

User's Guide

VideoGhost



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Getting started

Already familiar with the *VideoGhost* frame-grabber?

⇒ Start video-logging in 2 simple steps: section **Quick Start**

New to the *VideoGhost*?

- ⇒ Learn about recording first: section **Recording screenshots**
- ⇒ Then learn to retrieve the recorded data: section **Viewing recorded data**

Questions or problems?

⇒ Go through the **Troubleshooting** section.

Introduction

About the product

The *VideoGhost* is an intelligent hardware frame-grabber, compatible with DVI, HDMI, and VGA signal sources such as computers and laptops. It features a built-in JPEG compressor, and a high-capacity internal flash disk. Frames captured from the DVI, HDMI, or VGA bus will be compressed and stored to the built-in flash drive. The *VideoGhost* may be switched to flash drive mode at any time, and will pop-up as a removable disk, containing captured screenshots as JPEG files. The device is 100% stealthy and does not influence the operation of the computer, laptop, etc. No drivers or software are required, no configuration necessary, works out of the box!

Features

- Compatible with all DVI, VGA, and HDMI devices
- Supports resolutions up to Full-HD (1920 x 1080) and WUXGA (1920 x 1200)
- Works with computers and external laptop monitors
- No power supply necessary (power is drawn from the USB port)
- Built-in JPEG encoder
- High-capacity internal flash memory, accessible as a USB removable drive
- Built-in time-stamping module with battery
- No software or drivers required, Windows, Linux, and Mac compatible
- Ultra-compact and discreet, mini-extension cable form factor
- Transparent to computer operation, undetectable for security scanners

Requirements

- Compatible DVI / HDMI / VGA video signal source (no HDCP encryption)
- Standard resolution up to 1920 x 1200 and bandwidth up to 160MHz
- Computer with standard USB 1.1 or 2.0 port
- Operating system with USB Mass-Storage device support

Applications

Employers:

- Monitor acceptable internet usage
- Monitor employee productivity
- Detect unauthorized access attempts
- Save snapshots from slide shows, presentations, movies, surveillance cameras
- Collect computer usage statistics

Parents:

- Monitor your family's computer activity
- Protect your child from on-line hazards and predators
- Observe WWW, E-mail, and chat usage
- Save snapshots of viewed documents, web-pages, movies

Investigators:

- Monitor remote computers
- Automatically store snapshots from security cameras
- Retrieve snapshots of viewed documents, e-mails, web-pages
- Collect computer-related evidence
- Detect unauthorized use of computer equipment

Quick Start

This section contains concise information on basic video-logger handling. If you need detailed instructions, please refer to sections [Recording screenshots](#) and [Viewing recorded data](#).

To record snapshots, connect the *VideoGhost* to graphics card output or the digital TV output.

DVI version



HDMI version



VGA version



Then, connect the output device (TV or monitor) to the other end of the *VideoGhost*. Finally, connect the USB connector to a free USB port.

DVI version



HDMI version



VGA version

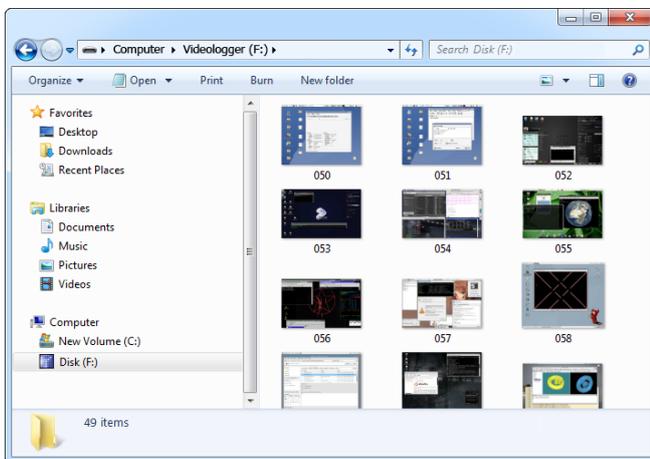


Recording will start automatically on power-up.

To view recorded snapshots, connect the USB cable of the *VideoGhost* to a free USB port, then press and hold the push-button.



