R v3.5.0 语言及相关包编译安装指南

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一、R 语言简介

R 语言是用于统计分析、绘图的语言和操作环境。R 是属于 GNU 系统的一个自由、免费、源代码开放的软件，它是一个用于统计计算和统计制图的优秀工具。

目前 R 最新版为 3.5.0（目前中心的 zlib 无法满足该版本，需先升级 zlib 版本和其他几个库。

注：在开始操作前，建议使用者熟悉 Linux 操作的几个常用命令（例如：vi 或 vim、cd、mkdir、ls、pwd 等）。

二、安装的前期准备

1. 在官网（https://cran.r-project.org/mirrors.html ）下载源代码安装包：R-3.5.0.tar.gz。
2. 下载安装 R 软件需要的依赖包：

   zlib-1.2.7.tar.gz: http://www.zlib.net/

   bzip2-1.0.6: http://www.bzip.org/1.0.6/bzip2-1.0.6.tar.gz

   xz-5.2.2: http://tukaani.org/xz/xz-5.2.2.tar.gz

   pcre-8.38: ftp://ftp.csx.cam.ac.uk/pub/software/programming/pcre/pcre-8.38.tar.gz

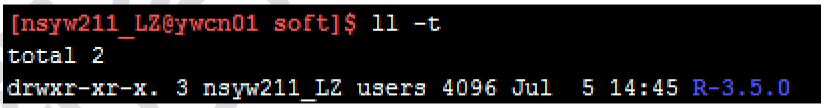
   curl-7.47.1 : https://curl.haxx.se/download/curl-7.47.1.tar.gz
3. 在 Windows 系统用 Xshell 客户端登录高性能帐号，编译软件必须在编译节点，以 YW 分区为例（其他分区见下表 1，请选择相应分区的编译节点）从登录节点进入编译节点：**ssh yw0410**

表 1 各分区编译节点

计算分区	编译节点	IP 地址
GG 计算分区	gg0110	编译节点不可以直接访问， 请从登陆节点 ssh 节点名 直
	gg0111	

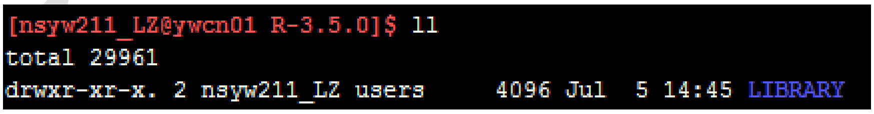
GK 计算分区	gk0110	接跳转即可。无密码访问。
	gk0111	
GS 计算分区	gs0110	
	gs0111	
FN 计算分区	fn001	
	fn002	
YW 计算分区	yw0410	
	yw0411	
YS 计算分区	ys0410	
	ys0411	
YG 计算分区	yg0110	
	yg0111	

4. 如果已创建放置源代码包的文件夹，此步骤可忽略。若没有创建，则需先创建（本次创建 Softwares/R，名称可以根据个人习惯而不同）：**mkdir -p soft/R-3.5.0**



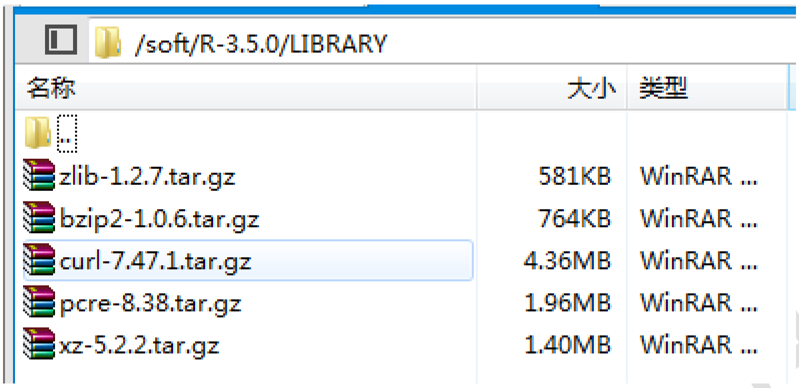
```
[nsyw211_LZ@ywcn01 soft]$ ll -t
total 2
drwxr-xr-x. 3 nsyw211_LZ users 4096 Jul  5 14:45 R-3.5.0
```

5. 将下载的源码包 R-3.5.0.tar.gz 通过 FTP 上传至账号 R-3.5.0 路径下;
6. 创建依赖包文件夹,（本次创建 R-3.5.0/LIBRARY，名称可以根据个人习惯而不同）: **mkdir -p R-3.5.0/LIBRARY**;



```
[nsyw211_LZ@ywcn01 R-3.5.0]$ ll
total 29961
drwxr-xr-x. 2 nsyw211_LZ users     4096 Jul  5 14:45 LIBRARY
```

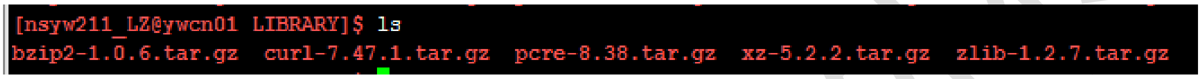
7. 将安装软件所需的依赖包 bzip2-1.0.6.tar.gz curl-7.47.1.tar.gz pcre-8.38.tar.gz xz-5.2.2.tar.gz zlib-1.2.7.tar.gz 通过 FTP 上传至 LIBRARY 文件夹下;



/soft/R-3.5.0/LIBRARY

名称	大小	类型
..		
zlib-1.2.7.tar.gz	581KB	WinRAR ...
bzip2-1.0.6.tar.gz	764KB	WinRAR ...
curl-7.47.1.tar.gz	4.36MB	WinRAR ...
pcre-8.38.tar.gz	1.96MB	WinRAR ...
xz-5.2.2.tar.gz	1.40MB	WinRAR ...

