Developer Quickstart Guide

Disclaimer

WARNING: This device's primary purpose is a mobile telephone application development platform and is not intended as a primary end-user mobile device. This device is not assured to be bug-free and should not be used in safety critical environments or where confidentiality needs to be preserved.

This device is provided "AS IS", without warranty, and Trolltech disclaims, to the extent permitted by law, all liability. For more information about the intended limitations of use of this device, refer to the *Device User License Agreement* that accompanies this device

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1 Developer SDK Information

1.1 SDK Linux Installation

1. Download the latest version of VMWarePlayer from http://www.vmware.com.

2. Insert the Qtopia Greenphone SDK CDROM.

3. Go to the mount point of the CDROM drive.
   For example: `cd /mnt/cdrom` or `cd /media/cdrom`.

4. Run the `install.sh` script using either: `./install.sh` or `sh install.sh`.

5. Follow the instructions in the Qtopia Greenphone SDK installer.

6. Run VMPlayer and select `greenphone.vmx` from the SDK installation directory.

1.2 Setup on X86 for the Greenphone

The following setup instructions use X86 as an example:

In VMplayer:

1. Click the `runqvfb` icon to start QVFb with the Greenphone skin.

2. Click the `runqpe` icon to start Qtopia in the Greenphone skin.

3. Click the `Konsole` icon to open a console and enter the following commands:

   - `source /opt/Qtopia/SDK/scripts/devel-x86.sh`

   - `cd ~/projects/application`

   - `qtopiamake`

   - `make clean`

   - `make` (`make loud` displays compiler output)

   - `make install`

   - `gph -rescan`

   - `Launch your application from Qtopia.`

1.3 Connecting the Greenphone to the Development Environment

The Greenphone SDK requires the latest image to be loaded onto the device and there are two methods to do this as follows:

1. Updating via the USB cable (Preferred method).

2. Updating via the mini-SD flash process.

1.3.1 Update via the USB Cable

The process to update via the USB Cable is outlined below.

Note: Before commencing this process it is recommended to back-up all documents on the Greenphone as per the instructions in Section 1.5: *Transferring Documents To and From the Greenphone* as all existing documents will be deleted.

1. **Enable Networking on the Greenphone as follows:**

   ➢ Power on the Greenphone

   ➢ Ensure the USB cable is connected between the Greenphone and the PC.

   ➢ In Qtopia on the phone:

      • Start the **Internet Settings** application.

      • Select the **Ethernet Service** and activate it.

      Note: Be aware of any security considerations in your environment: your Greenphone is now online and `telnet` to it allows root access without a password.

2. **Enable Networking in the SDK as follows:**

In VMplayer:

   ➢ select **Prototype Product Vendor ID USB device**

   ➢ then run either of the following:

      • `updatedevice` to update the device with the default image from the SDK **or**

      • `updatedevice [image]` to update the device with the specified image.

   Note:

      • If the flashing process fails and renders the phone unusable, refer to section 1.3.2 to use the mini-SD card to recover the phone with the original image.

3. **Low-level Flash using `usbflash` Utility**

Use the following command and then follow the instructions in the console:

   ➢ `sudo usbflash /opt/Qtopia/extras/images/Qtopia-greenphone-flash`

Note: The Greenphone will automatically reboot once the flash process is complete.

1.3.2 Update via the mini-SD Flash Process

To update via the mini-SD flash process follow these steps:

1. Extract the Greenphone flash image to the mini-SD card from the tar file:
   ```
   sudo tar -xzf
   /opt/Qtopia/extras/images/qtopia-greenphone-update.tar.gz.
   ```

