible.

The utility is intended to have as minimal of a "footprint" as possible in a user's content management routine. When the new AVI file is created, it will have the same filename and will be stored in the same folder as the original file. Users can even configure whether or not they want the utility to retain or delete the original video file following its conversion.

1. Navigate to http://dakfiles.daktronics.com/downloads/Video_Products/VideoFileConverter/.

2. Click **VideoFileConverterSetupV20.zip**.

3. After the File Download window opens, select to **Save** the file to a location that will be easy to locate.

4. Extract the contents of the zip file to a convenient location. There will be one file: **VideoFileConverterSetup.exe**.

5. After it has been extracted, double-click **VideoFileConverter.exe** to initiate the installation process.

6. If you encounter any security warning windows, click **Run** to proceed.

7. In the **Welcome** screen of the Wizard, click **Next** to continue.
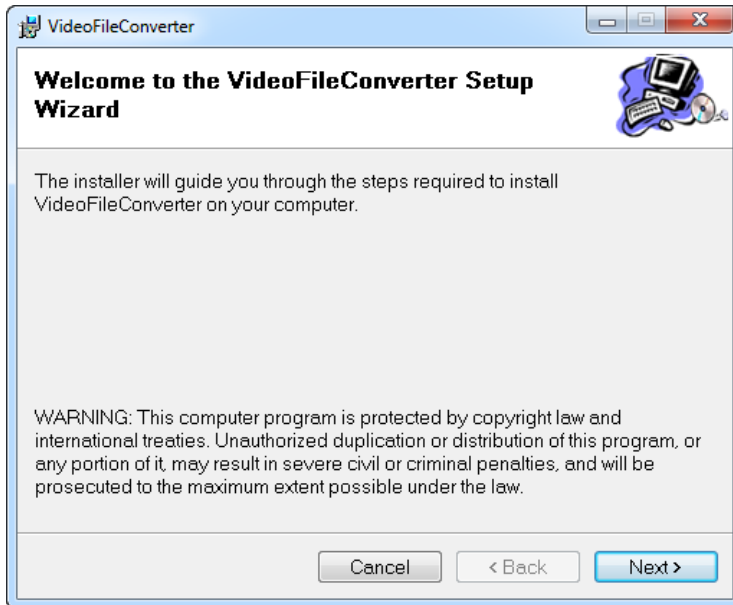
8. In the **Select Installation Folder** screen, installation preferences may be modified, if necessary.

   a. If it is necessary to install the utility to a folder other than the default location, enter a new folder path in the **Folder:** text box, or click **Browse...** to choose the new location.

   b. To view more information about your system's hard drives and the storage space available on each, click **Disk Cost...**

   c. To specify whether the utility should be made available to all of your computer's user accounts (**Everyone**), or just the account that you are currently logged into (**Just Me**), select the corresponding radio button**.**
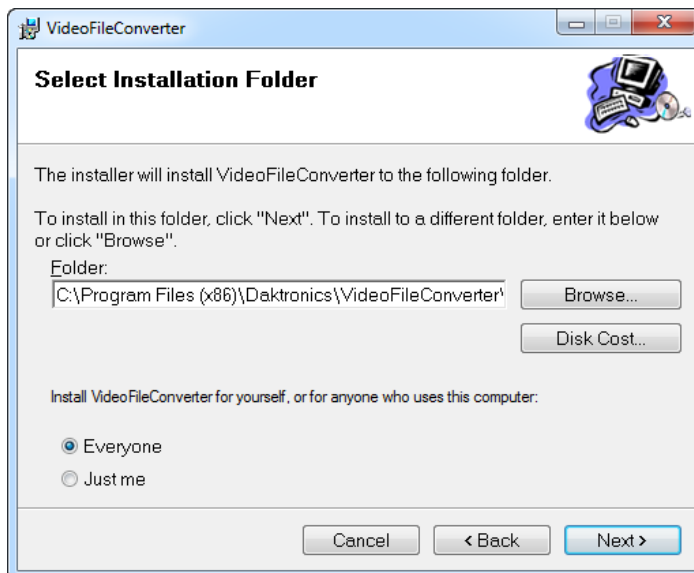
9. Click **Next** to proceed.

