PCTel HSP MicroModem Configuration mini–HOWTO

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First Release	

The purpose of this document is to guide you to make your PCTel HSP MicroModem work in GNU/Linux.

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1. Introduction

1.1. Copyright Information

1.2. Disclaimer

The methods described in this document might damage your data or your PC or both. The authors will not be responsible for any damage that might arise out of the use of this document. Use this document *ENTIRELY at your own risk.*

All copyrights are held by their respective owners, unless specifically noted otherwise. Use of a term in this document should not be regarded as affecting the validity of any trademark or service mark.

Naming of particular products or brands should not be seen as endorsements.

You are strongly recommended to take a backup of your system before major installation and backups at regular intervals.

1.3. New Versions

The latest version of this mini−HOWTO will always be made available in my homepage (many thanks to Peaceful Action for hosting my homepage) in a variety of formats:

- HTML.
- plain text.
- PDF.
- RTF.
- compressed html (multiple pages format).
- SGML source.

1.4. Credits

I am extremely grateful to the howtos[NO_SPAM]@frodo.hserus.net list members for their support, especially to USM Bish.

The members of the discuss@linmodems.org list have been very helpful too, specially in the initial phase of the howto−writing. I am also extremely grateful to Phil Richard Burchill, Rajesh Fowkar, KV Pham, Bram Vonk, Derek Cordeiro, Steven Sangster and Andrew Kar (akar) for their valuable suggestions and corrections.

The sgml−stuff has been done with the help of the template written by Stein Gjoen, Gregory Leblanc and

Greg Ferguson. I am also indebted to Greg Ferguson for cleaning up the mess I had made with Docbook :−).

1.5. Feedback

If you have any comments, criticisms, ideas, additions, corrections, then please do mail them to `<unmadindu_NO_SPAM_@Softhome.net>`. But for technical queries, we suggest that you ask at the discuss@linmodems.org mailing list.

Please do not mail me with your problems. You will *NOT* get any answer. For answers ask at discuss@linmodems.org.

1.6. Translations

- Portuguese Translation by Rafael Cardoso `<rafamvc_NO_SPAM_@yahoo.com.br>`

1.7. Conventions used in this document

We have used a number of special formatting to indicate warning messages, commands, filenames, computer outputs etc.

Bash commands
: **bash$ ls**

Notes
: NOTE

Cautions
: CAUTION

Info
: INFO

Warnings
: WARNING

Filename/Directory
: `/usr/src/linux/`

Applications
: application

Computer Output
: `no such file or directory`

Codes/scripts

```
#! /bin/bash
```

Large Computer Outputs

```
logfile begins
```

2. Purpose of the mini−HOWTO

The purpose of this document is to guide you to make your PCTel HSP MicroModem work in GNU/Linux.

First let me explain what is so "special" about these PCTel modems that made me write this guide. These modems fall in a special class of hardware, specifically made for M$−Windows systems, and have device drivers which are specific for M$−Windows ...These modems are also called "Winmodems" and are one of the most troublesome pieces of hardwares for GNU/Linux. Most of the winmodems do not work with GNU/Linux (the manufacturers use patented technologies and so drivers for these modems cannot be developed as Open Source). For a few of these winmodems, drivers have been developed

The PCTel modems belong to this category and fall under linmodems.

Please do note that PCTel provides proprietary drivers, and in the free world of GNU/Linux, proprietary drivers are not the solution. These drivers can turn out to be a great threat as the Free Software Movement evolves and matures. So, at the very beginning, please consider whether you want to surrender your "freedom" to PCTel, or whether you want to go out and buy a new modem which has a GPL'ed driver. I understand, that for many, buying a new modem is not possible, and hence, this doc exists. But whatever you do, please do send a mail to Mr. Jack Seller of PCTel's Public Relation department at this address asking PCTel to release the source code of their drivers.

Remember that when you are using proprietary drivers, you are giving up your freedom.

