

# Service Incident Report for PIC Tier1

## LHCb file loss due to procedure problem in tape migration process

### Description

The problem started on 20-25th of October when we ran at PIC a migration process (repack) for the LHCb file family "Archive".

After repacking this space, we proceeded to recycle the tapes and we realized that the migrated files were being marked as "deleted" also in the destination tapes.

We stopped the tape recycle activity in order to investigate this issue. The problem was traced to come from an old version of SQL procedure applied to the Chimera DB. FNAL Enstore support provided a new SQL procedure and the problem was fixed so it should not reappear in future tape migrations. Looking back to the migrations done in the past months, 930 LHCb files were found to be affected by this issue.

### Impact

930 files on tape were lost for the LHCb VO. These files were accidentally deleted during a tape migration procedure. The complete list is provided as an attachment in the corresponding LHCb elog entry: <http://lblogbook.cern.ch/Operations/12776>

After reporting this, LHCb confirms that only 2 of these files had a single archive replica at PIC. All others had another archive at CERN or elsewhere.

### Time line of the incident

- 20-25-October-2012 : Migration process for the "archive" file family run at PIC to repack the space for the LHCb VO. The migration process finished successfully.
- 31-October-2012 : Proceed to recycle tapes only containing deleted files for the LHCb VO. At this moment, it was detected that those files were marked as deleted on the source and on the destination tapes which is not normal. The recycle activity is stopped and investigation is started.
- 7-November-2012: We tried to reproduce this behaviour in the Enstore test instance, and we checked that the migration process finished successfully. Once the process finished, an Enstore cronjob (delfile) is run on the Chimera server which marks files as "deleted" on the destination tape, which is not correct. We contacted FNAL

Support, and they told us that the Enstore SQL script we had applied on the Chimera DB when we did the migration PNFS-Chimera it was an old version; FNAL Support provided us the new version of the Enstore SQL and, once applied, the problem was fixed.

- 20-November-2012: All migrated files were checked for the LHCb "archive" file family and we found that some files had been lost (tape recycled after files had been marked as "deleted" by the wrong SQL procedure). The list of affected files was generated.

## Analysis

We ran the migration process on the test instance but we did not detect this problem because the Enstore "delfile" cronjob was disabled on the Chimera test server.

The recycle process has been modified to prevent that this problem will not appear again in the future. Before this problem, we recycled tapes containing no active files. Now we have added an extra check to make sure that this file does not exist on the Chimera namespace and, if this exists, we check if this file contains a copy marked as "active" in any other tape.