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Matrox DigiSuite

Release Notes

June 19, 2000

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matrox

Digital Video Solutions

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Which manuals are affected?

These release notes list new features, changes to the DigiSuite manuals, and other important information applicable to DigiUtils version 4.1. This information supplements the following DigiSuite manuals (dated July 31, 1999):

- *DigiSuite Installation Manual*, 10477-101-0400
- *DigiSuite LE Installation Manual*, 10578-101-0400
- *DigiSuite DTV Installation Manual*, 10649-101-0400
- *DigiDesktop Installation & User Guide*, 10556-201-0400
- *Matrox DV-1394 Installation & User Guide*, 10639-201-0400
- *Getting the Most from DigiSuite*, 10502-301-0400

What's new in DigiUtils 4.1?

DVDit! SE bundled with DigiSuite DTV

Sonic Solutions DVDit! SE is now bundled with DigiSuite DTV instead of DVDit! LE. The SE version of DVDit! gives you additional features for authoring your DVD titles, including support for multiple menus, each with an associated audio track.

Note If you presently have a registered copy of DVDit! LE for DigiSuite DTV, you can request a free upgrade to DVDit! SE from the Customer Support section of our web site at www.matrox.com/video.

Updates to the DigiSuite Configuration program

- You can select from several presets for DigiMix, DigiSuite LE, or DigiSuite DTV to set your video output levels to match the type of output you want. For example, you can select the **Broadcast** preset to output a standard video signal, or the **DV-compliant** preset to adjust your output levels to settings appropriate for DV material. You can also choose the particular video level options you want to customize your output settings. For details, see "Selecting video output levels for DigiMix, DigiSuite LE, or DigiSuite DTV" on page 9.
- The following new option has been added to the **Calibration Settings** dialog box (displayed when you click **VTR Settings | Set Up Recorder | Advanced Settings**):

– **Use Device Cue** Select this option only if the RS-422 device control has problems cueing your VTR, such as when you cue to a clip's In or Out point using DigiTools or Adobe Premiere RT.

Note If the Calibration Wizard or Frame Accuracy Test Wizard has a problem cueing your VTR, you'll be prompted to restart the wizard and the **Use Device Cue** option will automatically be selected for you.

Changes to the names of the Matrox DV codecs

The names of the Matrox DV codecs have changed to better reflect the particular DV formats used by the codecs. For example, the **Matrox DV 4:2:0 PAL/4:1:1 NTSC** codec has been renamed to **Matrox DV/DVCAM**. As well, you now use the **Matrox DVCPRO** codec to render or capture video to DVCPRO format. For more information, see "Capturing or rendering to a DV format" on page 14.

New MPEG-2 I-frame video quality selection

When you render or capture material to MPEG-2 I-frame format on DigiSuite DTV, you now select a video quality instead of a data rate for the MPEG-2 compression. For details, see "Selecting your MPEG-2 I-frame video quality" on page 14.

Note MPEG-2 I-frame *.avi* files created using DigiUtils version 4.1 are not supported by earlier versions of DigiUtils.

Capture or render to MPEG-2 IBP format with custom settings

Using Adobe Premiere RT or Speed Razor RT on DigiSuite DTV, you can now choose to capture video from analog or digital sources directly to MPEG-2 IBP format to create *.avi* files that are immediately ready for authoring DVD titles with Sonic Solutions DVDit! SE, Spruce Technologies DVDVirtuoso, or Daikin Industries ReelDVD.

When you export or capture material to MPEG-2 IBP format, you can choose either the Main Profile @ Main Level (**MP@ML**) or the 4:2:2 Profile @ Main Level (**4:2:2P@ML**). You can also select a constant or variable bit rate for the MPEG-2 compression, and customize the GOP structure by selecting the GOP length and subgroup length of B-frames and/or P-frames. If you're creating files for DVD authoring, you can select the **DVD-compliant** preset to set the MPEG-2 IBP options to recommended DVD-compliant settings. For details, see "Using MPEG-2 IBP format to capture or export video" on page 15.

Faster multi-layer compositing

You can add an unlimited number of video and/or graphics layers full of DigiSuite effects that render at about 0.75 times real time for each video layer that **exceeds** the realtime capabilities of your DigiSuite LE or DigiSuite DTV system.

Note The increased multi-layer compositing speed is also available on DigiSuite systems that include DigiDesktop with the optional TriMedia module.

Faster than realtime export of cuts-only video segments

When you export video to an *.avi* file from Adobe Premiere RT or Speed Razor RT, video segments that have no effects applied and also have a compression format (video quality) that matches the destination format are rendered much faster than real time because they are simply copied directly to disk. The speed of this process is limited only by the data throughput capabilities of your A/V drive.

Note To obtain faster than realtime export of cuts-only video, the **Recompress Always** option must **not** be selected. For details, see "When to use the Recompress Always option for video exports" on page 12.

Improved support for DV-1394 devices

Matrox has greatly improved the stability of the DV-1394 device control and support for using DV-1394 devices with DigiSuite. For an up-to-date list of compatible devices, see the Customer Support section of our web site at www.matrox.com/video.

Record DVCPRO material using the DVCapture program

The DVCapture program now supports recording DVCPRO *.avi* files onto tape using a DVCPRO camcorder or deck. On DigiSuite DTV, you can choose the DVCPRO format when you export your Speed Razor or Adobe Premiere production to an *.avi* file. On DigiSuite or DigiSuite LE, you can export or render material to DVCPRO format by creating a Video for Windows *.avi* file using the **Matrox DVCPRO** codec. For details, see "Exporting or rendering video to a Matrox DV .avi file for printing to tape with the DVCapture program" on page 20.

Direct DV-1394 export to tape in Adobe Premiere

If you have the DV-1394 option for DigiSuite DTV, you can export DV or DVCPRO material directly from your Adobe Premiere Timeline to tape using device control over the 1394 interface. When you've completed your editing in Adobe Premiere and choose to export your finished project to tape, Matrox software analyzes the Timeline for playback prior to the recording.

A cuts-only DV or DVCPRO project without effects will play back and be exported to tape in real time. If the Timeline includes DVCPRO50 or MPEG-2 material and/or effects, the software will compile just these segments (at about two to four times real time). Once all the required segments have been compiled, the project exports to tape in real time. The overall time required is the time it takes to create the compiled segments plus the time it takes to play back the resulting Timeline. For instructions on how to export to DV tape, see "Exporting your Adobe Premiere Timeline to DV tape on DigiSuite DTV" on page 21.

Support for the DigiSuite DTV audio mixer

You can now use the Windows NT Volume Control to adjust the playback volume of your *.wav* files on DigiSuite DTV (see "A note about using the Windows NT Volume Control" on page 6).

New Matrox File Converter program

The new Matrox File Converter lets you convert your MPEG-2 or DV video files and associated audio files to various formats. For example, you can use this program to convert your Matrox MPEG-2 IBP *.avi* and associated *.wav* files to *.mpg* MPEG-2 Program files for distribution on the web, video servers, and networks. For more information, see "Using the Matrox File Converter" on page 24.

Support for the Matrox SDI card

The new Matrox SDI card is supported as an option for DigiSuite. This new PCI card adds serial digital (SDI) video input/output to your system and is provided instead of the optional DigiLinx card for new systems that don't have an ISA expansion slot. You can use the DigiSuite Configuration program to configure your Matrox SDI to meet specific video or key input and output requirements. For details about Matrox SDI, see "New Matrox SDI option for DigiSuite" on page 28.

Note DigiLinx is still supported for ISA-based systems.

Updating your Matrox display driver for this release

Before running DigiUtils Setup to install the DigiSuite version 4.1 software, you must update the Matrox display driver for your DigiDesktop or other Matrox display card with the appropriate driver provided on your DigiSuite CD-ROM.

To install the driver, run the *setup.exe* program located in the directory:

- *MatroxDisplayDrivers\UnifiedDriver* if you have a Matrox display card **other than** a G-Series card, such as DigiDesktop, Millennium 2, or Mystique.

  OR

- *MatroxDisplayDrivers\G-Series* if you have a Matrox G-Series card, such as Millennium G200 or G400.

Simply follow the on-screen instructions to complete the driver installation.

Re-establishing your Adobe Premiere RT settings for this release

When you install version 4.1 of the DigiSuite Effects plug-in for Adobe Premiere RT, your Premiere preferences file will be deleted. This means that when you start a new project, you'll need to restore your DigiSuite settings. To do this, simply load the appropriate DigiSuite preset for your project. Remember to also set up your scratch disks, video drive, and audio drive as explained in your *Adobe Premiere User Guide* and *Getting the Most from DigiSuite* manual.

Problems with the NTSC black level when using DV-1394 cameras with DigiSuite

Most commercial DV cameras that have a 1394 interface follow the Japanese specification for analog NTSC video, where the black level (setup) is 0 IRE. The standard setup level for analog NTSC video in North America, however, is 7.5 IRE.

