



**TANGO**  
Device  
Server

# **XMCD**

## **User's Guide**

### **XMCD Class**

Revision: release\_1\_3\_2 - Author: malik  
Implemented in C++

## **Introduction:**

X Ray Magnetic Dichroism

## **Class Inheritance:**

- Tango::Device\_3Impl
  - XMCD

## **Properties:**

## Device Properties

Property name	Property type	Description
<b>MagFieldProxy</b>	Tango::DEV_STRING	the device name of the associated BrukerBTPS
<b>CCDProxy</b>	Tango::DEV_STRING	the device name of the associated CCD
<b>Delay</b>	Tango::DEV_DOUBLE	time (in seconds) to wait after each write operation on the MagFieldProxyDevice
<b>Current</b>	Tango::DEV_DOUBLE	initial value of 'current' attribute after INIT
<b>NbIteration</b>	Tango::DEV_LONG	initial value of 'nbIteration' attribute after INIT

### Device Properties Default Values:

Property Name	Default Values
MagFieldProxy	No default value
CCDProxy	No default value
Delay	No default value
Current	No default value
NbIteration	No default value

**There is no Class properties.**

### States:

States	
Names	Descriptions
<b>RUNNING</b>	an acquisition is currently running
<b>FAULT</b>	either one of the underlying device is in FAULT, either an error occurred during the sequence
<b>STANDBY</b>	waiting for the START command

### Attributes:

## Scalar Attributes

Attribute name	Data Type	R/W Type	Expert
<b>current:</b> the current value applied to the MagFieldProxy device	DEV_DOUBLE	READ_WRITE	No
<b>nbIteration:</b> the number of iterations to be done for a complete sequence	DEV_LONG	READ_WRITE	No
<b>currentIteration:</b> if an acquisition is running, this corresponds to the current iteration of the acquisition sequence	DEV_LONG	READ	No
<b>delay:</b> the time to wait after the magnetic field has changed	DEV_DOUBLE	READ_WRITE	No

## Spectrum Attributes

Attribute name	Data Type	X Data Length	Expert
<b>xmcdSpectrum:</b> the result of the computation	DEV_DOUBLE	131072	No

## 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>Iterate</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:**

- Tango::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 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::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 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::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 4 - Start

- **Description:** starts an acquisition sequence

- **Argin:**

**DEV\_VOID** :

- **Argout:**

**DEV\_VOID** :

- **Command allowed for:**

- Tango::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 5 - Stop

- **Description:** stops the acquisition sequence which is currently running
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**
  - Tango::RUNNING
  - Tango::FAULT
  - Tango::STANDBY

## 6 - Iterate

- **Description:** execute one XMCD iteration
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**
  - Tango::RUNNING
  - Tango::FAULT
  - Tango::STANDBY

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**There is no Class properties.**

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States	
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<b>STANDBY</b>	waiting for the START command

### Attributes:

## Scalar Attributes

Attribute name	Data Type	R/W Type	Expert
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<b>nbIteration:</b> the number of iterations to be done for a complete sequence	DEV_LONG	READ_WRITE	No
<b>currentIteration:</b> if an acquisition is running, this corresponds to the current iteration of the acquisition sequence	DEV_LONG	READ	No
<b>delay:</b> the time to wait after the magnetic field has changed	DEV_DOUBLE	READ_WRITE	No

## Spectrum Attributes

Attribute name	Data Type	X Data Length	Expert
<b>xmcdSpectrum:</b> the result of the computation	DEV_DOUBLE	131072	No

## 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>Iterate</b>	DEV_VOID	DEV_VOID

### 1 - Init

- **Description:** This commands re-initialise a device keeping the same network connection.  
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The language device desctructor automatically calls the *delete\_device()* method.
- **Argin:**  
**DEV\_VOID** : none.
- **Argout:**  
**DEV\_VOID** : none.



- **Command allowed for:**

- Tango::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 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::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 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::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 4 - Start

- **Description:** starts an acquisition sequence

- **Argin:**

**DEV\_VOID** :

- **Argout:**

**DEV\_VOID** :

- **Command allowed for:**

- Tango::RUNNING
- Tango::FAULT
- Tango::STANDBY

## 5 - Stop

- **Description:** stops the acquisition sequence which is currently running
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**
  - Tango::RUNNING
  - Tango::FAULT
  - Tango::STANDBY

## 6 - Iterate

- **Description:** execute one XMCD iteration
- **Argin:**  
DEV\_VOID :
- **Argout:**  
DEV\_VOID :
- **Command allowed for:**
  - Tango::RUNNING
  - Tango::FAULT
  - Tango::STANDBY

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# XMCD

## Device Commands Description

### XMCD Class

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- **Argin:**  
**DEV\_VOID** : none.
- **Argout:**  
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- **Command allowed for:**
  - Tango::RUNNING
  - Tango::FAULT
  - Tango::STANDBY

## 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::RUNNING
- Tango::FAULT
- Tango::STANDBY

### 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::RUNNING
- Tango::FAULT
- Tango::STANDBY

### 4 - Start

- **Description:** starts an acquisition sequence

- **Argin:**

**DEV\_VOID** :

- **Argout:**

**DEV\_VOID** :

- **Command allowed for:**

- Tango::RUNNING
- Tango::FAULT
- Tango::STANDBY

### 5 - Stop

- **Description:** stops the acquisition sequence which is currently running

- **Argin:**

**DEV\_VOID** :

- **Argout:**

**DEV\_VOID :**

- **Command allowed for:**
  - Tango::RUNNING
  - Tango::FAULT
  - Tango::STANDBY

## **6 - Iterate**

- **Description:** execute one XMCD iteration
  - **Argin:**  
**DEV\_VOID :**
  - **Argout:**  
**DEV\_VOID :**
  - **Command allowed for:**
    - Tango::RUNNING
    - Tango::FAULT
    - Tango::STANDBY
- 

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