Command Line Tools

for DVS Video Systems

Supplement

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The Command Line Tools

This document supplements various documentations of DVS video systems, such as the manuals and user guides of the CLIPSTER video workstation. It describes some command line tools that may be either delivered to you separately or already included in the installation of a DVS software package.

DVS often provides for a DVS video system further command line tools that may be used for diagnostics or service and maintenance work. The following tools are available:

- DPXPatch
- DVSCopy
- DVSDiskInfo
- DVSDump
- DVSSpeed

They will be described in the upcoming sections.

These tools are command line programs. If included in a DVS software package and already installed on your system, they can be run from any directory path within the system because usually the installation path of the DVS software was added to operating system variable `Path` during the installation.

Most of these command line tools provide help information by simply typing in their command without any further options or values.

S1.1 DPXPatch

Some file formats for clips are capable of storing additional information in their file header. Among those information you can find e.g. details about the image format (color mode, width, height), meta data such as the name of the input device or timecode and keycode information.

Currently, of all file formats supported by DVS only the *.dpx file format is checked for and provided with additional information.

The program DPXPatch modifies the file header information in *.dpx files. With it you can, for example, change the timecode that was written to the correct location in the file header especially reserved for that kind of meta data, i.e. you can change the standard (generic) source timecode that will be provided by the file.

S1.1.1 Starting the Program

The DPXPatch program is a command line program. To run it perform the following:

- Open a command line (for example, via ***All Programs » DVS » Maintenance » cmd***).
- If appropriate, switch to the directory where the executable of the DPXPatch program (*dpxpatch.exe*) is stored.
- Type in the command to control the program with the appropriate syntax as indicated in section “Operation and Syntax” on page S1-4.
- After this press [Enter].

This will start the modification process.

S1.1.2 Exiting the Program

As with most command line programs the program ends once it has finished its task or is terminated manually (e.g. either by closing the command line window or pressing the key combination [Ctrl + C]).

S1.1.3 Operation and Syntax

With the program DPXPatch you can modify the additional information in the file header of *.dpx files. For example, it can change the timecode that was written to the correct location in the file header especially reserved for that kind of meta data, i.e. the standard (generic) source timecode that will be provided by the file.

Syntax: `dpxpatch [options] <filename> <start> <count>`

`[options]`	`-dX`	This option replaces the generic source timecode with one of the timecodes proprietarily stored by DVS in the file header. Replace `X` with: `l` LTC `v` DVITC `d` DLTC
	`-f[d]X`	Determines the timecode frequency used to create the timecode (default: 24, `d` = drop frame). Replace `X` with the frequency, for example: `-fd30` = 29.97 Hz, `-f24` = 25 Hz
	`-m`	Sets all bits within the timecode header that are not timecode bits to zero (`0`).
	`-o=TC`	Overwrites the generic timecode beginning with the start timecode `TC`, for example: `-o=01000000` = start timecode: 01:00:00:00.
	`-sc="xyz"`	Sets the copyright field within the header of the files: `-sc="DVS"` = file copyright by DVS.
	`-si="xyz"`	Sets the input device name within the header of the files: `-si="DVS CLIPSTER"` = CLIPSTER was the input device.
	`-sj="123"`	Sets the input device serial number within the header of the files: `-sj="12345678"` = serial number 12345678.

`-sl=P`	Sets the line padding within the header of the files: `-sl=58` = a padding of 58.
`-sp="xyz"`	Sets the project name within the header of the files: `-sp="Tempest"` = project 'Tempest'.
`-ss="xyz"`	Sets the slate information field within the header of the files: `-ss="Take1, Slate3"` = slate 3 of take 1.
`-su=UB`	Sets the default user bits within the timecode header of the files: `-su=12345678` = user bits: 12345678.
`-v`	Verbose mode enabled. This option will display the timecode that is written to the files. If it is the only option set for DPXPatch, it will give out the standard source timecode and the user bits.

`<filename>` Either a file name of a single file or entered in C notation, usually with the following syntax:

`<string>%0Yd.<ext>`

`<string>`	Preceding string of file name
`%`	Marker that the following is a format string
`0`	If the output of the format string does not provide the stated length, fill it with zeros (`0`)
`Y`	Number of digits, for example, `5`
`d`	Marker that the format string is a decimal number
`<ext>`	File extension

Example: `Hollywood%05d.dpx`

With this setting the file names on the hard disk array should be:
`Hollywood00001.dpx`
`Hollywood00002.dpx`
`Hollywood00003.dpx`
etc.

