RocketPort® and RocketModem® Driver Installation for Linux

You can use this document to install and configure the RocketPort/RocketModem Linux device driver.

Note: *The RocketModem looks to Linux like a RocketPort card with modems attached; you can refer to the RocketModem AT command set on the Comtrol CD or ftp / web sites.*

Requirements

Review the requirements for running this driver.

Operating System

The Linux operating system is distributed from several sources. While all distributions share general file structure and functionality, there are differences that can impede the installation of device drivers. The instructions in this document outline a generic installation procedure. You may need to adjust for differences in a particular distribution using the Linux system documentation as a reference.

This document assumes that you have already installed the Linux operating system (Kernel Version 2.2 or 2.4 only) and that you have a basic understanding of Linux OS operation.

Building the Driver

In order to build the driver, the kernel sources are required. These are located by the driver using a symlink, which points to the base of the kernel source tree. By convention, this symlink is **/lib/modules/<kernel version>/build**, which is created by all major Linux distribution, RPM installs or by running **make dep** on the source. This symlink must point to the same kernel source version as is running on the machine.

If a build symlink is not found, the driver will search for a symlink named **/usr/src/linux** pointing to the source tree. Users who have no build symlink can create this in order to build the driver.

For example, if the kernel version (**uname -r**) is 2.4.20, and the source is installed in **/usr/src/linux-2.4.20**, the alternative symlink can be created by:

```
cd /usr/src
ln -s /usr/src/linux-2.4.20 linux
```

Installation Procedure

Use this procedure to install the driver.

1. If you have not done so already, install the hardware using the *Hardware Installation* documentation.

   Note: *Optionally, you can go to http://support.comtrol.com/download.asp if you need to locate the latest device driver or hardware installation document for your product.*

2. If necessary, download the current device driver, copy and extract the files to the **/usr/src** directory on the Linux system.

   Note: *If you need assistance unpackaging the driver, see ftp://ftp.comtrol.com/extract.htm.*

   For example:

   Change to the **/usr/src** directory and use the **untar** command.

   ```
   cd /usr/src
   tar xzvf filename.tgz
   ```

   A subdirectory of **/usr/src** now exists called **comtrol**. This contains the RocketPort/RocketModem driver and associated files.

3. Change to the **/user/src/comtrol** directory. For example:

   ```
   cd comtrol
   ```

4. Compile the driver.

   ```
   make clean
   make
   ```

5. Install the RocketPort/RocketModem driver as **root**:

   ```
   make install
   ```

6. Configure the driver.

   PCI cards require no driver configuration, they are automatically detected and configured.

   If you are using a RocketPort or RocketModem with an ISA bus or the PC104 RocketPort board, you will need to set up the **/etc/rocketport.conf file**. **/usr/src/comtrol** contains an example **rocketport.conf** file. Copy it to the **/etc** directory and edit it according to the comments contained in that file.

7. Optionally, edit your **/etc/rc.d/rc.S** file (or other appropriate boot-up script) so that the **rc.rocket** script runs automatically each time your system boots. This is done for you automatically if you are using a system with System V **init** files, such as is used in the RedHat or Debian releases.

   This file may have a different file name, depending upon the Linux distribution type.

   Note: *The **rc.rocket** script requires that **setrocket** be installed in the **/bin** directory. The **setrocket** program creates the **ttyRx** devices (where **x** is a number designating the port). The **setrocket** program is structured much like the familiar **setserial** program, and performs a similar function.*

8. Either reboot to load the driver into the currently running system, or manually load the driver running the **rc.rocket** script with the **start** argument. For example:

   ```
   ./rc.rocket start
   ```

9. Configure applications and/or **getty** scripts as necessary for your application.

   Note: *For information about port names, see Port Naming on Page 3.*

10. If applicable, connect the interface box to the controller board (if applicable).

11. If you are installing a *RocketPort*, connect your peripherals to the interface box or ports.

    If you are installing a *RocketModem*, connected your cables between the RocketModem RJ11 connectors and the wall phone jack RJ11 connectors.

