

# The **PCLinuxOS** magazine

Volume 110

March, 2016

**GIMP Tutorial:  
Pop-Up Text**

**Game Zone:  
Breach & Clear**

***Linux Anti Oops:  
How To Undelete Files***

***PCLinuxOS Family  
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***And more inside ...***





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## The **PCLinuxOS** magazine

The PCLinuxOS name, logo and colors are the trademark of Textstar.

The PCLinuxOS Magazine is a monthly online publication containing PCLinuxOS-related materials. It is published primarily for members of the PCLinuxOS community. The magazine staff is comprised of volunteers from the PCLinuxOS community.

Visit us online at <http://www.pclosmag.com>

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# Welcome From The Chief Editor

So ... what did YOU do during the Great PCLinuxOS Forum Outage (GPFO) of February, 2016? Did you have an incurable case of "Forum Withdrawal (FW)?" Whatever shall you do the NEXT time the PCLinuxOS Forum goes dark?

The GPFO occurred after a thunderstorm rolled through the Houston, TX region on February 23, felling a tree (that looked like it was due to come down) that then fell into the electrical service pole, knocking out power to half of Texstar's house ... which also houses the server that runs the PCLinuxOS website.



Texstar made the following [announcement](#) in the PCLinuxOS forum, informing the PCLinuxOS community about the impending power outage:

"Houston we have a problem. A tree fell on the electrical line coming into the house and bent our house pole. The electric company will be out tomorrow to cut power so we can fix the line and the pole. The website will be offline during this power outage. If it isn't one thing it is another!"

He went on to add that half of his house was without power. To keep the PCLinuxOS website up and running until the power company cut the power for repairs on the following day, Texstar ran an extension cord to the "computer room" to supply the necessary power to keep everything up and running.



Admit it. You find it hard to go without your daily "forum fix." It's ok. You have a LOT of company. There are many PCLinuxOS users who spend a considerable amount of time checking to see what their PCLinuxOS friends and family members are up to. So ... back to our original questions: what did you do during the February 2016 GPFO? What will you do the NEXT time the PCLinuxOS Forum goes dark? C'mon. You know it will happen again, sometime. So, it's best to have a plan.

Here are some ideas of things you can do to fill the time you might have otherwise spent in the PCLinuxOS forum, had it been up and accessible.

- Visit another Linux OS's forum. Sure, it probably isn't going to be as friendly as the PCLinuxOS forum, but it might help fill the void. Who knows ... you just may be able to help someone with the knowledge you gained from running PCLinuxOS.
- Reintroduce yourself to your wife/husband/kids.
- Watch a movie or catch up on the TV series you skipped out on, because you had to check in on the PCLinuxOS forum.
- Try out a new recipe you've been wanting to try, but couldn't find time to. For that matter, try out one of YouCanToo's tasty recipes from his monthly "PCLinuxOS Recipe Corner" column.
- Check in with your "other" friends on social media, just to let them know that you're still around and kicking. While they may not be as fondly viewed as your PCLinuxOS friends and family members, they'll most likely appreciate the effort.
- Start the physical fitness program that you have kept putting off.
- Work on your "honey do" list, and get a few projects done around the house. It will go a LONG way in getting/keeping you out of the proverbial "dog house."
- Rediscover one of your old hobbies. You remember them, right? You know ... those things you used to do before you spent so much time in the PCLinuxOS forum. Having amnesia? Then start up a new hobby you've been wanting to try (I like making homemade

wine ... it's very easy and the results are very rewarding).

- Catalog and organize your vacation photos ... from last year (or the year before).
- Install and try out a new program you've always wondered about, or thought about trying/learning.

See! There are other things you could do when the PCLinuxOS Forum goes dark.

So, until next month ... and the next GPFO ... I bid you peace, happiness, serenity and prosperity.



**The PCLinuxOS  
Magazine**

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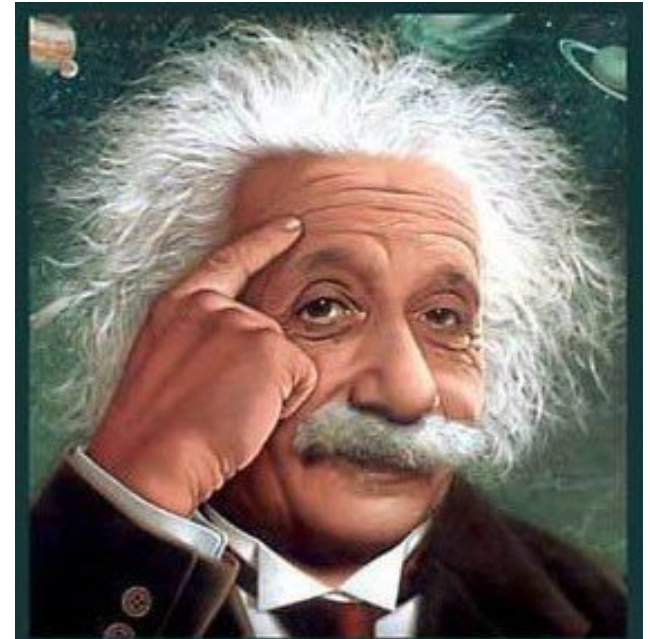
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**Welcome From The Chief Editor**



**It's easier than  $E=mc^2$   
It's elemental  
It's light years ahead  
It's a wise choice  
It's Radically Simple  
It's ...**





# Linux Anti Oops: How To Undelete Files

by Paul Arnote (parnote)

## Disaster Scenario #1

You just returned from the vacation of your lifetime. You toured Europe for three weeks, then stopped for a week at a tropical paradise to cap it all off. Over the course of a month, you filled up two 16 GiB SD cards with your high resolution digital SLR camera. Now, it's time to sit down and transfer, catalog and edit your images. You even have plans of creating a travelogue for your church group.

During the process of copying all of your images to your computer's hard drive, you inadvertently delete all the images on the first SD card.

Oh NO! (Or insert your choice of expletive in place of the "no"). Whatever will you do? Those pictures are irreplaceable!

## Disaster Scenario #2

You've been up all night working on a presentation that has to be presented to the board of directors of the company for which you work in less than 10 hours. You've been working hard on your presentation all night. Now, at 2 a.m., you decide to raid the refrigerator and grab yourself a late night snack, while taking a short break – after saving your work. In your absence, the cat decides that the warm keyboard of your laptop would be the PURRFECT place to take a nap. While the cat twirls around to find a comfortable position in the middle of your warm laptop, it steps on a combination of *just the right* keys and inadvertently manages to delete your presentation.



There's no way you can recreate the presentation in the relatively short amount of time remaining before you have to make your presentation. Whatever will you do? The stakes are high for your career if this presentation goes well.

## Never fear ...

Both of these scenarios are scary to even experienced computer users. I'm sure you can even think up some other similarly awful scenarios. It is safe to say that something like this has happened to EVERY computer user out there, at one time or another.

The key to being able to recover deleted files is to act quickly. Stop what you are doing immediately. You will want to be able to prevent the data you're trying to save from being overwritten, so stopping all other computer activity will help prevent that from happening. With today's modern file systems – and even with file systems from days gone by – the sooner you minimize drive activity, the greater the chance you will be able to recover any deleted files. Even a small cookie file from your browser could overwrite an important file that you might wish to recover.

Windows users have had the ability to “undelete” files for a very long time – say, from the time when Windows ran atop MS-DOS. But for Linux users, it's an especially scary proposition. Linux, for all its glory and all that it gets “right,” doesn't have a built-in ability to “undelete” files that were mistakenly deleted. With Windows, users have little to no choice over file systems, and are pretty much relegated to using FAT16, FAT32, ExFAT and NTFS file systems. Linux users, however, can use EXT2, EXT3, EXT4, ReiserFS, Btrfs, and a whole host of different file systems. Linux users can even use all of the Windows file systems, too. And this flexibility is most likely at the root of Linux's lack of a simple, built-in “undelete” files capability.

Instead, Linux relies on a some utilities that take care of the task of recovering deleted files, undeleting them, if you will. As far as I know, none of them are GUI, nor do any of them have GUI frontends. Much to the chagrin of those users who use GUI programs only, all four of the utilities are command line only programs. PCLinuxOS has four such utilities in its official repository: ntfsprogs, extundelete, testdisk and photorec. Let's take a look at each one.

## ntfsprogs

I figure I'd just start out with this one, and get it out of the way. I have no way of actually testing this one, since I don't have any NTFS formatted drives. Nor do I have access to any. (Well, the hospital where I work does use Windows, but I

suspect my employment there wouldn't last too long if I went in there mucking with their computers. My job is to work on people there, not the hospital's computers.) Such are the spoils of declaring yourself "Windows Free." However, if you still dual boot with any version of Windows, you may find yourself in need of this suite of programs specifically designed to work with the NTFS file system.

Here's what Synaptic has to say about ntfsprogs:

## NTFS filesystem libraries and utilities

The Linux-NTFS project aims to bring full support for the NTFS filesystem to the Linux operating system. Linux-NTFS currently consists of a static library and utilities. This package contains the following utilities:

**ntfscat:** concatenate files and print them on the standard output.

**ntfsclose:** efficiently clone an NTFS filesystem.

**ntfscluster:** identify files in a specified region of an NTFS volume.

**mkntfs:** format a partition with the NTFS filesystem.

**ntfsfix:** tool for fixing NTFS partitions altered by the Linux kernel NTFS driver.

**ntfsinfo:** dump a file's attributes.

**ntfslabel:** display/change the label on an ntfs file system.

**ntfsls:** list directory contents on an NTFS file system.

**ntfsresize:** resize an NTFS filesystem.

**ntfsundelete:** recover a deleted file from an NTFS volume.

It is the last one listed in the suite of utilities that you might be interested in – at least, when it comes to recovering deleted files.

So, in lieu of actually being able to try it out, the best I can do is refer you to the [man page](#) for ntfsundelete. Well, I can also summarize some of the information from there, too, and hit the highlights.

ntfsundelete accepts two command line arguments. You can follow with one of the options (which is optional) and the device to be scanned (required). By default, ntfsundelete simply scans the specified device for any recoverable files

(specifying the **-s** option would also tell ntfsundelete to scan the specified device). It would look like this:

```
ntfsundelete /dev/sda1
```

Of course, that's presuming that **/dev/sda1** is formatted with NTFS. Substitute your NTFS drive or partition for **/dev/sda1**. The output might look something like this:

Inode	Flags	%age	Date	Size	Filename
6038	FN..	93%	2002-07-17	26629	thesis.doc

The scan information reveals the inode of the file, what percentage of the file is recoverable (in this case, 93%, which is a whole lot better than none of the file), the date of the file, the size of the file, and the filename. So, to undelete this file, you would execute the ntfsundelete command as follows:

```
ntfsundelete -u -m "thesis.doc" -o "thesis.doc" -d ~
```

Before we explain the command line, just note one thing. Get in the habit of placing the filename(s) in quotes, just in case there are spaces in the filename(s). The Linux command line uses spaces as delimiters between options and command line arguments, so spaces in the filename(s) could cause the command to fail – unless you put the filename(s) in quotes.

The **-u** option tells ntfsundelete that you want to undelete a file. The **-m** option tells it to look for the file that matches the pattern that follows (in this case, the filename that appears in quotes). With the **-o** option, we tell ntfsundelete to name the output file "thesis.doc" (the same as the "lost" file). Finally, the **-d** option tells the program to output the file in the user's home directory (~).

There are a number of other options available, and they are explained fairly well on the ntfsundelete man page. For example, you can tell it to scan for files deleted within the last two days (use the **-t 2d** option), look for specific types of files (**-s -m "\*.pdf"**), and so on.

ntfsundelete only reads from the NTFS volume, and never changes the NTFS volume. It also will not work on compressed or encrypted files. I especially love the "Caveats" section of the man page. It states "Miracles. ntfsundelete cannot perform the impossible," and it then goes on to explain why even files very recently deleted may not be able to be retrieved in a complete state on NTFS volumes.

If you routinely work with NTFS volumes, the ntfsprogs suite of programs deserve a place in your toolbox. Since we're only dealing with how to undelete files under

Linux in this article, you can explore the other utility programs in the suite on your own.

## extundelete

extundelete is a command line utility specifically for undeleting files from Linux EXT3 and EXT4 file systems. Here is the description from Synaptic:

**Extundelete is a command line utility to undelete files from an ext3 or ext4 partition.**

Extundelete is a command line utility to undelete files from an ext3 or ext4 partition.

The file 'testing.txt' illustrates a simple usage of this program.

You find it under `/usr/share/doc/extundelete-0.2.4/`

Before we get to talking about how to run extundelete, note that there is NO "testing.txt" file in `/usr/share/doc/extundelete-0.2.4/`, as explained in the barebones description in Synaptic. Instead, there are brief instructions on how to run extundelete at the end of the README file. A more complete discussion of how to run it is explained at its non-standard man page, [here](#). Ubuntu has created a more formal man page, which can be viewed [here](#).