The black level used for the digital bit stream is the same for both Japanese and North American video equipment. This means that when you capture DV video using the Matrox DV-1394 option, such as with the DV-1394 plug-in for Adobe Premiere RT, the video is transferred digitally over the 1394 interface and is captured at the correct black level.

When you play back the captured video on your NTSC monitor, however, you may find that the video appears too bright or colors appear to be washed out. This

is because the analog output of your DigiSuite system uses the standard NTSC setup level of 7.5 IRE, whereas your DV camera's analog output uses the Japanese setup level of 0 IRE.

On DigiSuite LE or DigiSuite DTV, you can use the DigiSuite Configuration program to change the setup level of your analog NTSC output to 0 IRE so that it matches the analog output of your DV camera. This adjustment is made when you select the **DV-compliant** preset under **Video Level Adjustments** in the **Video Out** dialog box (see "Selecting video output levels for DigiMix, DigiSuite LE, or DigiSuite DTV" on page 9).

⇨ **Important** Make sure you don't adjust the black level on your DV camera to compensate for the discrepancy in brightness between your camera and DigiSuite. Doing this will cause the digital black level to be incorrect for capture using the 1394 interface.

A note about capturing analog video

Because of the difference in blanking duration between analog and digital video, a thin black border will appear along the edges of video that's been captured from an analog source (typically, at the right and bottom edges).

In most cases, the black borders won't be visible unless you set your monitor to "underscan" mode. You may want to crop the black edges if you use the image in effects and transitions where the full-screen image is visible, such as when you minimize the image in a video window. For details on how to remove the black borders when using 3D Studio MAX to map the image to a surface, see the section "Mapping an *.avi* file to a surface" in the "Enhancements to 3D Studio MAX" chapter of your *Getting the Most from DigiSuite* manual.

A note about using the Windows NT Volume Control

You can use the Windows NT Volume Control to adjust the playback volume of your *.wav* files on all the DigiSuite editing platforms. Instructions on how to use Volume Control are provided in your Windows NT online Help.

⇨ **Important** The adjustments you make using the Windows NT Volume Control have **no** effect on the *.wav* files you play back in DigiTools. To adjust the playback volume of *.wav* files in DigiTools, you must use the DigiTools audio level controls as explained in your *Getting the Most from DigiSuite* manual.

When a Windows NT Volume Control slider is at the topmost position, the output level is at full volume. This means you can attenuate the volume, but not amplify it. Please note that both the **Master** and **Wave** controls affect the output volume

of your *.wav* files. You should therefore use only one set of controls (that is, use either the **Master** controls or the **Wave** controls). For example, to attenuate the volume of your *.wav* files, drag the **Master** volume slider down, but leave the **Wave** volume slider at full.

Changes to the installation manuals

The following are changes to the *DigiSuite Installation Manual*, *DigiSuite LE Installation Manual*, and *DigiSuite DTV Installation Manual* (dated July 31, 1999).

Identifying your expansion slots

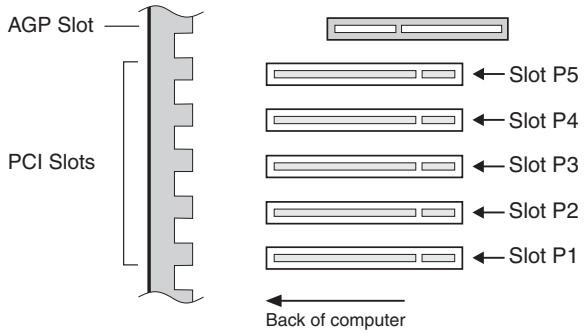
Note The card set diagrams in your DigiSuite manuals are all based on a traditional PCI-ISA slot configuration. The slot numbering when installing these card sets in new systems **without** ISA slots should remain the same.

All DigiSuite cards are installed in your computer's expansion slots. Most computers currently manufactured have an AGP slot, several PCI slots, and in some cases, ISA slots. AGP and PCI slots are shorter in length than ISA slots; as well, the different types of slots are usually of contrasting color.

While some computer motherboards have numbered slots, these do not follow any standard industry convention. In addition, one computer may have an AGP slot, five PCI slots and no ISA slots, whereas another may have an AGP slot, four PCI slots and two ISA slots, and so on. With this in mind, we've developed a numbering scheme for identifying each slot position.

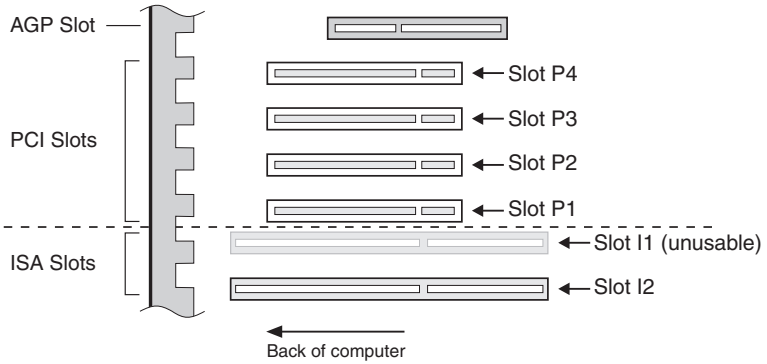
Computers with AGP and PCI slots only

In the case of computers with AGP and PCI slots only, locate the PCI slot **furthest** from the AGP slot, then begin counting the PCI slots **toward** the AGP slot (for example, P1, P2, P3, etc.). In the following diagram, there are five PCI slots and an AGP slot:



Computers with AGP, PCI, and ISA slots

If your computer has AGP, PCI, and ISA slots, begin counting PCI slots **outward** from the "border" between the PCI and ISA slots, as illustrated in the following diagram:



Installing Video Clipboard for DigiSuite DTV

To install the appropriate version of Inscriber Technology's Video Clipboard program on DigiSuite DTV:

1. Close all Windows programs.
2. Insert the DigiSuite CD-ROM in your CD-ROM drive.
3. Choose **Start | Run**.

4 In the resulting dialog box, type *e:\videoclipboard\digisuitedtv\setup* (where *e:* represents your CD-ROM drive), and click **OK**.

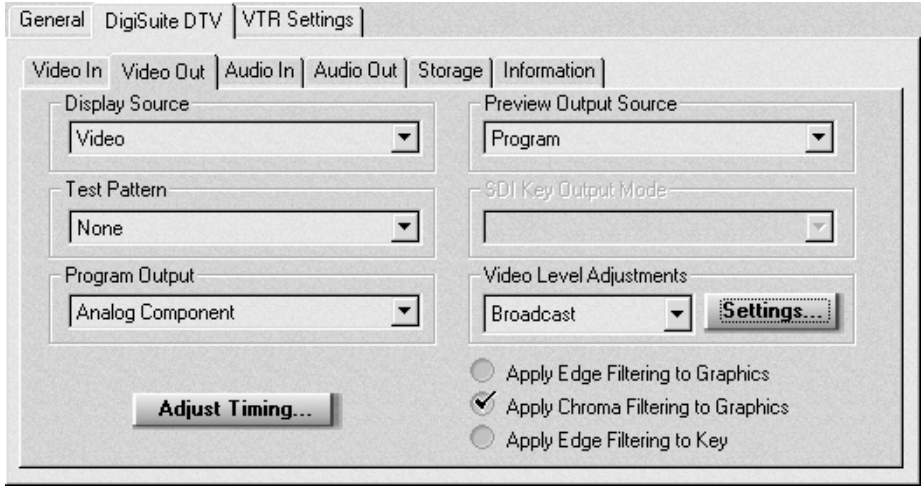
5 Follow the instructions that appear on the screen. An information box indicates when the installation is complete.

6 You must restart your computer in order for the changes to take effect. To do so, click **OK** when prompted.

For instructions on how to use Video Clipboard for DigiSuite DTV, refer to the online Help included with the program.

Selecting video output levels for DigiMix, DigiSuite LE, or DigiSuite DTV

In the DigiSuite Configuration program, a new **Video Level Adjustments** section has been added to the **DigiMix Output**, **DigiSuite LE Video Out**, and **DigiSuite DTV Video Out** dialog boxes, similar to the following:



- **Video Level Adjustments** Use this list to select the preset that matches the type of video output you want, or to customize your video output level settings.
  - **Broadcast** Select this preset to output video for broadcast. Any super black or super white luminance levels in your video will be clipped. The following settings are applied:
    - Luminance range for analog output set to **Standard (Broadcast)**

- NTSC analog setup is **7.5 IRE**

– **Post Production** Select this preset to output video for post production. Any super black or super white luminance levels in your video will be retained. The following settings are applied:

- Luminance range for analog output set to **Allow Super Black and Super White**
- NTSC analog setup is **7.5 IRE**

– **DV-compliant** Select this preset if you're working with DV material acquired from a DV-1394 camera. The following settings are applied:

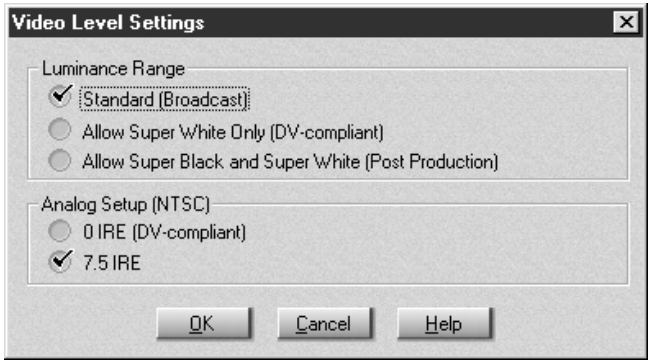
- Luminance range for analog output set to **Allow Super White Only**
- NTSC analog setup is **0 IRE** (available on DigiSuite LE and DigiSuite DTV only). On DigiMix, NTSC analog video always uses a setup level of 7.5 IRE.

