

Preparing Ubuntu 10.10 for Linux and Android development on the i.MX53

A lot of people have asked how the laptops used for the i.MX53 Android/Linux trainings were configured. The training slides can be found here: <http://imxcommunity.org/group/imx53quickstartboard/forum/topics/imx53-quick-start-board-1>

This document explains how to prepare the a fresh install of Ubuntu 10.10 (either on a virtual machine or an actual PC) for the Freescale Linux/Android i.MX53 Quickstart training. It covers what is necessary to run these labs, but different use cases might require additional setup (not covered in this document).

Note: you do not have to use a virtual machine, but you might find it more suitable for many different reasons (e.g. easier deployment). On the other hand, installing Ubuntu 10.10 natively will give you better performance and faster build times.

Contents

- This document
- *training_mx53.tar.gz* (lab directory stucture)

Hardware requirements

- i.MX53 Quick Start kit
- 1 micro SD card (2GB or larger)
- SD Card reader (+ converter for micro SD cards)
- Serial port (USB to serial adapter or UART)

Configuring VMware

If you are using a virtual machine, here are the settings that we have used to prepare the labs:

- VMware Workstation 7 (Other Virtual Machine programs are not documented here. VMware Player is free for personal use but could not be used in this environment)
- Configure VMware to use:
 - The optimal number of CPUs (as many as physically available for the host operating system).
 - At least 1GB of RAM (2GB are recommended).
 - At least 15GB hard drive.
 - Configure the Network Adapter for 'Bridged' networking.

Installing Ubuntu

Note: From now on, the instructions will apply to both native and VM development environments. There is not functional difference between the VM and a native host.

- Download Ubuntu 10.10 **32-bit** from: <http://releases.ubuntu.com/10.10/ubuntu-10.10-desktop-i386.iso>
- Install Ubuntu in the VM/host, with the following settings:
 - Partitioning (The “*All files in one partition*” scheme available with *Guided Partitioning* is suitable):
 - 2GB swap
 - > 10GB for / (one single partition can be used for the whole root mount point)
 - Login information:
 - User: freescale
 - Password: freescale

Note: Whenever prompted for the admin password, it will be ‘*freescale*’. This also applies to all the commands issued with *sudo*.
- Boot Ubuntu.
- Update the package list (you need to be connected to the network):
> `sudo apt-get update`
- Install all updates:
> `sudo update-manager -p`
and click on “*Install Updates*” in the *Update Manager*.
- Restart the VM/host.

Preparing the lab directory structure

- Extract *training_mx53.tar.gz* (attached) to your *HOME* directory (e.g. */home/freescale*). You should have:
 - *~/training_mx53/linux*
 - *~/training_mx53/android*and their subdirectories.

Preparing the Linux labs

LTIB

- Prepare the host for LTIB by running *~/training_mx53/linux/prepare_ltib.sh*. All the

required packages will be downloaded (needs to be connected to the internet!), installed and set up (the script will prompt for admin rights when required).

- Download the BSP ([L2.6.35 11.01 ER SOURCE](http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=IMX53QSB&fbsp=1&tab=Design_Tools_Tab#)) from: http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=IMX53QSB&fbsp=1&tab=Design_Tools_Tab# and **save the archive to ~/training_mx53/linux/download**
- Install LTIB:

```
> cd ~/training_mx53/linux
> ./install_ltib.sh
```
- Agree to the license and install LTIB to `/home/freescale/training_mx53/linux/`
- Grant the rights for `rpm`:

```
> sudo visudo
```

and add the following line at the end of the file:

```
freescale ALL = NOPASSWD: /usr/bin/rpm, /opt/freescale/ltib/usr/bin/rpm
```
- Configure LTIB:

```
> cd ~/training_mx53/linux/ltib
> ./ltib -c
```
- When prompted: choose the following parameters:
 - Screen 1:
 - Platform choice: **(Freescale iMX reference boards)**
 - Screen 2:
 - Choose the platform type: **mx5x**
 - packages profile: **use packages in preconfig (Min profile)**
 - Screen 3 (LTIB main menu):
 - Choose your board for u-boot: **mx53_loco**
 - Package list, add:
 - **amd-gpu-bin-mx51**
 - **libz160-bin**
 - **strace**
- Exit and save. LTIB will build U-Boot, the root filesystem and the kernel.

