Android 2.3 Build Environment on Ubuntu 10.04 64-bit Installation SOP

Revision: 1.11

Revision History

Revision	Date (mm/dd/yyyy)	Author	Comments
1.00	08/10/2010	Alex Lin Hailong Liu	Create initial version 1.0
1.01	09/17/2010	Luna Yu Hailong Liu	Upgrade arm-eabi compilation tool chain version from 4.2.1 to 4.4.0
1.02	09/26/2010	Luna Yu Hailong Liu	Update Python version in “environment requirement” section, fixed in 2.5.X
1.10	10/26/2010	Luna Yu Hailong Liu	Update SOP layout
1.11	02/28/2011	Yuming Zhang Hailong Liu	1. Update “Environment Requirement” chapter a. OS version, python, JDK 2. Update “Install Software and Compilation Tool Chain” chapter a. 3 instalation ways (apt-get, dpkg, tarball)

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1 Environment Requirement

1.1 Operating System

1.1.1 Linux Ubuntu10.04(LTS, long term support version) 64bit

1.1.2 Windows / Mac are NOT supported

1.2 Memory & Disk Space

1.2.1 2+ G physical memory

a. Avoid "JVM run out of memory"

b. Speed up build performance

1.2.2 10+G or more disk space is needed (to build Android tree)

1.3 Make Utility

1.3.1 GNU Make v3.81 or above

1.4 Perl, Python Interpreter

1.4.1 Perl 5.8.X

1.4.2 Python 2.6.X

1.5 Compilation Tools

1.5.1 arm-eabi-4.4.0 (can get from released SW package, prebuilt/linux-x86/toolchain/arm-eabi-4.4.0)

1.5.2 GCC 4.1.2

1.5.3 JDK1.6

1.6 Others

1.6.1 wine 1.1 or above

2 O.S. Installation

2.1 Download Ubuntu 10.04 x64 DVD Desktop version

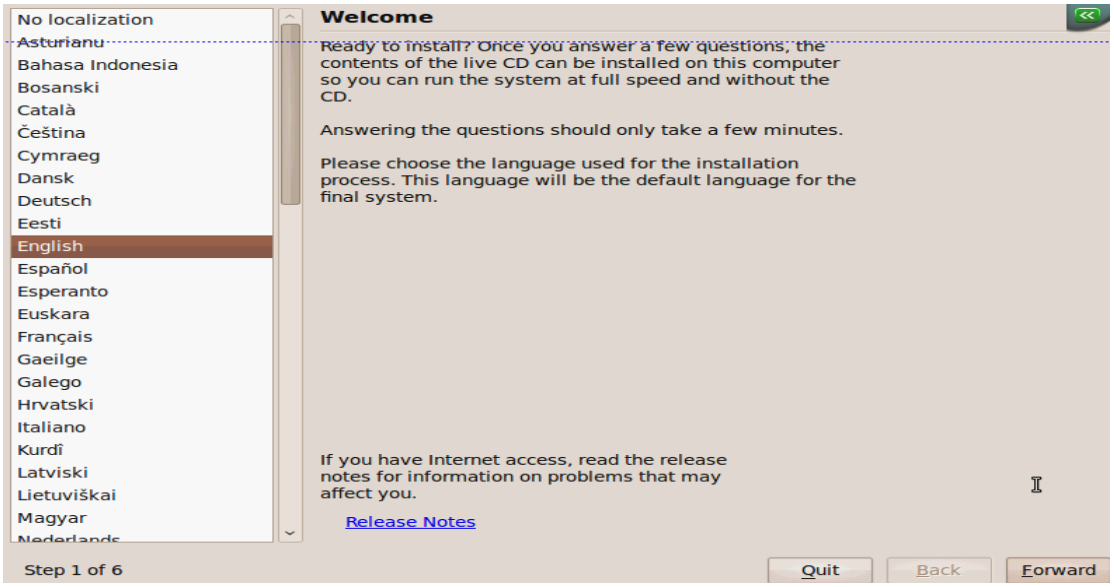
http://cdimage.ubuntu.com/releases/10.04.1/release/ubuntu-10.04-dvd-amd64.iso

