



CD-Writing How-Tos



Tech Tips

Mac



Want to put your handouts, images, movies, Web pages, or PDF files on a CD? You can do a thoroughly professional job — create a hybrid CD that launches automatically on both PCs and Macs, with the layout and icons of your choice. It's a *lot* easier than you might think and you don't have to do it on your own. The ACCC Instructional Technology Lab (ITL) has all the equipment you need to create a CD, and its staff can help you accomplish the task, regardless of whether you're a novice or seasoned computer user.

This set of articles is based on how-to tips prepared by Volker Kleinschmidt of the ITL. They outline the process of creating a CD, making it launch automatically when it's inserted into a PC or Mac, and giving it the look and the icon of your choice. Have you ever had a computer game that came with separate music tracks that played on your CD player? There are how-to instructions for that too.

CDs for Both PCs and Macs

There are two CDs-for-both choices.

Macs can read PC files, so if your CD contains only data files that need to be accessible on multiple platforms, you can follow some fairly simple rules and create a PC CD that both Macs and PCs can read. If a Linux system is used for burning, Unix file ownership and permissions can be applied, so a true multiplatform CD is possible.

These **cross-platform CD-ROMs** are simple to create and provide good service to PC users. PC users will be able to open a file on a cross-platform CD by double-clicking its name, and the CD can be set up to open automatically on the PC. However,

cross-platform CDs do not offer those services to Mac users. You could create separate CDs for the PC and the Mac to provide these services to Mac users, or you could ignore Mac users entirely. Neither of these solutions is desirable, which brings us to hybrid CDs.

The second option is a **hybrid CD-ROM**. Hybrid CDs have separate sets of Macintosh- and PC-readable files. (The technical terms for "set" are "filesystem" on PCs and "volume" on Macs.) On PCs, only the PC data will be visible, whereas a Mac will be able to see both sets of data, but will automatically open only the Mac data.

Creating true hybrid CDs is a much better answer when you want your CD to be available to both Mac and PC users. Only hybrid CDs preserve Mac file-creator type information, and thus only they will allow the Macintosh user to open files by double-clicking. Only on a Mac volume can a file be made to auto-open on a Mac upon CD insertion. It will also allow fine control over its appearance when it is opened (icons, layout, visibility), allowing a professional-looking CD that can be used for both PCs and Macs.

Further considerations:

File Naming: When you place hyperlinked documents (e.g., Web pages or PDF files) on a cross-platform CD that will be used on both PCs and Macs, make sure that all the hyperlinks reference the documents by their short 8.3 MS-DOS filename, which is the only name visible on the Macintosh. Also make sure to only use relative links, not absolute **file:///**-type links, for CD distribution.

File Sharing on hybrid CDs: All data files such as images, movies, Web pages, or PDF files can be

CONTENTS

- 1 CD-Writing How-Tos
- 1 For Both PC/Mac
- 2 Automatic Launch
- 4 Audio and Data
- 5 Icons for PC/Mac
- 6 SYSTAT and Stata
- 7 Getting Started with Linux
- 9 Linux: A Personal History
- 11 Email from Teachers

System Icons:

The Internet and
the World Wide Web

Apple Macintosh



MS Windows



Linux

Readership Icons:

Everyone



Novice



Expert

shared between the Mac and PC filesystems on a hybrid CD, so only executables and files with platform-specific information (e.g. a ReadMe file) need to be duplicated on the CD. This helps save space. In particular, you should keep this in mind when designing your media; create cross-platform compatible movies and sounds, e.g. RealVideo, RealAudio, or flattened Quicktime movies.

How are hybrid CDs made?

You will need at least two PCs and two Macs — one of each to prepare the files for the CD and one or more of each to test the files before you burn your CD.

1. On a PC, put all the files you will need for your CD to run properly on a PC in a separate directory. This will become the root directory for the CD's PC ISO9660 filesystem.
2. Create a subdirectory named, for example, **data** or **shared**. Put in it all the data files that will be shared between Mac and PC.
3. Copy the directory including the data subdirectory onto a portable device (a floppy disk or a CD). Test all the links in the PC files on a different PC to make sure you have everything.
4. On a Mac, prepare a folder — directories are called folders on Macs — containing the Mac executables and platform-specific files needed for the CD; include a copy of the shared data directory (step 2). Write this folder on a floppy or a CD and test the links on another Mac.
5. Write your PC directory and Mac folder on the hybrid CD. There are various software packages that can do this, some of which even run under Windows. The one most often used, however, is Roxio's Toast, a Mac application that was

developed by Adaptec. Use Toast to create the hybrid CD, separately loading the PC directory and Mac folder that you've created. For step-by-step instructions, see [How to make Mac/PC hybrid CDs](#) on the ITL How-To Tips Web page: <http://www.accc.uic.edu/itl/howto/> (Does it sound like you'll have two copies of the shared data? Don't worry; Toast will take care of that for you.)