The video-logger will pop up as a removable disk, containing the captured screenshots as JPEG files (just like a digital camera). Browse the disk using standard image-viewing software.



Recording screenshots

Recording mode is the default mode of operation for the *VideoGhost*. In record mode, the device will silently monitor the DVI, HDMI, or VGA video signal and record a screenshot every few seconds. The screenshots will be stored as JPEG files on the internal flash drive.

Installation of the video-logger in record mode is quick and easy, no software or drivers are required. Connect the *VideoGhost* to the source of the video signal, such as the output of the graphics card, or the TV output.

DVI version



HDMI version



VGA version



Then, connect the output device (TV or monitor) to the other end of the *VideoGhost*.

DVI version



HDMI version



VGA version



Finally, connect the USB connector to a free USB port. Recording will start automatically on power-up.

DVI version



HDMI version



VGA version



Note: The USB connection is used for powering the device only. If no USB port is available, a +5V DC USB power supply may be used instead.

Viewing recorded data

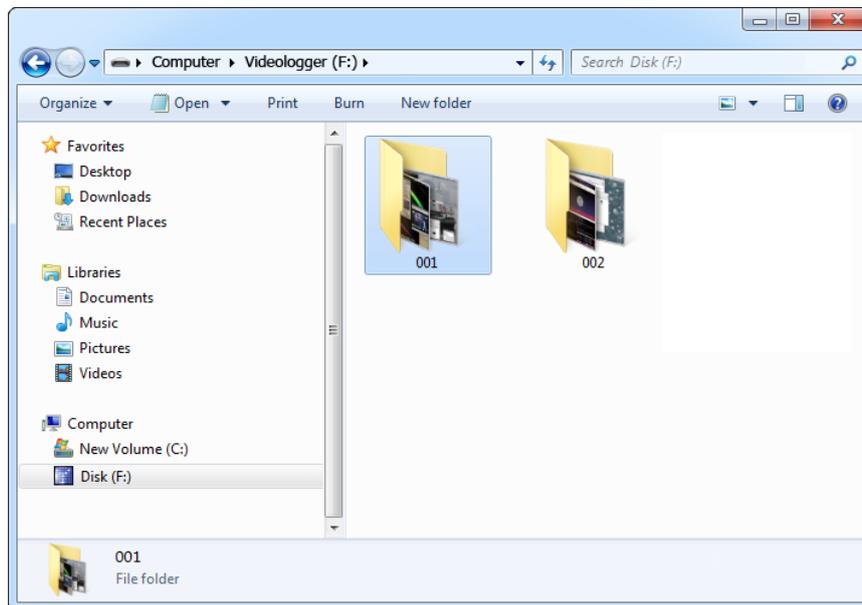
Once screenshots have been recorded to the internal flash drive, they may be viewed on any computer, laptop, or TV with USB Mass Storage support. The procedure is very similar to restoring images from a digital camera.

Connect the USB cable of the *VideoGhost* to a free USB port, then press and hold the push-button.

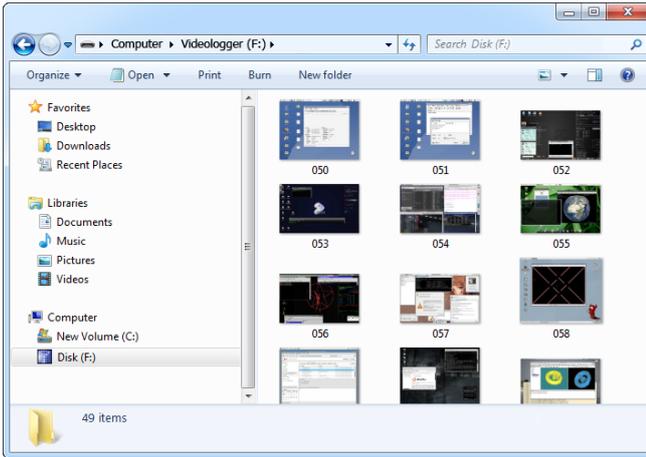


After a few seconds, the hardware video-logger will automatically get detected as a Mass Storage Device. The operating system will use the standard built-in mass storage driver (*MS Windows* in the following examples).

