

Puppy 2.14 Manual

1. Introduction

Puppy Linux is a very smart Linux distribution, which was developed by Barry Kauler. Barry Kauler is an Australian professor in (early) retirement. He developed a Windows similar Linux, which contains all the important programs and is nevertheless small enough to run even on older PCs completely in the RAM. Puppy runs on almost all hardware, is very easy to handle and can easily be adapted to personal preferences. Many volunteers constantly extend the software on offer. Puppy has a world-wide community, which communicates around the clock in English over the Internet. [Further information about Puppy.](#)

This manual will appeal to Linux beginners and Linux users, who would like to become acquainted with Puppy. There is a variety of information on the Internet, which you can reach from the [Puppy-Homepage](#). This manual summarizes the most important information for Puppy beginners and explains the first steps with Puppy.

How to use the manual:

- Menu entries and buttons are set in "", submenus are separated by vertical lines. Example: "Menu | Shut Down | JWM restart" means, that you first click on the button "Menu", than (at the appearing menu) on the headword "Shut Down" and finally on the headword "JWM restart".
- In the manual the letter x is used as a substitute symbol for a number. For example /dev/hdax means that you have to write /dev/hda1, /dev/hda2 or /dev/hda3 - just use what suits your computer.
- With the term "shell" the program "Menu | Run | Rxvt terminal emulator" is meant.
- If you find a mistake please send a message to mail@puppy-linux.info.

2. How to get Puppy

You can get Puppy Linux from ibiblio.org or puptrix.org (you will find more download-links [here](#)). Save the current release `puppy-2.xx-seamonkey.iso` (e.g. `puppy-2.10-seamonkey.iso`) on your harddrive. The filesize is about 80-90 MB.

To make sure that you downloaded a genuine original file, you can compare the checksum of the ISO file with the associated file `puppy-2.xx-seamonkey.iso.md5.txt` (e.g. `puppy-2.10-seamonkey.iso.md5.txt`). Download this file as well.

Within Linux:

Open a shell and change into the directory, in which you stored the two files. Enter the following command:

- `md5sum puppy-2.10-seamonkey.iso`

As a result you get the checksum. Open the file `puppy-2.10-seamonkey.iso.md5.txt` with a text program (e.g. `abiword`). The two checksums should be identical.

Within Windows:

Download the DOS-Program [md5sum.exe](#). To open a DOS-Box click on "Start | Execute". This opens an input window, into which you enter the following command:

- `cmd`

Now you get a DOS-Box.

Change into the directory, in which you stored the two files, e.g. `C:/Puppy`. Enter these commands:

- `c:`
- `cd \`
- `cd puppy`
- `dir *.*`

Now you should see the Puppy-files. Enter the command:

- `md5sum -c puppy-2.10-seamonkey.iso.md5.txt`

You should get an "OK".

Subsequently you burn the ISO file (in our example `puppy-2.10-seamonkey.iso`) on CD. To burn an ISO file on CD, consult the manual of your CD-burning software. Beginners sometimes copy the ISO file simply as a data-file on CD, which doesn't work. Usually the CD-burning software has a special menu option for burning an ISO file on CD. You can verify whether you burned the CD correctly by looking at the CD with the file manager (e.g. Windows Explorer). If you see files as `"image.gz"` or `"vmlinuz.gz"` everything is OK. If you see the file `"puppy-2.10-seamonkey.iso"` this is incorrect.

Tip:

Create a second, identical Puppy CD as a backup copy, in case the original CD becomes corrupted.

3. How to run Puppy

A great advantage of Puppy Linux is that Puppy doesn't have to be installed. You can run Puppy directly from the CD, without affecting your operating system. Alternatively you can install Puppy on a harddrive or a USB stick.

3.1 How to run Puppy the very first time

First you must set up the boot sequence in the BIOS. If you do not know how to get into the BIOS-setup, consult the computers manual. Usually you press one of the following keys immediately after switching on the PC: ESC, one of the function keys F1 to F12 or the delete key. At the BIOS-setup you change the boot sequence so that the CD-ROM drive is first and the harddrive is second. Close the BIOS-setup and store the settings.

The PC then usually reboots. Immediately insert the Puppy CD into the CD-ROM drive. If you are too slow your old operating system starts. In this case keep the CD inserted in the CD drive and start the PC again.