Autolaunching CDs

Task:

When inserting a CD-ROM, a program should launch automatically, perhaps with a document displayed in the program.

Details:

A platform-independent solution is desired. No assumptions about installed software should be made. User preferences like default browser program should be taken into account, where possible.

Considerations:

- The start-up procedure needs to be very quick to make it clear to the user that something is actually happening and to avoid user frustration.
- *No software installation may be done without previously asking the user for permission.*
- Automatic launching of documents such as Web pages or PDF files usually replaces the traditional README.TXT file. Nothing can be assumed from the user; everything needs to be self-explanatory.
- However, a README.TXT file should be in the CD's root directory for those users who have the

More about filenames, volumes and filesystems

The Mac volume on a hybrid CD could be an HFS or HFS+ (also known as extended HFS) filesystem; the PC filesystem could be ISO9660 or MS-Joliet. ISO9660 is like the MS-DOS filesystem; it supports only short DOS 8.3, uppercase filenames. MS-Joliet is used in Windows 95 and newer Windows operating systems; it supports longer filenames with spaces and other special characters.

Note that a Mac reading data from a PC filesystem will only see the short version of a long PC filename. To avoid problems, use short filenames from the beginning. Note that in some versions of Windows, renaming a document such as **mylongfile.html** to a short name beginning with the same first six characters, in this case **mylongfi.htm** does not change the underlying DOS filename (usually **mylong~1.htm**) — you need to actually change the first six letters to cause the DOS name to change.

Details on autorun.inf

The Microsoft Web pages for developers, MSDN, has a library entry with a complete description of the autorun.inf file. Go to the MSDN home, <http://msdn.microsoft.com/>, then select [MSDN Library](#) → [User Interface Design and Development](#) → [Windows Shell](#) → [Shell Programmer's Guide](#) → [Shell Basics](#) → [Shell Basics: Extending the Shell](#) → [Creating an AutoRun-enabled CD-ROM Application](#).

Or visit the online version of this newsletter for a clickable link:

<http://www.accc.uic.edu/newsletter/adn34/>

These how-to tips are on the Web:

<http://www.accc.uic.edu/itl/howto/>

For answers to any question you might have on writing CDs, see “Andy McFadden’s CD-Recordable FAQ”: <http://www.cdrfaq.org/>

autorun feature turned off or who cancel out of an autorun process.

- On a Mac, specifying a start-up document or program requires that Quicktime 3 or newer be installed. This can safely be assumed, as Quicktime is part of the standard OS install and Quicktime 3 is included on every Mac running at least MacOS 8.
- On a PC, specifying a start-up executable running from the CD requires that the software be able to run without previous installation.

The general solution for Macs:

To autolaunch a program or document on a Macintosh, the CD needs to contain a Macintosh volume (which will not appear on a PC). When creating this volume in Roxio Toast, a checkbox allows you to specify an auto-launch file, and an icon for the CD, via a simple browse dialog.

In particular, this means that the CD needs to be a true hybrid CD, not just a cross-platform CD.

The general solution for PCs:

The CD’s root directory needs to contain a plain text file named **autorun.inf**.

1. The **autorun.inf** file starts with the line:
[autorun]
2. The line specifying the program or file that should be launched automatically is of the form:
open=someprogram.exe options
 - a. The open statement must refer to an executable, so it can’t be something like:
open=index.htm
 - b. The open statement can refer to DOS batch files or any other 16- or 32-bit executable, with the following restrictions.
 - The executable must be findable, i.e. it should be in the CD’s root directory, or you need to specify it with its relative path if it is on the CD.
 - Any registered Windows program such as **notepad.exe** can be called as well.
 - There are shareware programs (usually called something like **autorun.exe**) that allow the launching of any file via the default shell association. Simply specify the filename and path as command-option. If the file is in a subdirectory with a long filename, the path must be double-quoted.

• Software installers (VISE, InstallShield, etc.) tend to come with their own little auto-launch programs. No further work is required. Configuration options such as filenames are usually stored in an associated data file, rather than supplied on the command line.

3. The icon to display for the CD is also specified in **autorun.inf** on a line such as:

icon=mylogo.ico

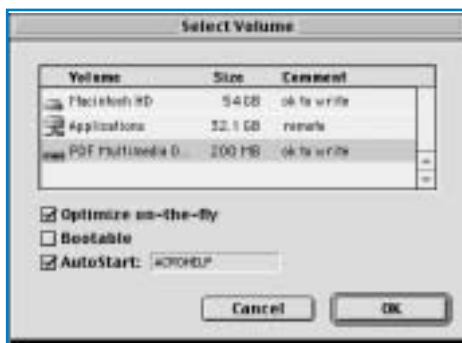
The icon file should be in the CD’s root directory. (See page 5.)

