+ TANGO gateway

- Work of Martin Usé (2nd year student) from LGM
- Goal = interface TANGO to Scilab
- Scilab is a (great) free alternative to Matlab
- Tango is interfaced as a Gateway in Scilab
- Fully featured interface supporting all Tango features
- Current status:
  - tango_read_attribute() - ready
  - tango_write_attribute() - ready
- TODO:
  - tango_command_inout() - under development
  - packaging as part of Scilab using Atoms - started
  - Port and test on Windows – on hold
- Source code is available on Scilab forge:
  http://forge.scilab.org/index.php/p/tango-gateway/

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Console

```
-->A=[3 1];b=-5;

-->linsolve(A,b)
 ans  =

    1.5
    0.5

-->[x0,kerA]=linsolve(A,b)
 kerA  =

  - 0.3162278
    0.9486833
 x0  =

    1.5
    0.5

-->A=['1','1';'0','1'];c=['a1';'a2'];

-->solve(A,c)
 ans  =

!a1-a2  !
!       !
!a2     !

-->t=[0.5:0.1:1];

-->deff('[u] = f(t,y)', 'u = t')

-->ode(0,0,t,f)
 ans  =

    0.125    0.18    0.245    0.32    0.405    0.5

-->|
```

Graphic window number 100001

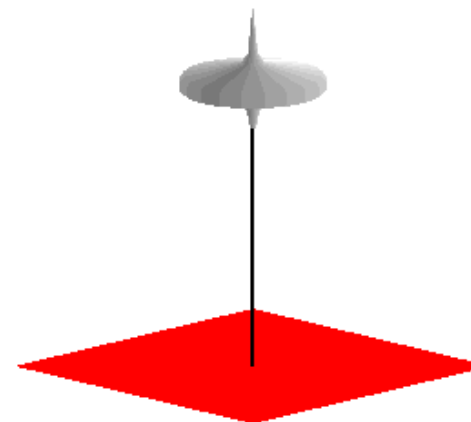**Height** 1.720

Theta 0.280

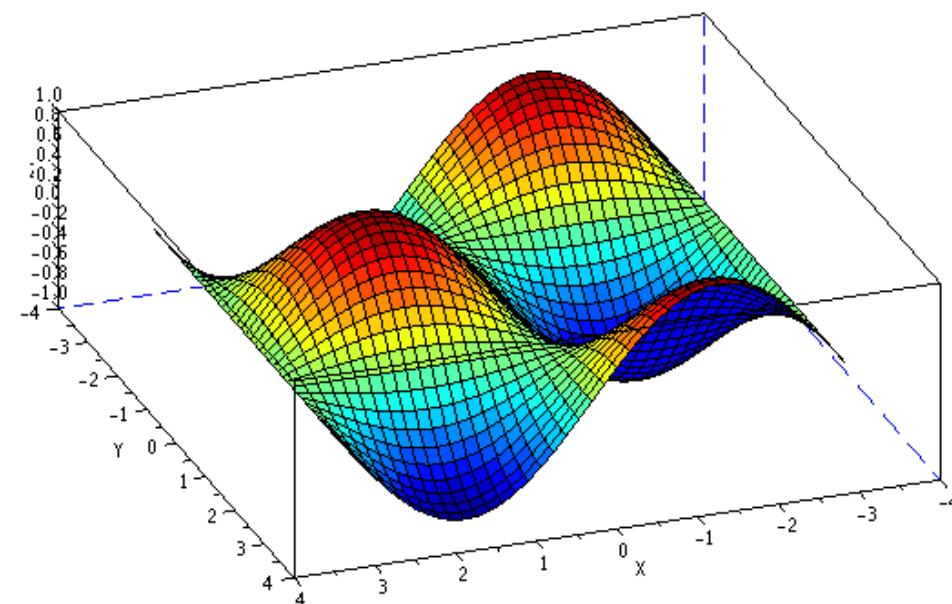**Phi** 0.000

Psi 0.000

Start   Stop   Reinit

Graphic window number 0

Online Help

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tango_read_attribute

How to read attribute from a Tango Device Server

Calling Sequence

[double/string attr_value,double tango_error,double attr_time_stamp,double attr_quality] = tango_read_attribute(string device_name,string device_attr

Arguments

Inputs

To be able to read an attribute from a Tango Device Server, you need to use the function tango_read_attribute().
Two inputs arguments are needed :
- the address of the device server as a string. i.e. : "my/device/server"
- the attribute you want to read as a string. i.e. : "my_attribute"

Outputs

The first output (attr_value) is the value of the attribute asked by the user, It can be a double or string
There are three differents formats accepted by this function : SCALAR, SPECTRUM, IMAGE.
On this first version, string can be read only if it has the SCALAR data_format.
(check the Tango data_format man in the Tango User's Guide)

The second output (tango_error) is a variable set to 0, if a Tango's Error occur, this variable will be set to -1.
You could so check the result of a success or a fail of your call of tango_read_attribute().

The third output (attr_time_stamp) give the timestamp of your attribute, the precision of this value depends on your scilab config.
Please, check the format() (Scilab's function) to get more precision of your attribute.

The last output (attr_quality) return a double to give the quality of your attribute.
(Please check the Tango User's Guide on the enum chapters)

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Please, check the format() (Scilab's function) to get more precision of your attribute.

The last output (attr_quality) return a double to give the quality of your attribute.
(Please check the Tango User's Guide on the enum chapters)

Error and Exception handling

You could me some errors or excpetions by using this function, You can meet two kinds of errors, Scilab's errors and Tango's errors.
Tango's errors are fully describe with the reason, the severity, the origin, the description, you could so easily fix your problem.
They are caused by a Tango error like : Database not online, Device not exported or not present in the Database ... the error code is 2XXX
Scilab's errors are generate by a mistakes in your syntax : a missing parenthesis, a wrong type of input argument

Examples

First example to show how the function works

```
[a, b, c, d]=tango_read_attribute("sys/tg_test/1","State")
```

Second example. Generate a tango error : a slash is missing in the device_address so Tango is unable to reach your Device Server

```
[a, b, c, d]=tango_read_attribute("sys/tg_test1","State")
```

Third example. Generate a scilab error : the quote are missing for the device_address, Scilab is unable to understand that your input is a string

```
[a, b, c, d]=tango_read_attribute(sys/tg_test/1,"State")
```

Report an issue

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Result of tango_read_attribute()