Simply entering **extundelete** on the command line by itself also displays a slimmed down command summary. Here it is:

```
[parnote-toshiba@parnote-toshiba ~]$ extundelete
No action specified; implying --superblock.
extundelete: Missing device name.
```

Usage: **extundelete** [options] [--] device-file

### Options:

```
--version, -[vV]    Print version and exit successfully.
--help,              Print this help and exit successfully.
--superblock          Print contents of superblock in addition
                      to the rest. If no action is specified
                      then this option is implied.
--journal             Show content of journal.
--after dtim          Only process entries deleted on or after
                      'dtim'.
```

```
--before dtim        Only process entries deleted before
                      'dtim'.

Actions:
--inode ino           Show info on inode 'ino'.
--block blk           Show info on block 'blk'.
--restore-inode ino[,ino,...] Restore the file(s) with known inode
                      number 'ino'. The restored files are
                      created in ./RECOVERED_FILES with their
                      inode number as extension (ie,
                      file.12345).
--restore-file 'path' Will restore file 'path'. 'path' is
                      relative to root of the partition and does
                      not start with a '/'. The restored file is
                      created in the current directory as
                      'RECOVERED_FILES/path'.
--restore-files 'path' Will restore files which are listed in the
                      file 'path'. Each filename should be in
                      the same format as an option to --restore-
                      file, and there should be one per line.
--restore-directory 'path' Will restore directory 'path'. 'path' is
                      relative to the root directory of the file
                      system. The restored directory is created
                      in the output directory as 'path'.
--restore-all         Attempts to restore everything.
-j journal            Reads an external journal from the named
                      file.
-b blocknumber        Uses the backup superblock at blocknumber
                      when opening the file system.
-B blocksize          Uses blocksize as the block size when
                      opening the file system. The number
                      should be the number of bytes.
--log 0               Make the program silent.
--log filename        Logs all messages to filename.
--log D1=0,D2=filename Custom control of log messages with comma-
                      separated list of options. Dn must be one
                      of info, warn, or error. Omission of the
                      '=name' results in messages with the
                      specified level to be logged to the
                      console. If the parameter is '=0', logging
                      for the specified level will be turned
                      off. If the parameter is '=filename',
                      messages with that level will be written
                      to filename.
--log info,error      --log warn=0
--log error=filename  --log error=filename

--o directory         Save the recovered files to the named
                      directory. The restored files are created
                      in a directory named 'RECOVERED_FILES/' by
                      default.
```

While this information is helpful, it really doesn't tell you **how** to run extundelete. For that, you'll need to refer to the information at the end of the aforementioned README file, or the link to the man page. Or, just follow along with me for a bit longer.

Before you can use extundelete, you will first need to unmount the volume that holds the file(s) you want to recover. For example, if you have your /home directory on a separate partition, issue the mount command without any command line argument.

```
[parnote-toshiba@parnote-toshiba ~]$ mount  
/dev/sda5 on / type ext4 (rw,noatime,acl,commit=0)  
/dev/sda6 on /home type ext4 (rw,noatime,acl,commit=0)
```

That tells me that my /home directory is on /dev/sda6. If the file(s) that I want to undelete are somewhere in my /home directory, I need to unmount the volume first. Alternatively, you can mount the volume as read only. Alternatively, you can remount the drive volume as read-only.

Unmount the drive: **umount /dev/sda6**

Mount the drive as read-only: **mount -o remount,ro /dev/sda6**

*(Only use ONE of these commands, not both ... unmounting the drive volume is easiest.)*

Before proceeding, double check to make sure that the volume is indeed now unmounted. To do so, rerun the mount command. The drive volume should not be listed if it was properly unmounted.

Now, to undelete a specific file, you will need to know the full path and filename of the deleted file. Execute the command like this:

```
extundelete /dev/sdaX --restore-file path/to/the/deleted/file
```

You can also do something similar to recover deleted directories. Execute the command like this:

```
extundelete /dev/sdaX --restore-directory path/to/the/directory
```

If you don't know or remember the entire path and filename, you can restore all of the deleted files on the drive volume. Execute the command like this:

```
extundelete /dev/sdaX --restore-all
```

All recovered files will be saved to a directory named RECOVERED\_FILES/, unless you specify a different directory with the -o option, followed by the directory path.

It's also doubtful that extundelete will be of much use to you with SD memory cards, unless you've reformatted the SD card to use the EXT3 or EXT4 filesystem. However, it's unlikely that you would do that, since most devices that use SD cards (cameras, phones, tablets, etc.) expect to see either the FAT32 or ExFAT filesystems in use – and the filesystem that is used to format nearly all SD cards by default.

Still, extundelete definitely belongs in any Linux user's arsenal of tools, and you should add it to yours.

## testdisk

If anyone were to say that testdisk is an easy and intuitive program to use, they would be launched into orbit just by the intense laughter alone. It is neither the easiest nor the most intuitive program to use, and its full range of features will be understood only by the nerdiest of the nerds.

The description in Synaptic doesn't add much to help crack the mystery of how to run testdisk.

## Tool to check and undelete partition

Tool to check and undelete partition. Works with the following filesystems:

- \* BeFS ( BeOS )
- \* BSD disklabel ( FreeBSD/OpenBSD/NetBSD )
- \* CramFS, Compressed File System
- \* DOS/Windows FAT12, FAT16 and FAT32
- \* HFS and HFS+, Hierarchical File System
- \* JFS, IBM's Journaled File System
- \* Linux Ext2 and Ext3
- \* Linux Raid
  - o RAID 1: mirroring
  - o RAID 4: striped array with parity device
  - o RAID 5: striped array with distributed parity information
  - o RAID 6: striped array with distributed dual redundancy information
- \* Linux Swap (versions 1 and 2)
- \* LVM and LVM2, Linux Logical Volume Manager
- \* Mac partition map
- \* Novell Storage Services NSS
- \* NTFS ( Windows NT/2K/XP/2003/Vista )
- \* ReiserFS 3.5, 3.6 and 4
- \* Sun Solaris i386 disklabel
- \* Unix File System UFS and UFS2 (Sun/BSD/...)
- \* XFS, SGI's Journaled File System



Not much more light is shed on how to use it, either, by running **testdisk --help** at the command line:

```
[root@parnote-toshiba parnote-toshiba]# testdisk --help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org
```

```
Usage: testdisk [/log] [/debug] [file.dd|file.e01|device]
        testdisk /list [/log] [file.dd|file.e01|device]
        testdisk /version
```

```
/log           : create a testdisk.log file
/debug         : add debug information
/list          : display current partitions
```

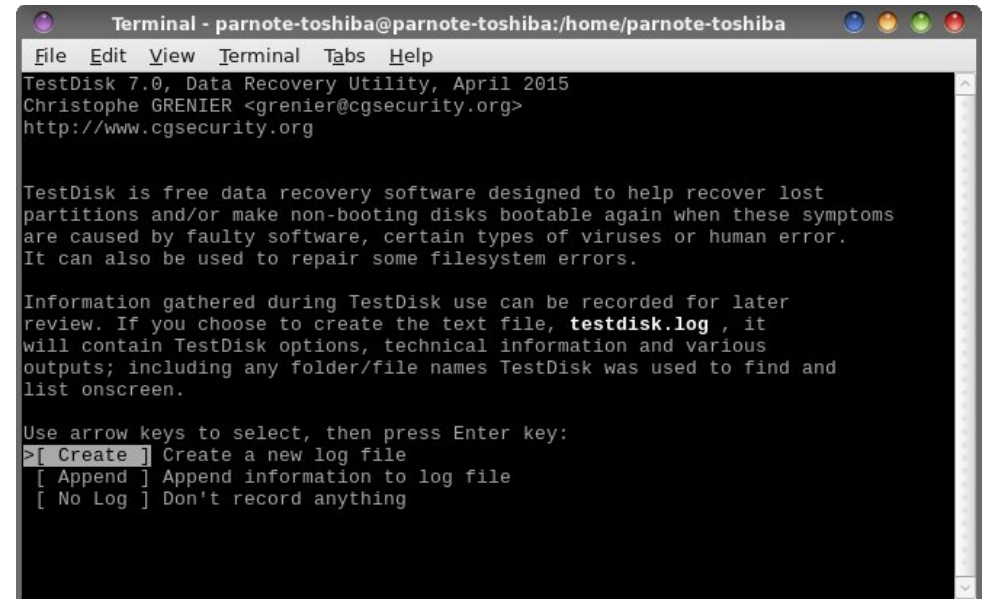
TestDisk checks and recovers lost partitions

It works with :

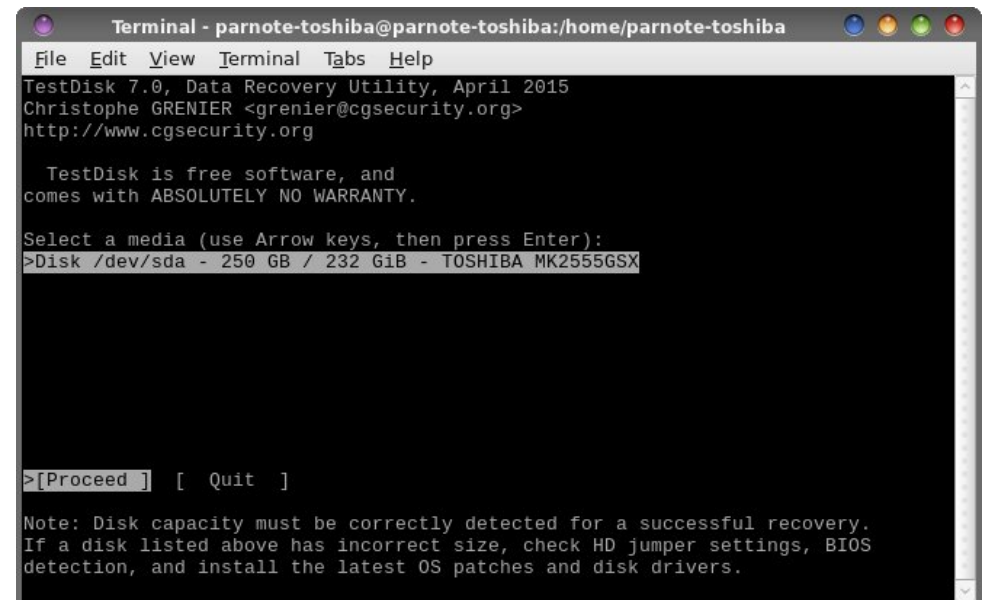
- BeFS (BeOS)
- BSD disklabel (Free/Open/Net BSD)
- CramFS, Compressed File System
- DOS/Windows FAT12, FAT16 and FAT32
- XBox FATX
- Windows exFAT
- HFS, HFS+, Hierarchical File System
- JFS, IBM's Journaled File System
- Linux btrfs
- Linux ext2, ext3 and ext4
- Linux GFS2
- Linux LUKS
- Linux Raid
- Linux Swap
- LVM, LVM2, Logical Volume Manager
- Netware NSS
- Windows NTFS
- ReiserFS 3.5, 3.6 and 4
- Sun Solaris i386 disklabel
- UFS and UFS2 (Sun/BSD/...)
- XFS, SGI's Journaled File System
- Wii WBFS
- Sun ZFS

You can only run testdisk as the root user. But, just take a look at the large number of different file systems testdisk works on!

Testdisk is menu driven, but that doesn't make it much easier to run. To better explain how to use testdisk to recover deleted files, we'll resort to using a series of screenshots, with an explanation of each.



To launch testdisk, simply issue the command “testdisk” on the command line **as the root user**. Once it appears, select the log file you want to use. Your choices are to either create a new log file, append the information to an existing log file, or to not create a log file at all. Press “Enter” when you’ve made your choice with the cursor keys.



Use the cursor keys to select the drive media that you want to scan with testdisk. Since the laptop I'm writing this on only has one hard drive, the choice is rather easy. Press the "Enter" key to proceed.

```
Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

Disk /dev/sda - 250 GB / 232 GiB - TOSHIBA MK2555GSX

Please select the partition table type, press Enter when done.
>[Intel] Intel/PC partition
[EFI GPT] EFI GPT partition map (Mac i386, some x86_64...)
[Humax] Humax partition table
[Mac] Apple partition map
[None] Non partitioned media
[Sun] Sun Solaris partition
[XBox] Xbox partition
[Return] Return to disk selection

Hint: Intel partition table type has been detected.
Note: Do NOT select 'None' for media with only a single partition. It's very rare for a disk to be 'Non-partitioned'.
```

```
Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

Disk /dev/sda - 250 GB / 232 GiB - TOSHIBA MK2555GSX
CHS 30401 255 63 - sector size=512

[Analyse] Analyse current partition structure and search for lost partitions
>[Advanced] Filesystem Utils
[Geometry] Change disk geometry
[Options] Modify options
[MBR Code] Write TestDisk MBR code to first sector
[Delete] Delete all data in the partition table
[Quit] Return to disk selection

Note: Correct disk geometry is required for a successful recovery. 'Analyse' process may give some warnings if it thinks the logical geometry is mismatched.
```

Next, select the partition table type for the drive you want to retrieve files from. For most users, it'll be the first choice of "Intel." However, if you have an EFI GPT

partition (and I'm fairly certain you would know if you do), use the cursor keys to make that selection. Press the "Enter" key when you have highlighted the proper selection.

```
Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

Disk /dev/sda - 250 GB / 232 GiB - CHS 30401 255 63

Partition      Start      End      Size in sectors
1 * Linux Swap    0      1 508 254 63    8177022
2 E extended     509    0 1 30400 254 63 480214980
5 L Linux        509    1 1 3236 254 63  43825257
X extended      3237    0 1 30400 254 63 436389660
> 6 L Linux       3237    1 1 30400 254 63 436389597

[ Type ] [Superblock] >[ List ] [Image Creation] [ Quit ]
                        List and copy files
```

Use the up and down cursor keys to select the drive partition that contains the files you want to recover. On my laptop, my /home partition is on /dev/sda6, so

```
Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

6 L Linux       3237    1 1 30400 254 63 436389597
Directory /

drwxr-xr-x    0    0    4096 28-Nov-2013 05:29 .
drwxr-xr-x    0    0    4096 28-Nov-2013 05:29 ..
drwx-----    0    0   16384 13-Jun-2013 14:59 lost+found
drwx-----  500  500   4096  4-Jan-2014 21:19 guest
drwxr-xr-x    0    0    4096 11-Mar-2010 13:07 .mysql
drwxr-xr-x    0    0    4096 20-Mar-2010 12:58 .netlogon
drwxr-xr-x    0    0    4096 13-Jun-2013 15:11 mysql
>drwxr-xr-x  500  500    4096 10-Feb-2016 13:17 parnote-toshiba

Next
Use Right to change directory, h to hide deleted files
q to quit, : to select the current file, a to select all files
C to copy the selected files, c to copy the current file
```

this is the reason I've selected "6" from the list. This part initially had me befuddled, until I realized that the numbers correspond with the numbers that PCLinuxOS uses to identify my drive partitions. Once you've highlighted the proper drive partition, use the left and right cursor keys to select the action you want to perform. In our case, it's the "List" option. Press the "Enter" key.