Now Puppy should start. During the starting procedure you are requested to enter the keyboard map. Navigate with the cursor keys downward to the entry "us" (us stands for USA). Then strike the return-key. Thereafter a further window (Puppy video Wizard) appears, "Xorg" is already highlighted. Press the return-key. Wait some seconds till the next window (Xorg video Wizard) appears. There you navigate with the cursor keys to your screen (LCD panel = flat screen, CRT = standard monitor) and resolution. Press the space bar, so that an X is set into the parentheses at the beginning of the line. Then strike the return-key. Now another window appears. Navigate with the cursor keys to the resolution and depth of shade (e.g. 1024x768x16 or 1280x1024x24). Then press the tab-key, mark "Test" and press the return-key. In the next window "Test_X_Now" is already marked. Press the return-key. Wait some seconds till a new window appears. If you can see the window wait 40 seconds. If you cannot see the window press "CTRL+ALT+Backspace". In the next window "Finished" is already marked. Press the return-key. In the next window "Done" is already marked. Press the return-key. After some seconds the Puppy desktop appears.

Puppy was loaded completely into RAM. Your old operating system is not touched, so that you can look safely at Puppy Linux. Now you can take the CD out of the CD drive.

If you terminate Puppy you are asked whether you want to store the settings (and your personal files) in a file named pup_save.2fs on a harddrive "SAVE TO FILE" or CD-ROM "SAVE TO CD". (you can change between the options with the tab-key). If you do not want to save the settings mark "DO NOT SAVE" and press the return-key.

If you would like to store the settings (and your personal files) you are asked on which harddrive this should happen.

3.2. Boot-Options

When Puppy boots it offers you some boot-options. If you do not enter anything, Puppy is loaded after some seconds into RAM. When starting Puppy automatically looks for a previously stored pup_save.3fs-file. If this file doesn't exist yet, you are asked for the keyboard map and the screen resolution (see chapter 3.1).

With the boot-option

- puppy pfix=ram

you have the option to start Puppy into RAM without your pre-saved-settings and without your personal files even if a pup_save.3fs-file already exists. This boot option is very useful and is used in this manual a few times. The other boot-options are normally not needed.

3.3 How to save the settings and your personal files

So that Puppy can store all settings and your personal data, a file named pup_save.3fs is saved. I recommend a size of 512 MB for this file. This is big enough for further programs and can be backed-up on CD-ROM (note: if you want to backup the file on a USB stick, it must have a storage capacity of 1 GB). Puppy can store the pup_save.3fs-file on a FAT32-filesystem only (note: USB sticks and external harddrives are usually formatted with a FAT32-filesystem, so that they can be used without problems). Windows XP-users normally have a NTFS-filesystem only. There are two options for you to store the pup_save.3fs-file as well:

- Save the file on an external harddrive or USB-stick.
- Make the NTFS partition smaller and create one or more further partition with FAT32-filesystem and ext3-filesystem

If you intend to use Puppy durably you should select the second alternative. This alternative has many advantages.

3.3.1 Harddrives, partitions and filesystems

A harddrive can be divided in one or more partitions. If you create several partitions on a harddrive, each partition appears like a harddrive in the operating system. In other words: although you have only one harddrive in your PC, you will see several (virtual) hard-drives with Windows or Linux. Windows designates the harddrives (as well as the floppy disk drive and CD/DVD drive). In Windows they will be identified with letters. Usually A designates the floppy disk drive, C the harddrive (first partition), D the CD-ROM drive, E the harddrive (second partition), F the harddrive (third partition) and so on. Each partition has its own file system, Windows normally uses NTFS (Windows XP) or FAT32 (Win98, Win95).

With Linux the (first) harddrive is adressed as /dev/hda or /dev/sda. If your PC has a second harddrive, it is adressed as /dev/hdb or /dev/sdb. The partitions are sequentially numbered, starting with one. The partitions of your harddrive are adressed as /dev/hda1 (corresponds to the Windows C-partition), /dev/hda2 (corresponds to the Windows E-partition), /dev/hda3 and so on. Linux can work with different file systems such as ext2, ext3 or ReiserFS. These file systems are not readable by Windows. In addition Linux can work with Windows filesystems too. Due to this option a FAT32-Partition is ideal to exchange files between Windows and Linux.

3.3.2 How to create a FAT32-partition

First of all you have to plan your new harddrive partitions. I recommend you add to your existsting Windows partition at least three further partitions. The following example assumes that you have only one hard drive (Windows-partition C). Your harddrive could be like this:

- First partition: NTFS (Windows XP)
- Second partition: FAT32 (to save your Puppy-file pup_save.2fs)
- Third partition: FAT32 (to exchange files between Windows and Linux)
- optional fourth partition: ext3 (Linux)

The first partition is your Windows-partition with all its programs and data. The second and third partition have a FAT32-filesystem, which can be accessed by Windows and Linux. On

the second partition (recommended size of approx. 1 GB) the pup_save.3fs-file will be stored, the third partition (recommended size of approx. 5 GB) will be used to exchange files between Windows and Puppy. To save many large files with Puppy Linux (e.g. music collection or picture collection) you should create a fourth partition with an ext3-filesystem. This file system can not be read by Windows and is intended for Linux only.

