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# CernVMFS

# Introduction


The focus of this page is on the CVMFS area.

This page is divided into several main sections, among these:

- The first deals with the client setup which is of relevance to users and sites.
- The second section deals with the server and this is for experts - **sites and users do not need to know anything about the server setup.**

# CVMFS Client Setup at ATLAS Sites

This section is what users and sites need to do to use CVMFS.

 Instructions for installing the CVMFS client can be found on the ATLAS page: ATLAS CVMFS client installation instructions (and in the official CVMFS documentation).

## Keep informed

- Please subscribe to atlas-adc-cvmfs which is focused on cvmfs in ATLAS.
- You may also want to subscribe to cvmfs-talk.

## Setup Instructions for LCG Grid Sites

- After installing and configuring CVMFS on WN ( Tier3CVMFS2SLC5 ), define the following environment variables:
  - ◆ VO\_ATLAS\_SW\_DIR=/cvmfs/atlas.cern.ch/repo/sw
  - ◆ ATLAS\_LOCAL\_AREA=<some nfs area seen by WNs> where ATLAS\_LOCAL\_AREA must be writeable by the atlasgm account which does validation of releases.
- To define VO\_ATLAS\_SW\_DIR, you may want to edit your gLite site\_info.def file and rerun yaim.
- Setup your squid server ( Tier3CVMFS2SLC5#Site\_Local\_squid\_server ). For this activity, the squid servers should point to the public replicas (CERN, BNL, RAL)
- Contact atlas-grid-install@cernSPAMNOT.ch to get the releases validated at the site (software validation monitoring)
- If needed, copy or create a local override file as \$ATLAS\_LOCAL\_AREA/setup.sh.local (Note: CDB PFC will be used from cvmfs so you do not need to define the Pool File Catalog area.)

## Setup Instructions for OSG Grid Sites

These instructions assume that the site is currently operational with an NFS distribution of the Atlas releases.

The site manager should synchronize the date of the switch over with Alessandro De Salvo prior to starting these steps.

It is highly recommended that all Panda queues be set offline and all worker nodes drained of any jobs before starting the switch over.

- Install/configure autofsc and fuse on all worker nodes. See autofsc.sh for an example.
- Install the current release of CVMFS on all worker nodes. See cvmfs-install.sh for an example.
- Modify the CVMFS configuration files. See cvmfs-config.sh for an example.

Items you will need to change are your local squid, backup squids, location of the local c

- Change \$OSG\_APP/atlas\_app/atlas\_rel to point at the CVMFS atlas repository

```
# mv $OSG_APP/atlas_app/atlas_rel $OSG_APP/atlas_app/atlas_rel.nfs
# ln -s /cvmfs/atlas.cern.ch/repo/sw $OSG_APP/atlas_app/atlas_rel
```

- Create an area for local setup files that are NFS available to all worker nodes. A good choice is within `$OSG_APP`

```
# mkdir -p $OSG_APP/atlas_app/local
# chown usatlas2:usatlas $OSG_APP/atlas_app/local
```

- Put a copy of your `setup.sh.local` file into this area.

The wrapper/pilot will execute the setup scripts in the following order

```
source /cvmfs/atlas.cern.ch/repo/sw/local/setup.sh
source $ATLAS_LOCAL_AREA/setup.sh
source $ATLAS_LOCAL_AREA/setup.sh.local
```

- Add the following to your `CE/config.ini` file:

```
[Local Settings]
VO_ATLAS_SW_DIR=/cvmfs/atlas.cern.ch/repo/sw
ATLAS_LOCAL_AREA=$OSG_APP/atlas_app/local
```

- Execute `configure-osg -c` to make the changes effective. These variables will be added to `osg-local-job-environment.conf`. You could also add them by hand to `osg-local-job-environment.conf` to avoid having to run `configure-osg -c` on a running site. All jobs submitted to the site via WMS will have these variables defined, so this is a site wide change. All Panda queues will be affected immediately.

- Remove unneeded `schedconfig` vars that might cause confusion as to where the releases are located

```
appdir = None
$APP
$VO_ATLAS_SW_DIR
```

- Validate your site installation. This can take 6 or more hours to complete

```
* Remove all BDII defintiions by cleaning out all VO-atlas tags in $OSG_APP/etc/grid3-locat
* Allow CEMON time to remove all tags in the BDII (about 10 minutes)
* Notify Alessandro De Salvo that you would like a full site validation
* A full site validation will repopulate grid3-locations.txt and publish the available rel
```

- Choose where you would like jobs to find the conditions files

Currently it is not possible to use conditons files from HOTDISK with CVMFS for most Tier2. This is due to a problem of short vs long form SURLS in the LFC for a given Tier2.

Please do not attempt the following until LJSFi has been updated to handle mixed SURLS at .

By default, the conditions files will be found on the CVMFS repository `atlas-condb.cern.ch`. To use the conditions files from the local HOTDISK, add the following line to `$ATLAS_LOCAL`.

```
ATLAS_LOCAL_POOLCOND=yes
```

When Alessandro's `PoolCondPFC` task executes on the site, appropriate changes/additions will be made to files in `$ATLAS_LOCAL_AREA`. It also creates a local PFC using entries from HOTDISK local `$ATLAS_LOCAL_AREA/conditions/poolcond/PoolFileCatalog.xml`.

