

Known Problems

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[]: Unsolved [x]: Solved

[x] qdel: Server could not connect to MOM 476932.ce01.macc.unican.es

Some times, PBS downs in the nodes. In order to recover it. We have to stop it an restart the service.

```
[root@ce01 ~]$ssh wn025 'service pbs_mom restart'
```

It can be done for all nodes:

```
[root@ce01 ~]# cexec 'service pbs_mom status'
***** macc *****
----- wn001-----
pbs_mom (pid 2575) is running...
----- wn002-----
pbs_mom (pid 3061) is running...
----- wn003-----
pbs_mom (pid 2908) is running...
----- wn004-----
ssh(1777) Warning: the RSA host key for 'wn004' differs from the key for the IP address '192.168.202.14'
Offending key for IP in /etc/ssh/ssh_known_hosts:8
Matching host key in /root/.ssh/known_hosts:117
ssh(1777) Permission denied, please try again.
ssh(1777) Permission denied, please try again.
ssh(1777) Permission denied (publickey,password).
----- wn005-----
pbs_mom dead but subsys locked
----- wn006-----
pbs_mom (pid 3002) is running...
----- wn007-----
pbs_mom (pid 29926) is running...
----- wn008-----
pbs_mom dead but subsys locked
----- wn009-----
ssh(1796) Permission denied, please try again.
ssh(1796) Permission denied, please try again.
ssh(1796) Permission denied (publickey,gssapi-keyex,gssapi-with-mic,password).
----- wn010-----
pbs_mom dead but subsys locked
----- wn011-----
pbs_mom dead but subsys locked
----- wn012-----
pbs_mom dead but subsys locked
----- wn013-----
pbs_mom (pid 6605 6604 6422) is running...
----- wn014-----
pbs_mom (pid 3137) is running...
----- wn015-----
pbs_mom dead but subsys locked
----- wn016-----
pbs_mom dead but subsys locked
----- wn017-----
pbs_mom dead but subsys locked
----- wn018-----
pbs_mom (pid 3284) is running...
----- wn019-----
pbs_mom dead but subsys locked
----- wn020-----
pbs_mom dead but subsys locked
----- wn021-----
pbs_mom dead but subsys locked
```

```

----- wn022-----
pbs_mom dead but subsys locked
----- wn023-----
pbs_mom dead but subsys locked
----- wn024-----
pbs_mom (pid 3157) is running...
----- wn025-----
pbs_mom (pid 18308) is running...
----- wn031-----
pbs_mom dead but subsys locked
----- wn032-----
pbs_mom dead but subsys locked
----- wn033-----
pbs_mom dead but subsys locked
----- wn034-----
pbs_mom dead but subsys locked
----- wn035-----
pbs_mom dead but subsys locked
----- wn036-----
pbs_mom dead but subsys locked
----- wn041-----
pbs_mom dead but subsys locked
----- wn042-----
pbs_mom dead but subsys locked
----- wn043-----
pbs_mom dead but subsys locked
----- wn044-----
pbs_mom dead but subsys locked
----- wn045-----
pbs_mom dead but subsys locked
----- wn046-----
pbs_mom dead but subsys locked

```

Restarting

```

[root@ce01 ~]# cexec 'service pbs_mom restart'
***** macc *****
----- wn001-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn002-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn003-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn004-----
ssh(2514) Warning: the RSA host key for 'wn004' differs from the key for the IP address '192.168.202.14'
Offending key for IP in /etc/ssh/ssh_known_hosts:8
Matching host key in /root/.ssh/known_hosts:117
ssh(2514) Permission denied, please try again.
ssh(2514) Permission denied, please try again.
ssh(2514) Permission denied (publickey,password).
----- wn005-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn006-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn007-----
Shutting down TORQUE Mom: [ OK ]

```

```

Starting TORQUE Mom: [ OK ]
----- wn008-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn009-----
ssh(2524) Permission denied, please try again.
ssh(2524) Permission denied, please try again.
ssh(2524) Permission denied (publickey,gssapi-keyex,gssapi-with-mic,password).
----- wn010-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn011-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn012-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn013-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn014-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn015-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn016-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn017-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn018-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn019-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn020-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn021-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn022-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn023-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn024-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn025-----
Shutting down TORQUE Mom: [ OK ]
Starting TORQUE Mom: [ OK ]
----- wn031-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn032-----
Shutting down TORQUE Mom: [FAILED]

```

```

Starting TORQUE Mom: [ OK ]
----- wn033-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn034-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn035-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn036-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn041-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn042-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn043-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn044-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn045-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]
----- wn046-----
Shutting down TORQUE Mom: [FAILED]
Starting TORQUE Mom: [ OK ]

```

And then the nodes are:

```

[root@ce01 ~]# pbsnodes -l
wn002                offline
wn003                offline
wn004                down,offline
wn009                down,offline
wn001                offline

```

[] Abnormal ending of simulations due to 'Flerchinger' approximation

A simulation ends with the following message:

```

(...)
d01 2000-09-13_00:00:00 Input data processed for wrflowinp_d<domain> for domain 1
Flerchinger USEd in NEW version. Iterations= 10
Flerchinger USEd in NEW version. Iterations= 10
Flerchinger USEd in NEW version. Iterations= 10

```

Related to the topic:

- [?WRF forum](#)
- `phys/module_sf_noahdrv.F` code

[] Abnormal ending of simulations

While a simulation was running on 'rs1.error.0000' appears:

```
(...)
```

Timing for main: time 2001-03-03_05:00:00 on domain 1: 2.94590 elapsed seconds.

wrf.exe: posixio.c:213: px_pgout: Assertion `*posp == ((off_t)(-1)) || *posp == lseek(nciop->fd, 0, 1)' failed.

Image	PC	Routine	Line	Source
libc.so.6	0000003AC6830265	Unknown	Unknown	Unknown
libc.so.6	0000003AC6831D10	Unknown	Unknown	Unknown
libc.so.6	0000003AC68296E6	Unknown	Unknown	Unknown
wrf.exe	00000000015E846A	Unknown	Unknown	Unknown
wrf.exe	00000000015BD80D	Unknown	Unknown	Unknown
wrf.exe	00000000015CC1FE	Unknown	Unknown	Unknown
wrf.exe	0000000001571B10	Unknown	Unknown	Unknown
wrf.exe	00000000015708BD	Unknown	Unknown	Unknown
wrf.exe	000000000155F149	Unknown	Unknown	Unknown
wrf.exe	000000000155B828	Unknown	Unknown	Unknown
wrf.exe	000000000BCA9ED	Unknown	Unknown	Unknown
wrf.exe	000000000BC71D9	Unknown	Unknown	Unknown
wrf.exe	000000000BC6C58	Unknown	Unknown	Unknown
wrf.exe	000000000BC6162	Unknown	Unknown	Unknown
wrf.exe	000000000BC5EFE	Unknown	Unknown	Unknown
wrf.exe	000000000DEF177	Unknown	Unknown	Unknown
wrf.exe	00000000007413C2	Unknown	Unknown	Unknown
wrf.exe	00000000006BE487	Unknown	Unknown	Unknown
wrf.exe	00000000006552B9	Unknown	Unknown	Unknown
wrf.exe	000000000067A5B4	Unknown	Unknown	Unknown
wrf.exe	0000000000678591	Unknown	Unknown	Unknown
wrf.exe	00000000004CA59F	Unknown	Unknown	Unknown
wrf.exe	000000000047B093	Unknown	Unknown	Unknown
wrf.exe	000000000047B047	Unknown	Unknown	Unknown
wrf.exe	000000000047AFDC	Unknown	Unknown	Unknown
libc.so.6	0000003AC681D994	Unknown	Unknown	Unknown
wrf.exe	000000000047AEE9	Unknown	Unknown	Unknown

