SCREEN Thief

The Ultimate Screen Capture System

SCREEN Thief was written by Jim Hoggarth


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# INTRODUCTION

## Overview

SCREEN Thief has been designed to solve a range of problems and annoyances found with other screen grabbing programs. Many examples exist, often bundled with a graphic manipulation tool or paint package but sometimes marketed separately. We reckon that SCREEN Thief succeeds where the rest fail.

Specific problems that have been solved include loss of colour attribute information and corrupt palettes plus the awareness of graphic adapter effects such as horizontal and vertical pixel panning and split screens. SCREEN Thief easily copes with non-standard video modes employed by games, such as 320 by 240 pixels in 256 colours. It also takes programmed soft fonts into full consideration when capturing text mode screens. Indeed, we believe that whatever the standard VGA graphic adapter is capable of displaying, SCREEN Thief can capture.

This sophisticated 'total solution' also extends to the hot-key used to trigger a screen capture. Many programs, particularly games, prevent capture with lesser grabbing packages because they steal the keyboard interrupt vector and refuse to pass interrupts back to previously installed programs. Solutions to this problem have so far included delayed-action grabbing, which is inaccurate to say the least and also fails where a program steals the system timer interrupt used for counting out the delay period.

SCREEN Thief gets around this major problem by secretly reprogramming the interrupt hardware to a different set of vectors. When a program steals the keyboard or timer interrupt it no longer gets first pick, but a fake hardware interrupt generated by SCREEN Thief's resident code. This technique works in all but a few rare instances. Another implication is that, with some restrictions, screens can also be captured under Microsoft Windows even though SCREEN Thief is a DOS-hosted program.

One further positive feature is that SCREEN Thief creates output files in any of several common image formats (GIF, TIF, PCX or BMP), as well as text formats, rather than through a proprietary interim file which requires a second conversion stage before use. When combined with a host of other configurable options, intelligent image file naming and an extensive internal help system, you can see that SCREEN Thief is the ultimate screen capture package for the professional user.

Finally, through absolute use of machine code and clever memory optimisations, you will find SCREEN Thief to be one of the most compact Terminate and Stay Resident (TSR) programs you ever load. It can use EMS memory, Upper Memory Blocks provided by an

XMS/UMB driver or similar and normal system memory to maximum effect. Typical system memory use amounts to just over 2K. Even when loaded on a PC with no EMS or UMB memory, requirements can be as low as 9K.

## System Requirements

SCREEN Thief has a number of important minimum hardware and software requirements. A VGA graphics adapter, on-board VGA controller or register-level compatible is essential. SCREEN Thief cannot work with the MDA, Hercules, CGA or EGA adapters even though it will successfully capture their equivalent video modes on the VGA. The host PC needs to be an 80286 or better based IBM AT or close compatible. A hard disk is not essential but highly recommended. Finally, MSDOS version 3.10 or higher is essential.

## Support

Full lifetime support is provided to all registered users of SCREEN Thief direct from Nildram Software. Check the front of this manual for contact details. You will also be notified of all major upgrades, and offered them at a special reduced price. Make sure you return your registration card if you didn't purchase SCREEN Thief direct from Nildram Software, or you won't be eligible for support, and we won't be able to tell you about any upgrades.

## Disclaimer

Users of SCREEN Thief must accept this disclaimer of warranty:

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## The ASP

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# GETTING STARTED

## Installation

To install SCREEN Thief, insert the disk supplied into a drive and then select that drive by typing "A:" or "B:" as appropriate followed by <ENTER>. Next, type "INSTALL", press <ENTER> and follow the on-screen instructions. You will be asked for a destination drive and path for SCREEN Thief which default to "C:" and "\ST" respectively. Change these if necessary, although it will be easier to stay with the defaults as they will be used in the various examples.

## Running SCREEN Thief

To run SCREEN Thief with the default settings, change to the "\ST" directory and simply type "ST". SCREEN Thief will then be installed and you can run whatever program you need to grab a screen from. To actually grab a screen, press the <CTRL>, <ALT> and <T> keys together and you will hear a clicking noise from your PC speaker as SCREEN Thief is working. The image file produced will be in colour GIF format and given a name consisting of the first 6 letters of the name of the program currently being run followed by a number, eg, "FILENA01.GIF". This file will be saved to the current directory but you can specify a different directory when you run SCREEN Thief as follows:

```
ST C:\CAPTURE
```

This will save all captured image files to the "C:\CAPTURE" directory.

## The Command Line

All of SCREEN Thief's operational characteristics are controlled by command line parameters, mostly switches. Once installed, all changes to the way SCREEN Thief operates can only be made via the command line. All the various command line parameters are covered in detail in the Reference Section of this manual, but the more commonly used ones will be covered here. These parameters are:

/OUTPUT  Sets the Output Image File Format to either GIF, TIFF, PCX, BMP or one of the text output formats, ASC, TXT or SCR. The default setting is GIF and the syntax of this switch is /O:TIFF.

