

DQ Viewer

Video stream capturing tool user guide

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Contents

Cor	ntents	
1.	Introdu	ction3
2.	Installa	tion 4
3.	User In	terface
3	.1. Ap	plication Main Window8
3	.2. Ma	in Menu9
	3.2.1.	Menu Device
	3.2.2.	Menu Video11
	3.2.3.	Menu Settings
	3.2.4.	Menu Help15
4.	Local V	ideo Stream Devices
4	.1. Co	nfiguring local device
	4.1.1	Recognizing inputs/outputs17
	4.1.2	Configuration of the inputs and outputs 18
5.	Add Re	mote Video Stream Devices
5	.1. Ad	d remote device temporary19
5	.2. Ad	d remote device permanently21
6.	Open a	nd Play Video Stream
7.	Record	Video Stream
8.	Capture	e screenshot



1.Introduction

This document describes steps how to install and how to use DQ Viewer – a Video stream capturing tool.

Prerequisites:

- Video stream source:
 - o DQ FG4 PCIe Card
 - o DQ MGB
 - Any other local video stream device camera interface
 - o Any other remote video stream device network stream
- DQ FG4 PCIe Card Windows Driver for DQ FG4 PCIe Card only (installation described in "DQ FG4 PCIe WinDriver Installation Guide" document)
- MS Windows OS, these versions are currently supported:
 - MS Windows 10 64bit
 - MS Windows 10 32bit
 - MS Windows 8 64bit
 - MS Windows 8 32bit
 - MS Windows 7 64bit
 - MS Windows 7 32bit
- DQ Viewer (available under GNU GPLv3 on <u>https://fg4.digiteqautomotive.com/</u>)
- Approx. 165 MB of free space on hard disk

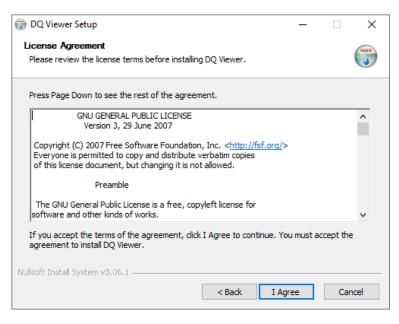


2. Installation

- 1. Download and unzip DQ Viewer.
- 2. Run DQ Viewer installer. DQ Viewer uses standard NSIS installer.
- 3. DQ Viewer Setup windows opens, click "Next".

词 DQ Viewer Setup	- 🗆 X
	Welcome to DQ Viewer Setup
	Setup will guide you through the installation of DQ Viewer.
	It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
	Click Next to continue.
凤	
	Next > Cancel

4. Agree with Licence agreement by clicking on "I Agree" button.





5. The "DQ Viewer" component is going to be installed. Click on "Next".

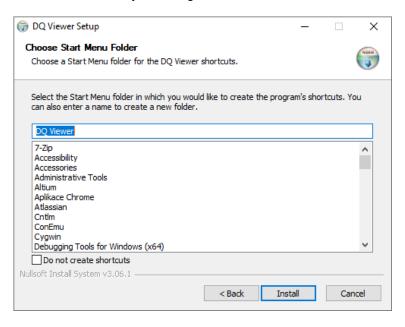
🕞 DQ Viewer Setup		– 🗆 X
Choose Components		Natio
Choose which features of DQ \	/iewer you want to install.	
Check the components you wa install. Click Next to continue.	nt to install and uncheck the	components you don't want to
Select components to install:	DQ Viewer	Description Position your mouse over a component to see its description.
Space required: 162.4 MB		
Nullsoft Install System v3.06.1 —		
	< Back	Next > Cancel

6. Choose install location. By default, the application is installed to user folder of the actual user. Installation does not require elevation of access rights. Click on "Next".

🌍 DQ Viewer Setup	-		×
Choose Install Location			\sim
Choose the folder in which to install DQ Viewer.			Natio
Setup will install DQ Viewer in the following folder. To install in a differen and select another folder. Click Next to continue.	t folder,	, click Bro	wse
Destination Folder			
C:\Users\DQViewerUser\AppData\Local\Programs\DQView\	Brow	wse	
Space required: 162.4 MB			
Space available: 222.3 GB			
Nullsoft Install System v3.06.1			
< Back Next	~	(C)	ncel
< Back Next	1	Car	icei



7. Choose a Start menu folder name. Default is "DQ Viewer". You can also choose not to create Start menu record by checking "Do not create shortcuts" checkbox. Click on "Install".



