



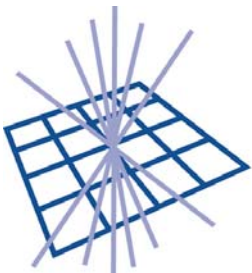
LCG2 Administrator's Course

Oxford University, 19th – 21st July 2004.

Manual Installation of a UI

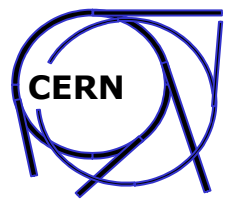
Piotr Nyczyk, CERN IT/GD

Developed in conjunction with GridPP and EGEE



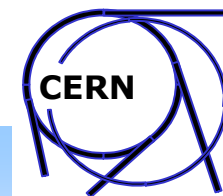
GridPP
UK Computing for Particle Physics

EGEE
Enabling Grids for
E-science in Europe



Outline

- Motivation
- Prerequisites and choices
- Supported operating systems
- Advanced Package Tool – basics, installation, configuration
- Installation of RPMs
- NTP configuration
- UI configuration
 - LCG common configuration
 - Workload Management configuration
 - Replica Manager configuration
 - Crontab configuration



Reference materials

- LCG-2 Manual Installation Guide (see UI installation)

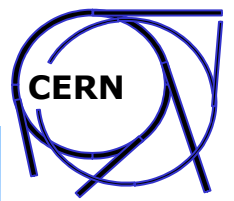
[http://grid-deployment.web.cern.ch/grid-deployment/gis/
release-docs/MIG-index.html](http://grid-deployment.web.cern.ch/grid-deployment/gis/release-docs/MIG-index.html)

- APT Based LCG Installation Guide

<http://grid-deployment.web.cern.ch/grid-deployment/gis/aptDB/>

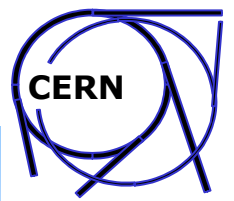
- LCG-2 Install Notes (all releases)

[http://grid-deployment.web.cern.ch/grid-deployment/cgi-
bin/index.cgi?var=releases](http://grid-deployment.web.cern.ch/grid-deployment/cgi-bin/index.cgi?var=releases)



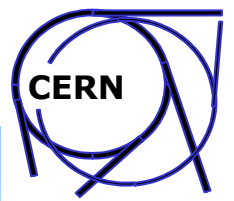
Why manual installation?

- Installation on top of running system – no OS reinstallation / disk repartitioning etc. required
- Low overhead for small sites (no need for LCFGng server installation)
- Full control of what you are changing in configuration
- Quite simple (eg. with using APT package management)
- Mobility – UI can be installed on laptop



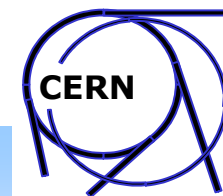
Supported Operating Systems

- Currently only RedHat 7.3 based installation has been fully tested
- Different versions (work in progress):
 - RedHat 7.3 – basic installation platform
 - Scientific Linux CERN (FNAL) - recompiled, tested(?)
 - RedHat 9 ??? (maybe SL version works?)
 - Other OS releases – recompilation required (glibc/gcc incompatibility)



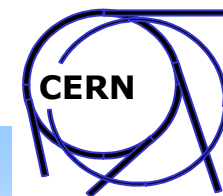
Prerequisites and choices

- Working RedHat 7.3 or Scientific Linux installation (work in progress)
- Root account on the machine
- Outbound network connectivity on some ports (see Steve Traylen's presentation)
- Two types of manual installation:
 - APT based (soon to be the new standard way)
 - fully manual – RPM lists and scripts required (established procedure)



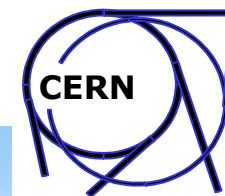
Advanced Package Tool for RPM

- High level package management tool from Debian ported to RPM based systems (Conectiva Linux, RedHat, Fedora, SUSE, Scientific Linux ...)
- Installs the whole software with one command:
 - “apt-get install lcg-ui” and APT will do the rest for you
- Automatically resolves dependencies for specified packages and downloads required rpms
- Central configuration file with repositories' URLs (/etc/apt/sources.list or /etc/apt/sources.list.d)
- Automated or half-automated software upgrades
- **Note!** APT requires that there are no broken dependencies in the OS



Main steps of installation (APT based)

- Installation and configuration of APT
- Installation of UI rpms
- Installation of NTP rpms
- Configuration of NTP
- UI configuration:
 - LCG common configuration
 - Replica Manager configuration
 - Workload Manager configuration
 - Crontab configuration
- Basic tests (afternoon session)