– **Custom** Lets you select the particular video output level settings you want (**for advanced users only**).

– **Settings** Click this button to view the settings applied by the currently selected preset, or to customize your video output level settings as explained in the next section.

Customizing your video output level settings (for advanced users only)

To select custom video output level settings, select **Custom** from the **Video Level Adjustments** list in the **DigiMix Output**, **DigiSuite LE Video Out**, or **DigiSuite DTV Video Out** dialog box, then click **Settings**. This displays a dialog box similar to the following:



Note When the **Broadcast**, **Post Production,** or **DV-compliant** preset is selected, the **Video Level Settings** dialog box shows you which settings are applied, but you won't be able to change these settings.

- **Luminance Range** Select one of the following to indicate the range of luminance levels you want included in your analog video output:
  - **Standard (Broadcast)** Outputs a video signal that uses the standard legal range of luminance levels for broadcast video. Any super black or super white luminance levels (that is, levels that fall below the standard black level or exceed the standard white level) are clipped.
  - **Allow Super White Only (DV-compliant)** Outputs a video signal in which super white luminance levels are retained. This setting is appropriate for playing back DV material.
  - **Allow Super Black and Super White (Post Production)** Outputs a video signal in which both super black and super white luminance levels are retained. This setting is appropriate for playing back video for post production, but should not be used when producing your final video production for broadcast.
- **Analog Setup (NTSC)** If you're using an NTSC system, select one of the following setup levels for your analog video (affects both the analog video input and output):
  - **0 IRE (DV-compliant)** Applies a setup level of 0 IRE. You should select this option **only** when working with a commercial DV-1394 camera that uses the Japanese analog NTSC setup level of 0 IRE. For example, if the video appears too bright when you play back DV clips on your NTSC monitor, you can change the setup to 0 IRE to output your DV clips at the correct brightness.
  - **7.5 IRE** Applies the standard NTSC setup level of 7.5 IRE.

Note The **Analog Setup (NTSC)** options are available only on DigiSuite LE and DigiSuite DTV. On DigiMix, NTSC analog video always uses a setup level of 7.5 IRE. On all NTSC-EIAJ (Japan) systems, analog video always uses a setup level of 0 IRE.

Changes to the Getting the Most from DigiSuite manual

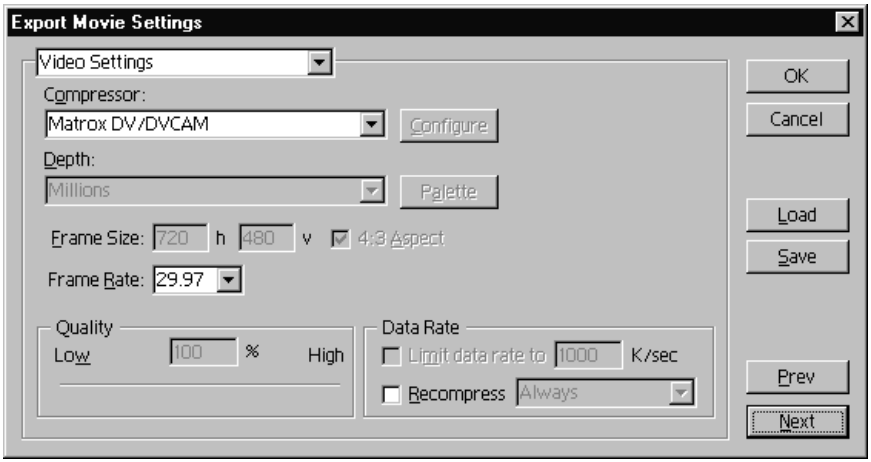
The following are changes to the *Getting the Most from DigiSuite* manual (dated July 31, 1999).

Defining your Speed Razor RT settings for DigiSuite

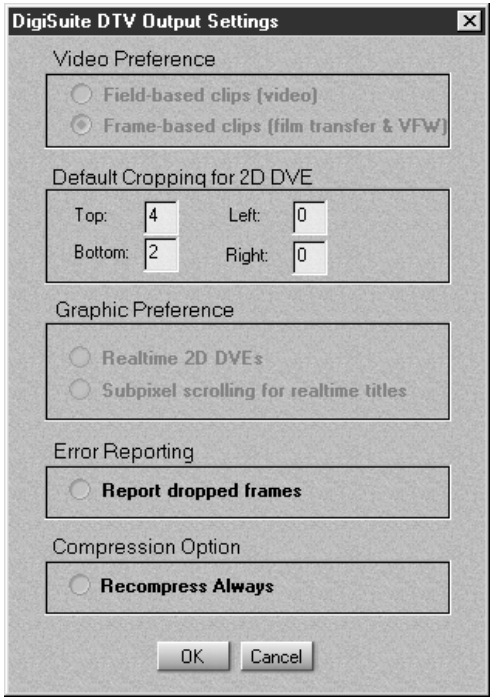
For details on establishing your editing settings in Speed Razor RT for use with DigiSuite, see the *Using Speed Razor and Matrox DigiSuite / DigiSuite LE* manual, or *Using Speed Razor and Matrox DigiSuite DTV* manual. You can obtain these manuals from the in-sync web site at www.in-sync.com.

When to use the Recompress Always option for video exports

When you export video to an *.avi* file using Adobe Premiere RT or Speed Razor RT, you can use the **Recompress Always** option to specify whether or not you want the video to be recompressed for the export. In Adobe Premiere's **Export Movie Settings** dialog box, the **Recompress Always** option is provided in the **Video Settings** section under **Data Rate** (choose **File | Export | Movie | Settings | Video Settings**):



In Speed Razor RT, the **Recompress Always** option has been added to the **Output Settings** dialog box for your DigiSuite system (choose **Project | Editing Settings**, then click the Video Output (Playback) **Setup** button):



If your Timeline's compression format matches your export format, do **not** select **Recompress Always**. This optimizes the speed of the export and quality of the video because realtime segments that have no effects will be copied directly to disk without recompression. If, however, you want to export video at a different video quality (such as to export high-quality video at a lower quality), you must select **Recompress Always** to recompress the exported video at the new quality setting.

Capturing or rendering to a DV format

When you capture or render video on DigiSuite DTV, you'll now be provided with the following list of available DV formats on either an NTSC or PAL system:

- **DV/DVCAM** Captures or renders video to DV or DVCAM format (previously called **DV 4:1:1** on an NTSC system, or **DV 4:2:0** on a PAL system).
- **DVCPRO** Captures or renders video to DVCPRO format (previously called **DV 4:1:1**).
- **DVCPRO50** Captures or renders video to DVCPRO50 or Digital-S format (previously called **DV50 4:2:2**).

The names of the following Matrox Video for Windows codecs have also been changed to better reflect the particular DV formats used by the codecs:

- **Matrox DV 4:2:0 PAL/4:1:1 NTSC** has been renamed to **Matrox DV/DVCAM**.
- **Matrox DV 4:1:1 PAL** has been renamed to **Matrox DVCPRO**. You can use this codec to render either NTSC or PAL video to DVCPRO format.
- **Matrox DV50 4:2:2** has been renamed to **Matrox DVCPRO50**.

Selecting your MPEG-2 I-frame video quality

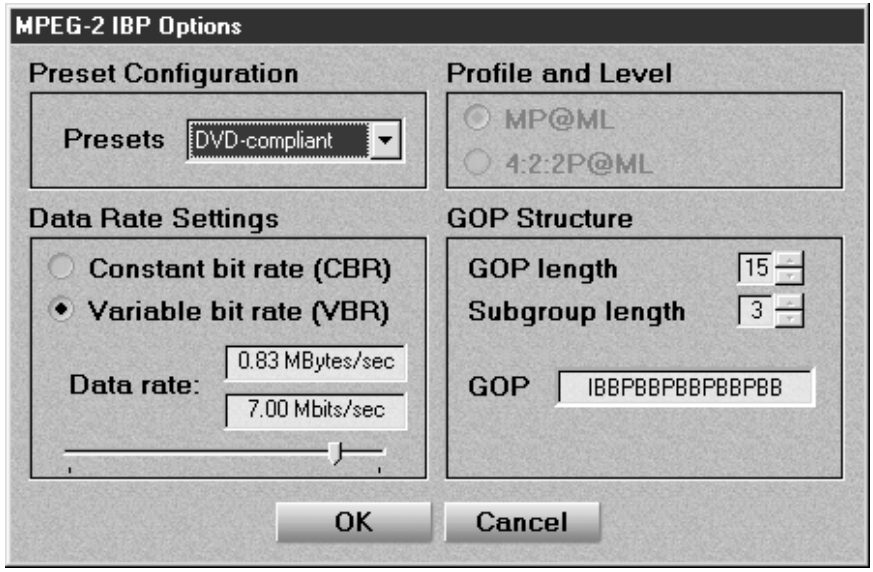
When you select the MPEG-2 I-frame format on DigiSuite DTV, you now click a **Configure** button to select an MPEG-2 video quality level (instead of a data rate). A dialog box similar to the following is displayed:

To select the video quality you want, drag the **Quality** slider. The quality levels range from **Very Low** to **Very High**. The data rate at which your video is compressed is determined by the quality you select and the complexity of the video. For example, very complex video compressed at a very high quality will use a much higher data rate (and more disk space) than average video compressed at a low quality.

