



**SDG Systems**  
**TDS Recon X-Series**  
**Linux® Software**

Qtopia User Guide

# Introduction

Thank you for your purchase of the TDS Recon running the Linux Operating System. The ruggedness of the Recon and the proven stability and flexibility of the Linux operating system make a great combination.

The following list shows the items you should have received in the package:

- TDS Recon rugged handheld computer
- 3800 mAH NmH battery (“PowerBoot”)
- 10-pack screen protectors
- Wrist strap
- 2-pack stylus
- Release Notes
- TDS documentation and CD-ROM
- USB cable
- This Qtopia User Guide

# Overview

Your TDS Recon running Linux comes with a manual from TDS. While the TDS manual covers the use of Windows Mobile operating system, it also contains important information about the Recon hardware. You should refer to the TDS document for a basic understanding of your Recon hardware.

Instead of Windows Mobile software, your Linux-based Recon comes with Qtopia from Trolltech, Inc.

The following table describes the use of the Recon keys in Qtopia:

<b><i>Key</i></b>	<b><i>Function</i></b>
Power	Used to suspend and resume the Recon, and to soft reset the Recon when pressed for approximately 12 seconds.
“Flag”	Used as the Qtopia “Home” key, it navigates between different tabs in Qtopia (Applications, Settings, etc.)
Left-Dash	The Left-Dash key is mapped to the Calendar application by default.
Right-Dash	The Right-Dash key is mapped to the Contacts application by default.
OK	The OK button is currently unused.
Enter	Accepts the current input in a dialog box, or launches the selected application.

<i>Key</i>	<i>Function</i>
Cursor keys	Navigates between options with Qtopia.

Some keys may be remapped using the Buttons application found in the Settings tab.

The Release Notes for the TDS Recon contain the latest information on known problems and configuration. Please refer to the Support section of the SDG Systems' web site at <http://sdgsystems.com/>.

## Communication Methods

Each Recon unit is equipped with a USB client port on the bottom of your Recon unit. In addition, your Recon X-Series unit may be optionally equipped with integrated 802.11 a/b/g wireless (Wi-Fi) and Bluetooth wireless technology. This section will tell you how to enable and disable each of these communication interfaces.

### *USB*

The USB interface may be used to communicate with the TDS Recon using either a Windows XP or Linux host computer.

To connect to the Recon using USB and a Windows XP host computer, you will need to install the [linux.inf](#) driver. This driver may be found on <http://sdgsystems.com/> in the Support FAQ section.

The Linux-based Recon uses the RNDIS protocol to connect to Windows XP. To install the driver, follow these steps. First, download the linux.inf driver to a well-known location, such as your Desktop. Second, plug in the Recon or other Linux device. When Windows prompts you for a driver, select that you would like to have this Networking driver installed from a specific location. Tell the setup wizard not to search for a driver. Next, if asked what hardware type, select "Network adapters." When prompted, select the "Have Disk" option and specify the location where you stored the linux.inf file. Select the "Linux USB Ethernet/RNDIS Gadget" and continue. If Windows warns that the driver has not passed Logo testing, select

"Continue Anyway". Finally, assign the IP address recommended in the release notes, or specific to your configuration by going into the Control Panel, Networking options. The Linux gadget device will have a name similar to "Local Area Connection 3".

All recent Linux host computer (e.g. RedHat, Debian, Ubuntu, SUSE, etc.) releases contain the usbnet kernel module for connecting to the TDS Recon "g\_ether" USB driver. Connecting the Recon to a host USB port will result in the usbnet module being loaded and a usbN (e.g. usb0) interface being created. Consult your Linux distribution documentation or use Internet search engines to determine the way to create networking interfaces on your distribution. (Hint: for Debian-based releases, network interfaces are managed in the /etc/network/interfaces file.)

## ***802.11***

The 802.11 interface is controlled using the taskbar "cardmon" applet. Use this applet to enable or disable the 802.11 interface. You should disable the 802.11 interface when not in use as a power-saving measure.

In order to connect to a wireless network, you must also configure a wireless Internet connection. The configuration utility for configuring the Internet is found on the Settings tab. To use the 802.11 interface, select the Services tab, then add a "WLAN – TCP / IP" service.

Once a WLAN service is configured and the 802.11 interface enabled using cardmon, a "globe" will appear in the taskbar. Use the globe to connect and

disconnect from the wireless network. Create different WLAN services for different wireless networks.

