



TANGO
Device
Server

MasterSource User's Guide

Mastersource Class

Revision: - Author: goetz
Implemented in C++ - CVS repository: ESRF

Introduction:

MasterSource tango device server. This class uses the gpibDevice object.

Properties:

Device Properties		
Property name	Property type	Description
Gpib_device_name	Tango::DEV_STRING	This is the name used to find device on the gpib bus. It's configured on the gpiboard with the ibconf application.
Default_frequency	Tango::DEV_LONG	default base mastersource frequency.
Default_level	Tango::DEV_FLOAT	default mastersource amplitude.
Max_level	Tango::DEV_FLOAT	Mastersource max amplitude.
Min_level	Tango::DEV_FLOAT	Mastersource minimum amplitude.
Gpib_device_address	Tango::DEV_SHORT	
HdbAccessDeviceName	Tango::DEV_STRING	This property should contain device name of a server able to push data into the HDB taco database (usually HdbAccess class).
Hdb_signal_name	Tango::DEV_STRING	This is the name of the signal associated with mastersource frequency. This property is used with hdbAccess server.
Hdb_storage_frequency	Tango::DEV_LONG	This is the frequency, in seconds, of mastersource frequency storage in HDB.
Gpib_board_name	Tango::DEV_STRING	This is the name of the enet/100 board on which the device is plugged.
Hdb_storage_flag	Tango::DEV_SHORT	If !=0 this flag means that we should store in HDB. 0 means do not store data in HDB.
Dev_get_sig_config_field2	Tango::DEV_STRING	What is returned by dev_get_sig_config, a string array, at index [1]. It seems to be a command name to set the value of the signal.
Dev_get_sig_config_field14	Tango::DEV_STRING	What is returned by dev_get_sig_config, a string array, at index [13]. It seems to be the signal name.
Mult_factor	Tango::DEV_DOUBLE	This factor is used when Mastersources are coupled with frequency multipliers. This allows tango server to display multiplied frequency. Ex: Linac mastersource need frequency about 3Ghz. SMG mastersource allows a 1Ghz Max frequency. That's why mastersource is coupled with a x3 freq multiplier. With the multiplier_factor, the server applies (val / Mult_factor) or (val * Mult_factor) on Write/Read operations. The client doesn't need to do it himself anymore, it's done on server side.

Device Properties Default Values:

Property Name	Default Values
Gpib_device_name	No default value
Default_frequency	No default value
Default_level	No default value
Max_level	No default value
Min_level	No default value
Gpib_device_address	No default value
HdbAccessDeviceName	No default value
Hdb_signal_name	No default value
Hdb_storage_frequency	No default value
Gpib_board_name	No default value
Hdb_storage_flag	No default value
Dev_get_sig_config_field2	No default value
Dev_get_sig_config_field14	No default value
Mult_factor	No default value

There is no Class properties.

States:

States	
Names	Descriptions
ON	The mastersource is generating the reference signal
OFF	The mastersource is not generating the reference signal.
FAULT	Incorrect properties: default_level / default_frequency out of min/max properties.
ALARM	

Attributes:

Scalar Attributes

Attribute name	Data Type	R/W Type	Expert
frequency: Mastersource base frequency.	DEV_DOUBLE	READ_WRITE	No
level: Amplitude of the generated signal.	DEV_DOUBLE	READ_WRITE	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
DevReadFrequency	DEV_VOID	DEVVAR_LONGARRAY
DevSetFrequency	DEV_LONG	DEV_VOID
DevSetLevel	DEV_FLOAT	DEV_VOID
DevReadLevel	DEV_VOID	DEVVAR_DOUBLEARRAY
DevReset	DEV_VOID	DEV_VOID
DevLocal	DEV_VOID	DEV_VOID
DevOn	DEV_VOID	DEV_VOID
DevSetValue	DEV_LONG	DEV_VOID
DevReadValue	DEV_VOID	DEVVAR_LONGARRAY
DevSetParam	DEV_DOUBLE	DEV_VOID
DevReadSigValues	DEV_VOID	DEVVAR_DOUBLEARRAY
RFOn	DEV_VOID	DEV_VOID
RFOff	DEV_VOID	DEV_VOID
DevSetup	DEV_VOID	DEV_VOID
DevGetSigConfig	DEV_VOID	DEVVAR_STRINGARRAY
UseInternalReference	DEV_VOID	DEV_VOID
UseExternalReference	DEV_VOID	DEV_VOID
SendGpibWriteRead	DEV_STRING	DEV_STRING
SendGpibCommand	DEV_STRING	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 destructor automatically calls the *delete_device()* method.