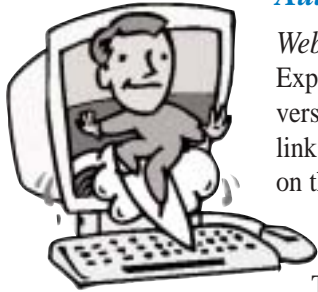
Auto-displaying a Multimedia Presentation

Multimedia presentations such as Flash or Shockwave files can be made with their own stand-alone player application included, as a so-called **projector executable**. No extra launcher application is then needed. Note that different projectors are needed for the Mac and PC volumes in the hybrid-CD case.

Using Toast to Create an Autorun Hybrid CD to Display a PDF Document

Clockwise from the right: the Mac volume, the Windows ISO 9660 volume (including the **autorun.inf** file), and ready to write the completed CD. You must use CD-writing software on a Mac to create a CD that will automatically run on a Mac. This demo CD automatically opens the ACROHELP.PDF file.





Auto-displaying a Web Page

Web pages can simply be opened in Internet Explorer, as that automatically comes with all versions of Windows. This has the advantage that links from said Web page to executables included on the CD can actually be executed (e.g. software installers), whereas other browsers will only offer to save the executable to the hard drive. The launch command can therefore look like this:

```
open=iexplore.exe -k index.htm
```

(The **-k** option makes Internet Explorer launch a new process in case the user already had a browser window open.)

When it is of utmost importance to launch the user's default browser, there are two options: use an autorun program as mentioned above, or use a DOS shell to open the document in its associated program.

Auto-displaying a PDF File

To open PDF documents, you will need to include the correct version of Acrobat Reader on the CD and configure it to run without previous installation. Then the launch command can therefore look like this:

```
open=acrobat/acrord32 relnotes.pdf
```

(Assuming that Acrobat Reader is provided in the **acrobat** directory on the CD, and that **relnotes.pdf** is in the CD's root directory.)

The disadvantage of using this approach is the somewhat longer load time when compared to a Web page or a specialized autorun program. You can alleviate that by auto-launching just a very small PDF file with a table of contents and linking from it to the main document(s). The main advantage is a simplified document-creation process, where only one version needs to be prepared for on-screen viewing with full interactivity and for printout.

CDs with Audio and Data

There are three standards for CD-ROMs combining CD-audio and data for playback, both on computer CD-ROM drives and on entertainment systems:

1 Mixed-mode CD-ROMs contain only a single session, with the data in the first track, followed by audio tracks. As many CD players cannot tell the data track apart from audio, this can cause severe

noise and speaker damage when played back and is thus not recommended.

2 CD-Extra (blue book) combines audio tracks in a first session with associated images, lyrics, and other data in a second, data, session following a very rigid schema. It is used for high-end CD playback systems and has very limited application.

3 Finally, you can record an audio session, followed by a data session containing any type of data. This counts as a **regular multisession CD**, not as CD-Extra. The second session can even be a hybrid session, making this the ideal format for distributing multimedia CD-ROMs that should provide at least audio on regular home CD players.

In the following, we will only discuss the third type, regular multisession CDs.

How the multisession audio+data CD will work:

When inserting a multisession disc into an audio CD player, only the first session will be found and the audio tracks will be played as normal.

When the disc is placed into a CD-ROM drive, the last session on the CD will be seen, and any autorun files in it will be executed, e.g. a multimedia projector.

Typically, only CD writers will typically be able to see any sessions other than the last data session, and then only as an alternative the last one. So be sure to import your audio into the data session as well if you want it accessible on a computer.

Preparing an audio+data CD:

1. Record your audio CD as usual. Make sure to close only the session, *not* the entire disc. This means you cannot write in the **Disk-at-once** (DAO) mode, and thus 2-second gaps between tracks will be enforced. In Roxio's Toast on a Mac, use the **Write Session** button, or if you are using Roxio's CDCreator on a PC, you should choose **Track-at-once** (TAO) recording and the **Close Session** option.
2. Prepare your data session, which can be done using CDCreator if the CD is for PCs only. Make sure to automatically include the audio in the session (CD layout properties). The CD format needs to be **CD-ROM XA (mode 2)** and the filesystem should be **MS-Joliet**. Be sure to include an **autorun.inf** file, associated start-up

script or executable (“General solution for PCs” on page 3), and a disc icon (“Icons for Windows CDs” and “Icons for Mac CDs” below).

3. If the disk is going to be used on both PCs and Macs, you’ll have to use Toast on a Mac to write it. See “CDs for Both PCs and Macs” on page 1 for more information.
4. Close the disc when writing the data session.

Icons for Windows CDs

Task:

Create an icon to be displayed in Windows Explorer and My Computer instead of the default CD icon.

Considerations:

Windows icons are 16- or 256-color bitmaps that are dynamically resized for the desired display size. The native size of small icons in Explorer is 16x16 pixels and large icons are 32x32 pixels. An icon file can contain both resolutions simultaneously; the appropriate one will automatically be displayed. The icon’s background color can be transparent.

