



TANGO Device Server

Tango TuneServer
User's Guide

TuneServer2 Class

Revision: TuneServer2-Release_1_1 - Author: verdier
Implemented in C++ - CVS repository: ESRF

Introduction:

This project is a re-write of the previous TuneServer using new Tango features (Tango 5 and above).
This server interact with the Agilent_4395a class and the Taco tune server.
Almost all functionnalities of Tune Monitor application will be deported in this server, like peak tracking, shaker driving.. etc.

Class Inheritance:

- Tango::Device_4Impl
  - TuneServer2

Class Description:

This project is a re-write of the previous TuneServer using new Tango features (Tango 5 and above).
This server interact with the Agilent_4395a class and the Taco tune server.
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Properties:

Device Properties		
Property name	**Property type**	**Description**
A4395_device_name	Tango::DEV_STRING	This is the device name that TuneServer DS should acceed for controling A4395a.
Timer1_device_name	Tango::DEV_STRING	This is the name of the TACO device corresponding to the wrapped VDPU board.
Timer2_device_name	Tango::DEV_STRING	This attribute wraps a taco-controled VDPU board.
Timer3_device_name	Tango::DEV_STRING	This attribute wraps a taco-controled VDPU board.
Shaker_hspare_name	Tango::DEV_STRING	This is the TACO device name of the spare of horizontal shaker.
Shaker_vspare_name	Tango::DEV_STRING	This is the TACO device name of the spare of vertical shaker.
Shaker_device_name	Tango::DEV_STRING	This is the TACO device name of the default shaker.
Skip_dc_storage	Tango::DEV_BOOLEAN	This flag allows / prohibit TuneQH and TuneQV to be written into TACO data collector. True mean do not store data into DC, false mean that values are stored.
Config_file_base_path	Tango::DEV_STRING	This is 'root' file base path. This string will be concatenated with parameter of loadConfigFile command, to obtain an absolute filename.

Device Properties Default Values:

Property Name	Default Values
A4395_device_name	No default value
Timer1_device_name	No default value
Timer2_device_name	No default value
Timer3_device_name	No default value
Shaker_hspare_name	No default value
Shaker_vspare_name	No default value
Shaker_device_name	No default value
Skip_dc_storage	No default value
Config_file_base_path	No default value

There is no Class properties.

Attributes:

Scalar Attributes			
Attribute name	**Data Type**	**R/W Type**	**Expert**
FreqMin: The signal analyze will start from this frequency.	DEV_DOUBLE	READ_WRITE	No
FreqMax: The signal analyze will stop at this frequency.	DEV_DOUBLE	READ_WRITE	No
SweepTime: This is the wanted spweep time duration. The device will correct value to it's capabilities.	DEV_DOUBLE	READ_WRITE	No
NbAverage: This is the averaging factor on 4395a.	DEV_SHORT	READ_WRITE	No
BandWidth: This is the resolution bandwidth (freq filter range).	DEV_DOUBLE	READ_WRITE	No
ReferenceLevel: This is A4395a display reference level.	DEV_DOUBLE	READ_WRITE	No
DScale: This is the scale of A4395a's display.	DEV_DOUBLE	READ_WRITE	No
AcquisitionMode: This string attribute represents measure made on the 4395a. Authorised values are A, B, R, AR, BR.	DEV_STRING	READ_WRITE	Yes
InputAttenA: This is the value of attenuation applied on A4395a input port A. Autorized values: 0, 10, 20, 30, 40, 50.	DEV_SHORT	READ_WRITE	Yes
InputAttenB: This is the attenuation applied on A4395a input port B. Autorized values: 0, 10, 20, 30, 40, 50.	DEV_SHORT	READ_WRITE	Yes
InputAttenR: This is the attenuation applied on A4395a input port R. Autorized values: 0, 10, 20, 30, 40, 50.	DEV_SHORT	READ_WRITE	Yes
TriggerSource: This is the trigger source of the Agilent 4395a.	DEV_STRING	READ_WRITE	Yes

