

Ubuntu14.04 用 arm-linux-gcc 配置交叉编译环境问题

1、将压缩包 arm-linux-gcc-4.4.3.tar.gz 存放在一个目录下,这里我是放在/usr 目录下

```
ubuntu@ubuntu:~/Desktop$ cd /usr/  
ubuntu@ubuntu:/usr$ ls  
bin  games  include  lib  lib32  local  opt  sbin  share  src  
ubuntu@ubuntu:/usr$ cd opt/FriendlyARM/toolschain/4.5.1/  
ubuntu@ubuntu:/usr/opt/FriendlyARM/toolschain/4.5.1$ ls  
arm-none-linux-gnueabi/  bin/  lib/  libexec/  share/  
ubuntu@ubuntu:/usr/opt/FriendlyARM/toolschain/4.5.1$ ls  
arm-none-linux-gnueabi  bin  lib  libexec  share  
ubuntu@ubuntu:/usr/opt/FriendlyARM/toolschain/4.5.1$ cd bin  
ubuntu@ubuntu:/usr/opt/FriendlyARM/toolschain/4.5.1/bin$ pwd  
/usr/opt/FriendlyARM/toolschain/4.5.1/bin  
ubuntu@ubuntu:/usr/opt/FriendlyARM/toolschain/4.5.1/bin$
```

2、接下来配置系统环境变量，把交叉编译工具链的路径添加到环境变量 PATH 中去，这样就可以在任何目录下使用这些工具。记下上一步中的安装路径，使用命令：sudo gedit /etc/environment 编辑 environment 文件，添加环境变量。

/usr/opt/FriendlyARM/toolschain/4.5.1/bin

添加前：

PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games"

添加后：

PATH="/usr/opt/FriendlyARM/toolschain/4.5.1/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games"

最后在终端中输入下述命令，使修改生效。

source /etc/environment

3、验证是否正确的加入了环境变量

```
ubuntu@ubuntu:~/Desktop$ echo $PATH
/usr/opt/FriendlyARM/toolschain/4.5.1/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games
ubuntu@ubuntu:~/Desktop$
```

显示环境变量已经正确加入到系统的环境配置文件中了。

4、验证 arm-linux-gcc 版本

打开终端输入 arm-linux-gcc -v

使用命令：arm-linux-gcc -v 会出现下面的错误提示

/home/ubuntu/usr/opt/FriendlyARM/toolschain/4.4.3/bin/arm-linux-gcc:

No such file or no such dictionary.

在终端上输入命令 arm-linux 再按 Tab 键，可以看到下图，说明环境变量设置成功了

```
ubuntu@ubuntu:~/Desktop$ arm-linux-
arm-linux-addr2line  arm-linux-gcc          arm-linux-objcopy
arm-linux-ar          arm-linux-gcc-4.5.1  arm-linux-objdump
arm-linux-as          arm-linux-gccbug     arm-linux-populate
arm-linux-c++         arm-linux-gcov       arm-linux-ranlib
arm-linux-cc          arm-linux-gprof      arm-linux-readelf
arm-linux-c++filt     arm-linux-ld         arm-linux-size
arm-linux-cpp         arm-linux-ldd        arm-linux-strings
arm-linux-g++         arm-linux-nm         arm-linux-strip
ubuntu@ubuntu:~/Desktop$ arm-linux-
```

