EOSTAPE splits the archive namespace over several tape storage elements and a separate archive file catalogue

Tape Storage Element - ALICE

EOS

For each file:
- **Logical path**
- **Authorization rules**
- **Tape storage class**
- Inode
- Disk copy locations
- Archive file ID

Indices:
- Logical path
- Inode

Tape Storage Element - ATLAS

EOS

For each file:
- **Logical path**
- **Authorization rules**
- **Tape storage class**
- Inode
- Disk copy locations
- Archive file ID

Indices:
- Logical path
- Inode

Tape Storage Element - CMS

EOS

For each file:
- **Logical path**
- **Authorization rules**
- **Tape storage class**
- Inode
- Disk copy locations
- Archive file ID

Indices:
- Logical path
- Inode

Tape Storage Element - LHCb

EOS

For each file:
- **Logical path**
- **Authorization rules**
- **Tape storage class**
- Inode
- Disk copy locations
- Archive file ID

Indices:
- Logical path
- Inode

The archive namespace is in green

The internals of repack are beyond the scope of this document

Repack

Linked by inode

Linked by inode

Linked by inode

Linked by inode

VID based queries and archive file ID based updates

Archive File Catalogue (AFC)

For each archive file:
- Archive file ID
- Tape storage class
- Tape copy locations
- EOS instance + inode
- Opaque data for backup

Indices:
- Archive file ID
- VID

Tape storage class is duplicated between the internal EOS instances and the AFC

The AFC has two roles:
- Store all the tape specific metadata of archived files
- Act as a central backup for the internal EOS instances of the tape Storage Elements

The opaque data field can be used to backup per file metadata such as file permissions and extended attributes