8. Installation procedure starts. Wait until completed.

🌍 DQ Viewer Setup		
Installing Please wait while DQ Viewer is being installed.		
Output folder: C:\Program Files\DQView		
Show details		
Nullsoft Install System v3.06.1		
< Back	Close	Cancel



9. Installation is completed. Click on "Close".

💮 DQ Viewer Setup	_		\times
Installation Complete Setup was completed successfully.			
Completed			
Show details			
Nullsoft Install System v3.06.1			
< Back Cle	ose	Ca	ncel

10. To launch the program open Start – DQ Viewer – DQView.

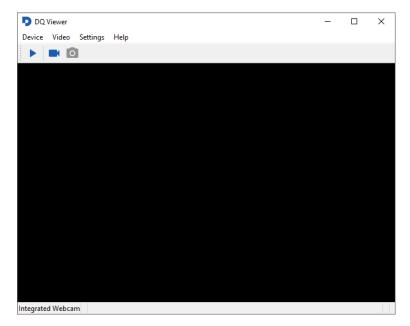
NOTE: You can launch application via Start menu only if you did NOT checked the "Do not create shortcuts" during installation. You can also launch the application by locating "DQView.exe" file in installation folder.



3.User Interface

This section describes User Interface of DQ Viewer application.

3.1. Application Main Window



Application user interface consists of these sections:

- Main menu
- Shortcut bar
 - Play button Starts / Stops playing of video stream
 - o Record Video button Starts / Stops recording video
 - Capture Screenshot button Captures and saves screenshot from video stream
- Video stream playing area
 - o Shows played video stream
- Status bar
 - o Shows active video stream device



3.2. Main Menu

This chapter describes structure and items present in main menu and their meaning.

Device Video Settings Help

Main menu is has following structure:

- Device
 - o List of available Video Stream interfaces
 - Open Remote Device ...
 - o Quit
- Video
 - Play
 - $\circ \hspace{0.1 cm} \text{Record Video}$
 - o Capture Screenshot
- Settings
 - $\circ~$ Resize Video To Window
 - \circ Resize Window to Video
 - Fullscreen Mode
 - o Options...
- Help
 - $\circ~$ Show Log File...
 - About DQ Viewer



3.2.1. Menu Device

D	DQ	Viewer				
Dev	ice	Video	Settings	Help		
•		Integrated Webcam 192.168.1.200:50000 H264-MPEGTS-TCP				
	Open Remote Device					
	Qu	it				

Device – List of available Video Stream interfaces

- To select a video stream source.
- Displays all available video stream interfaces (local, remote).
- o Local interfaces are detected automatically.
- o Remote interfaces are added manually.
 - Menu Settings Options... Remote Devices (added permanently)

OR

 Device – Open Remote Device (added temporary, does not persist after application is closed)

• Device – Open Remote Devices

o To open remote (network) video stream device

Open R	emote Devic	e X
Address:	192.168.1.20	00
Port:	50000	•
Format:	H264-MPEGT	S-TCP 🗸 🗸
	OK	Cancel

- o Address: IP address of remote video streaming device
- o Port: Port of remote video streaming device
- Format Video compression and stream type
 - H264-MPEGTS-TCP
 - MPEG Transport Stream in H.264 compression TCP stream
 - H264-RTP-UDP
 - Real-time Transport Protocol in H.264 compression UDP stream
 - JPEG-MUX-TCP
 - Mux of JPEG TCP stream
 - JPEG-RTP-UDP
 - Real-time Transport Protocol of JPEG UDP stream
- Remote device is added automatically to the List of available Video Stream interfaces (added temporary, does not persist after application is closed)
- Device Quit
 - Exit the application



3.2.2. Menu Video

DQ Viewer



• Video – Play

0

0

- o Toggle Start / Stop play of selected video stream
 - Select video stream:
 - Device List of available Video Stream interfaces
 - Video stream is played in the main application window

• Video – Record Video

- Toggle Start / Stop recording of selected video stream
 - Select video stream: Device List of available Video Stream interfaces
- Video streams are saved in user defined folder
 - Set folder to store recorder video:
 - Settings Options Recording Video Directory