To create the partition you should do this:

- First of all save your files on a CD-ROM, DVD or an external harddrive. Remember also to save your favorite Internet addresses and your emails. If you have encrypted files, it is advisable to decrypt them and save them too. This protects you from data loss while creating new partitions.
- Now you have to make sure that on your Windows partition all files are stored at the beginning of the harddrive partition. In addition, run the Windows-program Defrager. You find the program in the start-menu "Start | All Programs | Accessories | System | Defrager". Depending upon the size of the partition and the stored files, this procedure can last for a very long time (over one hour). If you have many files, you can accelerate the procedure if you first backup these files (see point 1) and then delete them.
- Subsequently, when you start Puppy Linux from CD. Start the program "Menu | Control Panel | Gparted partition manager". Make the NTFS partition smaller and create the new partitions.
- In Puppy Linux you start a shell "Menu | Run | Rxvt terminal emulator" and then you enter the following commands, in order to create the second and third partitions with a FAT32-filesystem:

```
mkfs -t vfat /dev/hda2
```

```
mkfs -t vfat /dev/hda3
```
- If you want to create a partition with ext3-filesystem for Puppy Linux, then enter the following command:

```
mkfs -t ext3 /dev/hda4
```
- Close the shell and remove the Puppy CD out of the CD-ROM drive. Then shut down Puppy Linux without saving.

Next time you start Puppy Linux, you can choose the partition /dev/hda2 to store the pup_save.2fs-file.

4. How to install Puppy

If you don't want to start from CD-ROM each time, you can install Puppy on a harddrive. There are four alternatives:

- Install Puppy on a harddrive
- Install Puppy on a USB-stick
- CD-ROM-image on a harddrive
- Install Puppy on a multisession CD/DVD

I recommend the third alternative (see chapter 4.3).

4.1 How to install Puppy on a harddrive

This chapter is still missing. If you want you can help and write this chapter. Please contact mail@puppy-linux.info.

4.2 How to install Puppy on an USB stick

This chapter is still missing. If you want you can help and write this chapter. Please contact mail@puppy-linux.info.

4.3 How to save a Puppy-image on a harddrive and how to boot the image in RAM

This is a fine option for starting Puppy. It combines the advantages of booting from CD-ROM (protection from harming programs) and harddrive (speed). If you want to use this option you have to install a boot-manager (e.g. GRUB) first (see chapter 4.5).

After GRUB is installed, start Windows and insert the Puppy CD into the CD-ROM drive. Copy the files PUP_214.SFS and ZDRV_214.SFS to a partition with FAT32-filesystem (in our example this is the second partition, which probably has the letter E under Windows). If you had already stored the file pup_save.2fs from an earlier use of Puppy and if you would like to use it further, cut and paste this file to the same folder as the file PUP_214.SFS. Subsequently, you create a directory named "boot". Then you copy from the Puppy-CD two files named INITRD.GZ and VMLINUZ to this directory.

The partition should have the following content now:

- E:\ PUP_214.SFS
- E:\ ZDRV_214.SFS
- E:\ pup_save.2fs (optional)
- E:\boot\ INITRD.GZ
- E:\boot\ VMLINUZ

Now you still have to configure the boot-manager GRUB. Terminate Windows and start Puppy Linux from CD-ROM with the boot-option "puppy pfix=ram".

- Open a shell "Menu | Run | Rxtv terminal emulator" and enter the following comand

```
mount /dev/hda2 /mnt/hda2
```

The command assumes that GRUB is installed to the partition /dev/hda2.

- Run the program "Menu | Word Processing | Geany text editor"
- Open the file /mnt/hda2/boot/grub/menu.lst with the text editor.
- In the menu.lst-file change the selection of the operating system (the line begins with the command default):

```
default 1
```

- Add these lines at the end of the menu.lst-file:

```
title = Puppy  
rootnoverify (hd0,1)  
kernel /boot/vmlinuz root=/dev/ram0 loglevel=3 PMEDIA=idehd  
initrd /boot/initrd.gz
```

- Save the menu.lst-file.
- Close the text editor.
- Close the FAT32-partition with the command

```
umount /dev/hda2
```
- Take the Puppy CD out of the CD-ROM drive.
- Shut down Puppy without saving.
- Boot the PC. Now Puppy should start without a CD inserted in the CD-ROM drive.

4.4 How to install Puppy on a multisession-CD / DVD

This chapter is still missing. If you want you can help and write this chapter. Please contact mail@puppy-linux.info.

4.5 How to install the boot-manager GRUB

This chapter is still missing. If you want you can help and write this chapter. Please contact mail@puppy-linux.info.