8. 查看 LIBRARY 文件夹下的内容，ls



```
[nsyw211_LZ@ywcn01 LIBRARY]$ ls
bzip2-1.0.6.tar.gz  curl-7.47.1.tar.gz  pcre-8.38.tar.gz  xz-5.2.2.tar.gz  zlib-1.2.7.tar.gz
```

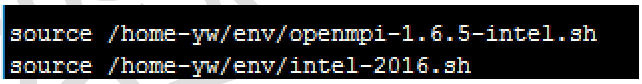
9. 确认环境变量中是否已经添加需要的环境变量：**vim ~/.bashrc**

10. 输入“i”进入编辑模式，本次使用的是 intel-2016.sh 和 openmpi-1.4.4-intel.sh，则在.bashrc 中添加：

    source /home-yw/env/intel-2016.sh

    source /home-yw/env/openmpi-1.6.5-intel.sh

    注：intel-12.1.sh 与 intel-2011.sh 为同一个编译器；intel-2011.sh 与 intel-2016.sh 为不同版本；openmpi-1.6.5-intel.sh 与 openmpi-1.4.5-intel.sh 为不同版本；在其他分区还会有其他版本，可以根据需要进行选择。



```
source /home-yw/env/openmpi-1.6.5-intel.sh
source /home-yw/env/intel-2016.sh
```

11. 按下键盘“Esc”键，输入“**:wq**”保存退出。

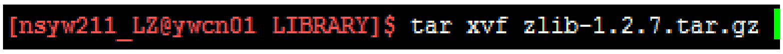
12. 保存以后需要运行，才能有效：**source ~/.bashrc**

三、编译安装依赖包

进入放有依赖包代码的文件夹：**cd soft/LIBRARY**

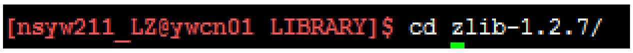
- **安装 zlib-1.2.7.tar.gz**

1. 解压 zlib-1.2.7.tar.gz, **tar xvf zlib-1.2.7.tar.gz**



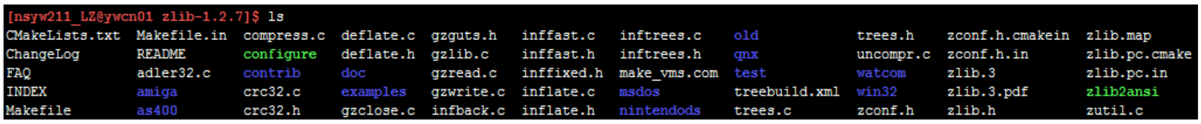
```
[nsyw211_LZ@ywcn01 LIBRARY]$ tar xvf zlib-1.2.7.tar.gz
```

2. 进入 zlib-1.2.7，**cd zlib-1.2.7/**



```
[nsyw211_LZ@ywcn01 LIBRARY]$ cd zlib-1.2.7/
```

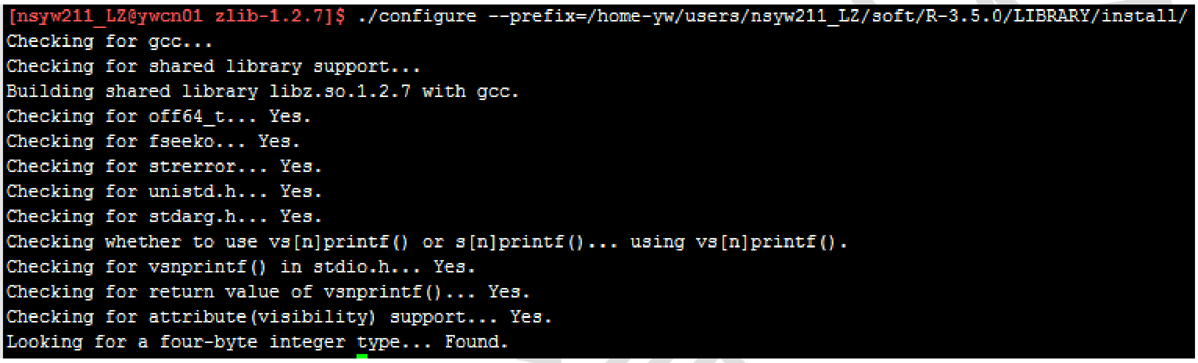
3.　查看，**ls**



```
[nsyw211_LZ@ywcn01 zlib-1.2.7]$ ls
CMakeLists.txt  Makefile.in  compress.c  deflate.c  gzguts.h   inffast.c   inftrees.c    old            trees.h     zconf.h.cmakein  zlib.map
ChangeLog       README       configure   deflate.h  gzlib.c    inffast.h   inftrees.h    qnx            uncompr.c   zconf.h.in       zlib.pc.cmake
FAQ             adler32.c    contrib     doc        gzread.c   inffixed.h  make_vms.com  test           watcom      zlib.3           zlib.pc.in
INDEX           amiga        crc32.c     examples   gzwrite.c  inflate.c   msdos         treebuild.xml  win32       zlib.3.pdf       zlib2ansi
Makefile        as400        crc32.h     gzclose.c  infback.c  inflate.h   nintendods    trees.c        zconf.h     zlib.h           zutil.c
```

4.　配置，编译时我们将所有依赖包都指定安装在路径/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install 中，所以先在 LIBRARY 路径下创建文件夹 install，mkdir install，然后执行：

./configure --prefix=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install/



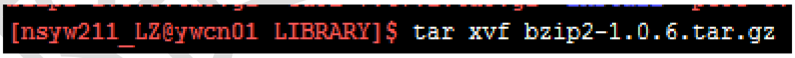
```
[nsyw211_LZ@ywcn01 zlib-1.2.7]$ ./configure --prefix=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install/
Checking for gcc...
Checking for shared library support...
Building shared library libz.so.1.2.7 with gcc.
Checking for off64_t... Yes.
Checking for fseeko... Yes.
Checking for strerror... Yes.
Checking for unistd.h... Yes.
Checking for stdarg.h... Yes.
Checking whether to use vs[n]printf() or s[n]printf()... using vs[n]printf().
Checking for vsnprintf() in stdio.h... Yes.
Checking for return value of vsnprintf()... Yes.
Checking for attribute(visibility) support... Yes.
Looking for a four-byte integer type... Found.
```

5.　若上一步未出现报错，编译，执行 **make**

6.　若上一步未出现报错，安装，执行 **make install**

- **安装 bzip2-1.0.6.tar.gz**

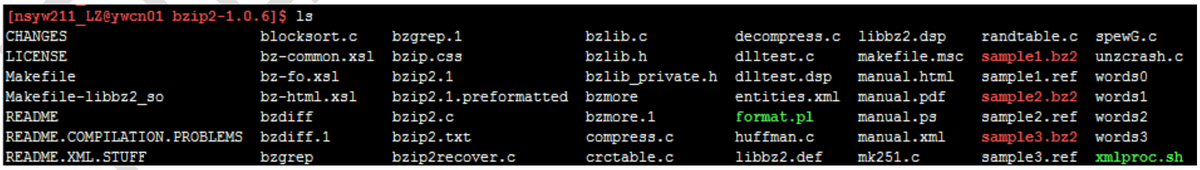
1.　解压 bzip2-1.0.6.tar.gz，**tar xvf bzip2-1.0.6.tar.gz**



```
[nsyw211_LZ@ywcn01 LIBRARY]$ tar xvf bzip2-1.0.6.tar.gz
```