Use the up and down cursor keys to select the directory on the partition that holds the files you want to recover (image bottom right, previous page). On my laptop, those are in the "parnote-toshiba" directory. Press the right cursor key to proceed.

```

Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org
6 L Linux 3237 1 1 30400 254 63 436389597
Directory /parnote-toshiba

Previous
-rw-r--r-- 500 500 4096 28-Jul-2015 21:16 .ssh
-rw-rw-r-- 500 500 8214 17-Jan-2016 22:17 .xscreensaver
>drwxrwxr-x 500 500 4096 5-Feb-2016 20:52 Magazine
drwxrwxr-x 500 500 4096 3-Feb-2016 12:15 .scribus
drwx----- 500 500 4096 28-Nov-2013 11:08 .mozilla
drwx----- 500 500 4096 28-Nov-2013 11:11 .adobe
drwx----- 500 500 4096 28-Nov-2013 11:11 .macromedia
-rw----- 500 500 35212 10-Feb-2016 13:16 .bash_history
drwx----- 500 500 4096 28-Nov-2013 12:02 .checkgmail
drwx----- 500 500 4096 23-Nov-2015 15:40 .xchat2
drwxr-xr-x 500 500 4096 29-Jan-2016 14:02 .fontconfig
drwxrwxr-x 500 500 4096 8-Dec-2015 21:28 Scripts
drwxrwxr-x 500 500 4096 29-Jan-2016 21:18 .audacity-data
drwxr-xr-x 500 500 4096 2-Sep-2015 12:42 audacity2.0-parnote-toshiba

Next
Use Left arrow to go back, Right to change directory, h to hide deleted files
q to quit, : to select the current file, a to select all files
C to copy the selected files, c to copy the current file

```

Continue using the cursor keys to drill down through your directory structure to select the directory that holds the files you want to recover.

```

Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org
6 L Linux 3237 1 1 30400 254 63 436389597
Directory /parnote-toshiba/Magazine

Previous
-rw-r--r-- 500 500 17439 3-Jul-2015 19:55 index.html
-rw-rw-r-- 500 500 2752 23-Aug-2015 11:41 disclaimer.txt
drwxrwxr-x 500 500 4096 2-Sep-2015 13:04 Sept2015
drwxrwxr-x 500 500 4096 29-Sep-2015 10:02 Oct2015
-rw-rw-r-- 500 500 125793 8-Oct-2015 05:45 BigDaddyLogin.PNG
drwxrwxr-x 500 500 4096 1-Nov-2015 20:05 November2015
-rw-rw-r-- 500 500 1389 19-Oct-2015 21:01 GaryRatliffSr--Info.txt
drwxrwxr-x 500 500 4096 25-Nov-2015 17:37 Dec2015
>drwxrwxr-x 500 500 4096 1-Jan-2016 18:43 Jan2016
-rw-rw-r-- 500 500 29369 1-Jan-2016 10:54 2016_Banner.png
drwxr-xr-x 500 500 4096 1-Jan-2016 12:35 HTML-Stuff
-rw-rw-r-- 500 500 465076 6-Jan-2016 10:02 Possible-Penguin-Mag-Cover.J
-rw-rw-r-- 500 500 751455 6-Jan-2016 10:04 Possible-Penguin-Mag-Cover2.
-rw-rw-r-- 500 500 538619 6-Jan-2016 10:05 Poss-Penguin-Mag-Cover3.JPG

Next
Use Left arrow to go back, Right to change directory, h to hide deleted files
q to quit, : to select the current file, a to select all files
C to copy the selected files, c to copy the current file

```

```

Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org
6 L Linux 3237 1 1 30400 254 63 436389597
Directory /parnote-toshiba/Magazine/Jan2016/SSS

drwxrwxr-x 500 500 4096 31-Dec-2015 13:23 .
drwxrwxr-x 500 500 4096 1-Jan-2016 18:43 ..
-rw-rw-r-- 500 500 1720298 31-Dec-2015 13:08 MrCrankyPants-YouCanToo-1130
-rw-rw-r-- 500 500 203381 31-Dec-2015 13:09 trytip-120415-kde.jpg
drwxrwxr-x 500 500 4096 31-Dec-2015 13:23 JPG
-rw-rw-r-- 500 500 87365 31-Dec-2015 13:23 Hertz-120515-kde.png
>drwxrwxr-x 500 500 65568 31-Dec-2015 13:23 Meemaw-120515-xfce.png
-rw-rw-r-- 500 500 704363 31-Dec-2015 13:12 Orion-120615-xfce.png
-rw-rw-r-- 500 500 279546 31-Dec-2015 13:13 OnlyHuman-120615-e19.jpg
-rw-rw-r-- 500 500 2805901 31-Dec-2015 13:15 BBApresentarms-121615-trinit
-rw-rw-r-- 500 500 123419 31-Dec-2015 13:15 francesco_bat-121815-kde.jpg
-rw-rw-r-- 500 500 1718284 31-Dec-2015 13:16 Crow-121815-kde.png
-rw-rw-r-- 500 500 257678 31-Dec-2015 13:18 Aleph-121915-icewm.jpg
-rw-rw-r-- 500 500 1294165 31-Dec-2015 13:17 tuxlink-121815-lxde.png

Next
Use Left arrow to go back, Right to change directory, h to hide deleted files
q to quit, : to select the current file, a to select all files
C to copy the selected files, c to copy the current file

```

Deleted files will appear in red text. Continue using the cursor keys to highlight the file you want to recover. Press "c" to copy the currently selected file. If you





## Linux Anti Oops: How To Undelete Files

need/want to recover multiple files, highlight the files with cursor key, one by one, press the “.” key to select the files, and then press “C” to copy all the selected files.

```
Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015

Please select a destination where /parnote-toshiba/Magazine/Jan2016/SSS/
/Meemaw-120515-xfce.png will be copied.
Keys: Arrow keys to select another directory
      C when the destination is correct
      Q to quit
Directory /home/parnote-toshiba
drwxrwxrwx 500 500 4096 25-Jan-2016 14:45 Desktop
drwxrwxrwx 500 500 12288 8-Feb-2016 10:04 Documents
drwxrwxrwx 500 500 4096 2-Feb-2016 17:24 Downloads
drwx----- 500 500 4096 2-Feb-2016 06:34 Dropbox
drwxrwxr-x 500 500 4096 13-Sep-2015 12:10 HTML
drwxrwxr-x 500 500 4096 16-Apr-2014 16:47 ISO
drwxrwxr-x 500 500 4096 16-Jul-2014 22:14 L0-Ext
drwxrwxr-x 500 500 4096 5-Feb-2016 20:52 Magazine
drwxrwxrwx 500 500 4096 25-Dec-2015 00:02 Movies
drwxrwxrwx 500 500 4096 21-Nov-2015 15:55 Music
drwxrwxrwx 500 500 12288 8-Feb-2016 06:47 Pictures
drwxrwxr-x 500 500 4096 8-Dec-2015 21:28 Scripts
drwxrwxr-x 500 500 4096 14-Dec-2013 08:08 Sounds
>drwxr-xr-x 500 500 4096 8-Feb-2016 06:35 TestDel
drwxrwxrwx 500 500 4096 14-Oct-2014 12:18 VBox-Share
Next
```

Then, testdisk will ask you where you want to save the selected file(s). I created a special directory on my computer, called “TestDel” to contain the files. Press “C” when you’ve selected the directory where you want your recovered file(s) saved.

```
Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org
6 L Linux 3237 1 1 30400 254 63 436389597
Directory /parnote-toshiba/Magazine/Jan2016/SSS
Copy done! 1 ok, 0 failed
drwxrwxr-x 500 500 4096 31-Dec-2015 13:23 .
drwxrwxr-x 500 500 4096 1-Jan-2016 18:43 ..
-rw-rw-r-- 500 500 1720298 31-Dec-2015 13:08 MrCrankyPants-YouCanToo-1130
-rw-rw-r-- 500 500 203381 31-Dec-2015 13:09 trytip-120415-kde.jpg
drwxrwxr-x 500 500 4096 31-Dec-2015 13:23 JPG
-rw-rw-r-- 500 500 87365 31-Dec-2015 13:23 Hertz-120515-kde.png
>-rw-rw-r-- 500 500 65568 31-Dec-2015 13:23 Meemaw-120515-xfce.png
-rw-rw-r-- 500 500 704363 31-Dec-2015 13:12 Orion-120615-xfce.png
-rw-rw-r-- 500 500 279546 31-Dec-2015 13:13 OnlyHuman-120615-e19.jpg
-rw-rw-r-- 500 500 2805901 31-Dec-2015 13:15 BBAPresentarms-121615-trinit
-rw-rw-r-- 500 500 123419 31-Dec-2015 13:15 francesco_bat-121815-kde.jpg
-rw-rw-r-- 500 500 1718284 31-Dec-2015 13:16 Crow-121815-kde.png
-rw-rw-r-- 500 500 257678 31-Dec-2015 13:18 Aleph-121915-icewm.jpg
-rw-rw-r-- 500 500 1294165 31-Dec-2015 13:17 tuxlink-121815-lxde.png
Next
Use Left arrow to go back, Right to change directory, h to hide deleted files
q to quit, . to select the current file, a to select all files
C to copy the selected files, c to copy the current file
```

The only confirmation you will receive will be some green text six lines down from the top. Even though the confirmation says “1 ok, 0 failed,” there is no guarantee that the file was recovered properly. You should ALWAYS check the recovered file, just to be sure that it was recovered properly.

To do that, you will have to go to the directory where you specified the recovered file(s) to be saved. There, you will find the file in a directory structure that mirrors the original path to the file(s) that you recovered. For example, for the highlighted file above, it was stored here: /home/parnote-toshiba/parnote-toshiba/Magazine/Jan2016/SSS/. For some unknown reason, testdisk did not save the selected files in the selected directory. So, you will most likely have to search for your recovered files. Most likely, they are in a similarly named directory in your /home directory.

Also, all the recovered files will belong to the root user. As such, you may need to change ownership of the recovered files back to the proper user.

Testdisk will also work equally well for deleted directories, too, allowing you to recover entire directories that might have been mistakenly deleted. Just as with individual files, deleted directories will also show up as red, and you recover them exactly the same way.

Finally, to quit testdisk, press the “q” key multiple times, until you are finally back at the command line prompt.



Once you've gone through the process with testdisk, it becomes easier. But your first time is likely to be fraught with lots of trial and error – unless you follow the directions here. I know my first time through testdisk was frustrating, and I found myself becoming easily “lost” in the directory structures and partitions. That is, until I figured things out and until I arrived on familiar turf with the directory structure that I was intimately familiar with from my /home directory.

Testdisk definitely deserves a place in your file recovery toolbox.

## photorec

Of all the Linux “undelete” utilities, photorec is the most well known. Like all the others, photorec is a command line only program. The description in Synaptic pretty much tells the whole story.

### Data recovery software

PhotoRec is file data recovery software designed to recover lost files including video, documents and archives from Hard Disks and CD-ROM and lost pictures (thus, its 'Photo Recovery' name) from digital camera memory.

PhotoRec ignores the filesystem and goes after the underlying data, so it will still work even if your media's filesystem has been severely damaged or reformatted.

There aren't a whole lot of options for photorec, but don't let that lead you to underestimating how powerful photorec is. Photorec will often work when all the other undelete utilities fail. As an example, I ran photorec on the hard drive in my laptop. I filled up four (4) directories with recovered files that I had deleted LONG, LONG ago. It came up with PDF files, image files, text files, music files, and a whole assortment of files that I had deleted eons ago. And I didn't even let it finish running, stopping the process after only a couple of minutes. Many of the files photorec was finding and recovering weren't even listed in the other undelete utilities as being available for retrieval. WOW! Plus, even more astounding is that many of the files were complete.

When you think about it, it's actually kind of scary at the same time that so much of what I thought I had deleted was recoverable – things that I thought were long gone, given the amount of time that had elapsed since I deleted them. If I can recover those files, so can anyone else using the same simple methods described here.

Just as with testdisk, photorec has to be ran as the root user. When you launch it, you should see something like that pictured above. For this article, I inserted a SD card from my hunting trail camera. It's listed as /dev/sdb, and is selected in

the image above. Press the “Enter” key to proceed, or use the left and right cursor keys to highlight the “Quit” option, then press the “Enter” key.

Also, if you're thinking that photorec looks quite similar to testdisk, it's because the same people are responsible for both.

Select the partition that stored the files you want to recover (image lower right, previous page).

```

Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

1 P FAT32          1  8  9 1018  50 20    7821312 [NO NAME]

To recover lost files, PhotoRec need to know the filesystem type where the
file were stored:
[ ext2/ext3 ] ext2/ext3/ext4 filesystem
>[ Other ] FAT/NTFS/HFS+/ReiserFS/...