10. In the **Confirm Installation** screen, click **Next** to start the installation.

11. In the **Installation Complete** screen, click **Close** to exit the installer.

> **Tech Notes:** It is recommended that Windows Update be used to check for any critical updates to the .NET Framework.

Configure VirtualDub (Windows-based Systems)

After any necessary applications have been installed on the conversion computer, VirtualDub should be configured to the appropriate settings for the type of video file you wish to convert your video files to. Follow the steps which correspond to the digital media player you are managing video files for.

7 DMP-7000 Settings

1. Open VirtualDub by navigating to your VirtualDub folder and double-clicking **VirtualDub.exe**.

2. Navigate to **Video** menu > **Compression...** (or press **[CTRL+P]**) to open the **Select video compression** window.

3. In the scrollable list of video codecs, select the appropriate codec for the digital media player you will be playing the video files on.
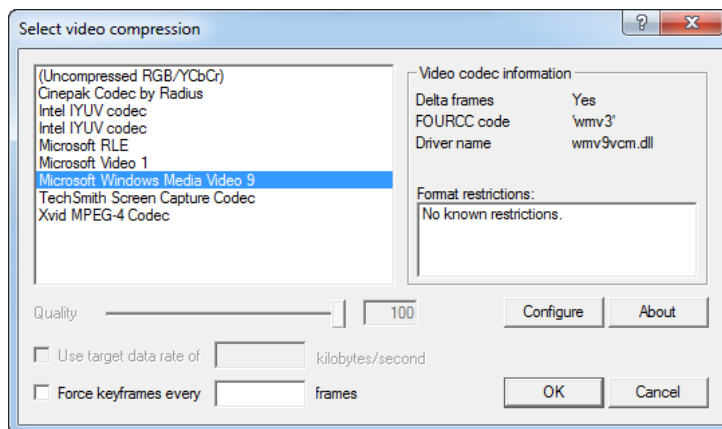
It is recommended to use either **Uncompressed RGB/YCbCr** (provides best quality but requires largest file size) or **Microsoft Windows Media Video 9** (good choice to reduce file size).
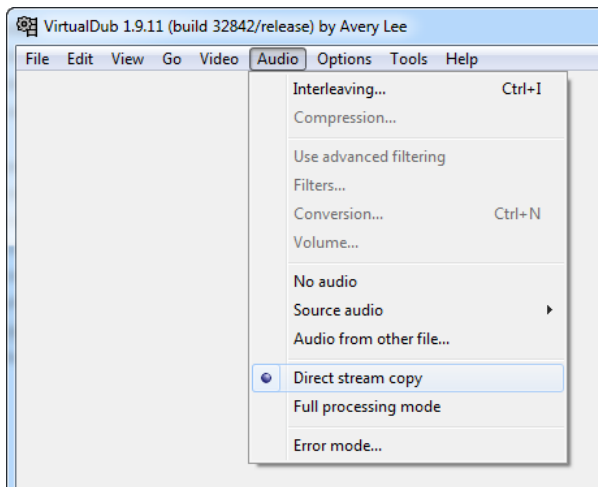
> **Note:** If the desired codec does not appear on the list, it will need to be installed. Refer to Installing Additional Codecs for more information.

4. After selecting the appropriate codec, click **OK**.

5. Set the audio processing mode by navigating to the **Audio** menu and ensuring that **Direct stream**

copy is selected.

6. Save your configuration settings by navigating to the **File** menu > **Save processing settings...** (or by pressing **[CTRL+S]**).