2.　进入 bzip2-1.0.6 文件夹，**cd bzip2-1.0.6**

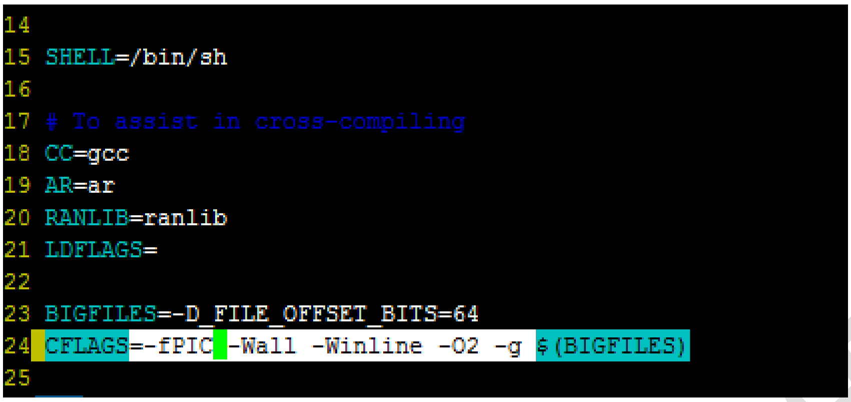
3.　查看，**ls**



```
[nsyw211_LZ@ywcn01 bzip2-1.0.6]$ ls
CHANGES                      blocksort.c     bzgrep.1                bzlib.c            decompress.c  libbz2.dsp    randtable.c  spewG.c
LICENSE                      bz-common.xsl   bzip.css                bzlib.h            dlltest.c     makefile.msc  sample1.bz2  unzcrash.c
Makefile                     bz-fo.xsl       bzip2.1                 bzlib_private.h    dlltest.dsp   manual.html   sample1.ref  words0
Makefile-libbz2_so           bz-html.xsl     bzip2.1.preformatted    bzmore             entities.xml  manual.pdf    sample2.bz2  words1
README                       bzdiff          bzip2.c                 bzmore.1           format.pl     manual.ps     sample2.ref  words2
README.COMPILATION.PROBLEMS  bzdiff.1        bzip2.txt               compress.c         huffman.c     manual.xml    sample3.bz2  words3
README.XML.STUFF             bzgrep          bzip2recover.c          crctable.c         libbz2.def    mk251.c       sample3.ref  xmlproc.sh
```

4.　先修改 Makefile 文件，**vi Makefile**，找到第 24 行（CFLAGS=-Wall -Winline -O2 -g $(BIGFILES)），将其修改为：

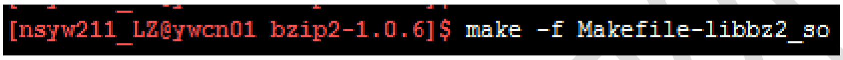
CFLAGS=-fPIC -Wall -Winline -O2 -g $(BIGFILES)



```

SHELL=/bin/sh

# To assist in cross-compiling
CC=gcc
AR=ar
RANLIB=ranlib
LDFLAGS=

BIGFILES=-D_FILE_OFFSET_BITS=64
CFLAGS=-fPIC -Wall -Winline -O2 -g $(BIGFILES)

```

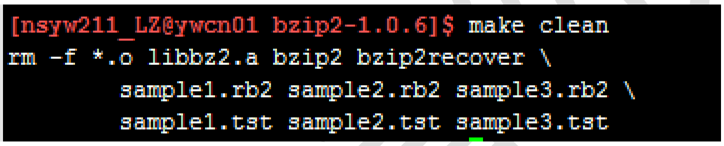
修改后保存退出，按 Esc 键后输入：**wq**

5. 执行：**make -f Makefile-libbz2_so**



```
[nsyw211_LZ@ywcn01 bzip2-1.0.6]$ make -f Makefile-libbz2_so
```

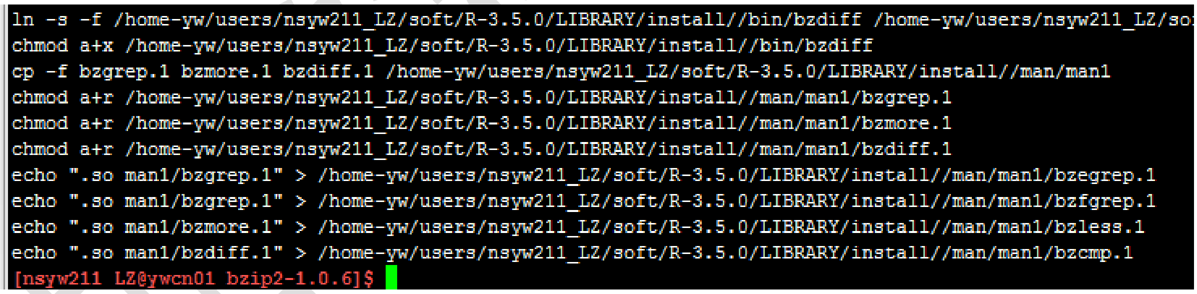
6. 若无报错，输入 **make clean**



```
[nsyw211_LZ@ywcn01 bzip2-1.0.6]$ make clean
rm -f *.o libbz2.a bzip2 bzip2recover \
        sample1.rb2 sample2.rb2 sample3.rb2 \
        sample1.tst sample2.tst sample3.tst
```

7. 继续执行，**make**

8. 若无报错，执行 **make install PREFIX= /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/bzip2-1.0.6**

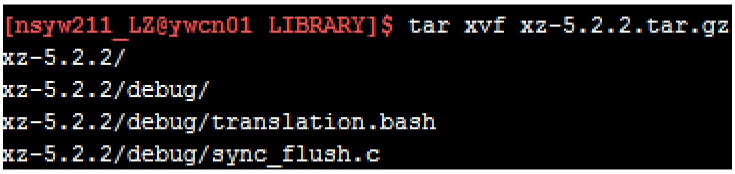


```
ln -s -f /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//bin/bzdiff /home-yw/users/nsyw211_LZ/so
chmod a+x /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//bin/bzdiff
cp -f bzgrep.1 bzmore.1 bzdiff.1 /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1
chmod a+r /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1/bzgrep.1
chmod a+r /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1/bzmore.1
chmod a+r /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1/bzdiff.1
echo ".so man1/bzgrep.1" > /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1/bzegrep.1
echo ".so man1/bzgrep.1" > /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1/bzfgrep.1
echo ".so man1/bzmore.1" > /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1/bzless.1
echo ".so man1/bzdiff.1" > /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install//man/man1/bzcmp.1
[nsyw211_LZ@ywcn01 bzip2-1.0.6]$
```

