Table of Contents

Using the CernVM Virtual Machine

Introduction

This page aims brings together links that explain how to run the LHCb software inside the CernVM⊡ virtual machine and to document any known problems. It is not about installing the CernVM-FS filesystem as a shared software area. For that, please look at the excellent CernVM-FS deployment page⊡ maintained by the UK GridPP⊡.

Installation

The CernVM portal⊡ contains detailed installation instructions for a variety of virtualisation products. You may also find these page useful:

- CernVM 3 First Public Release⊡.
- Alice Open Data Virtual machines instructions⊡

Please note

CERNVM3 requires a second host only adaptor to work with Virtualbox. If you have trouble with your virtual machine, try following the instructions found here⊡ if you have not already.

LHCb Software environment

When using the graphical CernVM environment, the LHCb software setup does not always seem to run for new shells. To work around this add

```
if [ -f /cvmfs/lhcb.cern.ch/group_login.sh ]; then
    . /cvmfs/lhcb.cern.ch/group_login.sh
fi
```

To your `~/.bash_profile` file.

In addition, there is a script you can source that sets up various extra settings, which you should add to your `~/.bashrc` file.

```
if [ -f /cvmfs/lhcb.cern.ch/lib/group_extra_settings.sh ]; then
    . /cvmfs/lhcb.cern.ch/lib/group_extra_settings.sh
fi
```

If for some reason you prefer (t)csh, add

```
if ( { ( [ -f /cvmfs/lhcb.cern.ch/group_login.csh ] ) } ) then
 . /cvmfs/lhcb.cern.ch/lib/group_login.csh
endif
if ( { ( [ -f /cvmfs/lhcb.cern.ch/group_extra_settings.csh ] ) } ) then
 . /cvmfs/lhcb.cern.ch/lib/group_extra_settings.csh
endif
```

to your `~/.cshrc` or `~/.tcshrc` file.

Grid Usage

In order to use grid tools like LHCbDirac or Ganga on CernVM, you need to enable the Grid UI options in the CernVM settings. In the web interface navigate to the `CernVM -> Preferences` section and in the `CernVM Groups and Repositories` section make sure `grid` is in your list of selected repositories.

You will of course need to copy your grid certificate to your CernVM instance, under `~/.globus`, as per any other linux site. More instructions on this are available here.

In your home directory, you should create a file `~/.dirac.cfg` in your home directory on the virtual machine with the following content

```
LocalSite
{
  Site = DIRAC.Local.uk
}
```

You may change the country if you like. It will affect the location where a file is retrieved from if available in more than one place.

Troubleshooting

- If you have problems with your grid certificate not authenticating and you have followed all the usual steps try starting `ganga` and try:

```
gridProxy.destroy()
gridProxy.create()
```

- If you have problems downloading files from the grid, but otherwise the internet and your grid proxy work inside the VM, you might need to change the type of networking used by your virtualizing software. For example, in VirtualBox the default NAT mode did not work, and when using dirac-dms-get-file caused an error including the message `GSS Major Status: Unexpected Gatekeeper or Service Name`. Switching to the "NAT Network" mode worked. You can create a "NAT network" inside the VirtualBox network preferences menu, and in the network adapter settings for the CernVM itself set it as the network adapter.

Tutorials

CERNVM 2.X

- Pere Mato's presentation☐ at the March 2009 software week
- Philippe Ghez's tutorial☐ on using CernVM on MacOS

CERNVM 3

- CernVM 3 First Public Release☐ contains instructions on how to set up the CERNVM.

Other useful Links

- The CERNVM savannah portal☐ is the place to post bug reports and feature requests.
- Thomas Ruf's personal CernVM page☐.
- Juan Palacios' CernVM troubleshooting page.

This topic: LHCb > CernVM
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