

# Martel Linux Driver Installation Manual

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**2. REVISION HISTORY**

| <b>REV.</b> | <b>DATE</b> | <b>PAGE</b> | <b>REVISION ITEM</b> |
|-------------|-------------|-------------|----------------------|
| A           | 31-Jul-2006 | -           | First issue          |
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### 3. INSTALLING THE DRIVER

The Martel Linux Driver is distributed in source form. Each release comes as a single archive, with *x.y* being the release number of the package.

```
martel_linux_driver-x.y.tar.gz
```

Installation of the Martel Linux Driver requires compilation of its various components. The following procedure unpacks the archive into `/tmp` directory and then compiles and installs from it. Final installation must be done as superuser.

```
$ tar xvzf martel_linux_driver-x.y.tar.gz /tmp
$ cd /tmp/martel_linux_driver-x.y/src
$ make
$ su
[enter superuser password]
# make install
```

The CUPS subsystem must then be restarted to take into account the new printer models installed. This step depends on the Linux distribution, but it is generally a matter of typing a command like the following (as superuser).

```
# /etc/init.d/cups restart
```

#### 3.1. Installing a printer

During start and restart, the CUPS subsystem uses the Martel Linux Driver to automatically search for connected printers. This step is done only once when CUPS starts, so any printers connected later will not be detected unless the CUPS subsystem is restarted.

To add a printer, one may use the CUPS web interface at <http://localhost:631> and follow the instructions. A printer can also be added from the command line by directly specifying printer model and URI.

```
$ lpadmin -p MPP5510 -E \
-v martel:/dev/ttyS0?type=serial+baudrate=9600+handshake=rtscts \
-m mpp5510.ppd
```



This creates a printer named MPP5510 using model definition file `mpp5510.ppd`. This printer is a serial printer connected to device `/dev/ttyS0`, which default configuration is 9600 bauds, hardware RTS/CTS handshaking.

```
$ lpadmin -p MPP5310 -E -v martel:/dev/parport0?type=parallel -m mpp5310.ppd
```

This creates a printer named MPP5310 using model definition file `mpp5310.ppd`. This printer is a parallel printer connected to device `/dev/parport0`.

Other options exist for each port type. Refer to document `driver_libmartel.pdf` for more information about Martel printers URI.

## **4. HOW TO USE**

The Martel Linux Driver is made of two components: a low-level communication library (the Martel library), and a printer driver for the CUPS subsystem. The Martel CUPS driver uses the Martel library to communicate with Martel printers. The Martel library may also be used as a stand-alone component in user applications to get more control when communicating with printers.

### **4.1. Martel CUPS driver**

The Martel CUPS driver enables user to print from any application to supported Martel printers.

The Martel CUPS driver provides filters for the CUPS internal raster format (RIP) and for plain text. The Martel CUPS driver may be used in three different ways.

#### **4.1.1. Postscript printing**

When printing, most applications generate a file in Postscript format which in turn is rendered by CUPS in its internal raster format. In this context, the Martel CUPS driver for RIP is automatically selected by CUPS and the file is printed using graphics printing commands. For example, printing from OpenOffice will generate a Postscript file sent to CUPS and printed by the Martel CUPS driver using graphics commands.

This generates a large volume of data to be sent to the printer and might limit the printing speed when using RS232 or parallel ports.

#### **4.1.2. Plain text printing**

The Martel CUPS driver is also able to print text directly using the internal fonts of the printer. When CUPS detects that the file to be printed is a text-only file, it automatically selects the Martel CUPS driver for plain text and skips the intermediate rendering in internal raster format. The following command will print the file `plain_text.txt` using internal fonts of the printer.

```
$ lp -d Martel_printer plain_text.txt
```

Printing in this fashion will give the highest printing speed. However the complexity of tickets is limited because text formatting options cannot be used and graphics cannot be printed.

### 4.1.3. Plain text printing using text processor

The Martel CUPS driver provides a way to circumvent the limitations of plain text printing. When option *Process embedded control codes* is checked, the Martel CUPS driver analyses plain text data and substitutes tokens surrounded by < > by their ASCII code equivalents.