Related links:

- [?discussion on matters of common interest to netCDF user \(\)](#)
- [?WRF forum 1](#)
- [?WRF forum 2](#)

[x] Not writing of wrf restart files

Along the simulation on rsl.[error/out].[nnnn] appears

```
(...)
```

Timing for Writing restart for domain 1: 48.82700 elapsed seconds.

```
(...)
```

But restart was never written. Along the simulation, a wrfrst_[...] file is written, but it has only 32 bytes and it is alive only the 48.82700 seconds, after that time it disappears. Looking to the execution flow (via strace):

```
(...)
```

```
open("wrfrst_d01_2000-06-01_11:30:00", O_RDWR|O_CREAT|O_TRUNC, 0666) = 13
fstat(13, {st_mode=S_IFREG|0664, st_size=0, ...}) = 0
fstat(13, {st_mode=S_IFREG|0664, st_size=0, ...}) = 0
lseek(13, 0, SEEK_CUR) = 0
lseek(13, 24, SEEK_SET) = 24
write(13, "\0\0\0\0\0\0\0", 8) = 8
lseek(13, 0, SEEK_SET) = 0
(...)
```

```
write(1, "Timing for Writing restart for d"... , 76) = 76
write(2, "Timing for Writing restart for d"... , 76)
```


Simulations crash just at beginning of them:

```

taskid: 0 hostname: wn025.macc.unican.es
Quilting with 1 groups of 0 I/O tasks.
Namelist dfi_control not found in namelist.input. Using registry defaults for v
ariables in dfi_control
Namelist tc not found in namelist.input. Using registry defaults for variables
in tc
Namelist scm not found in namelist.input. Using registry defaults for variables
in scm
Namelist fire not found in namelist.input. Using registry defaults for variable
s in fire
  Ntasks in X          2, ntasks in Y          4
WRF V3.1.1 MODEL
  *** CLWRF code enabled
  *****
  Parent domain
  ids,ide,jds,jde      1          50          1          50
  ims,ime,jms,jme     -4          32         -4          20
  ips,ipe,jps,jpe      1          25          1          13
  *****
DYNAMICS OPTION: Eulerian Mass Coordinate
  alloc_space_field: domain          1,          26649120 bytes allocated
  med_initialdata_input: calling input_model_input
INPUT LandUse = "USGS"
forrtl: severe (174): SIGSEGV, segmentation fault occurred
Image                PC                Routine                Line                Source
wrf.exe              00000000013EF3E1  Unknown                Unknown             Unknown
wrf.exe              00000000013F05A7  Unknown                Unknown             Unknown
wrf.exe              00000000013F1CE8  Unknown                Unknown             Unknown
wrf.exe              00000000011BB44B  Unknown                Unknown             Unknown
wrf.exe              0000000000DE008E  Unknown                Unknown             Unknown
wrf.exe              0000000000DDAEAD  Unknown                Unknown             Unknown
wrf.exe              00000000009AF813  Unknown                Unknown             Unknown
wrf.exe              0000000000690D01  Unknown                Unknown             Unknown
wrf.exe              000000000068DB21  Unknown                Unknown             Unknown
wrf.exe              000000000047BC1B  Unknown                Unknown             Unknown
wrf.exe              000000000047B049  Unknown                Unknown             Unknown
wrf.exe              000000000047AFEC  Unknown                Unknown             Unknown
libc.so.6            0000003C6421D994  Unknown                Unknown             Unknown
wrf.exe              000000000047AEE9  Unknown                Unknown             Unknown

```

where:

```

[lluis@wn025 run]$ find /lib* -name libc.so.6
/lib/libc.so.6
/lib/i686/noseg/libc.so.6
/lib64/libc.so.6

```

and

```

[lluis@wn025 run]$ ldd wrf.exe
  libmpi_f90.so.0 => not found
  libmpi_f77.so.0 => not found
  libmpi.so.0 => not found
  libopen-rte.so.0 => not found
  libopen-pal.so.0 => not found
  libdl.so.2 => /lib64/libdl.so.2 (0x0000003c64600000)
  libnsl.so.1 => /lib64/libnsl.so.1 (0x0000003c65600000)
  libutil.so.1 => /lib64/libutil.so.1 (0x0000003c65a00000)

```



```

libm.so.6 => /lib64/libm.so.6 (0x0000003c64e00000)
libpthread.so.0 => /lib64/libpthread.so.0 (0x0000003c64a00000)
libc.so.6 => /lib64/libc.so.6 (0x0000003c64200000)
libgcc_s.so.1 => /lib64/libgcc_s.so.1 (0x0000003c66200000)
/lib64/ld-linux-x86-64.so.2 (0x0000003c63e00000)

```

This happens with:

```

NIN_ra_lw_physics      = 3
NIN_ra_sw_physics     = 3

```

This does not happen with:

```

NIN_ra_lw_physics      = 4
NIN_ra_sw_physics     = 4

```

NOTE: This error is also found on serial compilation. With a debug = 1000,

```

Namelist dfi_control not found in namelist.input. Using registry defaults for v
ariables in dfi_control
Namelist tc not found in namelist.input. Using registry defaults for variables
in tc
Namelist scm not found in namelist.input. Using registry defaults for variables
in scm
Namelist fire not found in namelist.input. Using registry defaults for variable
s in fire
WRF V3.1.1 MODEL
  wrf: calling alloc_and_configure_domain
*****
Parent domain
ids, ide, jds, jde          1          50          1          50
ims, ime, jms, jme         -4          55         -4          55
ips, ipe, jps, jpe          1          50          1          50
*****
DYNAMICS OPTION: Eulerian Mass Coordinate
  alloc_space_field: domain          1,          95259880 bytes allocated
  med_initialdata_input: calling input_model_input
(...)
INPUT LandUse = "USGS"
LANDUSE TYPE = "USGS" FOUND          33 CATEGORIES          2 SEASONS
WATER CATEGORY =          16 SNOW CATEGORY =          24
*** SATURATION VAPOR PRESSURE TABLE COMPLETED ***
  num_months =          13
AEROSOLS: Background aerosol will be limited to bottom          6
model interfaces.
  reading CAM_AEROPT_DATA
fortrtl: severe (174): SIGSEGV, segmentation fault occurred
Image          PC          Routine          Line          Source
wrf.exe        000000000130FB51 Unknown          Unknown Unknown
wrf.exe        0000000001310D17 Unknown          Unknown Unknown
wrf.exe        0000000001312458 Unknown          Unknown Unknown
wrf.exe        00000000010DC9BB Unknown          Unknown Unknown
wrf.exe        0000000000D12F9E Unknown          Unknown Unknown
wrf.exe        0000000000D0DDBD Unknown          Unknown Unknown
wrf.exe        0000000000906523 Unknown          Unknown Unknown
wrf.exe        0000000000608AC1 Unknown          Unknown Unknown
wrf.exe        00000000006058E1 Unknown          Unknown Unknown
wrf.exe        0000000000404DEC Unknown          Unknown Unknown
wrf.exe        0000000000404249 Unknown          Unknown Unknown
wrf.exe        00000000004041EC Unknown          Unknown Unknown

```

libc.so.6	0000003331A1D994	Unknown	Unknown	Unknown
wrf.exe	00000000004040E9	Unknown	Unknown	Unknown

And WRF configuration:

```
[lluis@mar run]$ ldd wrf.exe
    libm.so.6 => /lib64/libm.so.6 (0x00000039cac00000)
    libpthread.so.0 => /lib64/libpthread.so.0 (0x00000039cb000000)
    libc.so.6 => /lib64/libc.so.6 (0x00000039ca400000)
    libgcc_s.so.1 => /lib64/libgcc_s.so.1 (0x00000039ca220000)
    libdl.so.2 => /lib64/libdl.so.2 (0x00000039ca800000)
    /lib64/ld-linux-x86-64.so.2 (0x00000039ca000000)
```

Segmentation fault appears after line # 3757 of phys/module_ra_cam_support.F (from WRFV3.1.1)

NOTE: on activation of

```
ulimit -s unlimited
```

It Works !!!!