Using MPEG-2 IBP format to capture or export video

When you select a video format on DigiSuite DTV using Adobe Premiere RT or Speed Razor RT, you can now select the **Matrox MPEG-2 IBP** format to capture or export video to an *.avi* file.

The following dialog box is provided when you click **Configure** to configure your MPEG-2 IBP options:



Important MPEG-2 IBP *.avi* files are suitable for DVD authoring, such as for use with the Sonic Solutions DVDit! SE authoring program, but cannot be played back using Adobe Premiere, Speed Razor, or DigiTools.

1 Under **Preset Configuration**, select one of the following:
   - **DVD-compliant** Sets the MPEG-2 IBP options to recommended DVD-compliant presets. Select this if you're creating an *.avi* file for use with DVDit! SE or any other DVD authoring program. For the best video quality, you should select a data rate according to the length of your exported project and the size of your distribution medium (see "Recommended MPEG data rates for distribution on DVD-R or CD-R" on page 17).
   - **Custom** Lets you select any configuration from the available MPEG-2 IBP options. Before selecting a custom configuration, make sure that it's supported by the program you'll be using with your *.avi* file.

2 Under **Profile and Level**, select one of the following:
- **MP@ML** Captures or renders video to MPEG-2 IBP format using the Main Profile@ Main Level at a selected data rate. This profile uses 4:2:0 luminance/chrominance sampling and is suitable for broadcast transmission and distribution on DVD.
- **4:2:2P@ML** Captures or renders video to MPEG-2 IBP format using the 4:2:2 Profile @ Main Level at a selected data rate. This profile uses 4:2:2 luminance/chrominance sampling and is suitable for high-quality distribution and archiving.

Note When you select **DVD-compliant** under **Preset Configuration**, the **Profile and Level** is automatically set to **MP@ML**. You cannot change this default setting.

3 Under **Data Rate Settings**, select one of the following bit rate types:
- **Constant bit rate (CBR)** Video is compressed at exactly the data rate you select. This is useful when you need to limit or predict the size of your *.avi* file. However, if your video is very complex (such as scenes with lots of movement or many colors), you'll need to select a high data rate to avoid having frames of very blocky video in your *.avi* file.
- **Variable bit rate (VBR)** Video is compressed at varying data rates based on the complexity of the video. The data rate you select is used as the average target data rate for the compression.

4 Drag the **Data rate** slider until your desired data rate is displayed. The higher the data rate you select, the better the video quality will be.[1]

Important The maximum recommended DVD-compliant data rate is 7.0 Mbits/sec (0.83 MBytes/sec), which should give you good results with most DVD authoring programs. If you select a higher data rate, be aware that it may not be supported by your authoring program. For charts of recommended data rates, see "Recommended MPEG data rates for distribution on DVD-R or CD-R" on page 17.

5 If you selected **Custom** from the **Presets** list, you can customize the GOP structure of the MPEG-2 compression as follows:
- **GOP length** Determines the number of frames in the GOP (Group of Pictures).
- **Subgroup length** Determines the subgroup length of B-frames and/or P-frames in the GOP, after the initial I-frame. A subgroup of 3 appears as "BBP," a subgroup of 2 appears as "BP," and a subgroup of 1 gives you only P-frames after the initial I-frame.

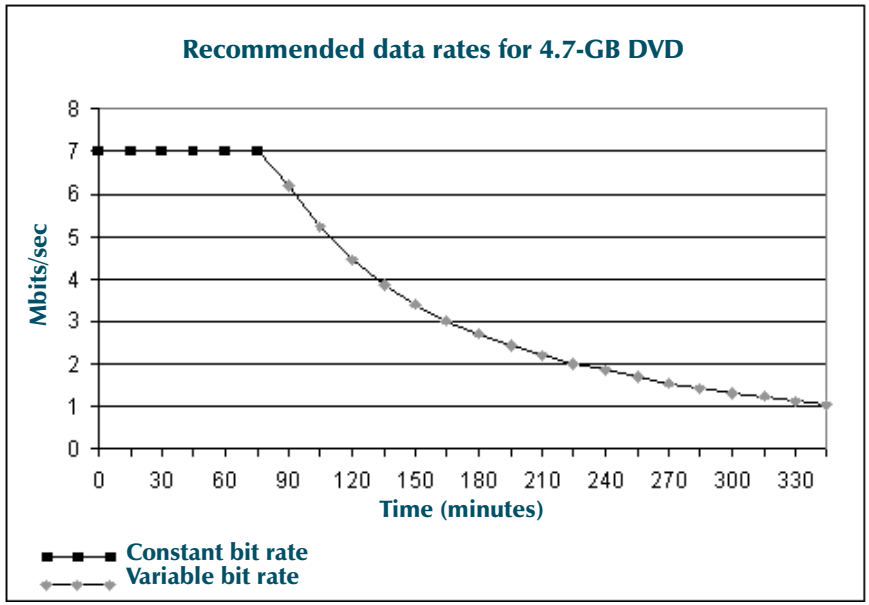
[1] When selecting an MPEG-2 data rate using a Matrox codec, be aware that a megabit (Mb) is equal to 1,000,000 (1000 × 1000) bits, and a megabyte (MB) after binary conversion is equal to 1,048,576 (1024 × 1024) bytes.

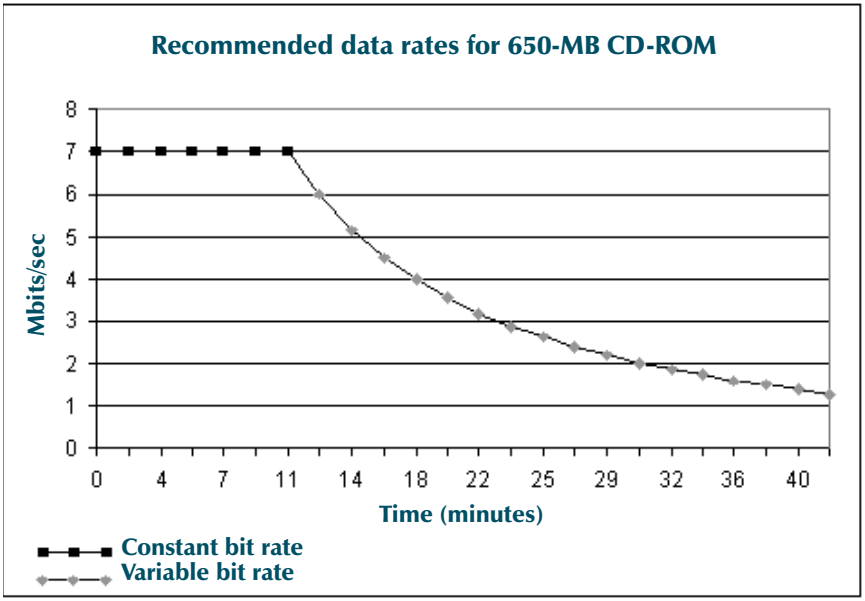
Recommended MPEG data rates for distribution on DVD-R or CD-R

The following charts show the data rate you should select when creating MPEG files to get the best video quality for your DVD projects. These data rates are calculated according to the length of your project and the size of your distribution medium. When disk space is not an issue, such as when your project is short, you'll get the best quality using a high constant bit rate (that is, 7 Mbits/sec). When disk space is at a premium, you should use a variable bit rate.

At data rates of 2 Mbits/sec and higher, you can create an MPEG-2 IBP *.avi* file using Adobe Premiere RT or Speed Razor RT on your DigiSuite DTV system. At data rates lower than 2 Mbits/sec, you'll need to create an MPEG-1 file. You can do this using the MegaPEG LE codec, which you can install from your Adobe Premiere CD-ROM. For information on using this codec, see "Using Digigami MegaPEG LE" on page 19.

Note These charts assume that your DVD project includes 48-kHz, 16-bit stereo audio.





