

Generate Petri Nets as Snoopy Files from Petri Net Description Vectors

Petri nets are generated from Petri net description vectors in ANDL file format as described by Rätzl, V. *et al.* (2020) Biosystems 189, 104092.

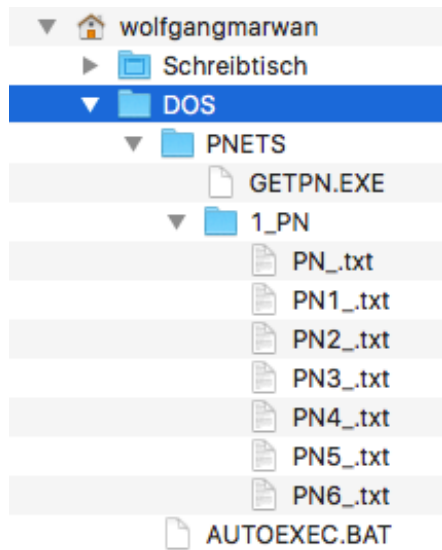
<https://www.sciencedirect.com/science/article/abs/pii/S0303264719304575?via%3Dihub>

The software GetPN, together with documentation and example files, has been originally provided as SI_File_Package_3.zip as part of the Supplementary data to Rätzl *et al.* (2020). ANDL files, once generated, are subsequently imported into Snoopy to visually display the Petri nets.

Making ANDL files from Petri net description vectors

To run the Petri net construction program **GetPN.exe** under DOSBox, do the following:

Copy the provided folder named **DOS** in your user directory. On my Mac it looks like this:



Optionally, remove Autoexec.bat in case you do not want to use it or change it according to your requirements (see below).

PN_.txt, **PN1_.txt** etc. within the **1_PN** folder are example files containing Petri net description vectors that are taken as input by **GetPN.exe**.