5. How to setup an Internet connection

5.1 Modem

The following instruction is from the Puppy-forum and it is not tested by me.

Start off clicking on the connect icon on the desktop. If you have an external serial modem it should have been auto-detected by Puppy. In that case just start "Menu | Network | GKdial modem dialup".

If not you will have to use "Menu | Setup | Modem Wizard". If the modem wizard does not work you most likely have a winmodem. Puppy does support some types of these modems and there are Linux drivers for others. If your modem does not work consider picking up an external serial modem, they are cheap and work great with linux.

In any case when you get a modem set up all you have to do is open "Menu | Network | GKdial modem dialup" and use the add button.

Next, enter the information from your ISP.

Now click Add and then click Connect on the main screen.

5.2 DSL

First you should check if the ethernet-interface was detected. Start a shell ("Menu | Run | Rxt terminal emulator") and enter the following command:

- ifconfig

Can you see "eth0"?

If you can not see "eth0" enter the following command:

- ifconfig eth0 up

To check if the ethernet-interface is available now, enter the following command:

- ifconfig

Now you should see "eth0". Close the shell.

Start the program "Menu | Network | Roaring Penguin PPPoE ADSL". The program has four registermaps, which will be described below.

Registermap Basic

- Connection Name: freely selectable name, e.g. the name of your Internet-provider
- Username: ask your provider
- Network: leave it empty
- Password: ask your provider

Registermap NIC and DNS

- Ethernet Interface: eth0
- DNS Setup: From Server

Registermap Options

- Allow use by non-root users: mark with a cross
- Use synchronous PPP: mark with a cross
- Firewall: Stand-Alone

Afterwards press the "OK" button. A new window appears "RP-PPPoE". There are two buttons named "Start" and "Stop".

With these two buttons you can connect / disconnect the Internet-connection. If you press the button "Start" two green bars should be visible. Now you are online.

You can now open the Internet browser "Menu | Internet | SeaMonkey Webbrowser". Enter a URL and see if the Internet site is displayed.

5.3 Router

This chapter is still missing. If you want you can help and write this chapter. Please contact mail@puppy-linux.info.

5.4 WLAN

The following instruction is from the Puppy-forum and it is not tested by me.

Wireless LAN is tricky but if you carefully follow these directions you should be able to get it up and running. First grab the Windows XP drivers for your card. If you do not know what kind of card you have you must find out somehow. Ask someone to help, type in your computer's model number into google (ie. "hp pavilion zd7000 wifi card") or crack open your case and look at the card.

When you get the drivers open "Menu | Run | Rxtv terminal emulator" and change to the folder that has the file that has a .inf extension. The easiest way to do this is to open "Menu | File managers | puppyROX file manager" and browse to the location of the driver. Then right click and in the menu select open "terminal here". Next run "Menu | Setup | Wireless network Wizard" and type the commands it asks you to. Finally select the WAG (wireless access gadget) button at the bottom. Hit "OK" to the messages as it starts. When WAG starts you should be able to just hit the "DHCP"-button at the bottom. If there are any networks available this will find them. Exit WAG and you should be on the Internet.

5.5 How to setup your email-program

Start the program "Menu | Internet | SeaMonkey mail and news". The configuration depends on your email-provider. In the following you will find an example for GMX.

After you press the button "Finish" the program automatically downloads your emails from your email account. If you are offline, the following error message appears:

Start an Internet-connection (see chapter 5) and click (in the Seamonkey-Mail-Programm) on the button "Get new messages".

6. How to set up your hardware

6.1 Printer

This is an easy one to get up and running. Just run "Menu | Setup | Printer Wizard" and the directions there should be sufficient to get most printers working. If your printer is not on the list that comes up try one that is similar for example if you have an superjet 23e try the superjet 23 or superjet 23f.

6.2 Scanner

This chapter is still missing. If you want you can help and write this chapter. Please contact mail@puppy-linux.info.

6.3 USB sticks / external harddrive

USB sticks and external harddrives are very simple to use. Start the program "Menu | File managers | Pmount mount/unmount drives" and click on the button "Refresh". Then you click on the USB stick symbol and the file manager ROX will automatically open and show you the files on the USB stick. External harddrives with FAT32-filessystem can be used too. If you changed the file system of the external harddrive e.g. to an ext3-filessystem the program Pmount can not mount the external harddrive. In this case you open a shell and enter:

- `mount /dev/sdax /mnt/sdax` (e.g. for the first partition: `mount /dev/sda1 /mnt/sda1`)

7. How to (de)install programs

There are different ways of installing programs which are described below. Before an installation it is advisable to backup the pup_save.2fs-file. So you can restore the file, if something goes wrong with the installation.