How to specify an icon for a CD

The icon to be displayed is specified within the **autorun.inf** file in the [autorun] statement group, on a line starting with **icon=** followed by the path and name of the file containing the icon, e.g.:

```
icon=mylogo.ico
```

Icons may be contained in executables (.exe) or dynamically linked libraries (.dll), which typically hold multiple icons, or in .ico files containing a single icon. When referencing an icon that is in an executable or library, the program name is followed by a comma and the number of the icon (starting at 0); e.g. for the tree icon from the Windows shell you would use:

```
icon=C:\Windows\System\shell32.dll,41
```

How to create an icon:

There are various shareware/freeware programs for manipulating, extracting, or creating icon files. The best is probably Paraben’s IconBuilder (\$24.95 shareware), which can convert other formats to .ico files, manage icons in icon-resource files, and much more. If you want to draw an icon from scratch, HTML-Helper’s freeware IconStudio will be sufficient.

A kludgy workaround:

If you don’t have a true icon editor, draw an image in any paint/draw program, then save it as a 16- or 256-color bitmap file, .bmp. Then open the .bmp file in MSPaint and crop as needed until it is 32x32 or 16x16 pixels. If you want a transparent background, pick a color from the 16 or 256 available colors that does not occur in your picture, uncheck the **Draw Opaque** option in MSPaint’s **Image** menu, and fill the background of the image with the paint bucket. Save the .bmp file, then rename the resulting image with the .ico extension. You should see the icon displayed correctly now. Place it in your CD’s root folder. Note that icons made this way aren’t entirely valid and its transparent background will appear black in Windows NT.

Icons for Mac CDs

Whatever icon you give to the temporary Mac volume will be assigned to the CD. Create an icon in your favorite graphics program and copy it onto the clipboard. Then change the icon for the temporary Mac volume by clicking once on the icon in the Finder, choosing **Get Info...** from the **File** menu, and finally choosing **Paste** from the **Edit** menu.

There are step-by-step instructions on how to make an icon on a Mac at the iconfactory:

http://www.iconfactory.com/howto_home.asp

Need Help or the Right Software or Tools?

The ITL has it. And its mission is to help both novice and seasoned computer users, whether they’re publishing their first Web page or creating sophisticated interactive hypermedia. Email the ITL at itl@uic.edu, call 312-996-9824, visit the ITL home page, <http://www.accc.uic.edu/itl/>, or stop by the ITL on the west side of campus in room 181 BGRC. Soon — probably by the time this newsletter is published — the new mini-ITL on the east side of campus, room 401 CCC, will be open.

Comments are welcome; please send them to Volker Kleinschmidt, volk@UIC.EDU

Tools of the Stats Trade, Part 2

Tech Tips

Mac



The Saga Continues!

Yesssss, the tale of many Ss continues! If you recall, we discussed SPSS and SAS in our previous article. We noted that a main difference between the two is that SPSS offers a more user-friendly graphical interface, good for beginning users, and SAS caters more to the programmer in you. Underlying both packages there is a powerful programming language. (Breathe deeply! ... Yes, if you use SPSS you have been programming all along!!)

You might be thinking, sssso many packages! Which one should I use when? Should I explore others programs or stick to what I know? Excellent questions! A salient element is the amount of programming flexibility they allow the user. That is, your ability to modify how the program actually works.

And it is on this note is that we start our tour today of two more statistical packages: SYSTAT and Stata. These packages offer the convenience of a graphical interface, but they also emphasize the programming component. They are more challenging to learn, but they also can be much more rewarding.



This is the second in a series of articles written by the ACCC's consultant for statistical software, Violeta Carrión, STATS@uic.edu, who expresses her thanks to Dick Campbell who provided the essence of the information about Stata.

SYSTAT

The child of Dr. Leland Wilkinson, statistician and former professor at UIC, SYSTAT had its roots right here at UIC some years ago. It was in the DOS prompt era; at the time, powerful stats packages were primarily available on mainframe computers. SYSTAT was developed for programmers who wanted to do statistics on their desktop computers; its emphasis is on sound statistical algorithms and cutting edge graphics.

In 1996, SYSTAT was purchased by SPSS, Inc. As a result, SYSTAT's user interface improved significantly. SYSTAT graphics remained at the cutting edge. Earlier this year, SYSTAT Software Inc (SSI), purchased SYSTAT from SPSS. The SYSTAT Web home page is at:

<http://www.systat.com/>

So, what does SYSTAT offer you? SYSTAT offers both a programmer's and a beginner's interface. Upon opening SYSTAT, you are presented with its original interface tailored for command prompt users. In this view, you will find three panes: output, results, and command prompt. Upon opening a dataset, a window with pull-down menus much like those of SPSS opens up. You can use SYSTAT via its pull-down menus and not have to much actual programming.

SYSTAT can perform comparable statistical procedures to other packages, including missing value and power analysis. In addition to other commonly used formats, SYSTAT can open and save files both as SAS datasets and SAS transport files. It can also open ArcView and BMPD files, and save BMPD files. If you want plain text output, you can do it by enabling **SYSTAT Classic** in the **Options** menu.

