TangoEpics Tango Python Class

Contents :

TangoEpics Class Identification :

Contact	: at cells.es - jmoldes
Class Family	: Communication
Platform	: All Platforms
Bus	: Not Applicable
Manufacturer	: none
Manufacturer ref. :	

TangoEpics Class Inheritance :

- [Tango::DeviceImpl](#)
  - TangoEpics

TangoEpics Class Description :

Tango device server for accessing Epics Process Variables.

You must provide the list of PVs you want to interface and optionally a host name and then the device will create a tango attribute for each PV.

Take into account that Tango and Epics follow different naming conventions,

which may cause problems. In order to allow maximum flexibility all options have been left open in order to translate the Epics process variable names to tango attributes names:

1) Name the tango attribute exactly as the Epics process variable name. Take into account that this may cause problems if process variables names include special characters.

2) Name the tango attribute just like the Epics process variable name but replacing the special characters by others. The replacement may be:
a- Automatic: all special characters are replace by a _ character
b- Manual: you can specify replacement strings for special characters

3) Give your own names to tango attributes.

See properties section for more details on how to configure all these options.

Note that if your Epics IOC contains process variables named State and/or Status these will compulsory have to be renamed.

The server uses PyEpics for interfacing Epics. See:
http://cars9.uchicago.edu/software/python/pyepics3/index.html

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TangoEpics Properties :

There is no class properties

Device Properties			
Name	**Description**	**Type**	**Default Value**
	This is the list of EPICS process variables that we want to interface and, optionally ,the name we want to give to their corresponding tango attribute. Take into account that naming conventions in Tango and Epics are different. Epics pv reserved characters and keywords (Epics Application Developer's Guide):		

	- See 6.3.1 Keywords and 6.3.2 Unquoted strings of Tango reserved characters and strings: - Appendix C.4 Reserved words and characters, limitations Each row has the following format (TAB means the tabulator character): epics_pv_nameTABtango_attr_name The use of this optional tango name opens two possibilities: 1) If a ``tango_attr_name`` is provided then it will be used as the tango attribute name corresping to the pv name, no matter which characters or keywords may be. 2) If no ``TABtango_attr_name`` is given then the corresponding tango attribute will be named exactly as the epics process variable BUT special characters may optionally be replaced in the tango attribute name. This gives 3 options: a- Do nothing and name the tango attribute exactly as the PV name. Take into account that this may cause problems with tango. In order to do this you have to define the AutoTranslate property and leave it empty (otherwise default translation characters will be used). b- Replace it with any string that you decide. To do so you have to specify the replacement string in the AutoTranslate property. c- Replace it with character _. This is the default behaviour (default values of AutoTranslate property do this) Remember that in any case the original PV name is set as the corresponding tango attribute description field of its default properties (which you can easily retrieve by getting attribute`s AttributeInfo with attribute_query() method) Furthermore you can use the getEpicsName and getTangoName functions to find out		
ProcessVariables		String[]	none

	the correspondence between epic pv name and tango attribute name.		
Host	Optional host name to prepend to all PV names	String	none
AutoTranslation	Array of strings for special characters replacement. Each string consist on a first character (this is the epics special character) and at least another character (may be more), which will replace the epics special character in the tango attribute name. For example you could replace the epics : character with the string _colon_ by providing the replacement string `:_colon_`	String[]	_,_,-,:_,.,_, [_,]_, <_,>_,;_

TangoEpics Class Commands				
Name	**Input type**	**Output type**	**Level**	**Description**
State	DEV_VOID	DEV_STATE	OPERATOR	This command gets the device state (stored in its device_state data member) and returns it to the caller.
Status	DEV_VOID	CONST_DEV_STRING	OPERATOR	This command gets the device status (stored in its device_status data member) and returns it to the caller.
getHost	DEV_VOID	DEV_STRING	OPERATOR	Returns the value of the optional property Host
getTangoName	DEV_STRING	DEV_STRING	OPERATOR	Returns the Tango attribute name for an Epics process variable name. Take into account that the device is case sensitive
				Returns Epics process variable name for a

[getEpicsName](#)	DEV_STRING	DEV_STRING	OPERATOR	Tango attribute name. Take into account that the device is case sensitive

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Command State :

This command gets the device state (stored in its device_state data member) and returns it to the caller.

State Definition		
Input Argument	Tango::DEV_VOID	none
Output Argument	Tango::DEV_STATE	Device state
DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command Status :

This command gets the device status (stored in its device_status data member) and returns it to the caller.

Status Definition		
Input Argument	Tango::DEV_VOID	none
Output Argument	Tango::CONST_DEV_STRING	Device status

DisplayLevel	OPERATOR	..
Inherited	true	..
Abstract	true	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command getHost :

Returns the value of the optional property Host

getHost Definition		
Input Argument	Tango::DEV_VOID	
Output Argument	Tango::DEV_STRING	Value of the optional property Host
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command getTangoName :

Returns the Tango attribute name for an Epics process variable name.
Take into account that the device is case sensitive

getTangoName	

Definition		
Input Argument	Tango::DEV_STRING	Epics process variable name
Output Argument	Tango::DEV_STRING	Tango attribute name for the Epics process variable name
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

Command getEpicsName :

Returns Epics process variable name for a Tango attribute name.
Take into account that the device is case sensitive

getEpicsName Definition		
Input Argument	Tango::DEV_STRING	Tango attribute name
Output Argument	Tango::DEV_STRING	Epics process variable name
DisplayLevel	OPERATOR	..
Inherited	false	..
Abstract	false	..
Polling Period	Not polled	..
Command allowed for	All states	..

There is no attribute defined.

There is no dynamic attribute defined.

TangoEpics Class States	
Name	**Description**
FAULT	Invalid properties
ON	