7. Save the settings into your VirtualDub folder with a descriptive filename. Configuration is now complete.

8 DMP-8000 Settings (XviD)

1. Open VirtualDub by navigating to your VirtualDub folder and double-clicking **VirtualDub.exe**.

2. Navigate to the **Video** menu and select **Full Processing Mode.**

3. Navigate to the **Video** menu and select **Compression**... (or press **[CTRL+P]**).

4. Select the **Xvid MPEG-4 Codec** and click the **Configure** Button.
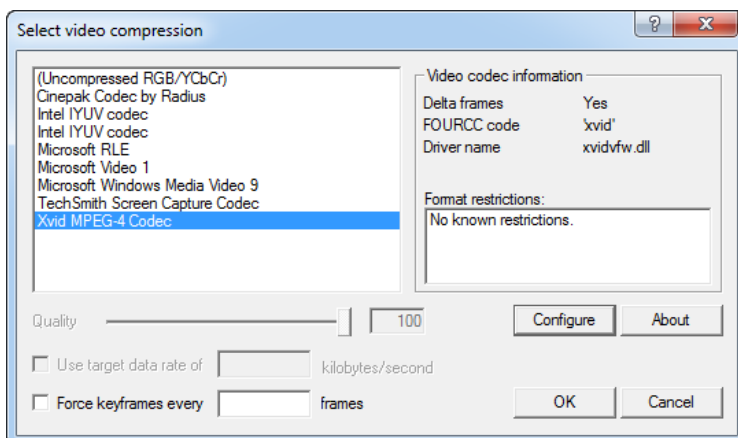
5. In the **Xvid Configuration** menu, set the **Profile @ Level** to **Xvid HD 720**.
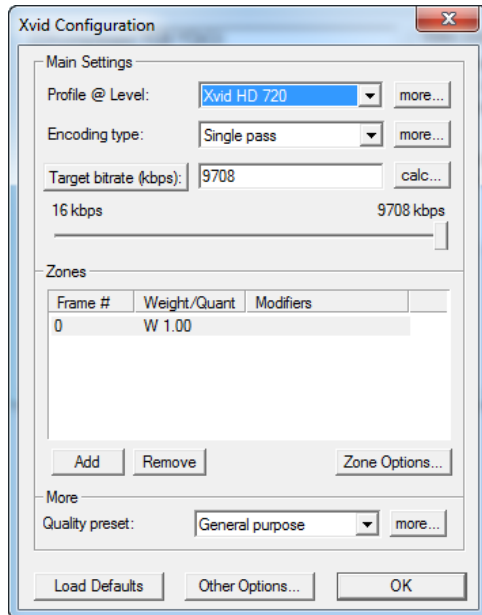
6. Click the more... button to the right of **Profile @ Level**. In that menu, under the *Profile* tab:
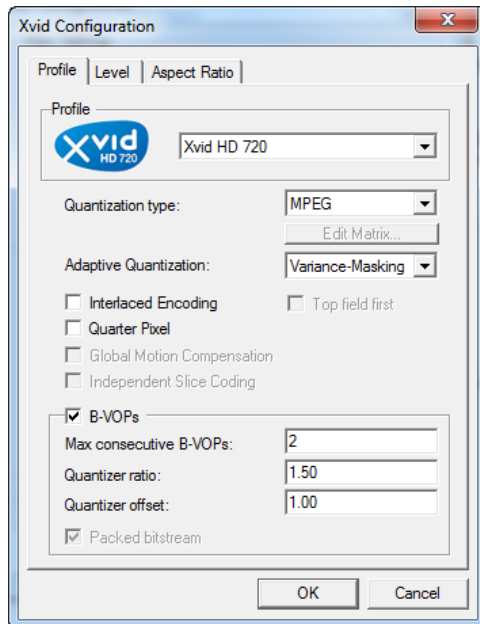
    a. Set the **Quantization type** to "MPEG".

    b. Set the **Adaptive Quantization** to "Variance-Masking".

    c. Disable the **Interlaced Encoding** check box (default is unchecked).

    d. The **Global Motion Compensation** is unavailable and grayed out.

    e. Enable **B-VOPs**

       i.   Set **Max consecutive BVOPs** to 2

      ii.   Set **Quantizer ratio** to 1.5

     iii.   Set **Quantizer offset** to 1.00

7. Click **OK** to return to the Xvid Configuration main settings page.

8. Locate the **Target Bitrate** button. If it is not visible, click on the **Target Quartizer:** button to change to the **Target Bitrate** button. (The Target Bitrate button toggles between "Target bitrate (kbps)" and "Target quantizer").