Note: During the first switch to flash drive mode, the operating system can ask for drivers. In such case choose automatic driver installation (usually default option).



The flash drive will contain the captured screenshots as JPEG files, grouped in folders named *001*, *002*, etc. Depending on the device configuration, the images may have burned-in time- and date-stamps. Use any image-viewing software to browse the JPEG files, such as the default *Windows Photo Viewer*.



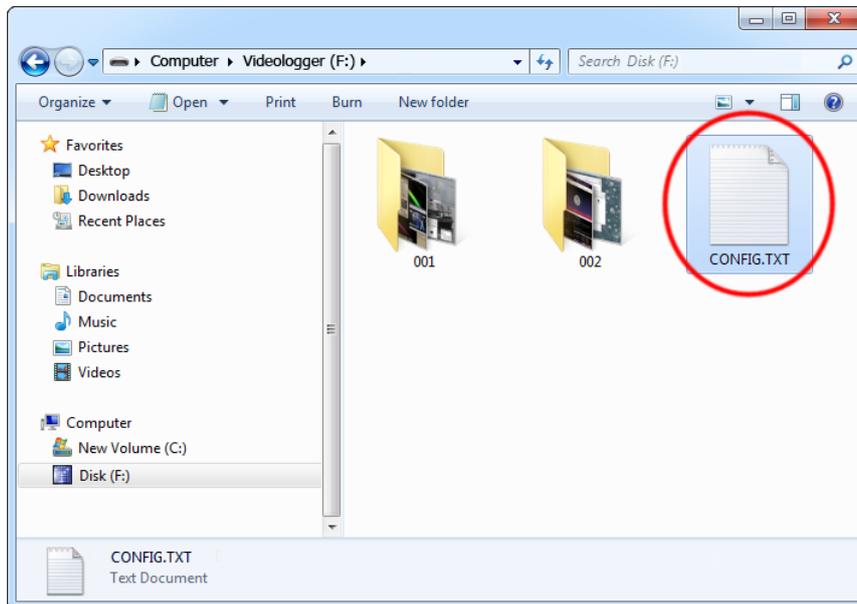
Switching back to record mode can be achieved by a safe software removal of the flash disk. Use the systems standard disk removal procedure. For *MS Windows*, left-click on the *Safe Removal* icon in the system tray and select the appropriate drive. Then reconnect the *VideoGhost* to the USB port.

Configuration options

The *VideoGhost* may be configured through the file CONFIG.TXT, placed in the flash drive root folder. Use any text editor to prepare such a configuration file, containing the following text:

```
Interval=300  
Resize=50  
Timestamping=Image
```

Copy this file to the root folder in flash drive mode. The new configuration will be loaded on next power-up.



The following list presents the most common configuration options. All variable and value strings are case insensitive.

Interval sets number of seconds between successive screenshots. Please note that compressing and saving an image takes several seconds (depending on the image size and quality), so this may become the limiting factor for low values of *Interval*. Default value is 300.

Resize sets the resizing factor for storing screenshots. Allowed values are *No* (no resizing), *Auto* (automatic resizing factor based on image size), 75 (75%), 67 (67%), 50 (50%), 33 (33%), and 25 (25%). Default value is *No*.

Timestamping configures the built-in time- and date-stamping module. Allowed values are *Yes* (timestamping active, but limited to updating the modification time and date of JPEG files), *Image* (timestamps burned into JPEG image content), and *No* (timestamping disabled). Default is *Image*.

Quality sets the quality factor for JPEG compression. Allowed values are from 1 (lowest quality, smallest file size) to 10 (highest quality, largest file size). Please note that setting a

high quality value will result in longer compression times and increased disk space usage. Default value is 7.

DisableLogging allows to disable screenshot logging. Allowed values are *Yes* (logging disabled) and *No* (logging enabled). Default value is *No*.

Encryption enables flash disk encrypting. Encryption will ensure full confidentiality of the stored data, even if the device is physically tampered with. Allowed values are *Yes* (encryption enabled) and *No* (encryption disabled). Default is *No*.