The software's user manuals, especially *Getting Started*, should suffice to get introduced to using the package. Another good resource is the book *Desktop Data Analysis with SYSTAT*, by Wilkinson, Blank, and Gruber, 1996.

SYSTAT features:

<http://www.systat.com/products/Systat/>

Learning SYSTAT:

<http://www.marymt.edu/~madden/stsyswn9.htm>

<http://www.psych.upenn.edu/systat/smallfiles.htm>

Stata

Stata emphasizes the programming aspect of statistical computing. It can be used interactively, via its command line, or in batch mode. It was designed for economists (and as such, it compares to LIMDEP), for epidemiologists, and for survey-data and experimental analysts. For survey analysis, for example, Stata has routines for complex multistage survey samples and can evaluate patterns of participation in survey data and capture them in a variable. Stata does everything that its competitor SUDDAN does, except analysis of poststratified data.

One of Stata's strong points is its memory management capabilities for computationally demanding routines. It takes the dataset into memory, which allows for faster data access; default memory size can be increased as desired. Like other statistical programs, default parameters can be also modified via a profile file.

When you open Stata, you encounter four windows: results, command, review, and variables. The results window interactively displays information as you submit commands or queries. The command window is to submit syntax, the variable window displays the available variables on the data file you are using, and the review window lists a history of submitted commands. Stata command files are text files called DO files, and when compiled as a program, they are called ADO files.

From experience, I can tell you that it is not hard to learn to use this package after you understand how it behaves and become familiar with its command language. Software updates are easily accessed via the **update query** command that connects to the Stata Web site and automatically downloads any updates and program files. Pretty cool!

Finally, Stata offers a set of courses via the Web. Information on these courses is available at:
<http://www.stata.com/info/products/netcourse/>

Stata features:

<http://www.stata.com/info/whystata/>

Learning Stata:

<http://www.stata.com/info/capabilities/session/>

<http://www.ats.ucla.edu/stat/stata/modules/>

<http://www.princeton.edu/~erp/stata/main.html>

<http://www.umass.edu/acco/statistics/handout/stata7.pdf>

Wrapping Up

Well, I hope you are sssatisfied. I will leave you with a word of advice. If you are curious about how to use a program, "Google it!"

(<http://www.google.com>) I frequently find that there is a Web page with the answer to whatever statistics or software usage questions that I have. Many sites include detailed information on how to use a particular package.

Statistically yours,
Violeta Carrión

Stats Support Email Address:

STATS@uic.edu

Stats Support URL:

<http://www.accc.uic.edu/stats/>

ACCC Software Sales:

<http://www.accc.uic.edu/stats/software.html>

UICSTATS-L archives:

<http://listserv.uic.edu/archives/uicstats-l.html>

How to Get Started with Linux (and live to tell the tale)

News and Reviews



What, exactly, is Linux?

The narrow definition of Linux is "an operating system kernel." But when you install a Linux distribution (or "distro"), you get a lot more.

X Windows: X underlies all the Unix window management, but it leaves the look-and-feel definitions to other programs. As a result, X Windows is highly configurable, and can look very different on different computers. However, X is network aware — you can run SAS on tigger, and when SAS wants to display a graph, a window containing it automatically opens on your X-enabled PC.

Desktop management software: Gnome and KDE are two popular ones, and provide taskbars, multiple desktops, word processors, ...

Lots of utilities: Unix is famous for all sorts of command-line programs. However, there are often GUI wrappers for the important ones, so you get your choice on how you use them.

Applications: Much of the Linux world centers around free, open source applications, and many of them are included in the distro. Word processors, spreadsheets, graphics editors, Web browsers — truly your hard disk will runneth over. (If you have a small one. But you can install or not install whatever you like.)

I might be willing to try Linux. How should I start?

A knowledgeable friend is always a good asset, and a bit of adventuresome spirit would help. But the installation procedures for many Linux distributions are good enough that most things will work out of the box.

Obviously you'll need a PC, but it needn't be the latest and greatest. Linux can run fine on a smaller machine, but some applications may be a bit more power hungry. If the PC has important files, back them up first. Depending on the install, it may not be necessary, but it sure is prudent.

Yes, but what Linux distribution is best?

Gee, I dunno, what's the best food to eat for dinner? It depends.

A distro is the core Linux OS plus lots of software preconfigured and packaged up for easy installation. The various distros differ in terms of applications they contain and in how they are configured and customized. Many applications, X Windows in particular, are hugely configurable. But if your distro doesn't include a particular program, don't worry, you can add it later. Whether all these choices are a feature or a burden depends on what you select for dinner.

The ACCC happens to use Red Hat for our servers, but different people put different distros on their desktop. Then there's the question of desktop management software such as KDE or Gnome (or none). Don't get sidetracked; it's more important to get started. You can figure out the details of what's best for you later.