```

Now, select the filesystem type where the files were stored. On my SD card, it's a FAT32 filesystem.

```

Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

1 P FAT32          1  8  9 1018  50 20    7821312 [NO NAME]

Please choose if all space need to be analysed:
[ Free ] Scan for file from FAT32 unallocated space only
>[ Whole ] Extract files from whole partition

```

You now select whether you want photorec to scan the unallocated space on the device, or if you want to extract files from the whole partition. Selecting “Free” will retrieve only deleted files, while selecting “Whole” will retrieve all files, even those still existing and accessible, as well as deleted files.

```

Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

Disk /dev/sdb - 4008 MB / 3823 MiB (R0) - Generic- Multi-Card
Partition          Start      End      Size in sectors
1 P FAT32          1  8  9 1018  50 20    7821312 [NO NAME]

Pass 1 - Reading sector 327476/7821312, 286 files found
Elapsed time 0h00m30s - Estimated time to completion 0h11m26
jpg: 286 recovered

Stop

```

```

Terminal - parnote-toshiba@parnote-toshiba:/home/parnote-toshiba
File Edit View Terminal Tabs Help
PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
http://www.cgsecurity.org

Answer Y to really Quit, N to resume the recovery

```

Photorec will then proceed to scan your selected drive/partition. It will display the



elapsed time since it started the retrieval, as well as an estimate on how long the process will take. It also displays how many of each file type it retrieves. Pressing “Enter” at this stage will stop the scan.

Just in case you pressed “Enter” by mistake, you’re given the chance to fix that mistake (image on previous page, bottom right). Enter “Y” to quit the scan, or “N” to resume the scan/recovery.

Your recovered files will be placed in sequentially numbered directories in your /home directory named recup\_dirXX, where XX is a number.

If you want more information on photorec, visit CGSecurity’s photorec [wiki page](#), where you’ll find a step-by-step guide. You can also visit the photorec [man page](#).

If no other “undelete” utility makes it into your file management toolbox, you should make sure that photorec ends up there. You might not need it today, tomorrow, next week, next month, or even next year – but eventually, you WILL need it at some point in the future. Like I said earlier, accidental deletion of files occurs to all of us, sooner or later.

## Retrieving open files

Occasionally, you might find yourself with a file open in a program, discovered that you have accidentally deleted the file, but without an apparent or obvious way to save the file again (yes, there are programs that don’t give you the option to save an open file). If the file is open in a program that allows you to save data, just resave the data to your hard drive. But if it’s the first scenario, all is not lost.

Thankfully, there is a way to save a file that is open in a program that doesn’t have the option to save data. Like all the other methods listed here, you will have to resort to using the command line.

Let’s assume we have a \*.ogg file opened up for playback in xmms. Enter the following at the command line:

```
ls -l | grep xms | grep ogg
```

The “ls -l | grep xms” lists all the files that are open by xmms, and pipes that list to grep to list only the \*.ogg files. The results will look something like the following:

```
xmms 9341 wachovia.ogg 132r 8,1 349758 1287631 /usr/bin/xmms
(deleted)
```

Now, we have all the information we need to save the file to a folder on our

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computer, replacing the one that was accidentally deleted. To do that, we use something like this:

```
cp /proc/9341/fd/132 ~/Music/my-music-file.ogg
```

The “cp” is the copy command. The 9341 is the process number provided in the output. The 132 is the descriptor shown in the output. Finally, the “~/Music/my-music-file.ogg” is the path and filename that we choose to save the new \*.ogg file to.

Now, you have resaved the open file that you accidentally deleted.

### Summary

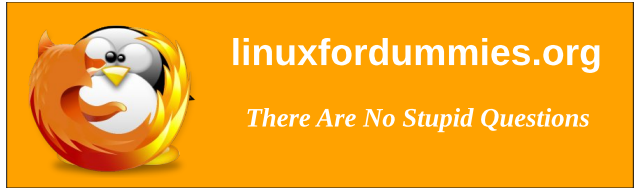
Regardless of how careful you are, you will eventually – at some point – accidentally delete a file that you really need or want to keep. One of these tools or methods can help save your assets, so to speak.

There is yet another tool that can help recover deleted files. It is called **debugfs**. I have skipped it in this article due to its complexity. It makes testdisk look like a walk in Nooby Park. If you have an interest in or a need for debugfs, you can find a rather full discussion of it [here](#). I certainly cannot add anything to what is presented there. The discussion is WAY above my pay grade and far exceeds my knowledge and understanding of such matters.

These tools also demonstrate how vulnerable your data may still be, even after you think that you might have deleted those files. Especially with photorec, I was able to recover a literal ton of files that I thought I had deleted months ago. That vulnerability should be prominent in your mind, especially if you sell or give away one of your used computers.

Next month, we’ll take a look at ways to securely delete files so that they cannot be recovered, or to at

least minimize the amount of information that can be recovered. With today’s heightened concerns about the security of our private and personal data, it pays to exercise caution.



## Screenshot Showcase



*Posted by tuxlink, on February 19, 2016, running Mate.*

# LibreOffice 5.1: New Features, Faster Loading

by Meemaw

I don't know about you, but I have been using LibreOffice at work since 2009 and either OpenOffice or LibreOffice at home since, well, since before I converted my computers to Linux in 2006.

I have always loved this program and still use it instead of MS Office at work, even though I had to purchase Microsoft Office for access to a couple of things my company uses. However, I have seen places in LibreOffice where there is room for improvement. LibreOffice 5.1 just came out in February 2016, so I want to review some of the improvements that have rolled out with this version. One of the things I have noticed is that it starts faster, especially starting a new Impress project, which is very quick. The release notes state that the menus have been reorganized. While this is sometimes an annoyance, you may find that things are in a more logical location now.

## From LibreOffice's website:

*LibreOffice 5.1 has also been improved "under the hood," thanks to the work of hundreds of volunteers. This translates into an open source office suite which is easier to develop, maintain and debug. Although this is not visible to users, it is extremely important for enterprise deployments.*

*"LibreOffice 5.1 is another step forward to fulfilling our vision of an office suite tailored on user needs and preferences", says Bjoern Michaelsen, a Director at The Document Foundation (TDF) and a leading LibreOffice developer. "Since 2010, we have gone through different development cycles to clean up the code and make it more responsive. We are*

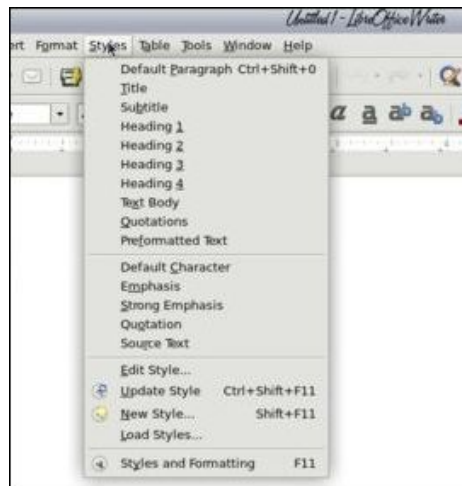
*now at a stage where we are close to providing a better user interface."*

*"LibreOffice's third development cycle is leading us to a new user interface concept, where the user will be able to choose the best layout of the elements on the screen for his own needs, to leverage desktop space in the best way" adds Jan Holesovsky, a Director at TDF, and a member of the design team.*

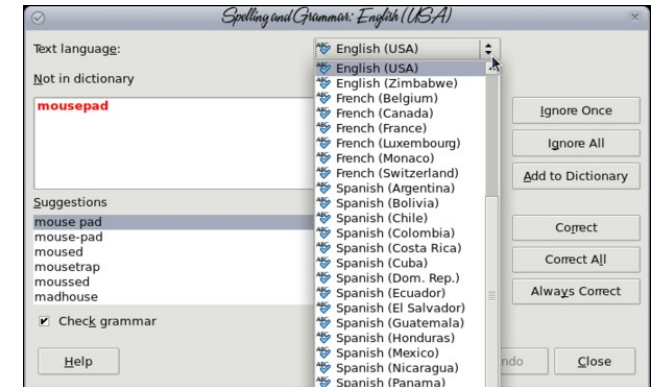
Let's see a few new items:

## Writer

LOWriter has a new menu called Styles - much of the style formatting is in that one menu.



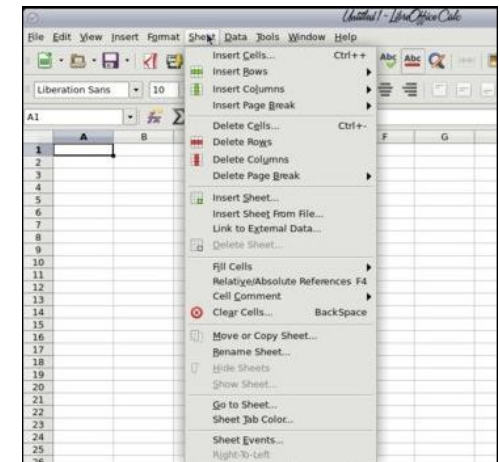
I'm pretty good at spelling, but I use Spell Check on every document. Now it has a drop-down containing all the dictionaries. I usually use only one, but if you have a multilingual document, you won't have to change dictionaries and restart Spell Check (right, top).



Yay! Mail Merge doesn't need a database any longer. You only need to specify the spreadsheet you are using. While it works that way in mail merge for letters, it seems you still need to create a database to do labels.

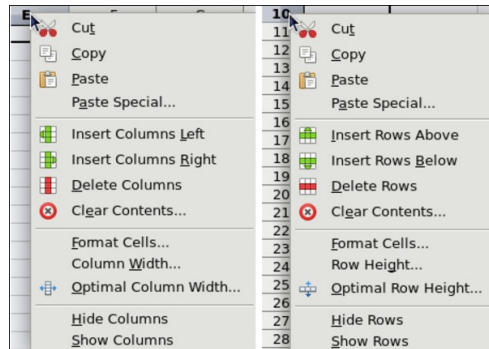
## Calc

LOCalc has a new menu called Sheet. Many of the sheet commands (insert sheet, rows, columns for example) are located in this menu.

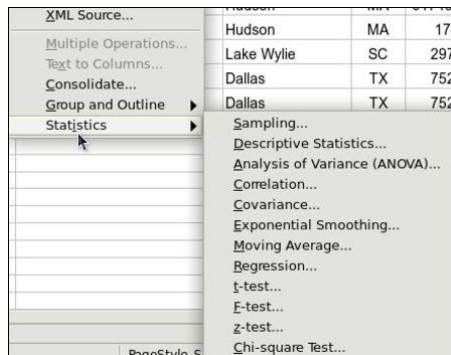




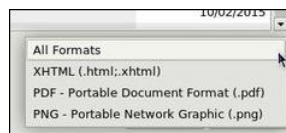
Selecting a row or column and right clicking to add another always had the menu items Insert row above and Insert column left. I always wondered why you couldn't insert a row below the one you selected or insert a column to the right of the selected one. Now it has both.



There is now a Statistics choice in the Data menu. If you use statistics with your data, you will have more choices than those in the status bar at the bottom. The bar has Average, Sum, Count, Maximum and Minimum along with a couple of others, but the Statistics menu has several other choices for those that need them.

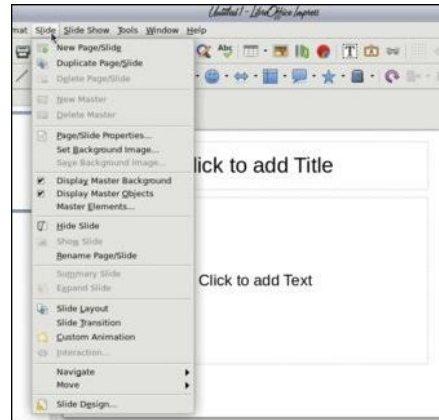


Also, in Calc, your sheet can be exported as a png image file as well as a pdf (center, top).

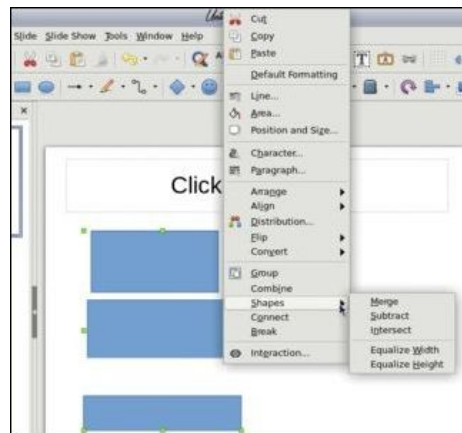


## Impress

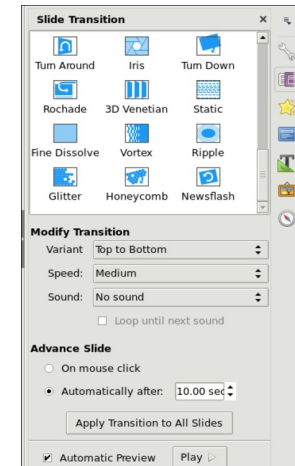
Impress has a new menu called Slide which has many of the standard slide editing items.



Sometimes you want to create a certain design by adding rectangles or squares, but you want each one to be the same size. Create them, then right click on the group of objects. The drop-down has more tools than before - even arrangement and sizing tools. The three rectangles in the image below have been selected using <Shift> + Click, and now can be made the same size using the Shapes > Equalize Width and Shapes > Equalize Height choices in the right-click menu. Pay attention, though, as the shapes will be equalized using the item that you chose last.



In the Sidebar, the Transitions section (2nd from the top) has been changed a bit. I remember having a list of transitions but not being sure which was which until I chose one and let the preview play. Now the window has an icon of each. They have also added a few more transitions.