Though I am referring PCTel modems here, actually PCTel only manufactures the chips for these modems, so if you have say, XXX modem and you get a

```
00:09.0 Communication controller: PCTel Inc HSP MicroModem 56 (rev 01)
```

when you issue the **bash$ lspci** command, then do not worry, you have what we call a PCTel linmodem.

3. Where to get the drivers

Now let me come to the next obvious question, that is; Where are the drivers??

Well, if you are impatient, and if you have a 2.4x series kernel then go to

http://linmodems.technion.ac.il/pctel−linux/, and if you are stuck with the older 2.2.x kernels, go to http://modems.dewback.cl (the exact link for the file it self is http://modems.dewback.cl/pctel−2.2.tar.gz)

But there are a number of drivers in both the sites, and you will definitely feel confused..so read on.

4. Choosing a suitable driver

The driver version that you will have to use depends on the kernel version you have. To know your kernel version, you will have to issue the command

uname −r

If you see something like 2.2.x, go to http://modems.dewback.cl and download the pctel 2.2x drivers from the PCTel section of that site.

If you see something like 2.4x, go to http://linmodems.technion.ac.il/pctel−linux/ and download the pctel 0.9.6 (pctel−0.9.6.tar.gz) drivers from that site.

Also note that only the pctel 0.9.6 drivers have support for the new AMR modems.

5. Compiling and installing the drivers

The first requisite for installation is that you have a kernel source in `/usr/src/linux/` (see section 7.7) and it must be configured, that is, you should have done a **bash$ make configure** and **bash$ make dep** on it.

While doing these make sure that you have the source for your running kernel...for example, if you are running kernel 2.4.8 and if you have the source for kernel 2.4.9 in `/usr/src/linux/`, then the drivers would not work.

Moreover, you must configure the kernel with isapnp and pnp support and see to the fact that you don't have a smp/uniprocessor mismatch (that is, running uniprocessor kernel but having a kernel source with smp support in /usr/src/linux). Also, you will need a kernel which supports loadable modules.

And of course, you need to have gcc installed, check it by issuing the command **bash$ gcc −v** . If you do not get any errors, then everything is all right

If you have gcc version 3 or above , and have problems during compiling, please refer to this section in the FAQ.

5.1. Installing the 2.2x drivers.

Login as root.

Make sure that you have a 2.2.x kernel with the command **bash$ uname −r**

Check whether the downloaded files are in your current directory with the

bash$ ls

command. Then unpack the downloaded files with the command

bash$ tar −xzvf pctel−2.2.tar.gz

Once you have unpacked, you will be left with a `~/pctel` directory.

Move into that directory with the command

bash$ cd pctel/

There is an (`install.sh`) installation script that makes the job easier from now on.

Make this script executable with the command

bash$ chmod +x install.sh

Then, just run the script

bash$ ./install.sh

You will see a number of messages fly by as the appropriate device files/nodes are made in the /dev/ directory, the driver files are unpacked and then compiled and loaded into the memory.

Once the process is complete without any error messages (if you get any errors, proceed to the Troubleshooting section), you will find that a new directory called `lib/` has been created under directory `~/pctel/`. This `~/pctel/lib/` directory contains the drivers/modules that can be loaded into the kernel.

If you move into the `~/pctel/lib/` directory with

bash$ cd ~/pctel/lib/

and do a **bash$ ls**, you will find two files there, one called pctel.o and the other ptserial.o

These are the two modules that are to be loaded to make the modem work.

To load the modules, you will have to issue the commands

bash$ insmod pctel.o

bash$ insmod ptserial.o

from the `~/pctel/lib/` directory.