/MONO Enables and disables Mono Translation, ie, producing a black and white image. The default setting is disabled and the syntax of this switch is /M+ to enable and /M- to disable.

/UNLOAD  Removes SCREEN Thief from memory. This is the only way to correctly remove SCREEN Thief from memory; do not use programs such as MARK and RELEASE. The syntax of this switch is /U.

## Example

To use SCREEN Thief to capture screens and output them in mono PCX format to a directory called C:\PICTURES, type the following:

```
ST C:\PICTURES /M+ /O:PCX
```

Once SCREEN Thief is loaded in this way, you could then, for example, change the output file format by typing the following from the \ST Directory:

```
ST /O:GIF
```

Each time you make a change, the SCREEN Thief window will pop up showing the new setup.

## The SCREENTHIEF Environment Variable

If you regularly use a particular setup for SCREEN Thief that is not the same as the default setup, you can avoid having to type all the command line switches each time, as in the example above, by using an environment variable. This is a string containing the required command line parameters that is placed in the AUTOEXEC.BAT file using the DOS SET command as in the example below:

```
SET SCREENTHIEF=C:\PICTURES /M+ /O:PCX
```

This will then use these parameters every time SCREEN Thief is run, overriding the defaults so that you only need to type "ST" to access your most used setup. The command line parameters will override the environment variable so you can still run SCREEN Thief differently as necessary.

## The SCREEN Thief Configuration File

Although the Environment Variable allows you to set SCREEN Thief up to a certain extent, you may have various configurations for specific tasks that you would like to automate. This is possible using the Configuration File. Any parameters on the command line (or within the SCREENTHIEF environment setting) which do not follow a switch character will first be compared against the Configuration File. This is a simple text file such as can be created with any text editor or word processor in ascii mode. It must be called CONFIG.ST and exist in the same directory as the ST executable file.

Configuration entries are implemented in the same way as the environment string, but each is preceded with a unique name. Each configuration must start on a new line, with a maximum line length of 255 characters including the config name. Any characters beyond this are truncated. For example:

```
REVIEWS=N:\PUB\REVIEWS\PCX /RGB+ /M- /O:PCX /K:50 /SH:OFF
BOOKS=N:\PUB\BOOKS\GRABS /RGB- /MONO /O:GIF /K:01 /SH:CL
```

This allows easy switching between different configurations based solely on a customer, project or user name. However, note that any option changed in one configuration will need to be changed in every other configuration unless valid for all cases.

Configuration names are allowed within the environment string and on the command line. Multiple configuration names are also permitted, but nesting is not. This means that a config entry cannot name another within its command line. Configurations can also be used in isolation or in addition to other command line switches.

If no matching entry is found within the CONFIG.ST file SCREEN Thief will then attempt to use it as an image file directory name and check its validity accordingly.

## The Help System

SCREEN Thief has an extensive help system that may be used in one of two ways. Firstly, if an error occurs, the help system will be automatically started, the error message displayed and the correct subject highlighted. Simply press the right-arrow key to expand the help screen for further information. Please note that not all errors will produce this automatic help; some, such as "Directory Non Existent" that are self-explanatory, just bring up an error message and quit the program.

Secondly, the help system may be started without actually loading SCREEN Thief, by typing "ST /?" from the "\ST" directory. You will see the SCREEN Thief window on the screen at this point containing a list of help subjects. Select the subject you require using the up-arrow and down-arrow keys and then press the right-arrow key to expand the help screen. Where applicable, use the up-arrow and down-arrow or the page-up and page-down keys to view the text in the expanded help screen. The left-arrow key will return you to the list of help subjects.

## System Crashes

If SCREEN Thief crashes your machine when run, or when you attempt to grab a screen, you should first suspect the base interrupt vector setting (see /INTERRUPT for more details). This

is by far the most likely cause of a system crash, and you can work around it by specifying a different base interrupt vector by using the /INTERRUPT command line switch.

The second most likely cause of a system crash is if a program interferes with SCREEN Thief's buffers. To work around this problem, use the /BUFFERS switch to force SCREEN Thief to use a specific area of memory for its buffer storage.

# REFERENCE

## Output Image File Naming

SCREEN Thief attempts to intelligently name the Output Image File by extracting the executable name of the underlying program, from which the first six characters are taken. To this is added a two digit number from 01 through to 99. The extension used depends on the output format, such as GIF, BMP etc. The directory into which the image is saved depends on the path name given at the command line when SCREEN Thief was installed.

However, if SCREEN Thief detects that you are at the command line prompt, the file name SCREEN is used. SCREEN Thief always fills any gaps, creating SCREEN01.* first even when SCREEN02.* and so on exist. If you capture screens under Windows (other than in a DOS box under 386 Enhanced Mode), the file will be named WIN with the same two digit number added to give WIN01.*, WIN02.* and so on.