7.1 How to install official programs

First start an Internet-connection "Menu | Network | Roaring Penguin PPPoE ADSL" (see chapter 5)

Then you start the program "Menu | Setup | Puppy package manager". In the window that appears you click on the second button.

A new window opens.

Click on the first button ("Click the button to choose and install an official PET package..").

A new window appears.

On the left side you can see all available programs. On the right side are the programs already installed (at the beginning this list is empty). Now select in the left list the program which should be installed and click on the button "Add" between the two lists. This transfers the program into the right list. Then you click on the "OKAY" button and the program will be installed.

7.2 How to install further programs

The search for a program, which cannot be installed as an official PETget (see chapter 7.1), should begin in the [Puppy-Forum](#). There is a category called "Additional Software", where you can find many programs to download. The installation is easy using a PETget-program (see chapter 7.2.1) or DotPup-program (see chapter 7.2.2). In addition Debian programs can be installed too (see chapter 7.2.3).

7.2.1 Unofficial PETgets

In addition to the official PETget-programs the Puppy-community offers further PETget-programs at the [Puppy-Forum](#). Download the PETget-file and then start "Menu | Setup | Puppy package manager".

Click on the second button. A new window opens.

Click on the second button. A new window opens.

Choose the PETget-file and click the OK-button.

7.2.2 DotPups

DotPups are programs for Puppy Linux, made by Puppy users. Download the DotPup-file from the [Puppy-Forum](#) (or another Internet site) and click - in the file manager ROX and with the left mouse button - on the file. A window opens:

Click on the button "Unzip". Now a warning message appears.

Click on the "Run" button. Now the program will be installed. After the installation you are asked whether you want to delete the file or not.

If you want to keep the DotPup-file you click on the button "No". Otherwise you click on the button "Yes".

7.2.3 Debian-programs

Debian covers an enormous software range with approximately 15,000 programs. The installation of Debian programs in Puppy is for advanced Linux users only, who are familiar with Debian programs and dependency between the programs.

First you install the PupGet program pb_debianinstaller (see chapter 7.1).

Now you can download programs from the Debian Internet site. There are three versions: stable, testing and unstable. If you do not need the newest program-versions, I recommend a program from stable, because the stable programs were tested intensively and are in principle error free.

Download the Debian program. Subsequently, you start a shell and enter the following command:

- pb-debianinstaller

Many Debian programs presuppose that other Debian programs are installed on your PC too. The installer examines whether all necessary programs are installed. If not the installer indicates, which programs are missing. Abort the installation and download the missing programs from the Debian Internet site. Install these programs (they can have further dependencies, so you may have to download still more programs from Debian). At last you can install your program.

7.3 How to deinstall programs

Start the program "Menu | Setup | Puppy package manager".

Click on the second button. A new window opens.

Click on the first button. You get another window:

On the left side you can see all programs available. On the right side you see the programs already installed. Mark in the right list the program, which you would like to deinstall. Click on the button "Remove" between the two lists. Afterwards you press the button "OK".

Programs, which are on the Puppy CD-ROM, can not be deinstalled. But you can delete these programs from the menu (see chapter 8.2).

8. How to setup Puppy

8.1 How to change the background desktop-image

If you want to use another background picture, copy your picture into the directory /usr/share/backgrounds. Subsequently, you start the program "Menu | Desktop | Puppybackground desktop image". On the left side are the available background pictures. Select a picture and click on one of the four buttons fit / stretch / center / tile. The background desktop-image is changed immediately.

8.2 How to create your own menu

Puppy uses JWM (Joes Windows manager) as windows manager. You can adapt JWM to your needs. If you want to change the program-menu follow these commands:

- Start the program "Menu | File managers | puppyROX file manager"
- Change to the directory /root
- Click on the symbol "Show all files"
- Right-click on the file .jwmrc and select "Open As Text". The .jwmrc-file is opened with Geany text editor now.
- Edit the file. The file .jwmrc has the following structure:

```
<Menu label="MeinMenu" icon="MeinIcon" height="16">
  <Program label="MeinProgramm"
icon="MeinProgrammIcon">programmaufruf</Program>
  <Program label="MeinProgramm"
icon="MeinProgrammIcon">programmaufruf</Program>
</Menu>
```

Beispiel:

```
<Menu label="Mein Menu" icon="face-win.xpm" height="16">
  <Program label="ROX" icon="mini-diskette.xpm">rox</Program>
  <Program label="CD/DVD Writer" icon="mini-cd.xpm">tkdvd</Program>
  <Separator/>
  <Program label="Abiword" icon="mini-edit.xpm">abiword</Program>
</Menu>
```

- Save the file and quit Geany.
- Restart JWM: "Menu | Shut Down | JWM restart"