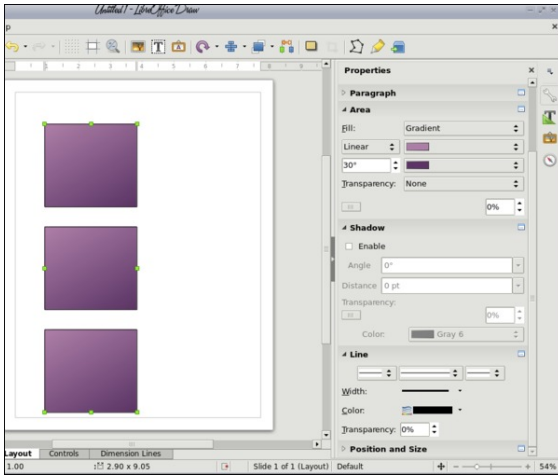
In the File menu, the Export command has changed a bit. Now you can export any slide as an image file. You have loads of format choices when exporting an Impress slide or a Draw page:

## Draw

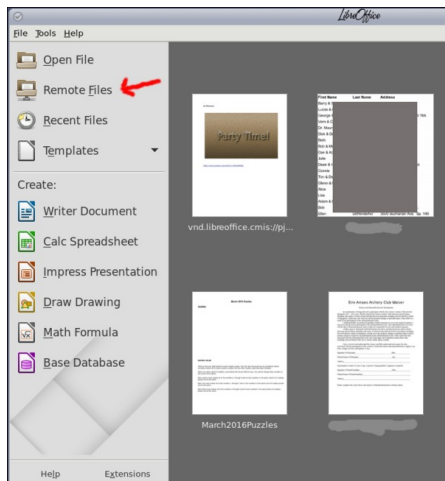
Draw also has some new features. The right click menu that we saw in Impress is also in Draw. You can draw objects and equalize height or width in just the same way. Also, if you haven't used the sidebar before, it has been changed a bit with new additions. You can format many things directly from the sidebar. See the very small rectangles out to the side of each section title? Clicking on that opens the formatting window separately and allows you to use it instead of the sidebar (next page, top left).

In addition to the separate differences in each document window, we have one for the main window. You can now open a Google Docs or other

## LibreOffice 5.1: New Features, Faster Loading

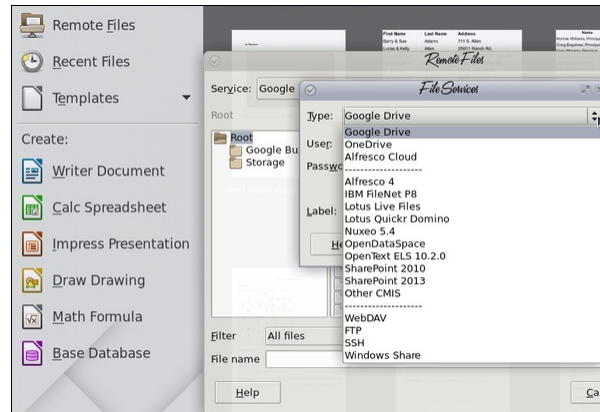


remote document directly from LibreOffice. The process is easy. The main LibreOffice page has a new item in the left column called Remote Files.

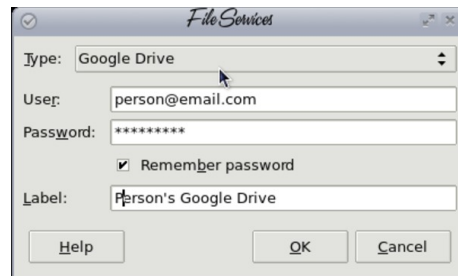


Click on Remote Files, and a window will appear asking you to designate the location for the remote file (there is a dropdown with a few choices). (center top)

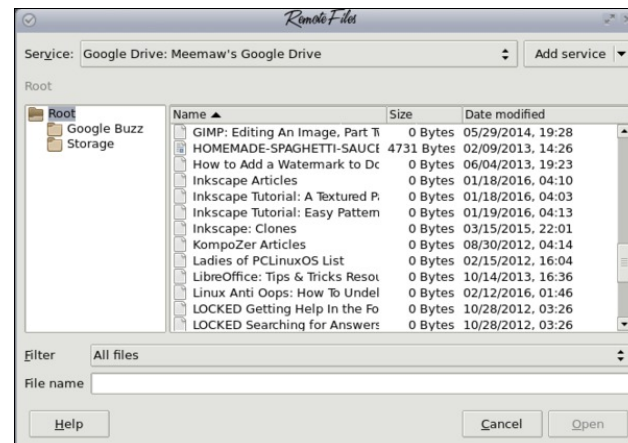
You will have to provide your signon and password for the location you choose. In the case of Google Docs, you will choose Google Drive, provide your



signon and password, and can even label the entry with a meaningful label. Click OK.



Next, you will see another window with your chosen location and a list of the files it contains:



Choose the document you want to open. It will take a bit longer to open than one that is stored on your hard drive, but not too much longer. In my experience, some files don't open correctly. I opened a remote file with several images, and not all of them were there when it was loaded. I'm sure they will get it fixed.

If you decide to set up another location, you will get the signon screen for your first. You can click on "Add service" at the top right of the window, and proceed from there.

These are only part of the changes that have been made. To see the whole list, the release notes are [here](#). YouTube videos [here](#) will show you many of the new features of Write, Calc and Impress. I like all the new features and look forward to even more.



A magazine just isn't a magazine without articles to fill the pages.

If you have article ideas, or if you would like to contribute articles to the PCLinuxOS Magazine, send an email to:  
**[pclinuxos.mag@gmail.com](mailto:pclinuxos.mag@gmail.com)**

We are interested in general articles about Linux, and (of course), articles specific to PCLinuxOS.



## International Community PCLinuxOS Sites



## Screenshot Showcase



Posted by tbschommer, on February 15, 2016, running KDE.



# ***ms\_meme's Nook: Off We Go***

***Off we go into the wild blue ethernet  
Rooting for the best OS yet  
PCLinuxOS is a Texstar wonder  
Against it we never would bet***

***Here's a toast to the man who leads us  
Always giving something new  
Don't forget the users too  
Nothing can beat the PCLOS crew***

***Off we go into the wild blue ethernet  
Away from that Window's threat  
Download PCLinuxOS  
Burn it to a diskette***

***Give a cheer for the man who leads us  
A Linux hero hear our roar  
He always gives so much more  
It's PCLinuxOS we adore***

**MP3**

**OGG**

# An Upgrade Story For Your Reading Pleasure

by oldfrt

I have been running an old desktop for about 12 years now, but I am afraid that its time has come to go. If I looked at something on YouTube, the CPU showed 100% and the video was hard to watch. For most other things, it served its purpose. By chance, my daughter-in-law was discarding her desktop as she now uses her laptop. She acquired it when she was taking a Multi Media course at college. It is a HP Compaq Media Center M7000 running Window Media Center XP. It has lots of goodies: a considerably faster CPU, 2 DVD R/W, a built-in TV FM tuner, and many odd HP interface connectors. I decided to keep a diary of my adventures in conversion from my old box to this new one. Please enjoy.

I believe there are two kinds of 'stuff' in the system. There is system 'stuff' and user 'stuff.' I believe if I install a current operating system and then create my user ids, I should be able to copy the /home/user info from the old drive to the new drive. Hopefully, all the data for each user will be intact. I am not sure about system 'stuff' however. I am going to make a list of what system information I will need.

When I first checked the installed HD, it said it was a 280 GiB SATA but there was a recovery partition of 10 GiB. When I pulled the HD out of the computer, it is stamped as 300 GiB SATA. I was originally going to replace it with a 500 GiB HD, but after some thought, I think I will leave the 300 GiB HD in there. There is room to put another HD, and it can be either an IDE or SATA. I think I will take my 500 GiB IDE drive out of my old box and put it into the new one.



The original plan was to install the latest version of PCLinuxOS on the new SATA drive, mount the old IDE onto the new machine, and copy everything over to the new SATA drive. I thought there was an IDE port on the new machine, but there isn't (RATS), so that plan is dead. I thought I could use my external USB device (you mount an IDE drive inside and it attaches via USB to your system) to attach the old IDE drive to the new machine. After some messing around, I also abandoned the USB device. For some reason, it would not recognize the IDE drive, and I didn't want to start trying to figure out why. The plan now is to just install the current PCLinuxOS on the current 300 GiB drive.

I also have a Windows machine on my home network, which I can access from my Linux machine via Smb4K. So, I copied all my data files from my user ids to a backup folder, one for each user, onto my Windows machine.

On the PCLinuxOS main page, there is a link to get PCLinuxOS. I used that link and created a bootable DVD. I then proceeded to install that version onto the new hard drive. Much to my surprise, I found out that the ISO is dated 2014, and when installed it showed over 800 updates. After asking on the forum, I was pointed to a much newer ISO, which is dated December 2015. When that was installed, there were only about 40 updates.

I now have a good version of the operating system, and it is up to date. The next thing was to set each of my user ids on the new system. After I created a new user id, using the same id, password, and number on the new machine, I then copied all the user data from the Windows machine to the new Linux machine. I did find two problems. There are two folders which you should NOT copy over, tmp and desktop. If you do happen to copy them over, when the user id tries to start, you will get an error message and the user id will not start. After some investigation, I found that if you use the desktop folder that was created for the new machine, then install the other user folders, the user id will be fine. Since I did not copy over the .tmp file, the system will create a new .tmp file, so that is not an issue.

I was working on getting my primary userid set up and something happened while I was working in the panel adding widgets. I got a plasma error message and then the screen went black. I logged out and logged back into my root id and it ran fine. I then tried my failed user id again but the same thing happened. I got a plasma error and then a black screen. I did some searching in the forum and found that either I could delete the user id and add it back in again (I have a ton of data so I'm not too thrilled with that idea), or simply go to home/userid/.kde4 and remove the .kde4 folder. When the userid starts again, it will rebuild .kde4 and my data should be

intact. I just renamed the folder .kde4 and sure enough the userid came back with all my data. However, it used a default desktop and it is a bit different from the ones installed by PCLinuxOS. A brand new .kde4 folder had been created. I had to do some customization and messing around but it is quite useable so I am leaving it alone.

I made a list of applications that I had installed on top of the original system. I had to install Gramps, Kompozer, PysolFC, along with some others. There are a couple of applications that do not provide any backup/restore function, so you have to play a bit.



**PySolFC Freecell** – I love to play this game. On the new system, the stats were reset to 0 and I wanted to keep my old stats. I found that in directory home/userid/.PySolFC, there were 3 files called comments.dat, options.cfg, and statistics.dat. I copied them over from my old machine and all my won/lost statistics were now in the new machine.

**Thunderbird Mail** – I could not find any export function, so the next question is how do I transfer my mail folders? There is an import function. However, it is looking to convert another mail client to Thunderbird, and there is no mail client on the new machine. After some searching on the Internet, I

found that in home/userid/.thunderbird/(some kind of key).default/mail there is the following: a folder called 'Local Folders' (the pop location of my mail provider), and a file (the pop location of my mail provide).msf. I copied the two folders and .msf file to my new machine and then all my folders appeared with my saved mail.

**Digikam** – I have a large number of Digikam images. There is an import/export function available in Digikam. However, I thought it might be easier to just move all the image folders to my windows machine then move them back to the new machine. I moved all the files including the associated .db files. There are two, one called digikam4.db and thumbnails-digikam.db. When I started Digikam on the new machine I received errors regarding the data files and errors not finding the pictures. After some investigation, I found an item suggesting to delete these files found in any folders. When you restart Digikam, it looks for those files, and if it cannot find them, it rebuilds them. Once I did that then Digikam came up (it took awhile to rebuild the .db files). Now, I can access all my pictures.

**KOrganizer** – This seemed like a pretty simple thing. Just use the \*.ics files from the old machine and I should have all my calendar events copied over. I forgot about the colours bug. There is a bug in KOrganizer which says that the colour of the event is lost when you close the calendar. This is a known problem, and the solution for me was to copy over from the old machine home/.kde4/share/config a file called korganizer.rc. This file contains all the events and their associated colours. Once I did that, then my calendar is now set up like it was before.

**AdobeReader** – I have been using AdobeReader for a long time but to my surprise it is no longer available. I had to do some searching for a new pdf reader and settled on PdfViewer, which does exactly what I need.

**Gpass** – Password Manager. In home/userid/.gpass there is a file called passwords.gps. This file

contains all the accounts and passwords in encrypted form. I copied this file from the old machine to the new machine and all my passwords were then available.

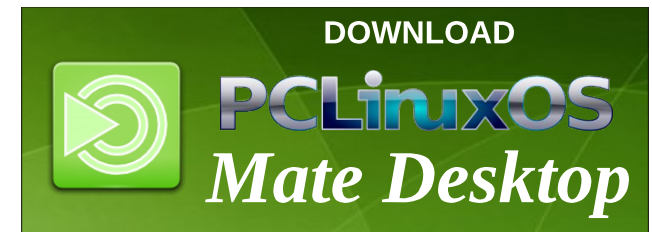
**LibreOffice** – when using Writer, there are missing lines of text. This is an issue that I had on the old machine. I had to update etc/x11/xorg.conf with the following, and now there are no issues with Writer:

```
Section "Module"
    Load "v4l" # Video for Linux
    Load "dri2"
    Load "glamoregl"
EndSection
```

```
Section "Device"
    Identifier "device1"
    VendorName "Advanced Micro Devices, Inc. [AMD/ATI]"
    BoardName "ATI Radeon HD 4870 and earlier"
    Driver "ati"
    Option "DPMS"
    Option "RenderAccel" "off"
EndSection
```

I still have a few things to do, but they are things that can be done when time permits. I acquired a second SATA drive, so I just need to install and format it. This system also has a Media keyboard with some interesting options. For example, there are two eject keys for the DVD's, so I have to do some investigating into how to set up the keyboard, but that's a story for another day.

I hope you enjoyed this small story and I hope it helps in some small way.