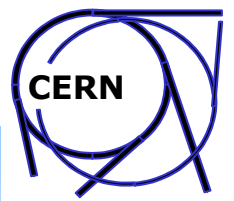


APT Installation & configuration

- Download and install RPM package with APT:
 - **RH7.3:** <http://ftp.freshrpms.net/pub/freshrpms/redhat/7.3/apt/apt-0.5.5cnc5-fr0.rh73.2.i386.rpm>
 - **Scientific Linux:** APT is already there however LCG installation not working yet!
- Add LCG-2 repository to `/etc/apt/sources.list` (or put it in `/etc/apt/sources.list.d/lcg.list` on SL):

```
rpm http://grid-deployment.web.cern.ch/grid-deployment/gis/aptDB/ LCG-2_1_0/7.3 lcg
```

For Scientific Linux only manual RPMs installation with forced installs of some RPMs works for the time being (work in progress!!!)
- Update local APT database: *apt-get update*
- Check if your OS is OK: *apt-get -f install*



RPMs installation

- Install LCG-2 UI RPMs, all you have to do is:

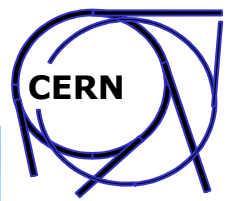
```
apt-get install lcg-ui
```

- APT will show you the list of all UI RPMs together with all dependent packages – confirm to install them.
- If there are conflicts APT will warn you about any removals. Look carefully through the removal list!
- If APT is unable to install RPMs it will complain about reason. Resolve dependencies using APT!

- Install NTP RPMs:

```
apt-get install ntp
```

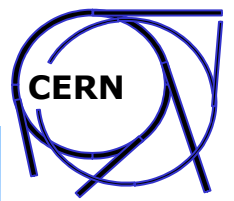
- For manual RPMs installation please look at UI Manual Installation Guide



NTP configuration

- Why? LCG-2 requires local clock to be synchronized
- Edit the following files according to manual installation guide (UI Manual Installation Guide: section 3.2):
 - `/etc/ntp.conf`
 - `/etc/ntp/step-tickers`
- Start the NTP client service

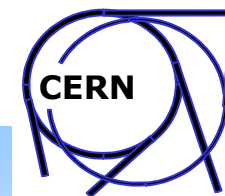
```
ntpdate <your ntp server>
service ntpd start
service ntpd on
```
- **In case your system uses AFS NTP is not required**



LCG common configuration

- Configure dynamic linker run-time directories in file */etc/ld.so.conf* and start “*ldconfig*” (section 4.1)
- Create top-level EDG configuration file: */etc/sysconfig/edg* (section 4.2)
- Create top-level LCG configuration file: */etc/sysconfig/lcg* (section 4.3)
- Create the files */etc/profile.d/lcg.sh* and */etc/profile.d/lcg.csh* (section 4.4)
Remember about execution permissions!!!
- Create top-level Globus configuration file: */etc/sysconfig/globus* (section 4.5)
- Create Globus configuration file: */etc/globus.conf* (section 4.6)
- Launch Globus initialisation script (section 4.7):

`/opt/globus/sbin/globus-initialization.sh`

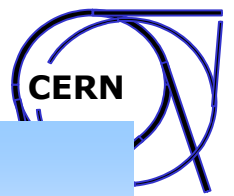


Replica Manager configuration

- Edit RM initialization file (section 5.1):

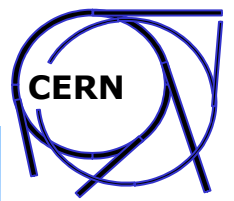
`/opt/edg/etc/edg-replica-manager/edg-replica-manager.conf.values`

- Follow EXACTLY the recommendations from the guide, use example as a template. Don't use the template as the config. file.
- Select the right BDII server for your zone!!! If you don't know which one to use contact your primary site (ROC for EGEE users). For initial tests you can always use the CERN TestZone BDII (lxn1189.cern.ch).
For the course use: `ldap://dumbledore.physics.ox.ac.uk:2170`
- Run configuration script (Section 5.2)
- Check if the RM configuration file was generated according to the initialization file (Section 5.2)



Workload Management configuration

- Decide which VOs you support (users of which VOs will use your UI)
- Create configuration directory for each VO: `/opt/edg/etc/<vo-name>` (section 6.1)
- For each VO create the configuration file using the template in 6.2:
`/opt/edg/etc/<vo-name>/edg_wl_ui.conf`
- Create common WL configuration file using template in 6.3:
`/opt/edg/etc/edg_wl_ui_cmd_var.conf`
- Create environment setup scripts (section 6.4)
 - create directory: `/opt/edg/etc/profile.d`
 - copy files: `edg_wl_ui_env.sh, edg_wl_ui_env.csh ...`
- Create directory `/tmp/jobOutput` and make it world writable (section 6.5)



Cron Table Configuration

- Edit crontab with the following command

```
crontab -e
```

- Add CRL fetch script invocation (section 7):

```
PATH=/sbin:/bin:/usr/sbin:/usr/bin
```

```
56 3,9,15,21 * * * /opt/edg/etc/cron/edg-fetch-crl-cron >> /var/log/edg-fetch-crl-cron.log
```

- Enable automatic log rotation if needed (see section 7)

YOUR INSTALLATION NOW IS FINISHED !!!

It is time for testing :-)