Linux and Psion HOWTO

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Linux and Psion HOWTO

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This document describes how to use Psion palmtops with Linux, but does not cover running Linux on a Psion palmtop. See the Linux on Psion Project for that.

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1. About this HOWTO

1.1 Introduction

Psion has been making PDA's for years. This document will concentrate on the Series 5* models, e.g. Series 5, Series 5mx and Series 5mx PRO and the 32 bit EPOC operating system they come with, but there will be some crossover to older models such as the Series 3* and newer models such as the Series 7. There is also a little information about other series at the end of this document.

1.2 This Document

The latest version of this document can be found at http://home.pages.de/~lufthans/unix/docs/HOWTO/psion−HOWTO.html, but the main repository is the Linux Documentation Project (LDP).

Please send updates, corrections or suggestions to psion@LuftHans.com.

1.3 Mailing List

There is a mailing list dedicated to using Psions with Linux and developing tools to enhance communication between them.

To subscribe, send a message to plptools−developers−request@lists.SourceForge.net. John Schrader has put up a searchable list of messages from Oct 1998 through Feb 1999.

There is also a mailing list dedicated to porting Linux to the Psion 5* models at linux−7110−request@lists.SourceForge.net. An archive beginning 04Dec1999 is available at http://web.gnu.walfield.org/mail−archive/linux−7110/.

Both mailing lists can be searched through the SourceForge interface.

1.4 Copyright notice and disclaimer

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2. General Information

2.1 What is a Psion

Psion is a powerful Personal Digital Assistant (PDA) with pen−based touch screen as well as keyboard. There are several models. This HOWTO currently only covers the Series 5* models, e.g. Series 5, Series 5mx and Series 5mxPro.

2.2 Psion models

There are several models of Psion PDAs. All have a foldout case where the screen is in the cover and opening the Psion causes the keyboard to jut out to a more usable position. They also feature the instant on and instant off capabilities of the EPOC operating system.

Psion 3* are older PDAs that still have a lot of functionality and still get sold new due to their meeting needs and being lower cost. This HOWTO doesn't currently cover the Psion 3* series.

Psion 5* has two main product lines with each having two models. The Psion series 5 has a green limited edition counterpart with no functional difference between itself and the standard Series 5. The series 5mxPro, however, has some fundamental differences from the Series 5mx.

All four of the Series 5* products have: compact flash, serial port, keyboard and stylus (for the touchscreen). They all operate on 2 AA batteries and have a backup battery to maintain state when changing out the main batteries. Check out Akaev's site to take a tour of a dissected Series 5 classic.

Both of the Series 5 models as well as the Series 5mx have system ROMs where the EPOC operating system is stored. After boot they operate out of the RAM (8MB for the Series 5 models and 16MB for the Series 5mx). The Series 5mxPro, however, has no ROM and operates entirely out of its 24MB of RAM. This enables software upgrades to the Series 5mxPro, whereas the other 3 models must exchange hardware to update EPOC.

Psion has also released the Series 7, which is set to compete against the subnotebook class of PC, but running EPOC. They also have a Revo, which is smaller than the Series 5*.

2.3 Psion Availability

Psion products are no longer available at retail stores in the US. They are available from retail shops in Europe as well as through mail order. Psion maintains a list of mail order firms by country on their web site.

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3. Sharing data between the Psion and Linux

3.1 Hardware connectivity options

The Psions have both serial and infra red ports. Either can be used for connectivity, but most connectivity programs currently only have features for the serial port connection.

Serial cable

Armin Podtschaske x−rayed the "honda" connector.

Pin 1 is on the top and pin 15 is on the bottom. Only pins 2 through 8 and 15 are connected.

- Pin 2: RTS
- Pin 3: DTR
- Pin 4: TXD
- Pin 5: DSR
- Pin 6: DCD
- Pin 7: CTS
- Pin 8: RXD
- Pin 15: GND − Signal and Power ground
- Frame: GND − Shield frame ground

IrDA

See Werner Heuser's Infrared HOWTO for information about using the Linux IrDA driver with a Psion. It is possible to beam files from Psion 5 (mx) via Linux−IrDA to a Linux System. The irda−utils include a special client psion5.c which can beam files between them.

Builtin programs

There are two builtin software methods to use the communications ports. The first is the *remote link*, `<ctrl>-l` from the main file menu, which can be set to serial, infrared or off.

EPOC also provides the program `comms`. The remote link must be set to off for the `comms` program to have access to the serial port.

3.2 Programs for connectivity

plptools

Description

plptools was originally developed by Fritz Elfert, who had merged plp and p3nfs/p5nfs. plptools is currently being worked on by members of the PLP Tools project.

plptools comprises of 3 different programs. ncpd provides a socket connection to the Psion. plpnfsd provides mounted filesystem access to the Psion and plpftp provides ftp access to the Psion.