9. 若末尾没有报错，则安装成功。

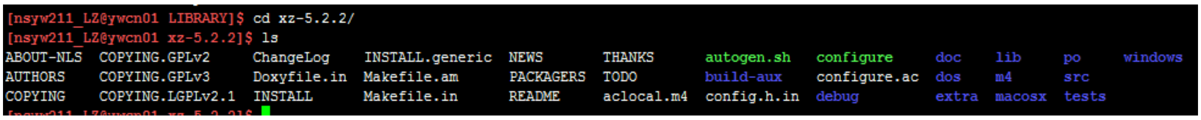
- **安装 xz-5.2.2.tar.gz**

1. 解压 xz-5.2.2.tar.gz，**tar xvf xz-5.2.2.tar.gz**



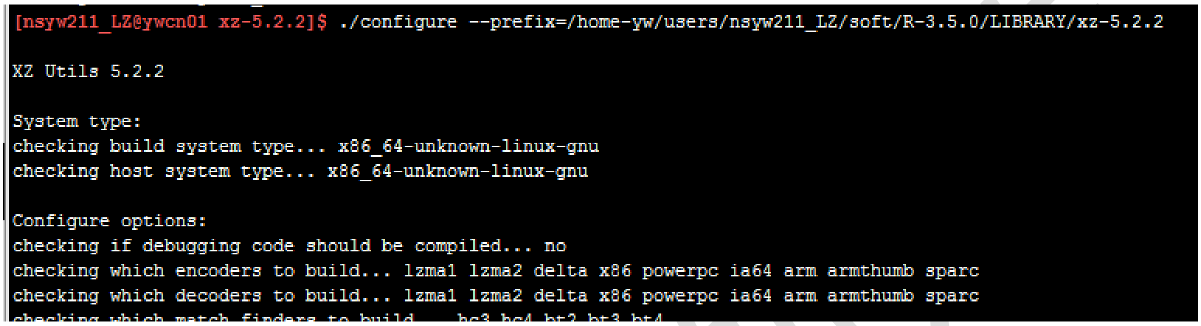
```
[nsyw211_LZ@ywcn01 LIBRARY]$ tar xvf xz-5.2.2.tar.gz
xz-5.2.2/
xz-5.2.2/debug/
xz-5.2.2/debug/translation.bash
xz-5.2.2/debug/sync_flush.c
```

2. 进入 xz-5.2.2 文件夹下，**cd xz-5.2.2/**，并查看 **ls**



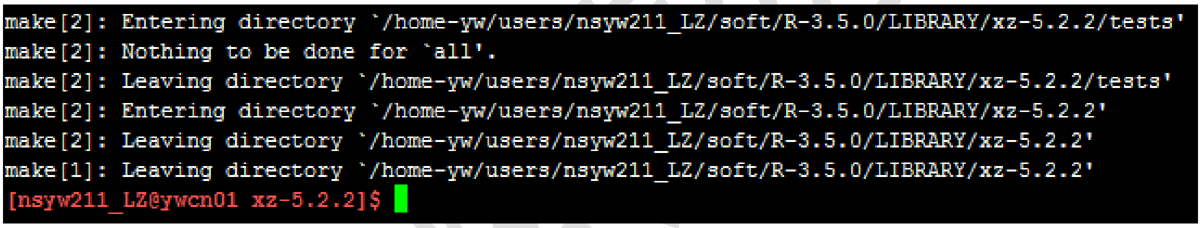
```
[nsyw211_LZ@ywcn01 LIBRARY]$ cd xz-5.2.2/
[nsyw211_LZ@ywcn01 xz-5.2.2]$ ls
ABOUT-NLS  COPYING.GPLv2    ChangeLog    INSTALL.generic  NEWS       THANKS      autogen.sh   configure     doc    lib     po     windows
AUTHORS    COPYING.GPLv3    Doxyfile.in  Makefile.am      PACKAGERS  TODO        build-aux    configure.ac  dos    m4      src
COPYING    COPYING.LGPLv2.1 INSTALL      Makefile.in      README     aclocal.m4  config.h.in  debug         extra  macosx  tests
```

3. 配置，输入：**./configure --prefix= /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2**



```
[nsyw211_LZ@ywcn01 xz-5.2.2]$ ./configure --prefix=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2

XZ Utils 5.2.2

System type:
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu

Configure options:
checking if debugging code should be compiled... no
checking which encoders to build... lzma1 lzma2 delta x86 powerpc ia64 arm armthumb sparc
checking which decoders to build... lzma1 lzma2 delta x86 powerpc ia64 arm armthumb sparc
checking which match finders to build... hc3 hc4 bt2 bt3 bt4
```

4. 若无报错，编译，**make**



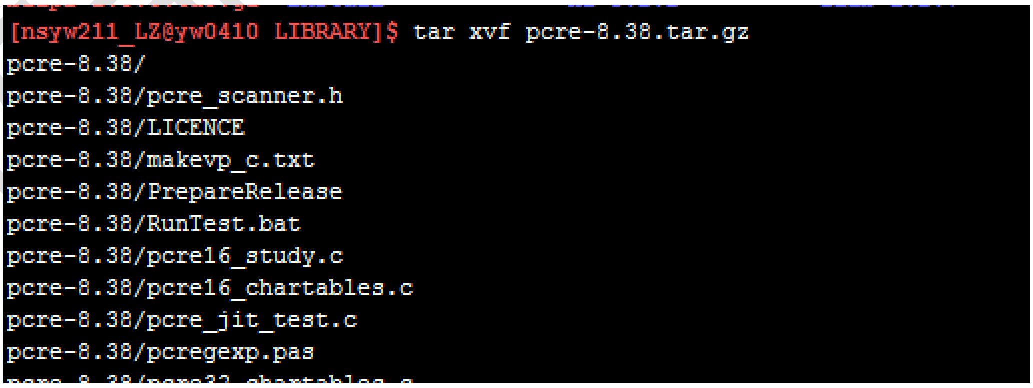
```
make[2]: Entering directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2/tests'
make[2]: Nothing to be done for `all'.
make[2]: Leaving directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2/tests'
make[2]: Entering directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2'
make[2]: Leaving directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2'
make[1]: Leaving directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2'
[nsyw211_LZ@ywcn01 xz-5.2.2]$
```