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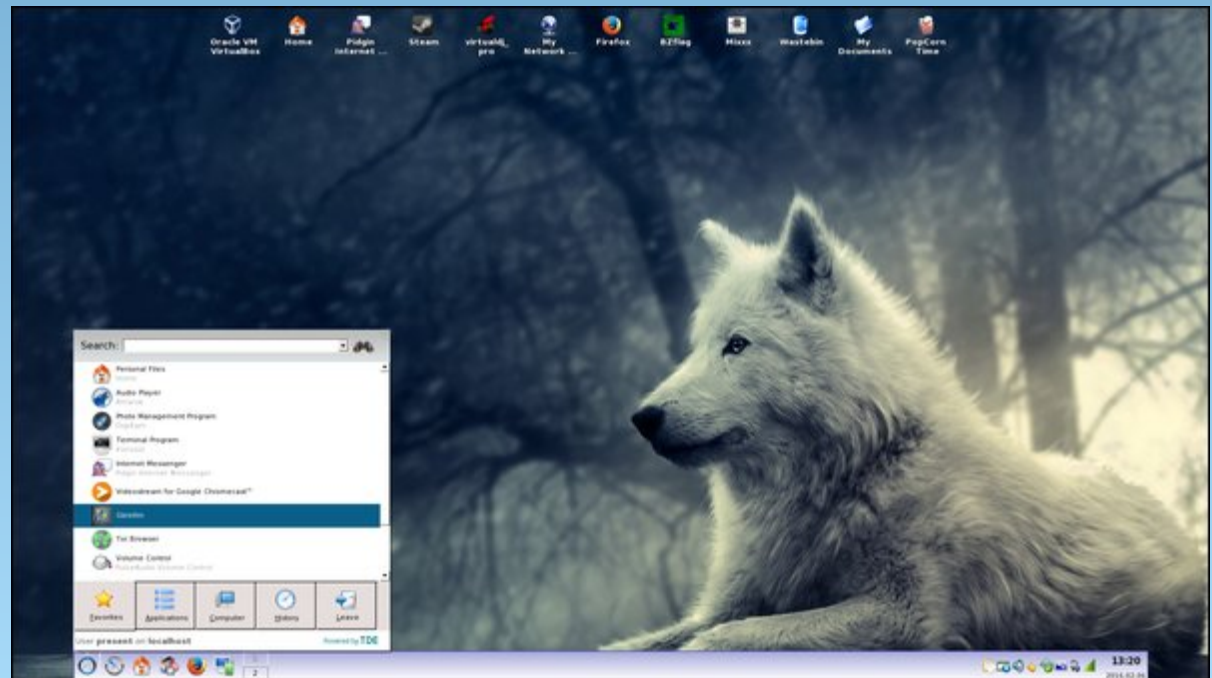
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# Screenshot Showcase



*Posted by present\_arms, on February 06, 2016, running Trinity.*

# Game Zone: Breach & Clear

by daiashi



## About The Game

**Breach & Clear** is a deep tactical strategy simulation. Build your Special Operations team, plan and execute advanced missions, and own every angle. Choose between US Army Rangers, Germany's KSK, Canada's JTF2, UK SAS, and more. Take on a variety of foes with different skill-sets and abilities. Learn to approach, engage, and dominate your opponents through superior tactics and training. The Steam version of Breach & Clear includes all the premium content from the original mobile game at no additional cost.

Build your arsenal with thousands of gun combinations, and specialize each soldier with a combination of perks, tactics, camo, armor, and inventory all tailored by you. Tune your load-out with consumables like UAV Drones and Breaching Charges that can change the course of battle!

Many maps have multiple entry points. When these points are presented to you you can split your team up at different entry points. This is a click and move game. Click where you want your soldier to go and

what direction to face. You can even frag or stun grenade your entry room. Some maps are in office buildings, and others are outside or streets.

As you progress through the game, your characters earn points to put toward things like awareness, aim, etc. Gun customization similar to Call of Duty, from sites to grips, it's all there. The game is similar to Door Kickers without the cartoon visuals. The screen has top down view and also 3rd person view. It will go into line of sight mode randomly when delivering a kill shot or at the end of round. All in all, it is a fun game to start and finish with. For the zombie in you, there is also a zombie expansion available.

## System requirements:

Fully updated PCLinuxOS and Steam

### Hardware:

Processor: Core 2 Duo or equivalent

1.5 GHz or higher

Memory: 2 GB RAM

Graphics: OpenGL 3.0+ compatible video card

Storage: 3 GB available space

## About The Company

Based in Kentucky, **Gun Media** is a publisher of interactive entertainment comprised of industry veterans with unique and complementary backgrounds. The mission of Gun is to build fresh and exciting interactive experiences for a wide range of platforms and gamers. The team shares a vision that game development is not just the creation of a product, but the blending of art, design and technology to create an experience that engages and entertains players from all over the world.

**Mighty Rabbit Studios** is an independent game developer based in Holly Springs, NC. They focus on making unique, awesome game experiences unlike anything else on the market. Their first major release was Saturday Morning RPG, an episodic role-playing game set in a world inspired by 1980s Saturday morning cartoons. Saturday Morning RPG won praise from many critics and has been enjoyed by hundreds of thousands of nostalgia hungry gamers around the world.

Mighty Rabbit Studios developed, programmed, animated and created 2D and 3D art for Breach and Clear.

## Some Gameplay Screenshots



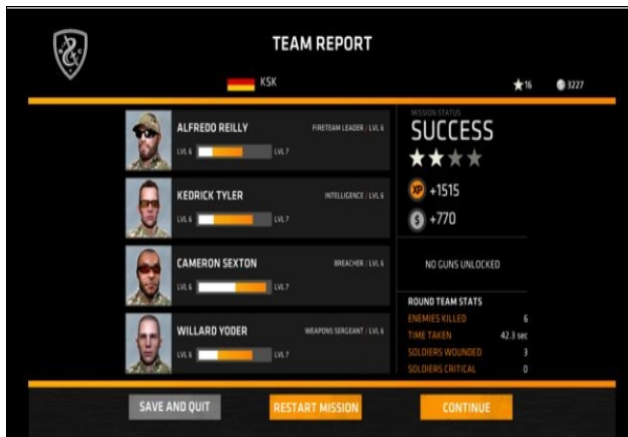




### Getting It To Run

Install Steam (if you don't have it installed already), then start it. You will need to create a new account, if you do not already have one. Once you have Steam up and running, go to the store tab. Click on the Linux tab if you wish and search for breach&clear. There is no demo for this game. It is available for purchase only. Normally, it is \$14.99, without expansions. If you have updated your system, including graphics drivers, you should be good to go.

<http://store.steampowered.com/app/266130/>





# PCLinuxOS Family Member Spotlight: aguila

as told in their own words



## What is your name/username?

My name is Andreas Birkel. My username is 'aguila', which is Spanish for "eagle." I've been air travelling world wide a lot in the past, plus I like the concept of eagles – freedom over comfort.

## How old are you?

I'm 45 years.

## Are you married, single?

I've been married for ten years this May.

## How about Kids, Grandkids ?

We have two kids, a boy of eight, and a girl of nine.



## Do you have pets, what is your favorite?

No pets. When I was a kid, we had a dog.

## Are you retired, still working and if working, what do you do?

Since my education as an industrial management assistant, I've been working in sales. I've been working in a couple of industries - import and wholesale fruit, then import of diamond tools for construction, export sales for one of the world's biggest hardwood sawmills, then marketing and worldwide sales of decorative glass coatings for a coatings factory. Today I'm a travelling salesman in chemical raw materials (mainly for detergents), working for a wholesale company.

All along the way, I've been holding on to some principles (only consumable material, medium-sized companies, stay in the area). Who knows what lies ahead?

## Where do you call home? What is it like? IE: weather, scenery

We live right in the center of Germany, in Bad Hersfeld, Hesse. Lots of green (forest and agriculture), small towns (10,000 to 80,000 inhabitants) and lots of villages. It's a very nice area with a temperate climate, up to 30° C in the summer, and rarely 20° below zero Centigrade in the winter.

## Where did you go to school and what is your education level?

I got a university-entrance diploma, but decided to take an apprenticeship first, and maybe get a university degree afterwards, which for various reasons I didn't. But I took evening courses and learned Spanish and Portuguese, and I have really enjoyed working in export for 10+ years now.

## What kind of things you like doing? hobbies, travel, fishing, camping?

I really like to ride a road bike. This year I joined the local bicycle club and took part in a couple of everyman races. I hope to do some more next season.

Apart from that, I like working out, photography, and computers (I'm not a geek though). Well, and spend time with my wife and kids, of course.

## Why and when did you start using Linux?

I've always been interested in computers since I got my Commodore C64 back in the 80s, but never got to a deeper level of hardware tinkering or programming. In 2005, when we had a reasonably fast internet connection, I got interested in Linux after reading about it in magazines. So I fired up some Live CDs. On starting a Knoppix Live CD, the main board of my desktop died. After that, I didn't look at Linux for about a year or two.

When I got my first laptop in 2007, it had Windows Vista installed. That crap died on me twice during system updates, so I started to look at Linux again.

First, I installed OpenSuSE and dual booted, but I wasn't convinced yet. I then switched to Fedora, which seemed better, but lacked all of the non-free drivers and software. When I searched some more, I found PCLinuxOS. I installed it on my second laptop and was really hooked.

Today, all the computers under my control (three in our home, one at my mother-in-law's, and two at my parents) exclusively run PCLinuxOS.

*PCLinuxOS Family Member Spotlight is an exclusive, monthly column by youcantoo, featuring PCLinuxOS forum members. This column will allow "the rest of us" to*

get to know our forum family members better, and will give those featured an opportunity to share their PCLinuxOS story with the rest of the world.

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**Does your computer run slow?**

**Are you tired of all the "Blue Screens of Death" computer crashes?**



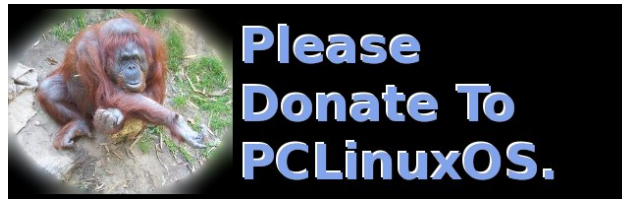
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adware, malware &  
spyware slowing  
you down?**

**Get your PC back  
to good health  
TODAY!**

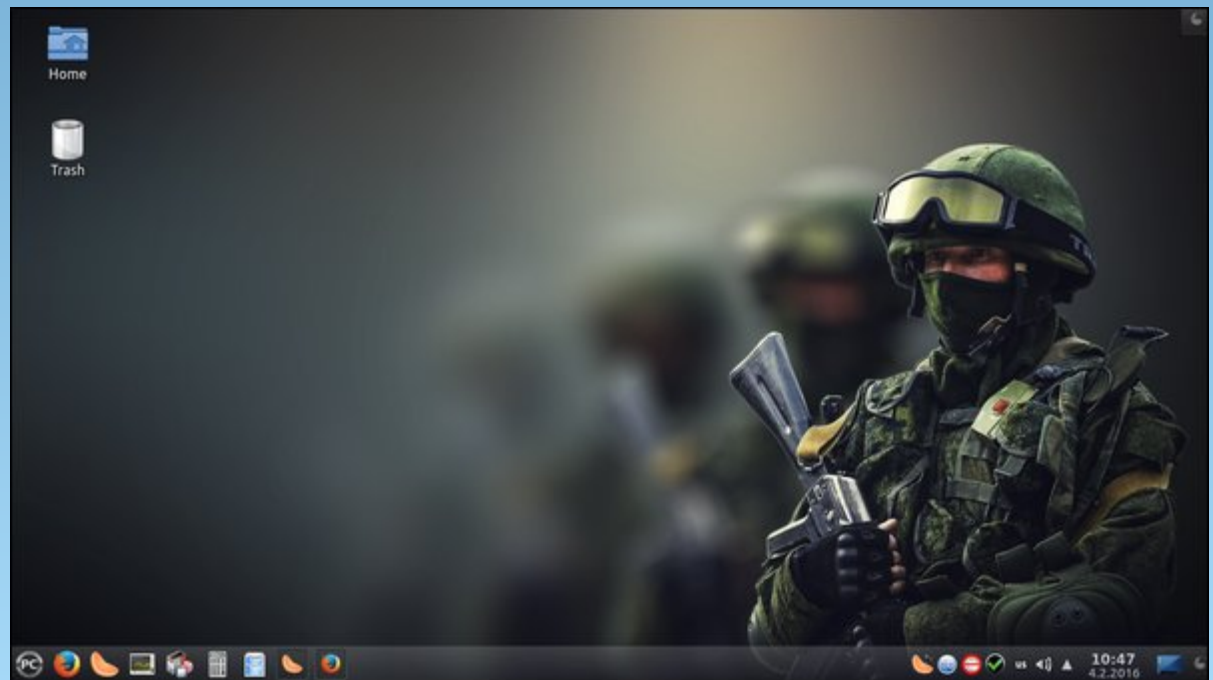
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## Screenshot Showcase



*Posted by Phused, on February 04, 2016, running KDE.*

# Tip Top Tips: Installing A Newer Version Of Flash Player Plugin To Older Computers & CPUs

**Editor's Note:** *Tip Top Tips* is a monthly column in *The PCLinuxOS Magazine*. Each month, we will feature – and possibly even expand upon -- one tip from the *PCLinuxOS* forum. The magazine will not accept independent tip submissions specifically intended for inclusion in the *Tip Top Tips* column. Rather, if you have a tip, share it in the *PCLinuxOS* forum's "Tips & Tricks" section. Your tip just may be selected for publication in *The PCLinuxOS Magazine*.

This month's **tip** comes from PCLinuxOS forum member jogurtmen.