Exporting Matrox clips using third-party software codecs

The following sections explain what you need to do to export Matrox clips from your Adobe Premiere projects using various third-party software codecs that are provided as plug-ins on your Adobe Premiere CD-ROM. For details on installing these codecs, see the documentation included with the plug-ins on your Adobe Premiere CD-ROM.

Using RealNetworks RealEncoder

The RealNetworks RealEncoder plug-in for Adobe Premiere lets you export audio and video clips from Adobe Premiere to RealAudio and RealVideo formats. To use RealEncoder, audio clips must have a sample rate no higher than 44.1 kHz, and video clips must have a height and width that are multiples of 16 pixels, up to a maximum size of 320×240 (the standard video frame size for the internet is 176×144).

Because your Adobe Premiere projects on DigiSuite support only 48-kHz audio and full-screen size video, you'll have to first export your Matrox clips from the Timeline using a codec that RealEncoder can support. To do this, export your clips as **Microsoft AVI** with the compressor set to **Microsoft RLE** or **None**, and set a **Frame Size** that is supported (such as 176×144). If you have associated

audio, select a rate no higher than **44100Hz**. You can then bring your exported clip (*.avi* file) back into Premiere to encode it with RealEncoder by choosing **File | Export | RealVideo** (provided that the clip is open in its own **Clip** window).

Note You can also use RealEncoder as a stand-alone program by choosing **Start | Programs | Real | RealEncoder**.

For more information on RealEncoder, choose **Start | Programs | Real | RealEncoder Help**.

Using Microsoft NetShow ASF (Windows Media)

The Microsoft NetShow ASF plug-in for Adobe Premiere lets you export audio and video clips from Adobe Premiere to Microsoft NetShow ASF format (now called Windows Media), which is a popular active streaming format especially for long clips.

To use NetShow ASF, audio must have a sample rate no higher than 44.1 kHz, and a video clip's audio must be included in its *.avi* file (that is, separate *.wav* files aren't supported for video clips). This means that on DigiSuite, you must first export video and audio from your Adobe Premiere Timeline as **Microsoft AVI** using one of the available Microsoft compressors, and set the rate for audio to **44100Hz** or lower. To create your NetShow ASF movie, open your *.avi* file in its own **Clip** window, then choose **File | Export | NetShow ASF**.

For more information on NetShow ASF, choose **Start | Programs | Microsoft NetShow | NetShow Plug-In For Adobe Premiere | Documentation**.

Using Digigami MegaPEG LE

The Digigami MegaPEG LE Encoder for Adobe Premiere lets you export audio and video clips from Adobe Premiere to MPEG-1 format, a high-quality video format that can be played without any special software. MPEG-1 clips are usually large in file size compared to other internet video formats; however their video quality is far superior and is primarily used for distribution on CD.

To use MegaPEG LE, a video clip's audio must be included in its *.avi* file (that is, separate *.wav* files aren't supported for video clips). This means that on DigiSuite, you must first export video and audio from your Adobe Premiere Timeline as **Microsoft AVI** using one of the available Microsoft compressors. To create your MPEG-1 movie, open your *.avi* file in its own **Clip** window, then choose **File | Export | MPEG (Digigami MegaPEG)**.

For more information on MegaPEG LE, choose **Start | Programs | Digigami | MegaPEG ReadMe**.

Changes to the Matrox DV-1394 Installation & User Guide

The following are changes to the *Matrox DV-1394 Installation & User Guide* (dated July 31, 1999).

Exporting or rendering video to a Matrox DV .avi file for printing to tape with the DVCapture program

To print an *.avi* file to tape using DVCapture, the file must be in either Matrox DV/DVCAM format or Matrox DVCPRO format, depending on whether your recorder is a standard DV device or a DVCPRO device. If you're using DigiSuite DTV with an editing program for which you've installed a DigiSuite plug-in, such as Adobe Premiere RT or Speed Razor RT, you can choose the appropriate DV format when you export your production to an *.avi* file.

If you're using DigiSuite or DigiSuite LE, you can export or render material to the appropriate DV format by creating a Video for Windows *.avi* file using the Matrox DV/DVCAM codec or the Matrox DVCPRO codec. When you perform the export or render:

- Set the frame size of your *.avi* file to 720×480 on an NTSC system, or 720×576 on a PAL system.
- If you'll be rendering audio, set your program to render audio to a separate *.wav* file (that is, don't include the audio in your *.avi* file).
- Select one of the following codecs from your program's list of compressors:
  - **Matrox DV/DVCAM** Use this codec if your recorder is a standard DV device.
  - **Matrox DVCPRO** Use this codec if your recorder is a DVCPRO device.

See your program's documentation for complete details on how to export or render material to a Video for Windows *.avi* file.

⇨ **Important** When you export to a Video for Windows *.avi* file using Adobe Premiere RT, set the **File Type** to **Microsoft AVI** and make sure that you don't export audio with your video (you must export audio to a separate *.wav* file and set the **File Type** to **Windows Waveform**). If you're using Speed Razor RT, set the video device type to **AVI Multimedia Device**, and the audio device type to **Wave Audio Device**.

Exporting your Adobe Premiere Timeline to DV tape on DigiSuite DTV

The DV-1394 plug-in for Adobe Premiere RT now supports exporting DV material from your Timeline to tape using device control over the 1394 interface on DigiSuite DTV.

Preparing your tapes for recording

To use DV-1394 device control, the tape on which you'll be recording your DV material must contain continuous and consecutive time code. To stripe your entire tape with time code, insert a blank tape into your camcorder, put the lens cap on, then press "Record."

Preparing your Timeline for recording

- To export your Timeline to tape over the 1394 interface, you must set the compression format of your Timeline to **Matrox DV/DVCAM** to record to a standard DV device, or **Matrox DVCPRO** to record to a DVCPRO device. To do this, choose **Project | Settings | Video** and make sure that the appropriate Matrox codec is selected from the **Compressor** list.
- If your Timeline contains sections that require rendering, Premiere will first render these segments, but then fail to start the recording. You'll then need to start the export to tape again. To avoid problems, you should render all segments that display as "Not yet rendered" before starting the export to tape.
- The DV-1394 device control is not frame-accurate when recording material onto tape. Therefore, you'll need to add some black video to the start and end of the Timeline region you want to record onto tape. To do this, choose **Project | Create | Color Matte**, select a solid black color and set the duration of this clip to the desired length.
  - At the start of the region you want to record, you may need to add up to 10 seconds of black depending on the capabilities of your device.
  - At the end of the region you want to record, add about one second of black.

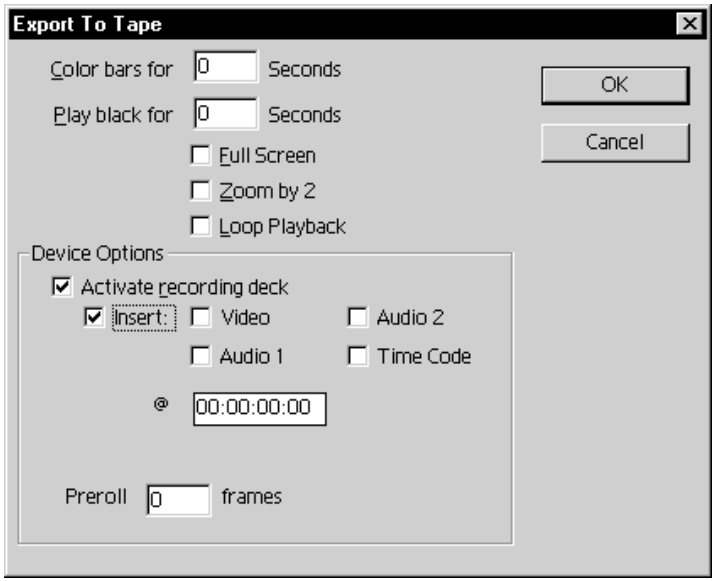
  If you find that too much black is being recorded onto tape, simply reduce the duration of your black clip accordingly.

Note If you'd like to record colorbars at the start of your project, you can add the *Colorbars NTSC.tga* or *Colorbars PAL.tga* clip to your Timeline. These files are available in the *Samples\DigiSuite_footage\DTV\NTSC* or *PAL* directory on your DigiSuite CD-ROM.

Exporting to DV tape with device control

To export your Timeline to tape over the 1394 interface:

1. Make sure your DV device is properly connected, and that you've selected **Matrox DV Device Control** in Adobe Premiere's **Preferences** dialog box as explained on page 42 of your *Matrox DV-1394 Installation & User Guide*.
2. If you're using a camcorder, switch it to VTR Mode and load a tape that you've striped with time code into the cassette compartment.
3. Start Adobe Premiere RT.
4. Open the project you want to export to tape.
5. Drag the Timeline work area bar (the blue bar flanked by gray arrows) so that it covers your entire project or the section you want to export.
6. Create a preview of your Timeline by choosing **Project | Preview**, or by pressing **ENTER** on the keyboard.
7. When Adobe Premiere starts to automatically play back your Timeline, click the **Stop** button in the **Monitor** window.
8. Choose **File | Export | Export to Tape.** This displays the following dialog box:



9. Select **Activate recording deck**.

10 If you'd like to specify a starting time code for the recording, select **Insert** and enter a time code in the **@** time code box to specify where you'd like your recording to start. On an NTSC system, use colon separators to enter a non-drop frame time code (for example, 01:15:10:12), or semicolon separators to enter a drop-frame time code (for example, 01;15;10;12).