• Video – Capture Screenshot

- Create and save screenshot from selected video stream
 - Select video stream: Device List of available Video Stream interfaces
- o Screenshot are saved in user defined folder
 - Set folder to store recorder video:
 - Settings Options Recording Images Directory



3.2.3. Menu Settings



- Settings Resize Video To Window
 - o Video is resized according to application window size
 - Video may be deformed
- Settings Resize Window To Video
 - o Application window is resized according to real video size
 - Video size preserved
- Settings Full screen Mode
 - Application is stretched to full screen mode and video resized according to screen resolution
- Settings Options
 - Settings Options Recording
 - Video recording and screenshots capturing settings

Options		×
Recording	Remote Devices Video Filters	
Video		
Codec:	H264 ~	
Bitrate:	1800]
Directory:	C:/Users/DQViewerUser	
Images		
Directory:	C:/Users/DQViewerUser	
	OK Cance	1

- Video section
 - Codec codec of recorded video:
 - H264 compression
 - MPEG2 compression
 - Bitrate bitrate of recorded video
 - Directory path to store recorded videos
 - Images section

.

• Directory – path to store screenshots



• Settings – Options - Remote Devices

- Management of remote video stream devices
- Settings are persistent

	Address	Port	Format	
(*******				
	68.1.200	50000	H264-MPEGTS-TCP	

- Add the new device by clicking on "+"
- Add Remote Device dialog appears

Add Remote Device		\times
		_
Address:	192.168.1.200	
Port:	50000 ≑	-
Format:	H264-MPEGTS-TCP ~	*
	OK Cancel	

- Address: IP address of remote video streaming device
- Port: Port of remote video streaming device
 - Format Video compression and stream type
 - H264-MPEGTS-TCP

•

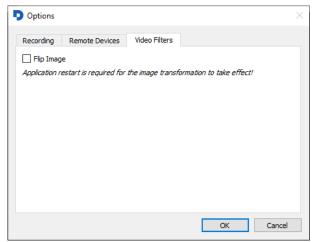
- MPEG Transport Stream in H.264 compression TCP stream
- H264-RTP-UDP
 - Real-time Transport Protocol in H.264 compression – UDP stream
- JPEG-MUX-TCP
 - Mux of JPEG TCP stream
 - JPEG-RTP-UDP
 - Real-time Transport Protocol of JPEG UDP stream
- Remove the unused device by clicking on "-"

0



Settings – Options - Video Filters 0 •

Video processing settings



Flip Image checkbox

- Flips image vertically if checked •
- Application restart needed •



3.2.4. Menu Help

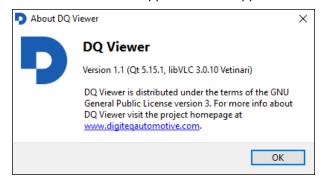


Help – Show Log File...
 Shows DQ Viewer log file

Log File		
16:23:7] Debug 16:23:7] Debug	g: VLC media player - 3.0.10 Vetinari g: Copyright © 1996-2020 the VideoLAN team g: revision 3.0.10-0;7f145afa84 ;: configured with /d/mingybuild/mingw-w64-vkc/src/vkc-3.0.10/configure ';	prefix=/mingw64''sysconfdir=/m
<		

• Help – About DQ Viewer

• Shows information about application and application version





4.Local Video Stream Devices

This chapter describes in steps, how to configure video stream devices into DQ Viewer app.

NOTE: If you do not see an expected local device in the list, it is either not present in the system, or it is not operational (e.g. missing device driver). The devices are _not_ reloaded during the program run, so if you add a camera after the program has started, you have to restart the program to list the device.

4.1. Configuring local device

You can find your local devices (any direct show device) in the **Device tab**. For example one FG4 PCIe with FPD Link3 module will be represented by four records. Each record (DQ FG4 Capture/Render) represents one input (camera) or output.

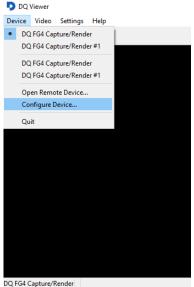
Firstly, you have to recognize and configure each input and output.