9. Verify that th**e Target bitrate** slider is positioned all the way to the right at "9708 kbps".

10. Set the **Quality Preset** to "(User defined)".

11. Next to the **Quality preset:**, click the `more...` button.

12. Under the **Motion** tab:
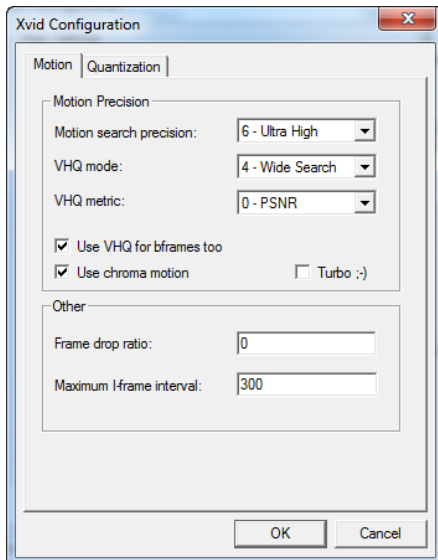
    a.   Set **Motion Search Precision** to "6 – Ultra High"

    b.   Set **VHQ mode** to "4 - Wide Search"

    c.   Set **VHQ metric** to "0 – PSNR"

    d.   Check the **Use VHQ for bframes too** box

    e.   Check the **Use chroma motion** box

    f.   Uncheck the **Turbo ;-)** box

    g.   Verify the **Frame Drop ratio** is "0"

    h.   Verify the **Maximum I-frame interval** is "300"

13. Under the **Quantization** Tab:
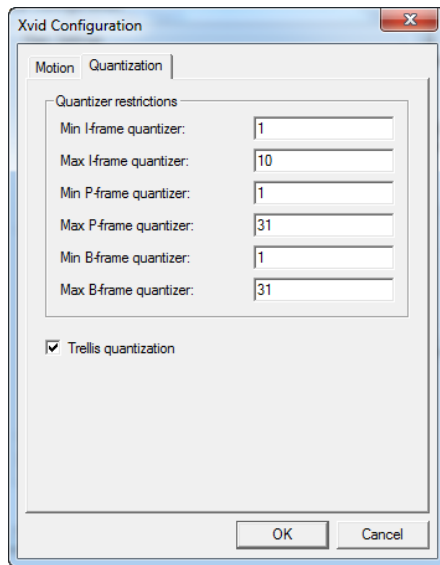
a. Verify the **Min I-Frame quantizer** is "1"

b. Verify the **Max I-frame quantizer** is "10"

c. Verify the **Min P-Frame quantizer** is "1"

d. Verify the **Max P-frame quantizer** is "31"

e. Verify the **Min B-frame quantizer** is "1"

f. Verify the **Max B-frame quantizer** is "31"

g. Verify the **Trellis quantization** box is checked

14. Click **OK** to return to the **Xvid Configuration** main settings page.

15. Click **OK** to return to the **Select video compression** page.

16. Click **OK** to return to the **VirtualDub** home screen.

17. Save your configuration settings by navigating to the **File** menu > **Save processing settings...** (or by pressing **[CTRL+S]**).

18. Save the settings into your VirtualDub folder with a descriptive filename. Configuration is now complete.

🎱 DMP-8000-PE Settings (HuffYUV)

1. Open VirtualDub by navigating to your VirtualDub folder and double-clicking **VirtualDub.exe**.

2. Navigate to **Video** menu > **Compression...** (or press **[CTRL+P]**) to open the **Select video compression** window.

3. In the scrollable list of video codecs, select **Huffyuv vX.X.X** from the list and click the **Configure** button.
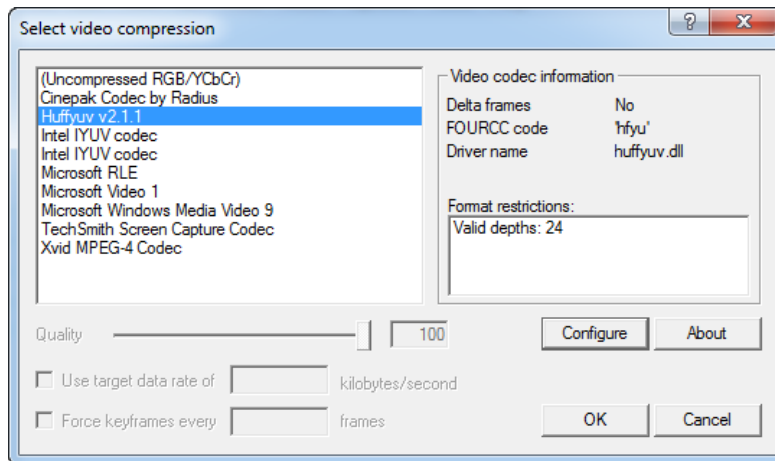
> 💡 **Note:** The HuffYUV codec is able to achieve a near lossless conversion, however its resulting file size can be quite large. This codec is only recommended for use with DMP-8000-PE systems.