You did say it's free? Where do I get it?

Yes, Linux is free if you want download it or if you borrow a CD from a friend. (You can legally install as many machines from each CD as you want.) Or you can buy a CD set, which often will come with limited phone support if you want it. The CDs are not generally expensive and they save you a long download. (As well as coming with some printed, often substantial, instructions.)

And if I'm still nervous?

Most installations require you to repartition your hard disk. Sounds scary, but not a big deal if you are doing a fresh install and don't intend to save any existing files. Even if you are saving files to

make a dual-boot system (so you can choose Windows or Linux when you boot), there are partitioning utilities that will save your existing Windows installation. And further, there are some distros that will install in a single (large!) Windows file; performance will suffer, but it's a way of dipping your toe in the waters. There are other distros that can simply be booted from the CD without installing it on the hard disk. That's slow, but if you have trouble with commitments it might be the way to get started.

I understand Linux doesn't get viruses, so I don't have to worry about security?

Um, yes and NO! There are many ways in which Linux security is good and scarcity of viruses is one of them. You pretty much don't need to worry about viruses at all — at least not yet. But all software has bugs, and Linux is no exception. It has its own susceptibilities, usually of a different kind than Windows. Software written for Linux can have security issues too. A recent example is the Slapper worm that struck Linux machines running the Apache Web server. So for Linux, as for any OS, you must keep current on security patches.

The Linux install procedures have gotten much better in terms of security, so it's easy to set up a personal firewall and turn off unneeded services during the installation. And for the truly paranoid (even paranoid people have enemies), there are kernel modifications that can harden the Linux system at several levels. If that interests you, see your knowledgeable friend.

Some Linux vendors provide a service, sometimes for a fee, that helps you automatically notice and install the patches. You can, of course, just FTP them manually, but for RedHat users on campus, we've made this a bit easier. We're mirroring the RedHat patches on a local FTP server. You can set up an automatic process ("cron job" in Unix-speak) that checks the server once a day, downloads what is needed, and installs it. We do this for our own servers, and you're welcome to use it. See [RedHat Linux Downloads](http://www.accc.uic.edu/home/SECURITY.html) on the ACCC Security page (<http://www.accc.uic.edu/home/SECURITY.html>) for details.

Note that the ACCC also runs a vulnerability testing service, for Windows, Linux, and so on. You can use our scanners to check for known vulnerabilities. To request a scan, click the **Security** button on the

ACCC home page (<http://www.accc.uiuc.edu/>), and select [Vulnerability Network Scanner](#). (Your scan must be approved by your department's Net-Sec representative; the scanner will automatically submit your request to her/him.) A routine scan, say once a month, is added peace of mind. And you can use ADSM for backups on your Linux system, just in case. Even without security problems, I occasionally erase the wrong file.

Well and good, but my colleagues still send me doc and xls files. And I already know Word. I can't give these up, so what do I do?

No need to give up your MS connections or skills. There are lots of ways you can keep bits and pieces of Microsoft if you need to.

Dual boot systems. When you turn on your computer, you simply get to choose Windows or Linux. Don't like the choice? Just reboot.

Vmware. This is a full-scale virtual machine. You can install Linux, and then install vmware as an application. When you run vmware, it looks like its own computer in all respects, and you can then fully install the real MS windows and MS applications. That's right, MS Windows (and its subwindows) can run *inside* an X Window, at the same time other native Linux apps run in their windows. Or you can flip that, install Windows first, and install Linux inside vmware. This is good for developers, or if you truly need both Windows and Linux running at the same time, but don't try this on a slow machine.

Crossover, Wine, Lindows, ... These are all Linux applications that emulate the MS Windows environment, so that you can load real MS

applications onto Linux, without have the real MS Windows present. (Note: you can now buy a PC pre loaded with Lindows from Wal-Mart. If you had any questions about Linux going mainstream, that should answer them.)

Star office, K office, AbiWord, Gnome, Evolution, ... These are real Linux applications. Office suites, word processors, email programs, desktop management systems, and so on. Almost all can read and write MS formats, so you can exchange **.doc** or **.xls** files with a colleague. And some have an MS feel, so that if you already know where the controls are for MS Word or Outlook, you can find quite similar work-alikes. Most are free, and many come with standard Linux distros.

This article is a bit sparse. Where do I get more info?

It's true the ACCC front-line consultants don't have the training to answer Linux questions. But there are lots of other resources.

Firstly, you can subscribe to linux@uic.edu. (Send an email message with the single line "subscribe linux" to listserv@uic.edu. Of course, don't include the quotes.) Many Linux users from the UIC community read this list and will answer questions.

There are all sorts of books on all levels, including the manuals that come with CD sets.

And, of course, there's the Web. Google found some 56,400,000 hits on "linux"; don't read all this before bedtime. But consider:

<http://www.tldp.org/> — The Linux Documentation Project, a central source for howtos, guides, FAQs, magazine articles, and more. AITS maintains a mirror: <http://linux.aiss.uiuc.edu/pub/linux/>

<http://freshmeat.net/> — Huge catalog of Linux software, much of it free.

