服务器安装（centos）

2019年10月15日

0:53

* + 参照官网 见附录pdf
  + <https://www.jianshu.com/p/3471fc8f5e5f>
  + 标红部分需要根据实际情况自己改，首先确定自己是什么版本的linux 和什么版本的fortran编译器
  + 环境变量最终的样子 （.bashrc文件）

# .bashrc

# Source global definitions

if [ -f /etc/bashrc ]; then

. /etc/bashrc

fi

# Uncomment the following line if you don't like systemctl's auto-paging feature:

# export SYSTEMD\_PAGER=

# User specific aliases and functions

export PATH=/mnt/zxw/anaconda3/bin:$PATH

export LD\_LIBRARY\_PATH=$LD\_LIBRARY\_PATH:/usr/local/cuda-9.0/lib64

export PATH=$PATH:/usr/local/cuda-9.0/bin

export CUDA\_HOME=$CUDA\_HOME:/usr/local/cuda-9.0

##wrf

export DIR=/home/zxw/wrf/Build\_WRF/LIBRARIES

export CC=gcc

export CXX=g++

export FC=gfortran

export FCFLAGS=-m64

export F77=gfortran

export FFLAGS=-m64

export PATH=$DIR/netcdf/bin:$PATH

export NETCDF=$DIR/netcdf

export PATH=$DIR/mpich/bin:$PATH

export LDFLAGS=-L$DIR/grib2/lib

export CPPFLAGS=-I$DIR/grib2/include

export JASPERLIB=$DIR/grib2/lib

export JASPERINC=$DIR/grib2/include

* + 1.检测编译环境并测试

which gfortran  
which cpp  
which gcc  
gfortran --version  
gcc --version  
g++ --version

#缺啥装啥yum install

#海大机群是ifort ，只需要将gfortran改为ifort，gcc改为icc g++改为icpc

 环境变量的设置中：这样替换 CC=icc CXX=icpc F77=ifort FC=ifort

#测试（与官网无差别）

mkdir Build\_WRF #放安装的压缩文件

mkdir TESTS #放测试程序

Size (KB) 
TESTS 
Last modified 
2019-10-15 01:24 
2019-10-15 00:19 

cd TESTS/

wget <http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/Fortran_C_tests.tar>

ls

tar -xf Fortran\_C\_tests.tar

* + #Fixed Format Fortran Test:

gfortran TEST\_1\_fortran\_only\_fixed.f

ls

./a.out

* + #Free Format Fortran:

gfortran TEST\_2\_fortran\_only\_free.f90

ls

./a.out

2003: ha, 
FLUSH. ALLOCATABLE, 
St.'CCESS t. 

* + #c测试

gcc TEST\_3\_c\_only.c

./a.out



gcc -c -m64 TEST\_4\_fortran+c\_c.c  
gfortran -c -m64 TEST\_4\_fortran+c\_f.f90  
gfortran -m64 TEST\_4\_fortran+c\_f.o TEST\_4\_fortran+c\_c.o  
./a.out

u 1110 ; SS*2JOS 
Pu 
p•TTVO 0f10 

#接下来测试下csh，perl，sh是否可行。

./TEST\_csh.csh  
./TEST\_perl.pl  
./TEST\_sh.sh

* + 2.安装依赖库

首先在Build\_WRF文件夹下面创建一个LIBRARIES的文件夹。然后下载所需的依赖库。（我开始忘记建libraries QAQ 影响不大 只是看起来乱了一点）

和官网的区别 mpich版本 需要下载对应centos版本 官网是ubuntu版本

[mpich-3.0.4](https://link.jianshu.com/?t=http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/mpich-3.0.4.tar.gz)#这个有问题

[netcdf-4.1.3](https://link.jianshu.com/?t=http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/netcdf-4.1.3.tar.gz)

[Jasper-1.900.1](https://link.jianshu.com/?t=http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/jasper-1.900.1.tar.gz)

[libpng-1.2.50](https://link.jianshu.com/?t=http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/libpng-1.2.50.tar.gz)

[zlib-1.2.7](https://link.jianshu.com/?t=http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/zlib-1.2.7.tar.gz)

mkdir LIBRARIES

cd LIBRARIES

#(ubuntu用注释的这条)