## *Bluetooth*

Bluetooth wireless technology is enabled or disabled using the Bluemon taskbar applet (Blue “B” applet). Bluemon may be used to start and stop the Bluetooth technology and search for devices within range of the Bluetooth radio.

The Bluetooth Management application in the Settings tab may be used to assign a PIN and a “rfcomm” interface to another Bluetooth device. Rfcomm is used to communicate with a Bluetooth device using the Serial Port Protocol (SPP). Some SPP devices include the Socket Communications' Cordless 56K Modem and most Bluetooth GPS receivers.

## Data Transfer

Data may be moved to and from your Recon in several ways: using a CF memory card, using the supplied USB cable (USB Ethernet), or using a wired or wireless communication mechanism (like the optional integrated 802.11).

The first way you can transfer data to and from the Recon is with Qtopia Desktop. Qtopia Desktop has a “Documents” section (along the left side of the application) that allows you to move data to a from the Recon. The Documents directory on the Recon is `/home/root/Documents`. Qtopia Desktop 2.2 may be downloaded from our web site in the Downloads section.

Since the TDS Recon is a small Linux computer, you may transfer data using traditional Linux tools, such as *scp* or *sftp* (or even log into the Recon using *ssh*). The Recon software includes *dropbear*, a light-weight ssh client and server. Should you find that *dropbear* does not meet your needs, a full OpenSSH software package is also available in the software repository.

Other Linux software, such as *samba* and *apache* are also available to meet your connectivity needs.



## Software Updates

From time to time, SDG Systems may issue software updates or bug fixes. These software updates will be announced on <http://sdgsystems.com/> and by RSS news feed (as listed on the our web site). Instructions for installing software updates will be included with the software update. The most recent Recon software release may be found at <http://familiar.sdgsystems.com/recon/updates/>.

Simple package updates (e.g. security bug fixes) will be released to the software repository. To upgrade your Recon, you may periodically perform an 'ipkg update' and 'ipkg upgrade' from the Terminal.

## Software Development

The SDG Systems' SDK for developing applications on the TDS Recon may be found at <http://familiar.sdgsystems.com/sdk/>. The SDK includes the libraries for building both Qtopia / Qt applications as well as GPE / GTK+ applications. (A Recon must be installed with GPE in order to run GTK+ applications. Please contact us if you desire to write GTK+ applications for the Recon.)

Tutorials on building Qtopia / Qt applications may be found at <http://doc.trolltech.com/2.3/> and at <http://doc.trolltech.com/qtopia2.1/html/>.

# Troubleshooting

*My Recon is not responding. How do I reset it?*

The Recon may be reset by pressing and holding the power button for approximately 12 seconds. If that fails, simply remove and re-insert the battery. Unless you were in the process of writing data when the Recon hung, you should not lose any user data.

*My Recon does not seem to respond to touchscreen input but the keys are working fine.*

Your calibration may be off. Perform a hard reset of the Recon, using the Power and Enter buttons simultaneously for about 12 seconds. When the Recon reboots, you will be presented with the initial calibration setup. Again, data will not be erased.

*I installed some “ipk” packages, but I cannot find them in Qtopia.*

If you installed other Qtopia applications, like the *qpdf2* PDF viewer, try restarting Qtopia from the Settings -> Shutdown application. Or, reboot the Recon.

*How do I get more help for my problems?*

The SDG Systems' web site is updated to contain the latest support and troubleshooting questions and answers. Please check the Support FAQ section at <http://sdgsystems.com/>.

## **Optional Hardware and Software**

SDG Systems has been supporting barcode scanning on Linux since 2002. We support the Socket Communications' CompactFlash and Bluetooth scanners. In addition, we support the Socket Bluetooth 56K Modem. For RFID, we have partnered with Brooks Automation, offering both the HF and LF CompactFlash cards.

If you have special needs, please contact us on how we may support your project. We offer software and consulting services.

## **Extended Warranty**

While the TDS Recon is designed to endure the most demanding environments, we all know that accidents can happen, especially with electronic equipment. SDG offers the TDS extended warranty program. You can extend the warranty period on your Recon any time during the first year for an additional one or two years. Please contact us for more details.

## Limited Warranty

SDG Systems warrants the TDS Recon hardware under the terms of the warranty provided by TDS. SDG Systems does not provide a separate or supplemental warranty.

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## **Contact Information**

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