⇨ **Important** The only options supported in the **Export To Tape** dialog box are **Activate recording deck** and **@** time code to specify where you want the recording to start. For example, selecting the **Color bars** or **Play black** option will **not** record color bars or black onto your tape, and regardless of which **Insert** options you select, both audio and video will be recorded.

11 Click **OK** to start the export to tape.

Using the Matrox File Converter

The Matrox File Converter is an easy-to-use program for converting your MPEG-2 or DV video files and associated audio files to various formats. You can select any of the following conversion types:

- **Matrox MPEG-2 IBP AVI + WAV --> MPEG-2 Program** Converts your Matrox MPEG-2 IBP *.avi* and associated *.wav* files to *.mpg* MPEG-2 Program files that conform to ISO 13818-1. You can use your new *.mpg* files for distribution on the web, video servers, networks, etc.
- **Matrox MPEG-2 AVI --> MPEG-2 Elementary** Converts your Matrox MPEG-2 (IBP or I-frame) *.avi* files to *.m2v* MPEG-2 Elementary files that conform to ISO 13818-2. You can use your *.m2v* files with DVD authoring programs that don't support Matrox MPEG-2 *.avi* files.
- **Matrox DV AVI + WAV --> VFW DV AVI** Converts your Matrox DV *.avi* and associated *.wav* files to Video for Windows DV *.avi* files with interleaved audio. All the DV formats are supported (DV, DVCAM, DVCPRO, DVCPRO50, and Digital-S). The advantage of this new *.avi* file is that your video and audio tracks are included in one file for easy use with your Video for Windows programs.
- **VFW DV AVI --> Matrox DV AVI + WAV** Converts any Video for Windows DV *.avi* file to separate Matrox DV *.avi* and *.wav* files. These files will play back in real time when using Adobe Premiere and Speed Razor RT with the DigiSuite DTV realtime plug-ins.

Installing the Matrox File Converter

If you have DigiSuite hardware installed in your system, the Matrox File Converter will be installed automatically when you run DigiUtils Setup to install your DigiUtils software.

To install the Matrox File Converter on a system that doesn't have DigiSuite hardware:

1. Close all Windows programs.
2. Insert the DigiSuite CD-ROM in your CD-ROM drive.
3. Choose **Start > Run**.
4. In the resulting dialog box, type *e:\MatroxFileConverter\setup* (where *e:* represents your CD-ROM drive), and click **OK**.
5. Follow the instructions that appear on the screen. An information box indicates when the installation is complete.

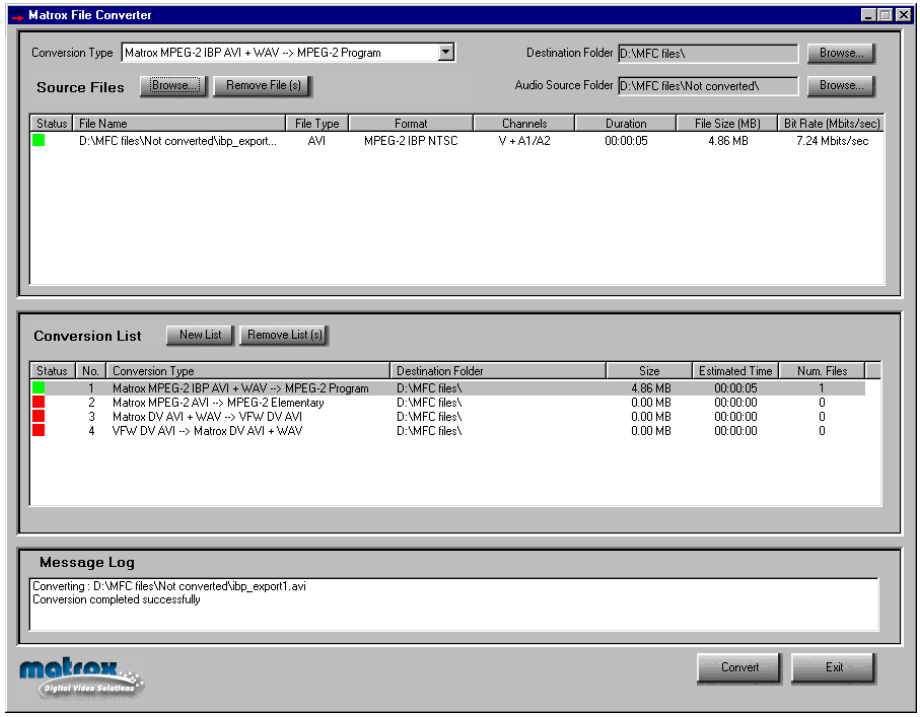
Remarks

- If you later decide to add the DigiSuite hardware to your computer, you must remove the Matrox File Converter from your system before installing your DigiUtils software. To do so, choose **Start > Programs > Matrox File Converter > Uninstall Matrox File Converter**.
- If you have the Matrox VFW software codecs installed on a system without the DigiSuite hardware, and you decide to remove the codecs, you'll need to re-install the Matrox File Converter. As well, if you uninstall the Matrox File Converter, you'll need to re-install the Matrox VFW software codecs.

Converting your files

To start the Matrox File Converter, do one of the following:

- If you're using a DigiSuite system, choose **Start > Programs > Matrox DigiSuite Utilities > Matrox File Converter**.
- If you're using a system without DigiSuite hardware, choose **Start > Programs > Matrox File Converter > Matrox File Converter**.



To convert your files:

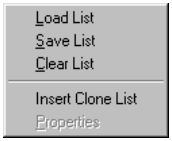
1. From the **Conversion Type** list, choose a conversion type.
2. To select the destination folder where you want your converted files to be saved, click **Browse** beside **Destination Folder**.
3. To select the files you want to convert, click **Browse** beside **Source Files**. In the displayed dialog box, select files of the appropriate format for your selected conversion type. You can use **CTRL+click** or **SHIFT+click** to select multiple files. You can also drag source files into the **Source Files** section from Windows Explorer.
4. To select the folder where you store your source audio files (*.wav* files), click **Browse** beside **Audio Source Folder**.

Note A green icon beside a file name in the **Source Files** section indicates that the file is of the correct format for the selected conversion type. A red icon indicates that the file is not the correct format and therefore can't be converted.

5. Click **Convert**. A dialog box displays a progress report of the conversion.
6. Your converted files (video and audio, if applicable) are saved to your chosen destination folder. The file naming convention is as follows:
   - MPEG-2 Program files keep the same file name as the source file, but the extension changes to *.mpg*.
   - MPEG-2 Elementary files keep the same file name as the source file, but the extension changes to *.m2v*.
   - VFW DV AVI files have _VFW_DV appended to the name of the destination file. For example, the source files *Demo.avi* and *Demo.wav* are converted to a file named *Demo_VFW_DV.avi*.
   - Matrox DV AVI + WAV files have _Matrox_DV appended to both the destination *.avi* and *.wav* files. For example, the source file *Demo.avi* is converted to *Demo_Matrox_DV.avi* and *Demo_Matrox_DV.wav*.

Commands for working with conversion lists

Once you have added your source files for a selected conversion type, you can save this grouping as a conversion list (*.cl* file). You can then reload this list at any time to add or remove files and resave it.



To display commands for working with conversion lists, right-click a **Conversion Type** in the **Conversion List** section. Choose the command you want from the displayed pop-up menu:

- **Load List** Allows you to open a list that you have already saved.
- **Save List** Saves the currently selected list as a *.cl* file.

- **Clear List** Removes all lists from the **Conversion List** section.
- **Insert Clone List** Inserts a copy of the selected list to the **Conversion List** section.

To create a new conversion list at any time, simply click **New List**. You can then select the conversion type, source files, and other settings for the conversion you want to perform.

Notes

- When using the conversion type **Matrox MPEG-2 IBP + WAV --> MPEG-2 Program** or **Matrox DV AVI + WAV --> VFW DV AVI**, you only need to select your source *.avi* files. The associated *.wav* files are added automatically, provided that you select the correct **Audio Source Folder**.
- If you're using the conversion type **VFW DV AVI --> Matrox DV AVI + WAV,** your converted audio files will be placed in the same folder as your converted video files. If you keep your audio files on a separate drive, you can move your new *.wav* files to your audio drive once the conversion is complete.

New Matrox SDI option for DigiSuite

Matrox SDI is a single-slot PCI controller that provides SDI connectivity to DigiSuite. The card features a single 10-bit input (which can be configured as a video or key input), and two 10-bit outputs (main and key). For newer systems that don't have ISA slots, Matrox SDI replaces the optional DigiLinx card.