4.1.1 Recognizing inputs/outputs

- In section Device select record you want to recognize/set FG4 Card inputs and outputs are here represented by DQ FG4 Capture/Render records.
- 2. Then In same section select Configure device.



- 3. In newly opened window "**status**" you can see additional information about device (input/output): Module type, firmware type, serial number, video signal properties.
 - a. Meaning of input IDs (FPDL3 module):
 - i. Input ID: 0 IN 1 (marked on the hardware)
 - ii. Input ID: 1 IN 2 (marked on the hardware)
 - iii. Output ID: 2 OUT1 (marked on the hardware)
 - iv. Output ID: 3 OUT2 (marked on the hardware)

Fig 1. FG4 PCIe IN1 (Input ID:0) Input Property page

tus Configu	ration			Status Configurati	on	
CI Card				Common		
lodule Type:	FPDL3			Color Mapping:	SPWG/VESA	\sim
Iodule Version: irmware Type:	0 EPDL3			OLDI Line Width:	Dual	~
rmware Type: rmware Versior				VSYNC Gap Length:	1000	-
erial Number:	001-002-0	01-097		HSYNC Gap Length:	2	A V
deo Input				Frequency Range:	Over 50MHz	~
put ID:	0	HBack Porch:	80	FPDL3		
nk Status:	Locked	HFront Porch:	48			
Sync Status:	Active High	VBack Porch:	38	FPDL3 Input Width:	Dual	\sim
Sync Status:	Active High	VFront Porch:	3			
Sync Width:	32					
Sync Width:	6					
	136996					



Fig 2. FG4 PCIe OUT1 (Output ID:2) Ouput Property page

Status Configuration	Status Configuration
PCI Card Module Type: FPDU.3 Module Version: 0 Firmware Type: FPDU.3 Firmware Version: 48 Serial Number: 001-002-001-097 Video Output Output ID: 2	Common Display Width: 2820 C HS/NC Polarity: Active high ~ Display Height: 720 C VS/NC Polarity: Active high ~ Prome Rate: 60 C D D Polarity: Active high ~ Wedes Source: Input 0 FS/NC Width: 32 C C PCLK Prequency: 135995 VS/NC Width: 6 C HBrott Porch: 80 C HFront Porch: 38 C C
OK Cancel	VFront Parch: 3 © FPDL3 FPDL3 Output Width: Dual OK Cance

4.1.2 Configuration of the inputs and outputs

Configuration of the inputs and outputs

1. In section Device select record (input/output) you want to set (DQ FG4 Capture/Render)



- 2. Then In same section select Configure device.
- 3. Status (Property page window) appears move to configuration tab.
- 4. Now you can set desired values Values depends on used hardware (car units)
- **NOTE**: DQ Viewer app do not allow changing device input/output or adjusting values of properties on another input/output during stream playback. You can evade it by opening up another instance of DQ Viewer in order to improve your experience with managing property values.

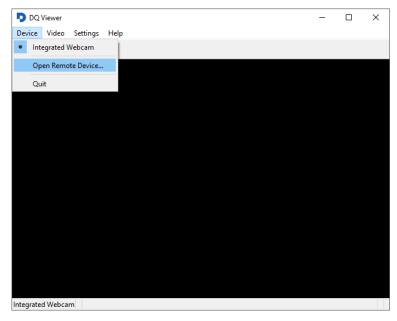


5.Add Remote Video Stream Devices

This chapter describes in steps, how to add remote video stream devices into DQ Viewer application. It is possible to add devices either temporary (until application is closed) or permanently.

5.1. Add remote device temporary

- 1. Open DQ Viewer Application.
- 2. Select menu Device Open Remote Device...



3. Open Remote Device dialog window appears.

Open Remote Device ×							
Address: 192.168.1.200							
Port:	50000						
Format:	H264-MPEGT	s-TCP 🗸 🗸					
	OK	Cancel					

- 4. Type in the IP address and the port of the remote device.
- Select format of video stream and compression: H264-MPEGTS-TCP – MPEG Transport Stream in H.264 compression – TCP stream H264-RTP-UDP – Real-time Transport Protocol in H.264 compression – UDP stream JPEG-MUX-TCP – Mux of JPEG – TCP stream JPEG-RTP-UDP – Real-time Transport Protocol of JPEG – UDP stream
- 6. Click OK.