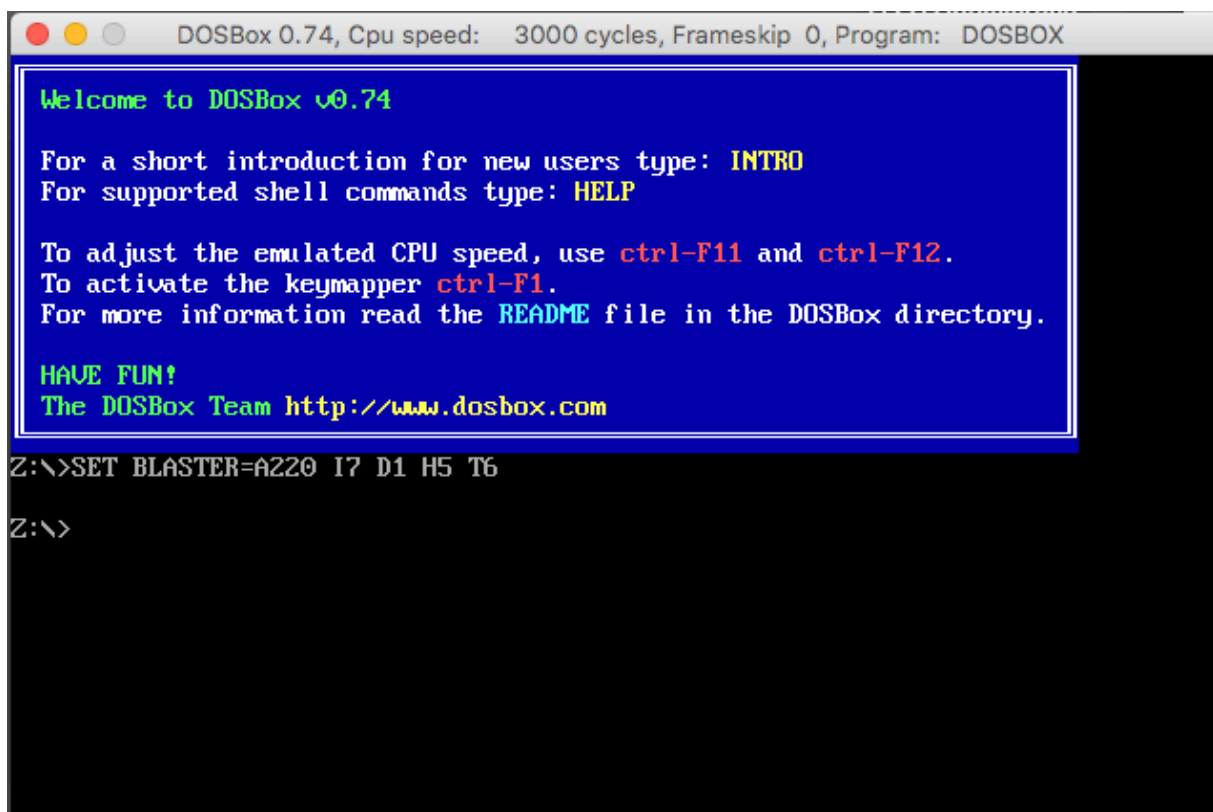
Installing DOSBox

Download DOSBox at

<https://www.dosbox.com>

and install it in the Applications folder of your computer

After starting DOSBox, the following window will pop up:



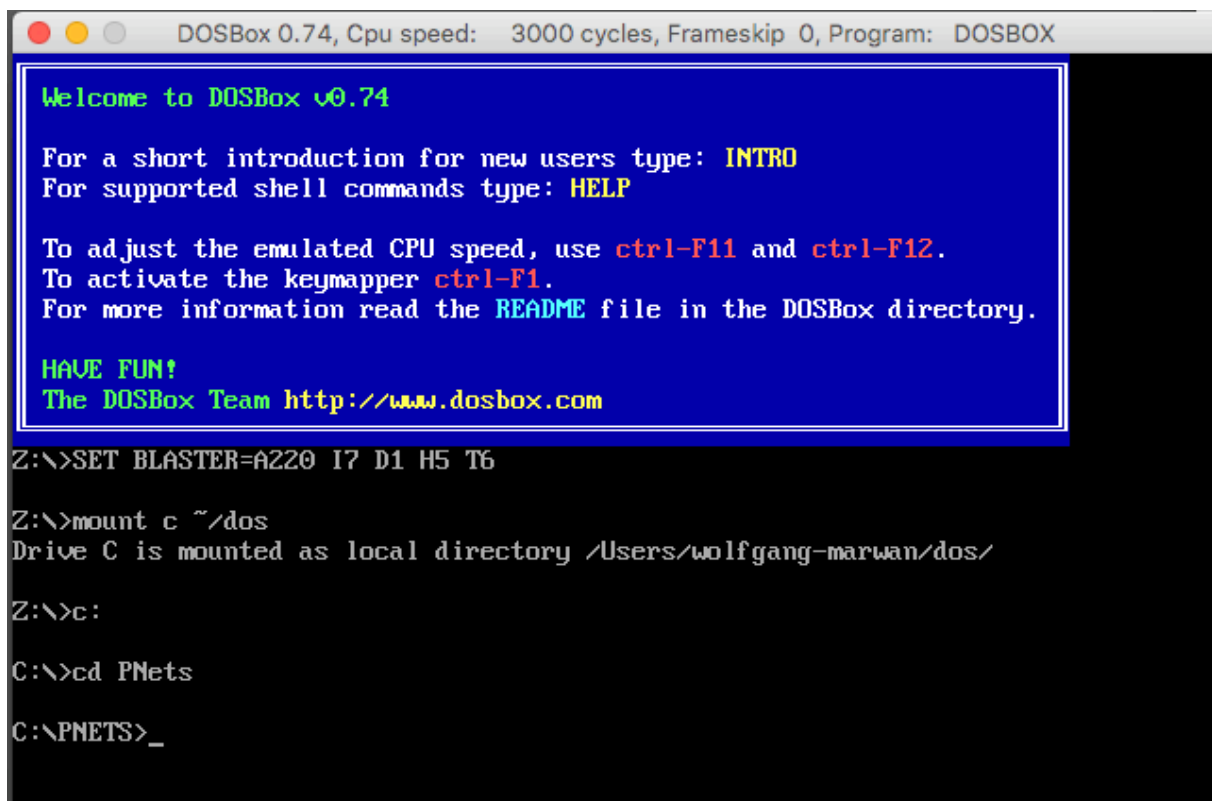
Then mount drive **C:** with folder **DOS** as local directory by entering

```
mount c ~/dos
```

on a German keyboard you may type

```
mount c >-dos
```

Then, change to drive **c:** and change directory to **PNets** as shown in the screenshot:



The screenshot shows a DOSBox window with a title bar that reads "DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX". The main window has a blue background with white text. A white-bordered box contains the following text:

```
Welcome to DOSBox v0.74
For a short introduction for new users type: INTRO
For supported shell commands type: HELP

To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12.
To activate the keymapper ctrl-F1.
For more information read the README file in the DOSBox directory.

HAVE FUN!
The DOSBox Team http://www.dosbox.com
```

Below this box, the command prompt shows the following sequence of commands and output:

```
Z:\>SET BLASTER=A220 I7 D1 H5 T6

Z:\>mount c ~/dos
Drive C is mounted as local directory /Users/wolfgang-marwan/dos/

Z:\>c:

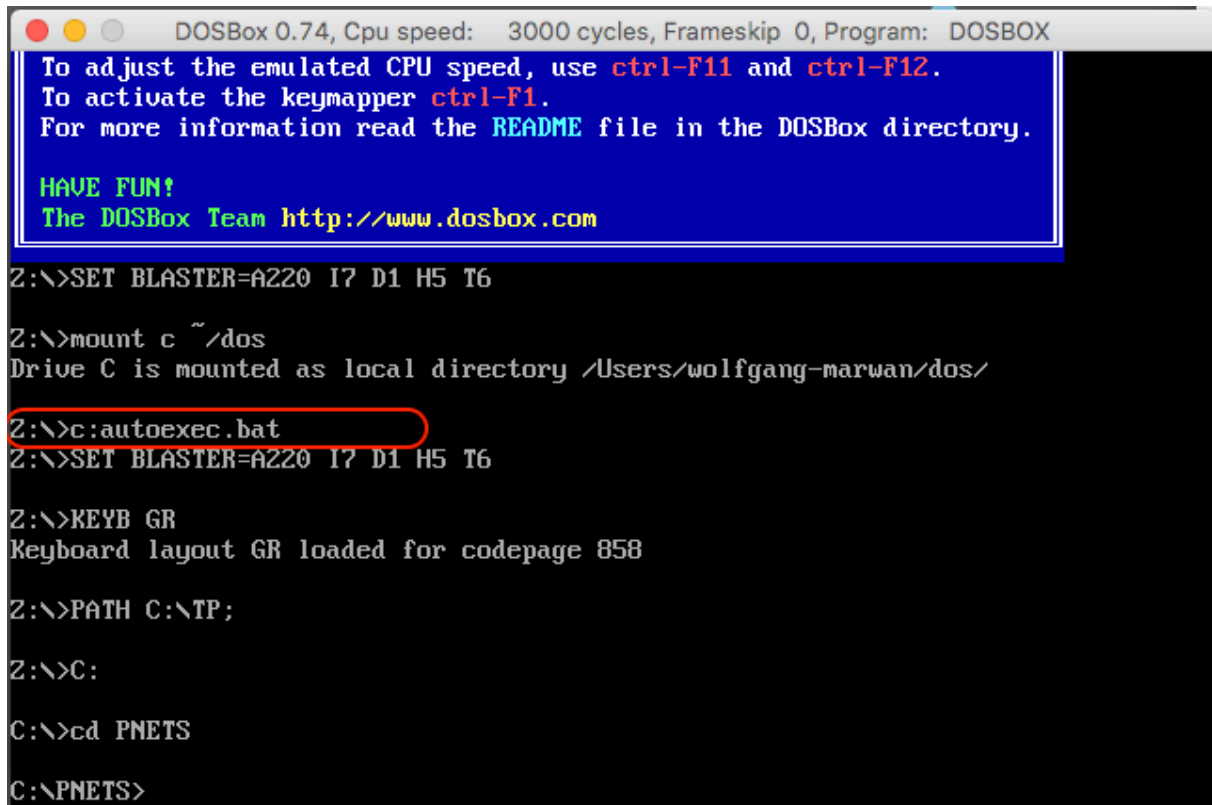
C:\>cd PNetS

C:\PNETS>_
```

The folder **DOS** is now set as working directory.