On ESCENA domain simulation works with CAM ra_lw/sw when a checked compilation is used (SERIAL in:

/ocean/gmteco/WORK/ASNA/WRF/Binaries/3.1.1/A/WRF/icif64/SERIALchk/WRFV3/main/wrf.exe). Following messages are shown in std. output:

```
(...)
Timing for main: time 2001-11-10_00:02:30 on domain 1: 358.70981 elapsed seconds.
forrtl: warning (402): fort: (1): In call to PRE_RADIATION_DRIVER, an array temporary was created for argument #49
forrtl: warning (402): fort: (1): In call to PRE_RADIATION_DRIVER, an array temporary was created for argument #51
forrtl: warning (402): fort: (1): In call to RADIATION_DRIVER, an array temporary was created for argument #134
forrtl: warning (402): fort: (1): In call to RADIATION_DRIVER, an array temporary was created for argument #136
forrtl: warning (402): fort: (1): In call to SURFACE_DRIVER, an array temporary was created for argument #181
forrtl: warning (402): fort: (1): In call to SURFACE_DRIVER, an array temporary was created for argument #183
forrtl: warning (402): fort: (1): In call to PBL_DRIVER, an array temporary was created for argument #87
forrtl: warning (402): fort: (1): In call to PBL_DRIVER, an array temporary was created for argument #89
forrtl: warning (402): fort: (1): In call to CUMULUS_DRIVER, an array temporary was created for argument #21
forrtl: warning (402): fort: (1): In call to CUMULUS_DRIVER, an array temporary was created for argument #23
forrtl: warning (402): fort: (1): In call to FDDAGD_DRIVER, an array temporary was created for argument #58
forrtl: warning (402): fort: (1): In call to FDDAGD_DRIVER, an array temporary was created for argument #60
forrtl: warning (402): fort: (1): In call to MICROPHYSICS_DRIVER, an array temporary was created for argument #55
forrtl: warning (402): fort: (1): In call to MICROPHYSICS_DRIVER, an array temporary was created for argument #57
forrtl: warning (402): fort: (1): In call to DIAGNOSTIC_OUTPUT_CALC, an array temporary was created for argument #20
forrtl: warning (402): fort: (1): In call to DIAGNOSTIC_OUTPUT_CALC, an array temporary was created for argument #22
Timing for main: time 2001-11-10_00:05:00 on domain 1: 32.11490 elapsed seconds.
(...)
```

- On phys/module_radiation_driver.F, subroutine pre_radiation_driver arguments #49, 51 are: i_end, j_end
- On phys/module_radiation_driver.F, subroutine radiation_driver arguments #134, 136 are: i_end, j_end
- On phys/module_surface_driver.F, subroutine surface_driver arguments #181, 183 are: i_end, j_end
- On phys/module_pbl_driver.F, subroutine pbl_driver arguments #87, 89 are: i_end, j_end
- On phys/module_cumulus_driver.F, subroutine cumulus_driver arguments #21, 23 are: i_end, j_end
- On phys/module_fddagd_driver.F, subroutine fddagd_driver arguments #58, 60 are: i_end, j_end
- On phys/module_microphysics_driver.F, subroutine microphysics_driver arguments #55, 57 are: i_end, j_end
- On phys/module_diagnostics.F, subroutine diagnostic_output_calc arguments #20, 22 are: i_end, j_end

Subroutine definitions

```
INTEGER, DIMENSION(num_tiles), INTENT(IN) ::
&
& i_start,i_end,j_start,j_end
```

Definition in `frame/module_domain_type.F`, WRF derived type for the domain `TYPE(domain)`:

```

TYPE domain
(...)
    INTEGER, POINTER                                :: i_start(:), i_end(:)
    INTEGER, POINTER                                :: j_start(:), j_end(:)
(...)
    INTEGER                                         :: num_tiles          ! taken out of namelist 20000908
(...)

```

Some information about [?WRF tiles](#)

In `frame/module_tiles.F` is seen in subroutines `set_tiles1`, `set_tiles2`, `set_tiles3`:

```

IF ( ASSOCIATED(grid%i_start) ) THEN ; DEALLOCATE( grid%i_start ) ; NULLIFY( grid%i_start ) ; ENDIF
IF ( ASSOCIATED(grid%i_end) ) THEN ; DEALLOCATE( grid%i_end ) ; NULLIFY( grid%i_end ) ; ENDIF
IF ( ASSOCIATED(grid%j_start) ) THEN ; DEALLOCATE( grid%j_start ) ; NULLIFY( grid%j_start ) ; ENDIF
IF ( ASSOCIATED(grid%j_end) ) THEN ; DEALLOCATE( grid%j_end ) ; NULLIFY( grid%j_end ) ; ENDIF
ALLOCATE(grid%i_start(num_tiles))
ALLOCATE(grid%i_end(num_tiles))
ALLOCATE(grid%j_start(num_tiles))
ALLOCATE(grid%j_end(num_tiles))
grid%max_tiles = num_tiles

```

The recommended WRF compilation (intel shared memory) is:

```

(...)
DMPARALLEL      =      1
OMPCCPP        =      # -D_OPENMP
OMP             =      # -openmp -fpp -auto
SFC            =      ifort
SCC            =      icc
DM_FC          =      mpif90 -f90=$(SFC)
DM_CC          =      mpicc -cc=$(SCC) -DMPI2_SUPPORT
FC             =      $(DM_FC)
CC             =      $(DM_CC) -DFSEEK064_OK
LD             =      $(FC)
RWORDSIZE      =      $(NATIVE_RWORDSIZE)
PROMOTION      =      -i4
ARCH_LOCAL     =      -DNONSTANDARD_SYSTEM_FUNC
CFLAGS_LOCAL   =      -w -O3 -ip
LD_FLAGS_LOCAL =      -ip
CPLUSPLUSLIB  =
ESMF_LDFLAG    =      $(CPLUSPLUSLIB)
FCOPTIM       =      -O3
FCREDUCEDOPT  =      $(FCOPTIM)
FCNOOPT       =      -O0 -fno-inline -fno-ip
FCDEBUG       =      # -g $(FCNOOPT) -traceback
FORMAT_FIXED   =      -FI
FORMAT_FREE    =      -FR
FCSUFFIX      =
BYTESWAPIO    =      -convert big_endian
FCBASEOPTS    =      -w -ftz -align all -fno-alias -fp-model precisee
$(FCDEBUG) $(FORMAT_FREE) $(BYTESWAPIO)
MODULE_SRCH_FLAG =
TRADFLAG      =      -traditional
CPP           =      /lib/cpp -C -P
AR            =      ar
(...)