The only exception is where Numeric Naming is enabled with the /NUMERIC switch. All Image files are then named from 00000001.* through to 99999999.*.

## Use Under Microsoft Windows

SCREEN Thief will successfully work under MS Windows even though it is a DOS-hosted application, with certain exceptions. Windows versions prior to 3.0 are not supported, nor is Real Mode. The two distinct Standard and 386 Enhanced modes are also handled quite differently.

### Standard Mode

In order to capture the complete screen (including active menus, the cursor etc.), you must run Windows in Standard Mode with the WIN /S command. The same capture hot-key works as before, although you may wish to choose a hot-key which does not conflict with any Windows application accelerator keys. Also be cautious about Super VGA cards which are supplied with Windows drivers but which SCREEN Thief does not yet support in high resolution modes. One further restriction is that no changes can be made to SCREEN Thief from the command line (through DOSPRMPT) that require major changes to the SCREEN Thief video, control and output encoder buffers. An error will be shown if this is the case.

### 386 Enhanced Mode

If you attempt to run Windows in 386 Enhanced Mode with SCREEN Thief resident, a message will appear after the Windows logo asking you to use the /S switch or to remove SCREEN Thief from

memory. Once up and running in 386 Mode, SCREEN Thief can be run again from within a DOS box. However, the capture hot-key is only active when the DOS window has focus, and then only the contents of the window are captured. It is handled as a virtual Standard VGA adapter and extended modes when the DOS box is full screen are not fully supported.

## Interpreting The Audio Signals

When capturing a screen, SCREEN Thief lets you know about its progress by means of a series of clicks over the speaker. It follows these with a single high-pitched tone to indicate that it has successfully completed the capture. An error is indicated by a series of two tones, the first one higher than the second.

The clicks can be disabled using the /CLICKS- switch. In this case, SCREEN Thief gives a single mid-tone beep instead of the clicks. The final high-pitched beep or two-tone error signal will still be present at the end of a capture.

## SuperVGA Adapter Support

Although SCREEN Thief is primarily designed for use with the standard VGA graphics card, continual development means that support for certain SuperVGA (SVGA) cards is already present in this version.

In any case, SCREEN Thief should be able to capture all but the odd few extended text mode screens provided by the majority of SVGA cards, such as 132 columns by 25, 30, 43 or 60 rows. The only occasions where this will fail are where a text mode character cell is other than the standard eight or nine pixels wide. Nildram Software are already aware that some cards use character cells seven or ten pixels wide. Support for these modes may be available in a future version, although this is not a priority task.

Specific graphics mode support for extended SVGA systems includes:

The Trident family of video adapters (the most popular of which use the TVGA8900 and TVGA9000 chip sets).

Paradise and Western Digital cards which use the PVGA1A chip.

SVGA cards based on the Cirrus Logic CL-GD5422 single chip controller.

Oak Technology cards using the OTI-037C (256K) and OTI-077 (1024K) chips.

S3 cards using the base level 86c911 chip variant.

Tseng cards using the ET4000 chip.

These SVGA adapters have been tested extensively over a wide range of supporting software, native video modes and even product specific video drivers such as for Microsoft Windows.

Although we cannot guarantee a successful screen capture every time on these SVGA cards, users with these named products or graphic cards which use the same chip sets should find that even the highest resolution screens can be captured perfectly. On-going development will undoubtedly add many more popular SVGA card types to this list.

# COMMAND LINE SWITCHES

## Syntax Rules

All command line switches must follow the same format. Both the usual '/' and UNIX-style '-' switch characters are recognised, although the first is preferred under DOS. The '-' character may also confuse those switches which take an optional plus or minus sign to enable or disable features.

This is followed by the switch name in lower or upper case or a combination of both. The full switch may be given or a shortened version. The absolute minimum is enough characters to uniquely distinguish each switch. The present design of SCREEN Thief is such that only the first character of each switch name is required in all instances. For example, /EGAFONTS, /EGA and /E are all equivalent.

Where a switch requires a numeric, character or string value, the switch name and this additional parameter value must be separated by a colon character (:) or optionally the equals character (=). As with the switch names, any string parameter need only be so long as to be recognisable, as in /VIDEO:TRID for the Trident video adapter driver.

Where a switch takes a plus/minus sign for enabling/disabling a feature, no colon (:) or equals (=) separator is required. If the switch name alone is given, or followed by the optional plus (+) sign, the feature is enabled. Disabling the feature requires the same switch name followed by a minus sign (-). No white space is allowed between the name and the plus/minus.