7. Remote device appears in menu Device - List of available Video Stream interfaces. You can open the device by selecting it.

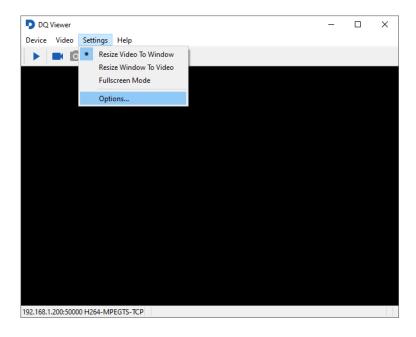
DQ Viewer	-	×
evice Video Settings Help		
Integrated Webcam		
192.168.1.200:50000 H264-MPEGTS-TCP		
Open Remote Device		
Quit		
2.168.1.200:50000 H264-MPEGTS-TCP		

8. Remote device remains in the list until DQ viewer application is closed.



5.2. Add remote device permanently

- 1. Open DQ Viewer Application.
- 2. Select menu Settings Options...

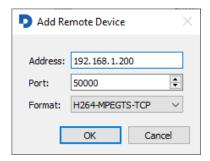


3. Options dialog appears. Switch to Remote Devices tab and click on + to add new device.

Options					
Recording	Remote D	evices Video	Filters		
Add	ress	Port		Format	
				+ -	
				OK Car	ncel



4. Add Remote Device dialog window appears.



- 5. Type in the IP address and the port of the remote device.
- Select format of video stream and compression: H264-MPEGTS-TCP – MPEG Transport Stream in H.264 compression – TCP stream H264-RTP-UDP – Real-time Transport Protocol in H.264 compression – UDP stream JPEG-MUX-TCP – Mux of JPEG – TCP stream JPEG-RTP-UDP – Real-time Transport Protocol of JPEG – UDP stream\
- 7. Click OK to confirm settings in Add Remote Device dialog window
- 8. Click OK to confirm settings in Options dialog window
- 9. Remote device appears in the menu Device List of available Video Stream interfaces. You can open the device by selecting it.

DQ Viewer	_	×
Device Video Settings Help		
Integrated Webcam		
 192.168.1.200:50000 H264-MPEGTS-TCP 		
Open Remote Device		
Quit		
82.168.1.200:50000 H264-MPEGTS-TCP		

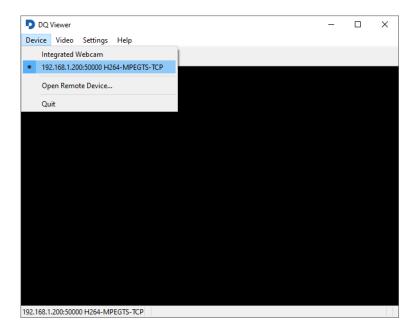
10. Remote device remains in the list permanently even after application is closed.

6. Open and Play Video Stream

This chapter describes in steps, how to a play video stream in DQ Viewer application. It is possible to play a video stream either from local device or from the remote device. Local devices are detected automatically, remote devices has to be added manually (see chapter 5 - Add Remote Video Stream Devices).

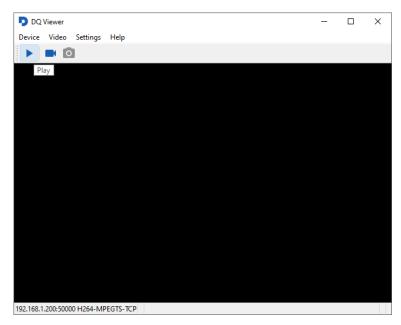
If you do not see an expected local device in the list, it is either not present in the system, or it is not operational (e.g. missing device driver). The devices are _not_ reloaded during the program run, so if you add a camera after the program has started, you have to restart the program to list the device.

- 1. Open DQ Viewer Application.
- 2. Select menu Device List of available Video Stream interfaces.
- 3. Choose listed local or remote device.





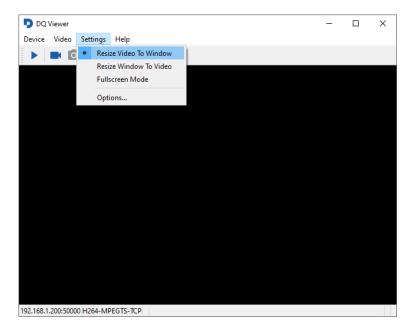
4. Start / Stop video playback by clicking on the Play symbol or selecting menu Video - Play.



