



***First steps with GMKPACK:
compiling the code.***

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METEO FRANCE
Toujours un temps d'avance



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 gmckpack 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):

```
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/  
aao  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 gmckpack options used to create a given pack to be found in .genesis file

```
mrpe601@yuki:pack/bf_canari> cat .genesis
gmckpack -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 :

Usage: getpack -r release [-b branch] -v version [-l label] [-o option]

Object : installation of precompiled pack

Parameters :

-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 "GFORTTRAN442")

-o = compiler options family, (optional, default is "x")

Exemple : % getpack -r 36t1 -b bf -v 04

=> installation of precompiled pack 36t1_bf.04.GFORTTRAN442.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 gmckpack are announced on the alabobo2 mailing list)