(The install.sh script automatically does this, so you don't need to do the insmod part after running the script, but once you reboot, you will have to load the modules by

bash$ cd `your pctel directory`/lib/

bash$ insmod pctel.o

bash$ insmod ptserial.o)

5.2. Installing the pctel−0.9.6 driver

Make sure that you have kernel 2.4.0 or greater by the command

bash$ uname −r

Unpack the downloaded files with the commands

bash$ tar −xzvf pctel−0.9.6.tar.gz

Now you will have a pctel−0.9.6 directory

cd into that with the command

bash$ cd pctel−0.9.6/

Now comes the complicated part.

To proceed further you will have to know what chip set your modem has.See section 9.4 for more information on this.

Once you have got the name of the chip set, just type one of the following commands (depending on the chip set)

If you have a PCT 789 chip set,

bash$ ./configure −−with−hal=pct789

If you have a CM8738 chip set,

bash$ ./configure −with−hal=cm8738

If you have a chip set integrated with an i8** chip set based box,

bash$ ./configure −−with−hal=i8xx

If you have a chip set integrated with an VIA 686a chip set based motherboard ,

bash$ ./configure −−with−hal=via686a

The configure script will run and a number of messages will fly past. Check for any error messages that may fly past. When you have the prompt again, (and if you have not got any errors), compile the drivers with the command

bash$ make

Then if you do not get any error messages , install the drivers with the command

bash$ make install

(You will have to be logged in as root for performing the last step)

Then just load the drivers with the commands

bash$ insmod pctel

bash$ insmod ptserial

NOTE: These commands can be issued from any directory as the insmod program will automatically find the drivers pctel.o and ptserial.o in `/lib/modules/`your kernel version`/misc/`)

NOTE: If you get a message that says `configure: error: You must have linux kernel >= 2.4.0 installed`, then please refer to section 8.1.1 for ways to solve this.

However, if you have an AMR modem, then you will have to use the 0.9.6 drivers.

5.3. Installing the pctel−0.8.6 driver

Use this driver only if you experience problems with the pctel−0.9.6 drivers

Make sure that you have kernel 2.4.0 or greater by the command

bash$ uname −r

Unpack the downloaded files with the commands

bash$ tar −xzvf 0.8.6.tar

Now you will have a pctel−0.8.6 directory

cd into that with the command

bash$ cd pctel−0.8.6/

Now comes the complicated part.

To proceed further you will have to know what chip set your modem has.See section 9.4 for more information on this.

Once you have got the name of the chip set, just type one of the following commands (depending on the chip set)

If you have a PCT 789 chip set,

bash$ ./configure −−with−hal=pct789

If you have a CM8738 chip set,

bash$ ./configure −with−hal=cm8738

If you have a chip set integrated with an Intel 810 chip set based motherboard from Intel,

bash$ ./configure −−with−hal=i810intel

If you have a chip set integrated with an Intel 810 chip set based motherboard from SIS,

bash$ ./configure −−with−hal=i810sis

If you have a chip set integrated with an VIA 686a chip set based motherboard ,

bash$ ./configure −−with−hal=via686a

The configure script will run and a number of messages will fly past. Check for any error messages that may fly past. When you have the prompt again, (and if you have not got any errors), compile the drivers with the command

bash$ make

Then if you do not get any error messages, install the drivers with the command

bash$ make install

(You will have to be logged in as root for performing the last step)

Then just load the drivers with the commands

bash$ insmod pctel

bash$ insmod ptserial

(these too, like in the case of the pctel−0.9.6 drivers, can be issued from any directory as the insmod program will automatically find the drivers pctel.o and ptserial.o in `/lib/modules/`your kernel version`/misc/`)