- Validation template for conditions data access <http://hammercloud.cern.ch/atlas/10004919/test/>

# Setup Instructions for Tier3 Sites

## User Interface part for Tier3s

Most Tier3s will need an interactive component and this is handled by `manageTier3SW` which will automatically recognize CVMFS directories for Athena, DBReleases and Condition Pool Files.

Or, if your site is uniformly 64-bit nodes, you can do the following to use `manageTier3SW` from CVMFS; simply do:

```
export ATLAS_LOCAL_ROOT_BASE=/cvmfs/atlas.cern.ch/repo/ATLASLocalRootBase
and follow the instructions for local overrides
```

Users should see the `ATLASLocalRootBase` instructions.

## Additional Step for Tier3 sites which are like Tier2s (ie. grid enabled CE)

Do either the LCG Tier2 (non-US sites) or the OSG Tier2 (US sites) steps as outlined above.

# Setup Instructions for CernVM Users, Standalone SL5 Desktops or Laptops

Note: The OS needs to be 64-bit.

```
export ATLAS_LOCAL_ROOT_BASE=/cvmfs/atlas.cern.ch/repo/ATLASLocalRootBase
and follow the instructions for local overrides
```

Users should see the `ATLASLocalRootBase` instructions.

## Site Fail-over

If your site squid goes down, jobs that require files that are not already cached on the WN will start failing. If you are running a batch farm with more than 100 WN and are worried about site availability, you are strongly recommended to run two squids. The performance of the machines is not important so it can be your two oldest WNs. Running two identically configured squids should not be that much more difficult than running one.

To configure your worker nodes to use this you should list your squids in the `CVMFS_HTTP_PROXY` variable in `/etc/cvmfs/default.local` separated by a "|". An example at RAL is:

```
CVMFS_HTTP_PROXY="http://lcg0679.gridpp.rl.ac.uk:3128|http://lcg0617.gridpp.rl.ac.uk:3128"
```

This will mean that CVMFS tries one of these squids and random and will try the other one, if the first attempt fails.

It is also possible to try squids in order. You can use this to fail-over to another sites squid if your site fails. However this may cause weird job failures as it may take time to get files from the distance squid. There has been a documented case of jobs failing at CERN when some WN were accidentally mis-configured to use the RAL squids. If you are a very small site while being down while it may not be ideal for jobs to fail if your squid is down it will make it much easier to debug problems. However if two sites are co-located it could be acceptable to fail-over to each others squid. To do this you would use a ";" in the configuration:

CVMFS\_HTTP\_PROXY="localSiteProxy;http://lcg0679.gridpp.rl.ac.uk:3128|http://lcg0617.gridpp.rl.ac.uk:3128"

This would mean to try your local Site Proxy first and if that failed to randomly choose one of the RAL squids to use (and if that failed to try the other RAL squid).

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# ATLAS CVMFS Software Server

This section explains some of the details of how to maintain each of the ATLAS CernVMFS content servers.

⚠ *This is only for experts and not for sites or users.*

## manageTier3SW

### Installation

```
unset VO_ATLAS_SW_DIR; updateManageTier3SW.sh
--installALRB=/cvmfs/atlas.cern.ch/repo --noCronJobs
```

### Maintenance (for Shifters)

1. The following is run daily as a cron jobs. This will do the update of the software as well as the CA/CRL certificates for gLite and then publish.

```
tier3update
```

Note that there is a lock that will be checked every 5 minutes to ensure that no other process is publishing at the same time.

## VO\_ATLAS\_SW\_DIR Area

### ATLAS Conditions Database Server

The conditions database server is currently running on voatlas94. This vbox machine is accessed via lxvoadm. One has to be in the proper ATLAS egroup to get access to lxvoadm and you can only log into lxvoadm from a non lxplus machine on the CERN network.

Once you are on voatlas94, become the **atcvmadm** account. This unprivileged account is used to update the conditions db files and publish the results with cvmfs server code.

### Maintenance (for Shifters)

- become the atcvmadm account and go to home area

```
sudo su
su atcvmadm
cd
```

- The following should be run daily since there are no cron jobs (until we get them to be bullet proof). This will update the conditions db

```
updatecondb.sh
```

⚠ the log file information is in > /var/log/condb/cron-condb.log

## ATLAS Nightly Release Server

- Proposal for Nightly CVMFS server at ATLAS sw week, Apr. 2011
- Information on ATLAS Nightly Release Server



# Tests

- 31 May 2011, TRIUMF Tier-1 LCG site initial installation and HammerCloud tests.

# References

- ATLAS CVMFS Tier3 client installation instructions
- Technical Information

# Obsolete Stuff

- Obsolete documentation dealing with the previous version of cvmfs.
- 

## Major updates:

-- DougBenjamin - 09-May-2011

Responsible: DougBenjamin

Last reviewed by: **Never reviewed**

- cvmfs-config.sh: IllinoisHEP CVMFS configuration
  - autofs.sh: IllinoisHEP autofs/fuse installation/setup
  - cvmfs-install.sh: IllinoisHEP CVMFS installation
- 

This topic: Atlas > CernVMFS

Topic revision: r48 - 04-May-2012 - AsokaDeSilva



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