

MuntsOS Embedded Linux

Application Note #17: Printing

**Revision 1
7 May 2024**

**by Philip Munts
Munts Technologies
<http://tech.munts.com>**

Introduction

This application note describes how to print from a **MuntsOS Embedded Linux** target board to a network printer via the **Line Printer Daemon Protocol**. The print server node must provide a print service listening on TCP port 515, such as **lpd** or **cups-lpd**.

MuntsOS Embedded Linux provides rudimentary printing capabilities using the **lpr** applet build provided by BusyBox. The optional **enscript** extension package augments MuntsOS to print to PostScript printers.

Prerequisites

The **MuntsOS Embedded Linux** software development environment must be installed on a 64-bit x86-64 Linux system ([AppNote #1](#) or [AppNote #2](#)).

MuntsOS Embedded Linux must be installed on the target computer ([AppNote #3](#) or [AppNote #15](#)).

Configuration

The programs **lpr** and **enscript** can obtain the domain name or IP address of the print server as well as the name of the desired print queue from the **PRINTER** environment variable. **PRINTER** can be initialized at boot time by adding something like the following to **/etc/environment** and running **sysconfig --save**:

```
PRINTER=myprintqueue@myserver.mydomain
```

The name of the print queue on Unix-like servers is often **lp0**. You will need to consult the documentation for the printer server or network printer to determine the name of the print queue for the desired printer.

You can also specify the destination by passing **-P myprintqueue@myserver.mydomain** to the **lpr** and **enscript** commands.

Printing from the Command Line

You can print plain text to a printer with a command like the following:

```
echo "This is a test" | lpr
```

You can print plain text to a PostScript printer with a command like the following:

```
echo "This is a test" | enscript -B
```

enscript has myriads of both command line options and configuration file (**/usr/local/etc/enscript.cfg**) options. See its [man](#) page for more information.

Printing from a Program

You can run `lpr` or `enscript` from `popen()` to print from a program:

```
#include <errno.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

int main(void)
{
    FILE *printer;

    printer = popen("enscript -B", "w");

    if (printer == NULL)
    {
        fprintf(stderr, "ERROR: popen() failed, %s\n", strerror(errno));
        exit(1);
    }

    fprintf(printer, "Hello, World!\n");
    fprintf(printer, "Goodbye.\n");

    fclose(printer);
    exit(0);
}
```

Web Links

RFC 1179:

<https://www.rfc-editor.org/rfc/rfc1179>

Wikipedia:

https://en.wikipedia.org/wiki/Line_Printer_Daemon_protocol

`man` page for `enscript`:

<https://linux.die.net/man/1/enscript>