Features

Digital video input

- Serial digital component 4:2:2 video at 270 Mb/sec, in accordance with SMPTE 259M.
- One 10-bit 4:2:2 serial digital stream.
- Input has loop-through capability.
- Automatic 525/625 input detection.
- Automatic cable equalization (supports cable length up to 300 meters).
- Upscale from ITU-R 601 quantization levels to 256 quantization levels for key channel input.

Digital video outputs

- Serial digital component 4:2:2 video at 270 Mb/sec, in accordance with SMPTE 259M.
- Two 10-bit 4:2:2 serial digital outputs for main and key outputs.
- Key channel can be downscaled from 256 quantization levels to ITU-R 601 quantization levels (level 16 to level 235).

Master/genlockable video time base

- Stable master sync signal in NTSC or PAL.
- ITU-R 601 video timing in NTSC (720 × 486) or PAL (720 × 576).
- Can genlock to an external master sync source (blackburst), the internal reference signal, or the digital input.

Input frame synchronizer

- Synchronizes the input video source to the main time base.
- Two-field video frame store for complete horizontal and vertical re-synchronization.

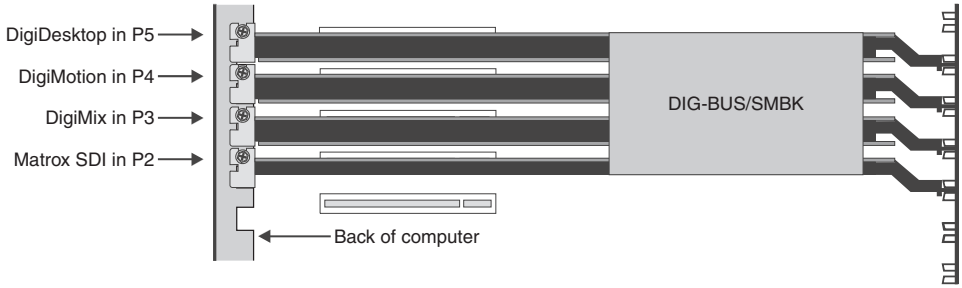
Installing Matrox SDI

For complete details on installing your DigiSuite hardware, refer to “Installing the DigiSuite Hardware” in your *Matrox DigiSuite Installation Manual.*

Note For information on slot numbering, see “Identifying your expansion slots” on page 7.

The following diagram shows the typical installation order for a Matrox SDI–DigiMix–DigiMotion–DigiDesktop card set. Other card set combinations are available.

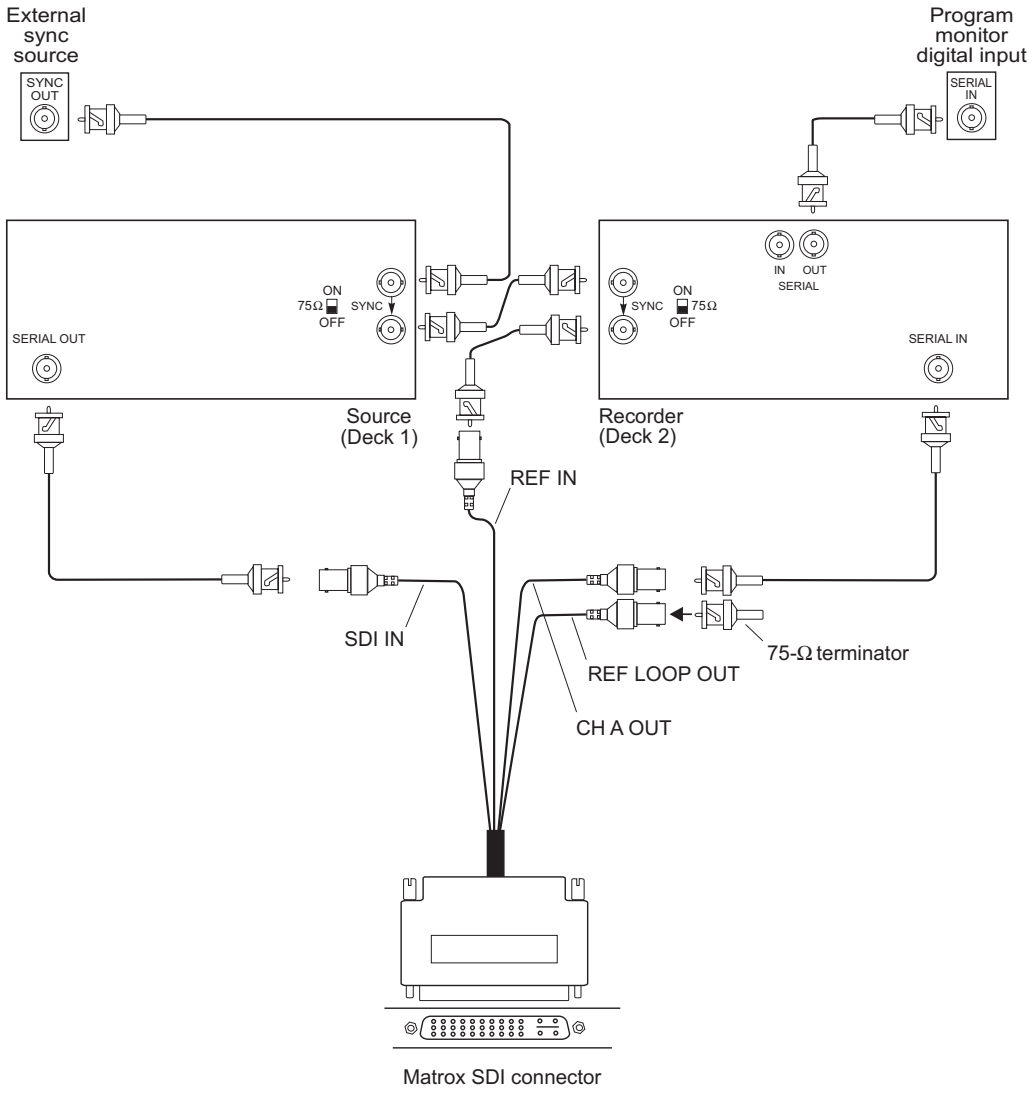
Matrox SDI–DigiMix–DigiMotion–DigiDesktop



Typical Matrox SDI video connections

The following illustration shows typical video connections with Matrox SDI. In this illustration, we’ve connected a digital Program monitor to view the signal that will be recorded, as well as separate source and record decks. You may, however, use the same deck as both your source and record device by making the input and output connections to a single deck.

Digital video cable connections

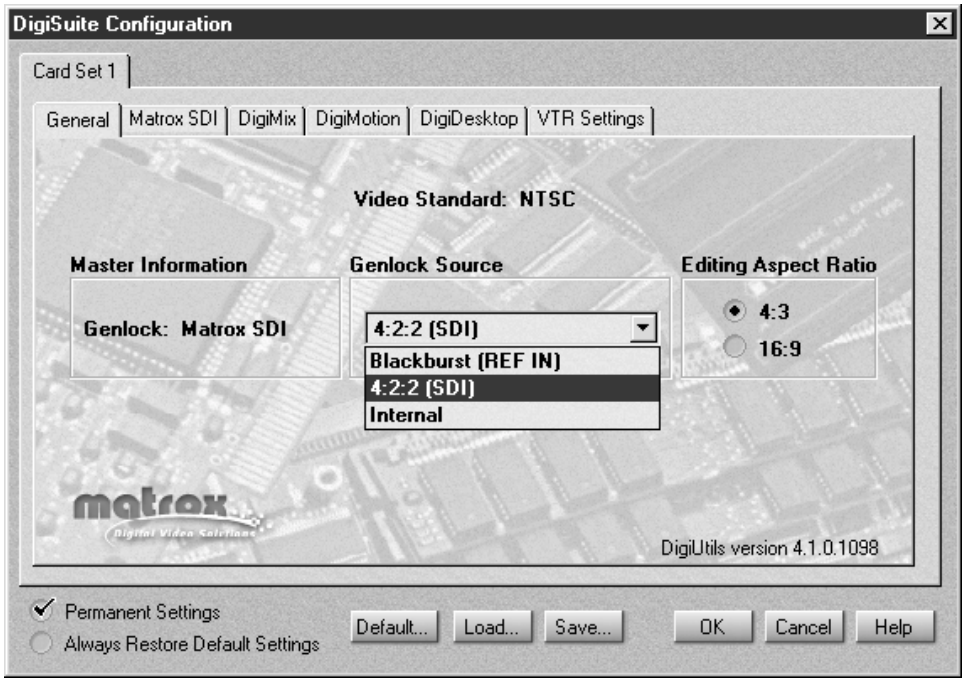


Configuring Matrox SDI

You can use the DigiSuite Configuration program to configure Matrox SDI to meet specific video or key input and output requirements. For example, you can set your digital input to a key input, and invert and expand the key input signal. For details on how to use the DigiSuite Configuration program, see your *Matrox DigiSuite Installation Manual*.

