



TANGO Device Server

Bpm for an image coming from a ccd User's Guide

BpmCcd Class

Revision: BpmCcd-Release_3_4 - Author: vasole
Implemented in C++ - CVS repository: tango-ds

Introduction:

This Bpm uses the libraries from the bliss ccd to calculate the beam position from the image read from a firewire ccd camera or any other ccd device server which implements the ccd abstract interface.

Class Inheritance:

- Tango::DeviceImpl
  - Bpm
    - BpmCcd

Properties:

Device Properties		
Property name	**Property type**	**Description**
Ccd_device	Tango::DEV_STRING	name of ccd device

Device Properties Default Values:

Property Name	**Default Values**
Ccd_device	No default value

There is no Class properties.

States:

States	
Names	**Descriptions**
ON	The BPM calculations are switched on.
OFF	The BPM calculations are switched off
FAULT	The BPM calculation failed

Attributes:

Scalar Attributes

Attribute name	Data Type	R/W Type	Expert
X: Beam position in X	DEV_DOUBLE	READ	No
Y: Beam position in Y	DEV_DOUBLE	READ	No
XFwhm: Beam size, full width half maximum in X	DEV_DOUBLE	READ	No
YFwhm: Beam size, full width half maximum in Y	DEV_DOUBLE	READ	No
Intensity: Integrated beam intensity over the image	DEV_DOUBLE	READ	No
MaxPixelValue: The value of the brightest pixel in the image	DEV_LONG	READ	No
Roi_automatic	DEV_BOOLEAN	READ_WRITE	No
ImageCounter: Corresponds to the image counter of the ccd device of the last calculated image. Can be used to correlate the calculated beam parameters with a taken image.	DEV_LONG	READ	No
Average: The coefficient used for the linear averaging of the images. 1 = no averaging, 100 = averaging with a coefficient of 0.01.	DEV_LONG	READ_WRITE	No
Threshold: Threshold on image. If a pixel value is < threshold the pixel value is set to 0.	DEV_LONG	READ_WRITE	No
RoiExtension: Extends the automatic AOI to x times the calculated FWHM around the found maximum	DEV_DOUBLE	READ_WRITE	No
BorderExclusion: Excludes x rows and columns at the image border from the calculations	DEV_LONG	READ_WRITE	No
Enable_X: Calculates beam position and size in X when true	DEV_BOOLEAN	READ_WRITE	No
Enable_Y: Claculates beam position and size in Y when true	DEV_BOOLEAN	READ_WRITE	No
GaussFittMax: Fitt a gausian to the peak points of the profiles to find the real maximum value. Increases the precission of the full width half max. beam size calaculation	DEV_BOOLEAN	READ_WRITE	No
BackgroundSubstraction: Substracts the background level found at the AOI borders from the image	DEV_BOOLEAN	READ_WRITE	No
CcdDeviceName	DEV_STRING	READ	No
Enable_FwhmTuning: When set to true the FWHM is recalculted with a profile of only a part of the image around the beam center. The extension of this area is defined by FwhmTuningExtension attribute.	DEV_BOOLEAN	READ_WRITE	No
FwhmTuningExtension: Extends the profiling area for the FWHM recalculation to x times the calculated FWHM on the full image around the found maximum.	DEV_DOUBLE	READ_WRITE	No

Spectrum Attributes			
Attribute name	**Data Type**	**X Data Length**	**Expert**
Roi	DEV_LONG	4	No
Profile_X: Image projection in X	DEV_DOUBLE	4096	No
Profile_Y: Image projection in Y	DEV_DOUBLE	4096	No

Image Attributes				
Attribute name	**Data Type**	**X Data Length**	**Y Data Length**	**Expert**
ResImage: Image after averaging and threshold.	DEV_DOUBLE	4096	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
Off	DEV_VOID	DEV_VOID
On	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 - Off

- **Description:** Switch off the BPM calculation.

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

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

5 - On

- **Description:** Switch on the BPM calculations.

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

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