`<start>` Indicates the start frame (start index).

`<count>` States the number of frames to be processed, usually:
`<last frame no.> - <start> + 1`.

Example:
```
dpxpatch -dl -v V:\capture\test%04d.dpx
0 1000
```

S1.2 DVSCopy

To copy vast amounts of video material from one storage location to another is often a time consuming procedure when performed with the standard tools of an operating system, such as a file manager. To do this in a faster way DVS developed a special program, the DVSCopy program.

To run DVSCopy your system must be equipped with a valid license for it.

S1.2.1 Starting the Program

The DVSCopy program is a command line program. To run it perform the following:

- Open a command line (for example, via ***All Programs » DVS » Maintenance » cmd***).
- If appropriate, switch to the directory where the executable of the DVSCopy program (`dvscopy.exe`) is stored.
- Type in the command to control the respective program with the appropriate syntax as indicated in section "Operation and Syntax" on page S1-8.
- After this press [Enter].

This will start the copying process.

S1.2.2 Exiting the Program

As with most command line programs the program ends once it has finished its task or is terminated manually (e.g. either by closing the command line window or pressing the key combination [Ctrl + C]).

S1.2.3 Operation and Syntax

The DVSCopy program is a high-speed copy program for DVS video systems. It copies files with about four times the speed of a standard operating system copy. You can copy files internally on a system's video hard disk array directly or to/from a DVS-SAN or another disk array.

The DVSCopy program copies the directory tree of the source location to a destination location (directory). If the destination location does not exist, it will be created. If possible, the files will be stored in a defragmentation mode, i.e. by default they will be stored in large coherent blocks on the hard disk array. However, for this the destination location

should be in the NTFS file system. Usually, when started, the program will display the data rate of the current copy every 100 files.

Syntax: `dvscopy [option] <sourcepath> <destpath>`

`[option]`	`-l`	Creates a log file about the copying process in the directory where the DVSCopy program is started.
	`-n`	Turns off the defragmentation mode. Any warning messages that the destination location is not in the NTFS file system, will be repressed as well.
	`-q`	Quiet: Do not display the data rate every 100 files.
	`-v`	Verbose: Shows the data rate for each file copied.
`<sourcepath>`		Source location: Either state a relative or absolute path to the location.
`<destpath>`		Destination location: Either state a relative or absolute path to the location.

Example: `dvscopy -q V:\movie\act01 X:\movie\trash`

S1.3 DVSDiskInfo

The program DVSDiskInfo is a disk utility program for DVS video systems. It will give out general information about the hard disk drive as well as a clip list of all video clips that were found in the entered drive or path.

If available, the clip information list displayed by the DVSDiskInfo program is also used by a defragmentation process of the DVS software to determine whether a defragmentation is necessary.

S1.3.1 Starting the Program

The DVSDiskInfo program is a command line program. To run it perform the following:

- Open a command line (for example, via ***All Programs » DVS » Maintenance » cmd***).
- If appropriate, switch to the directory where the executable of the DVSDiskInfo program (`dvsdiskinfo.exe`) is stored.
- Type in the command to control the respective program with the appropriate syntax as indicated in section "Operation and Syntax" on page S1-10.
- After this press [Enter].

This will display the disk drive and/or path information as well as the clip list.

S1.3.2 Exiting the Program

As with most command line programs the program ends once it has finished its task or is terminated manually (e.g. either by closing the command line window or pressing the key combination [Ctrl + C]).

S1.3.3 Operation and Syntax

The program DVSDiskInfo displays various information about the entered hard disk drive. Furthermore, it will give out a clip list of all video clips that were found in the entered drive or path.

Syntax: `dvsdiskinfo [option] <path>`

`[option]` `-bitmap` After scanning the hard disk(s) and displaying the clip information list the program will create a visual representation of the scanned path. Further information about this can be found in section "The Visual Representation of the Scanned Path" on page S1-11 below.

`<path>` Either state a hard disk drive or an absolute path.