You can find further information about JWM on these Internet sites:

- [JWM Homepage](#)
- [JWM Configuration](#)

8.3 How to add a program icon at the tray zone

If you want to add a program icon at the tray zone enter these commands:

- Start the program "Menu | File managers | puppyROX file manager"

- Change to the directory /root
- Click on the symbol "Show all files"
- Right-click on the file .jwmrc-tray and select "Open As Text". The .jwmrc-tray file is opened with Geany text editor now.
- If you want to add e.g. abiword, add the following line:
- Save the file and quit Geany.
- Restart JWM: "Menu | Shut Down | JWM restart"

8.4 Setup time and date

To set date and time start the program "Menu | Desktop | Set date and time". If you want to change the clock from 12-hours to 24-hours-display enter these commands:

- Start the program "Menu | File managers | puppyROX file manager"
- Change to the directory /root
- Click on the symbol "Show all files"
- Right-click on the file .jwmrc-tray and select "Open As Text". The .jwmrc-tray file is opened with Geany text editor now.
- At the end of the file you see the "clock"-command. Edit this line as shown:
- Save the file and quit Geany.
- Restart JWM: "Menu | Shut Down | JWM restart"

8.5 How to store / remove a desktop icon

In order to store a desktop icon with a link to a program, directory or file, you can drag the file with the left mouse button from the file manager ROX onto the desktop.

If you want to remove a desktop icon right-click on the icon and select "Remove Item".

8.6 Setup DVD/CD-burning program TkDVD

Click on the button "Advanced Options" and enter a check mark at the option "Filesystem extensions | Add Joliet extensions". This enables you to use long filenames.

9. How to make a backup

9.1 How to backup pup_safe.2fs

The file pup_safe.2fs contains the personal settings and your personal files, if the files are not stored on another partition (e.g. harddrive, USB stick). The backup is very simple. Either you start Puppy with the boot-option "puppy pfix=ram" or you start your old operating system (Windows). Then you copy the file onto the backup medium (e.g. another harddrive, USB stick, CD-ROM).

9.2 How to restore files out of the pup_save.2fs-file

You can see the content of the file pup_save.2fs only if the file is loaded while booting Puppy. If the file cannot be loaded, there is nevertheless a way of getting into the file and saving the content:

- Start Puppy with the boot-option "puppy pfix=ram".
- Then you open a shell and enter the following command:

```
mount -o loop /mnt/hdax/pup_save.2fs /mnt/data
```

/mnt/hdax is the partition you stored the pup_save.2fs-file (e.g. mount -o loop /mnt/hda2/pup_save.2fs /mnt/data).

- Now you can see the content of the pup_save.2fs-file at the directory /mnt/data and you can copy all files to another harddrive or USB-stick.

9.3 Backup with rsync

If you do not store your files in the file pup_save.2fs but on a partition with ext2/ext3-filesystem, you can backup the files with the rsync-command. I recommend a second (external) harddrive as backup medium. The backup harddrive must have an ext2/ext3-filesystem too (see chapter 3.3.2).

Rsync synchronizes the backup with your current files and copies only the new and/or changed files on the backup medium. At the same time rsync deletes (if you want) all files from the backup medium, which you don't have anymore. In order to be able to use rsync, you must install the program first. (Search at the [Puppy-Forum](#)).

Before you make a backup ensure that your files were not compromised (see chapter 11.4).

The following example assumes that you saved your files at the directory /myData and that the backup directory is /backup.

Open a shell and enter the following commands:

- mount /dev/hda4 /mnt/hda4

Mount the partition, on which you stored your file. It must be a partition with a Linux-filesystem, e.g. ext2/ext3

- mount /dev/sda1 /mnt/sda1

Mount the partition, on which you want to store the backup, e.g. an external harddrive with ext2/ext3-filesystem.

- rsync -av --delete /mnt/hda4/myData/ /mnt/sda1/backup

Backup the files. If there is no backup-directory, create one with the command `mkdir /mnt/sda1/backup`

- `umount /dev/hda4`

Unmount the partition

- `umount /dev/sda1`

Unmount the partition

Note: The diagonal stroke behind `/mnt/hda4/myData/` is important. Only the files within the directory `/mnt/hda4/myData` are copied, not the directory `myData` itself.

These are the `rsync`-options:

- `a`: all directories and files are copied
- `v`: you can see the progress on the screen
- `delete`: directories and files, that no longer exist in `myData` are deleted from the backup. If you don't like this, leave out the `--delete` option.

With the following commands you can restore your files from the backup:

- `mount /dev/hda4 /mnt/hda4`
- `mount /dev/sda1 /mnt/sda1`
- `rsync -av --delete /mnt/sda1/backup/ /mnt/hda4/myData`
- `umount /dev/hda4`
- `umount /dev/sda1`

10. Multiuser

Puppy is not developed as a multi-user distribution. In contrast to other distributions each user has full access to all files, programs and personal data. Nevertheless there are some options for multiusers.

