Automation as a tool

The first principle for the long term strategy of the Kontroll and IT Support (KITS) group at MAX IV is to develop the expertise and was inspired by the Toyota way[2]. One action involves eliminating repetitive manual interventions which in the end bring little value.

Ansible

**Inventory** keep the computers list and their roles inside the control system like:

- the Tango database,
- the server which runs the Tango devices,
- the client computer which runs GUIs and CLIs.

**Ad hoc command** is useful to complete an action on several computers in the same time. Ansible use the inventory file to include the computers in the execution list. Ansible comes with a predetermine list of action to execute a shell command, to install a package, to start a service, etc but it exists 3rd party modules to also manage specific application like MySQL.

**Playbook** is used to keep the different actions needed to reach a configuration state instead of repeating them manually with an ad hoc command. The playbook is used with the inventory file during the execution of Ansible.

Configuration of the Control System

Operations: CentOS, Ubuntu and Windows

Network services: LDAP and NFS storage connection

Device drivers and libraries such as Python and Tango

Tango devices

Applications such as GUIs, Sardana macros and controllers

Playbook is a tool to detect incoherency

**Run a playbook to detect incoherency**

**Just for the Linac**

- 1500 devices
- 75 types

**Properties**

Idempotent: the capacity to check if a system is compliant with the reference without needing to modify it. The same operation applied several times has the same consequence as if applied once.

Stateless: the application should not leave tracks in the operating system to avoid any memory effects. The configuration is held in one place.

Small Footprint: the deployment is reduced to a minimum of servers to avoid spending much time managing the configuration management system. The system should come with a minimal dependency set.

**References**

Tango and Sardana: [http://www.sardana-controls.org/][1]

Ansible: [http://www.ansible.com/][2]