```

Simply changing the '-O3' optimization to '-O2' it works properly. (It also work with '-O1' but it makes the simulations slower)

LAST NEWS

It works just adding a new compilation flag '-heap-arrays' which means:

```
-heap-arrays [size]
-no-heap-arrays
    Puts automatic arrays and arrays created for temporary
    computations on the heap instead of the stack.
    Architectures: IA-32, Intel® 64, IA-64 architectures
    Default:
    -no-heap-arrays    The compiler puts automatic arrays and
                       arrays created for temporary computa-
                       tions in temporary storage in the stack
                       storage area.

    Description:
    This option puts automatic arrays and arrays created for
    temporary computations on the heap instead of the stack.
    If heap-arrays is specified and size is omitted, all auto-
    matic and temporary arrays are put on the heap. If 10 is
    specified for size, all automatic and temporary arrays
    larger than 10 KB are put on the heap.
```

It has been added on `configure.wrf` just adding the flag

```
(...)
CFLAGS_LOCAL    =      -w -O3 -heap-arrays -ip
(...)
FCOPTIM         =      -O3 -heap-arrays
```

A complete history post on 'intel's' forum is available [?intel forum](#)

[] STOP of simulations due to library problems

Some executions are stopped giving these error message:

```
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
/oceanogmeteo/WORK/ASNA/WRF/run/scne2a/scne2a/0016/bin/wrf.exe: error while loading shared libraries: libgfortran.so.3: c
```

Any `rsl.[error/out].[nnnn]` file is written

Doing a `ldd` of 'wrf.exe' is obtained the same in both nodes:

```
[lluis@wn031 ~]$ ldd /oceanogmeteo/WORK/ASNA/WRF/Binaries/3.1.1/A/CLW//gcgf64/OMPI/WRFV3/main/wrf.exe
    libmpi_f90.so.0 => not found
    libmpi_f77.so.0 => not found
    libmpi.so.0 => not found
    libopen-rte.so.0 => not found
    libopen-pal.so.0 => not found
    libdl.so.2 => /lib64/libdl.so.2 (0x0000003a9d800000)
    libnsl.so.1 => /lib64/libnsl.so.1 (0x0000003a9e400000)
    libutil.so.1 => /lib64/libutil.so.1 (0x0000003aa0400000)
    libgfortran.so.3 => not found
    libm.so.6 => /lib64/libm.so.6 (0x0000003a9dc00000)
    libgcc_s.so.1 => /lib64/libgcc_s.so.1 (0x0000003a9f400000)
```

```
libpthread.so.0 => /lib64/libpthread.so.0 (0x0000003a9e000000)
libc.so.6 => /lib64/libc.so.6 (0x0000003a9d400000)
/lib64/ld-linux-x86-64.so.2 (0x0000003a9d000000)
```

gfortran is installed:

```
[lluis@wn041 ~]$ which gfortran
/usr/bin/gfortran
[lluis@wn041 ~]$ ldd /usr/bin/gfortran
libc.so.6 => /lib64/libc.so.6 (0x0000003a9d400000)
/lib64/ld-linux-x86-64.so.2 (0x0000003a9d000000)
```

On a working node ldd gives:

```
[lluis@wn010 ~]$ ldd /ocean/o/gmeteo/WORK/ASNA/WRF/Binaries/3.1.1/A/CLW//gcgf64/OMPI/WRFV3/main/wrf.exe
libmpi_f90.so.0 => not found
libmpi_f77.so.0 => not found
libmpi.so.0 => not found
libopen-rte.so.0 => not found
libopen-pal.so.0 => not found
libdl.so.2 => /lib64/libdl.so.2 (0x0000003cd0c00000)
libnsl.so.1 => /lib64/libnsl.so.1 (0x0000003cd3000000)
libutil.so.1 => /lib64/libutil.so.1 (0x0000003cd3400000)
libgfortran.so.3 => /usr/lib64/libgfortran.so.3 (0x00002b5f55924000)
libm.so.6 => /lib64/libm.so.6 (0x0000003cd1400000)
libgcc_s.so.1 => /lib64/libgcc_s.so.1 (0x0000003cd2800000)
libpthread.so.0 => /lib64/libpthread.so.0 (0x0000003cd1000000)
libc.so.6 => /lib64/libc.so.6 (0x0000003cd0800000)
/lib64/ld-linux-x86-64.so.2 (0x0000003cd0400000)
```

gfortran ldd message is the same on 'wn010' and 'wn031/041'

[] STOP of simulations due to net delays

On execution of wrf.exe, simulations stops with following messages (with openMPI):

rsl.error.0004

```
taskid: 4 hostname: wn017.macc.unican.es[wn017.macc.unican.es][[20060,1],4][btl_tcp_frag.c:216:mca_btl_tcp_frag_recv] mca_
```

rsl.error.0005

```
taskid: 5 hostname: wn017.macc.unican.es[wn017.macc.unican.es][[20060,1],5][btl_tcp_frag.c:216:mca_btl_tcp_frag_recv] mca_
```

rsl.error.0006

```
taskid: 6 hostname: wn017.macc.unican.es[wn017.macc.unican.es][[20060,1],6][btl_tcp_frag.c:216:mca_btl_tcp_frag_recv] mca_
```

rsl.error.0007

```
[wn017.macc.unican.es][[20060,1],7][btl_tcp_frag.c:216:mca_btl_tcp_frag_recv] mca_btl_tcp_frag_recv: readv failed: Connect
```

We are experience some net problems with important fall of system response of the cluster machine ('dynamic' queue)

[x] In real STOP: At line 703 of file module_initialize_real.f90

On execution of real appears:

```

Namelist dfi_control not found in namelist.input. Using registry defaults for variables in dfi_control
Namelist tc not found in namelist.input. Using registry defaults for variables in tc
Namelist scm not found in namelist.input. Using registry defaults for variables in scm
Namelist fire not found in namelist.input. Using registry defaults for variables in fire
REAL_EM V3.1.1 PREPROCESSOR
*****
Parent domain
ids,ide,jds,jde          1          167          1          139
ims,ime,jms,jme         -4          172         -4          144
ips,ipe,jps,jpe          1          167          1          139
*****
DYNAMICS OPTION: Eulerian Mass Coordinate
  alloc_space_field: domain          1 ,      804753800 bytes allocated
Time period #  1 to process = 2025-01-01_00:00:00.
Time period #  2 to process = 2025-01-01_06:00:00.
(...)
Time period # 56 to process = 2025-01-14_18:00:00.
Time period # 57 to process = 2025-01-15_00:00:00.
Total analysis times to input =  57.

-----

Domain 1: Current date being processed: 2025-01-01_00:00:00.0000, which is loop #  1 out of  57
configflags%julyr, %julday, %gmt:      2025          1  0.000000
d01 2025-01-01_00:00:00 Timing for input          0 s.
d01 2025-01-01_00:00:00          flag_soil_layers read from met_em file is  1
At line 703 of file module_initialize_real.f90
Fortran runtime error: End of record

```

The error messages

```

At line 703 of file module_initialize_real.f90
Fortran runtime error: End of record

```

Are [?gfortran run-time errors](#)

This occurs because input data does not have PSML/PSFC ! From ungrib.log

```

(...)
Inventory for date = 2025-01-01 00:00:00
PRES  HGT    TT    UU    VV    RH    SOILHGT  LANDSEA  PSFC    PMSL    SST    SKINTEMP  SNOW    ST00000
-----
2001.1  0      0      0      0      0      0      0      0      0      0      0      X      0
2001.0  0      X      X      X      X      X      X      0      0      0      X      0      0
1000.0  X      X      X      X      X      X      X      0      0      0      X      0      0
925.0  X      X      X      X      X      X      X      0      0      0      X      0      0
850.0  X      X      X      X      X      X      X      0      0      0      X      0      0
700.0  X      X      X      X      X      X      X      0      0      0      X      0      0
500.0  X      X      X      X      X      X      X      0      0      0      X      0      0
300.0  X      X      X      X      X      X      X      0      0      0      X      0      0
200.0  X      X      X      X      X      X      X      0      0      0      X      0      0
100.0  X      X      X      X      X      X      X      0      0      0      X      0      0
 50.0  X      X      X      X      X      X      X      0      0      0      X      0      0
-----
(...)