6. Testing the drivers

There is only one way to check whether the drivers are working or not. You will have to see if your modem is recognized or not. The driver makes a node for your modem at `/dev/ttyS15` , no matter what com port it may be in in MDOS/M Windows. `/dev/ttyS15` is symlinked to `/dev/modem` and as most programs search for a modem at `/dev/modem` first, you will not have to fiddle with the settings/configs of those programs. The program that I use to test my modem in GNU/Linux is minicom. If you have minicom installed, what you have to do is type

bash$ minicom

in a shell prompt or in a terminal emulator window. If everything is all right, you will see a *Initializing modem* message for a few seconds and then a screen with a blinking cursor. Just type in **ATZ** in that screen and hit the enter key. If you see a *OK* message, then, congratulations, your modem is working in GNU/Linux. Type in **ATI 3** and hit enter and you will see a *PCtel HSP56 MicroModem* output. If you get a error message, or if you fail to get any response from minicom proceed to the troubleshooting section. If everything is all right up to now, you can go ahead to configure your dialer software and connect to the internet, and please do take some time to submit your modem information to the compatibility database at http://pctelcompdb.sourceforge.net. Also, you may consider helping out the author. See this section for more information.

7. A few other points that must be noted.

Here are a few more points you might find to be of interest/useful.

7.1. The unofficial PCTel winmodem−Linux compatibility database.

There has been a lot of confusion over the −−*with−hal* option which has to be used with the configure script, and for that, I coded a MySQL−PHP driven database that takes in information from the modem owners, so that newbies can browse and search the database, and find their modems' chipsets. If you have a PCTel modem, then please do submit your modem information at http://pctelcompdb.sourceforge.net.

7.2. Loading the modules at automatically

Well, if you have the pctel.o and ptserial.o files in `/lib/modules/`your kernel version`/misc/` , you can just add these lines to your `/etc/modules.conf` file

```
# for pctel modem

alias char−major−62 ptserial

below ptserial pctel

# country code for pctel modem
options ptserial country_code=1
```

Run

bash$ depmod −a

after modifying your `/etc/modules.conf` .

In this case, running ppp would automatically load these modules. You can also write up some shell−script and put them in your `/usr/bin/` directory (I have a sample of such a script in the appendix section)

7.3. Country codes

The ptserial.o driver also lets you specify the country code, though for most situations, the default of USA is all right. If you still want to specify the country code, load the ptserial.o module with the command

bash$ insmod ptserial country_code=x

(where x is the country code you want) The list of country codes with the corresponding country names is listed below.

Table 1. Country Codes

Country Name	country_code
USA	1
France	2
Germany	3
Italy	4
Sweden	5
UK	6
Japan	7
Australia	8
Spain	9
Taiwan	10
Singapore	11
Korea	12
Switzerland	13
Norway	14
Netherlands	15
Belgium	16
Canada	17
Ireland	18
Portugal	19
Polan	20
Hungary	21
Finland	22
Denmark	23
Austria	24
South Africa	25
CTR21 Countries	26
China	27
Malaysia	28
Luxumburg	29
Greece	30
Iceland	31
New Zealand	32
Brazil	33

7.4. Other options while loading the modules.

The other options that you may want to use while loading ptserial.o are:

For all HALs :

− irq: Force to using irq #.

− iobase: Force to use iobase for modem detection.

Only for I810/VAI686A HALs:

− iobase1: Force the iobase 1

NOTE: if you want to set iobase or iobase1, you should use irq/iobase/iobase1 at same time.

Only for CM8738/PCT789 HALs:

− vendor_id: vendor ID of the modem

− device_id: device ID of the modem.

NOTE: vendor_id and device_id should be used at the same time, but you cannot combinate this two options with iobase, iobase prevail to (vendor/device)_id detection.

7.5. The sequence of loading/unloading the modules.

When you load the modules, you must load the pctel.o module at first

bash$ insmod pctel

and then the ptserial.o

bash$ insmod ptserial

While unloading, the sequence is reversed,

bash$ rmmod ptserial

bash$ rmmod pctel

7.6. Bugs in the pctel−0.9.6 and the 0.8.6 versions.

There is a serious bug in the drivers for the kernel 2.4x The modem often seems to stop working/hang while dialing out, and you get nothing but a beeeeeeeeee... sound from the modem speaker and later, the dialer gives a message `No Carrier` and disconnects.