You may alternatively wish to run an `autoexec.bat` file for convenience just after mounting drive `c` as local directory by entering

```
c:autoexec.bat
```

A screenshot of a DOSBox 0.74 window. The title bar shows 'DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX'. The main window has a blue background with white text. At the top, it says: 'To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12. To activate the keymapper ctrl-F1. For more information read the README file in the DOSBox directory. HAVE FUN! The DOSBox Team http://www.dosbox.com'. Below this, the command prompt shows the following commands and their outputs: 'Z:\>SET BLASTER=A220 I7 D1 H5 T6', 'Z:\>mount c ~/dos' (output: 'Drive C is mounted as local directory /Users/wolfgang-marwan/dos/'), 'Z:\>c:autoexec.bat' (this line is circled in red), 'Z:\>SET BLASTER=A220 I7 D1 H5 T6', 'Z:\>KEYB GR' (output: 'Keyboard layout GR loaded for codepage 858'), 'Z:\>PATH C:\TP;', 'Z:\>C:', 'C:\>cd PNETS', and 'C:\PNETS>'.

```
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX
To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12.
To activate the keymapper ctrl-F1.
For more information read the README file in the DOSBox directory.
HAVE FUN!
The DOSBox Team http://www.dosbox.com
Z:\>SET BLASTER=A220 I7 D1 H5 T6
Z:\>mount c ~/dos
Drive C is mounted as local directory /Users/wolfgang-marwan/dos/
Z:\>c:autoexec.bat
Z:\>SET BLASTER=A220 I7 D1 H5 T6
Z:\>KEYB GR
Keyboard layout GR loaded for codepage 858
Z:\>PATH C:\TP;
Z:\>C:
C:\>cd PNETS
C:\PNETS>
```

As a template, we have included `autoexec.bat` file with the following content:

```
SET BLASTER=A220 I7 D1 H5 T6
KEYB GR
PATH C:\TP;
C:
cd PNETS
```

This template can be modified with a text editor.

The command “KEYB GR” switches the keyboard to German. For other country-specific settings see e.g.:

<https://www.computerhope.com/keybhelp.htm>

The command

```
PATH C:\TP;
```

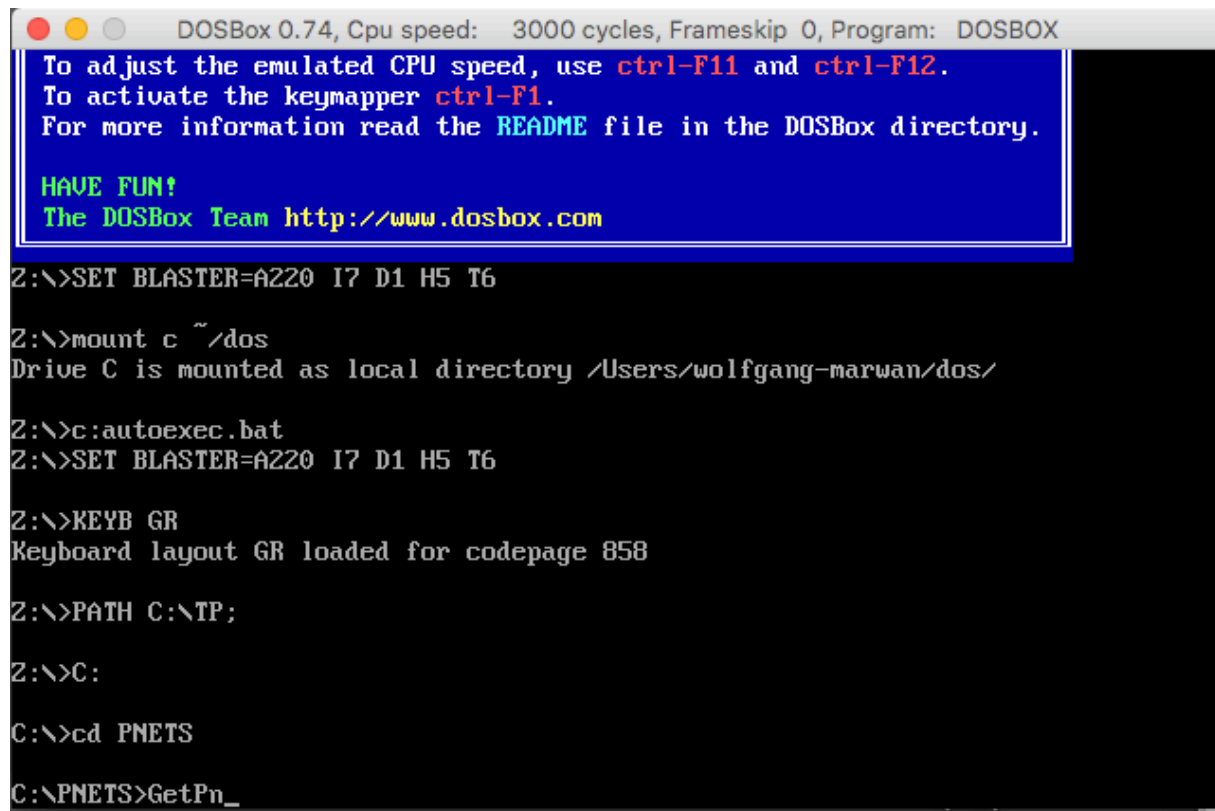
tells DOS where the TURBO Pascal files can be found (in case they are installed in the folder \TP