4. From the **Huffyuv configuration dialog** box, in the **YUY2 compression method** drop-down list, select **Predict median (best)**.

   Note: This setting is recommended, and you should not experience any problems when using it. If you find you are dropping frames, however, try switching to a lower compression level.

5. In the **RGB compression method** drop-down list, select **<-- Convert to YUY2**.

6. Place a checkmark in the **Always suggest RGB format for output** checkbox.

7. Click **OK**.

8. Save your configuration settings by navigating to the **File** menu > **Save processing settings...** (or by pressing **[CTRL+S]**).

9. Save the settings into your VirtualDub folder with a descriptive filename. Configuration is now complete.

15 DMP-1500 Settings

1. Open VirtualDub by navigating to your VirtualDub folder and double-clicking **VirtualDub.exe**.

2. Navigate to **Video** menu > **Compression...** (or press **[CTRL+P]**) to open the **Select video compression** window.

3. In the scrollable list of video codecs, select **Uncompressed RGB/YPbCr**.
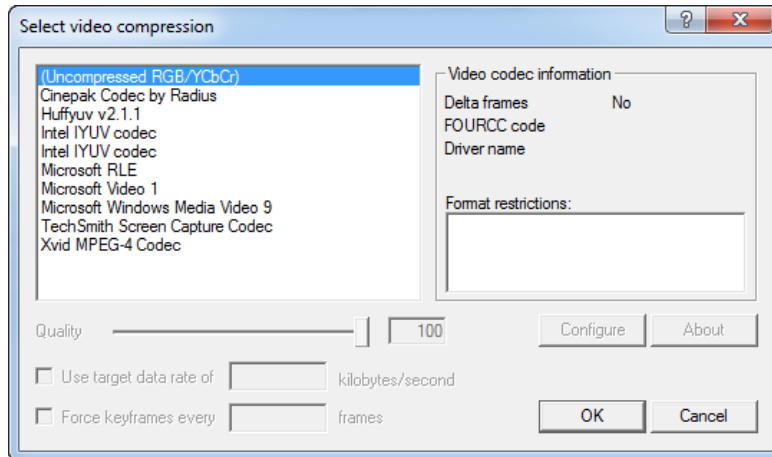
> **Note:** Remember that M3 displays only support file sizes which do not exceed 1 MB and GalaxyPro® displays only support files which do not exceed 64 MB.

4. Click **OK**.

5. Save your configuration settings by navigating to the **File** menu > **Save processing settings...** (or by pressing **[CTRL+S]**).

6. Save the settings into your VirtualDub folder with a descriptive filename. Configuration is now complete.

Test conversion process

It is recommended to now test the conversion process to confirm its proper operation. This is completed by manually converting a file by using VirtualDub.
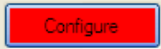
1. If not already opened, launch VirtualDub.

2. Navigate to **File menu** > **Open video file...** to be taken to the **Open video file** dialog box.

3. Navigate to a video file you wish to use to test VirtualDub, and click **Open**.

4. Navigate to **File menu** > **Save as AVI...** to be taken to the **Save AVI File** dialog box.

5. Navigate to the location where you wish to save the AVI version of the selected video file, and click **Save**.

6. After the saving process is complete, use Windows Explorer to locate the AVI file. Using whatever method you prefer, play the file to confirm that it was converted properly.

7 Configure Video File Converter Utility

The next step in the setup procedure for DMP-7000 content is to configure the video file converter utility by entering the locations of the files you have set up in the previous sections of this process.

1. Launch the Video File Converter by navigating to **Start menu** > **All Programs** > **Daktronics** >

Utilities > **Video File Converter**.