```

Removing PSFC/MSLP from working input data the error is reproduced!

[x] Execution error in WRF

On GRIDUI appears this error on different experiments scnc1a, scnc1b:

On /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/log/rsl_wrf/rsl.error.0000, simulation started at 19750423000000:

```
(...)  
Timing for main: time 1975-05-13_22:32:30 on domain 1: 2.23900 elapsed seconds.  
[gcsic019wn:19507] *** Process received signal ***  
[gcsic019wn:19507] Signal: Segmentation fault (11)  
[gcsic019wn:19507] Signal code: Address not mapped (1)  
[gcsic019wn:19507] Failing at address: 0xffffffff01fd0668  
[gcsic019wn:19507] [ 0] /lib64/libpthread.so.0 [0x3df980e930]  
[gcsic019wn:19507] [ 1] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_ra_cam_support_  
[gcsic019wn:19507] [ 2] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_ra_cam_support_  
[gcsic019wn:19507] [ 3] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_ra_cam_radctl+0  
[gcsic019wn:19507] [ 4] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_ra_cam_camrad+0  
[gcsic019wn:19507] [ 5] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_radiation_driver  
[gcsic019wn:19507] [ 6] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_first_rk_step_pa  
[gcsic019wn:19507] [ 7] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(solve_em_+0x1c89f) [0x959  
[gcsic019wn:19507] [ 8] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(solve_interface_+0x6c8) [  
[gcsic019wn:19507] [ 9] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_integrate_integ  
[gcsic019wn:19507] [10] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(__module_wrf_top_wrf_run  
[gcsic019wn:19507] [11] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(MAIN_+0x3a) [0x46e5ca]  
[gcsic019wn:19507] [12] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe(main+0xe) [0x14e9cae]  
[gcsic019wn:19507] [13] /lib64/libc.so.6(__libc_start_main+0xf4) [0x3df901d994]  
[gcsic019wn:19507] [14] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1b/scnc1b/0003/bin/wrf.exe [0x46e4d9]  
[gcsic019wn:19507] *** End of error message ***
```

Same in /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/log/rsl_wrf/rsl.error.0000, simulation started at 19500507000000:

```
(...)  
Timing for main: time 1950-05-10_16:17:30 on domain 1: 4.13800 elapsed seconds.  
Timing for [gcsic116wn:30182] *** Process received signal ***  
[gcsic116wn:30182] Signal: Segmentation fault (11)  
[gcsic116wn:30182] Signal code: Address not mapped (1)  
[gcsic116wn:30182] Failing at address: 0xffffffff01fd0668  
[gcsic116wn:30182] [ 0] /lib64/libpthread.so.0 [0x3dc780e930]  
[gcsic116wn:30182] [ 1] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_ra_cam_support_  
[gcsic116wn:30182] [ 2] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_ra_cam_support_  
[gcsic116wn:30182] [ 3] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_ra_cam_radctl+0  
[gcsic116wn:30182] [ 4] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_ra_cam_camrad+0  
[gcsic116wn:30182] [ 5] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_radiation_driver  
[gcsic116wn:30182] [ 6] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_first_rk_step_pa  
[gcsic116wn:30182] [ 7] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(solve_em_+0x1c89f) [0x959  
[gcsic116wn:30182] [ 8] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(solve_interface_+0x6c8) [  
[gcsic116wn:30182] [ 9] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_integrate_integ  
[gcsic116wn:30182] [10] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(__module_wrf_top_wrf_run  
[gcsic116wn:30182] [11] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(MAIN_+0x3a) [0x46e5ca]  
[gcsic116wn:30182] [12] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe(main+0xe) [0x14e9cae]  
[gcsic116wn:30182] [13] /lib64/libc.so.6(__libc_start_main+0xf4) [0x3dc701d994]  
[gcsic116wn:30182] [14] /gpfs/csic_projects/meteo/WORK/GRIDUI/run/scnc1a/scnc1a/0004/bin/wrf.exe [0x46e4d9]  
[gcsic116wn:30182] *** End of error message ***
```

This happens because WPS uses 'DirectionIncrementInDegrees' attribute, but cdo (used to transform input files) does not (gives an 'MISSING' value). In order to prevent this error and others (not enough decimals in codification of the value in the input grib files), a new namelist options has been introduced in nameslit.wps 'ungrib' section.

```
is_global          = 1,
```

With this value, is said that input files are global. Thus the increment in degrees in the 'i-direction' will be computed according to the range of x dimension of the input files. In order to allow this, some modifications have to be done in some modules of WPS/ungrib source code.

NOTE: This option is only available if input data is in a regular matrix in x direction

ungrib/src/rd_grib1.F

```

62     SUBROUTINE rd_grib1(IUNIT, gribflnm, level, field, hdate, &
63         ierr, iuarr, debug_level, is_g)
(... )
77     ! L. Fita. UC. August 2010
78     INTEGER :: is_g
(... )
372    ! L. Fita. UC. August 2010
373    IF (is_g == 1) THEN
374        PRINT *, "***** L. Fita. UC . August 2010 *****"
375        PRINT *, "****      Assuming global regular grid.      ****"
376        PRINT *, "**** Computing 'dx' from number of points 'Nx' ****"
377        PRINT *, "*****"
378        map%dx = 360.0 / map%nx
379        PRINT *, 'Nx = ', map%nx, ' dx:', map%dx
380    ELSE
381        map%dx = ginfo(8)
382    ENDIF
(... )
423    ! L. Fita. UC. August 2010
424    IF (is_g == 1) THEN
425        PRINT *, "***** L. Fita. UC . August 2010 *****"
426        PRINT *, "****      Assuming global regular grid.      ****"
427        PRINT *, "**** Computing 'dx' from number of points 'Nx' ****"
428        PRINT *, "*****"
429        map%dx = 360.0 / map%nx
430        PRINT *, 'Nx = ', map%nx, ' dx:', map%dx
431    ELSE
432        map%dx = ginfo(8)
433    ENDIF

```

ungrib/src/read_namelist.F

```

1     subroutine read_namelist(hstart, hend, delta_time, ntimes,&
2         ordered_by_date, debug_level, out_format, prefix, is_global)
3         ! L. Fita. UC. August 2010
4         ! Adding new 'namelist.wps' value in '&ungrib' section: is_global (0, No; 1,
5         ! Yes [default 0]).
6         ! NOTE: This modification is only useful for global GRIBs with a regular
7         ! longitude distribution
8         !
9         ! EXPLANATION:
10        ! In some global files, grid information, is not correctly extracted and/or
11        ! they could not be exactly fitted in an entire earth. By this modification,
12        ! gris spacing in x direction is computed from the number of grid points in
13        ! this direction
(... )
58        ! L. fita. UC. August 2010
59        INTEGER :: is_global
(... )
72        ordered_by_date, prefix, is_global

```

ungrib/src/ungrib.F

.{{{

74 ! L. Fita. UC 2010 August 75 INTEGER :: is_global (...) 97 call read_namelist(hstart, hend, interval, ntimes, & 98 ordered_by_date, debug_level, out_format, prefix, is_global) (...) 207 call rd_grib1(nunit1, gribflnm, level, field, & 208 hdate, ierr, iuarr, debug_level, is_global) }}} Will appear during ungrib.exe execution:

```
*** Starting program ungrib.exe ***
Start_date = 1975-07-16_00:00:00 ,      End_date = 1975-07-30_00:00:00
output format is WPS
Path to intermediate files is ./
ungrib - grib edition num      1
***** L. Fita. UC . August 2010 *****
***      Assuming global regular grid.      ***
*** Computing 'dx' from number of points 'Nx' ***
*****
Nx =          128 dx:    2.812500
***** L. Fita. UC . August 2010 *****
***      Assuming global regular grid.      ***
*** Computing 'dx' from number of points 'Nx' ***
*****
Nx =          128 dx:    2.812500
(...)
```

NOTE: With data from CNRM in the period 1950-1970 the error is still there...