Averaging: This is the Averaging of the 4395a flag. True mean that averaging is performed on the spectrum.	DEV_BOOLEAN	READ_WRITE	No
TrackSpan: This is the bandwidth where peak should be tracked.	DEV_DOUBLE	READ_WRITE	Yes
PeakHCenter: This is the Horizontal peak index in the spectrum attribute.	DEV_SHORT	READ_WRITE	Yes
PeakVCenter: This is the vertical peak index in the Spectrum attribute.	DEV_SHORT	READ_WRITE	Yes
TrackSpanWidth: This is the conversion of trackspan to pixel width.	DEV_SHORT	READ	Yes
Shaker: Indicates if shaker is on or off.	DEV_BOOLEAN	READ_WRITE	No
PeakHLevel: Amplitude of the Horizontal Peak.	DEV_DOUBLE	READ	Yes
PeakVLevel: This is the level of vertical peak.	DEV_DOUBLE	READ	Yes
SpareHShaker	DEV_BOOLEAN	READ_WRITE	No
SpareVShaker:	DEV_BOOLEAN	READ_WRITE	No
DataAcquisition: This attribute shows if agilent 4395a is getting data or not. Technicaly, it switch 4395a trigger source to HOLD or CONT, which start / stop data aquisition.	DEV_BOOLEAN	READ_WRITE	No
TuneQH: This is the Horizontal tune value.	DEV_DOUBLE	READ	No
TuneQV: This is the Vertical tune value .	DEV_DOUBLE	READ	No
Timer1: This attribute wraps a taco-controled VDPU board.	DEV_DOUBLE	READ_WRITE	Yes
Timer2: This attribute wraps a taco-controled VDPU board.	DEV_DOUBLE	READ_WRITE	Yes
Timer3: This attribute wraps a taco-controled VDPU board.	DEV_DOUBLE	READ_WRITE	Yes
ShakerPlane: This is the plane that is shaked by shaker.	DEV_STRING	READ_WRITE	No
MeasurePlane: This is the plane that is used for measures.	DEV_STRING	READ_WRITE	No
ShakerStrengthH: Shaker horizontal strength.	DEV_DOUBLE	READ_WRITE	Yes
ShakerStrengthV: Shaker Vertical Strength.	DEV_DOUBLE	READ_WRITE	Yes
ShakerLevel: This is the 4395a output level.	DEV_DOUBLE	READ_WRITE	No
ConfigFileName	DEV_STRING	READ	No
RefCurveFreqMin	DEV_DOUBLE	READ	No
RefCurveFreqMax	DEV_DOUBLE	READ	No

Spectrum Attributes

Attribute name	Data Type	X Data Length	Expert
Spectrum: This is the spectrum resulting from A4395 operations.	DEV_DOUBLE	800	No
ReferenceCurve	DEV_DOUBLE	800	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
ResetPeaks	DEV_VOID	DEV_VOID
ResetPeakH	DEV_VOID	DEV_VOID
ResetPeakV	DEV_VOID	DEV_VOID
ReimportTacoDevices	DEV_VOID	DEV_VOID
LoadConfigurationFile	DEV_STRING	DEV_VOID
SaveConfigurationFile	DEV_STRING	DEV_VOID
GetConfigurationFilePath	DEV_VOID	DEV_STRING
Reset	DEV_VOID	DEV_VOID

Device Commands for Expert Level Only		
Command name	**Argument In**	**Argument Out**
SetShakerStrengthEnabled	DEV_BOOLEAN	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 - ResetPeaks

- **Description:**

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

5 - ResetPeakH

- **Description:** This command reset peak H. This mean that this attribute will be considered like invalid after this command until it's set again.

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

6 - ResetPeakV

- **Description:** This command reset peak H. This mean that this attribute will be considered like invalid after this command until it's set again.

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

7 - SetShakerStrengthEnabled (for expert only)

- **Description:** This command is here for security. When it's called with false parameter, it turn shaker strength V/H to zero, store previous values, and turn on a flag that disallow shaker Strength H/V attributes write. When call with true, it restore previous ShakerStrength H/V values, and allow Strength H/V attribute write. This was asked by E.Plouvier to avoid potential beamloss when application (new ntm) loads configuration file and toggle between Agilent4395a modes.

- **Argin:**
  DEV_BOOLEAN : True or False. Cf description for details.

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

8 - ReimportTacoDevices

- **Description:** This forces server to try re-importing TACO devices.

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

9 - LoadConfigurationFile

- **Description:** This command will load configuration file and write attributes and command accordingly.

- **Argin:**
  DEV_STRING : This is the path concatenated to 'Config_file_base_path' property.

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

10 - SaveConfigurationFile

- **Description:** This commands save actual Server parameters.

- **Argin:**
  DEV_STRING : Name of the configuration file.

- **Argout:**
  DEV_VOID :

- **Command allowed for:**

11 - GetConfigurationFilePath

- **Description:** This command returns the absolute path of configuration path. It can be found by reading device property.

- **Argin:**
  DEV_VOID :

- **Argout:**

DEV_STRING :

- **Command allowed for:**

12 - Reset

- **Description:** This command reset the server state after a problem on configuration load.

- **Argin:**
  DEV_VOID :

- **Argout:**
  DEV_VOID :

- **Command allowed for:**