2.2 Start the installation

2.2.1 Install menu language: English

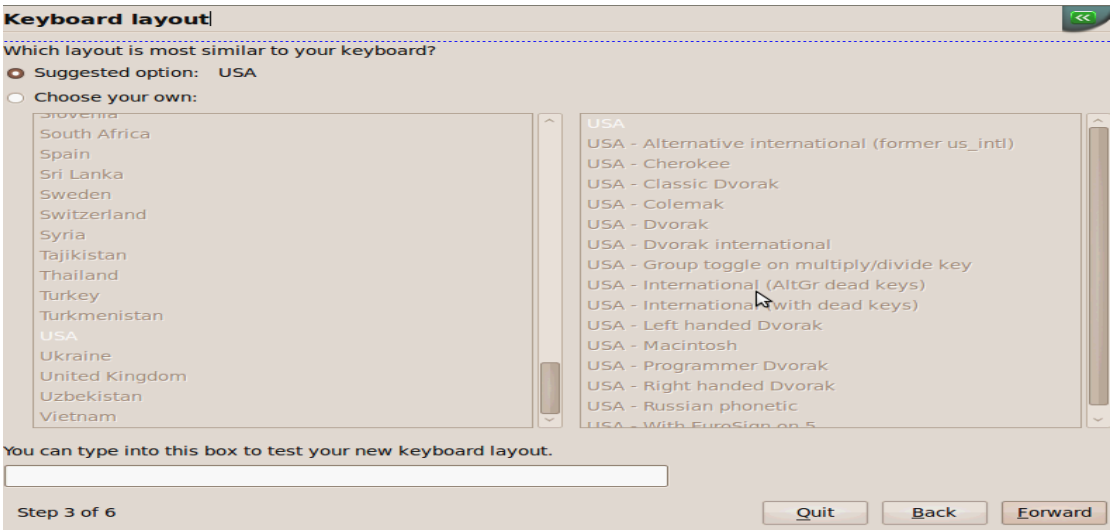
2.2.2 Install Ubuntu

2.2.3 Localization: English



2.2.4 Timezone & Coventions: Asia (China Shanghai)

2.2.5 KeyBoard Layout: USA



2.2.6 Prepare disk space: Erase and use the entire disk

2.2.7 Who are you?

2.2.8 Press Install and Start to install

2.3 Install xrdp 0.5 (Optional)

xrdp is An open source remote desktop protocol(rdp) server. User can RDP the ubuntu after you install xrdp server. Ubuntu 10.04 didn't support xrdp 0.5, so you need add ubuntu 10.10 apt repository to /etc/apt/sources.list. (Note: xrdp 0.5 support Windows XP)

2.3.1 Modify /etc/apt/sources.list

$ sudo vi /etc/apt/sources.list

deb http://archive.ubuntu.com/ubuntu/ lucid main restricted universe multiverse

deb http:// archive.ubuntu.com/ubuntu/ lucid-updates main restricted universe multiverse

deb http:// archive.ubuntu.com/ubuntu/ lucid-security main restricted universe multiverse

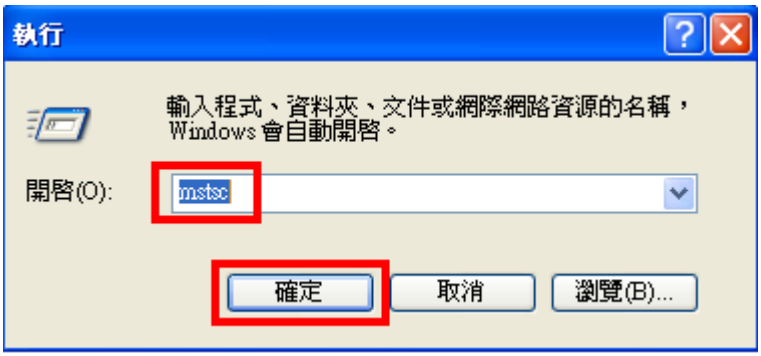
#Ubuntu 10.10 APT repository

deb http://archive.ubuntu.com/ubuntu maverick main restricted universe multiverse

2.3.2 Install and verify xrdp 0.5

```
#apt-get install xrdp
# dpkg -l | grep xrdp
ii  xrdp                    0.5.0~20100303cvs-4          Remote Desktop Protocol
(RDP) server
```