PCLinuxOS for now is working very nicely on older computers, but obsolete hardware is less supported by newer software. Most problems are older CPUs that do not support SSE2. On my older computer (AMD Athlon XP 2800+, GeForce 6200, DDR 2GB), it has PCLinuxOS MATE installed, and the problem was to use a more recent Flash player plugin. I had to use version 11.1 ... which was not functional on some sites. Seeking the internet solution to circumvent the lack of a CPU that does not support SSE2 on the Mageia Wiki, I found a solution to this problem. This is the solution I have tested, and it works perfectly. Of course, it is not possible to install the latest version of the Flash Player plugin (version 11.2.202.235 already), but this is a big improvement over the older version of the Flash Player Plugin.

## The procedure is as follows:

The 11.2 flash plugin included in Google Chrome 19 for Linux was compiled for SSE, and may be used in Firefox or other browsers by machines with processors that handle SSE.

To install the flash plugin from Google Chrome 19:

1. Uninstall the **flash-player-plugin** package
2. Remove any copies of earlier versions of **libflashplayer.so** from **/usr/lib/mozilla/plugins** (or **/usr/lib64/mozilla/plugins**).
3. Download **libgcfashplayer.so** (17MB).  
<http://www1.datafilehost.com/d/796ff3f2>

4. You may check the integrity of the downloaded file with **md5sum libgcfashplayer.so**. The expected result is **58e48350459e8b12b3f1cba047184583**.

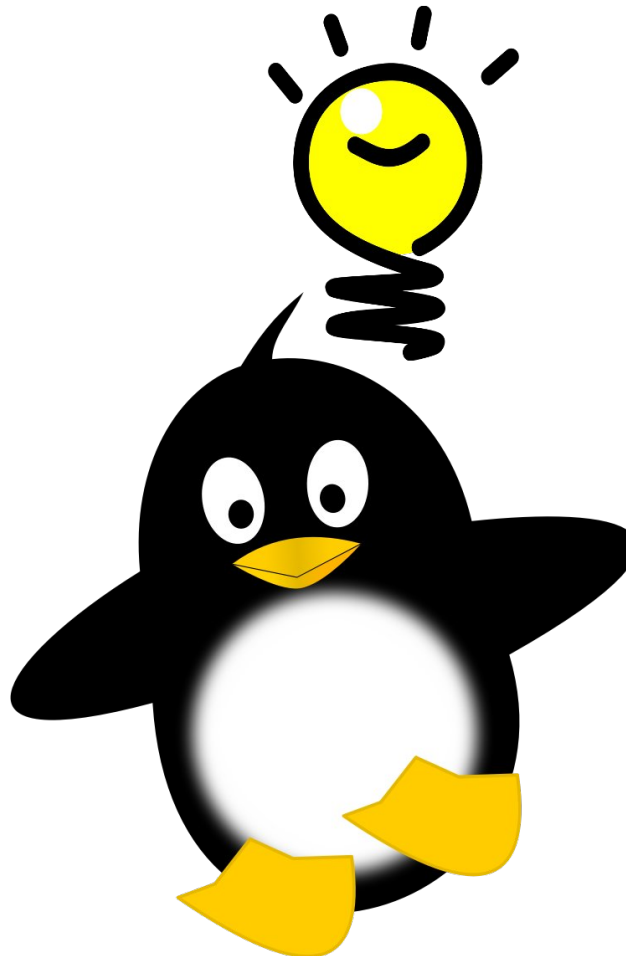
5. Rename **libgcfashplayer.so** to **libflashplayer.so**.

6. Copy **libflashplayer.so** to **/usr/lib/mozilla/plugins** (or **/usr/lib64/mozilla/plugins**).

That's it. It is not complicated, and it works without problems.

I hope that this will be of benefit to people who still have hardware 10 years old and over.

Source and more about this:  
[https://wiki.mageia.org/en/Flash\\_Plugin\\_Installation](https://wiki.mageia.org/en/Flash_Plugin_Installation)



A magazine just isn't a magazine without articles to fill the pages.

If you have article ideas, or if you would like to contribute articles to the PCLinuxOS Magazine, send an email to:  
[pclinuxos.mag@gmail.com](mailto:pclinuxos.mag@gmail.com)

We are interested in general articles about Linux, and (of course), articles specific to PCLinuxOS.



# PCLinuxOS Recipe Corner



*from the kitchen of  
youcantoo*

## Overnight Orange and Vanilla Bean Sticky Buns

### Ingredients

3/4 cup butter  
1 1/2 cups packed brown sugar  
1/3 cup honey  
1/3 cup whipping cream  
1/4 cup water  
2 teaspoons grated orange peel  
3 tablespoons orange juice  
1 vanilla bean, split, seeds scraped out  
and reserved, bean discarded  
1 cup pecan halves, toasted  
2 loaves (1 lb each) frozen white bread dough,  
thawed  
1/4 cup packed brown sugar  
1/4 cup granulated sugar  
1 teaspoon ground cinnamon  
1/4 teaspoon salt

### Directions

1. In a 2-quart saucepan, melt butter over medium heat. Add 1 1/2 cups brown sugar, and cook until combined. Remove from heat. Stir in honey, whipping cream, water, orange peel, orange juice and seeds from vanilla bean. Cool 30 minutes. Pour mixture in ungreased 13x9x2-inch pan. Scatter pecan halves over top.

2. Roll out one loaf of dough into rectangle shape about 14 inches by 6 inches. In small bowl, mix 1/4 cup each of brown sugar and granulated sugar, the cinnamon and salt. Spread half of mixture over dough. Roll dough tightly, and pinch seams closed. Using serrated knife, cut into 1 1/2-inch pieces. Place rolls cut side down in pan. Repeat with second loaf remaining sugar mixture. Cover pan of rolls with plastic wrap; refrigerate overnight.

3. Remove from refrigerator and let sit 30 minutes. Heat oven to 350°F. Bake 35 to 45 minutes or until golden brown. Cool in pan 20 minutes. Cover pan with platter, and carefully flip over.

OPTIONS: If you want to make these the same day, instead of placing in refrigerator overnight, leave out to rise about 2 hours or until doubled in size, and bake as directed.





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## Screenshot Showcase



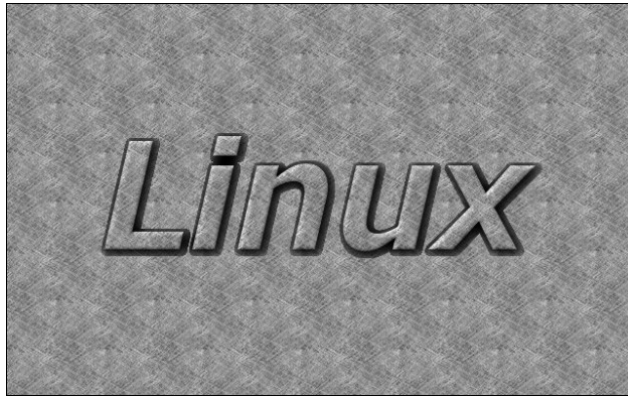
*Posted by Orion, on February 02, 2016, running Xfce.*



# GIMP Tutorial: Pop-Up Text

by Meemaw

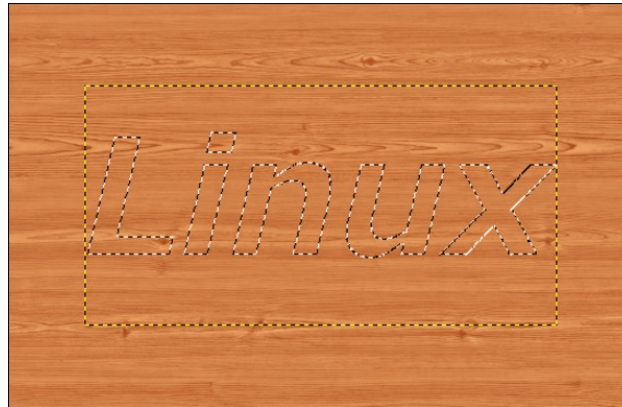
I found a fun tutorial the other day that shows how to make your text look like it is pushed up out of the background.



Create a new page. It can be any size you want, but mine is 640 x 400. You can use the Pattern choice on your Bucket Fill or just open some sort of pattern. The one I did above was the pattern Paper. The rest of this tutorial will use a wood background. Add your text as usual, setting the characteristics to your liking.



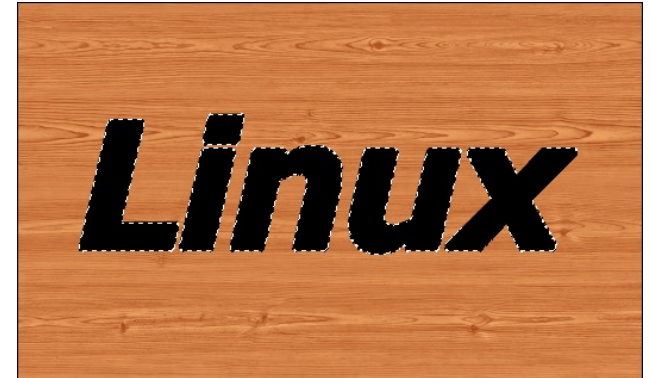
Now we will copy the background texture onto the text. With the text layer chosen, right click it in the layers dialog and choose **Alpha to selection**. This will outline your text. Now click on the background layer, then click **Edit > Copy**. Then, click the text layer, and choose **Edit > Paste**.



There is a floating layer above your text layer. Choose that layer and click the anchor in the layers dialog to anchor it to the text layer.

Create a new, transparent layer, then click back on your text layer. Right click the text layer and choose **Alpha to selection**. You will be able to see your text again by the moving dotted lines. Click on the new layer again, then go to **Select > Grow**. A box will appear asking how much you want it to grow. You can set it from 5 to 8 px, depending on the size of your text, then click OK. Now choose your bucket fill tool and change it to FG black, then click inside the letters (right, top).

Now choose **Select > All** to select the whole layer, then go to **Filters > Blur > Gaussian Blur** and change the vertical and horizontal settings to 20 px, then click OK (right).



This layer should be behind the text, so in the **Layers** dialog, choose the text layer and move it to the top.





Now we are going to add another effect to help our text along. Right-click on the text layer on top and choose **Alpha to Selection**. Then go to **Filters > Decor > Add Bevel**. Change the setting to 5 px and uncheck the two boxes in the Bevel window. Click OK. You should see a tiny bit of a bevel on the edges of the letters. Change to the Move tool and move text layer up and left a tiny bit, then anchor it. Now it looks as if it is popping out of the background.



If you are happy with the results, you can go ahead and merge your layers and export your project.

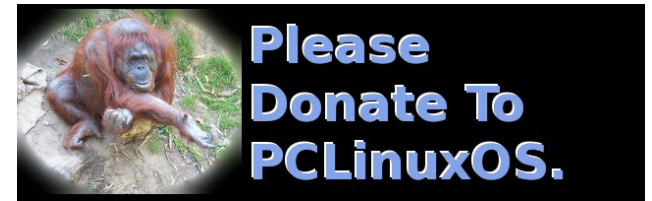


I have found several tutorials about text, so we will do more in coming issues.

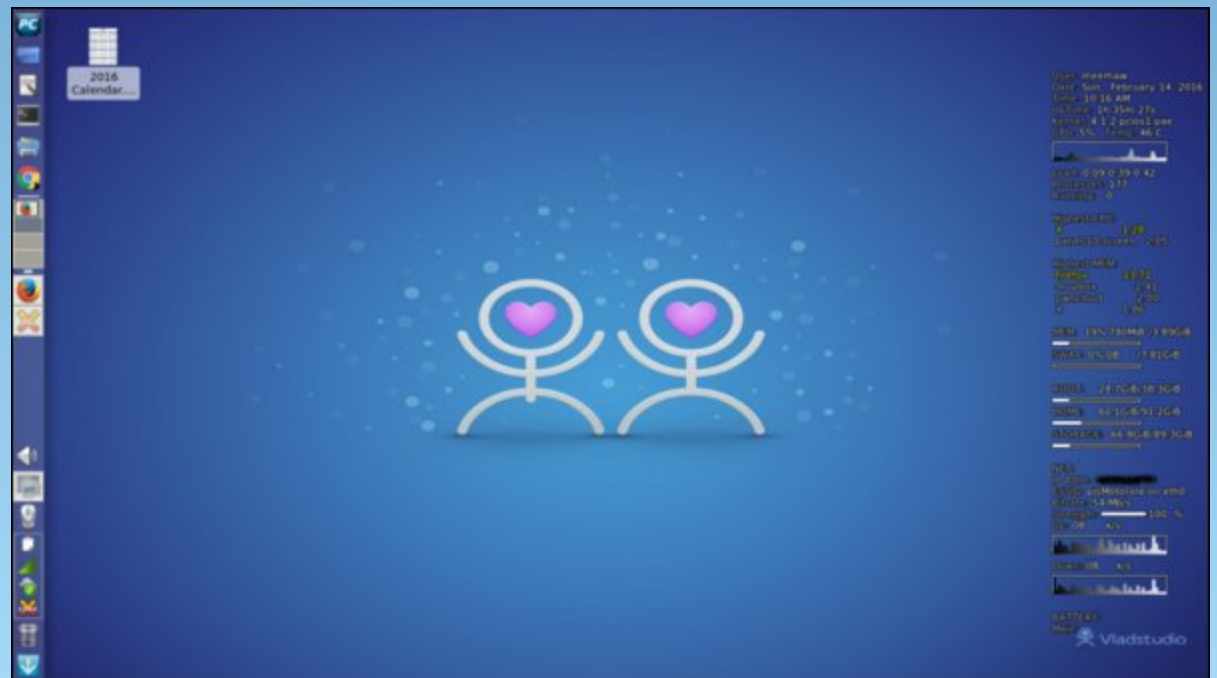


*The PCLinuxOS  
Magazine*

*Created with  
Scribus*



## Screenshot Showcase



*Posted by Meemaw, on February 14, 2016, running Xfce.*

# PCLinuxOS Puzzled Partitions

				6				
	3				1	6	8	5
2			8		4		9	
	6			8	2		3	9
3			6		5			
				9				
7	9	1					6	
	4							
					8	1	7	

**SUDOKU RULES:** There is only one valid solution to each Sudoku puzzle. The only way the puzzle can be considered solved correctly is when all 81 boxes contain numbers and the other Sudoku rules have been followed.