#wget <http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/mpich-3.0.4.tar.gz>

wget <http://www.mpich.org/static/downloads/3.3.1/mpich-3.3.1.tar.gz>

wget <http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/netcdf-4.1.3.tar.gz>

wget <http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/jasper-1.900.1.tar.gz>

wget <http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/libpng-1.2.50.tar.gz>

wget <http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/zlib-1.2.7.ta>

* + netcdf安装

#改标红的这项 为你的目录

export DIR=/home/zxw/wrf/Build\_WRF/LIBRARIES  
export CC=gcc  
export CXX=g++  
export FC=gfortran  
export FCFLAGS=-m64  
export F77=gfortran  
export FFLAGS=-m64

tar zxvf netcdf-4.1.3.tar.gz  
cd netcdf-4.1.3  
./configure --prefix=$DIR/netcdf --disable-dap \  
 --disable-netcdf-4 --disable-shared  
make  
make install  
export PATH=$DIR/netcdf/bin:$PATH  
export NETCDF=$DIR/netcdf

* + cd ..
  + 成功标志
  + Congratulations! You have successfully 
    You can use script nnc-conftg" to fin 
    compiler options to build your appli 
    i started netCDF! 
    the relevant 
    on. Enter 
    nc-conftg 
    help 
    for additional information. 
    I CAUTION: 
    If you have not already run 
    recommend you do so. It does 
    Before using netCDF to store 
    build with "make check" . 
    then 'we 
    "make check" , 
    ke very ton 
    not 
    important data, test 
    trongty 
    your 
    NetCDF ts tested nightly on many platforms at Untdata 
    but your platform ts probably different tn some ways. 
    If any tests fait, please see the netCDF web site: 

* + **mpich安装**

tar xzvf mpich-3.3.1.tar.gz

cd mpich-3.3.1/

./configure --prefix=$DIR/mpich

make

make install

export PATH=$DIR/mpich/bin:$PATH

cd ..

* + **zlib安装**

export LDFLAGS=-L$DIR/grib2/lib  
export CPPFLAGS=-I$DIR/grib2/include

tar xzvf zlib-1.2.7.tar.gz  
cd zlib-1.2.7  
./configure --prefix=$DIR/grib2  
make  
make install

cd ..

* + **libpng安装**

tar xzvf libpng-1.2.50.tar.gz  
cd libpng-1.2.50  
./configure --prefix=$DIR/grib2  
make  
make install

cd ..

* + **jasper安装**

tar xzvf jasper-1.900.1.tar.gz  
cd jasper-1.900.1  
./configure --prefix=$DIR/grib2  
make  
make install

*cd ..*

* + 库测试（与官网无差别，记得下载到TEST目录下）

cd LIBRARIES

wget <https://link.jianshu.com/?t=http://www2.mmm.ucar.edu/wrf/OnLineTutorial/compile_tutorial/tar_files/Fortran_C_NETCDF_MPI_tests.tar>

* + Test #1: Fortran + C + NetCDF

tar -xf Fortran\_C\_NETCDF\_MPI\_tests.tar

cp ${NETCDF}/include/netcdf.inc .

gfortran -c 01\_fortran+c+netcdf\_f.f

gcc -c 01\_fortran+c+netcdf\_c.c

gfortran 01\_fortran+c+netcdf\_f.o 01\_fortran+c+netcdf\_c.o -L${NETCDF}/lib -lnetcdff -lnetcdf

./a.out

led 
OO and 
succEss 

* + Test #2: Fortran + C + NetCDF + MPI

cp ${NETCDF}/include/netcdf.inc .

mpif90 -c 02\_fortran+c+netcdf+mpi\_f.f mpicc -c 02\_fortran+c+netcdf+mpi\_c.c mpif90 02\_fortran+c+netcdf+mpi\_f.o \ 02\_fortran+c+netcdf+mpi\_c.o \ -L${NETCDF}/lib -lnetcdff -lnetcdf