2.3.3 Press “Windows+R” on keyboard, and enter “mstsc” command.



2.3.4 The RDP Connection will start. Enter the host name and connect.

2.3.5 Use your username and password to login.

2.3.6 Remove Ubunbtu 10.10 and Keep Ubuntu 10.04 APT repository

$sudo vi /etc/apt/sources.list

deb http://archive.ubuntu.com/ubuntu/ lucid main restricted universe multiverse

deb http:// archive.ubuntu.com/ubuntu/ lucid-updates main restricted universe multiverse

deb http:// archive.ubuntu.com/ubuntu/ lucid-security main restricted universe multiverse

3 Install Software and Compilation Tool Chain

3.1 Required Packages & recommend installation way

	Built-In	Apt-get	DPKG	TARBALL
Gnupg (1.4.10)		√		
Flex (2.5.35)		√		
Bison (2.4.1)		√		
Gperf (3.0.3)		√		
build-essential (11.4)		√		
Zip (3.0)		√		
Curl (7.19.7)		√		
zlib1g-dev (1.2.3.3)		√		
gcc-4.1		√		
g++-4.1		√		
g++-4.1-multilib		√		
libc6-dev-i386 (2.11.1)		√		
lib32ncurses5-dev (5.7)		√		
ia32-libs (2.7)		√		
x11proto-core-dev (7.0.16)		√		
libx11-dev (1.3.2)		√		
lib32readline5-dev (5.2)		√		
lib32z1-dev (1.2.3.3)		√		
ARM-EABI				√
JDK				√
WINE		√		
PERL	√			
PYTHON	√			
GNU Make	√			

3.2 Install build relative packages

1. Login As your account name
2. Make your Ubuntu has ability to go on internet
3. Applications → Accessories → Terminal → Run sudo su → apt-get update
4. Update apt information

```
$sudo su -
[sudo] password for android:******
root@z200:~# apt-get update
```

5. Install packages

```
# apt-get install  gnupg flex bison gperf build-essential zip curl zlib1g-dev gcc-4.1 g++-4.1 g++-4.1-multilib libc6-dev-i386 lib32ncurses5-dev ia32-libs x11proto-core-dev libx11-dev lib32readline5-dev lib32z-dev wine
```

6. Change default sh soft link to bash

```
# rm /bin/sh
# ln -s /bin/bash /bin/sh
```

7. Confirm default gcc compile soft link to gcc-4.1

```
# cd /usr/bin
#rm gcc g++
#ln –s gcc-4.1 gcc
#ln –s  g++-4.1 g++
```

3.3 Install arm-eabi-4.4.0

1. Download arm-eabi-4.4.0

   Go to http://android.git.kernel.org/?p=platform/prebuilt.git;a=tree;f=linux-x86/toolchain/arm-eabi-4.4.0 --> Click 「snapshot」or run the following command on Linux box.

   wget
   http://android.git.kernel.org/?p=platform/prebuilt.git;a=snapshot;h=0f1763c115040381493278dde810a69e4bc37a76;sf=tgz

Figure 1：download arm-eabi-4.4.0

2. Install arm-eabi-4.4.0

```
#tar zxvf prebuilt-0f1763c115040381493278dde810a69e4bc37a76.tar.gz –C /opt
# mv /opt/prebuilt/ /opt/arm-eabi-4.4.0/
```

3.4 Install JDK 1.6

3.4.1 Download JDK 1.6

Go to http://java.sun.com/javase/downloads/5u22/jdk

Figure 2：Select Platform and Language for your download

3.4.2 Click jdk-6u23-linux-x64.bin

Figure 3：Click jdk-6u23-linux-x64.bin

3.4.3 Install SDK 1.6

Put jdk-6u23-linux-x64.bin to **/opt** directory.

```
Put jdk-6u23-linux-x64.bin to /opt directory
# chmod a+x jdk-6u23-linux-x64.bin
# ./jdk-6u23-linux-x64.bin
```

4 Configure Build Profile

4.1 Create android build environment profile

Create android build environment profile **/etc/android.conf**

```
# android profile
JAVA_HOME=/opt/jdk1.6.0_23
export JAVA_HOME

ANDROID_JAVA_HOME=/opt/ jdk1.6.0_23
export ANDROID_JAVA_HOME

PATH=/opt/arm-eabi-4.4.0/bin:/opt/jdk1.6.0_23/bin:/opt/wine-1.1.33/bin:$PATH
export PATH
```

4.2 Change android profile file before build the codebase

```
$source /etc/android.conf
# ./mk ds269 new
```