    Note: *If you need pin out information to build cables, see the Hardware Installation documentation.*

Port Naming

The RocketPort/RocketModem serial ports installed by this driver will be named **/dev/ttyR*x***, where ***x*** is the port number starting at zero (for example, **/dev/ttyR0**, **/devttyR1**, and so forth).

If you have multiple cards installed in the system, the mapping of port names to serial ports is displayed on the system console when **rc.rocket** start is executed. This information is also written into the system log at **/var/log/messages**, in case the driver starts automatically on system startup.

Accessing Higher Baud Rates

For backwards compatibility with other serial drivers, the device driver supports the remapping of 38,400 baud to either 57,600 baud or 115,200 baud.

In addition, **setrocket** can be used to remap 38,400 baud to 230,400 baud. This can improve performance when using modern, high-speed modems. However, not all modems support 230,400 baud, check your modem manual for more details.

Execute **setrocket** without any parameters to get a usage message.

If your system has a recent shared **libc** installed and your communications programs have been recompiled to take advantage of 57,600 and 115,200 baud rates, then you may not need to use the remapping option. 230,400 baud still requires the remapping option until the appropriate changes can be propagated into the kernel, **libc**, and communications programs so as to support this speed directly.

Configuring Your Devices

For current information on how configure your devices for Linux, use the www.tldp.org (The Linux Documentation Project) link to locate *How to* documents for:

- Modems
- Printers
- Serial devices

Testing Serial Ports

You can use the following subsections to test the serial ports.

lcom(1)

Comtrol has available **lcom**(1), which is a multiport serial I/O test program. You can use **lcom** in **test** mode to send test data to any serial port.

Note: *For assistance using lcom, use the manual page (**lcom.1**) that accompanies the program.*

File Transfer

You can transfer a file using the following information. The default settings are 9600, 8, n, 1, and no parity.

To send a file you can redirect output to a device; for example:

```
Cat /etc/inittab > /dev/ttyR0
```

Sends the contents of the **/etc/inittab** file to the **ttyR0** device at 9600 baud, 8, n, 1, and no parity.

Changing Serial Port Settings (stty)

Use the following information if you need assistance changing or viewing the baud rate settings.

To change the baud rate, use the following example, which changes the baud rate to 19200:

```
stty 19200 </dev/ttyR0
```

To view the current serial port settings for **ttyR0**, enter:

```
stty -a </dev/ttyR0
```

Note: *Settings changes via **stty** are only valid during current log in session. For permanent setting changes, use the **/etc/inittab** file.*

Setting Up Terminals and Modems (mgetty, getty)

Add the appropriate line or lines to the **/etc/inittab** then restart:

Terminal Example:

```
T0:23:respawn:/sbin/getty -L ttyR0 57600 vt100
```

Modem Example:

```
T1:23:respawn:+/sbin/mgetty -m ‘”” AT&F OK’ -D -x9 -s 115200 ttyR0
```

Note: *If necessary, see the manual pages for more information on **mgetty**.*

Testing with Minicom

You can also use Minicom to test the serial ports. Minicom is shipped most Linux operating systems. A document is available for using Minicom.

Technical Support

Comtrol has a staff of support technicians available to help you. Before you call, please have the following information available:

Item	Your System Information
Comtrol model and serial number	
Interface type	
I/O address and IRQ	
Operating system type and release	
Device driver version	
PC make, model, and speed	
List other devices in the PC and their addresses	

Comtrol	Headquarters	Europe
Phone	(763) 494-4100	+44 (0)1869 323220
FAX	(763) 494-4199	+44 (0)1869 323211
Email	support@comtrol.com	support@comtrol.co.uk
Downloads	http://support.comtrol.com/download.asp	
Web support	http://support.comtrol.com/support.asp	
Web site	www.comtrol.com	www.comtrol.co.uk
FTP site	ftp.comtrol.com	

Reporting Bugs

Please send Linux-related bug reports to support@comtrol.com.

Comtrol Corporation technical support can resolve issues related to the RocketPort hardware and the Linux driver software, but given the nature of Linux and the many variant distributions available, we cannot be held responsible for the behavior of the operating system.

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