



**TANGO**  
Device  
Server

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# **ADSC\_CCD User's Guide**

## **ADSC\_CCD Class**

Revision: keyword substitution - Author: jean\_coquet  
Implemented in C++ - CVS repository: tango-ds

### **Introduction:**

handles ADSC CCD specific to PX1 beamline

### **Class Inheritance:**

- Tango::Device\_4Impl
  - ADSC\_CCD

### **Properties:**

| Device Properties         |                   |                                               |
|---------------------------|-------------------|-----------------------------------------------|
| Property name             | Property type     | Description                                   |
| <b>HostName</b>           | Tango::DEV_STRING | hostname for the CCD controller eg raid927    |
| <b>LocalLog</b>           | Tango::DEV_STRING | file for library logging (with path)          |
| <b>XFPort</b>             | Tango::DEV_STRING | port for XF communication (image gather port) |
| <b>DTPort</b>             | Tango::DEV_STRING | port for DT (Detector) communication          |
| <b>DTSecPort</b>          | Tango::DEV_STRING | 2nd port for DT (Detector) port communication |
| <b>XFHostName</b>         | Tango::DEV_STRING | hostname for image gathering                  |
| <b>DCCConfig</b>          | Tango::DEV_STRING | configuration file for the Detector           |
| <b>NumberOfCCDModules</b> | Tango::DEV_STRING | number of CCD modules                         |

Device Properties Default Values:

| Property Name      | Default Values                               |
|--------------------|----------------------------------------------|
| HostName           | raid927                                      |
| LocalLog           | ./default_library_log.txt                    |
| XFPort             | 8046                                         |
| DTPort             | 8041                                         |
| DTSecPort          | 8049                                         |
| XFHostName         | raid927                                      |
| DCCConfig          | /data/ccd/ccd_dist/tables_api_927/config_ccd |
| NumberOfCCDModules | 9                                            |

**There is no Class properties.**

**Attributes:**

| Scalar Attributes                                                                                                                                                                                 |             |            |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|--------|
| Attribute name                                                                                                                                                                                    | Data Type   | R/W Type   | Expert |
| <b>binning:</b> binning in x/y                                                                                                                                                                    | DEV_USHORT  | READ_WRITE | No     |
| <b>fileName:</b> set here the file name form : /data/tmp/my_file_name do not add extension image number and extension will be automatically added according to imageStartNumber ans fileExtension | DEV_STRING  | READ_WRITE | No     |
| <b>fileExtension:</b> set here the file extension                                                                                                                                                 | DEV_STRING  | READ_WRITE | No     |
| <b>imageStartNumber:</b> W : image start number R : current image number                                                                                                                          | DEV_LONG    | READ_WRITE | No     |
| <b>collectAxis:</b> set here the Axis name for the current collect must be omega or phi if mismatch defaults to omega                                                                             | DEV_STRING  | READ_WRITE | No     |
| <b>collectAxisAngle:</b> current angle for the collect axis (see colletAxis definition)                                                                                                           | DEV_FLOAT   | WRITE      | No     |
| <b>distance:</b> distance detector-cristal                                                                                                                                                        | DEV_FLOAT   | WRITE      | No     |
| <b>wavelength:</b> longueur d'onde                                                                                                                                                                | DEV_FLOAT   | WRITE      | No     |
| <b>oscRange:</b> Oscillation Range                                                                                                                                                                | DEV_FLOAT   | WRITE      | No     |
| <b>time:</b> Exposure time                                                                                                                                                                        | DEV_FLOAT   | WRITE      | No     |
| <b>beam_x:</b> X position of beam                                                                                                                                                                 | DEV_FLOAT   | WRITE      | No     |
| <b>beam_y:</b> Y position of beam                                                                                                                                                                 | DEV_FLOAT   | WRITE      | No     |
| <b>jpeg1FileName:</b> set here the jpeg 1 file name                                                                                                                                               | DEV_STRING  | READ_WRITE | No     |
| <b>jpeg1Size:</b> set here the jpeg 1 image size form 128x128                                                                                                                                     | DEV_STRING  | READ_WRITE | No     |
| <b>jpeg2FileName:</b> set here the jpeg 2 file name                                                                                                                                               | DEV_STRING  | READ_WRITE | No     |
| <b>jpeg2Size:</b> set here the jpeg 2 image size form 128x128                                                                                                                                     | DEV_STRING  | READ_WRITE | No     |
| <b>imageKind:</b> image kind : 0 : dark image 1 : 2nd dark image 4 : normal image 5 : normal image                                                                                                | DEV_SHORT   | READ_WRITE | No     |
| <b>lastImage:</b> this parameter when set causes the current image to be written out                                                                                                              | DEV_BOOLEAN | READ_WRITE | No     |

