

Printing with MorphOS: (November 2019 , MorphOS 3.12 , V1.2)

What you need to know :

MorphOS initially uses Turboprint as the printer system.
Turboprint has only limited (and older) drivers in the MorphOS version.

In short : to be sure that you can print, the printer must either be one of the specified (Turboprint) printers or a printer that can read the PCL printer language. Ideally, the printer should be able to use the printer languages **PCL and Postscript**.

Printing with Turboprint (PCL printing):

If the printer is capable of PCL it can be configured in Preferences "Printer". One takes as driver e.g. "Laserjet2", which makes PCL and enters the corresponding device with unit.

The device could be e.g. "netprinter.device" or "usbparallel.device", depending on where the printer is connected. In USB presetter within the "Devices" tab you can check if a USB printer has been detected.

NetPrinter (for network printing) is already preinstalled in MorphOS.

Network printers must be entered in Preferences within the "NetPrinter" presetter. You can configure up to 16 network printers. Corresponding mountlist files must be created or copied in MorphOS:Devs/DOSDrivers.

(For example NETPAR: , NETPAR0: , NETPAR1 and so on.)

In MorphOS:Storage/DOSDrivers you can find the mountlist file NETPAR for use in MorphOS:Devs/DOSDrivers.

Example: Network printer with Turboprint:

1. In Preferences "NetPrinter" set:

- Unit: 0 (first printer or only printer)
- the IP of the printer: 192.168.xxx.yyy (where xxx and yyy is to be replaced)
- Protocol: Direct
- Port: 9100
- save

Tip: To set the unit, select the unit number (keep the left mouse button pressed) and scroll up (or down) with the mouse wheel.

2. Under Preferences "Printer" (not "Printers") set Turboprint:

- New
- select driver (e.g. Laserjet2 for PCL printing)
- name assigned (printer name)
- device "netprinter.device"
- select unit (e.g. 0)
- save

Tips:

If an error has occurred during a configuration (e.g. write error), delete the configuration ("Remove") and reenter everything. Modifying an existing configuration is not working always properly. (minor bug)

Under TP:printers you can copy the Laserjet2.tpp file and save it in a printer specific (.tpp) file. Then you can (after restart) select this as a "driver" with its printer name.

The PCL-capable printer can now print with Turboprint over the network.
(you can test e.g. with VPDF, the first printer in the tab is activated)

Example: USB printer with Turboprint:

In Preferences "Printer" (not "Printers") set Turboprint:

- New
- select driver (e.g. Laserjet2 for PCL printing)
- name assigned (printer name)
- Device "usbparallel.device"
- select unit (e.g. 0)
- save

The (PCL-capable) printer can now print via Turboprint and USB interface.

Postscript printing via Turboprint for non-PS capable printers (PCL printer):

Turboprint prints bitmap (raster print)!

If you have a software that outputs postscript code, you can still print with PS: Device and Ghostscript through Turboprint to a PCL printer.

The adjuster for this is "Printer".

In the "Postscript" tab, enter the following in addition to the above configuration:

Buffer: 8000

Command Line: GS:bin/gs -sDEVICE=tp24 -q

Temp.Dir: RAM:

Or as Temp Dir e.g. work:temp (create the work:temp directory before), if you need more space for the print job as the ram gives.

Takes a little longer to print because of the writing process.

Everything else stays on "default".

Programs that print PostScript must print to the virtual device PS: created by Turboprint.

The PS: Device is provided by TurboPrint at runtime.

For this to work, Ghostscript must be installed.

<http://morphos-files.net/download/GhostScript/>

You can also install Ghostscript easily via the installer by Guido Mersmann.

<http://geit.de/stupid/ghostscriptinstaller.lha>

Now, when printing to PS: the postscript output of e.g. OWB or Pagestream is given to Turboprint, which uses Ghostscript to convert the PS code into a bitmap (raster) code, which is then given to the printer through the Turboprint (PCL) driver.

Print to Postscript printer without Turboprint:

You can print to printers that understand postscript code without using Turboprint.

The corresponding software must support PS printing.

