A Bottom-up Approach to Automatically Configured Tango Control Systems.

Alba is a new 3GeV Synchrotron LightSource near Barcelona (Spain).

Our Computing division maintains a central repository, so called "Cabling and Controls database" (CCDB), which keeps the inventory of equipment, cables, connections and their configuration and technical specifications.

It is possible to download original diagrams, spreadsheets and hardware documentation from the CCDB web client.

The CCDB database becomes available to the control system using the python API, providing methods to search equipments and get their connections, configuration and network information.

This translation allows to rebuild the whole control architecture from the cabling.

The information available in the cabling database is used to extend the displays of the control system and allocate equipments in generic browsers, providing a lot of extra information to users.

Modification or insertion of new cables in the database is done using spreadsheet files, that contain source and destination equipment-terminal pairs and cable types.

Using the python API and PyTango, a Tango database entry is generated for each device and every configuration value. Furthermore, every Tango process is assigned to a particular Industrial PC host from the CCDB.

We have now an automated way to create devices and load new values to properties: reducing the time needed to deploy generic systems in beamlines or adding new devices to an already operating machine.

References
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