This problem has no real workaround , but sometimes unloading and reloading of the modules work. For that the commands will be (assuming that you have the modules in `/lib/modules/'your kernel version`/misc/`)

bash$ rmmod ptserial

bash$ rmmod pctel

bash$ insmod pctel

bash$ insmod ptserial

You must exit from your dialer before trying to unload the drivers, otherwise you will get a `device or resource busy` error.

When the problems become too acute, the only solution seems to be rebooting.

It has been also noticed that sometimes, this problem is ISP dependent, with the problem surfacing when using a particular ISP.

7.7. Directory of the kernel source files

If you get an error saying `/usr/src/linux/include/linux/modversions.h : no such file or directory`, look in your /usr/src directory for the kernel source. The default location is `/usr/src/linux/` but some distributions may install the files somewhere else.

If you find that the files are somewhere else, say in the directory, `/usr/src/myspecialsource/` , do not try to move the files, just create a symbolic link with the command

bash$ ln −s /usr/src/myspecialdirectory/ /usr/src/linux/

In case of the PCTel−0.8.6 or newer drivers you can also specify the location of your kernel source by using the option

bash$ −−with−kernel−includes=your kernel source directory

during running the configure script.

7.8. PnP BIOS issues

As most computers are designed for M$−Windows operating systems, the BIOS of the computer assumes that you have a what it calls a "PnP OS installed". This may cause trouble with these types of modems in GNU/Linux (specially if you have resource conflicts) and so the best bet is to change the option "PnP OS installed" to "No". To do these, you have to perform the following steps:

During startup, when you see "Memory Test" messages, CPU information, BIOS information, just press the **DEL** key (if that does not work, usually one of the Function (Fx) keys work..check your manual).

You will be presented with the BIOS configuration menu. Enter the "PNP/PCI Configuration" section and set the option for "PNP OS Installed" to "NO". Save the changes you have made, and then reboot.

This is *not* applicable to all BIOSs, and you are advised to consult your PC documentation if you have a different kind of BIOS configuration menu.

7.9. AMR modems

There are certain PCTel chip set based internal modems that go into AMR slots instead of the normal PCI slots. They are usually identified as `HSP MR` by the **bash$ lspci** command. These modems are supported by the pctel−0.9.6 drivers only.

7.10. Possible conflict with sound modules

Recently, there were some posts in the discuss@linmodems.org list that the PCTel modules worked only after the sound modules were unloaded with the **bash$ rmmod** command. If you do not get a response from your modem even after the pctel.o and ptserial.o modules have been loaded, then you can try unloading the sound modules, and then reloading the PCTel modules. However, this problem does not occur if you are using the commercial ($$$) drivers from www.opensound.com .

8. FAQ/Troubleshooting

Here is a set of common problems that you may face, along with their possible solutions.

8.1. Compiling Problems

8.1.1. I get a configure: error: You must have linux kernel >= 2.4.0 installed during ./configure

If this occurs, you will have to patch your configure script. Download the file configure.patch from here and give the command

cat configure.patch | patch −p0

I am supposing that you are in the pctel−0.9.6 directory, and the configure.patch is also in that directory

8.1.2. I get a /usr/src/linux/include/linux/modversions.h : no such file or directory

You need to have your kernel source installed under /usr/src/linux/

If you have the kernel source installed somewhere else, just make the appropriate symlink. (see section 7.7 for more information) If you have that installed under /usr/src/linux/ , run

bash$ make config

bash$ make dep

in /usr/src/linux/

8.1.3. I get a permission denied error while running **bash$ make install**

You need to be logged in as root while doing **bash$ make install**

8.1.4. I have gcc 3 and while compiling, I get an error which goes like this <command line>:1:13: multi−line string literals are deprecated make[3]: *** [ptserial.o] Error 1.

