

## ImagePro Tango Cpp Class

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### **ImagePro Class Identification :**

Contact : at null - null  
Class Family :  
Platform :  
Bus :  
Manufacturer :  
Manufacturer ref. :

### **ImagePro Class Inheritance :**

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

### **ImagePro Class Description :**

A device class to control the ImagePro image acquisition

and analysis program via a device server. ImagePro is a sophisticated program for image analysis which has drivers for a number of cameras. All the ImagePro functions (known as Auto-Pro functions) can be called via the mouse, from a macros or from Visual C++. The device server provides remote client access to ImagePro using the visual C++ interface. Thereby enabling clients like SPEC to control the beamline motors and send remote commands to ImagePro.

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**ImagePro Properties :**

**There is no class properties**

**There is no device properties**

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ImagePro Class Commands				
Name	Input type	Output type	Level	Description
<a href="#">State</a>	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.
<a href="#">Status</a>	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.
<a href="#">Start</a>	DEV_VOID	DEV_VOID	OPERATOR	start camera exposing
<a href="#">Stop</a>	DEV_VOID	DEV_VOID	OPERATOR	stop camera exposing
<a href="#">Reset</a>	DEV_VOID	DEV_VOID	OPERATOR	reset camera
<a href="#">WriteFile</a>	DEV_VOID	DEV_VOID	OPERATOR	write image to file in the selected format, use the file parameters to generate file name

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**Command State :**

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

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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	..

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### **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	..

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### **Command Start :**

start camera exposing

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

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

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### **Command Stop :**

stop camera exposing

<b>Stop Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
		..
Command allowed for	All states	..

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### **Command Reset :**

reset camera

<b>Reset Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
		..
		..

### **Command WriteFile :**

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

<b>WriteFile Definition</b>		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_VOID	
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

<b>ImagePro Class Attributes</b>							
<b>Name</b>	<b>Inherited</b>	<b>Abstract</b>	<b>Attr. type</b>	<b>R/W type</b>	<b>Data type</b>	<b>Level</b>	<b>Description</b>
<a href="#">Exposure</a>	true	false	Scalar	READ_WRITE	Tango::DEV_DOUBLE	OPERATOR	the exposure time for the image
<a href="#">Roi</a>	true	false	Spectrum	READ_WRITE	Tango::DEV_SHORT	OPERATOR	coordinates of the region of interest
<a href="#">Binning</a>	true	false	Spectrum	READ_WRITE	Tango::DEV_SHORT	OPERATOR	binning factor of image
<a href="#">Trigger</a>	true	false	Scalar	READ_WRITE	Tango::DEV_SHORT	OPERATOR	trigger mode of camera (0=internal, 1=external)
<a href="#">Width</a>	true	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	width of image in pixels

<a href="#">Height</a>	true	false	Scalar	READ	Tango::DEV_LONG	OPERATOR	height of image in pixels
<a href="#">Frames</a>	true	false	Scalar	READ_WRITE	Tango::DEV_LONG	OPERATOR	number of images to take
<a href="#">Depth</a>	true	false	Scalar	READ	Tango::DEV_SHORT	OPERATOR	number of bits per pixel
<a href="#">FileParams</a>	true	false	Spectrum	READ_WRITE	Tango::DEV_STRING	OPERATOR	the file parameters for generating file names (directory, prefix, suffix, number)
<a href="#">FileFormat</a>	true	false	Scalar	READ_WRITE	Tango::DEV_STRING	OPERATOR	file format for saving images to disk
<a href="#">Image</a>	true	false	Image	READ	Tango::DEV_USHORT	OPERATOR	image data

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**There is no dynamic attribute defined.**

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**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	true

Attribute Properties	
label	exposure
unit	seconds
standard unit	seconds
display unit	seconds
format	%6.3f
max_value	
min_value	

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

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

max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

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

### **Attribute Roi :**

coordinates of the region of interest

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

<b>Attribute Properties</b>	
label	region of interest
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	

<b>Attribute Event Criteria</b>	
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	false
Push Archive event by user code	false
Push DataReady event	Not

**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	true
Abstract	false
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	false
Push Archive event by user code	false
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	true
Abstract	false
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	false
Push Archive event by user code	false
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	true
Abstract	false
Polling Period	Not polled
Memorized	Not set

Attribute Properties	
label	width
unit	pixels
standard unit	pixels
display unit	pixels
format	%d
max_value	
min_value	
max_alarm	
min_alarm	

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

Read allowed for	All states
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max_warning	
min_warning	
delta_time	
delta_val	

Archive Absolute Change	Not set
Push Change event by user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

### **Attribute Height :**

height of image in pixels

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

<b>Attribute Properties</b>	
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	

<b>Attribute Event Criteria</b>	
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	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

## **Attribute Frames :**

number of images to take

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

<b>Attribute Properties</b>	
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	

<b>Attribute Event Criteria</b>	
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	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

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## **Attribute Depth :**

number of bits per pixel

<b>Attribute Definition</b>	
Attribute Type	Scalar

<b>Attribute Properties</b>	
label	depth
unit	bits

<b>Attribute Event Criteria</b>	
Periodic	Not set
Relative Change	Not set

R/W Type	READ
Data Type	Tango::DEV_SHORT
Display Level	OPERATOR
Inherited	true
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

standard unit	bits
display unit	bits
format	%d
max_value	
min_value	
max_alarm	
min_alarm	
max_warning	
min_warning	
delta_time	
delta_val	

	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	false
Push Archive event by user code	false
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	true
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read 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	

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	

Write allowed for	All states
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delta_val	
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user code	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

### **Attribute FileFormat :**

file format for saving images to disk

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

<b>Attribute Properties</b>	
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	

<b>Attribute Event Criteria</b>	
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	false
Push Archive event by user code	false
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_USHORT
Display Level	OPERATOR
Inherited	true
Abstract	false
Polling Period	Not polled
Memorized	Not set
Read allowed for	All states

Attribute Properties	
label	image
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	false
Push Archive event by user code	false
Push DataReady event by user code	Not set

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