Guide to LCAS version 1.0.3

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1 Introduction

The Gridification subtask of WP4 of the European Datagrid project[1] interfaces the local fabric to other middleware components by a number of services, among which the Local Centre Authorization Service (LCAS) handles authorization requests to the local computing fabric and the Local Credential Mapping Service (LCMAPS) provides all local credentials needed for jobs allowed into the fabric. This document describes a prototype version of the LCAS, which is the first component released by the Gridification subtask.

In this release the LCAS is a shared library, which is loaded dynamically by the globus gatekeeper. The gatekeeper has been slightly modified for this purpose and will from now on be referred to as edg-gatekeeper.

In the future the LCAS will evolve into an AAA server and can be contacted by other components, e.g. by the Storage Element.

The authorization decision of the LCAS is based upon the users's certificate and the job specification in RSL (JDL) format. The certificate [2] and RSL are passed to (plug-in) authorization modules, which grant or deny the access to the fabric. Three standard authorization modules are provided by default:

1. A module that checks if the user is allowed on the fabric (currently the gridmap file is checked).
2. A module that checks if the user should be banned from the fabric.
3. A module that checks if the fabric is open at this time of the day for datagrid jobs.

All three modules get their information from simple configuration files: `allowed_users.db` [3], `ban_users.db` and `timeslots.db`, respectively.

In the next releases hooks will be provided for external authorization plug-in modules. These plug-ins are to be provided by the other subsystems like

[1]http://www.eu-datagrid.org

[2]In this release the gatekeeper passes the user's DN to the LCAS instead of the user's certificate

[3]In this release (1.0.3) the gridmap file is used instead of `allowed_users.db`

Table 1: RPMs to be installed.

RPM	min. version	description + URL
`edg-lcas`	1.0.3	the LCAS shared library and some example configuration databases for the standard authorization modules http://datagrid.in2p3.fr/distribution/datagrid/wp4/gridification/RPMS/
`obj-lcas`	1.0-3	the LCFG object that configures the LCAS authorization modules http://datagrid.in2p3.fr/distribution/datagrid/wp4/installation/RPMS/LCFG/
`edg_gatekeeper-gcc32dbg_pgm`	2.0.1-21d	the modified globus gatekeeper http://datagrid.in2p3.fr/distribution/datagrid/wp4/gridification/RPMS/
`globus_gatekeeper-edgconfig`	0.15-1	the gatekeeper daemon startup script http://datagrid.in2p3.fr/distribution/globus/edgconfig/0.15/RPMS/
`obj-globus`	1.0-14	the LCFG object that a.o. configures the file `globus.conf` http://datagrid.in2p3.fr/distribution/datagrid/wp4/installation/RPMS/LCFG/

for example the Resource Management subsystem in order to do accounting and quota checks (for users/roles) or the Storage Element (WP5) in order to check file access or to make storage reservations.

More information on the LCAS and other components of the Gridification subsystem can be found in the WP4 architecture document D4.2 (pdf version[4] or doc version[5]).

2 Installation

The current version of the LCAS relies on globus2.0 (beta), so these RPMs have to be installed first. In addition the RPMs mentioned in table1 have to be installed on the gatekeeper node.

The LCAS library will be installed in `/opt/edg/lib/lcas/` and the example configuration files in `/opt/edg/etc/lcas/`. The path of the modified gatekeeper executable will be `/opt/edg/sbin/edg-gatekeeper`.

From CVS:
The LCAS library can also be built directly from the cvs repository[6] by the following steps:

- `cvs export -r <version_tag>  fabric_mgt/gridification/lcas` – export the source from CVS using a tagged version
- `cd fabric_mgt/gridification/lcas; ./bootstrap` – run the bootstrap script to run autotools

[4] http://hep-proj-grid-fabric.web.cern.ch/hep-proj-grid-fabric/architecture/eu/WP4-architecture-2_1.pdf

[5] http://hep-proj-grid-fabric.web.cern.ch/hep-proj-grid-fabric/architecture/eu/WP4-architecture-2_1.doc

[6] http://datagrid.in2p3.fr/cgi-bin/cvsweb.cgi/fabric_mgt/gridification/lcas/

- ./configure --prefix=<path> --libdir=<path>/lib/lcas --sysconfdir=<path>/etc/lcas – run the configure script
- make rpm – if you want to make the rpm
- make; make install – build and install the LCAS Library and the example configuration files.

3 Configuration

3.1 edg-gatekeeper

The edg-gatekeeper is configurable with three command line options in addition to the normal globus-gatekeeper options:

-plainoldglobus: t	provides the old globus-gatekeeper functionality, LCAS is not used.
-lcas_dir <path>:	specifies the directory where the LCAS authorization configuration files are located.
-lcasmod_dir <path>:	specifies the directory where the LCAS module is located.

The globus.conf file (usually found in the /etc directory) contains the configuration parameters for the globus software. In order to configure the edg-gatekeeper the following two lines are added:

1. GLOBUS_GATEKEEPER=/opt/edg/sbin/edg-gatekeeper
2. GLOBUS_GATEKEEPER_OPTIONS="-lcas_dir /opt/edg/etc/lcas -lcasmod_dir /opt/edg/lib/lcas/"

The first line gives the path of the gatekeeper to be used and the second line the gatekeeper options to be added. One may switch to the original globus gatekeeper (without LCAS functionality !) by specifying GLOBUS_GATEKEEPER=/opt/globus/sbin/globus-gatekeeper and leaving out the second line.

LCFG configuration:

The globus.conf file can be created using the globus LCFG object contained in package obj-globus. The extra lines for the configuration files have to be specified in an LCFG resource file in the way that is shown in the Computing Element resource file ComputingElement-cfg.h[7] (gconflines 23 and 24).

[7] http://datagrid.in2p3.fr/cgi-bin/cvsweb.cgi/edg-release/source/ComputingElement-cfg.h

3.2 LCAS

The three static authorization modules each have their own configuration database:

- `allowed_users.db`: this file is not used in this release, but will eventually partly replace the gridmap file. It will contain the list of LDAP distinguished names (DN) of the users that are allowed on the fabric. This version of the LCAS, however, still relies on the gridmap file.

- `ban_users.db`: this file contains the list of DNs of the users that should be banned from the fabric. An example can be found here.

- `timeslots.db`: This file contains the 'opening hours' of the fabric. The format of the file is explained in this example.

LCFG configuration:
The configuration files can also be created using the LCAS LCFG object contained in package `obj-lcas`. The lines for the configuration files have to be specified in an LCFG resource file in the way that is shown in the Computing Element resource file ComputingElement-cfg.h[8]. One should be careful when specifying asterixes and double quotes.

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Empty.

[8]http://datagrid.in2p3.fr/cgi-bin/cvsweb.cgi/edg-release/source/ComputingElement-cfg.h