

DIRACOS

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Motivations



Why DIRACOS?

- **DIRAC requires external libraries to work**
 - Python libraries
 - Non Python libraries (middleware, etc)
 - Server side only tools (like MySQL server)
 - Currently managed by two independent packages: Externals and LCGBundle

Why DIRACOS?

- **Externals**

- Managed by Andrei
- On the DIRACGrid repo
- Contains standard packages (python and binary)
- Pre-compiled for each platform (SLC, Ubuntu, Mac, Nokia, etc)
- Different version for client and server
- Quite seldom changes

Why DIRACOS?

- **LCGBundle**

- Managed by Joel
- On the lhcb-dirac repo
- Contains whatever comes from the Grid world (gfal, arc, etc) and some duplicates with Externals
- Same version for client & server
- One version for glibc 2.12 (SLC6) one for glibc 2.17 (CC7)
- No recompilation, just playing with existing tars
- Frequent updates

Where things got wrong

- **Difficult to test**
- **Slow release process**
- **Hard to redo/extend by others**
- **Technical hell:**
 - We do not use system versions
 - GCC 5 vs GCC 6
 - Python 2.6 vs 2.7
 - Stdlib with/without C++11 support
 - Unavailable packages

DIRACOS

- **Single package list**
- **Everything is recompiled from SRPM**
- **All the dependencies are pulled, down to glibc**
- **Same package for client, server, any platform**
- **Designed with extension and testing in mind**
- **Relies on Fedora Mock and yum repo**

DIRACOS grammar

```
{
  "rpmBuild" :
  {
    "opt1" : 1,
    "packageGroups" : [
      {
        "name" : "pkgGrp1",
        "opt1" : 2,
        "packages" : [
          {
            "name" : "pkg1",
            "opt2" : "x"
          },
          {
            "name" : "pkg2",
            "opt1" : 3
          }
        ]
      }
    ]
  }
}
```



```
{
  "name" : "pkg1",
  "opt1" : 2,
  "opt2" : "x"
},
{
  "name" : "pkg2",
  "opt1" : 3
}
```


Patching, routines & python

- **To handle specific cases**
 - There are ALWAYS some...
- **Patching**
 - Some RPM spec requires a bit of tweaking
 - Just add the *diff* file in the patch folder
- **Routines**
 - pre/post/instead actions of compilation
- **Python packages**
 - Just a list in the json configuration file

Generating DIRACOS

- **“pip install diracos” + a few yum commands**
- **dos-build-all-rpms <jsonFile>**
 - Compile everything
- **dos-build-python-modules <jsonFile>**
 - Compile the python modules
- **dos-bundle <jsonFile>**
 - Pull dependencies, and tar everything

Where do we stand?

- **DIRACOS [repo](#) available**
- **Contains Externals of v6r20 and LcgBundle 14.1 (latest of both)**
- **Was tested mostly by hand and for a little bit in certification**
- **Tests OK on SLC6 & CC7**
- **dirac-install ready to install with DIRACOS (optional)**

What is missing?

- **A hell lot of testing**
 - Automated unit tests
 - Next certification round with DIRACOS
- **dirac-install needs improvements**
 - DIRACOS URL specific to VO
- **Environment separation between pilot & payload**
- **Automation of build, test & release**

Few more points

- **Some packages will disappear**
 - MySQL server for example
 - Runit (already gone)
- **Hopefully v6r21**
 - Default DIRACOS
 - Optional: LcgBundle + Externals
- **Testing and contributions from everyone welcome/needed**
 - LHCb will focus on SLC6 & CC7