5. 若无报错，执行安装，**make install**

6. 若无报错，说明安装成功。

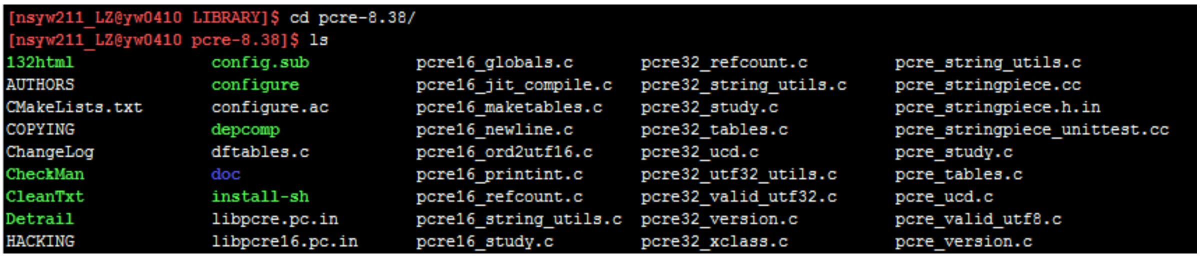
- **安装 pcre-8.38.tar.gz**

1. 解压 pcre-8.38.tar.gz，**tar xvf pcre-8.38.tar.gz**;



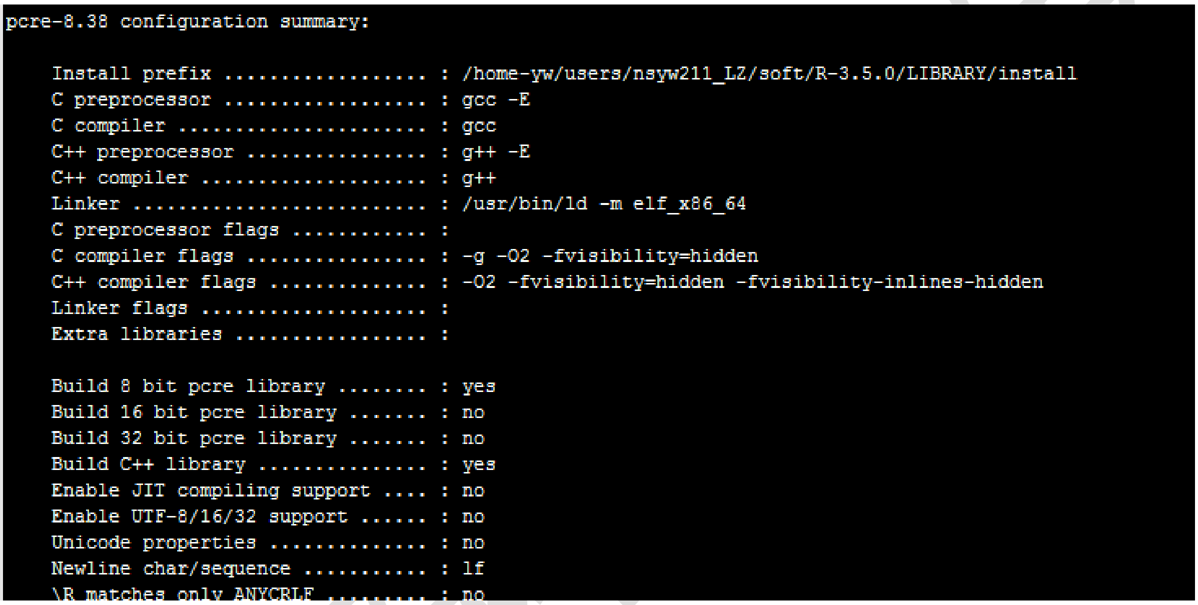
```
[nsyw211_LZ@yw0410 LIBRARY]$ tar xvf pcre-8.38.tar.gz
pcre-8.38/
pcre-8.38/pcre_scanner.h
pcre-8.38/LICENCE
pcre-8.38/makevp_c.txt
pcre-8.38/PrepareRelease
pcre-8.38/RunTest.bat
pcre-8.38/pcre16_study.c
pcre-8.38/pcre16_chartables.c
pcre-8.38/pcre_jit_test.c
pcre-8.38/pcregexp.pas
pcre-8.38/pcre32_chartables.c
```

2. 进入 pcre-8.38 文件夹下，**cd pcre-8.38**



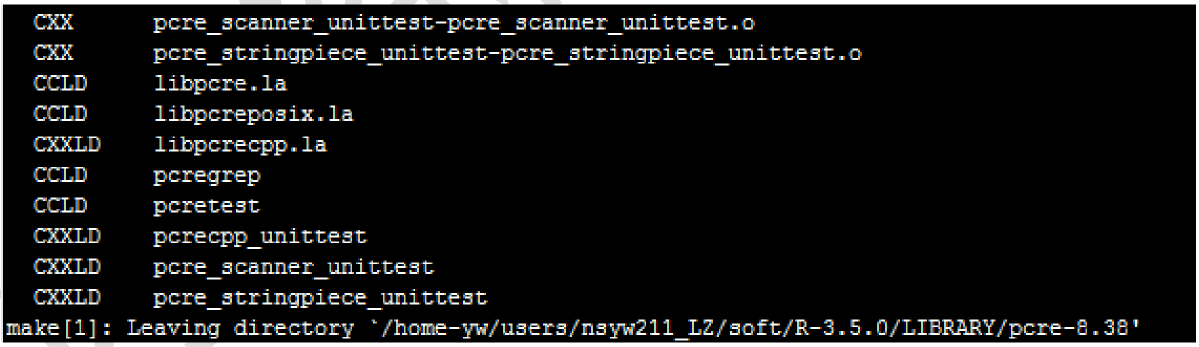
```
[nsyw211_LZ@yw0410 LIBRARY]$ cd pcre-8.38/
[nsyw211_LZ@yw0410 pcre-8.38]$ ls
132html        config.sub     pcre16_globals.c       pcre32_refcount.c       pcre_string_utils.c
AUTHORS        configure      pcre16_jit_compile.c   pcre32_string_utils.c   pcre_stringpiece.cc
CMakeLists.txt configure.ac   pcre16_maketables.c    pcre32_study.c          pcre_stringpiece.h.in
COPYING        depcomp        pcre16_newline.c       pcre32_tables.c         pcre_stringpiece_unittest.cc
ChangeLog      dftables.c     pcre16_ord2utf16.c     pcre32_ucd.c            pcre_study.c
CheckMan       doc            pcre16_printint.c      pcre32_utf32_utils.c    pcre_tables.c
CleanTxt       install-sh     pcre16_refcount.c      pcre32_valid_utf32.c    pcre_ucd.c
Detrail        libpcre.pc.in  pcre16_string_utils.c  pcre32_version.c        pcre_valid_utf8.c
HACKING        libpcre16.pc.in pcre16_study.c        pcre32_xclass.c         pcre_version.c
```