This should not happen anymore since the pctel−0.9.6 driver was released to address this issue. However, if you still face such a problem, (with an older driver or something like that), you will have to edit the file `<your pctel directory>src/ptserial/Makefile`. In that file, find out the line which says

```
CFLAGS = -D__KERNEL__ -Werror -Wno-trigraphs -fno-common -Wall -Wstrict-prototypes -O2 -fomit-frame-pointer -fno-strict-aliasing -pipe -fno-strength-reduce -DMODULE -DMODVERSIONS -DEXPORT_SYMTAB -D$(HAL_TARGET) $(AUDIO_ROUTING) -DBUILD_SYSTEM=\""$(BUILD_SYSTEM)\"" -DGCC_VERSION=\""$(GCC_VERSION)\"" -I$(top_srcdir)/include -I$(KERNEL_INCLUDES) -include $(KERNEL_INCLUDES)/linux/modversions.h
```

and change that to

```
CFLAGS = -D__KERNEL__  -Wno-trigraphs -fno-common -Wall -Wstrict-prototypes -O2 -fomit-frame-pointer -fno-strict-aliasing -pipe -fno-strength-reduce -DMODULE -DMODVERSIONS -DEXPORT_SYMTAB -D$(HAL_TARGET) $(AUDIO_ROUTING) -DBUILD_SYSTEM=\""$(BUILD_SYSTEM)\"" -DGCC_VERSION=\""$(GCC_VERSION)\"" -I$(top_srcdir)/include -I$(KERNEL_INCLUDES) -include $(KERNEL_INCLUDES)/linux/modversions.h
```

....and then recompile.

If you cannot find the file `src/ptserial/Makefile`, then run the configure script, and try again.

Alternatively, you may also try out the pre−compiled (distro specific) drivers at http://www.geocities.com/jcmp3/. Just note that I have not personally tested out these drivers, and I don't know much about them.

8.1.5. I have RedHat 8.0/Mandrake 9.0, and I am having troubles compiling the drivers.

See the answer to the previous question (8.1.4).

8.2. Problems while loading the modules.

8.2.1. I get `unresolved symbols....` messages while loading the modules

Firstly, check that you are loading ptserial.o only after loading pctel.o.

If that does not solve the problem, then probably you have compiled your modules for the wrong kernel version. Check your kernel version with the command

bash$ uname −r

and then verify if you have the right files in `/usr/src/linux` .

Moreover, if you have a running kernel for a uniprocessor machine and have kernel source in `/usr/src/linux/` that is configured for smp support, then you will get unresolved symbols. A method to check whether you have a smp supporting source is by running **bash$ make menuconfig** in `/usr/src/linux/` and seeing whether smp support is selected.

Another way to get rid of the unresolved symbols problem is to use the fixscript package from http://linmodems.technion.ac.il/pctel−linux/fixscript.gz

The procedure is to:

Unpack the downloaded file with

bash$ gzip −d fixscript.gz

Make it executable with

bash$ chmod +x fixscript

Run it with

bash$ ./fixscript old_module.o new_module.o

This will create the new module, which you can try to load with

bash$ insmod new_module.o

If fixscript reports an error like

```
objcopy: --redefine-sym: Symbol x is target of more than one redefinition
```

then, fixscript can not help you.

The best method is of course, to fix your kernel source and recompile the drivers.

Make sure that you do a

bash$ make clean

before recompiling.

8.2.2. I get an `Operation not permitted` error while trying to load the drivers

You will have to be logged in as root to load the drivers, otherwise, you can also type in the

bash$ su

command and then load the drivers.

8.2.3. I get a `Warning: loading /lib/modules/2.4.19/misc/ptserial.o will taint the kernel: non-GPL license - GPL linked with proprietary libraries` message while loading the modules.

This message is just to inform you that you are loading a proprietary module which is not supported by the Linux kernel developers. It also serves as a warning that the drivers have not been officially tested with the kernel, and may cause problems, and tells you that you should not send bug reports to the kernel developers if you face system instability or any other problems after loading these proprietary drivers.