Ubuntu ARM

- Using the following page: http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=IMX53QSB&fbsp=1&tab=Design_Tools_Tab#
 - Download [UBUNTU RFS DEMOIMG 1101](#) and [L2.6.35 MX53 ER 1101 IMAGE](#)
 - Save these files to `~/training_mx53/linux/download`

Android

- Download the Android SDK from:
http://dl.google.com/android/android-sdk_r10-linux_x86.tgz

Save it to `~/training_mx53/android/download`.

- Repeat the procedure for:
 - ADT plugin: <http://dl.google.com/android/ADT-10.0.0.zip>
 - Android NDK: <http://dl.google.com/android/ndk/android-ndk-r5b-linux-x86.tar.bz2>
 - Eclipse 3.6.2 classic: <http://www.eclipse.org/downloads/download.php?file=/eclipse/downloads/drops/R-3.6.2-201102101200/eclipse-SDK-3.6.2-linux-gtk.tar.gz>
- Prepare your host for Android development:
 - > `cd ~/training_mx53/android`
 - > `./prepare_android.sh`
 - When prompted, select 'Y' to install the java jre packages.
 - Accept the DLJ license terms
- Create a shortcut to the Eclipse executable (`~/training_mx53/android/eclipse/eclipse/eclipse`) in the "Quick launch" panel (change the icon using `icon.xpm` in the same directory as the executable)
- Start Eclipse.
- Create a workspace in `/home/freescale/training_mx53/android/workspace`.

Installing the Android SDK

- Start the android tools:
 - > `cd ~/training_mx53/android/sdk/android-sdk-linux_x86/tools`
 - > `./android`
- From the Available Packages panel, install:
 - SDK Platform Android 2.2
 - Android SDK platform tools
 - Samples for SDK API 8
- Choose *Install Selected* and accept the license for all packages.
 - If prompted to restart Android Debug Bridge (ADB), do so.

Installing the ADT plugin

Note: Instructions copied from <http://developer.android.com/sdk/eclipse-adt.html#installinguse%20internet%20procedure>

1. Start Eclipse, then select **Help > Install New Software...**
2. Click **Add**, in the top-right corner.
3. In the Add Repository dialog that appears, enter "ADT Plugin" for the *Name* and the following URL for the *Location*: <https://dl-ssl.google.com/android/eclipse/>
4. Note: If you have trouble acquiring the plugin, try using "http" in the Location URL, instead of "https" (https is preferred for security reasons).
5. Click **OK**.
6. In the *Available Software* dialog, select the checkbox next to *Developer Tools* and click **Next**.
7. In the next window, you'll see a list of the tools to be downloaded. Click **Next**.

8. NOTE: This tends to take a while (unpredictable).
9. Read and accept the license agreements, then click **Finish**.
10. When the installation completes, restart Eclipse.

Configuring the ADT Plugin

Once you haveve successfully downloaded ADT as described above, the next step is to modify your ADT preferences in Eclipse to point to the Android SDK directory:

1. Select **Window > Preferences...** to open the Preferences panel (Mac OS X: **Eclipse > Preferences**).
2. Select **Android** from the left panel.
3. For the *SDK Location* in the main panel, click **Browse...** and locate your downloaded SDK directory (*/home/freescale/training_mx53/android/sdk/android-sdk-linux_x86*)
4. Select **OK**.
5. Click **Apply**, then **OK**.

Android BSP and images

Get the latest images and instructions for the i.MX53 Quick Start Board from Adeneo Embedded:

<http://www.adeneo-embedded.com/en/Products/Board-Support-Packages/Freescale-i.MX53-QSB>