



TANGO
Device
Server

A generic device server for all FireWire cameras User's Guide

Ccd1394 Class

Revision: Ccd1394-Release_1_2 - Author: vedder_bruno
Implemented in C++ - CVS repository: tango-ds

Introduction:

A generic device server for interfacing all FireWire cameras under Linux. It uses the dc1394 library for accessing the cameras.

Class Inheritance:

- Tango::DeviceImpl
 - Ccd
 - Ccd1394

Properties:

Device Properties		
Property name	Property type	Description
Camera_number	Tango::DEV_LONG	number of camera on the ieee1394 bus (starting from 0
Camera_id_low	Tango::DEV_ULONG	unique ieee1394 camera id - low 32 bits
Camera_id_high	Tango::DEV_ULONG	Unique ieee1394 camera id - high 32 bits
Ieee1394_mode	Tango::DEV_LONG	Ieee1394 mode - 0 == A (400 MHz) , 1 == B (800 MHz)

Device Properties Default Values:

Property Name	Default Values
Camera_number	No default value
Camera_id_low	0
Camera_id_high	0
Ieee1394_mode	No default value

There is no Class properties.

States:

States	
Names	Descriptions
ON	camera is exposing
OFF	camera is ready to start a new exposure
FAULT	camera is in fault

Attributes:

Scalar Attributes			
Attribute name	Data Type	R/W Type	Expert
Info	DEV_STRING	READ	No

Exposure	DEV_DOUBLE	READ_WRITE	No
Width: width of image in pixels	DEV_LONG	READ	No
Height: height of image in pixels	DEV_LONG	READ	No
Frames: number of images to take	DEV_LONG	READ_WRITE	No
FileFormat: file format for saving images to disk	DEV_STRING	READ_WRITE	No
VideoMode	DEV_SHORT	READ_WRITE	No
VideoModeTag	DEV_STRING	READ	No
Depth: number of bits per pixel	DEV_SHORT	READ_WRITE	No
BayerMethod: select a Bayer method to convert raw pixels to rgb color	DEV_SHORT	READ_WRITE	No
ColorFilter: select a color filter to convert raw pixels to rgb color	DEV_SHORT	READ_WRITE	No
FrameRate	DEV_DOUBLE	READ_WRITE	No
ImageFormat	DEV_STRING	READ_WRITE	No
ImageCounter	DEV_LONG	READ	No
JpegQuality	DEV_SHORT	READ_WRITE	No
JpegCompression	DEV_BOOLEAN	READ_WRITE	No
WriteFile	DEV_BOOLEAN	READ_WRITE	Yes
FlipVertical	DEV_BOOLEAN	READ_WRITE	No
FlipHorizontal	DEV_BOOLEAN	READ_WRITE	No
AutoFeatures	DEV_BOOLEAN	READ_WRITE	No
RelativeUnits: read and write features in relative (camera specific) units	DEV_BOOLEAN	READ_WRITE	No
Brightness	DEV_DOUBLE	READ_WRITE	No
Sharpness	DEV_DOUBLE	READ_WRITE	No
WhiteBalance	DEV_DOUBLE	READ_WRITE	No
Hue	DEV_DOUBLE	READ_WRITE	No
Saturation	DEV_DOUBLE	READ_WRITE	No
Gamma	DEV_DOUBLE	READ_WRITE	No
Gain	DEV_DOUBLE	READ_WRITE	No
Iris	DEV_DOUBLE	READ_WRITE	No
Focus	DEV_DOUBLE	READ_WRITE	No
Temperature	DEV_DOUBLE	READ	No
TriggerDelay	DEV_DOUBLE	READ_WRITE	No
WhiteShading	DEV_DOUBLE	READ_WRITE	No

Trigger	DEV_SHORT	READ_WRITE	No
TriggerMode	DEV_SHORT	READ_WRITE	No
TriggerPolarity	DEV_SHORT	READ_WRITE	No
TriggerSource	DEV_SHORT	READ_WRITE	No

Spectrum Attributes			
Attribute name	Data Type	X Data Length	Expert
Roi: coordinates of the region of interest	DEV_LONG	4	No
Binning: binning factor of image	DEV_SHORT	2	No
FileParams: the file parameters for generating file names (directory, prefix, suffix, number)	DEV_STRING	4	No
VideoModesSupported	DEV_STRING	32	No
JpegImage	DEV_UCHAR	64000000	No

Image Attributes				
Attribute name	Data Type	X Data Length	Y Data Length	Expert
Image: image data	DEV_UCHAR	12288	4096	No

Commands:

More Details on commands....

Device Commands for Operator Level		
Command name	Argument In	Argument Out
Init	DEV_VOID	DEV_VOID
State	DEV_VOID	DEV_STATE
Status	DEV_VOID	CONST_DEV_STRING
Start	DEV_VOID	DEV_VOID
Stop	DEV_VOID	DEV_VOID
Reset	DEV_VOID	DEV_VOID
WriteFile	DEV_VOID	DEV_VOID
Live	DEV_VOID	DEV_VOID
ResetRoi	DEV_VOID	DEV_VOID
PowerOff	DEV_VOID	DEV_VOID
PowerOn	DEV_VOID	DEV_VOID

1 - Init

- **Description:** This commands re-initialise a device keeping the same network connection.
After an Init command executed on a device, it is not necessary for client to re-connect to the device.
This command first calls the device *delete_device()* method and then execute its *init_device()* method.
For C++ device server, all the memory allocated in the *nit_device()* method must be freed in the *delete_device()* method.
The language device desctructor automatically calls the *delete_device()* method.
- **Argin:**
DEV_VOID : none.
- **Argout:**
DEV_VOID : none.
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT

2 - State

- **Description:** This command gets the device state (stored in its *device_state* data member) and returns it to the caller.
- **Argin:**
DEV_VOID : none.
- **Argout:**
DEV_STATE : State Code
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT

3 - Status

- **Description:** This command gets the device status (stored in its *device_status* data member) and returns it to the caller.
- **Argin:**
DEV_VOID : none.
- **Argout:**
CONST_DEV_STRING : Status description
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT

4 - Start

- **Description:** start camera exposing
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**

- Tango::OFF
- Tango::FAULT

5 - Stop

- **Description:** stop camera exposing
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT

6 - Reset

- **Description:** reset camera roi
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::OFF
 - Tango::FAULT

7 - WriteFile

- **Description:** write image to file in the selected format, use the file parameters to generate file name
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ON
- Tango::OFF
- Tango::FAULT

8 - Live

- **Description:** put camera in live mode

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ON
- Tango::OFF

9 - ResetRoi

- **Description:** Reset roi to full image

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :

- **Command allowed for:**

- Tango::ON
- Tango::OFF
- Tango::FAULT

10 - PowerOff

- **Description:** Power camera down

- **Argin:**
DEV_VOID :

- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT

11 - PowerOn

- **Description:** Power camera up
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT

TANGO is an open source project hosted by :


Core and Tools : CVS repository on tango-cs project
 Device Servers : CVS repository on tango-ds project