Just remember that this is *not* a error message − it just informs you that you are using an unsupported module.

8.2.4. I get a `The module you are trying to load (/lib/modules/2.4.18−14/misc/pctel.o) is compiled with a gcc version 2 compiler, while the kernel you are running is compiled with a gcc version 3 compiler. This is known to not work.` message while loading the modules.

Try to load the modules with the commands with **insmod −f pctel** and **insmod −f ptserial** instead of the plain **insmod pctel** and **insmod ptserial**.

Just remember that this is not a very nice hack.

8.3. General modem based problems.

8.3.1. I get a `/dev/modem no such device` error.

First of all, check if you really have the drivers loaded. You can do this by the command

bash$ lsmod

This command lists all the modules that you have loaded, and if you see something like

```
Module                  Size  Used by
ptserial               47472   0 (unused)
pctel                1211808   0 [ptserial]
```

then, the modules are correctly loaded.

If not, just load them and retry.

Also check whether the file /dev/modem is symlinked to /dev/ttyS15

Remember, even if msdos or Microsoft Windows tells you that the modem is in com 3 or com 4, in GNU/Linux the driver makes it appear in /dev/ttyS15 (the Microsoft equivalent of which will be com 16!!)

If you are in doubt, I suggest that you re−create the device files by the commands

bash$ rmmod ptserial

bash$ rmmod pctel

bash$ rm /dev/ttyS15 /dev/modem

bash$ mknod /dev/ttyS15 c 62 79

NOTE: the numbers after /devttyS15 are distribution specific, and the c 62 79 works for Red Hat Linux and derivatives. If you have any other distribution, please check your documentations.

bash$ chgrp uucp /dev/ttyS15

bash$ chmod 666 /dev/ttyS15

bash$ ln −s /dev/ttyS15 /dev/modem

8.3.2. My dialer gives a `No Carrier` error

This is a bug with the drivers for the kernel 2.4x series

Refer to section 7.6 for more information.

8.3.3. I get a `No Dialtone` message.

This is usually solved by adding **ATX3** to your modem init strings. The process of adding the ATX3 init string varies depending on the dialer you are using. For example, if you are using wvdial, you need to add X3 at the end of the `Init2` line in the file `/etc/wvdial.conf`. On the other hand, if you are using KPPP, you will have to add ATX3 in the `Initialization String 1` field, which can be found in the `Modem Commands` section of the `Modem` of the `Setup` dialogue box of KPPP.

8.3.4. I get a `Modem Busy` error.

First of all, check if the drivers are loaded or not and then see, if any program is using the modem. If everything seems to be all right, try to find out the irq of your modem with the command

bash$ lspci −v

If the irq listed is obviously incorrect (like 0) (or does not tally with your M$−Windows configuration) then either use the setserial command

bash$ setserial /dev/ttyS15 irq * (where * is the irq of your modem)

or fiddle with the BIOS settings (see section 7.8)

Another possibilty may be that your sound modules are conflicting with the PCTel modules. Refer to section 7.10 for this.

8.4. I have a problem that is not listed in this section. What do I do?

The output of the command

bash$ tail /var/log/messages

will give you a lot of information if anything goes wrong The normal output should be something like this

```
Nov 11 10:50:24 localhost kernel: PCTel device[00:09.0](0x48) found "PCTel Inc HSP MicroModem 56 (rev 01)", iobase=0xe400, irq=12.
Nov 11 10:50:24 localhost kernel: PCTel driver version 0.9.5 [5.05c−4.27.215 (09−14−2001)] (PCT789) (2002−01−31) with MANY_PORTS SHARE_IRQ SERIAL_PCI enabled.
Nov 11 10:50:24 localhost kernel: PCTel driver built on [Linux 2.4.18−14 i686 i686 "2.4.18−14 <132114>"] with gcc−gcc (GCC) 3.2
20020903 (Red Hat Linux 8.0 3.2−7).
Nov 11 10:50:24 localhost kernel: ttyS15 at 0xe400 (irq = 12) is a PCTel
```

Mail the output you get to the <discuss@linmodems.org> list(more on this in section 9.2.2), and wait for a reply.