3. 配置，执行 **./configure --prefix=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/pcre-8.38 --enable-utf8**



```
pcre-8.38 configuration summary:

    Install prefix .................. : /home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/install
    C preprocessor .................. : gcc -E
    C compiler ...................... : gcc
    C++ preprocessor ................ : g++ -E
    C++ compiler .................... : g++
    Linker .......................... : /usr/bin/ld -m elf_x86_64
    C preprocessor flags ............ : 
    C compiler flags ................ : -g -O2 -fvisibility=hidden
    C++ compiler flags .............. : -O2 -fvisibility=hidden -fvisibility-inlines-hidden
    Linker flags .................... : 
    Extra libraries ................. : 

    Build 8 bit pcre library ........ : yes
    Build 16 bit pcre library ....... : no
    Build 32 bit pcre library ....... : no
    Build C++ library ............... : yes
    Enable JIT compiling support .... : no
    Enable UTF-8/16/32 support ...... : no
    Unicode properties .............. : no
    Newline char/sequence ........... : lf
    \R matches only ANYCRLF ......... : no
```

4. 若无报错，编译，**make -j3**



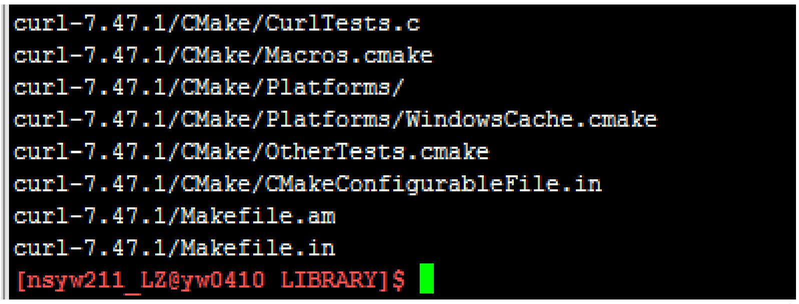
```
  CXX      pcre_scanner_unittest-pcre_scanner_unittest.o
  CXX      pcre_stringpiece_unittest-pcre_stringpiece_unittest.o
  CCLD     libpcre.la
  CCLD     libpcreposix.la
  CXXLD    libpcrecpp.la
  CCLD     pcregrep
  CCLD     pcretest
  CXXLD    pcrecpp_unittest
  CXXLD    pcre_scanner_unittest
  CXXLD    pcre_stringpiece_unittest
make[1]: Leaving directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/pcre-8.38'
```

5. 若无报错，执行安装，**make install**

6. 若无报错，则安装成功

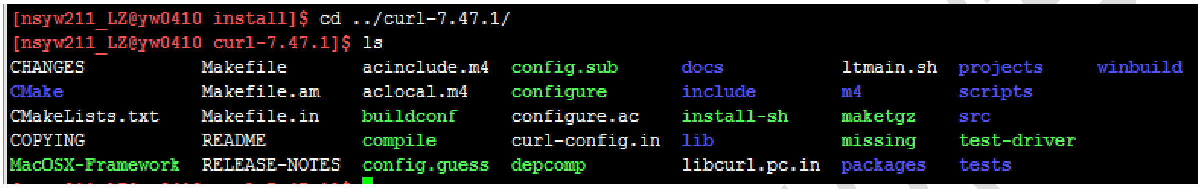
- **安装 curl-7.47.1**

1. 解压 curl-7.47.1.tar.gz，**tar xvf curl-7.47.1.tar.gz**



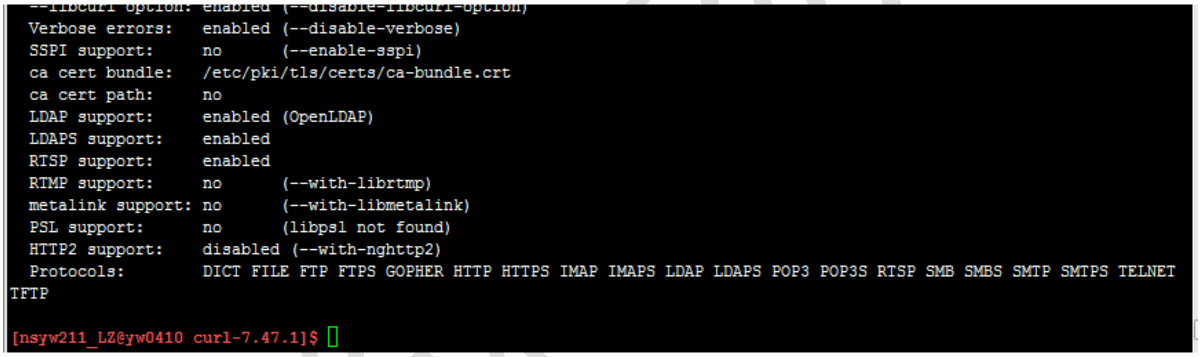
```
curl-7.47.1/CMake/CurlTests.c
curl-7.47.1/CMake/Macros.cmake
curl-7.47.1/CMake/Platforms/
curl-7.47.1/CMake/Platforms/WindowsCache.cmake
curl-7.47.1/CMake/OtherTests.cmake
curl-7.47.1/CMake/CMakeConfigurableFile.in
curl-7.47.1/Makefile.am
curl-7.47.1/Makefile.in
[nsyw211_LZ@yw0410 LIBRARY]$
```

2. 进入 curl-7.47.1 文件夹下并查看，**cd curl-7.47.1**



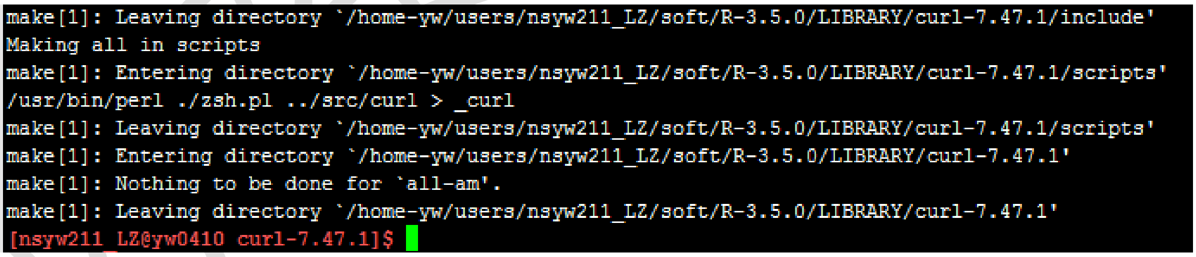
```
[nsyw211_LZ@yw0410 install]$ cd ../curl-7.47.1/
[nsyw211_LZ@yw0410 curl-7.47.1]$ ls
CHANGES            Makefile       acinclude.m4  config.sub      docs          ltmain.sh  projects     winbuild
CMake              Makefile.am    aclocal.m4    configure       include       m4         scripts
CMakeLists.txt     Makefile.in    buildconf     configure.ac    install-sh    maketgz    src
COPYING            README         compile       curl-config.in  lib           missing    test-driver
MacOSX-Framework   RELEASE-NOTES  config.guess  depcomp         libcurl.pc.in packages   tests
```