2. Click ![Configure] to open the **Edit Configuration** window.
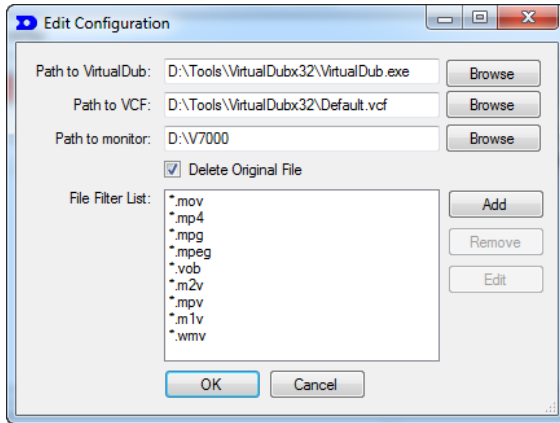
3. Enter the applicable information for your desired system setup. File paths may be indicated by typing them in the corresponding text boxes, or by clicking the corresponding **Browse** button to locate the appropriate file locations. The needed information is as follows:

    a. **Path to VirtualDub:** Indicate the location of the VirtualDub.exe file in your VirtualDub folder.

    b. **Path to VCF:** Indicate the location of the VirtualDub configuration file (.vcf) you created for your DMP-7000 configuration.

    c. **Path to monitor:** Indicate the folder that you wish for the Video File Converter to monitor. This is the folder (as well as its subfolders) that the utility will continually check for video files to convert.

    d. **Delete Original File:** Select whether the utility should, after converting a file, delete the original video file. If the box is checked, the utility will delete the original file after it is converted. If the box is unchecked, both the converted file and original file will be retained.

    e. **File Filter List:** Contains the list of file types that the utility will watch for and, if found, will attempt to convert to AVI format. Use the **Add** button to enter a new file extension (*.xxx) to watch for; the **Remove** button to remove a selected extension from the list; or the **Edit** button to modify a selected extension on the list.

4. When finished making changes, click **OK** to save them.

**7** **Using the Video File Converter Utility**

> **Note:** Due to high resource demand of the file conversion process, it is recommended that the process not be initiated while any video file playback operations are taking place.

The file converter utility is designed to: (a) automatically launch when the computer on which it is installed is booted up, (b) continuously monitor the specified folder for new video files, and (c) automatically convert new files to AVI format, according to the configured settings. If this is the desired setup for your

system, there is nothing else you need to do.

If, on the other hand, it is desired to not have the utility automatically running in the background, and instead only have it run after it is manually opened, complete the following steps to remove the utility from the Windows startup process.

1. Navigate to **Start menu** > **All Programs** and locate the **Startup** folder.

2. Right-click on **Startup** and select the **Open** option that applies to your Video File Converter utility installation:

    - If, during the utility installation, you selected for the utility to be available for **Just Me**, select **Open**.

    - If, during the utility installation, you selected for the utility to be available for **Everyone**, select **Open All Users**.

3. Locate **Video File Converter** and delete it by right-clicking it and selecting **Delete**. After deleting it, it will no longer be automatically launched by the Windows startup process.
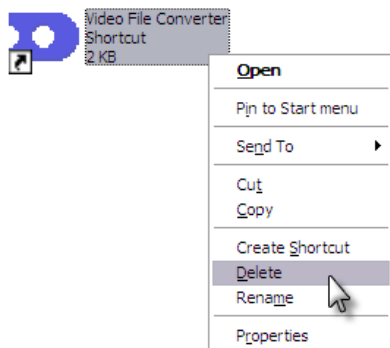
8 15 Using VirtualDub to Convert Files (Windows-based Systems)

When you are ready to convert your video files for your DMP-8000 or DMP-1500, Daktronics recommends using VirtualDub to complete this process. Before beginning, ensure that VirtualDub and any necessary codecs and plug-ins have been installed, and that you have created a VirtualDub configuration file with the appropriate settings for your digital media player's content.

1. If not already opened, launch VirtualDub.

2. Navigate to **File menu** > **Load processing settings…** to be taken to the **Load configuration script** dialog box.

3. Select the .vcf file which contains the appropriate settings for your digital media player's content, and click **Open**.