1st possibility:

You can copy the mountlist files USBPAR and NETPAR from MorphOS:Storage/DOSDrivers to MorphOS:Devs/DOSDrivers.

In the files, change the TYPE to "printer" if it is set to "parallel".

The UNIT must be set correctly. In example 0.

Example for NETPAR: or USBPAR:

```
StackSize = 4096
Priority = 5
GlobVec = -1
Handler = MOSSYS:L/port handler
Startup = "DEVICE=netprinter.device UNIT=0 TYPE=printer"
```

or

```
Startup = "DEVICE=usbparallel.device UNIT=0 TYPE=printer"
```

The attributes "readable" and "executable" must be set in the icon.

Important: Restart the Computer !

Any software that supports it (such as OWB or VPDF) can now print out Postscript code directly to the device specified in NETPAR: or USBPAR: and send it to the (PS-enabled) printer.

To do this, select Print in the software and enter NETPAR: or USBPAR: instead of PS:. When the printer prints, the device works.

The settings of the printer are adopted. (Format, resolution, etc.)

The output via the PPD presets (Preferences "Printers") is also possible if a PPD file is present and the software supports it (for example VPDF) (for PPD presetter "Printers" see: **2.Possibility: (PPD-printing)**)

If printing is not possible directly out of a software you can possibly take the detour via a file, then use a software that can print it out. (Does not always work, is absolutely software dependent)

You can send a Postscript file to the printer by entering :

```
copy file.ps NETPAR:
```

or

```
copy file.ps USBPAR:
```

in a shell.

(Where "file.ps" is the generated postscript file and of course can also be called different.)

2nd possibility: (PPD printing)

In Preferences "Printers" (not "Printer") you can define the Postscript printer with a PPD-file and enter NETPAR: or USBPAR: in the Output path.
(the mount files NETPAR and USBPAR in MorphOS:Devs/DOSDrivers have to exist)

Many PPD files are available.

PPD files for Postscript printers should work without problems.

For example, PPD files for Samsung printers are available in this archive:

<https://www.morphos-storage.net/?page=Misc%2FBeta-test&file=Printingps-update-4-9-2015-small.lha>

Some printers, such as Epson ESC/PR and Samsung CLP, can be found and added with "Search driver" Button.

PPD files for foomatic filters (or other filters) possibly do not work.

You can check inside the PPD file for the word "foomatic".

(open ppd-file with text editor to to that)

As an alternative you can get ppd-files from the printer-manufacturer's website, the printer CD or from Openprinting.

<http://www.openprinting.org/printers/>

The "Printers" presetter has nothing to do with the Turboprint settings in "Printer".

The output will be sent with the "Printers" presetter (in combination with PRINTER: Device and GhostScript) to e.g. NETPAR: or USBPAR: and thereby given to the appropriate printer.

The PPD file is needed to set the printer-preferences easily by the "Printers" presetter and one does not have to go to the web interface or to the printer itself to set those.