- **Argin:**
DEV_VOID : none.
- **Argout:**
DEV_VOID : none.
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

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
 - Tango::ALARM

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
 - Tango::ALARM

4 - DevReadFrequency

- **Description:** Read the mastersource base frequency.
- **Argin:**
DEV_VOID :
- **Argout:**
DEVVAR_LONGARRAY : index 0 is setpoint
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

5 - DevSetFrequency

- **Description:** Set master source base frequency. Unit is Hertz.
- **Argin:**
DEV_LONG : Master source base frequency. Unit is Hz.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

6 - DevSetLevel

- **Description:** Set mastersource amplitude.
- **Argin:**
DEV_FLOAT : Mastersource amplitude.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT

- Tango::ALARM

7 - DevReadLevel

- **Description:** Returns mastersource's actual amplitude.
- **Argin:**
DEV_VOID :
- **Argout:**
DEVVAR_DOUBLEARRAY : index 0 is set value
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

8 - DevReset

- **Description:** Reset all values on MasterSource and load hardware predefined values.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

9 - DevLocal

- **Description:** Forces the gpibDevice to return in Local mode. (Locale is opposite to remote mode)
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**

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

10 - DevOn

- **Description:** Turns the mastersource into remote mode.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

11 - DevSetValue

- **Description:** see DevSetFrequency command.
- **Argin:**
DEV_LONG :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

12 - DevReadValue

- **Description:** see DevReadFrequency command.
- **Argin:**
DEV_VOID :
- **Argout:**

DEVVAR_LONGARRAY :

- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

13 - DevSetParam

- **Description:** Set mastersource base frequency, be carefull, unit is Mhz
- **Argin:**
DEV_DOUBLE : Mastersource frequency in Mhz.
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

14 - DevReadSigValues

- **Description:** The value returned is the mastersource base frequency.
- **Argin:**
DEV_VOID :
- **Argout:**
DEVVAR_DOUBLEARRAY : index 0 is setpoint in Mhz
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

15 - RFOn

- **Description:** Turn the RF On.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

16 - RFOff

- **Description:** Turn the RF Off.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

17 - DevSetup

- **Description:** Load default_frequency and default_level from database, and setup the mastersource.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF

- Tango::FAULT
- Tango::ALARM

18 - DevGetSigConfig

- **Description:**
- **Argin:**
DEV_VOID :
- **Argout:**
DEVVAR_STRINGARRAY : Signal description
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

19 - UseInternalReference

- **Description:** Select mastersource internal reference.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

20 - UseExternalReference

- **Description:** The mastersource will use external signal reference.
- **Argin:**
DEV_VOID :
- **Argout:**
DEV_VOID :

- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

21 - SendGpibWriteRead

- **Description:** This is a command for debugging purposes. It allows to execute atomic write read method on gpib device, without being interrupted by a client.
- **Argin:**
DEV_STRING :
- **Argout:**
DEV_STRING :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

22 - SendGpibCommand

- **Description:** This is a command for debugging purposes. It allows to execute send a command on the gpib device. No answer is expected.
- **Argin:**
DEV_STRING :
- **Argout:**
DEV_VOID :
- **Command allowed for:**
 - Tango::ON
 - Tango::OFF
 - Tango::FAULT
 - Tango::ALARM

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