First steps with GMKPACK: compiling the code.

O. Riviere
Introduction

Compilation tool developed (and updated) by Ryad El Khatib and GCO

Used in Meteo-France and in most of Aladin countries

Portable: it works as well on supercomputers than on a simple PC with a large variety of compilers
How does it work?

Use of gmkpack is similar to use of clearcase but with **packs** instead of branches.

A pack is an **ensemble of script, source files, libraries and executables corresponding to a clearcase branch**

There are two type of packs:

- **main pack**: it is often associated with a public view in clearcase and it is the reference on which a new executable will be built.
  At Meteo-France on yuki and tori, main packs are prepared by GCO.

- **local pack**: equivalent of a private view under clearcase, it is where developpers compile their clearcase branch.
  Created by the user.
**Local preparation**

Update on yuki your .profile with the following lines (mrpe601/profilews):

```bash
export GMKROOT=/cnrm/gp/mrpm/mrpm602/public/bin/gmkpack
GCOROOTPACK=/mf/dp/marp/marp001/packs
export ROOTPACK=$GCOROOTPACK
export HOMEPACK=$HOME/pack
export HOMEBIN=$WORKDIR/SXbin
export PATH=$GMKROOT/util:$PATH
export GMKTMP=$TMP_LOC
export DUMMYLIBPATH=/cnrm/gp/mrpm/mrpm602/public/lib
export GMKFILE=SXF90.YUKI
export GGETPATH=/mf/dp/marp/marp001/public/bin
```

Add merou.meteo.fr to your .rhosts file

**From now on, newcomers can try to test gmkpack following the slides**
Creating a pack

"gmkpack -r cy35t2 -b bf -v 05 -u bf_canari -l SX20r393 -o y -p master"

- \( r \) = reference release label
- \( u \) = name of the new pack
- \( v \) = reference pack version number
- \( l \) = reference compiler version
- \( o \) = compiler options family
- \( p \) = type of binary required

Using cc_export under clearcase "cc_export -b -c -h yuki"
Content of a pack

mrpe601@yuki:pack/bf_canari> ls
bin  ics_master  lib  src  sys

- ics_master: compilation script
- src: location of the original and modified source code

mrpe601@yuki:pack/bf_canari/src> ls
inter.1  inter.2  inter.3  inter.4  inter.5  local  main  unsxref

- main: points to the source code of cy35t2.01

mrpe601@yuki:pack/bf_canari/src> ls -ll main
main -> ~marp001/packs/cy35t2_main.01.SX20r393.y.pack/src/local

- inter.x: points to versions of cy35t2 that were created on top of cy35t2.01

mrpe601@yuki:pack/bf_canari/src> ls -ll inter.2
inter.2 -> ~marp001/packs/cy35t2_bf.02.SX20r393.y.pack/src/local

- local: modified subroutines are put here respecting the code arborescence

mrpe601@yuki:ack/bf_canari/src> ls local/
aeo  ald  arp  bip  bla  mpa  mse  odb  sat
sct  sur  tal  tfl  uti  xla  xrd

- bin: directory where binary will be created
Compiling my modifications

Check with scanpack that your modifications are in your local directory

mrpe601@yuki:pack/bf_canari/src/local> scanpack arp/var/rdfpinc.F90

Submit compilation script: "qsub ics_master"

Your binary is inside the bin directory:

mrpe601@yuki:pack/bf_canari/bin> ls -l MASTER
-rwxr-xr-x 1 mrpe601 mrpe 236596612 2010-09-20 16:03 MASTER
Some useful commands/tips

Information about gmkpack options used to create a given pack to be found in .genesis file

```
mrpe601@yuki:pack/bf_canari> cat .genesis
gmkpack -r cy35t2 -b bf -v 05 -u bf_canari -l SX20r393 -o y -p master
```

"scanpack" shows modifications made in the pack

"cleanpack" removes all files except source files
Creating a pack from a clearcase branch: cc_export

From inside your pack: cc_export -b -c -h yuki

(works only inside your private branch if you are not a clearcase topuser)

A pack will be directly created on yuki with the contents of your branch.

merou.meteo.fr has to be added on the .rhosts file on yuki before!
Local installation of packs inside GMAP

getpack :
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Usage: getpack -r release [-b branch] -v version [-l label] [-o option]
Object : installation of precompiled pack
Parameters :
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-r = reference release label (mandatory)
-b = branch name (optional, default is "main")
-v = version number of pack (mandatory, 2 digits)
-l = compiler label (optional, default is "GFORTRAN442")
-o = compiler options family, (optional, default is "x")

Exemple : % getpack -r 36t1 -b bf -v 04
=> installation of precompiled pack 36t1_bf.04.GFORTRAN442.x

- Small model’s configurations can then be debugged on PCs avoiding to wait on the supercomputer
- English translation of Ryad’s documentation made available on LACE’s forum.
**Conclusion**

- Very useful tool for developers that don’t have to bother about compilation issues
- Widely used within Aladin/Hirlam community
- Portable on a large variety of platforms and compilers
- Maintained by MF cycle after cycle (releases of new version of gmkpack are announced on the alabobo2 mailing list)