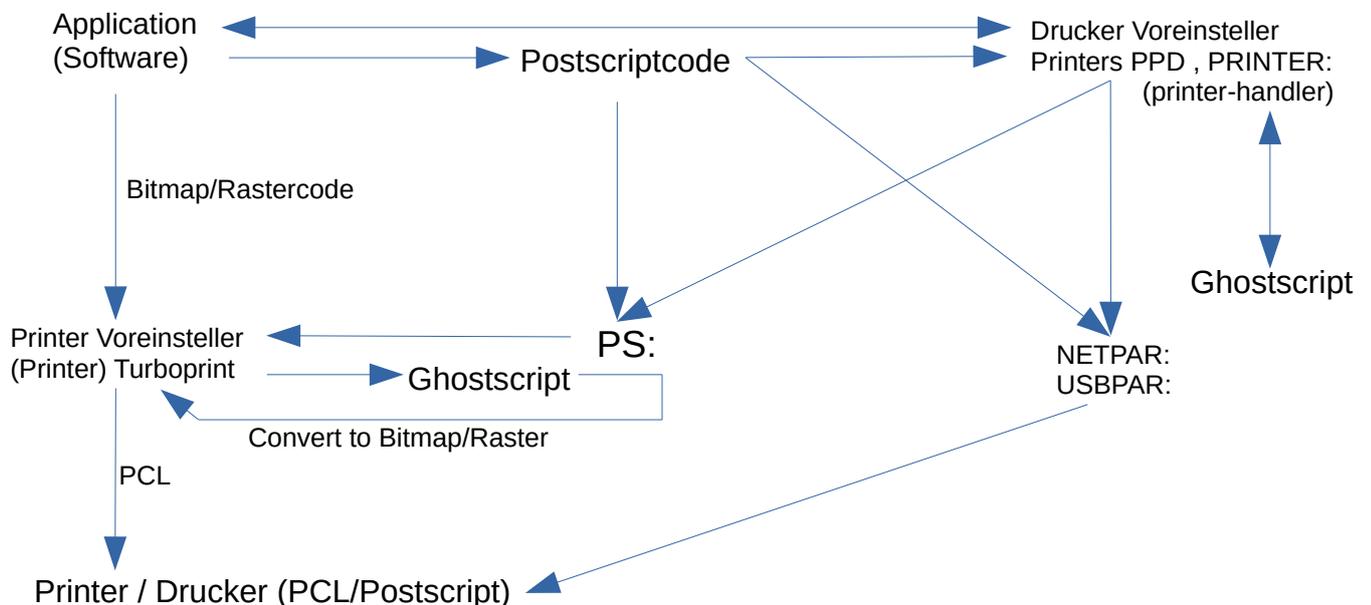
If the direct Postscript print works via the NETPAR: or USBPAR: Device but not via the new PPD system, the problem lies with the PPD file or the configuration in "Printers".

PostScript printing with PPD via "Printers" also works on PS: device with Ghostscript installed and non-postscript printers. (through Turboprint)

Here you can also understand the functionality with PPD:

https://library.morph.zone/Print_System

For ease of understanding, the whole is shown in a graphic below:



Additional information and future prospects

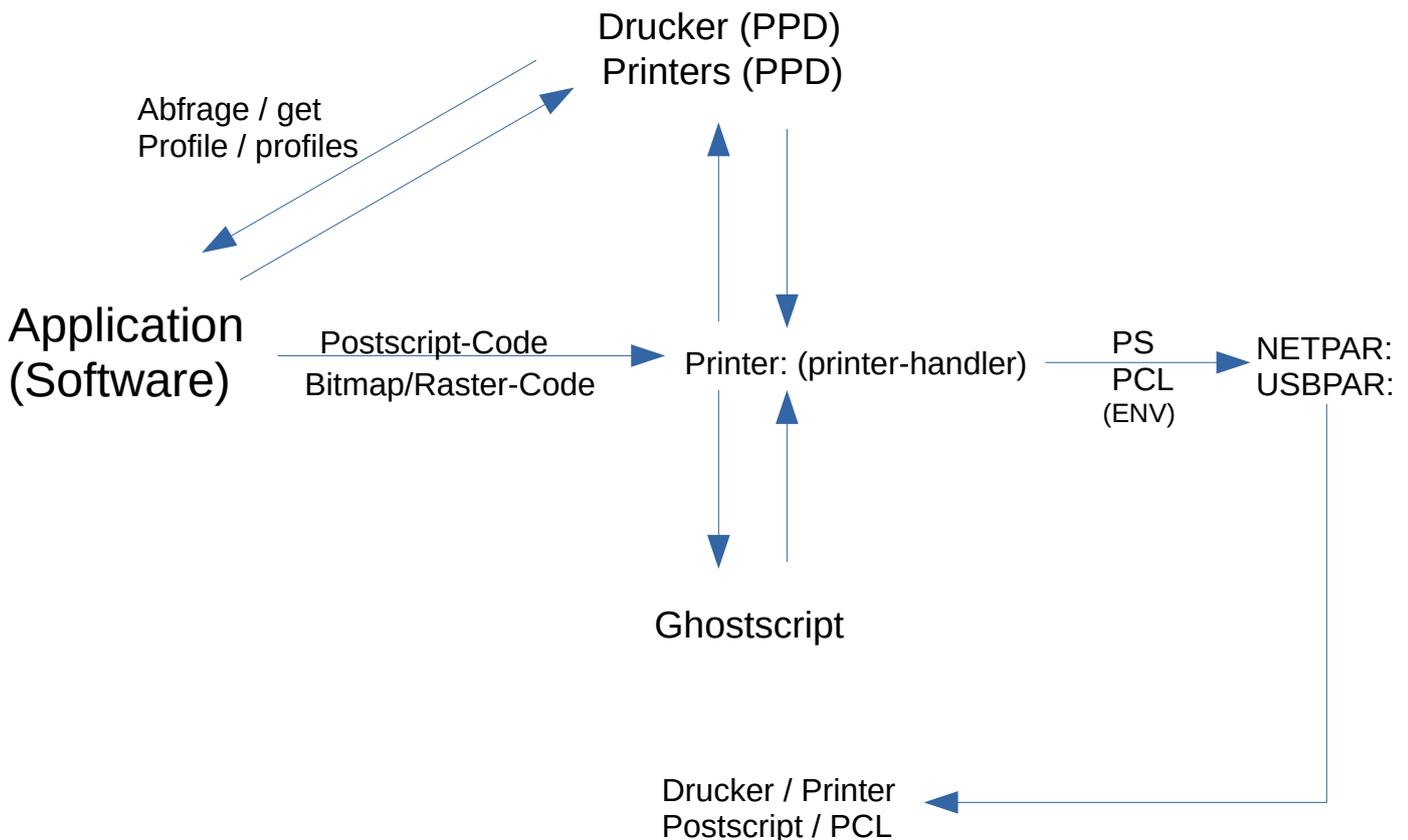
You can set the "PrinterOutput env variable" (e.g. for NETPAR :) via shell:

```
setenv save PrinterOutput NETPAR:
```

