

Ccd Tango Cpp Class

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Ccd Class Identification :

Contact : at esrf.fr - goetz
Class Family : AbstractClasses
Platform : All Platforms
Bus : Not Applicable
Manufacturer : none
Manufacturer ref. :

Ccd Class Inheritance :

- [Tango::DeviceImpl](#)
 - Ccd

Ccd Class Description :

Abstract class for charged coupled device (ccd) cameras.

Ccd Properties :

There is no class properties

There is no device properties

Ccd Class Commands				
Name	Input type	Output type	Level	Description
State	DEV_VOID	DEV_STATE	OPERATOR	This command gets the device state (stored in its <i>device_state</i> data member) and returns it to the caller.
Status	DEV_VOID	CONST_DEV_STRING	OPERATOR	This command gets the device status (stored in its <i>device_status</i> data member) and returns it to the caller.
Start	DEV_VOID	DEV_VOID	OPERATOR	start camera exposing
Stop	DEV_VOID	DEV_VOID	OPERATOR	stop camera exposing
Reset	DEV_VOID	DEV_VOID	OPERATOR	reset camera
WriteFile	DEV_VOID	DEV_VOID	OPERATOR	write image to file in the selected format, use the file parameters to generate file name

Command State :

This command gets the device state (stored in its *device_state* data member) and returns it to the caller.

State Definition		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::DEV_STATE	State Code
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Status :

This command gets the device status (stored in its *device_status* data member) and returns it to the caller.

Status Definition		
Input Argument	Tango::DEV_VOID	none.
Output Argument	Tango::CONST_DEV_STRING	Status description
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Start :

start camera exposing

Start Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Stop :

stop camera exposing

Stop Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Reset :

reset camera

Reset Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command WriteFile :

write image to file in the selected format, use the file parameters to generate file name

WriteFile Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..

Inherited	null	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Ccd Class Attributes							
Name	Inherited	Abstract	Attr. type	R/W type	Data type	Level	Description
Exposure	null	true	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	the exposure time for the image
Trigger	null	true	Scalar	READ_WRITE	Tango::DEV_SHORT	OPERATOR	trigger mode of camera (0=internal, 1=external)
Width	null	true	Scalar	READ	Tango::DEV_LONG	OPERATOR	width of image in pixels
Height	null	true	Scalar	READ	Tango::DEV_LONG	OPERATOR	height of image in pixels
Frames	null	true	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	number of images to take
Depth	null	true	Scalar	READ	Tango::DEV_SHORT	OPERATOR	number of bits per pixel
FileFormat	null	true	Scalar	READ_WRITE	Tango::DEV_STRING	OPERATOR	file format for saving images to disk
ImageFormat	null	true	Scalar	READ_WRITE	Tango::DEV_STRING	OPERATOR	
ImageCounter	null	true	Scalar	READ	Tango::DEV_LONG	OPERATOR	
JpegQuality	null	true	Scalar	READ_WRITE	Tango::DEV_SHORT	OPERATOR	
JpegCompression	null	true	Scalar	READ_WRITE	Tango::DEV_BOOLEAN	OPERATOR	
Roi	null	true	Spectrum	READ_WRITE	Tango::DEV_LONG	OPERATOR	coordinates of the region of interest
Binning	null	true	Spectrum	READ_WRITE	Tango::DEV_SHORT	OPERATOR	binning factor of image
							the file parameters

FileParams	null	true	Spectrum	READ_WRITE	Tango::DEV_STRING	OPERATOR	for generating file names (directory, prefix, suffix, number)
JpegImage	null	true	Spectrum	READ	Tango::DEV_UCHAR	OPERATOR	
Image	null	true	Image	READ	Tango::DEV_UCHAR	OPERATOR	image data

There is no dynamic attribute defined.

Attribute Exposure :

the exposure time for the image

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_DOUBLE
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	exposure
unit	seconds
standard unit	seconds
display unit	seconds
format	%6.3d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Trigger :

trigger mode of camera (0=internal, 1=external)

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_SHORT
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	trigger
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Width :

width of image in pixels

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	null

Attribute Properties	
label	width
unit	pixels
standard unit	pixels
display unit	pixels
format	
max_value	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set

Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Height :

height of image in pixels

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	height
unit	pixels
standard unit	pixels
display unit	pixels
format	%d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Frames :

number of images to take

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	frames
unit	
standard unit	
display unit	
format	%d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Depth :

number of bits per pixel

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_SHORT
Display Level	OPERATOR

Attribute Properties	
label	depth
unit	bits
standard unit	bits
display unit	bits

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set

Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

format	%d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute FileFormat :

file format for saving images to disk

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_STRING
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	file format
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute ImageFormat :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_STRING
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute ImageCounter :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ
Data Type	Tango::DEV_LONG
Display Level	OPERATOR

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set

Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute JpegQuality :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_SHORT
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute JpegCompression :

Attribute Definition	
Attribute Type	Scalar
R/W Type	READ_WRITE
Data Type	Tango::DEV_BOOLEAN
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Roi :

coordinates of the region of interest

Attribute Definition	
Attribute Type	Spectrum (4)
R/W Type	READ_WRITE
Data Type	Tango::DEV_LONG
Display Level	OPERATOR
Inherited	null

Attribute Properties	
label	region of interest
unit	pixels
standard unit	pixels
display unit	pixels
format	%d

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set

Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Binning :

binning factor of image

Attribute Definition	
Attribute Type	Spectrum (2)
R/W Type	READ_WRITE
Data Type	Tango::DEV_SHORT
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	binning
unit	pixels
standard unit	pixels
display unit	pixels
format	%d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute FileParams :

the file parameters for generating file names (directory, prefix, suffix, number)

Attribute Definition	
Attribute Type	Spectrum (4)
R/W Type	READ_WRITE
Data Type	Tango::DEV_STRING
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states
Write allowed for	All states

Attribute Properties	
label	file parameters
unit	
standard unit	
display unit	
format	
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute JpegImage :

Attribute Definition	
Attribute Type	Spectrum (64000000)
R/W Type	READ
Data Type	Tango::DEV_UCHAR
Display Level	OPERATOR
Inherited	null

Attribute Properties	
label	
unit	
standard unit	
display unit	
format	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set

Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Attribute Image :

image data

Attribute Definition	
Attribute Type	Image (4096 x 4096)
R/W Type	READ
Data Type	Tango::DEV_UCHAR
Display Level	OPERATOR
Inherited	null
Abstract	true
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	image
unit	
standard unit	
display unit	
format	RawImage
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

Attribute Event Criteria	
Periodic	Not set
Relative Change	Not set
Absolute Change	Not set
Archive Periodic	Not set
Archive Relative Change	Not set
Archive Absolute Change	Not set
Push Change event by user code	Not set
Push Archive event by user code	Not set
Push DataReady event by user code	Not set

Ccd Class States	
Name	Description
ON	camera is exposing
OFF	camera is ready to start a new exposure
FAULT	camera is in fault