4. Navigate to **File menu** > **Open video file…** to be taken to the **Open video file** dialog box.

5. Select the video file you wish to convert, and click **Open**.

6. Navigate to **File menu** > **Save as AVI…** to be taken to the **Save AVI File** dialog box.

7. Navigate to the location where you wish to save the AVI version of the selected video file, and click

Save.

8 Using ffmpegX to Convert Files (Mac OS-based Systems)

If using a Mac OS-based system to convert your DMP-8000 media files, Daktronics recommends using ffmpegX to complete this process.

1. Launch ffmpegX.

2. From the **ffmpegX** main screen, click **Open** to select your uncompressed file.

3. Select **Save As**, and specify a location where you would like to save your compressed video.

4. If the filename for the compressed video does not have the .avi file extension, add it to the end of the filename.

5. Make sure to specify the target format as **AVI XviD**.
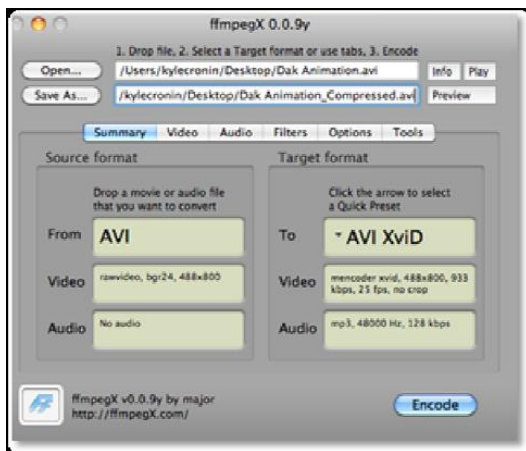
6. From the Video tab, ensure that **XviD [.AVI] (mencoder]** is selected as the video codec. Make sure the **Video Bitrate** is set to at least 9000 kbit/s. It is essential that the **Video Size** matches the size of your display.
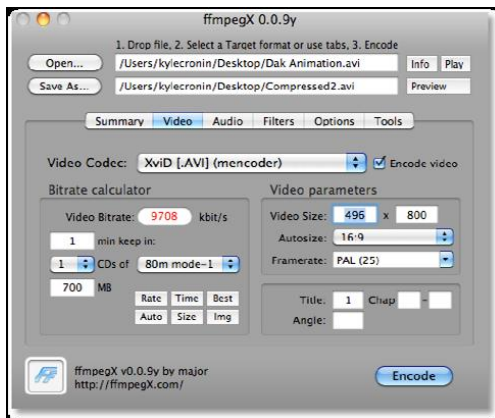
7. From the **Audio** tab, uncheck **Encode Audio**.

8. From the **Options** tab, check the checkbox next to **High Quality**, **Use B-frame**, and **Trellis Quantization**.
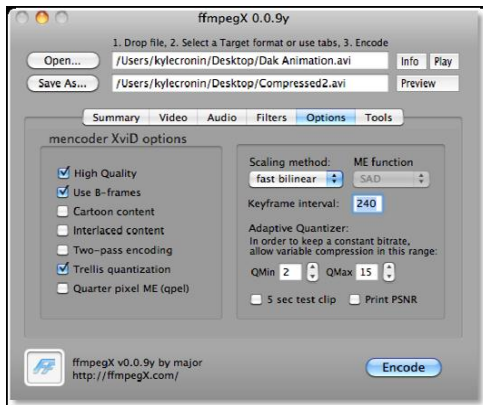
9. Select the **Encode** button.

Installing Additional Codecs

Codec (a portmanteau of *co*der-*dec*oder) refers to computer software which is capable of taking an analog audio or video signal and (a) *coding* the signal into a digital form for transmission purposes, and then (b) after it is transmitted, *decoding* the digital signal into a form closely resembling the original analog signal.

Locating Daktronics-approved Codecs

After determining that you need a particular codec, first verify that it is not already directly supported by your digital media player. If the codec does not already appear on your digital media player's supported file list, it is necessary to download and install it.

The following codecs have been qualified for use with Daktronics products:

*   **WM9 -** wmv9VCMsetup.exe

    The WM9 Codec is required to perform WM9 compression on AVI files.

Use Scenario: When converting MOV files, which are smaller files, to AVI file format, the resulting AVI file will be large. If system storage is limited the AVI file can be compressed within VirtualDub if the WM9 codec is available.