Important: toggling the encryption setting will format the entire flash disk. All data will be lost, including the configuration file!

An example configuration file contents is shown below:

```
Interval=200
Resize=25
Timestamping=Yes
Quality=5
```

A full list of available parameters with descriptions is available below.

Basic parameter list

Parameter	Values	Example	Description
Interval	Screenshot interval in seconds (default 300)	Interval=200	Number of seconds between successive screenshots.
Resize	No (default) Auto 75 67 50 33 25	Resize=50	Resizing factor for storing screenshots in percent. <i>Auto</i> will choose an optimal resizing factor based on the image size.
Timestamping	Yes Image (default) No	Timestamping=Yes	Time-stamping disable flag.
Quality	JPEG compression quality (default 7)	Quality=5	Quality factor for JPEG compression from 1 to 10.
DisableLogging	Yes No (default)	DisableLogging=Yes	Screenshot logging disable flag.

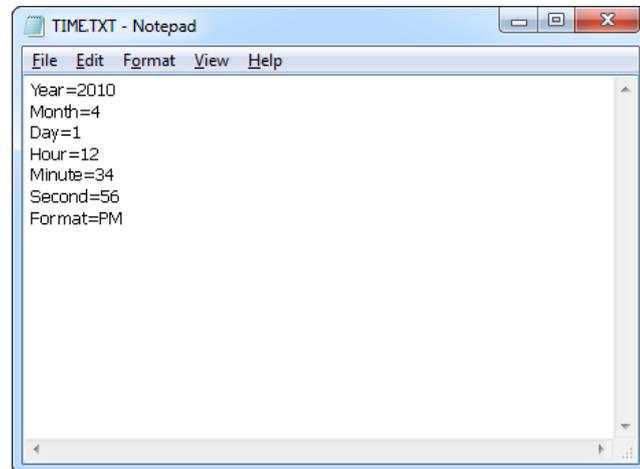
Advanced parameter list (use only when you know what you're doing!)

Parameter	Values	Example	Description
Encryption	Yes No (default)	Encryption=No	Flash drive encryption setting (caution: changing this value will re-format the flash drive).
Brightness	Brightness factor (default 0)	Brightness=50	The factor to add to the standard image brightness from 0 to 150
ForceWidth	Image width in pixels (defaults to resolution X)	ForceWidth=1024	If this parameter is present, it will force the width of the captured image regardless of the current resolution.
ForceHeight	Image height in pixels (defaults to resolution Y)	ForceWidth=768	If this parameter is present, it will force the height of the captured image regardless of the current resolution.
TopMargin	Top margin in pixels (default 0 or table value)	TopMargin=10	If this parameter is present, it will cut out the top part of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
LeftMargin	Left margin in pixels (default 0 or table value)	LeftMargin=5	If this parameter is present, it will cut out the left part of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
RightFrame	Right frame in pixels (default 0 or table value)	RightFrame=20	If this parameter is present, it will add a frame on the right side of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
BottomFrame	Bottom frame in pixels (default 0 or table value)	BottomFrame=15	If this parameter is present, it will add a frame at the bottom of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
ShiftX	Horizontal shift value (default 0 or table value)	ShiftX=-10	If this parameter is present, it will shift the image horizontally within the bounds given by LeftMargin and RightFrame. It is used primarily in the VGA version, for filtering out the useful part of the signal.
ShiftY	Vertical shift value (default 0 or table value)	ShiftY=-5	If this parameter is present, it will shift the image vertically within the bounds given by TopMargin and BottomFrame. It is used primarily in the VGA version, for filtering out the useful part of the signal.