mpirun ./a.out

Sszoons 
pue 

* + 3.Building WRFV3

cd ../Build\_WRF

wget <http://www2.mmm.ucar.edu/wrf/src/WRFV3.9.1.1.TAR.gz>

gunzip WRFV3.9.1.1.TAR.gz

tar -xf WRFV3.9.1.1.TAR

cd WRFV3

./configure

checking for per IS... n 
checking for perl... 
found /usr/btn/perl (perl) 
use NETCOF in dir: 
HOFS not set in environment. configure HRF for use without. 
PHDFS not set tn environment. configure "RF tor use utthout. 
use 'time' to report timing information 
SJASPERLIB or 
Please select 
I. (ser tat) 
5. (ser tat) 
9. (ser tat) 
(ser tat) 
13. 
(serial) 
18. 
(serial) 
22. 
(serial) 
26. 
(serial) 
30 • 
(serial) 
32. 
(serial) 
36. 
(serial) 
40. 
(serial) 
44 . 
(serial) 
48. 
(serial) 
52 . 
(serial) 
56. 
(serial) 
(serial) 
64. 
(ser tat) 
68. 
(ser tat) 
72. 
SOASPERINC not found in environnent, configuring to build *ithout grib2 1/0. 
anong the following Linux 
x86_64 options: 
2. (smpar) 
6. (smpar) 
(smpar) 
16. 
(smpar) 
14. 
(smpar) 
19. 
(smpar) 
23. 
27. 
(smpar) 
33. 
(smpar) 
37. 
(smpar) 
41. 
(smpar) 
45. 
(smpar) 
49. 
(smpar) 
53. 
( smpar) 
57. 
(smpar) 
61. 
69. 
(smpar) 
73. 
3. (dnpar) 
7. (dmpar) 
(dmpar) 
(dmpar) 
15. 
(dmpar) 
(dmpar) 
24 . 
(dmpar) 
28. 
(dmpar) 
31. 
(dmpar) 
34. 
(dmpar) 
38. 
(dnpar) 
42. 
(dmpar) 
46 . 
(dmpar) 
50 . 
(dmpar) 
54 . 
(dmpar) 
58. 
(dmpar) 
62 
(dmpar) 
(dmpar) 
( dmpar ) 
74 . 
. (dn•sn) 
. (dn•sn) 
( dn•sn) 
12. 
16. 
(dn•sn) 
(dn•sm) 
17. 
21 (dn.sm) 
25 
(dn.sn) 
29. 
(dn.sn) 
35. 
(dn•sn) 
39. 
( dn•sn) 
43. 
(dn•sn) 
47. 
(dn•sm) 
51. 
(dn.sm) 
55. 
59. 
53. 
57. 
(dn•sn) 
75. 
pc: (pgf90/gcc) 
pc: (pgf96/pgcc): scl 
PCI (pgf96/gcc): PCI accelerator 
INTEL (i fort/tcc) 
INTEL ( t fort/ ICC): Xeon PM (NIC architecture) 
INTEL (ifort/tcc): Xeon *ith Avx nods) 
INTEL (i fort/icc): "PT 
INTEL 
IBM POE' 
PATHSCALE (pathf90/pathcc) 
GNU (gfortran/gcc) 
(ftn/gcc): Cray XC CLE 
CRAY ccE (ftn Cray XE and XC 
INTEL (ftn/icc): cray XC 
PCI (pgf90/pgcc) 
PCI (pgf90/gcc): .f9e=pgf90 
pc: (pgf9e/pgcc): 
- f90=pgf9e 
INTEL (i fort/tcc): 
(tfort/tcc): ENL MIC 
FUJITSU (frtpx/fccpx): FX1e/FX10e SPARC64 IXfx/X1fx 

按需要 这里选34和1

( Single processor 
( means Syrmetric Multi -Processing/Shared Memory Parallel 
( means Distributed Memory Parallel (MP I) 
means Distributed Memory with Shared Memory (for example, 
with OpenMP a node) 
MP I across 

一般选第一个 按需要

./compile em\_real >& log.compile

等待一会》》》》》》

em 
em - qua 】 2d x 20 e 〔 a ! 
em - qua 】 2d Y ( 20 e 〔 a ! e 
, d - x ( 2d e c 
em_sen ()d e c 

ls -ls main/\*.exe

出现

38892 
38768 
38388 
42360 
-rwxr -xr 
-rwxr-xr 
-rwxr -xr 
-rwxr -xr 
-x 
-x 
-x 
-x 
1 
1 
1 
1 
root 
root 
root 
root 
8079 
8079 
8079 
8079 
39822032 
39694920 
39306160 
43374736 
10B 
10B 
10B 
10B 
13 
13 
13 
13 
17. 
• 16 
17. 
• 16 
17. 
• 16 
17. 
• 16 
main/ndown . exe 
main/real.exe 
natn/tc.exe 
natn/wrf .exe 



* + 4. 编译WPS

wget <http://www2.mmm.ucar.edu/wrf/src/WPSV3.9.1.TAR.gz>

cd ..

gunzip WPSV3.9.1.TAR.gz  
tar -xf WPSV3.9.1.TAR  
cd WPS  
./clean  
export JASPERLIB=$DIR/grib2/lib  
export JASPERINC=$DIR/grib2/include

