

TANGO

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The **T**Aco **N**ext **G**eneration **O**bjects (**TANGO**) control system is a free open source object oriented control system for controlling accelerators, experiments and any kind of hardware or software being actively developed by a consortium of (mainly) synchrotron radiation institutes.

TANGO is a distributed control system. It runs on a single machine as well as hundreds of machine. TANGO uses the omniORB (<http://omniORB.sourceforge.net/>) implementation of CORBA as its network protocol. The client-server model is the basic communication model. Communication between clients and servers can be synchronous, asynchronous or event driven.

TANGO is based on the concepts of object oriented and service oriented. The object model in TANGO supports methods, attributes and properties. In TANGO all objects are representations of devices.

TANGO



Developer(s)	TANGO Consortium
Initial release	April 19, 2001
Stable release	6.1.1.b / May 8, 2008
Operating system	Cross-platform
License	LGPL, GPL
Website	TANGO website (http://www.tango-controls.org/)

Contents

- 1 Device Servers
- 2 Bindings
- 3 Licencing
- 4 Open Source
- 5 Consortium
- 6 See also
- 7 References

Device Servers

TANGO is primarily used to provide network access to hardware. Hardware can range from single bits of digital input/output up to sophisticated detector systems or entire plant control systems. Hardware access is programmed in a process called a Device Server. The device server implements device classes which implement the hardware access. At runtime the device server creates devices which represent logical instances of hardware. Clients "import" the devices and send requests to the devices using the TANGO protocol.

List of common device servers here

Bindings

TANGO supports bindings to the following languages :

- C
- C++
- Java
- Python
- Matlab
- Labview

Licencing

TANGO is distributed under 2 licenses. The libraries are licensed under the GNU Lesser General Public License (LGPL). Tools and device servers are (unless otherwise stated) under the GNU General Public License (GPL).

Open Source

TANGO is an open source project. Anyone can download and use TANGO. Source code is stored in two CVS repositories on SourceForge :

1. kernel source code (<http://tango-cs.cvs.sourceforge.net/tango-cs/tango/>)
2. device server source code (<http://tango-ds.cvs.sourceforge.net/tango-ds/>)

Local modifications or bug fixes can be made to the source code but committing changes to the repository requires authorization.

Consortium

The consortium is a group of institutes who are actively developing TANGO. To join the consortium an institute has to sign the Memorandum of Understanding (<http://www.tango-controls.org/Documents/memorandum-of-understanding-for-the-tango-collaboration/TangoMemoOfUnderstandingFeb2008.pdf>) and actively commit resources to the development of TANGO. The consortium currently consists of the following institutes :

1. ESRF (<http://www.esrf.eu>) - European Synchrotron Radiation Facility, Grenoble, France
2. SOLEIL (<http://www.synchrotron-soleil.fr/>) - Soleil Synchrotron, Paris, France
3. ELETTRA (<http://www.elettra.trieste.it/>) - Elettra Synchrotron, Trieste, Italy
4. ALBA (<http://www.cells.es/>) - Alba Synchrotron, Barcelona, Spain
5. DESY (http://www.desy.de/html/home/index_eng.html) - Petra III Synchrotron, Hamburg, Germany

The aim of the consortium is to guarantee the development of TANGO.

See also

- EPICS -- Experimental Physics and Industrial Control System

- ESRF -- European Synchrotron Radiation Facility

References

Refer to the following publications on TANGO for more information :

1. *TANGO - an object oriented control system based on CORBA* (<http://www.tango-controls.org/Documents/papers/icalepcs1999.pdf/>) , ICALEPCS 1999 (<http://www.elettra.trieste.it/icalepcs99/>) , Trieste (Italy)
2. *TANGO a CORBA based Control System* (<http://www.tango-controls.org/Documents/papers/icalepcs2003.pdf/>) , ICALEPCS 2003 (<http://icalepcs2003.postech.ac.kr/>) , Gyeongju (Korea)
3. *Ubiquitous TANGO* (<http://www.tango-controls.org/Documents/papers/WPPA28.pdf/>) , ICALEPCS 2007 (<http://www.sns.gov/icalepcs07/>) , Knoxville (USA)
4. *Future of TANGO* (<http://www.tango-controls.org/Documents/papers/FOPA01.pdf/>) , ICALEPCS 2007 (<http://www.sns.gov/icalepcs07/>) , Knoxville (USA)

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