2. Power off the Greenphone.

3. Insert the mini-SD card into the Greenphone.

4. Power on the Greenphone.

5. The screen displays *Figure 1* to indicate that Qtopia is being flashed.

6. The flash process takes a few minutes.

7. The screen will change to either a *Figure 2* on success, or a *Figure 3* on failure.
   If flash is successful the phone will automatically power-off after several seconds of the Pass display. **Note:** If the phone is plugged into the charger or a PC, the phone will automatically restart after it has powered off.
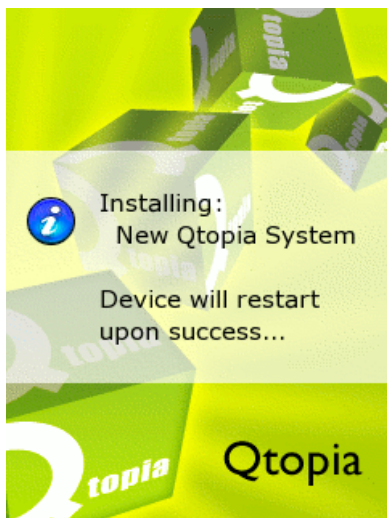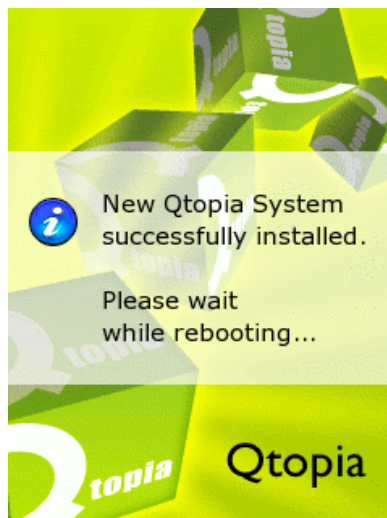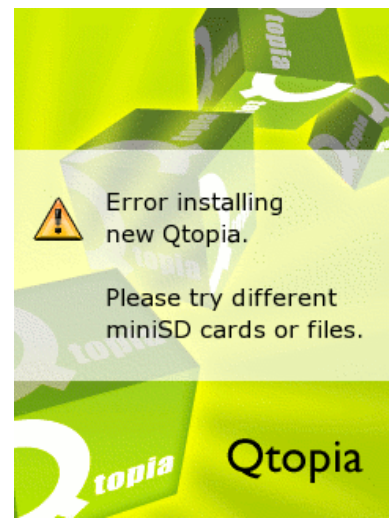

Figure 1: Flashing

Figure 2: Pass

Figure 3: Fail

8. Remove the mini-SD card and power off the Greenphone.

9. Power on the Greenphone.

Note: The initial boot will take approximately 3 minutes.

1.3.3 Setup, Develop and Create Packages for the Greenphone

The process to setup, develop and create packages for the Greenphone is as follows:

1. In VMPlayer, open the console and enter:

   - `source /opt/Qtopia/SDK/scripts/devel-greenphone.sh`

   - `cd ~/projects/application`

   - `qtopiamake`

   - `make clean`

   - `make` (`make loud` to display compiler output)

   - `gph -p`   ! create the package file

   - `gph -i`   ! install the package to the device

   - `gph -r`   ! run application on the device

1.3.4 Remote Debugging for Greenphone

To remotely debug Greenphone follow these steps:

1. `source /opt/Qtopia/SDK/scripts/devel-greenphone.sh`

2. `cd ~/project/application`

3. `qtopiamake -debug`

4. `make clean`

5. `make` (`make loud` to display compiler output)

6. `gph -p -i -r -debug`

7. Click the `arm-linux debugger` icon

8. Open the `example` executable program.

9. Click `run.`

To view debug information click the `Greenphone Log` icon.

Note: To rerun the example application it is necessary to repeat steps 6 and 8 above to re-initialize the remote connection to the Greenphone.

1.4   Installing Qtopia Source Code into the SDK

For information on installing Qtopia source code into the SDK please refer to: qtopia.net.

1.5   Transferring Documents To and From the Greenphone

To transfer documents to or from the Greenphone follow these steps:

1. Open the Greenphone `Internet` settings application.

2. Ensure the Ethernet connection indicates an `Online` status.

3. Open a Konsole on the SDK and enter the command: `gph -net`.

4. Open a Konqueror browser.

5. Select the bookmark `smb://gp/`.

6. Navigate the browser to `home/Documents`.

7. Files can now be copied to and from the Desktop or another Konqueror browser.

8. Open the `Devtools` application list.

9. Run the `Rescan Documents` application.

Files are now available in the Documents application.

1.6 gph Greenphone Utility

gph is a command line used to streamline the build process and simplify Greenphone related tasks such as network setup.

The following describes the command-line format and available options:

```
FORMAT: ./gph <options>

Options:
 -h          display command help
 -q          quiet mode
 -c          clean
 -C <opt>    reconfig <x86> or <greenphone>, default greenphone
 -b          make
 -p          make package
 -i          install package to greenphone
 -r          run application on greenphone
 -all        reconfig, make, make package, install, run
 -debug      force configure for debug build, override default
 -release    force configure for release build, override default

 -options "<opts>" pass extra options to build system
         eg. ./gph -C x86 -all -options "CONFIG+=debug"


 -net        bring up network to greenphone
 -console    console on greenphone
 -ipk <file> install ipk to greenphone, next arg it ipk filename
 -rescan     Tell Qtopia running in qvfb that new application exists
```

1.6.1 Examples

The following are examples of using `gph`:

1. Build for X86 - perform all build steps and run the application in QVFb:

    > ➢ run qvfb

    > ➢ run qpe

    > ➢ cd ~/project/application

    > ➢ gph -C x86 –b –i –rescan

    > ➢ Launch your application from Qtopia.

2. To build for Greenphone - perform all build steps then install and run the application on the Greenphone:

    > ➢ `cd ~/project/application`

    > ➢ `gph -C greenphone -all -c`