Example: `dvsdiskinfo -bitmap V:\movie\act01`

DVSDiskInfo and the Defragmentation Process

The clip information list displayed by the DVSDiskInfo program is also used during a defragmentation process by the DVS software. The various columns can be used to assess the fragmentation degree of the clips on the hard disk(s).

For the following to be of use, your DVS video system should be equipped either with the separate DVS Defragmentation program or an automatic defragmentation of the video hard disk array performed by the installed DVS software.

The clip list given out by the DVSDiskInfo program will look similar to the following:

```
CLIP FILES   SEGMENTS   MIN   MAX   AVERAGE   MEDIAN   INDEX   CLIP (index)
       667           1   667   667     667.0    667.0           v:\clip1\...
       411           2   197   214     205.5    205.5   205.1   v:\clip2\...
      1510           1  1510  1510    1510.0   1510.0           v:\clip3\...
```

The first row is used to provide captions for the different columns. Besides information about the number of found image files or the amount of segments that contain these files, the output provides a column named 'INDEX'. This column is important for the defragmentation process: If it contains an entry, then the clip is distributed in fragments over the hard disk(s). The smaller this value, the worse the fragmentation; the greater, the better. It can range from one to several thousand. However, if it exceeds 1000 no defragmentation is performed by the DVS software because then each segment contains at least a thousand files that are continuously present on the hard disk.

In case you want to assess the condition of the video hard disk array by yourself, you have to look for entries under the column 'INDEX':

- If none exist, your hard disk array is perfectly defragmented.
- If it contains values over 1000, it is also perfectly defragmented.
- Only if it includes values less than 1000, a defragmentation may be indicated.

For further information about the DVS defragmentation as well as how to start such a process please consult the respective documentation (for example, the user guide of the video system's Edit Tool or the separate DVS Defragmenter manual).

The Visual Representation of the Scanned Path

By adding an optional parameter to the syntax of the DVSDiskInfo program you can create a visual representation of the scanned path after the hard disk was examined and the clip information list was displayed. It will be saved in the **.dpx* file format under the path that has been selected for the scanning with the following file name:

DVS_DiskInfo_yyyymmdd_hh-mm-ss.dpx

In case of hard disk related problems with your DVS video system you may get asked by the DVS service department to create such an image file and send it to an E-mail address provided by the DVS service technician.

The file will show you a representation of the scanned path where each square represents a data cluster on the hard disk array. It has to be interpreted line-wise from left to right.

After the creation of such a file the output of the DVSDiskInfo program provides you with a color legend that can be used to distinguish the different meanings of the colored squares. Additionally, you will be asked whether you want to view the file right now. To view the file you have to press any key on your keyboard except the [Esc] key which will end the DVSDiskInfo program without showing the created visual representation.

The file will be opened in the program associated with the **.dpx* file extension. If you do not have a program available to display this file format, you can usually use the DVS software for this task.

S1.4 DVSDump

The DVSDump program provides you with a list of known header fields of files in the formats *.dpx, *.cin, *.tif, *.bmp, *.aif(f), or *.wav. You may use it to verify files that cannot be read or used during real-time operations.

S1.4.1 Starting the Program

The DVSDump program is a command line program. To run it perform the following:

- Open a command line (for example, via ***All Programs » DVS » Maintenance » cmd***).
- If appropriate, switch to the directory where the executable of the DVSDump program (*dvsdump.exe*) is stored.
- Type in the command to control the respective program with the appropriate syntax as indicated in section "Operation and Syntax" on page S1-13.
- After this press [Enter].

This will display the header fields.

S1.4.2 Exiting the Program

As with most command line programs the program ends once it has finished its task or is terminated manually (e.g. either by closing the command line window or pressing the key combination [Ctrl + C]).

S1.4.3 Operation and Syntax

The DVSDump program provides you with a list of known header fields of files in the formats *.dpx, *.cin, *.tif, *.bmp, *.aif(f), or *.wav. Some information available in *.avi files can also be displayed with this program. You may use it to verify files that cannot be read or used during real-time operations.

There are two ways to use this program: You can use it on a single file or on a range of files:

Syntax	Usage	Result
1	on a single file	Provides you with a list of all known header fields of this file.
2	on a range of files	Provides you with a list of the standard (generic) source timecodes and user bits in `*.dpx` files. When used with other file formats, it will give out a continuous list of all known header fields of each file.

