

Eficass:
Migration from
CMZ to CVS

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Why are we migrating ?

CERN-IT (Information Technology, previously CN) has migrated from CMZ to CVS already years ago.

Support for CMZ has stopped with 96a release. We want to keep up with bug-fixes and improvements of CERN standard software.

CVS is a standard tool, supported on most UNIX platforms.

It's easy to use...

What had CMZ been offering:

- *code management*
- *editing*
- *compilation, linking and library maintenance*
- *search facilities like **find** and **grep***

What means CVS?

Concurrent Versions System

It is a version control system, somewhat like [CMZ](#), to control the history of changes/updates in a set of source-files.

CVS stores all previous versions of a source file in some clever compact format (called a “repository”) such that any old version can be restored, and the date/time/author of modifications can be retrieved.

CVS also has options for merging modifications by several authors to the same source-file.

CVS saves with the modified files “release note”-type comments after you have made a change in one or several source files.

CVS allows “branches” of a project

CVS does NOT offer any facilities for editing, compiling and linking. Here the standard UNIX tools can be easily used.

Do we all have to learn CVS ?

Not all, but some of us - yes!

For **Code-developers**, we recommend to learn CVS.

They should copy **\$CHORUS/dev/src/cvsroot** and “checkout” for themselves (temporary solution...)

For occasional “**Eficass-hackers**”, they can also work with **\$CHORUS/dev/src/eficass** files, and compile with the ***makefile***, without knowing **ANYTHING onCVS**.

STRUCTURE:

In *\$CHORUS/dev/src* there are

cvsroot/ directory, containing the repository

eficass/ directory, containing the checked-out sources from the repository.

eficass/CVS/ directory for CVS administration

eficass/src/ directory containing subdirectories (~CMZ-"patches") with *.F files:

eficass/src/draw/ eficass graphics routines

eficass/src/geom/ Chorus geometry definition

eficass/src/init/ Geant initialisation

eficass/src/main/ Eficass Main routine

eficass/src/zini/ Zebra initialisation

eficass/src/digi/ Digitisation of event

eficass/src/geant/ Overlaid standard Geant

routines

eficass/src/kine/ Event-input

eficass/src/step/ Tracking

eficass/src/zout/ Zebra per-event output

eficass/src/include/ Former "SEQ" decks

eficass/obj/

eficass/bin empty, used by "makefile"

eficass/input contains the "runcards":

eficass/input/efigeom.crd geometry cards

eficass/input/efimap.crd Calo-mapping cards

eficass/input/eficalo.crd Calo-cards

eficass/input/efiread.crd F77 Logic Units

eficass/input/efigraf.crd Graphics-cards

eficass/input/efiphys.crd Physics-cards

eficass/input/efirun.crd Run-cards

Note: The hierarchical structure of the CMZ version of *eficass* has been kept, so it will be easy to find your way...

Elementary (?) CVS usage

If one decides to use CVS, and one copies the *cvsroot/eficass* repository:

```
cd myowneficassdir  
cp -pr $CHORUS/dev/src/cvsroot/* .
```

one has to define the CVSROOT environment parameter:

```
CVSROOT=myowneficassdir/cvsroot; export  
CVSROOT
```

```
cvs checkout eficass
```

```
cd eficass
```

```
edit src/patch/someroutine
```

```
make
```

```
eficass_run
```

(if OK:)

```
cvs commit
```

(type "version-comments" in default editor)

Send email to Eficass librarian with names/location of changed eficass routines. They will be installed by hand into the official version (temporary solution).

What is makefile, what is gmake?

Not all have to learn CVS, but all who want to compile eficass, should know about *gmake*...

We use for eficass ONLY *gmake*, which is the GNU-version of the Unix-make command.

In fact a *makefile* is a recipe for compilation and linking.

***gmake* is the Unix-tool that executes this recipe.**

What is CPP?

It is simply a preprocessor to resolve *#include* statements, conditional compiling etc.

```

# ---GNU makefile for compilation of Eficass Detector
Simulation code
# 2 april 1997, Jan Visschers
# Can ONLY be used with "gmake" command!!
# use "gmake -s" for normal (silent) use
# use "gmake -d" when debugging this makefile
# use "gmake clean" to cleanup intermediary files

#--- define where to find the Eficass sources etc.
sources = $(wildcard src/*/*.F)
objects = $(patsubst src%.F, obj%.o, $(sources))
depends = $(patsubst obj%.o, obj%.d, $(objects))
SourceOfObject= $(patsubst obj%.o, src%.F, @$)
SourceOfDepend= $(patsubst obj%.d, src%.F, @$)

#--- define where to find common declarations
level = 96a
incls = -I/cern/$(level)/include/geant321 \
-I/cern/$(level)/include \
-I/cern/$(level)/src/mathlib/gen \
-I./src/include

#--- define where to find libraries
libraries = ` /cern/$(level)/bin/cernlib \
-v $(level) geant graflib/X11 genlib`

#--- define the fortran compiler and its options
fortran = hepf77

#--- define the linker
linker= hepf77 -bloadmap:eficass.map \
-bmap:eficass.map
#linker = hepf77

```

#--- link when needed

```
eficass: $(depends) $(objects)  
    @echo re-linking the $@ executable...  
    @$$(linker) -o bin/eficass $(objects)  
$(libraries)  
    @echo $@ executable succesfully linked!
```

#--- construct the dependencies

```
$(depends): $(SourceOfDepend)  
    @echo re-constructing the dependencies $@  
    @gcc -M $(incls) $(SourceOfDepend) \  
    | sed 1s/.*/$(subst /,\V,$@):/\  
    | sed 1s/.*/^&\ \&/\  
    | sed 1s/d:/o/\  
    > $@
```

#--- include the dependencies inside this makefile...

```
include $(depends)
```

#--- compile what needs to be compiled

```
$(objects):  
    @echo re-compiling $(SourceOfObject)...  
    @$$(fortran) $(SourceOfObject) -o $@ \  
$(incls) -qnoinput -c -d -v -O
```

What is the present status?

eficass 1.11/03 last CMZ-based version
is still the official release.

eficass v2/01/01 first CVS-based version

still preliminary...

Only runs on IBM/AIX and Digital UNIX

date/time of compilation not OK

date/time of *eficass*-run not OK

production platform not in MCEV bank

support for VM, VAX-VMS and CRAY
“suspended” ...?

GEANT-routines that were overlaid in
Eficass have only been partly taken
over. Some routines (e.g. GTELEC) have
been greatly changed in the mean time
and we would like to try and use new
versions of these GEANT routines

some bugs have been cured in the mean
time.

Full wings migration ?...

“... I would applaud if we convert ALL of the offline software to *cvsgmake/cpp* so to have one standard set of tools again for all (off- and online?) Chorus software.”

(JV)

-? - offline repository, containing different modules for:

**eficass
choral
jetta
gbeam
.....**

*- ? - giving all "developers" write access to "some common, /dev-like" repository...(simple rules needed). This would release the full power of **CVS** (which was designed to do just that: work with multiple developers on multiple versions of code).*

- ? - a lot of "inexperienced car-drivers" on the CERN-premises at the same time ... - perhaps better to wait a bit until more experience is gained...