Any complete switch sequence must then be followed by either a space, end of line or another switch character. It can be seen that the following are all equivalent. It is left to the user to choose their particular style preference:

```
/INT:A0
-i=A0
/INTERRUPT=a0
-Inter:a0
```

## Switch Summary

```
/BLINKATTR:stringSelect the Attribute for Blinking Pixels
/BUFFERS:string         Select the Control Buffer Area
/CLICKS[+|-]            Disable the Scan Line Clicks
/COMPRESSION[+|-]       Choose a Compressed Image File Format
/COREDUMP[+|-]          Dump the Control Core to File
/EGAFONTS[+|-]          Use EGA Fonts for Text Mode Captures
/FULLFRAME[+|-]         Generate True Raster Output Images
/INTERRUPT:hex          Select the PIC Interrupt Base
```

| | |
|---|---|
| /KEY:char\|hex | Set the Screen Capture Hot-Key |
| /LZW:num | Choose the LZW Compression Level |
| /MONO[+\|-] | Mono Translate for Text Mode Captures |
| /NUMERIC[+\|-] | Select Numeric Output Image File Naming |
| /OUTPUT:string | Specify the Output Image File Format |
| /REGISTER | Register the TEST DRIVE version |
| /RGB[+\|-] | Quick Support for 24-bit RGB Output |
| /RTCREFRESH[+\|-] | Disable Real Time Clock Refresh |
| /SHIFTS:string | Set the Screen Capture Hot-Key Shifts |
| /STREAMSIZE:num | Set the Output Image Stream Size |
| /UNLOAD | Unload SCREEN Thief from Memory |
| /VIDEO:string | Override the VGA Chip Set |
| /WIDTH:num | Set the Maximum Screen Capture Width |
| /? | Display the Help Screens |

Default Settings

Running SCREEN Thief without any command line or environment options results in the following default settings:

| | |
|---|---|
| Blink Attribute | HIGH |
| Buffers | All searched |
| Clicks | ON |
| Compression | ON |
| Core Dump | OFF |
| EGA Fonts | OFF |
| Full Frame | OFF |
| Hot Key | <ALT><CTRL><T> |
| Interrupt Base | D8 hex |
| LZW Compress Level | 4 |
| Mono Translate | OFF |
| Numeric Naming | OFF |
| Output Format | GIF |
| Output Directory | Current |
| RGB | OFF |
| RTC Refresh | ON |
| Stream Size | 768 bytes |
| Max Width | 1,188 pixels |

/BLINKATTR

Syntax: /BLINKATTR:string

This switch controls how the attribute associated with a blinking pixel in 16-colour graphics mode is interpreted. It takes one of two string values, either /BLINKATTR:HIGH or /BLINKATTR:LOW.

The VGA controller creates a blinking effect by toggling the high bit of the pixel's attribute. This alternates between two colours in the low and high halves of the 16-colour palette. Normally the palette is designed so that the high entry is

visible or intense, and the low entry is black or at normal intensity. This is also the default assumed by SCREEN Thief.

In some instances the palette is programmed in the opposite sense and selecting the attribute from the top half of the palette will cause the blinking pixels to look black (or invisible relative to the surrounding pixels) in the created image. Use /BLINKATTR:LOW to force attribute selection from the lower half of the palette.

/BUFFERS

Syntax: /BUFFERS:string

This switch defines the memory area used to store the SCREEN Thief video driver, output image encoder and control buffers. It accepts the string values UMB, EMS, HIGH and LOW. These correspond to the following memory areas:

UMB Upper Memory Blocks as provided by HIMEM.SYS plus EMM386.EXE or any equivalent UMB provider such as UMB_DRV.SYS. SCREEN Thief does not use protected mode memory over 1MB, only free UMB space between 640K and 1MB.

EMS Memory pages provided by a hardware or software LIM/EMS 3.20+ driver. As the minimum granularity provided by EMS pages is 16K many of the switches which limit memory use are obsolete. To obtain a report on EMS page usage run the external MS-DOS command MEM /D. The pages allocated to ST will be shown as a hexadecimal byte count, but only for EMS drivers version 4.00 or higher.

HIGH Normal DOS memory allocated at the end of the DOS control block chain. This differs from the normal practice of memory allocation from low memory and upwards. The benefit is that previous buffers can be freed and reallocated without leaving holes in the memory chain. This method may fail when badly written programs incorrectly make the assumption that all memory from their base segment up to the end of system RAM is available for use.

LOW Normal DOS memory allocated from the lowest empty area and up. Any subsequent changes to the buffer setting could cause holes to appear in the memory allocation chain, especially where other resident programs are loaded after SCREEN Thief. This type of allocation is only recommended when HIGH fails due to a program overwriting memory space that is not allocated to it.

No provision is made for use of the HMA (High Memory Area). It is assumed that the DOS kernel is loaded high, and the HMA is ignored even if free. Note that SCREEN Thief does not attempt to split its buffers between different areas, nor can it use any non-contiguous blocks in the same area.