10.1 How to personalise the pup_save.2fs-file

If several persons work with Puppy, you can assign a pup_save.2fs-file to each person. In this way each person can configure Puppy individually and store his personal file in his own pup_save.2fs-file.

All pup_save.2fs-files must be in the same directory and must begin with "pup_save". For example, if there are two users Julia and Alexander you make a copy of the original pup_save.2fs-file first. Then you rename the original file as pup_save_Julia.2fs and the copied file as pup_save_Alexander.2fs. When starting Puppy asks which pup_save.2fs-file to use.

10.2. Multisession

As described in chapter 4.4, each user can use its own Puppy CD/DVD with his programs and his personal files. To do so use the boot option multi-session. Even though multi-session is really interesting I am hesitant to save on the same CD-/DVD-data medium again and again. I would always be afraid of losing my files.

11. Security

11.1 Live-CD

If you start Puppy from CD-ROM (or from a CD-image on your harddrive, see chapter 4.3) no potentially harmful programs can install on your computer. With every reboot all potential malware is gone.

However you are not wholly protected against malware while you are online, because (in theory) malware can be installed on your computer and can be active until the next reboot. That is why you should always run a firewall (see chapter 5). Besides you can store checksums of all your files (see chapter 11.4) to make sure, no one has manipulated your files.

11.2 Root

In contrast to most other Linux distributions Puppy does not differentiate between a normal user and the administrator root. Rather you always works as root, which simplifies the use of Puppy. The question arises if it is unsecure to work as root and to have full access to all files, programs and data.

For the normal home user, there are no special risks compared to other Linux distributions. On the contrary, Puppy is probably a bit safer than many other distributions.

First let's analyze the risk of a distribution, which differentiates between user and root. The user works as a normal user, who does not have privileges to write/delete programs and system files. An intruder can compromise only the user's files. However the intruder has an entrance to the system and can try to gain root-privileges (find the password file, use exploits to transfer malware code and so on), and afterwards try to get access to all files.

As long as Puppy starts from CD-ROM (and is not installed on the harddrive) the program-files and system-files are secure. Everytime you reboot any malware programs, which an intruder could have left, are gone. Of course your own files stored into the pup_save.3fs-file or on a harddrive can be compromised by an intruder, but this can happen to the normal user of another Linux-distribution as well. If you want to be safe from intrusion, store checksums of all files and backup your files regulary (see chapters 9 and 11.4).

11.3 Firewall and daemons

The firewall (see chapter 5) should always be active. You can configure which ports are open to the Internet. Ideally all ports are closed. You should open only the ports you need to use. If you need some ports occasionally, keep the ports closed when not in use.

An open port is normally not risky in itself. Only if a server-program (called daemon) runs on your computer and waits at the port for inquiries, can it become dangerous. Therefore no daemons should run on your PC unless required.

The following instruction shows which ports are open and which daemons run:

- Install the Program nmap. Nmap is available as a PETget (see chapter 7.1).
- Open a shell and enter:

```
nmap localhost
```

Now you see the opened ports. If you are running Puppy at home without a home-network all ports should be closed.

- The following command shows all daemons running:

```
netstat -anp --ip
```

Now you see the running daemons. If you are running Puppy at home no daemons should run.

- You can test your firewall at the Web site [Shields Up!](#). Load the page and click the Proceed-button.

11.4 Virus scanner

If you want to scan your files or a Windows computer you can use F-Prot virus scanner. You can download the program from the [Forum](#). After you have downloaded and installed the program open a shell and enter the following command while you are still online.

- `/usr/local/bin/xfprot-gtk` or
- `/usr/local/xfprot/xfprot-gtk`

Now you can update the virus definitions. Then you can get offline. Mount your Windows-partition (mount `/mnt/hdax /mnt/devx`) and make the following settings in F-Prot:

- Path to scan: `/mnt/hdax`
- Scan mode: Interactive
- Report file: `/root/xfprot.log`

When the virus scan has finished you can find the log-file at `/root/xfprot.log`.

If you want to scan another Windows computer, you can remaster Puppy (see chapter 13). Boot the Windows computer from the remastered Puppy CD (boot-option `puppy pfix=ram`) and scan the PC as described above.

11.5 Intrusion detection

For further improvement of your security you should store a checksum (a fingerprint) for all files. At regular intervals, but in any case before a backup, you examine the checksums of your files. If the checksums do not agree, the file was changed or deleted.

