

# CC-IN2P3 software area problems report

## Date

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## Authors

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## Related Action

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This report describes the actions taken by the Working Group which was put in place as requested by action #20101028\_04 of WLCG Tier1 service coordination meetings, see [https://twiki.cern.ch/twiki/bin/view/LCG/WLCGTier1ServiceCoordinationMinutes101111#Action\\_List](https://twiki.cern.ch/twiki/bin/view/LCG/WLCGTier1ServiceCoordinationMinutes101111#Action_List)

The WG is now set up and the action can be closed.

## Working Group composition

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- Pierre Girard, coordinator, CCIN2P3
- Rolf Rumler, coordinator deputy, CCIN2P3
- Luisa Arrabito, LHCb Contact, CCIN2P3
- Xavier Canehan, AFS administrator, CCIN2P3
- Yannick Perret, System Administrator Group leader, CCIN2P3
- Harry Renshall, CERN contact

## Summary

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### *Problem description*

Since some months LHCb jobs are suffering from some problems related to the IN2P3 shared area.

There are two kind of problems:

**Timeout during software setup:** this concerns all LHCB jobs, which might fail because they exceed the timeout set by LHCB during the software setup. The fraction of failed jobs varies between 1% and 6%. Details in GGUS ticket: [https://gus.fzk.de/ws/ticket\\_info.php?ticket=59880](https://gus.fzk.de/ws/ticket_info.php?ticket=59880)

**Software installation:** LHCB installation jobs install one package after the other, but at some point they get failed. However, the installation of individual packages usually works fine. Details in GGUS ticket: [https://gus.fzk.de/ws/ticket\\_info.php?ticket=62800](https://gus.fzk.de/ws/ticket_info.php?ticket=62800)

### ***Related problems***

At the beginning of last ATLAS reprocessing, started by the end of October, an important amount of job failures was observed due to a supposed “AFS problem”. When the number of atlas jobs increased, the number of failures could reach up to 50%.

After deep investigations, together with ATLAS people, we figured out that a new version of ATLAS software was in use, which set a timeout during CMT setup. This setup is known to be a common component of LHCB software and ATLAS one.

For more details, see GGUS tickets below:

- [https://gus.fzk.de/ws/ticket\\_info.php?ticket=63917](https://gus.fzk.de/ws/ticket_info.php?ticket=63917)
- [https://gus.fzk.de/ws/ticket\\_info.php?ticket=63645](https://gus.fzk.de/ws/ticket_info.php?ticket=63645)

ATLAS increased the timeout from 600s to 6000s. No more timeout failures have been observed since.

## **Timeout during software setup**

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### ***Actions:***

1. Comparing CCIN2P3 AFS configuration with CERN AFS configuration

Thanks to CERN colleagues for providing us first inputs on their AFS configuration for LHCB Software Area setup.

One of CERN concerns with LHCB software area is the possible overload on the AFS Servers. By the way, CERN put in place a solution that is very similar

to CCIN2P3 setup applied for Atlas SW area. In LHCb case, there is no AFS server overload observed at IN2P3. It seems that the problem comes rather from the client side, on the WN. CCIN2P3 AFS experts will probably contact CERN experts to check AFS configuration on the WN.

## 2. SL5 tuning

The goal is to stabilize SL5 wns, which show I/O problems leading to frequent crashes. Sets of wns with different tunings are in production and are monitored in order to find the best tuning. The last tuning is satisfactory for the wns stability and most of the WN is already updated. However, tests done at IN2P3 by reproducing LHCb software setup show only a slight improvement.

## 3. AFS cache tuning

Sets of wns with different AFS cache tuning are in production. Tests are also in progress at IN2P3 to validate the best tuning.

## 4. WNs isolation

About 65 wns have been put in production where atlas jobs are excluded. Tests done at IN2P3 by reproducing LHCb software setup show a very good improvement with almost zero timeout.

## 5. Deployment of an LHCb test infrastructure

Jobs running the LHCb software setup are systematically submitted by IN2P3 people on the different wns sets and the results are monitored in order to identify the best tuning.

## 6. Request to LHCb for increasing setup timeout of production jobs

As the problem is similar to ATLAS one (see above "Related problems" section), CCIN2P3 suggests that LHCb temporary increase the timeout (600s to 1200s, at least) to reduce the failures of production jobs. The problem would become by the way a job efficiency one rather than a failure one. LHCb is however asked to keep unchanged the timeout for the LHCb SAM jobs in order to keep a visible trace of the original problem.

## Software installation

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### *Actions:*

#### 1. Manual installation of individual packages

This procedure is done by IN2P3 people when requested by LHCb.

#### 2. Read-only AFS volume replication

An infrastructure with AFS rw volume isolation and ro volume replication is ready to be internally tested and eventually proposed to LHCb.

#### 3. WNs isolation for LHCb installation jobs

About 65 wns have been put in production where atlas jobs are excluded. A subset of 10 wns are exclusively dedicated to LHCb. The whole set has been mapped to LHCb user in charge of software installation. The 3 LHCb jobs that ran on this set still got failed. Preliminary tests done at IN2P3 by reproducing the whole LHCb software installation also failed.

#### 4. Deployment of an LHCb test infrastructure

Jobs running the whole LHCb software installation are submitted by IN2P3 people and are monitored in order to validate the different solutions.