这里产生的原因是：说是出现这种问题的原因是由于 Ubuntu1404 用的是 64 位的，解决

方法就是使用命令：sudo apt-get install ia32-libs 装一些 32 位的库。

```
ubuntu@ubuntu:~/Desktop$ sudo apt-get install ia32-libs
[sudo] password for ubuntu:
Reading package lists... Done
Building dependency tree
Reading state information... Done
Package ia32-libs is not available, but is referred to by another package.
This may mean that the package is missing, has been obsoleted, or
is only available from another source
However the following packages replace it:
  lib32z1 lib32ncurses5 lib32bz2-1.0

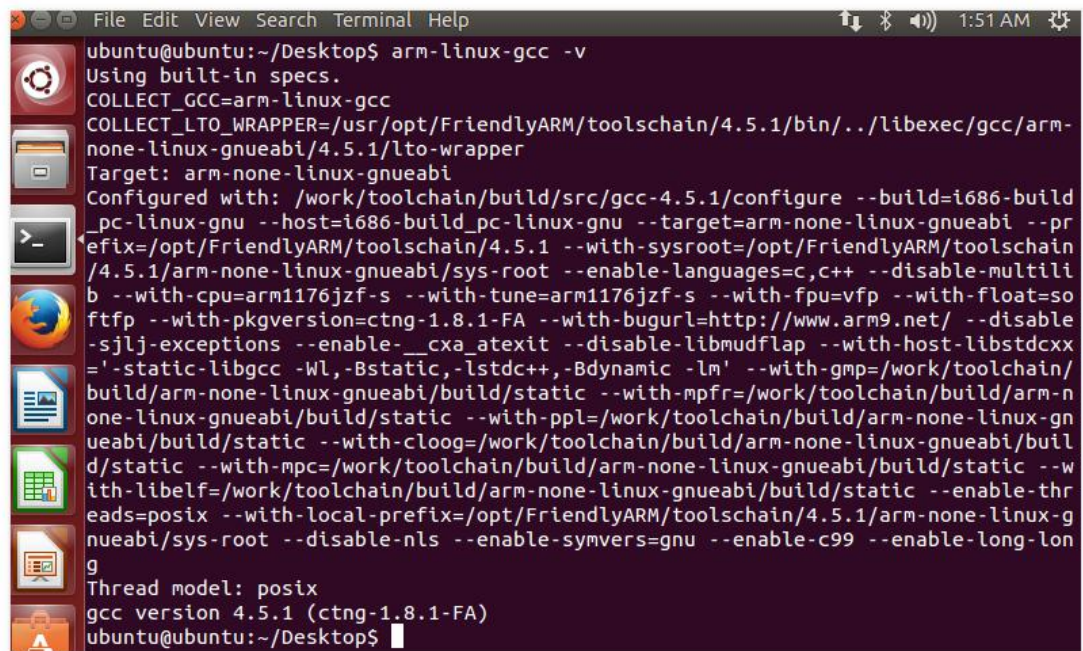
E: Package 'ia32-libs' has no installation candidate
ubuntu@ubuntu:~/Desktop$
ubuntu@ubuntu:~/Desktop$
```

安装的过程中可能会产生依赖关系：

直接将 `sudo apt-get install ia32-libs` 安装命令替换为

```
sudo apt-get install lib32z1 lib32ncurses5 lib32bz2-1.0
```

安装完成，继续验证。

A terminal window titled 'Terminal' showing the command 'arm-linux-gcc -v' and its output. The output displays the GCC version (4.5.1) and a detailed list of configuration options used to build the cross-compiler for ARM-none-linux-gnueabi. The terminal window has a standard Ubuntu 14.04 desktop environment background with various icons on the left sidebar.

```
ubuntu@ubuntu:~/Desktop$ arm-linux-gcc -v
Using built-in specs.
COLLECT_GCC=arm-linux-gcc
COLLECT_LTO_WRAPPER=/usr/opt/FriendlyARM/toolchain/4.5.1/bin/./libexec/gcc/arm-
none-linux-gnueabi/4.5.1/lto-wrapper
Target: arm-none-linux-gnueabi
Configured with: /work/toolchain/build/src/gcc-4.5.1/configure --build=i686-build
_pc-linux-gnu --host=i686-build_pc-linux-gnu --target=arm-none-linux-gnueabi --pr
efix=/opt/FriendlyARM/toolchain/4.5.1 --with-sysroot=/opt/FriendlyARM/toolchain
/4.5.1/arm-none-linux-gnueabi/sys-root --enable-languages=c,c++ --disable-multili
b --with-cpu=arm1176jzf-s --with-tune=arm1176jzf-s --with-fpu=vfp --with-float=so
fftp --with-pkgversion=ctng-1.8.1-FA --with-bugurl=http://www.arm9.net/ --disable
-sjlj-exceptions --enable-__cxa_atexit --disable-libmudflap --with-host-libstdcxx
='-static-libgcc -Wl,-Bstatic,-lstdc++,-Bdynamic -lm' --with-gmp=/work/toolchain/
build/arm-none-linux-gnueabi/build/static --with-mpfr=/work/toolchain/build/arm-n
one-linux-gnueabi/build/static --with-ppl=/work/toolchain/build/arm-none-linux-gn
ueabi/build/static --with-cloog=/work/toolchain/build/arm-none-linux-gnueabi/buil
d/static --with-mpc=/work/toolchain/build/arm-none-linux-gnueabi/build/static --w
ith-libelf=/work/toolchain/build/arm-none-linux-gnueabi/build/static --enable-thr
eads=posix --with-local-prefix=/opt/FriendlyARM/toolchain/4.5.1/arm-none-linux-g
nueabi/sys-root --disable-nls --enable-symvers=gnu --enable-c99 --enable-long-lon
g
Thread model: posix
gcc version 4.5.1 (ctng-1.8.1-FA)
ubuntu@ubuntu:~/Desktop$
```