Running GetPN

To create ANDL-Files from the Petri net description vector files, simply enter

```
GetPN
```

and press the return button.



The screenshot shows a DOSBox window titled "DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX". A blue message box is displayed with the following text: "To adjust the emulated CPU speed, use ctrl-F11 and ctrl-F12. To activate the keymapper ctrl-F1. For more information read the README file in the DOSBox directory. HAVE FUN! The DOSBox Team http://www.dosbox.com". Below the message box, the command prompt shows the following commands and output: "Z:\>SET BLASTER=A220 I7 D1 H5 T6", "Z:\>mount c ~/dos", "Drive C is mounted as local directory /Users/wolfgang-marwan/dos/", "Z:\>c:autoexec.bat", "Z:\>SET BLASTER=A220 I7 D1 H5 T6", "Z:\>KEYB GR", "Keyboard layout GR loaded for codepage 858", "Z:\>PATH C:\TP;", "Z:\>C:", "C:\>cd PNETS", and "C:\PNETS>GetPn_".

The program will then take you through a dialogue to create the files depending on the options chosen by the user. With PN1_.txt to PN6_.txt, for example, this could look as follows:

```
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: GETPN
Make ANDL-Files 0 to: 6
ANDL File PN.AND generated successfully
ANDL File iPN.AND generated successfully
ANDL File PN1.AND generated successfully
ANDL File iPN1.AND generated successfully
ANDL File PN2.AND generated successfully
ANDL File iPN2.AND generated successfully
ANDL File PN3.AND generated successfully
ANDL File iPN3.AND generated successfully
ANDL File PN4.AND generated successfully
ANDL File iPN4.AND generated successfully
ANDL File PN5.AND generated successfully
ANDL File iPN5.AND generated successfully
ANDL File PN6.AND generated successfully
ANDL File iPN6.AND generated successfully
Indexed ANDL File PNXT.AND generated successfully
Indexed ANDL File iPNXT.AND generated successfully

Combine Selected Petri Nets into one File, y/n ?
Event Display (recommended) is OFF per default
switch it ON for now? y/n
_
```

```
DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: GETPN
ANDL File PN4.AND generated successfully
ANDL File iPN4.AND generated successfully
ANDL File PN5.AND generated successfully
ANDL File iPN5.AND generated successfully
ANDL File PN6.AND generated successfully
ANDL File iPN6.AND generated successfully
Indexed ANDL File PNXT.AND generated successfully
Indexed ANDL File iPNXT.AND generated successfully

Combine Selected Petri Nets into one File, y/n ?
Event Display (recommended) is OFF per default
switch it ON for now? y/n

done : 0
refresh : ESC

Select PN number : 1      done : 0; refresh : ESC
Select PN number : 2      done : 0; refresh : ESC
Select PN number : 3      done : 0; refresh : ESC
Select PN number : 0      done : 0; refresh : ESC
ANDL File PNA.AND from selected nets generated successfully
ANDL File iPNA.AND from selected nets generated successfully

Combine Selected Petri Nets into one File, y/n ?
```

For a description and explanation of file names, refer to the [README.TXT](#) file which is created along with the other files.

Working with the TURBO Pascal source code (optional)

The files containing the Turbo Pascal source code

`GetPN.PAS`

and

`MacTP.PAS`

can be modified and compiled when TURBO Pascal 5.0 or higher is installed in the folder `c:\TP`

Renaming the file extensions (essential)

File extensions under DOS support three characters only. Before being imported into Snoopy, the file extensions "`.TXT`" must be changed to "`.and1`". In the present study this was done by batch processing under Mac OS X using *Better Rename 9*.