 It is possible to modify the video by several settings. In the menu Settings choose: Resize Video To Window – Video is resized to actual size of application window (video resolution deformed)

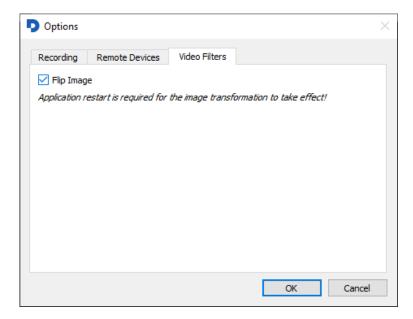
Resize Window To Video – Application window is resizes according to resolution of video (video resolution preserved)

Fulls creen Mode - Video is played on full screen and resized according to display resolution





 In case the horizontal flip of the video is needed, select menu Settings – Options... - Video Filters tab. Select Flip Image checkbox. Setting are taken into effect after application is restarted.





7. Record Video Stream

This chapter describes in steps, how to record a video stream in DQ Viewer application. It is possible to record a video stream either from local device or from the remote device. Local devices are detected automatically, remote devices has to be added manually (see chapter 5 - Add Remote Video Stream Devices).

- 1. Open DQ Viewer Application.
- 2. Select a folder for storing recorded video streams. If you already set the folder, continue directly with step 8.
- 3. Select menu **Settings Options …- Recording** tab.

Options		\times
Recording Video	Remote Devices Video Filters	
Codec: Bitrate:	H264 ~	
Directory:	C:/Users/DQViewerUser	
Images Directory:	C:/Users/DQViewerUser	
	OK Cancel	

- 4. In section Video, choose Codec H264 and MPEG-2 compressions are available.
- 5. In section Video, enter Bitrate of recorded video stream.
- 6. In section Video, browse Directory, where the recorded video streams will be stored.
- 7. Click OK.
- 8. Select menu Device List of available Video Stream interfaces.



9. Choose listed local or remote device.

DQ Viewer	-	×
Device Video Settings Help		
Integrated Webcam		
192.168.1.200:50000 H264-MPEGTS-TCP		
Open Remote Device		
Quit		
192.168.1.200:50000 H264-MPEGTS-TCP		

10. Start / Stop recording of video by clicking on the **Video Camera** symbol or by selecting menu **Video – Record Video**.

DQ Viewer		_	×
Device Video Settings	Help		
► ■ 🖸			
Record Video			
192.168.1.200:50000 H264-N	PEGTS-TCP		

11. Video is stored in the folder defined in menu **Settings – Options ...- Recording** tab – **Video** section – **Directory**.



8. Capture screenshot

This chapter describes in steps, how to capture a screenshot from the video stream in DQ Viewer application. To capture a screenshot, you need firstly to open and play a video stream (see chapter 6 - Open and Play Video Stream). Screenshots are captured in PNG format.

- 1. Select a folder for storing screenshots. If you already set the folder, continue directly with step 8.
- 2. Select menu Settings Options ...- Recording tab.

Recording	Remote Devices	Video Filters		
Video				
Codec:	H264			~
Bitrate:	1800			•
Directory:	C:/Users/DQViewer	User		
Images Directory:	C:/Users/DQViewer	User		
			ОК	Cancel

- 3. In section Images, browse Directory, where the screenshots captured from video will be stored.
- 4. Click OK.
- 5. Open remote or local device and play a video stream.



6. Capture a screenshot from video by clicking on the **Photo Camera** symbol or by selecting menu **Video – Capture Screenshot**.

DQ Viewer	- D X
Device Video Settings Help	
Capture Screenshot	
tegrated Webcam 1280x720	

7. Screenshots are stored in the folder defined in menu Settings – Options ...- Recording tab – Images section – Directory.



Changes

Version	Date	Change description	Changed by	Approved by
1.00	02.02.2021	First release version	RSA	
1.01	27.10.2021	Added chapter 4. Local devices	MAJ	
1.02	26.11.2021	4.1.1 Updated Input ID / Output ID	MAJ	