<http://www.codeweavers.com> — From the makers of Crossover, which allows Word, Excel, IE, and so on to run on Linux. This is great if you don't like their native Linux work-alikes.

If you want to download a distro: AITS maintains a mirror of the RedHat and Debian distros:

<http://linux.aiss.uiuc.edu/pub/>

Desktop Management: KDE and Gnome usually come with a distro, so you don't have to do a manual install. But these sites have screenshots and lists of included programs and features:

<http://www.kde.org/>

<http://www.gnome.org/>

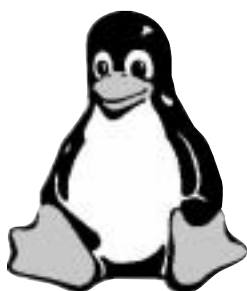
Comments are welcome, send them to, Bob Goldstein, bobg@uic.edu

One Person's Linux

The appearance of your Linux desktop is very much up to you. This one should be familiar and comfortable for Windows users. (AbiWord does look a lot like MS Word, doesn't it? And Linux has Freecell, too.)



Getting Started with Linux — A Personal History



Campus Profiles



It took me years, but I finally took the plunge and installed Linux on both my home and office machines. It's been about a year now since I made this momentous decision and I've never regretted it.

I resisted making this change for many years because MS Windows did most of what I wanted my computer to do. I could happily write books and articles with it, do email, explore the Web (professors don't surf), and crunch some numbers from time to time. So why would I want to change? As well, what did I know, I'm a political scientist, not a computer wiz, and maybe Linux was even worse than Windows. I knew that Linux is really Unix, the system that runs most of the Internet, so it must do something good if all the computer geeks like it. But was it for me?

But while I could do about everything I wanted in Windows, what worried me most was security. Almost every week there seems to be a new Windows virus or worm out there and the antivirus software can't always keep up. Moreover, as my office computer was directly connected to the Web, would someone find a backdoor someplace on it to come through and wipe out my hard drive or do other damage? Windows is an inherently insecure operating system and will likely remain so for the foreseeable future.

Even this did not lead me to make a change, however, as I was not willing to completely give up one system for a system I thought might be better but might not be. But then I heard about fips.exe, a simple, easy to use, little DOS program that partitions your hard disk without destroying anything. To use it, you first defragment your hard disk under Windows so that all the Windows stuff is in the first set of tracks. Then you run fips.exe to create an entirely new partition on the latter tracks (and you can specify how much to allocate to each partition). Windows continues to run just like it always did but now I had space for a new operating system, Linux, which allows me to boot either at

will. Linux will run with about four gigabytes of disk space but I found that ten is better and is adequate for all my needs.

What you then find is that there is a large number of different Linux versions, some designed for the computer wiz crowd and some designed for ordinary people like me. As the biggest one of the latter was Red Hat, I figured I would give it a try. So I purchased Red Hat 7.1 at Best Buy for about \$39.00 and began installing it on my two machines. What a breeze that was. Put in the CD disks, answer a few questions when prompted, and I had it up and running in about forty-five minutes.

Now I would see what it could do. First and most importantly, it has a windows program called X (not 10, X), which looks and operated much like MS Windows with point and click to run programs. And it has considerably more power than MS Windows as I simultaneously have four desk tops that I can switch back and forth between as I work. There was a small learning curve, but after a couple of days I felt very secure using my new system.

And then there is security: Unix systems like Linux are not perfectly secure but they are much more secure than MS Windows machines (for the paranoid, you can even get a kernel, the key operating system component, from the National Security Agency (NSA) which is really secure). Under Linux, each file has three permissions — read, write and execute — and you can control each of them for all the files on the system. So if I didn't want anyone to read my email posts to the Provost, I can set it so only I can read these files. And by strictly controlling write access, I can keep hackers from putting viruses on my system and messing it up. And not only can I open or close all the external ports, I can limit who has access to the open ports. Once, for example, I discovered that several different people from Germany were trying to mess with my Web server, so I banned all Germans from the system. Currently, the French and Italians are

This article was contributed by Gerald Strom, professor in political science and non-geek.

The image of the Linux penguin, Tux, is copyright Larry Ewing (lewing@isc.tamu.edu) and was created using the Linux drawing tool, The GIMP.

also excluded as are people coming from a Web address that ends with novacon.net; mess with me and I shut you out.

Some of this is probably unnecessary as not many hackers write viruses for Linux machines, but it sure feels good to know that the capability is there and easy to use if you need it.

What I also discovered after I got it up and running is that there is really good software out there for Linux. My favorite is Star Office, a free office suite from Sun Microsystems, which I think is as good or better than the Word Suite from Microsoft. In fact, the word processing component can read and write Word documents, the spreadsheet can read and write Excel spreadsheets, and I can use it to make slides just as easily as with Powerpoint. And, of course, Netscape and a wide variety of other browsers are available. (I really like Galeon.) And for email, there are several that mimic Eudora without the latter's faults. So far, in fact, I have always found good software to do whatever I wanted to do. Moreover, most of it is free; just download and install it.