Selecting your genlock source

To select the source to which you want to genlock all your devices, click the **General** tab.



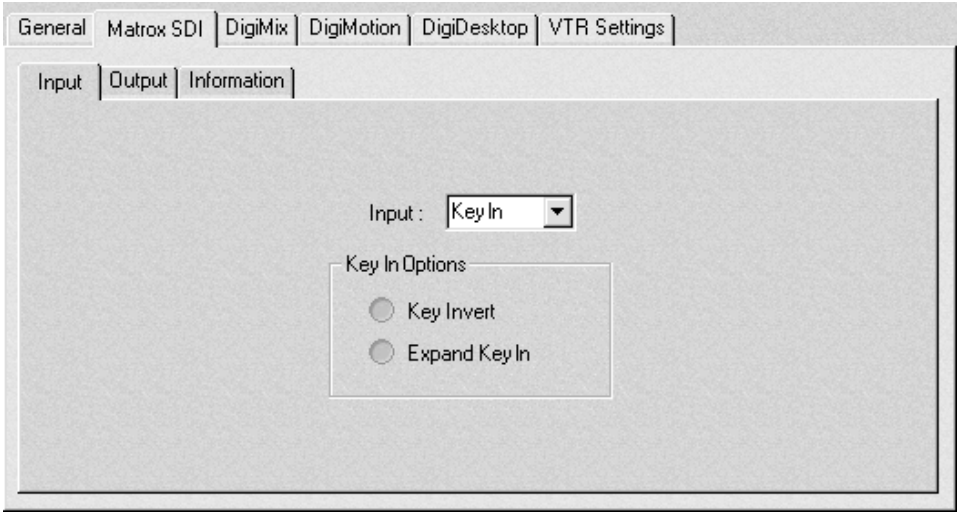
When Matrox SDI is installed, it is automatically set as the genlock master for your card set.You can select any of the following genlock options:

- **Blackburst (REF IN)** Genlock to an external analog sync source connected to REF IN on Matrox SDI, such as an external sync generator.
- **4:2:2 (SDI)** Genlock to your digital video input source. Use this option only if your digital input source is very stable (that is, it has a built-in TBC).

- **Internal** Genlock to Matrox SDI's internal reference signal. Select this option only if you don't have an external sync generator or other reliable external video sync source.

Configuring the video input signal

To configure the video input to Matrox SDI, click the **Matrox SDI** tab, then the **Input** tab.

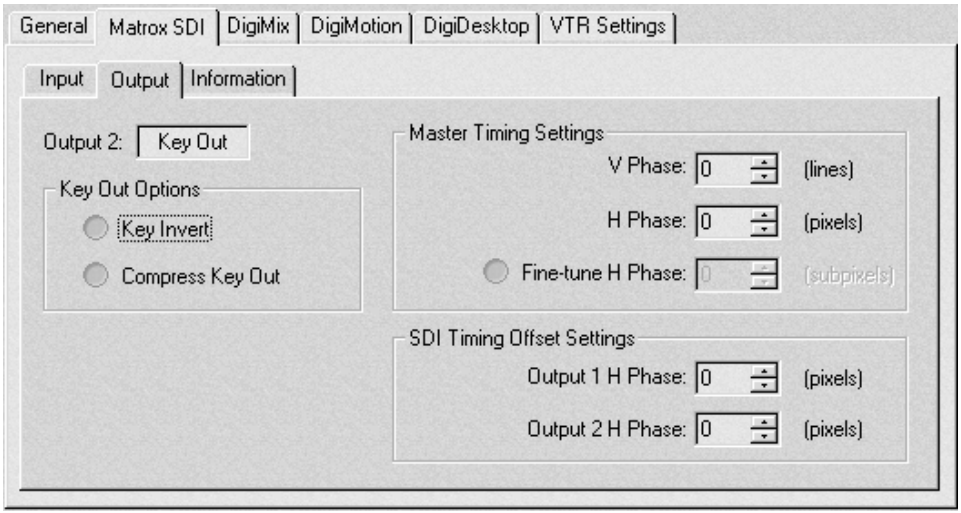


- **Input** Use this list to select the type of digital input you want. You can select either **Video** or **Key In**.
- **Key Invert** Select this option to invert the key input signal so that transparent areas of the keyed image become opaque, and opaque areas become transparent.
- **Expand Key In** Select this option if your key input signal has the standard range of luminance levels (that is, 16 to 235), and you require the signal to be expanded to include the full range of levels from 0 to 255.

  For example, you'll need to select **Expand Key In** if areas of your keyed image that should be completely transparent, such as the background of a title, are displayed as partially transparent.

Configuring the video and key output signals

To configure the output signals from Matrox SDI, click the **Matrox SDI** tab, then the **Output** tab.



Note The second output from Matrox SDI is set to **Key Out**.

- **Key Invert** Select this option to invert the key output signal from Matrox SDI so that transparent areas of the keyed image become opaque, and opaque areas become transparent.
- **Compress Key Out** Select this option if your digital mixer requires that your key output signal have the standard range of luminance levels (that is, 16 to 235). This setting is required for most devices. If areas of your keyed image that should be opaque are displayed as partially transparent, try clearing this option.

Important Unless your mixer supports key signals having 0 to 255 luminance levels, clearing **Compress Key Out** may cause your video to be displayed erratically.

- **Master Timing Settings** Use these controls to advance or delay the video and key outputs from both Matrox SDI and DigiMix with respect to your video genlock source (the SDI and DigiMix signals are adjusted

simultaneously). This lets you compensate for cable delays within your system.

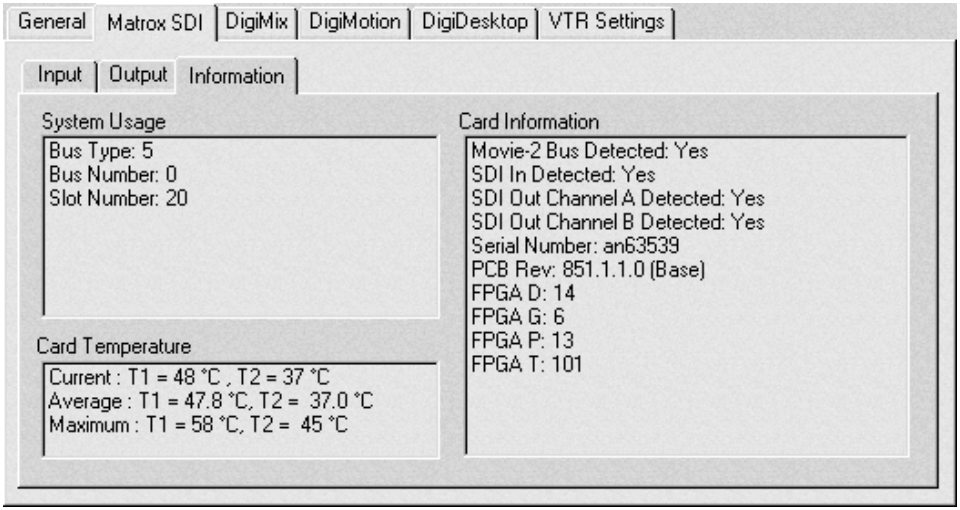
- **V Phase** Adjusts the vertical timing of the video and key outputs.
- **H Phase** and **Fine-tune H Phase** Adjusts the horizontal timing of the video and key outputs. Select **Fine-tune H Phase** and use the corresponding control only if you need to fine-tune the **H Phase** adjustment by subpixels.

❑ **SDI Timing Offset Settings** Use these controls to advance or delay the video or key output from **only** Matrox SDI with respect to your video genlock source.

- **Output 1 H Phase** Adjusts the horizontal timing of the SDI video output.
- **Output 2 H Phase** Adjusts the horizontal timing of the SDI key output.

Displaying Matrox SDI information

To display system usage and other information about Matrox SDI, click the **Matrox SDI** tab, then the **Information** tab.



You may be asked to provide this information if you call the Matrox DigiSuite Customer Support Department for assistance.

Note The T1 and T2 temperatures represent the operating temperatures at the front and back of Matrox SDI, respectively. The T1 temperatures are normally higher than for T2. You should check your card periodically to ensure that the average temperature does not exceed 80°C for T1, or 70° C for T2. The maximum temperature should not exceed 90°C.

DigiSuite customer support

If you have a problem that you're unable to solve by referring to your DigiSuite documentation, please contact your Matrox DigiSuite representative. He or she should be able to help you quickly correct any installation or system configuration problem.

If your representative is unable to solve your problem, you may contact Matrox for further information and assistance.

Registering your DigiSuite product

Only customers who've registered their DigiSuite product are eligible to receive customer support. You can register on our web site at www.matrox.com/video in the Customer Support section.

Registering your DigiSuite product also entitles you to free software updates, special promotional offers, and access to DigiForum, an electronic mailing list for users who want to share their experiences and learn more about DigiSuite.

Contacting us

Matrox is proud to offer worldwide customer support. Please use the contact information for your area.

United States & Canada

Telephone 1 800 810-2550

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