Syntax 1: `dvsdump [option] <filename>`

`[option]` `-h` Hexdump: Displays the file in hexadecimal code.

`-h=X` Hexdump: Displays the file in hexadecimal code from the provided offset onwards. Replace `X` with the offset, for example:

`-h=1240` = offset of address 0x1240.

`<filename>` Standard file name of a single image file.

Example: `dvsdump -h V:\capture\test0124.dpx`

Syntax 2: `dvsdump [option] <filename> <start> <end>`

`[option]` `-h` Hexdump: Displays the files in hexadecimal code.

`-h=X` Hexdump: Displays the files in hexadecimal code from the provided offset onwards. Replace `X` with the offset, for example:

`-h=1240` = offset of address 0x1240.

`<filename>` Entered in C notation, usually with the following syntax:

`<string>%0Yd.<ext>`

`<string>` Preceding string of file name

	`%`	Marker that the following is a format string
	`0`	If the output of the format string does not provide the stated length, fill it with zeros (`0`)
	`Y`	Number of digits, for example, `5`
	`d`	Marker that the format string is a decimal number
	`<ext>`	File extension
	Example:	`Hollywood%05d.dpx` With this setting the file names on the hard disk array should be: *`Hollywood00001.dpx`* *`Hollywood00002.dpx`* *`Hollywood00003.dpx`* etc.
`<start>`	Indicates the start frame (start index).	
`<end>`	Indicates the last frame (stop index).	

Example: `dvsdump V:\capture\test%04d.dpx 0 1000`

S1.5 DVSSpeed

The program DVSSpeed evaluates the speed of the entered hard disk drive. Usually, the hard disk drive should be the video hard disk array connected to the DVS video system.

S1.5.1 Starting the Program

The DVSSpeed program is a command line program. To run it perform the following:

- Open a command line (for example, via ***All Programs » DVS » Maintenance » cmd***).
- If appropriate, switch to the directory where the executable of the DVSSpeed program (`dvsspeed.exe`) is stored.
- Type in the command to control the respective program with the appropriate syntax as indicated in section "Exiting the Program" on page S1-15.
- After this press [Enter].

This will start the evaluation process.

S1.5.2 Exiting the Program

As with most command line programs the program ends once it has finished its task or is terminated manually (e.g. either by closing the command line window or pressing the key combination [Ctrl + C]).

S1.5.3 Operation and Syntax

The program DVSSpeed evaluates the real-time capability, i.e. the speed, of the video hard disk array connected to the DVS video system. Used with its default values it writes the stated number of HD images in the file format `*.dpx` (RGB, raster 1920 × 1080) to the entered path to test its speed. As a standard it writes the data as fast as possible to the hard disks. Afterwards an evaluation will be given in numbers that may be useful for the DVS service department.

With its default values the program DVSSpeed will write image files to the specified path. They will not be deleted automatically afterwards and, if applicable, have to be removed manually.

Syntax: `dvsspeed [options] <pathname> <numfiles> [<numasyncio> [<xsize> <ysize>]]`

`[options]`

- `-r` Read: Reads the stated files (instead of write). For this the file names should be in the following format:

  `<pathname>.%06d.dpx`
- `-v` Verbose: Shows the frame and data rate for each processed file.
- `-t` Throttled: Adjusts the frequency (frame rate) to 24 Hz, meaning 24 frames are processed per second.
- `-n` Throttled: Adjusts the frequency (frame rate) to 30 Hz, meaning 30 frames are processed per second.
- `-p` Throttled: Adjusts the frequency (frame rate) to 25 Hz, meaning 25 frames are processed per second.
- `-y` Processes YUV files instead of RGB files.

`<pathname>` Indicates the path and the name of the files. It should be provided in the following format:

`<drive>:\<path>\<name>`

The term `<name>` indicates the name of the image files. It will be filled out with: `<name>.%06d.dpx`

`<numfiles>` Sets the amount of files to be processed.

`<numasyncio>` Sets the number of threads that should be used by the real-time core of the DVS video system to create or read the files (multi-threaded I/O mode, range: from 1 to 16 threads, default: 1):

`<xsize>` States the width of the video images (x-axis) in pixels (default: 1920).

`<ysize>` States the height of the video images (y-axis) in pixels (default: 1080).

Example: `dvsspeed -n -v V:\test\clip 100 5 2048 1556`