Yaim Installation and Configuration tool : SESSION B.3

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- What is YAIM
  - YAIM (Yet Another Installation Manager) is to implement a configuration method for the gLite software.
  - Is a set of bash scripts and functions
  - Is distributed in rpm form and it usually resides in /opt/glite/yaim/

- When configuring a site, one or more configuration files are edited and the YAIM script is then executed

- YAIM is mainly bash, all the configuration files have to follow the bash syntax:
  - WRONG :
  - SITE_NAME = NorthPole
  - CORRECT:
  - SITE_NAME=NorthPole

➤ YAIM is distributed in several rpms:

   ➤ *glite-yaim-core* contains common functions and definitions

   ➤ *glite-yaim-clients* implement the functionality to configure specific node types

➤ Some of the available yaim modules are

   ➤ *glite-yaim-bdii*

   ➤ *glite-yaim-clients (UI, WN)*

   ➤ *glite-yaim-lb*

   ➤ *glite-yaim-lcg-ce*

   ➤ *glite-yaim-mon*

   ➤ *glite-yaim-myproxy*

   ➤ *glite-yaim-rb*

   ➤ *glite-yaim-torque-client*

   ➤ *glite-yaim-torque-server*

   ➤ *glite-yaim-torque-utils*

   ➤ *glite-yaim-wms*

The configuration variables

> Configuration files should be stored in a directory structure
> All the involved files should be under the same folder
> This folder should not be world readable and must contain:

> > *site-info.def:* It contains a list of configuration variables in the format of key-value pairs. It's a mandatory file and it's a parameter passed to the yaim command.

> > *vo.d:* it contains a file per VO with the format vo_name.

> > *nodes:* it contains a file per host with the format hostname.domain_name. The file contains host specific variables that are different from one host to another in a certain site.

> > *group.d:* it contains a file per VO with the format groups-<vo-name>.conf.

- Main configuration file of YAIM
- Installed by the *glite-yaim-core* rpm and it's located under */opt/glite/yaim/examples/siteinfo/site-info.def*
- *Site-info.def* *should distribute only those variables common to the configuration of the different yaim modules that need to be defined by sys admins. At the moment, it currently contains variables that are node type specific and variables that have a default value.*
- *A description of the different general variables in the site info configuration variables can be found wiki:*
  - *https://twiki.cern.ch/twiki/bin/view/LCG/Site-info_configuration_variables#site_info_def*
- *Variables that contain a meaningful default value are distributed under* */opt/glite/yaim/defaults/site-info.pre* *or post.* */opt/glite/yaim/defaults/site-info.post :*
  - *https://twiki.cern.ch/twiki/bin/view/LCG/Site-info_configuration_variables#site_info_pre*
  - *https://twiki.cern.ch/twiki/bin/view/LCG/Site-info_configuration_variables#site_info_post*

vo.d directory

- This directory should be located under siteinfodir/vo.d, (siteinfodir is the directory where you store the YAIM configuration
- It contains a file name per VO whose name has to be the lower-cased version of the VO name
- Example for biomed VO:
    - *DEFAULT_SE=$DPM_HOST*
    - *STORAGE_DIR=$DPM_STORAGE_DIR/biomed*
    - *QUEUES="biomed"*
    - *VOMS_SERVERS="vomss://voms-biomed.in2p3.fr:8443/voms/biomed?/biomed/"*
    - *VOMSES="biomed cclcgvomsli01.in2p3.fr 15000 /O=GRID-FR/C=FR/O=CNRS/OU=CC-LYON/CN=cclcgvomsli01.in2p3.fr/Email=sysunix@cc.in2p3.fr biomed"*
    - *VOMS_CA_DN="/C=FR/O=CNRS/CN=GRID-FR"*

User configuration in YAIM

- users.conf
- This file defines the UNIX users to be created on the service nodes that need them (mainly CE and WNs). The format is as follows (fields must not have any white space):
  - UID:LOGIN:GID1[,GID2,...]:GROUP1[,GROUP2,...]:VO:FLAG:
- UID = user ID. This must be a valid uid. Make sure the number is not assigned to another user.
- LOGIN = login name
- GID1 = primary group ID. This must be a valid gid. Make sure the number is not assigned to another group.
- GID2 = secondary group ID.
- GROUP1 = primary group
- GROUP2 = secondary group
- VO = virtual organization
- FLAG = string to identify special users