3. 配置，**./configure --prefix=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1**



```
  --libcurl option: enabled (--disable-libcurl-option)
  Verbose errors:   enabled (--disable-verbose)
  SSPI support:     no      (--enable-sspi)
  ca cert bundle:   /etc/pki/tls/certs/ca-bundle.crt
  ca cert path:     no
  LDAP support:     enabled (OpenLDAP)
  LDAPS support:    enabled
  RTSP support:     enabled
  RTMP support:     no      (--with-librtmp)
  metalink support: no      (--with-libmetalink)
  PSL support:      no      (libpsl not found)
  HTTP2 support:    disabled (--with-nghttp2)
  Protocols:        DICT FILE FTP FTPS GOPHER HTTP HTTPS IMAP IMAPS LDAP LDAPS POP3 POP3S RTSP SMB SMBS SMTP SMTPS TELNET
TFTP

[nsyw211_LZ@yw0410 curl-7.47.1]$
```

4. 若无报错，执行编译：**make**

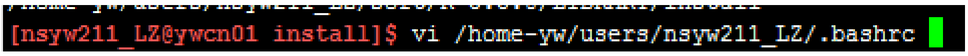


```
make[1]: Leaving directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1/include'
Making all in scripts
make[1]: Entering directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1/scripts'
/usr/bin/perl ./zsh.pl ../src/curl > _curl
make[1]: Leaving directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1/scripts'
make[1]: Entering directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1'
make[1]: Nothing to be done for `all-am'.
make[1]: Leaving directory `/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1'
[nsyw211_LZ@yw0410 curl-7.47.1]$
```

5. 若无报错，执行安装，**make install**

6. 若无报错，则安装成功。

7. 至此，依赖包安装完毕，为了编译 R-3.5.0，需将以上依赖环境添加至环境变量中，将以下内容添加至 bash 文件中，**vi ~/.bashrc**



```
[nsyw211_LZ@ywcn01 install]$ vi /home-yw/users/nsyw211_LZ/.bashrc
```

export LD_LIBRARY_PATH=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/zlib-

1.2.7/lib:$ LD_LIBRARY_PATH

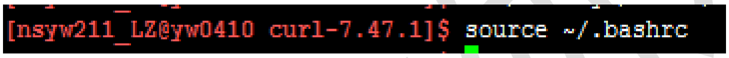
export LD_LIBRARY_PATH=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/bzip2-1.0.6/lib:$ LD_LIBRARY_PATH

export LD_LIBRARY_PATH=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2/lib:$ LD_LIBRARY_PATH

export LD_LIBRARY_PATH=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/pcre-8.38/lib:$ LD_LIBRARY_PATH

export LD_LIBRARY_PATH=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1/lib:$ LD_LIBRARY_PATH

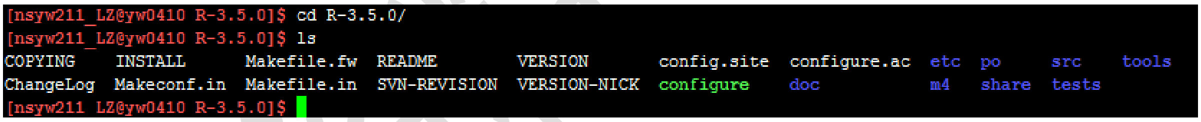
8. 输入后按 ESC 键，然后输入**: wq** 保存退出。
9. 修改之后 source 该环境变量，**source ~/.bashrc**



```
[nsyw211_LZ@yw0410 curl-7.47.1]$ source ~/.bashrc
```

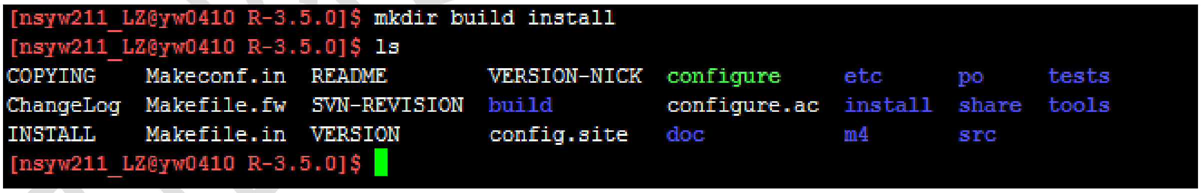
四、安装 R v3.5.0

1. 解压 R-3.5.0.tar.gz，**tar xvf R-3.5.0.tar.gz**
2. 进入 R-3.5.0 文件夹，查看，**cd R-3.5.0**



```
[nsyw211_LZ@yw0410 R-3.5.0]$ cd R-3.5.0/
[nsyw211_LZ@yw0410 R-3.5.0]$ ls
COPYING    INSTALL      Makefile.fw  README        VERSION       config.site  configure.ac  etc  po     src    tools
ChangeLog  Makeconf.in  Makefile.in  SVN-REVISION  VERSION-NICK  configure    doc           m4   share  tests
[nsyw211_LZ@yw0410 R-3.5.0]$
```