But you know the really best part? Linux doesn't hang up, ever. I have been running Linux now for about a year and the only time the system went down was because of a power failure in BSB (and of course, it recovered from that immediately after the power was restored). And that's running seven days a week, 24 hours a day, with hundreds of students using the Web server I put up on it.

Would I go back? No way. Why would I want to? I have a pretty secure system now and all the tools I need. The downside, however, is that the computer center currently does not support Linux so if you have a problem, you cannot take it to them. But there is a Linux listserv running on campus and I have found that if I have problems, I can post them there and get solutions back. There really are a lot of well-informed people on campus who know how to run Linux systems, and they seem very willing to help.

Gerald Strom, UIC Professor in Political Science, and non-geek.

Students: Your teachers want to send you email.



The ACCC Post



Any registered UIC student may open a personal account on icarus and use it as their email account. But these days many students come to UIC after having used another email address for many years, and they don't want or need a new email account.

That's not a problem, except that professors at UIC often send their students email messages and the email address that they will use is the student's UIC netid at uic.edu, *abyron99@uic.edu*, for example.

But even so, you don't have to use an icarus account to receive your professor's email. The only thing you have to do is tell us what real email address you want email that is addressed to your netid at uic.edu sent to. Do this by filling out the form on our ACCC Directory Update Web page: <https://www.uic.edu/htbin/cgiwrap-auth/bin/phoneupdate>

(You will have to open your ACCC account to login to use this utility. But you'll want one anyway for

the other UIC online student services. Check out <http://www.uic.edu/depts/ims/webstudent/>)

At the bottom of that page, you'll see a section that lists your netid at uic.edu email address. Type the real email address that you want email that is sent to your netid at uic.edu address to in the "is forwarded to:" box, for example *adabyron99@hotmail.com*, and click **Submit the changes**. Double check to make sure you haven't made any errors when you type the address; the uic.edu email forwarder doesn't have any way to check for incorrect email addresses and will send your email to whatever address you submit. Changes will take effect overnight.

After that, email sent to your netid at UIC, *adabyron99@uic.edu* for example, will be forwarded to *adabyron99@hotmail.com*, and you'll receive your prof's email just like your fellow students.

Open your account online: Go to the ACCC home page, <http://www.accc.uic.edu/>, click the Accounts button, and select [Accounts - Get an Account](#). You will need to have your i-card handy when you open your account.

The A3C Connection

Academic Computing and Communications Center (MC 135)
Room 124 Benjamin Goldberg Research Center
1940 West Taylor Street
Chicago, Illinois 60612-7352

About The A3C Connection

The A3C Connection is published four times per year by the UIC Academic Computing and Communications Center, providing news and information about the use of computers, communications, and networking at UIC. It is edited by Judith Grobe Sachs with help from Bill Mayer and the UIC Office of Publications Services.

Distribution of the *A3C Connection* is free to UIC faculty, staff, and students, and to other universities and not-for-profit organizations. To subscribe, send us your name and address, UIC campus address if possible, including your department name and mail code. To cancel your subscription, send us your address label or a copy of all the information on it.

Contact us by electronic mail at connect@uic.edu; by telephone at the Client Service Office, (312) 413-0003; by US Mail at The A3C Connection, ACCC (MC 135), Room 124 Benjamin Goldberg Research Center, University of Illinois at Chicago, 1940 West Taylor Street, Chicago, Illinois 60612-7352; or by fax at (312) 996-6834.

We welcome any comments, suggestions, complaints, or requests you might have concerning the *A3C Connection*.

The Fine Print

The use of trade, firm, or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the University of Illinois of any product or service to the exclusion of others that may be suitable. Trade names that may appear in this publication include the following: Apple, the Apple logo, Mac, Mac logo, and Macintosh (registered trademarks of Apple Computer, Inc.); AIX and AIX/ESA (registered trademarks of IBM Corp.); UNIX (registered trademark of The Open Group); HP and HP-UX (registered trademarks of Hewlett-Packard Corporation); Sun, Solaris, and Java (registered trademarks of Sun Microsystems, Inc.); and Microsoft, Windows, Windows NT, and other Microsoft product names (trademarks or registered trademarks of Microsoft Corporation). All other product names mentioned herein are used for identification purposes only, and may be the trademarks or registered trademarks of their respective companies.

Permission is granted to reprint or adapt all or part of the *A3C Connection* for nonprofit use, provided that full acknowledgment of the source is given.

The clip art on pages 1, 4, and 11 were obtained from The Learning Company's ClickArt ClickEdit product, © 1998 The Learning Company, Inc. and its subsidiaries, 88 Rowland Way, Novato, CA 94945 USA. All rights reserved.