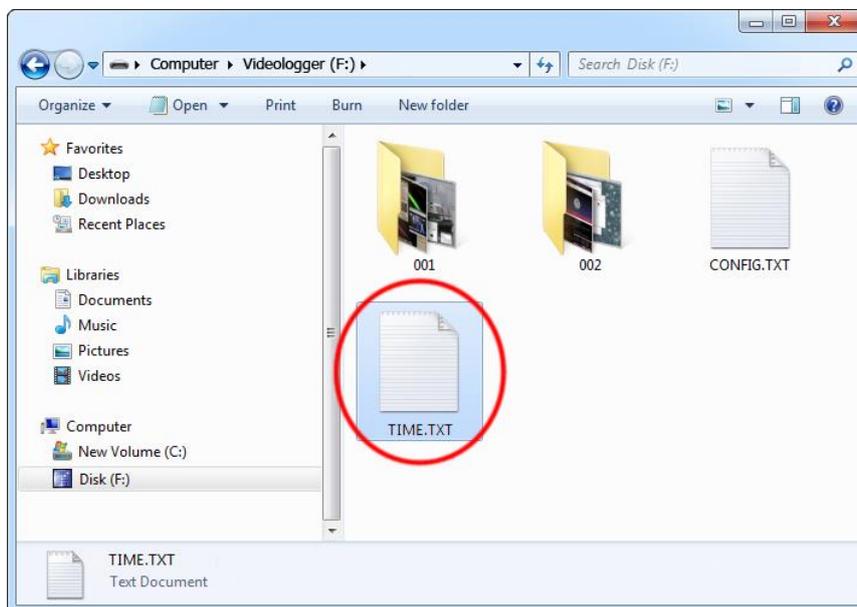
Clock configuration

It is necessary to configure the built-in clock module for getting correct date and time-stamps. To do this, a text file named TIME.TXT should be prepared with the following format:

```
Year=2019
Month=4
Day=1
Hour=12
Minute=34
Second=56
Format=PM
```



The fields should contain the current time and date. The field *Format* allows distinguishing between A.M., P.M., and 24-hour time (use the value *AM*, *PM*, or *24*). After the file has been prepared, switch to flash drive mode and copy the file TIME.TXT to the root folder of the flash disk. The device should be switched to flash drive mode.



After copying the file, safely remove the flash drive. The new clock configuration will be loaded during the next power-up.

The clock configuration file must be named TIME.TXT and must be placed in the root folder. Variable and value strings are case insensitive, however they must match the options listed below.

- *Year* sets the clock year value. Valid range is from 2000 to 2099.
- *Month* sets the clock month value. Valid range is from 1 (January) to 12 (December).
- *Day* sets the clock day value. Valid range is from 1 to 31. If the specified day exceeds the maximum number of days in the specified month, the next valid day value will be chosen.
- *Hour* sets the clock hour value. Valid range is from 1 to 12 for 12-hour time (A.M./P.M.), and 0 to 23 for 24-hour time.
- *Minute* sets the clock minute value. Valid range is from 0 to 59.
- *Second* sets the clock second value. Valid range is from 0 to 59.
- *Format* sets the time format. Valid values are *AM*, *PM*, and *24*. If *AM* is chosen, the 12-hour format is selected and the specified hour is treated as before noon. If *PM* is chosen, the 12-hour format is selected and the specified hour is treated as afternoon. If *24* is chosen, the 24-hour format is selected and the specified hour is treated as 24-hour format.

Sample TIME.TXT for 12-hour time:

```
Year=2019
Month=10
Day=25
Hour=5
Minute=51
Second=43
Format=PM
```

Sample TIME.TXT for 24-hour time:

```
Year=2019
Month=10
Day=25
Hour=17
Minute=51
Second=43
Format=24
```

Specifications

	VideoGhost DVI	VideoGhost HDMI	VideoGhost VGA
Power supply	4.5 V – 5.5 V DC	4.5 V – 5.5 V DC	4.5 V – 5.5 V DC
Max. power consumption	500 mA (2.5 W)	500 mA (2.5 W)	500 mA (2.5 W)
Data retention	100 years	100 years	100 years
Interface support	DVI-compatible video source, USB 1.1 or 2.0 with MSD support	HDMI-compatible video source, USB 1.1 or 2.0 with MSD support	VGA-compatible video source, USB 1.1 or 2.0 with MSD support
Max. video bandwidth	160 MHz	160 MHz	160 MHz
Max. video resolution	1920 x 1200	1920 x 1200	1920 x 1200 ¹

Typical JPEG encoding time in seconds²:

Frame size	Quality = 3			Quality = 5			Quality = 7		
	50% Resize	Auto Resize	No Resize	50% Resize	Auto Resize	No Resize	50% Resize	Auto Resize	No Resize
640x480	1	1	1	1	1	1	1	1	2
800x600	2	3	3	2	3	3	2	3	3
1024x768	2	5	5	2	5	5	2	5	5
1280x720	3	5	5	3	5	5	3	5	5
1440x900	4	5	7	4	6	8	4	6	8
1280x1024	4	5	7	4	5	7	4	5	7
1680x1050	5	6	9	5	6	9	5	6	9
1600x1200	5	7	10	5	7	10	5	7	10
1920x1080	5	7	11	5	7	11	5	7	12

¹ Limited to standard resolution and refresh rate combinations.

² Encoding times may vary depending on image contents.

The VGA version supports the most common resolution and refresh rate combinations:

	50 Hz	56 Hz	60 Hz	70 Hz	72 Hz	75 Hz	85 Hz	100 Hz	120 Hz
640x480			X		X	X	X	X	
800x600		X	X		X	X	X	X	
1024x768			X	X		X	X	X	X
1152x864			X	X		X	X	X	
1280x720	X		X			X			
1280x768			X			X			
1280x800			X						
1280x960			X			X	X	X	
1280x1024			X			X	X	X	
1360x768			X			X	X		
1440x900			X			X			
1600x900			X			X	X		
1600x1200			X	X		X	X		
1680x1050			X	X		X			
1920x1080			X			X			
1920x1200			X			X			

Troubleshooting

The *VideoGhost* will **not** work in the following cases:

1. Internal laptop screens
2. Devices protected with HDCP, such as most Blu-ray players
3. No USB port for powering the device
4. Non-conformant DVI/HDMI/VGA interfaces

No video signal at the monitor or TV

Please check the following:

1. Is the *VideoGhost* connected firmly to the signal source, such as the graphics card?
2. Is the monitor/TV connected firmly to the *VideoGhost*?
3. Is the USB cable connected?

The VideoGhost does not switch to flash drive mode

Please check the following:

1. Are you pressing the external push-button for several seconds?
2. Does the operating system support removable USB flash disks?
3. Have you checked the drive list?
4. Have you tried on a different USB port?
5. Have you checked on a different computer?

I can't find any screenshots after switching to flash drive mode

Please check the following:

1. Have you powered the device from the USB port while recording?
2. Have you checked in the subdirectories, such as *001*, *002*, etc.?
3. Did you properly configure the device through CONFIG.TXT?
4. Have you checked with a different screen resolution?

The VideoGhost always shows up as a removable drive

Make sure the push-button is not pressed, and nothing is blocking it.

The screenshots show no contents, just noise

You are probably trying to acquire a HDCP-protected video signal, such as a Blu-ray or DVD player. The *VideoGhost* is not a device intended for breaking the HDCP copyright protection.

Problems with time-stamps

Set the correct time by creating a clock configuration file TIME.TXT. Make sure you have not disabled time-stamping. Refer to the **Clock configuration** section for detailed instructions.

Screenshots are not logged as fast as I would like

Change the *Interval* parameter in CONFIG.TXT to a smaller number. If this doesn't help, it means that the JPEG compression time is the limiting factor. Reduce the image size by reducing the *Quality* parameter in CONFIG.TXT. Finally, change the *Resize* parameter to 50, 33, or 25.

I've checked everything, nothing helps!

If you are still experiencing problems, please do the following:

1. Check if the problem appears with a different screen resolution.
2. Check if the problem appears on a different computer or video source.
3. Check if the problem appears using a different USB port.
4. Contact the dealer you have purchased the device from. Please supply all necessary information (hardware type, model and manufacturer, OS type and version, and a short description of the problem).

Legal disclaimer

No responsibility is taken for any damage, harm or legal actions caused by misuse of this product. The user should follow the guidelines contained in this document, otherwise no liability will be assumed. It is the user's responsibility to obey all effective laws in his/her country, which may prohibit usage of this product.

For more information, visit the following websites:

<http://www.keelog.com/>

<http://www.airdrivewifi.com/>