./configure

官网建议选1，我开始选其他报错

./configur•e 
lease select from among the following supported platforms. 
14. 
15. 
24. 
32. 
33. 
34. 
35. 
36. 
37. 
39. 
40. 
Linux 
Linux 
Linux 
Linux 
L tnux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Linux 
Cray 
cray 
Cr ay 
Cr ay 
Cr ay 
Cr ay 
Cray 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
x86 
64, 
64, 
64, 
64, 
64, 
64 , 
64 , 
64, 
64, 
64, 
64, 
64, 
64, 
64, 
64 , 
64 , 
64, 
64, 
64, 
64, 
64, 
64, 
04, 
64 , 
64 , 
64, 
64 
64 
64 
64 
g fortran 
(serial) 
gfortran 
gfortran 
(dmpar) 
gfortran 
PCI compiler 
(serial) 
PCI compiler 
(dmpar) 
PCI compiler 
PCI compiler 
PCI compiler, 
SGI ( serial) 
PCI compiler, 
SGI MPT 
PCI compiler, 
(dmpar) 
SGI MPT 
PCI compiler, 
SGI MPT 
IA64 and Opteron 
IA64 and Opteron 
IA64 and Opteron 
IA64 and Opteron 
Intel 
64, Intel 
Intel 
Intel 
Intel 
Intel 
Intel 
Intel 
Intel 
Intel 
64, Intel 
Intel 
compiler 
compiler 
compiler 
compiler 
compiler , 
compiler , 
compt ler , 
compt , 
compiler , 
compiler 
compiler , 
compiler , 
(serial) 
( dmpar) 
( dmpar _No_GRIB2) 
(serial) 
(dmpar) 
SGI MPT 
scr MPT 
SCI "PT 
SCI mPT 
IBM POE 
IBM POE 
IBM POE 
IBM POE 
(serial) 
(dmpar) 
(serial) 
(dmpar) 
(serial) 
(dmpar) 
g95 compiler 
g95 compiler 
g95 compiler 
g95 compiler 
XE/XC CLE/Ltnux X86 
XE/XC CLE/Linux x86 
XE/XC CLE/Ltnux X86_ 
XE/XC CLE/Linux x86 
XC CLE/Ltnux x86_64, 
XC CLE/Linux x86_64, 
XC CLE/Ltnux x86_64, 
XC CLE/Ltnux x86_64, 
(serial) 
_ 64, Cray compiler 
_64, Cray compiler 
64, Cray compiler 
(dmpar) 
(dmpa 
_64, Cray compiler 
Intel compiler 
Intel compiler 
Intel compiler 
Intel compiler 
(serial) 
(dmpar) 

compile之前先看结构 WPS是不是与WRF3并列

Size (KB) 
Group 
2019-10-15 00:29 

如果是 略过这一步 不是的话 需要修改/home/zxw/wrf/Build\_WRF/WPS/configure.wps

框中部分改为相对于configure.wps文件的 WRF3的相对路径 因为WPS的编译需要wrf的I/O接口（详情见手册解释）



4 
13 
11 
12 
14 
16 
18 
22 
24 
26 
27 
29 
31 
33 
37 
conf igu re. wpS 
This file was autmatically generated by the configure script in the 
top level directory. You may make changes to the settings in this 
file but be aware they be overwritten each time you run configure. 
Ordinarily, it is necessary to run configure once, the code is 
first installed. 
To permanently change options, change the settings for your platform 
in the file arch/configure. defaults, the preamble, and the postamble - 
then rerun 
-SUFFIXES: 
SHELL 
NCARG LIBS 
/bin/sh 
= -L$(NCARG_ROOT)/1ib -Incarg -Incarg_gks -Incarg_c \ 
-IXII -IXext -Ipng -Iz -Icairo -Ifontconfig -Ipixman-l \ 
-Ifreetype -lexpat -Ipthread -1bz2 -IXrender -lgfortran -lgcc 
NCARG LIBS2 
FDEFS 
= # May be overridden by architecture specific value below 
-DOSE JPEG2øøe -DOSE P'" 
# Listing of options that are usually independent of machine type. 
# When necessary, these are over-ridden by each architecture. 
ARFLAGS 
PERL 
— perl 
RANLIB 
echo 
DIR 
"RF INCLUDE 

./compile >& log.compile

ls -ls \*.exe

Irwxrwxrwx 1 zxw zxw 23 Oct 15 01 geogrid.exe geogrid/src/geogrid.exe 
Irwxrvxrvx 1 zxw zxw 23 Oct 15 01 metgrid.exe metgrid/src/metgrid.exe 
Irvxruxrux 1 zxw zxw 21 Oct 15 01:36 ungrib,exe -> ungrib/src/ungrib,exe 

* + 5 Static Geography Data

下载WPS\_GEOG

<http://www2.mmm.ucar.edu/wrf/users/download/get_sources_wps_geog.html>

Wget

mv geog WPS\_GEOG

<<ch10-part2-compiling\_wrf.pdf>>