The following example shows how to embed text formatting options in a plain text ticket. This example uses the Martel command set.

```
Normal printing.<LF><LF><LF>
Printed with <ESC>!<2>32 CPL font.
<TAB><ESC>w<1>Double-height printing.
```

Following data will be sent to the printer after processing.

```
0000  4e 6f 72 6d 61 6c 20 70 72 69 6e 74 69 6e 67 2e  Normal p rinting.
0010  0a 0a 0a 0a 50 72 69 6e 74 65 64 20 77 69 74 68  ....Prin ted with
0020  20 1b 21 02 33 32 20 43 50 4c 20 66 6f 6e 74 2e  .!.32 C PL font.
0030  0A 09 1b 77 01 44 6f 75 62 6c 65 2d 68 65 69 67  ...w.Dou ble-heig
0040  68 74 20 70 72 69 6e 74 69 6e 67 2e 0a          ht print ing..
```

Tokens can either be a string, a decimal number, an hexadecimal number or an octal number. Invalid tokens are printed without processing.

- <ESC> is translated as ASCII code 27;
- <27> is translated as ASCII code 27;
- <0x1b> is translated as ASCII code 27;
- <033> is translated as ASCII code 27.

Token strings include ASCII control code names.

| TOKEN STRING | ASCII CODE | TOKEN STRING | ASCII CODE |
|--------------|------------|--------------|------------|
| <NUL>        | 0          | <SOH>        | 1          |
| <STX>        | 2          | <ETX>        | 3          |
| <EOT>        | 4          | <ENQ>        | 5          |

| TOKEN STRING | ASCII CODE | TOKEN STRING | ASCII CODE |
|--------------|------------|--------------|------------|
| <ACK>        | 6          | <BEL>        | 7          |
| <BS>         | 8          | <TAB>        | 9          |
| <LF>         | 10         | <VT>         | 11         |
| <FF>         | 12         | <CR>         | 13         |
| <SO>         | 14         | <SI>         | 15         |
| <DLE>        | 16         | <DC1>        | 17         |
| <DC2>        | 18         | <DC3>        | 19         |
| <DC4>        | 20         | <NAK>        | 21         |
| <SYN>        | 22         | <ETB>        | 23         |
| <CAN>        | 24         | <EM>         | 25         |
| <SUB>        | 26         | <ESC>        | 27         |
| <FS>         | 28         | <GS>         | 29         |
| <RS>         | 30         | <US>         | 31         |

#### 4.1.4. Driver options

The Martel CUPS driver provides several options summarized in table below.

| OPTION FIELD                   | DESCRIPTION  |
|--------------------------------|--|
| Serial printing baudrate       | Set serial baudrate used during printing.<br>( <i>serial printers only</i> )   |
| Serial printing handshaking    | Set serial handshaking used during printing.<br>( <i>serial printers only</i> )  |
| Parallel printing write mode   | Set parallel printing write mode (polling or IRQ based).<br>( <i>parallel printers only</i> )  |
| Printing timeout               | Printing is automatically cancelled after this timeout elapsed.<br>This value can be set to None to have the driver wait indefinitely. |
| Internal font                  | Set internal font used while printing plain text.  |
| Process embedded control codes | When checked, process plain text data to interpret embedded control codes.   |
| Forward feed after ticket      | Set distance to feed in forward direction after printing ticket.   |
| Backward feed after ticket     | Set distance to feed in backward direction after printing ticket.  |

Driver options can be tuned using the CUPS web interface. These can also be modified manually using



following command:

```
$ lpoptions -d Martel_Printer -o option=value -o option=value ...
```

Table below shows various option names and allowed values.

| OPTION FIELD                   | OPTION    | VALUE   |
|--------------------------------|-----------|---|
| Serial printing baudrate       | baudrate  | 0 = 1200 bauds<br>1 = 2400 bauds<br>2 = 4800 bauds<br>3 = 9600 bauds<br>4 = 19200 bauds |
| Serial printing handshaking    | handshake | 1 = Software flow control (XON/XOFF)<br>2 = Hardware flow control (RTS/CTS)             |
| Parallel printing write mode   | parmode   | 0 = Polling<br>1 = IRQ  |
| Printing timeout               | timeout   | Timeout in milliseconds.<br>Zero disables timeout.                                      |
| Internal font                  | font      | 0 = 24 CPL<br>1 = 48 CPL<br>2 = 32 CPL  |
| Process embedded control codes | process   | False = Processing disabled<br>True = Processing enabled                                |
| Forward feed after ticket      | fwdfeed   | Distance to feed in dotlines.   |
| Backward feed after ticket     | backfeed  | Distance to feed in dotlines.   |

For example, following command sets handshake mode to RTS/CTS on printer MPP5510.

```
$ lpoptions -d MPP5510 -o handshake=rtscts
```

## 4.2. Martel library

The Martel library can be used directly in user applications to get more control when communicating with printers.

The Martel library is a C library that provides an easy interface to communicate with Martel printers. Using the Martel library requires programming. Refer to document `driver_libmartel.pdf` for information about the Martel library.