3. 创建文件夹 build 和 install，**mkdir build install**

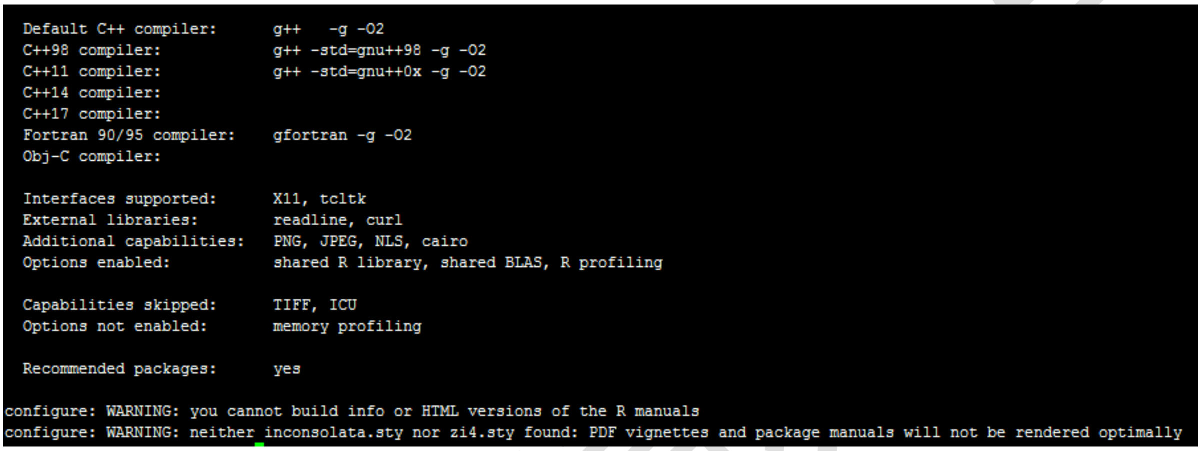


```
[nsyw211_LZ@yw0410 R-3.5.0]$ mkdir build install
[nsyw211_LZ@yw0410 R-3.5.0]$ ls
COPYING    Makeconf.in  README        VERSION-NICK  configure     etc      po     tests
ChangeLog  Makefile.fw  SVN-REVISION  build         configure.ac  install  share  tools
INSTALL    Makefile.in  VERSION       config.site   doc           m4       src
[nsyw211_LZ@yw0410 R-3.5.0]$
```

4. 进入 build 文件夹下，**cd build/**
5. 配置，**.**

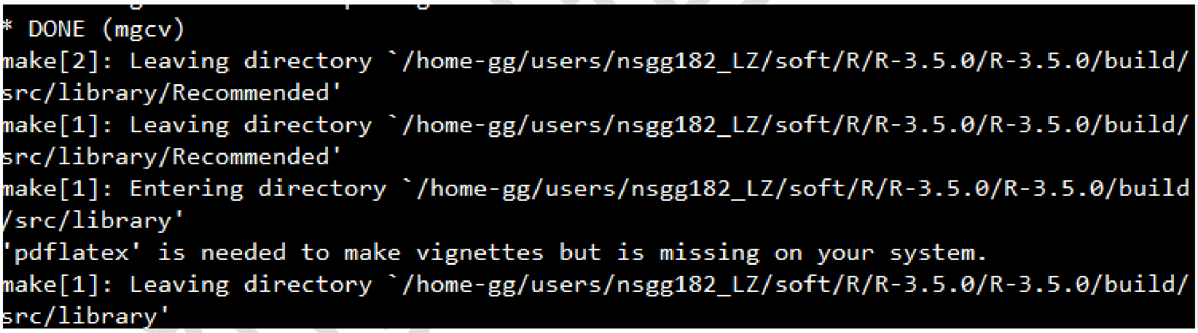
../configure --prefix=/home-yw/users/nsyw231_GJY/R-3.5.0/install --enable-R-shlib LDFLAGS="-L/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/zlib-1.2.7/lib -L/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/bzip2-1.0.6/lib -L/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2/lib -L/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/pcre-8.38/lib -L/home-

yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1/lib" CPPFLAGS="-I/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/zlib-1.2.7/include -I/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/bzip2-1.0.6/nclude -I/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/xz-5.2.2/include -I/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/pcre-8.38/include -I/home-yw/users/nsyw211_LZ/soft/R-3.5.0/LIBRARY/curl-7.47.1/include"



```
  Default C++ compiler:      g++   -g -O2
  C++98 compiler:            g++ -std=gnu++98 -g -O2
  C++11 compiler:            g++ -std=gnu++0x -g -O2
  C++14 compiler:
  C++17 compiler:
  Fortran 90/95 compiler:    gfortran -g -O2
  Obj-C compiler:

  Interfaces supported:      X11, tcltk
  External libraries:        readline, curl
  Additional capabilities:   PNG, JPEG, NLS, cairo
  Options enabled:           shared R library, shared BLAS, R profiling

  Capabilities skipped:      TIFF, ICU
  Options not enabled:       memory profiling

  Recommended packages:      yes

configure: WARNING: you cannot build info or HTML versions of the R manuals
configure: WARNING: neither inconsolata.sty nor zi4.sty found: PDF vignettes and package manuals will not be rendered optimally
```

6. 若无报错，编译，**make**



```
* DONE (mgcv)
make[2]: Leaving directory `/home-gg/users/nsgg182_LZ/soft/R/R-3.5.0/R-3.5.0/build/
src/library/Recommended'
make[1]: Leaving directory `/home-gg/users/nsgg182_LZ/soft/R/R-3.5.0/R-3.5.0/build/
src/library/Recommended'
make[1]: Entering directory `/home-gg/users/nsgg182_LZ/soft/R/R-3.5.0/R-3.5.0/build
/src/library'
'pdflatex' is needed to make vignettes but is missing on your system.
make[1]: Leaving directory `/home-gg/users/nsgg182_LZ/soft/R/R-3.5.0/R-3.5.0/build/
src/library'
```

7. 若无报错，安装，**make install**

8. 若无报错，则安装成功。

9. 添加 R 的环境至 bash 文件中，**vi ~/.bashrc**

   export PATH=/home-yw/users/nsyw211_LZ/soft/R-3.5.0/R-3.5.0/install /bin:$PATH

10. 输入后按 ESC 键，然后输入**: wq** 保存退出。

五、安装过程中的报错说明（R-3.5.0、3.3.0）

1. R 软件在安装新版本时会出现报错信息，如:

configure: error: --with-x=yes (default) and X11 headers/libs are not available

则需要安装相应的库文件 libreadline-dev、readline-common，由于普通用户账号无权限，需要系统部同事协助安装库文件

2. 报错：checking whether zlib support suffices... configure: error: zlib library and headers are required

   需要安装 zlib1.2.5 以上版本

   安装 zlib（参考 zlib 安装教程）

3. 报错: checking whether bzip2 support suffices... configure: error: bzip2 library and headers are required

   安装 bzip2

4. 报错：configure: error: "liblzma library and headers are required"

   安装 xz

5. 报错：checking whether PCRE support suffices... configure: error: pcre >= 8.20 library and headers are required

   安装 pcre-8.38

6. 报错，configure: error: libcurl >= 7.22.0 library and headers are required with support for https

   安装 curl-7.47.1

注：如有问题请发邮件至：service@nsccsz.gov.cn