[x] SST missing values in coastal lines

Along coastal lines, SST is badly interpolated. This is fixed changing in METGRID.TBL how is made SST interpolation (thanks to Dr. Priscilla A. Mooney, National University of Ireland, Maynooth, Ireland):

```
= = = = =
name=SST
  interp_option=sixteen_pt+four_pt+wt_average_4pt+search
  missing_value=-1e+30
  interp_mask=LANDSEA(1)
  masked=land
  fill_missing=0.
  flag_in_output=FLAG_SST
= = = = =
```

[] p4_error: latest msg from perror: Invalid argument

Simulation stops. Message appears at first time-step after open 'wrfrst' file

[x] p4_error: OOPS: semop lock failed: -1

Simulation stopped. Reference in:

- [?http://www.mcs.anl.gov/research/projects/mpi/mpich1/docs/mpichman-chp4/node133.htm](http://www.mcs.anl.gov/research/projects/mpi/mpich1/docs/mpichman-chp4/node133.htm)

Same as in p4_error: semget

From ce01 run

```
cexec /opt/mpich/gnu/sbin/cleanipcs
```

[] * glibc detected * malloc(): memory corruption:

Simulation stopped. In some rsl.error.00[nn] appear next line

- rsl.error.0006 . {{{

```
(...) * glibc detected * malloc(): memory corruption: 0x00000000b215c50 * }}}}
```

- rsl.error.0013

```
(...)  
*** glibc detected *** malloc(): memory corruption: 0x00000000af50bb0 ***
```

- C-language related posts:
 - [?http://bytes.com/groups/c/223310-glibc-detected-malloc-memory-corruption-fast-0x0804c008](http://bytes.com/groups/c/223310-glibc-detected-malloc-memory-corruption-fast-0x0804c008)
 - [?http://www.linuxquestions.org/questions/programming-9/glibc-detected-malloc-free-double-349135/](http://www.linuxquestions.org/questions/programming-9/glibc-detected-malloc-free-double-349135/)
- WRF related post:
 - [?http://forum.wrfforum.com/viewtopic.php?f=6&t=104](http://forum.wrfforum.com/viewtopic.php?f=6&t=104)

Error appeared during CLWRF implementation. Some nasty numerics things must happen. Once errors have been repaired error disappears... (luckly?)

[x] Missing required environment variable: MPIRUN_RANK

WRF real.exe stopped with message:

```
PMGR_COLLECTIVE ERROR: uninitialized MPI task: Missing required environment variable: MPIRUN_RANK  
mpiexec: Warning: task 0 exited with status 1.
```

Incorrect version of mpiexec. You must run an addequated mpiexec version, look to the path of mpiexec (execute which to see it) which mpiexec

[] Different wrf.exe from different nodes

From wn001 to wn024 >ls -la /ocean0/gmeteo/DATA/WRF/WRF_bin/3.1/WRF4G/MVAPICH/WRFV3/main/

```
...  
-rw-rw---- 1 lluis gmeteo 62797 May 19 13:28 wrf_ESMFMod.F  
-rwxr-x--x 1 lluis gmeteo 21147307 May 26 14:58 wrf.exe  
-rw-rw---- 1 lluis gmeteo 918 May 19 13:28 wrf.F  
...
```

From wn025 >ls -la /ocean0/gmeteo/DATA/WRF/WRF_bin/3.1/WRF4G/MVAPICH/WRFV3/main/

```
...  
-rw-rw---- 1 lluis gmeteo 62797 May 19 13:28 wrf_ESMFMod.F  
-rwxr-x--x 0 lluis gmeteo 21147057 May 25 17:39 wrf.exe  
-rw-rw---- 1 lluis gmeteo 918 May 19 13:28 wrf.F  
...
```

Differences in Hard-link (see [?ls](#) and [?Hard_Link](#)), date and on size!? During a simulation each node is running a different wrf.exe!

Problem 'solved' rebooting wn025

[] mpiexec: Error: poll_or_block_event: tm_poll: tm: no event

A second try of run does not give this error ?¿!; No memory/space left on nodes (bad ending of a previous simulation)

[x] mvapich 'call system()' failed

When WRF4G is used, when 2nd file is started to be written, simulation stopped. (Probably due to \$WRFGEL_SCRIPT ?)

See comments:

- [?http://mail.cse.ohio-state.edu/pipermail/mvapich-discuss/2006-October/000394.html](http://mail.cse.ohio-state.edu/pipermail/mvapich-discuss/2006-October/000394.html)
- [?http://mail.cse.ohio-state.edu/pipermail/mvapich-discuss/2008-November/002041.html](http://mail.cse.ohio-state.edu/pipermail/mvapich-discuss/2008-November/002041.html)

And user guide [?http://mvapich.cse.ohio-state.edu/support/mvapich_user_guide.html#x1-350007.1.2](http://mvapich.cse.ohio-state.edu/support/mvapich_user_guide.html#x1-350007.1.2)

Old version of linux kernel. It is recommended that kernel should be at version 2.6.16 or newer

```
Linux wn010.macc.unican.es 2.6.9-78.0.13.EL.cernsmp #1 SMP Mon Jan 19 14:00:58 CET 2009 x86_64 x86_64 x86_64 GNU/Linux
```

and OFED version

```
>mpichversion
MPICH Version:          1.2.7
MPICH Release date:    $Date: 2005/06/22 16:33:49$
MPICH Patches applied: none
MPICH configure:      --with-device=ch_gen2 --with-arch=LINUX -prefix=/software/ScientificLinux/4.6/mvapich/1.1/pgi_7.1-
MPICH Device:         ch_gen2
```

Problem solved at the moment declaring a new environment variable:

```
export IBV_FORK_SAFE=1
```

[x] mpiexec: Warning: read_ib_one: protocol version 8 not known, but might still work.

Error message when execute `mpiexec`:

```
mpiexec: Warning: read_ib_one: protocol version 8 not known, but might still work.
mpiexec: Error: read_ib_one: mixed version executables (6 and 8), no hope.
```

This error message appears when is used a wrong version of `mpiexec`. On must indicate correct one in:

```
/software/ScientificLinux/4.6/mpiexec/mpiexec
```

[x] ECMWF ERA40 escena missing data

Incompleted escena domain downloaded ERA40 data in `/ocean0/gmeteo/DATA/ECMWF/ERA40/escena` Years: 1968, 1969, 1971 and 1979

[x] Large waiting in GRID-CSIC

More than 1 day are waiting jobs in IFCA GRID-CSIC. In a selection of nodes=`[N]`:ppn=`[M]` (`N=2`, `M=8`).

- In EGEEU01 nodes can be occupied only with one core job. Thus it makes difficult that node exclusive jobs can be running. It is more addequated to send jobs with total number of cores, without indication of exclusivity of one phisical machine (EGEEU01 cluster has 8 cores nodes).