Once loaded, if a command line switch requires one of the encoder, video or control buffers to be replaced or resized, all are dumped and reloaded accordingly. Unless overruled by the /BUFFERS switch, SCREEN Thief will always re-use the same buffer areas. This could result in the buffers being discarded and not reloaded if this new size requirement no longer fits within available memory. Capturing a screen will immediately fail with an error beep (Last Error will show Control Buffers Absent). You should rerun SCREEN Thief with a different and valid /BUFFERS switch setting.

/CLICKS

Syntax: /CLICKS[+|-]

This switch enables and disables the audible scan line clicks. Use /CL on its own or /CL+ to enable, /CL- to disable. The default setting is enabled or ON.

SCREEN Thief indicates the progress of a capture through the PC's loudspeaker. As each output image scan line is sent to be encoded a click is generated. This lets the user know the speed at which the capture is progressing and that all is well. If required this clicking or rasping noise can be disabled, to be replaced by one mid-tone beep at the start of each image. In all cases the final single beep indicating success or the two-tone beep warning of an error will still be heard.

/COMPRESSION

Syntax: /COMPRESSION[+|-]

This switch enables and disables Output Image File Compression. Use /COM on its own or /COM+ to enable, /COM- to disable. The default setting is enabled or ON.

The TIFF and BMP outputs cater for both compressed and standard image data representations, and this switch allows you to choose whether compression is applied. TIFF files use LZW compression and thus the /LZW switch will also affect the output image file. BMP files use an RLE method of compression which applies only to 4-bit and 8-bit image data.

Note that this switch has no effect on GIF or PCX output image formats as these use compression by default. Nor does it apply to any 'non-image' output formats such as TXT and SCR.

/COREDUMP

Syntax: /COREDUMP[+|-]

This switch enables and disables the Core Dump feature. Use /COR on its own or /COR+ to enable, /COR- to disable. The default setting is disabled or OFF.

The Core Dump facility is provided for post-mortem debugging of SCREEN Thief problems or incompatibilities. If a screen cannot be successfully captured, either because the output image is corrupt, does not represent the actual screen displayed or because SCREEN Thief refuses to capture a screen for any reason, the Core Dump can be enabled and a second attempt made at capturing the same screen.

Any output image file and the generated core dump debug file can be analysed by Nildram Software and a solution sought. The generated file is of a binary type and unsuitable for diagnostic purposes of the user. The file is always named COREDUMP.ST and saved in the same directory as the captured screen image file. Normally you can ignore this feature unless requested by Nildram Software Technical Support.

/EGAFONTS

Syntax: /EGAFONTS[+|-]

This switch enables and disables the EGA Fonts feature. Use /E on its own or /E+ to enable, /E- to disable. The default setting is disabled or OFF.

When enabled SCREEN Thief will ignore the video RAM font data for text modes and use the standard EGA 8 x 14 ROM font in generating the output image. This feature is required where 80 col by 25 row screens (standard DOS text mode) are to be redisplayed as part of an animation or tutorial. Normally SCREEN Thief will generate any images at 720 x 400 pixels in accordance with the 9 x 16 VGA font which is unsuitable for playback in standard graphic modes. Using the EGA font option produces images at 640 x 350 pixel resolution and these can be redisplayed in the EGA/VGA's standard mode 10h.

Programs which use advanced VGA features such as split screens or pixel panning will probably result in corrupt images when the EGA Fonts option is used.

/FULLFRAME

Syntax: /FULLFRAME[+|-]

This switch enables or disables the Full Frame feature for 256 colour graphics modes. Use /F on its own or /F+ to enable, /F- to disable. The default setting is disabled or OFF.

When displaying 200-line (and non-standard 240-line) 256 colour modes, the VGA controller in fact displays a 400-line raster by regarding each pixel as a 2-cell high matrix. Ordinarily SCREEN Thief will compensate for this and generate output with no scan line duplication. However, when a split screen is in effect and the line compare register has been programmed with an even scan line number, the VGA causes a split between two duplicate lines resulting in an extra half scan line in each split area. It is impossible to emulate this unless the true, full frame of lines is sent to the output encoder. The /FULLFRAME switch will force this option on, and in order to retain the aspect ratio, pixels within each scan line are also duplicated. Thus 320 by 200 mode generates a 640 by 400 output image.

/INTERRUPT

Syntax: /INTERRUPT:hex

This switch selects the base interrupt vector. It takes a hexadecimal number in the range 78h through to E0h. The default is D8h. SCREEN Thief requires a consecutive run of eight unused interrupt vectors, and it is essential that those chosen do not conflict with other software packages or hardware devices. The allowed range is deliberately limited to avoid those vectors always or likely to be used in all PC installations.

Normally you will not come across conflicts unless specialist hardware is being used. Software packages rarely use interrupts in this region, and if they do they should have the fact documented and the ability to change as required to avoid conflicts. If you ever suffer from system crashes or hardware lock-ups, suspect this base interrupt value first. If in any doubt try booting your PC from minimal system floppy disk, and perhaps removing or disabling any expansion cards suspected of being in conflict.