9. Appendix

9.1. A sample script file to load the modules.

```
#! /bin/bash
/sbin/insmod /lib/modules/`uname -r`/misc/pctel.o
/sbin/insmod /lib/modules/`uname -r`/misc/ptserial.o
# end file
```

You can save this file as `modemon` and then isuue the commands

bash$ chmod 700 modemon

bash$ cp modemon /usr/bin/modemon

Now, whenever you type in the command **bash$ modemon** , the modules will get loaded automatically

9.2. Web Resources

There are a number of websites, mailing lists that may help you while you try to configure your modem.

9.2.1. Web sites

The unofficial pctel linux driver site at http://linmodems.technion.ac.il/pctel−linux/

The unofficial PCTel modem−Linux compatibility database at http://pctelcompdb.sourceforge.net.

The linmodem site (the mother page of all linmodem projets) at http://www.linmodems.org

A huge lists of lin/winmodems at http://www.idir.net/~gromitkc/winmodem.html

A list of AT commands from PCTel at http://www.pctel.com/atcommands_dev.htm

For latest information related to linmodems, visit http://linmodems.technion.ac.il/.

The linmodem−howto is available at http://www.linuxdoc.org/HOWTO/Linmodem−HOWTO.html.

9.2.2. Mailing lists

The most important mailing list for linmodems is

`<discuss@linmodems.org>`

You can subscribe to that list by going to

http://www.linmodems.org or by sending a blank e−mail to `<discuss−subscribe@linmodems.org>`
.

9.3. Other drivers that are available

I have seen a number of modem manufacturers (Dax, Zoltrix, Lectron, Tiacom etc) providing linux drivers for their modems that have PCTel chip sets.

Actually most (if not all) of these drivers are slightly modified form of the drivers at Jan's and the modems.dewback.cl site, and so, in most cases, there is no point in downloading them.

However, you may try out the pre−compiled (distro specific) drivers at http://www.geocities.com/jcmp3/. Just note that I have not personally tested out these drivers, and I don't know much about them.

Moreover, in the early days of 2.4x kernels, Thomas Wright had made a PCTel driver and you can find it in his website at http://www.geocities.com/tom_in_rc/.

9.4. Identifying the chip set of the modem

Well, the best way to identify the chip set of your modem is to open up the cabinet of the machine., gently pull out the modem from it's slot (only if it is *not* integrated into your motherboard), and see the name printed on the black chip on the modem. (be *very very careful* while doing these, and make sure that all power supplies to the system is disconnected, and touch the ground/a metallic surface before handling any of the circuitry/wires in the machine). But sometimes, this is not possible and so you will have to adopt other methods.

The next best method is to run the command

bash$ lspci −n

This command will give you the numeric PCI id of your modem (you may have to run **bash$ lspci** to crosscheck the device id) and you will have to submit the number at http://www.yourvote.com/pci/ Here you may or may not get the exact name of the chip set you have.

The unofficial PCTel modem−Linux compatibility database at http://pctelcompdb.sourceforge.net. might also be of some help in this case

If you do not get the name, you can go through the database at http://www.idir.net/~gromitkc/winmodem.html#drivers and search for an entry on your modem.

You can also ask at the local LUGs or ask your friends or even (a bad way, no doubt), ask the support personnel of your modem manufacturer.

9.5. Helping the author

If you have liked the miniHOWTO, or if you have benefitted from the contents, then please do consider linking my project site *Peaceful Action* (http://www.peacefulaction.org) from your homepage, or whatever site you may be the webmaster of. See this page for more information.

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