When you start a game of Sudoku, some blocks will be prefilled for you. You cannot change these numbers in the course of the game.

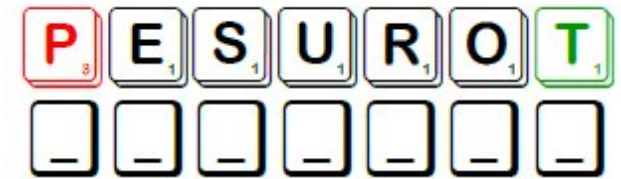
Each column must contain all of the numbers 1 through 9 and no two numbers in the same column of a Sudoku puzzle can be the same. Each row must contain all of the numbers 1 through 9 and no two numbers in the same row of a Sudoku puzzle can be the same.

Each block must contain all of the numbers 1 through 9 and no two numbers in the same block of a Sudoku puzzle can be the same.



## SCRAPPLER RULES:

1. Follow the rules of Scrabble®. You can view them [here](#). You have seven (7) letter tiles with which to make as long of a word as you possibly can. Words are based on the English language. Non-English language words are NOT allowed.
2. Red letters are scored double points. Green letters are scored triple points.
3. Add up the score of all the letters that you used. Unused letters are not scored. For red or green letters, apply the multiplier when tallying up your score. Next, apply any additional scoring multipliers, such as double or triple word score.
4. An additional 50 points is added for using all seven (7) of your tiles in a set to make your word. You will not necessarily be able to use all seven (7) of the letters in your set to form a "legal" word.
5. In case you are having difficulty seeing the point value on the letter tiles, here is a list of how they are scored:
  - 0 points: 2 blank tiles
  - 1 point: E, A, I, O, N, R, T, L, S, U
  - 2 points: D, G
  - 3 points: B, C, M, P
  - 4 points: F, H, V, W, Y
  - 5 points: K
  - 8 points: J, X
  - 10 points: Q, Z
6. Optionally, a time limit of 60 minutes should apply to the game, averaging to 12 minutes per letter tile set.
7. Have fun! It's only a game!



Double Word



Triple Word

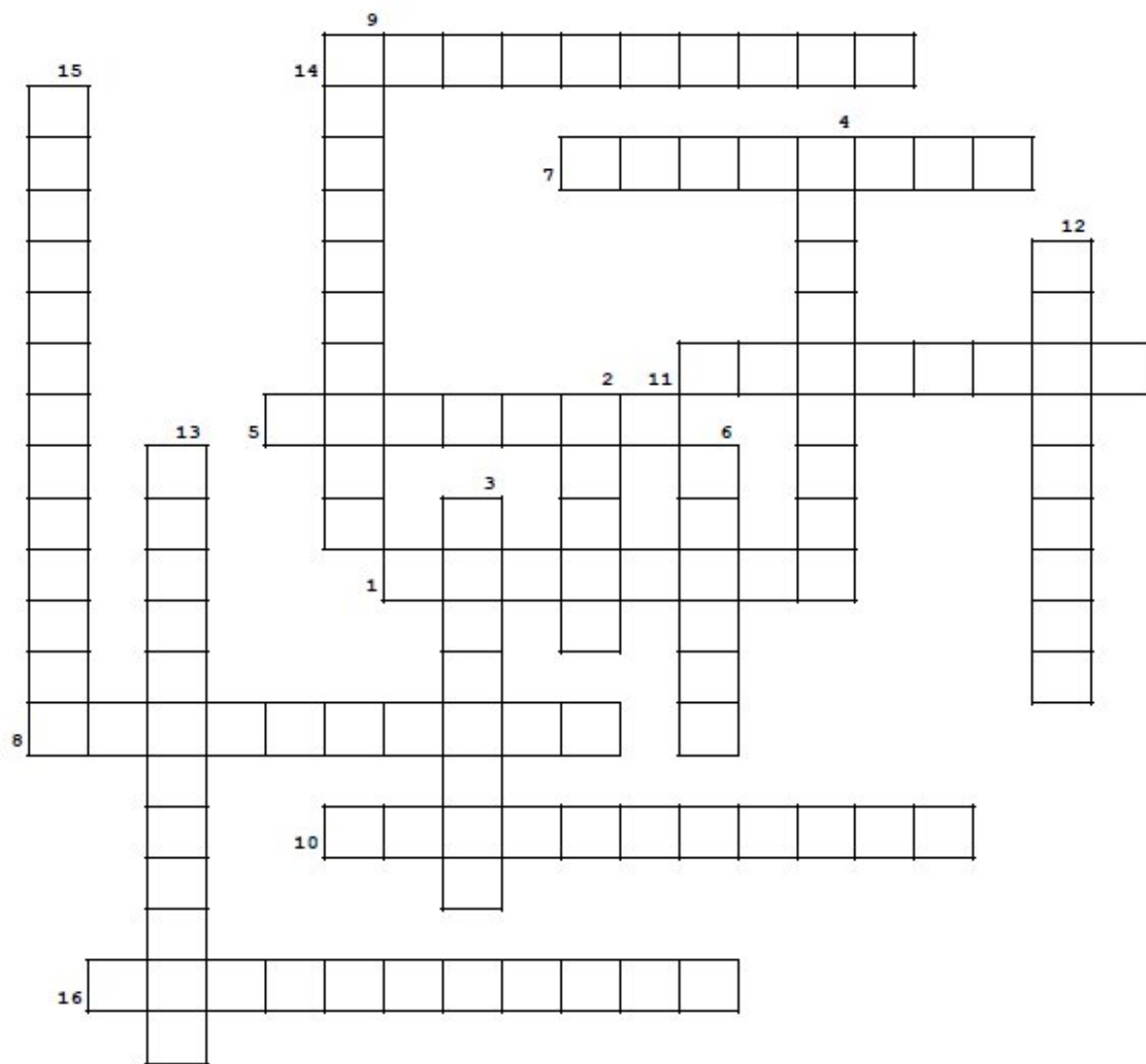


Possible score 224, average score 157.

Download Puzzle Solutions Here

# PCLinuxOS Crossword Puzzle: March 2016

## Office Supplies



1. great to record ideas
2. measuring tape is one kind
3. a soft surface for your mouse and hand
4. to enclose your outgoing letter
5. rings or pockets inside to organize things
6. makes mistakes disappear
7. covers mistakes
8. usually has the company letterhead on it
9. holds papers together temporarily
10. good to install a PCLinuxOS iso on
11. records your appointments
12. used to insert staples into hard things
13. to store all your information
14. no printer functions without this
15. to stick on the envelopes
16. temporary reminders which can be placed almost anywhere

[Download Puzzle Solutions Here](#)



# Office Supplies Word Find

K T I I T C E C K I H Q K N I R E T N I R P J J R V O O O F  
 S A S N Q M K U Z U X O C L Q T T S F O L D E R L A B E L S  
 S Z R S W C L M S E P A T H C T O C S L P V W L R O Q S W Q  
 E G V K B P X U K T V R V O U P L E K W G T H L Z C E O R V  
 T M W C Y Q L L Q N A F A H V I L X X I V C J A K Y X F M X  
 O K L A D X U C S T R T H I C V L N U L Y O T U P U N H Y N  
 N Q F T I A O K J B H Q I J G U C R U W G V D M G H S M S J  
 Y W X B E S K A F E W V V O Y V B A O H M M E R Z C B L M C  
 K T D M I P B Q F S C O K B N Q A H U J F G N C L X I V X J  
 C Z O U N J F I L E C A B I N E T S C U E U X K K J D I R V  
 I E W H I S H N A M E I O T E G R B E E A T X G L E E P K E  
 T A T T M F G C S O A S M T P J O Y R G K V G H F Y B H V C  
 S F U B P Q P J H M Y I D S Y Y D J H P A R O G M K M C N F  
 Y K T M J P C R D F L T L J M P B A R Z M Y O S U E E Q G F  
 X F G Z M T I U R I Q R L I C O Z O N A N I W L X X R Q Q T  
 Z P A P E R C L I P S Z E G N W U P L J T M D A L I U T I M  
 U N O A P K U E V P Q C U P U G L S D S W B C D C B B Q A D  
 B I S V L U J R E B U T H U A O L B E S O T K M N U G Y J H  
 L L B L N X S Z S P G Q P S H P W A M P K F R R J E Z I A S  
 O F H L G D L H E X S J H I O A Y R B I A C P L H X X N R Z  
 D J I P I P H R P Q V R P F A B O P X E M D V K A P S D Z U  
 V L B L J X A E V I H E R C J N B V O W L W C H E Y B V Q V  
 G N X V E S Z R W D N O S R G C X I T C H S T A P L E G U N  
 D H I G E F D D U C V S V O J L T V N V I I F H L I C G O E  
 C J Z R D W O H I I G Q S K I F F V I D M K T U X Q C G E W  
 W K M C U J L L Y G Q Q A E N V E L O P E S H E M H I B U K  
 A D N V U C X E D Q S F L U P T V C Y G D R M C O Y K H B N  
 I E U J U S V H Q E S T A P L E S S C M X W S F O U B P Q V  
 J F Y H L W V S Y I R A D N E L A C S D A P E T O N T R F A  
 W X Q J K F P E D Z N S Z Y T Z V H J P V P S U B M Q F L T

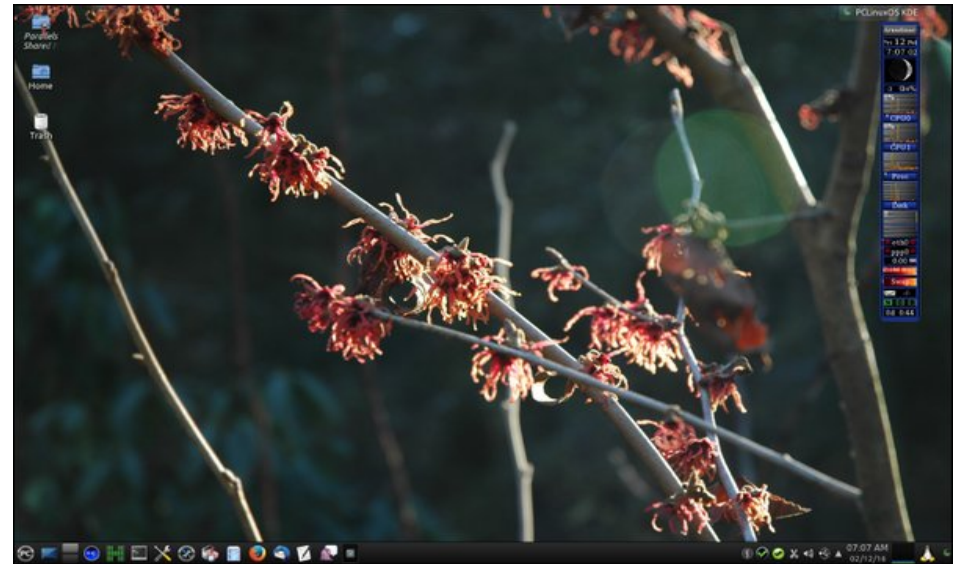
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 file cabinets  
 file folders  
 flash drives  
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 mailing labels  
 mousepad  
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 paper clips  
 pen  
 pencil  
 printer ink  
 push pins  
 ruler  
 scotch tape  
 staple gun  
 staples  
 stationery  
 sticky notes  
 thumbtacks  
 whiteout

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# More Screenshot Showcase



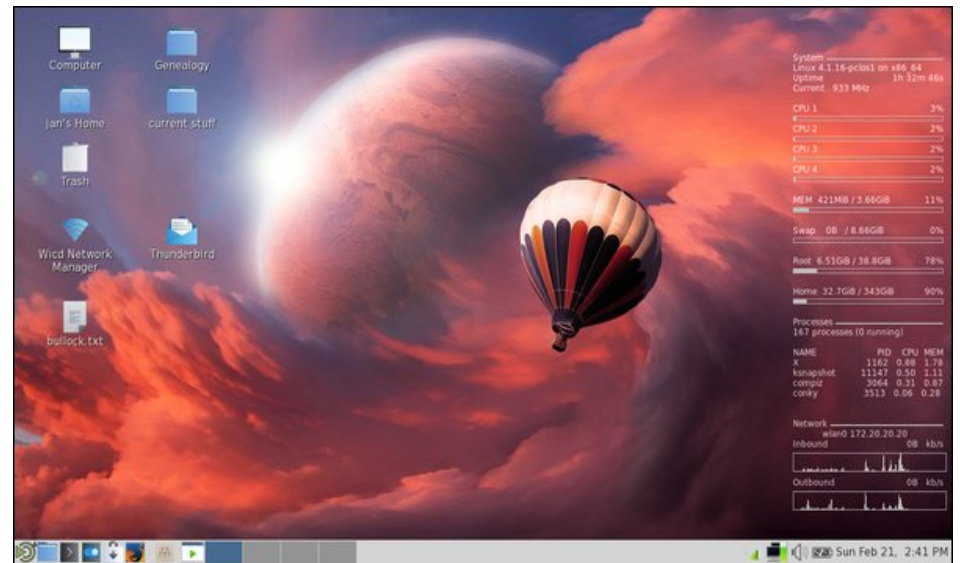
*Posted by jogurtmen, on February 4, 2016, running KDE.*



*Posted by dockmackie, on February 11, 2016, running KDE.*



*Posted by crow, on February 23, 2016, running KDE.*



*Posted by cstrike77, on February 21, 2016, running KDE.*