Note that the /INTERRUPT switch is only concerned with initial installation. Any further use of this switch is considered an error. If you wish to change the interrupt base, /UNLOAD SCREEN Thief and re-install with the new interrupt base value.

/KEY

Syntax: /KEY:[char|hex|string]

This switch selects the character, function or other key used in combination with the shift keys (selected with the /SHIFTS switch) which make up the screen capture hot-key. It accepts single character values for the alphanumeric keys found on the standard QWERTY keyboard layout, string values covering the twelve possible function keys and hexadecimal values for any remaining keys and non-QWERTY keyboard types (refer to the

Keyboard Scan Codes section elsewhere).

/KEY:char  Single characters in the range A through Z and 0 through 9. The default is set as T.

/KEY:str  The function key names F1 through F12 only.

/KEY:hex  A two digit hexadecimal number which is a valid PC keyboard scancode, other than 1D, 2A, 36 and 38 which are the codes for the four shift keys. A program, "SCANCODE.COM" is provided which will tell you the scan code for each key on your keyboard. Simply run SCANCODE and then press the key you require. When you have finished, you should press <ENTER> twice to exit SCANCODE.

Upper or lower case characters can be used.

/LZW

Syntax:  /LZW:number

This switch selects the size of code look-up table needed by the LZW data compression routine used by the GIF Output Image format and by the TIFF Output Image format if compression is enabled. It accepts a single character numeric value in the range 1 through 8, where 1 is the smallest and 8 is the largest and maximum size of table.

This switch affects the SCREEN Thief memory requirements, speed at which the GIF image is saved to disk and the size of the final image file. A value of 1 allocates a small table which uses little memory, is quickly filled and often cleared for reuse. Image file size is at its largest, often by a factor of four or five. Progressively larger values up to the maximum of 8 increase memory requirements and the time taken to generate the image file, but the resultant file size is much reduced. The default value is 4.

/MONO

Syntax:  /MONO[+|-]

This switch enables and disables Mono Translation. Use /M on its own or /M+ to enable, /M- to disable. The default is disabled or OFF.

When enabled SCREEN Thief ignores all attribute information within text mode. Output is in two colour, black on white (although the image written to file may be in 4- or 16-colour format, using just the colours white and black). Black pixels are those where the Font data bits are set. White pixels are those where the font data bits are cleared (zero). This is the

opposite of any displayed image (regardless of colour content) where the assumption is white on black.

This feature is specifically designed to capture screens for use in single colour printing, such as manuals and user guides, where four or spot colour printing is not available or desired. Note that at present no account is taken of any inverse attributes.

/NUMERIC

Syntax: /NUMERIC[+|-]

This switch enables and disables Numeric Output File Naming. Use /N on its own or /N+ to enable, /N- to disable. The default is disabled or OFF.

Normally the output image file name is constructed from two parts. SCREEN Thief attempts to extract the executable file name from the underlying application, using at most six characters from this name. To this is appended a consecutive number from 01 through 99.

Enabling the Numeric Output dispenses with the executable file name part and generates files from 00000001 and up. The extension used always depends on the output image format (GIF, PCX etc).

/OUTPUT

Syntax: /OUTPUT:string

This switch selects the output image format encoder to be used for all screen capture. It takes a string value which names the format. Currently supported formats are GIF, PCX, TIFF, BMP, ASC (ascii), TXT (text) and SCR (screen).

Note that for all output formats, when capturing a monochrome image (as opposed to a 2-colour image), SCREEN Thief will always produce a 16-colour image file. Monochrome modes require three colours anyway for black, white and intense white, and as some formats do not support 4-colour images, they are simply promoted to 16-colour by default.

GIF CompuServe GIF format is a highly compact image format which uses LZW compression as standard. It has undergone few specification changes over the years and as such is an extremely stable and well defined format. All of the major paint, DTP and image conversion programs can use this format successfully. GIF supports images at resolutions of 2, 4, 16 and 256 colours. For 15/16/24-bit RGB images another format is required, such as PCX or TIFF. Use the /LZW switch to modify the size of the look-up

table used by the compressor. GIF format also overrules the /COMPRESS switch.

PCX  ZSoft PCX format is one of the industry standard formats, although there can be problems with file compatibility between applications. SCREEN Thief always generates Type 5 PCX files regardless of colour content, as most programs now seem to work with that type. The PCX format can support images at resolutions of 2, 4, 16 and 256 colours, plus 24-bit for HiColor and True Color images. SCREEN Thief, however, will not use the 4-colour format because of possible compatibility problems and will always promote 4-colour images to 16-colour. The PCX format incorporates RLE image compression as standard. This is not affected by the /LZW or /COMPRESSION switches.