Changes in `wrf_AUTOlauncher_iteration.bash` now make core assignation as `[N]*[M]` without `mpiexec -npernode [M]` line in `[template].job`. A new one has been created `MPI_job-EGEEU01.pbs`

```
#!/bin/bash (-)
### Job name
#PBS -N @JOBnameSIM@
### Queue name
#PBS -q lmeteo
### Dependency
#PBS -W depend=afterany:@IDpbs@
### Total number of processes
#PBS -l nodes=@Nnodes@
# This job's working directory
echo Working directory is $PBS_O_WORKDIR
cd $PBS_O_WORKDIR
echo Running on host `hostname`
echo Time is `date`
echo Directory is `pwd`
echo This jobs runs on the following processors:
echo `cat $PBS_NODEFILE`
```

```

###
#Running WRF
###
export OMP_NUM_THREADS=@Ntrh@
echo "Numero de Threads: $OMP_NUM_THREADS"
echo "Numero de Jobs MPI: $Nprocess"
mpiexec ./wrf.exe

```

It can only work if *nodes* is not set as an entire physical machine. It must be set to a cpu (or core). More information in:

- [?http://www.clusterresources.com/torquedocs21/2.1jobsubmission.shtml#resources](http://www.clusterresources.com/torquedocs21/2.1jobsubmission.shtml#resources)
- [?http://www.clusterresources.com/products/mwm/docs/a.fparameters.shtml#j](http://www.clusterresources.com/products/mwm/docs/a.fparameters.shtml#j)

[x] cshell error in wn010

In wn010, appears a systematic csh error, just open a csh terminal

```
setenv: Too many arguments
```

A problem in a *csh.profile* have been repaired

[x] Stale NFS file handle

In IFCA GRID-CSIC, with *wrf.exe* appears a NFS file handle (for BIGescena domain)

```

/var/spool/pbs/mom_priv/jobs/1070626.tor.SC: line 400: 22711 Bus error                mpiexec -npernode 8 ./wrf.exe
rm: cannot remove `wrf.exe': Stale NFS file handle
rm: cannot remove `*.TBL': Stale NFS file handle
rm: cannot remove `*_DATA*': Stale NFS file handle
rm: cannot remove `met_em*': Stale NFS file handle
rm: cannot remove `wrfbody*': Stale NFS file handle
rm: cannot remove `wrfinput*': Stale NFS file handle
/var/spool/pbs/mom_priv/jobs/1070626.tor.SC: line 345: /gpfs/ifca.es/meteo/forest//bats/change_in_file.bash: Stale NFS fil
/var/spool/pbs/mom_priv/jobs/1070626.tor.SC: line 356: cd: /gpfs/ifca.es/meteo/SCRATCH/BIGescena/1970_1975Restart28d/simul
(...)

```

Some errors in NFS server occurred

[x] metgrid.exe Segmentation fault

When *metgrid.exe* is running, a segmentation fault (in IFCA GRID-CSIC) appears (for Africa_25km domain). From *[job].e[nnnnn]*:

```
/var/spool/pbs/mom_priv/jobs/1073948.tor.SC: line 195: 19831 Segmentation fault
```

Global analyses used where defined only for an European region

[] CAM NaN

module_ra_cam_support.F generates NaN outputs at a given time step (about the 350th julian day of 1996 and 2001, 1996/XII/15 and 2001/XII/16). *rsl.out.[nnnn]* files become as large as hard disk (because of the output to these files). Has been done:

```

vert_interpolate: mmr < 0, m, col, lev, mmr                2                2                1                NaN
vert_interpolate: aerosol(k),(k+1)  1.0000000116860974E-007  0.00000000000000000
vert_interpolate: pint(k+1),(k)                NaN                NaN
n,c                1                1

```

- **FATAL_ERROR signal:** call *wrf_error_fatal* ('Error of computation') line has been introduce in *WRFV3/phys/module_ra_cam_support.F* file
- **isnan()**: internal pgi instruction added in some places of *module_ra_cam_support.F* and *module_ra_cam.F* allowing to know where appear first 'NaN' values

Possible WRFv3.0.1.1 bug related to temporal interpolation of CO₂ concentrations at 15/XII of any year (change of monthly value)

[x] p4_error: semget failed for setnum: 12

Information sources:

- [?http://www.mcs.anl.gov/research/projects/mpi/mpich1/docs/mpichman-chp4/node133.htm](http://www.mcs.anl.gov/research/projects/mpi/mpich1/docs/mpichman-chp4/node133.htm)
- [?https://lists.sdsc.edu/pipermail/npaci-rocks-discussion/2008-May/030470.html](https://lists.sdsc.edu/pipermail/npaci-rocks-discussion/2008-May/030470.html)

This error means that there is not enough shared memory available to allocate a new memory segment for interprocess communication. Often what happens is there are some extra memory segments left over from a crash or programming error of a previous job that needs to be cleaned up. There is a script called cleanipcs that will remove all of your left over ipcs. Users are responsible for cleaning up extra shared memory segments after a crash or when their job is complete.

You can use `/usr/bin/ipcs` to check memory state in one node:(given example for ssh wn013 ipcs)

```

----- Shared Memory Segments -----
key          shmid      owner      perms      bytes      nattch     status
0x00000000  0             root       644        72         2
0x00000000  32769        root       644        16384      2
0x00000000  65538        root       644        280        2
0x00000000  2654211      lluis      600        33554432   0
----- Semaphore Arrays -----
key          semid      owner      perms      nsems
0x000000a7  0           root       666        1
0x00000000  11337729    lluis      600        10
0x00000000  11370498    lluis      600        10
0x00000000  11403267    lluis      600        10
0x00000000  11436036    lluis      600        10
0x00000000  11468805    lluis      600        10
0x00000000  11501574    lluis      600        10
0x00000000  11534343    lluis      600        10
0x00000000  11567112    lluis      600        10
0x00000000  11599881    lluis      600        10
0x00000000  11632650    lluis      600        10
0x00000000  11665419    lluis      600        10
0x00000000  11698188    lluis      600        10
0x00000000  11730957    lluis      600        10
0x00000000  11763726    lluis      600        10
0x00000000  11796495    lluis      600        10
0x00000000  11829264    lluis      600        10
0x00000000  11862033    lluis      600        10
0x00000000  11894802    lluis      600        10
0x00000000  11927571    lluis      600        10
0x00000000  11960340    lluis      600        10
0x00000000  11993109    lluis      600        10
0x00000000  12025878    lluis      600        10
0x00000000  12058647    lluis      600        10
0x00000000  14352408    lluis      600        10
0x00000000  14385177    lluis      600        10
----- Message Queues -----
key          msqid      owner      perms      used-bytes  messages
[lluis@wn010 WRFV3]$ ssh wn013 ipcs
----- Shared Memory Segments -----
key          shmid      owner      perms      bytes      nattch     status
0x00000000  0             root       644        72         2
0x00000000  32769        root       644        16384      2
0x00000000  65538        root       644        280        2
0x00000000  2654211      lluis      600        33554432   0
----- Semaphore Arrays -----
key          semid      owner      perms      nsems

```

```

0x000000a7 0      root      666      1
0x00000000 11337729 lluis    600      10
0x00000000 11370498 lluis    600      10
0x00000000 11403267 lluis    600      10
0x00000000 11436036 lluis    600      10
0x00000000 11468805 lluis    600      10
0x00000000 11501574 lluis    600      10
0x00000000 11534343 lluis    600      10
0x00000000 11567112 lluis    600      10
0x00000000 11599881 lluis    600      10
0x00000000 11632650 lluis    600      10
0x00000000 11665419 lluis    600      10
0x00000000 11698188 lluis    600      10
0x00000000 11730957 lluis    600      10
0x00000000 11763726 lluis    600      10
0x00000000 11796495 lluis    600      10
0x00000000 11829264 lluis    600      10
0x00000000 11862033 lluis    600      10
0x00000000 11894802 lluis    600      10
0x00000000 11927571 lluis    600      10
0x00000000 11960340 lluis    600      10
0x00000000 11993109 lluis    600      10
0x00000000 12025878 lluis    600      10
0x00000000 12058647 lluis    600      10
0x00000000 14352408 lluis    600      10
0x00000000 14385177 lluis    600      10
----- Message Queues -----
key      msqid      owner      perms      used-bytes  messages