User configuration in YAIM

- user.conf example:

```
31001:prdops001:31000,30000:prdops,ops:ops:prd:
31002:prdops002:31000,30000:prdops,ops:ops:prd:
31003:prdops003:31000,30000:prdops,ops:ops:prd:
31004:prdops004:31000,30000:prdops,ops:ops:prd:
31005:prdops005:31000,30000:prdops,ops:ops:prd:
31006:prdops006:31000,30000:prdops,ops:ops:prd:
31007:prdops007:31000,30000:prdops,ops:ops:prd:
31008:prdops008:31000,30000:prdops,ops:ops:prd:
31009:prdops009:31000,30000:prdops,ops:ops:prd:
31010:prdops010:31000,30000:prdops,ops:ops:prd:
```

Ordinary pool accounts

- Pool accounts enable the dynamic allocation of local UNIX user names to grid users
- For each supported VO, a set of ordinary pool accounts should be defined.
  - Pool account identifiers must end in digits following a dedicated common base string, like ops001.
  - Ordinary pool accounts have an empty FLAG
  - Examples:

        45001:ops001:45000:ops:ops::
        45002:ops002:45000:ops:ops::
        45003:ops003:45000:ops:ops:

Special pool accounts

- Subsets of users in a VO may be mapped to dedicated sets of accounts, e.g. to receive a higher priority in the batch system or to have access to some dedicated queue.
- For each such category the site admin can define a FLAG to identify the corresponding accounts.
- Special pool account identifiers must end in digits following their own common base string, like sgmops01.
- Special pool accounts have a FLAG identifying the type of special user, like sgm (sgm users have write permission on the shared software area)
- Examples:
    - 60701:sgmops01:46001,45000:opssgm,ops:ops:sgm:
    - 60702:sgmops02:46001,45000:opssgm,ops:ops:sgm:
    - 60703:sgmops03:46001,45000:opssgm,ops:ops:sgm:

Group configuration in YAIM

- groups.conf
- groups.conf defines the user categories that must be accepted by the grid services provided by a site.
- It indicates for each category to which kind of local accounts the user should be mapped
- The file has the following format:
  - "VOMS_FQAN":GROUP:GID:FLAG:[VO]
    - VOMS_FQAN = VOMS proxy fully qualified attribute name
    - GROUP = UNIX group
    - GID = UNIX GID
    - FLAG = string to identify special users
    - VO = virtual organization

Group configuration in YAIM

- Examples of groups.conf:
  - "/VO=alice/GROUP=/alice"::::
  - "/VO=atlas/GROUP=/atlas/ROLE=lcgadmin":::sgm:
  - "/VO=atlas/GROUP=/atlas/ROLE=production":::prd:
  - "/VO=atlas/GROUP=/atlas"::::
  - "/VO=dteam/GROUP=/dteam/ROLE=lcgadmin":::sgm:
  - "/VO=dteam/GROUP=/dteam/ROLE=production":::prd:
  - "/VO=dteam/GROUP=/dteam"::::
  - "/VO=biomed/GROUP=/biomed/ROLE=lcgadmin":::sgm:
  - "/VO=biomed/GROUP=/biomed/ROLE=production":::prd:
  - "/VO=biomed/GROUP=/biomed"::::
  - "/VO=see/GROUP=/see/ROLE=seeadmin":::sgm:
  - "/VO=see/GROUP=/see"::::
  - "/VO=ops/GROUP=/ops/ROLE=lcgadmin":::sgm:
  - "/VO=ops/GROUP=/ops"::::

Running the configuration

- YAIM comes with a script in */opt/glite/yaim/bin/yaim*
- This script should be used to perform the different configuration steps
- Usage: */opt/glite/yaim/bin/yaim <action> <parameters>*
- Actions:
  - -i | --install   : Install one or several meta package. (Only for glite 3.0)
  - -c | --configure   : Configure already installed services.
  - -r | --runfunction : Execute a configuration function.
  - -v | --verify   : Goes through on all the functions and checks that the   necessary variables required for a given   configuration target are all defined in site-info.def.
  - -d | --debug
  - -h | --help

Running the configuration

- Parameters:
  - -s | --siteinfo: : Location of the site-info.def file
  - -n | --nodetype   : Name of the node type(s) to configure
  - -f | --function   : Name of the functions(s) to execute
- Examples:
  - Installation:
    - /opt/glite/yaim/bin/yaim -i -s /etc/yaim/site-info.def -m glite-SE_dpm_mysql
  - Check what can you configure:
    - /opt/glite/yaim/bin/yaim -a -s /etc/yaim/site-info.def
  - Configuration:
    - /opt/glite/yaim/bin/yaim -c -s /etc/yaim/site-info.def -n SE_dpm_mysql
  - Running a function:
    - /opt/glite/yaim/bin/yaim -r -d 6 -s /etc/yaim/site-info.def -n SE_dpm_mysql -f config_mkgridmap