TIFF  Aldus/Microsoft TIFF format is another standard image format popular in the Desktop Publishing, printing and document processing industries. It directly supports all the colour resolutions that SCREEN Thief also handles and as such is a good format for general use. The TIFF specification allows for a number of compression formats and SCREEN Thief will generate TIFF files using the LZW algorithm if compression is enabled with the /COMPRESSION:ON switch. The /LZW switch may also be used to modify the size of the look-up table used by the compressor. However, as SCREEN Thief generates TIFF image 'strips' at the recommended size of 8K, and as the standard requires that each strip starts with a empty LZW look-up table, TIFF file compression will rarely match the best results obtained from the GIF format. It may be found that the /LZW switch has little effect on output image size, particularly with full colour photo-realistic images.

BMP  Microsoft Windows BMP format is the best choice where the output image will ultimately be used in the Windows environment. It directly supports all the colour resolutions that SCREEN Thief also handles. Output is always in Device Independent Bitmap (DIB) format as used by Windows 3.0 and higher with optional RLE encoding when enabled with the /COMPRESSION:ON switch. As the BMP type does not support 4-colour images these will be automatically promoted to 16-colours, although the majority of BMP file viewers and tools will report these as being only 4-colour. NOTE: If the BMP files are intended for further editing within the Windows Paintbrush program, set RLE compression off with /COMPRESSION:OFF. Paintbrush does not understand the RLE format.

ASC  This is one of the three character based output formats. It only applies to text mode screens and an error will be issued if any attempt is made to capture a graphics screen. Output comprises text characters extracted from the display, without attributes, and encompassing the full IBM/ASCII character set, that is in the range 0 through FF. The ASC format also adds an end of line (CR/LF) to each character row and removes all trailing space characters. Other than this non-printable

characters remain within the output. Use the TXT format to remove all non-printing characters from the text. Use the SCR format for capturing the complete screen, including attribute information. Note that although any byte panning programmed into the VGA adaptor can be accounted for in the output, horizontal and vertical pixel panning cannot be handled in any of the three character based output formats. Also note that split screen effects are ignored.

TXT  The TXT output format is functionally the same as the ASC format (see above). However, all of the non-printable characters are replaced with space characters. A TXT file consists of just the ASCII character codes 20h through 7Eh.

SCR  The SCR output format is simply a data dump of the visible screen character and attribute data. No additional information is added such as line breaks, and is not a directly 'printable' format. Each screen character occupies two bytes in the output file, the character code followed by its associated attribute byte. Thus an 80 x 25 screen generates a 4,000 byte file. The first character and attribute pair in the file comes from the top left origin of the screen.

/REGISTER

Syntax:  /REGISTER

This switch is relevant to the TEST DRIVE version of SCREEN Thief only. When used a registration info screen is displayed. You also have the option to print out a registration form for completion and signing, to be accompanied with the registration payment.

Note that any other command line switches or parameters will be ignored if this switch is present (although if syntax errors are encountered in any of the parameters preceding the /REGISTER switch, an error message will be displayed and the help system will probably appear). No configuration changes will be made to a currently installed copy of SCREEN Thief, nor will SCREEN Thief install itself in memory if not yet present.

/RGB

Syntax:  /RGB[+|-]

This switch acts as a quick method of trebling the Max Width setting, rather than changing through the /WIDTH switch. Use /RGB on its own or /RGB+ to enable, /RGB- to disable. The default is disabled or OFF.

Enabling this feature automatically reserves enough scan line buffer space to cope with up to 24-bit RGB image data at the

same horizontal pixel resolution as the Max Width setting.

Allowing for the /WIDTH default and with /RGB+ this is enough for capturing images up to 1024 pixels wide in 16.8 million colours.

/RTCREFRESH

Syntax: /RTCREFRESH[+|-]

This switch enables and disables DOS clock refresh from the RTC. The default is enabled or ON. Refer to the Switch Syntax help screen for full syntax details.

In order that any screen image remains stable during a capture, SCREEN Thief disables the timer and vertical sync interrupts for the foreground process. As this would cause the DOS clock to lose several seconds at every capture, SCREEN Thief will normally reset the DOS time to the Real Time Clock before handing the interrupts back.

In a few rare cases this can cause the foreground process to lose track of its own internal timing. This may result in a short pause or a total lock up. Disabling DOS time refresh from the RTC clock may cure these kind of symptoms following what appears to be a successful capture.

/SHIFTS

Syntax: /SHIFTS:string

This switch selects the shift keys used in combination with the character key (selected with the /KEY switch) which make up the screen capture hot-key. It accepts up to four character values which represent the following shift keys:

A = <ALT>
C = <CTRL>
L = <LEFT SHIFT>
R = <RIGHT SHIFT>

Characters can be either upper or lower case. The default is AC for <ALT><CTRL>. This switch will optionally accept the two string values OFF and NONE, leaving the shift keys out of the hot-key combination. This is useful for capturing screens from the likes of games where the <ALT>, <SHIFT> and <CTRL> keys are used for program features such as firing and jumping. Use:

/SHIFTS:NONE or /SHIFTS:OFF

Be careful with this feature. It is possible to set the hot-key as a single alphabetic character, affecting command line entry

to the point where you can't run ST for a new /SHIFTS value.