```

Use the following command to clean up all memory segments owned by your user id on a cluster:

```
cexec /opt/mpich/gnu/sbin/cleanipcs
```

Or for each working node: (be carefull to don't run the script in any node with a right working simulation!!)

```
ssh wn[NNN] /software/ScientificLinux/4.6/mpich/1.2.7p1/pgi_7.1-6_gcc/sbin/cleanipcs
```

After that: (in wn013):

```

----- Shared Memory Segments -----
key      shmid      owner      perms      bytes      nattch    status
0x00000000 0          root      644        72         2
0x00000000 32769     root      644        16384      2
0x00000000 65538     root      644        280        2
----- Semaphore Arrays -----
key      semid      owner      perms      nsems
0x000000a7 0          root      666        1
----- Message Queues -----
key      msqid      owner      perms      used-bytes  messages

```

[x] P4_GLOBMEMSIZE

Not enough memory for mpich processes for the simulation. Error message looks like:

```

p3_15324: (1.777344) xx_shmalloc: returning NULL; requested 262192 bytes
p3_15324: (1.777344) p4_shmalloc returning NULL; request = 262192 bytes
You can increase the amount of memory by setting the environment variable
P4_GLOBMEMSIZE (in bytes); the current size is 4194304
p3_15324: p4_error: alloc_p4_msg failed: 0

```

Tipical error for simulations with domains bigger as *Europe_10* and *BIGescena* domains. Default value is 4MB (4194304)

Increase value to:

- **32 MB** export P4_GLOBMEMSIZE=33554432
- **64 MB** export P4_GLOBMEMSIZE=67108864
- **128 MB** export P4_GLOBMEMSIZE=134217728
- **256 MB** export P4_GLOBMEMSIZE=268435456

[x] SKINTEMP not found

ERA40 ECMWF files have a different codification of variables. A modification in Vtable.ECMWF is carried out:

Original line

34		1		0				SST		K		Sea-Surface Temperature	
139		112		0		7		ST000007		K		T of 0-7 cm ground layer	

Modification

139		1		0				SST		K		Sea-Surface Temperature	
139		112		0		7		SKINTEMP		K		T of 0-7 cm ground layer	

[x] WOULD GO OFF TOP: KF_ETA_PARA I,J,DPTHMX,DPMIN 81 78 NaN 5000.000

See <http://forum.wrfforum.com/viewtopic.php?f=6&t=263>

Many causes are possible. CFLs, problems with initial or boundary conditions...etc Lowering the time step or switching off feedback between nests are possible solutions.

[x] Metgrid error: Error in ext_pkg_write_field in metgrid.log

Also in log/metgrid_1995030912.out:

```
ERROR: Error in ext_pkg_write_field
WRF_DEBUG: Warning DIM          4 , NAME num_metgrid_levels REDDEFINED by var GHT          17          18 in wrf_io.F90
```

This error means that probably one or more surface variables are missing in the model input (for example NCEP reanalyses). Input grib files must be checked and fixed.

[] forrtl: severe (174): SIGSEGV, segmentation fault occurred

```
forrtl: severe (174): SIGSEGV, segmentation fault occurred
Image PC Routine Line Source wrf.exe 00000000013EF561 Unknown Unknown
Unknown
wrf.exe 00000000013F0727 Unknown Unknown Unknown
wrf.exe 00000000013F1E68 Unknown Unknown Unknown
wrf.exe 00000000011BB5CB Unknown Unknown Unknown
wrf.exe 0000000000DE0913 Unknown Unknown Unknown
wrf.exe 000000000DDAEBD Unknown Unknown Unknown
wrf.exe 00000000009AF823 Unknown Unknown Unknown
wrf.exe 0000000000690D01 Unknown Unknown Unknown
wrf.exe 000000000068DB21 Unknown Unknown Unknown
wrf.exe 000000000047BC1B Unknown Unknown Unknown
wrf.exe 000000000047B049 Unknown Unknown Unknown
wrf.exe 000000000047AFEC Unknown Unknown Unknown
libc.so.6 0000003AD001D994 Unknown Unknown Unknown
wrf.exe 000000000047AEE9 Unknown Unknown Unknown
```

Causes are unknown, but it worked just sending the simulation again, without any change.

[] wrf.exe: posixio.c:213: px_pgout: Assertion `*posp == ((off_t)(-1)) || *posp == lseek(nciop->fd, 0, 1)' failed.

It appeared in a continuous simulation with spectral nudging, using wrf 3.1.1. rsl.error.0000 shows:

```
wrf.exe: posixio.c:213: px_pgout: Assertion `*posp == ((off_t)(-1)) || *posp == lseek(nciop->fd, 0, 1)' failed.
forrtl: error (76): Abort trap signal
Image                PC                Routine            Line        Source
libc.so.6            0000003AD0030265  Unknown           Unknown     Unknown
libc.so.6            0000003AD0031D10  Unknown           Unknown     Unknown
libc.so.6            0000003AD00296E6  Unknown           Unknown     Unknown
wrf.exe              000000000154368A  Unknown           Unknown     Unknown
wrf.exe              0000000001518A2D  Unknown           Unknown     Unknown
wrf.exe              000000000152741E  Unknown           Unknown     Unknown
wrf.exe              00000000014CCD30  Unknown           Unknown     Unknown
wrf.exe              00000000014CBADD  Unknown           Unknown     Unknown
wrf.exe              00000000014BAD59  Unknown           Unknown     Unknown
wrf.exe              00000000014B76A3  Unknown           Unknown     Unknown
wrf.exe              0000000000BB258D  Unknown           Unknown     Unknown
wrf.exe              0000000000BAED79  Unknown           Unknown     Unknown
wrf.exe              0000000000BAE7F8  Unknown           Unknown     Unknown
wrf.exe              0000000000BADD02  Unknown           Unknown     Unknown
wrf.exe              0000000000BADA9E  Unknown           Unknown     Unknown
wrf.exe              0000000000DD5E47  Unknown           Unknown     Unknown
wrf.exe              00000000007A81D6  Unknown           Unknown     Unknown
wrf.exe              00000000006B8424  Unknown           Unknown     Unknown
wrf.exe              0000000000653E19  Unknown           Unknown     Unknown
wrf.exe              0000000000677927  Unknown           Unknown     Unknown
wrf.exe              0000000000674047  Unknown           Unknown     Unknown
wrf.exe              00000000004C9DF7  Unknown           Unknown     Unknown
wrf.exe              000000000047B0A3  Unknown           Unknown     Unknown
wrf.exe              000000000047B057  Unknown           Unknown     Unknown
wrf.exe              000000000047AFEC  Unknown           Unknown     Unknown
libc.so.6            0000003AD001D994  Unknown           Unknown     Unknown
wrf.exe              000000000047AEE9  Unknown           Unknown     Unknown
```

wrf_2001112400.out shows:

```
/oceanog/ometeo/WORK/ASNA/WRF/run/SeaWind_N1540_SN/SeaWind_N1540_SN/0029/bin/wrf_wrapper.exe: line 9: 4500 Aborted
```

Causes are unknown.

[] No error, wrf just stops (¿!?)

Change the debug_level (up to 300) in namelist.input &time_cotrol.

If there isn't any error yet, run wrf using the debugging version (OMPIchk)