It only needs to be entered into a shell once.

If you now print to PRINTER: the output is redirected to NETPAR:.
This essentially sets the "standard output device" for printing.
This can be a device like NETPAR: or USBPAR: or even a file. (e.g. ram:file)

The entry of the PPD presetter and the PRINTER: Device in the OS is meant to replace the Turboprint printing system in the future. The PRINTER: Device, the l/printers-handler and Ghostscript convert print data into a printer-specific stream and send it to the preset device or to the ENV PrinterOutput.
Here, once again, is a graphic for a better understanding:



Short explanation:

The software fetches the printer profiles from the PPD presetter. ("Printers")

The software sends a data stream (PS or raster/bitmap) to the PRINTER: device specifying the selected printer profile.

The PRINTER: Device gets the printer properties from the PPD presetter.

The PRINTER: Device and the printer-handler also convert the data stream using Ghostscript if necessary and send it to the given printer output path. (NETPAR: , USBPAR: , a file)

If the query of the printer profile does not take place with the software, then the print job goes to the "standard output" device (ENV).

The FlowStudio and Vpdf applications already support printing via the new (PostScript/PPD) system.

When PostScript is selected in the print dialog, the "Printers" profile settings are also called up.

Additional :

After installing MorphOS it is recommended to install the "Chrysalis" package, because it installs in addition many good software packages, classes and libraries that contribute well to the general function of the OS.

You can download it here:
(Note the version number matching the MorphOS version)

<https://www.morphos-storage.net/?page=Chrysalis>

Ghostscript will also be installed.

However, the installation path is different to the install path of e.g. Guido Mersmanns installer.

This also changes the assign set to GS:.

The assign GS: now points to the /bin directory of Ghostscript.

So you have to enter the following in the "Printer" adjuster of Turboprint in the "Postscript" tab to enable PS: device.

Buffer: 8000
Command Line: GS:gs -sDEVICE=tp24 -q
Temp.Dir: RAM:

So just omit the /bin directory.
Only then the PS: Device will work.

I wrote this manual to explain the printing system in MorphOS with simple words and examples, because such a manual does obviously not exist (until today ;-)).

If mistakes, incomprehensible representations or missing details stand out, then I would like to know of it, in order to improve this. :)

You can reach me here by email: **b-a@keemail.me**

Thanks also to Frank Mariak, who gave me some important hints.

Screenshots : (German Version)