/STREAMSIZE

Syntax: /STREAMSIZE:number

This switch determines the space allocated for file output image streaming. It takes a numeric value in the range 128 to 32768. The default is 768 bytes.

This switch is useful when capturing directly to a floppy disk, as you can limit the number of disk writes required to save the whole image file. Alternatively the stream can be reduced in size in order to squeeze SCREEN Thief into as small a memory area as possible.

Note that this switch has no effect on the GIF output image format, as this has a natural block size of 256 bytes.

/UNLOAD

Syntax: /UNLOAD

This switch removes SCREEN Thief from memory and releases any memory resources used by it. This is only possible if the interrupt vectors used by SCREEN Thief still point to its resident code. Normally this will be where SCREEN Thief was the last TSR program loaded.

SCREEN Thief is fully compliant with AMIS 3.4 (Alternate Multiplex Interrupt Specification). Any TSRs supporting the same specification are capable of being removed from memory whatever the loading order, on condition that non-compliant TSRs do not break the loading chain.

Note that any other command line switches or parameters will be ignored if this switch is present, although if syntax errors are encountered in any of the parameters preceding the /UNLOAD switch, an error message will be displayed and the help system will probably appear.

Users are advised NOT to use TSR release programs such as MARK and RELEASE. Only SCREEN Thief can remove itself from memory correctly.

/VIDEO

Syntax: /VIDEO:string

This switch overrides the normal SuperVGA detection routines. If SCREEN Thief fails to detect one of the supported SVGA chip sets

and you know your video card uses one, you may force SCREEN Thief to load the required driver. It is also of use where the automatic detection routines adversely affect an unrecognised chip set due to the register-level accesses it makes. In this case you can force SCREEN Thief to load the Standard VGA driver.

The switch accepts a string value naming a particular chip set.

VGA  The standard IBM register-level compatible VGA card. This driver is fully tested and should be capable of determining and handling any mode programmed into the VGA card, even non-standard modes. It will also suffice for the majority of SVGA cards equipped with 256K of video RAM. Even 800 by 600 16-colour modes should be captured successfully.

ET4000  SCREEN Thief's Tseng SVGA card driver is ET4000 chip specific. It has been thoroughly tested for all the documented ET4000 SVGA modes. The ET3000 chip will not be detected or handle correctly.

GD5422  SVGA cards based on the Cirrus Logic CL-GD5422 single chip controller are becoming increasingly common. It incorporates fast BitBlt support in hardware and an in-built RAMDAC for 15/16 bit HiColor and 24-bit TrueColor modes. SCREEN Thief has been tested with all documented video modes supported by this chip.

OAK  The SCREEN Thief Oak Technology Inc. driver is fully tested with the OTI-037C (256K) and OTI-077 (1024K) chips in all possible modes other than, at present, support for 32K colour modes with a Sierra RAMDAC. We see no reason why SCREEN Thief will not work with the OTI-057 and OTI-067 chips.

PARADISE  The SCREEN Thief PARADISE/Western Digital driver is fully tested for use with the PVGA1A chip set. It may work successfully with the later WD90C00 chip (also known as the PVGA1B), WD90C10 and WD90C11. It's been reported that the WDxxxxx types create corrupt images sometimes. We assume this is with interlaced displays and a fix will arrive in due course. This driver has not been tested with the older and bugged PVGA1 chip.

S3  The SCREEN Thief S3 driver caters for the base level 86c911 chip variant. It has been tested with all of the documented video modes.

TRIDENT  The TRIDENT chip is popular and found on many cards, even those manufactured under other names. The most common chip versions are TVGA-8900B, 8900C and 9000. This SCREEN Thief driver is fully tested under all these versions and should detect and work with any remaining versions compatible with the 8900/9000. The only problem that may be encountered is with the older, and now rare, 8800 chip - particularly the 8800BR variant.

/WIDTH

Syntax: /WIDTH:number

This switch determines the space allocated for screen image scan line buffering and encoding. It takes a numeric value in the range 720 through 4096. The default is 1188 pixels, sufficient for 1024 pixel wide graphics modes and 132-column text modes at nine pixels per character cell.

Reducing the maximum scan line width will have a slight effect on the overall memory requirements of SCREEN Thief, although capturing the higher resolution screens may fail. This switch is mainly provided in order to support modes with a greater pixel resolution than the assumed default maximum. Normally you will not need to use this switch.

/?

This switch invokes the SCREEN Thief Help System. Note that any other command line switches or parameters will be ignored if this switch is present (although if syntax errors are encountered in any of the parameters preceding the /? switch, an error message will be displayed and the help system will probably appear anyway). No configuration changes will be made to a currently installed copy of SCREEN Thief, nor will SCREEN Thief install itself in memory if not yet present.