| Spectrum Attributes                                                                   |            |               |        |
|---------------------------------------------------------------------------------------|------------|---------------|--------|
| Attribute name                                                                        | Data Type  | X Data Length | Expert |
| <b>temperature:</b> temperatures of the detector 9 temperatures for the 9 CCD modules | DEV_DOUBLE | 9             | Yes    |

# Commands:

More Details on commands....

| Device Commands for Operator Level |             |                  |
|------------------------------------|-------------|------------------|
| Command name                       | Argument In | Argument Out     |
| <b>Init</b>                        | DEV_VOID    | DEV_VOID         |
| <b>State</b>                       | DEV_VOID    | DEV_STATE        |
| <b>Status</b>                      | DEV_VOID    | CONST_DEV_STRING |
| <b>Start</b>                       | DEV_VOID    | DEV_VOID         |
| <b>Stop</b>                        | DEV_VOID    | DEV_VOID         |
| <b>Reset</b>                       | DEV_VOID    | DEV_VOID         |
| <b>WriteFile</b>                   | DEV_VOID    | DEV_VOID         |

| Device Commands for Expert Level Only |                    |                    |
|---------------------------------------|--------------------|--------------------|
| Command name                          | Argument In        | Argument Out       |
| <b>GetFileParameters</b>              | DEV_VOID           | DEVVAR_STRINGARRAY |
| <b>SetFileParameters</b>              | DEVVAR_STRINGARRAY | DEV_VOID           |
| <b>SetHWParameters</b>                | DEVVAR_STRINGARRAY | DEV_VOID           |
| <b>GetHWParameters</b>                | DEV_VOID           | DEVVAR_STRINGARRAY |
| <b>EnableTemperatureControl</b>       | DEV_VOID           | DEV_VOID           |
| <b>SetDetectorCold</b>                | DEV_VOID           | DEV_VOID           |
| <b>SetDetectorWarm</b>                | 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:**

## 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:**

## 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:**

## 4 - Start

- **Description:** starts the acquisition
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 5 - Stop

- **Description:** stops the acquisition
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 6 - GetFileParameters (for expert only)

- **Description:** returns the full set of file parameters. Implemented for compatibility with TACO DeviceServer
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEVVAR\_STRINGARRAY :
- **Command allowed for:**

## 7 - SetFileParameters (for expert only)

- **Description:** sets a file parameters. Implemented for compatibility with TACO DeviceServer
- **Argin:**  
DEVVAR\_STRINGARRAY :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 8 - SetHWParameters (for expert only)

- **Description:** sets hardware parameter(s). Implemented for compatibility with TACO DeviceServer  
name min\_value max\_value bin, 1, 2 adc, 0, 1 save\_raw, 0, 1 dark, 0, 1 dark\_mode, 0, 1 no\_xform, 0, 1 loadfile, 0, 1 temp\_cold, 0, 1 temp\_warm, 0, 1 temp\_mode, 0, 1 temp\_value, -47, +20
- **Argin:**  
DEVVAR\_STRINGARRAY :

- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 9 - GetHWParameters (for expert only)

- **Description:** returns the full set of hardware parameters
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEVVAR\_STRINGARRAY :
- **Command allowed for:**

## 10 - EnableTemperatureControl (for expert only)

- **Description:**
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 11 - Reset

- **Description:** Issues an Abort on the HW : stops the running acquisition cleans the buffer
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 12 - WriteFile

- **Description:** sends to the HW a command to write the image file on disk
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 13 - SetDetectorCold (for expert only)

- **Description:** turns the detector cooling system to Cold
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

## 14 - SetDetectorWarm (for expert only)

- **Description:** turns the detector cooling system to Warm
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**

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