In order to compute and store the checksums, you open a shell and enter the following commands:

- `md5sum /usr/bin/md5sum`
Create a checksum of the program `md5sum`. Write down the checksum.
- `mount /dev/hda4 /mnt/hda4`
Mount the harddrive with your files.
- `find /mnt/hda4 -type f -exec ls -ail {} \; \-exec md5sum {} \; > /root/check1.dat`
Create the file `check1.dat` with the checksums of all files.
- `md5sum /root/check1.dat`
Create a checksum of the file. Write down the checksum.

If you want to check, which files have been changed enter these commands:

- `md5sum /usr/bin/md5sum`
Create a checksum of the program md5sum. Compare the checksum with the checksum of step (1).
- `md5sum /root/check1.dat`
Create a checksum of the file /root/check1.dat. Compare the checksum with the checksum of step (3).
- `mount /dev/hda4 /mnt/hda4`
Mount the harddrive with your files.
- `find /mnt/hda4 -type f -exec ls -ail {} \; \-exec md5sum {} \; > /root/check2.dat`
Create the file check2.dat with the actual checksums of the files.
- `diff /root/check1.dat /root/check2.dat > /root/diff.txt`
Compare the two files check1.dat and check2.dat. The differences are written to the file diff.txt.
- Open the file /root/diff.txt and check, if you know about the changed files. If not think why these files have been changed.
- Delete the file /root/check1.dat
- Rename the file /root/check2.dat as /root/check1.dat.
- `md5sum /root/check1.dat`
Create a checksum of the new check1.dat-file. Write down the checksum.

11.6 Encrypt with bcrypt

You should encrypt very sensitive files with the program bcrypt. Bcrypt uses the secure Blowfish-algorithm.

Open a shell and enter:

- `bcrypt /MyDirectory/MyFile`

Then you are asked a password (at least eight characters long; you can abort bcrypt with "Ctrl" + "C"). Bcrypt encrypts your file and appends the extension bfe to the file. The original file is deleted automatically.

If you want to encrypt more than one file or a complete directory you should create an archive-file. Start the program "Menu | Utilities | Xarchive archiver". Afterwards you encrypt the archive-file.

Note that bcrypt deletes the original file automatically. You can't recover the file. If you don't want to delete the file start bcrypt with the option -r:

- `bcrypt -r /MyDirectory/MyFile`

If you want to decrypt the file start bcrypt again:

- `bcrypt /MyDirectory/MyEncryptedFile`

Then you enter your password.

For further information see :

- [Homepage bcrypt](#)

12. Make your own Puppy-CD

You can create your own Puppy-Linux with the following program.

Start the program "Menu | Setup | Remaster Puppy live-CD":

Click on the OK-button.

Choose the partition, on which a temporary working directory should be made with the tabulator-keys. Then press the OK-button.

Choose your CD/DVD-burning device with the tabulator-keys. Then press the OK-button.

Insert the current Puppy-live-CD and press the OK-button.

Click on the OK-button.

Click on the button "No".

Click on the OK-button.

Click on the button "No".

Click on the OK-button.

Take the live-CD out of the CD/DVD-burning device and insert a new CD-ROM or DVD. Choose if you want to create a CD or DVD with the tabulatorkeys. Then click on the OK-button.

Your new Puppy-CD/DVD will now be created. When it has finished, press the Return-key.

Click on the OK-button. Your Puppy-live-CD is now ready.

13. Tips and tricks

13.1. Windows-programs und corresponding Puppy-Linux-programs

Windows	Puppy-Linux
Windows Explorer	ROX
Word	Abiword, OpenOffice Write
Excel	Gnumeric, OpenOffice Calc
PowerPoint	OpenOffice Impress
Notepad	Editor Geany
Internet Explorer	SeaMonkey Browser
Outlook	SeaMonkey Mail
Frontpage	Bluefish
Photoshop, Paintshop	Gimp
mp3-Player	Xmms
DVD-Player	Gxine

13.2 Upper and lower case

Linux always differentiates between upper and lower case. The two files MyFile.txt and myfile.txt are different file.

13.3 Special characters

Do not use special characters except for minus (-) and underline (_) for filenames or directory-names. Don't use the space-character. Use the characters A-Z, a-z, 0-9, -, _ only.

13.4 How to move files with ROX

If you left-click on a file and pull it to another directory the file is copied. If you press the shift-key at the same time, the file is moved.

Further information about [ROX](#)

13.5 The contextmenu of ROX

To use the contextmenu of ROX right-click on a file or directory.

13.6 Copy and paste in the shell rxvt

Copy = left mouse-click

Paste = middle mouse-click

13.7 Automatic completion in the shell rxvt

You do not have to type the entire path or filename at the shell. It is enough to type the first letters and then press the tabulator-key. The shell completes the directory-name or filename.