Usage

ncpd [−V] [−v logclass] [−d] [−p <port>] [−s <device>] [−b <baudrate>]

plpnfsd [−v] [−V] [−p port] [−d mountdir] [−u user]

First start ncpd get it to listen on a port (7501 by default) for connection requests. Then, start either plpnfsd or plpftp. plpnfsd defaults to mount the Psion under /mnt/psion.

p3nfs/p5nfs

Description

p3nfs mounts the psion drives over the serial cable at /psion.stand/mnt, by default.

ncp

Description

Matt Gumbley originally started ncp for use with his Psion Series 3. Now that he's working on plptools, you should use that :). However, ncp might still be of interest to users of a Psion Series 3, which this HOWTO doesn't cover :). Matt's ncp page also has information about the plp protocol.

3.3 Linux utilities

Psiconv

Description

Psiconv translates Psion Word documents or TextEd files (as used by the OPL editor, for example) to HTML (3.2 or 4.0) or plain text. It can also translate Sketch files and MBM files to almost any graphics format. A description of the Psion files formats is also included.

psiontobbdb

Description

psiontobbdb converts Psion vcard format from from the EPOC Contacts application to emacs BBDB format.

psiontognomecard

Description

psiontognomecard converts Psion vcard format from from the EPOC Contacts application GnomeCard vcard format.

kab2psion

Description

kab2psion is a small utility written in perl to create a CSV file from the KDE addressbook.

PsiLin

Description

PsiLin (in French, short english version) is a GTK−based graphical frontend for many programs which connect Linux to Psion. It also works for Series 3*.

Psion SDK

Description
The EPOC SDK works on Linux via WINE, see Olaf Flebbe's web page for instructions on how to get it working.

Xmakesys

Description
xmakesys is a perl utilility that parses Psion's .pkg files and outputs .sis files.

3.4 Psion utilities

hermes

Description
hermes is a fully featured vt100 emulator.

perl

Description
Olaf Flebbe has perl running under EPOC.

python

Description
Duncan Booth has python running under EPOC. (link currently down)

python

Description
Otfried Cheong also has a port of python for EPOC.

BProlog

Description
Tim Wentford has gotten Bprolog working on the Psion 5*.

Shell5

Description
Nick Murray has created Shell5, which is a command line interpreter which allows basic file operations as well as some sophisticated functions such as command history, filename expansion, batch file support, input and output redirection, pipe like feature :), aliases and shell variables, keyboard remapping and macros and UNIX or DOS syntax for pathnames.

E_Shell

Description

E−shell comes with the SDK and is a DOS−like shell environment from the EPOC SDK. It provides ways to launch programs from a command line; to check for file system corruption; to create, edit and display plain text files; to check on currently active processes and threads. The former link to download the shell itself has been removed.

c2f

Description

c2f converts the Psion contact file to a comma delimited format.

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4. Hardware Info

4.1 Hardware Troubleshooting

Hardware troubleshooting

4.2 Pictures of internals

Akaev has disassembled several handhelds and made lots of pictures available as tours.

Series 5 inside

Series 5mx x−ray 1

Series 5mx x−ray 2

4.3 Disassembly

Series 5 disassembly

Series 5 monitor disassembly

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5. Further Information

5.1 Psion Specs

Psion File Formats

Frodo Looijaard has released information about the information he's garnered from reverse engineering various Psion file formats.

PLP and NCP

Matt Gumbley has released some information about the PLP, Psion Link Protocol, and NCP.

SIS and PLP

Alexander Thoukydides has released some information about sis files as well as the PLP, Psion Link Protocol.

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6. Series 3

6.1 Further Information

As I said earlier, this HOWTO doesn't cover the Series 3 (e.g. 3/3a/3c/3mx/Sienna), however, as I run into information, I will try to place it here anyway. This section will probably never be organized (unless someone else keeps it uptodate), but it still might contain useful information.

6.2 Programs for connectivity

p3nfs/p5nfs

Description
: p3nfs, referenced above mounts the psion drives over the serial cable at /psion.stand/mnt, by default.

6.3 Psion utilities

nfsc

Description
: nfsc is a VT100 emulator from Rudolf König.

Shell3a

Description
: Nick Murray has created Shell3a, which is a command line interpreter which allows basic file operations as well as some sophisticated functions such as command history, filename expansion, batch file support, input and output redirection, pipe like feature :), aliases and shell variables, keyboard remapping and macros and UNIX or DOS syntax for pathnames.

PsiLin

Description
: PsiLin, mentioned in the Series 5* sections, also supports Series 3*

arb's Psion Software

Description

Various utilities for Series 3* from arb.

6.4 Informational Web Pages

Hardware Info

Zerlegeanleitung Psion Serie 3a, e.g. Disassembling a Series 3a (in German only)

A naked Series 3

Series 3 x–ray

Psion Link Protocol (for Psion 3)

PLP documentation

Generic FAQs

Series 3 FAQ: part 1, part 2, part 3, part 4

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7. Revo

7.1 Informational Web Pages

Hardware Info

Revo Inside