- **XviD -** Xvid-1.2.2-07062009.exe

   XVID is an open source codec that is freely available for most computing platforms and works with both VirtualDub and ffmegX conversion tools.

   Use Scenario: In both Windows-based and MAC OS-based video encoding scenarios, XVID must be obtained and installed.

- **Huffyuv -** huffyuv-2.1.1.zip

   Huffyuv is a very fast, *lossless* Win32 video codec. "Lossless" means that the output from the decompressor is bit-for-bit identical with the original input to the compressor. "Fast" means a compression throughput of up to 38 megabytes per second (on a 416 MHz Celeron processor).

   Use Scenario: Huffyuv also supports lossless compression of RGB data, making it useful for the output of programs like VirtualDub.

   <u>Note</u>: *Before attempting to install HuffYUV on a DMP-8000 machine, you must disable File Based Write Filtering.*

- **ffmpegX -** x264vfw Download x264vfw software for free

   ffmpegX provides a GUI interface to three open source UNIX video encoding products. ffmpegX is free to use, however the author asks for a $15 donation.

   Use Scenario: If using a Mac OS-based system, in addition to XVID, ffmpegX must be obtained and installed.

To locate a codec, click on the corresponding link above, or navigate to http://dakfiles.daktronics.com/downloads/venus7000/CODECs/ and locate the codec on the list of files.
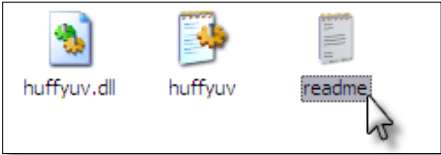
Installing a Codec

In many cases, installing a codec is as simple as downloading the file and running the installation program by double-clicking on the file. In some cases, however, it involves a different procedure. A safe "rule of thumb" that may be used is the following:

1. Click the link to the file and download it to an easily accessible location.

2. If the codec consists of **one file**, such as **wmv9VCMsetup.exe**, simply double-click the file to begin the installation process. Follow the on-screen directions to complete the installation.

3. If the codec consists of **multiple files**, such as **huffyuv-2.1.1.zip** (which is a ZIP file containing multiple files), one of those files is likely a **README** or **READ FIRST** file, containing instructions on how to complete the installation of the codec. Follow those directions to successfully complete the

installation.

Disable File Based Write Filtering (FBWF)

Before installing the HuffYUV codec on a DMP-8000 machine, it is necessary to disable File Based Write Filtering (FBFW), which is a feature included on Windows XP Embedded systems.

To disable FBWF, navigate to the **Start menu** and click **FBWF Control**. The FBWF Control warning window will appear, indicating that FBWF will be disabled and that the system will reboot. Press any key to reboot the machine.
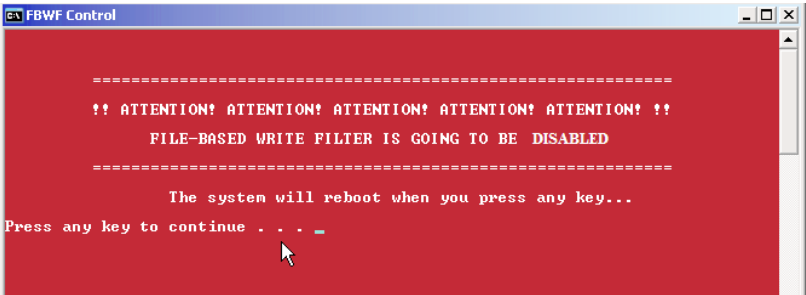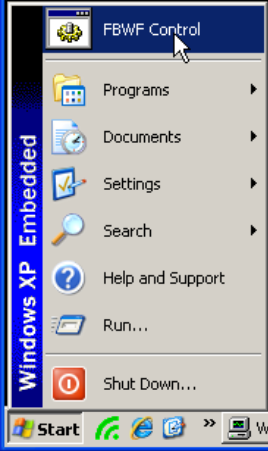
	Tech Note: To enable FBWF, use the same steps as above. The FBWF "Warning" window will instead announce that File-Based Write Filter is Going to be Enabled, which will also require rebooting the machine.