NEW BUILD PROCEDURE FOR THE ALICE SOFTWARE

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USECASES

Production (i.e. daily builds):

Discussed at length last time:

- *http://cern.ch/go/lN9r*
- *Pretty stable and production quality*

Users:

Last few months focused in improving "laptop" experience.

- *Kudos to the various guinea pigs (Barth, Laurent, Matthias, Peter, Vasco) for trying things out, reporting bugs and suggesting clean-ups.*
- *And of course to Dario for the huge brainstorming design work and contribution.*

OLD INSTANT GRATIFICATION

```
git clone https://github.com/alisw/alibuild.git
git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild/aliBuild -d -a slc7_x86-64 -j 16 build AliRoot
```

Still works…

..and it will always do so. Preferred for centralised production builds. Several annoyances:

- *Too much typing*
- *Too many URLs*
- *Too many command-line options*

NEW INSTANT GRATIFICATION

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

"Laptop" usecase

This is the new preferred way on the laptop.

- ~~*Too much typing*~~
- ~~*Too many URLs*~~
- ~~*Too many command-line options*~~

GET THE TOOL

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

Standardize deployment

Standard python package, hosted on PyPi at:

https://pypi.python.org/pypi?:action=display&name=alibuild

Install once, upgrade adding **`--upgrade`**.

GET THE BUILD RECIPES

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

Automatic checkout

aliBuild will fetch the default branch of alidist if it does not find it in the current directory.

GET THE SOFTWARE YOU WANT DO DEVELOP

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

Development packages

Check-out your favourite development packages. E.g. AliRoot or AliPhysics. By default they will be built in, e.g.:

`sw/<architecture>/AliRoot/latest-<branch-name>`

`<branch-name>` *can be overridden by* **`-z`** *option.*

GET THE SOFTWARE YOU WANT DO DEVELOP

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

Development packages

You will be allowed to recompile (well behaved) development packages either by using aliBuild again, or by **`cd`***-ing in*

```
sw/BUILD/AliRoot-latest-master/
```

and typing **`make install`**.

BUILD IT

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

Sensible defaults

Software will be installed in "$PWD/sw" by default.

- *Use* **`--work-dir / -w`** *to change it*
- *Successful builds will actually print out where they got installed*

BUILD IT

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

Platform auto-detection

aliBuild will do its best to detect the build platform:

- *Use* **`-a / --architecture`** *to override*
- *Use* **`--force-unknown-architecture`** *for unsupported platforms*
- *Use* **`--docker`** *to cross compile using docker*

BUILD IT

```
pip install alibuild
# git clone https://github.com/alisw/alidist.git
git clone https://git.cern.ch/web/AliRoot.git
aliBuild build AliRoot
```

Multicore auto-detection

aliBuild will do its best to detect the number of cores available:

- *Use* `-j N` *to override*
- *Some externals are still compiled single core (sigh)*

ENVIRONMENT SETUP

```
alienv q

alienv enter AliRoot/latest

alienv setenv AliRoot/latest -c "which aliroot"
```

Module-file based

Just like on lxplus, you can use **`alienv`** *to setup the environment. Bash based scripts "***`<package>/etc/profile.d/init.sh`***" still provided for cases where installing TCL / modulefiles is not desired.*

MORE USABILITY IMPROVEMENTS

Prefer system tools

Avoids building and prefer system software when compatible with the one shipped by the recipe (disable with **`--no-system`***).*

More aggressive clean-ups

On successful builds, as much as possible of the intermediate artifacts will be cleaned up (disable with **`--no-auto-cleanup`***).*

HTTP Remote Store

Download packages from http, rather than rsync (experimental)

```
--remote-store https://ali-ci.cern.ch
```

aliDoctor

Prints useful information for debugging. Make sure you add it to your bug reports.

HOW TO ADD NEW PACKAGES

Checkout the code at the same level

```
git clone https://github.com/alisw/GenXXX.git
```

Create a recipe in alidist for the new external

Use the `alidist/template-recipe.sh` *for inspiration.*

Integrate it in the AliRoot / AliPhysics recipe (if required)

In particular make sure you add your new recipe as a "requires" of AliRoot / AliPhysics.

Ask for help / support

Feel free to open issues in https://github.com/alisw/alidist if you have troubles, full documentation at http://alisw.github.io/alibuild/.

MORE DOCUMENTATION

Look forward tutorial by Dario during ALICE WEEK:

https://indico.cern.ch/event/514239/

ALIBUILD BASED BUILDS WILL BECOME THE PREFERRED WAY OF BUILDING AFTER THE TUTORIAL

alibuild documentation at:

http://alisw.github.io/alibuild/

[WIP] ALICE O2 tutorial at:

http://ktf.github.io/o2-tutorial/