

## Columns

[NetworkConnection](#)[Link of the Month](#)[IRC News](#)[RSS Matters](#)[www@unt.edu](#)[Short Courses](#)[Staff Activities](#)

**Don't forget our monthly Columns!**

## Campus Computing News

[Protecting Your Digital Identity: Changes to Password Procedures at UNT](#)

[Summer Break Hours](#)

[EDUCAUSE](#)

[Unblocking Pop-ups on Windows XP, Service Pack 2](#)

[SAS 9.1.2 has Landed.....with a THUD!](#)

[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)

**TODAY'S CARTOON**



[Return to top](#)

# UNIVERSITY of NORTH TEXAS

[Network Connection](#) | [Link of the Month](#) | [IRC News](#) | [RSS Matters](#) | [www@unt.edu](#) | [Short Courses](#) | [Staff Activities](#)

[Computing and Information Technology Center Home](#) | [Help Desk](#) | [Training](#) | [About Us](#) | [Publications](#) | [Our Mission](#)

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Site was last updated or revised : February 12, 2007

[UNT home page](#) | [Search UNT](#) | [UNT news](#) | [UNT events](#)



[Page One](#)
[Campus Computing News](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-ups on Windows XP. Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)

## Campus Computing News

### Protecting Your Digital Identity: Changes to Password Procedures at UNT

By [Dr. Maurice Leatherbury](#), Executive Director of Information Technology and Academic Computing

Identity theft is a serious and growing problem around the world, exacerbated by the Internet's openness and the seeming ease with which miscreants can obtain information about you over the Web. One common way by which identity thieves gather personal information is by "cracking" into computer accounts on home or work computers that hold sensitive information. Typically, thieves scan computer networks for poorly-protected computers, gain access to those computers, and then examine files on those computers that contain personal information such as social security numbers or credit card numbers. UNT is trying to reduce the risk of such theft occurring on campus by instituting additional security measures to protect our users and the campus network from such "cracking."

Over the next four months we'll be changing the way students, faculty, and staff change their passwords:

1. We are moving to "single sign on" procedures where possible. This means that you'll only have to log into the campus portal (<http://my.unt.edu>) for example, only once and then you'll have access to any of the services, such as GroupWise, EagleMail, and the Enterprise Information System, that are available from the portal. It also means that we're trying to assign a **single user ID and password** for your use across campus.

Our assumption is that if you only have to remember one way to log into all of the systems you typically use on campus, you're more likely to remember your user ID and password and it will be less onerous for you to have to change your password. Also, if you can remember your ID and password more easily, there will be fewer instances of passwords being written on Post-it notes which are stuck to the bottoms of keyboards!

2. We are instituting "strong password" rules that require you to create passwords that aren't easily cracked by identity thieves. We are doing this because we've had numerous instances of hacking into machines by programs that do "dictionary lookup" on common words that might be used in passwords, such as common first names or words from the English dictionary. Such programs simply try to log into targeted machines by using every word in the dictionary as the password. They also try simple variants such as adding a single digit to the ends of dictionary words. The rules we'll be following will prohibit dictionary words from being used and will require at least one upper case letter and at least one digit or special character (such as

01234\$%^&\*+, etc.) in your password. A very useful and informative article about password creation was published in *Benchmarks Online* in February ("[Good Passwording](#).")

3. We'll be "aging" passwords and requiring that you change your password at least every 120 days. This will prevent hackers from continuing to guess the same password over an extended period of time and will protect you if someone has stolen your password (or you've given it to someone) within the past four months. Starting around the middle of September, we'll be expiring passwords that haven't been changed within the past 120 days, on a staggered schedule based on the first letter in your user ID, and this process will finish by the middle of December. When you log in after your password has been expired, you'll be prompted to change the password before you are granted access to the system you're logging into.
4. We'll be locking the login process if someone unsuccessfully attempts to log into your account more than 15 times within a 15-minute period. The account will be unlocked 15 minutes after the last unsuccessful login attempt. This measure will prevent the "dictionary attacks" that are described in #2 above, or at least will severely slow them down.

We're fully aware that many of these measures are annoying and to many will seem unnecessary, but prudence dictates that we do everything that we can to protect our students, faculty, and staff from the common risks that we all face on the Internet today. The goal of all of these procedures is to protect you and to make it easier for you to use the rich computer resources here at UNT.

[Return to top](#)

[Page One](#)
[Campus Computing News](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-ups on Windows XP, Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)

## Summer Break Hours

By [Claudia Lynch](#), Benchmarks Online Editor

Summer is almost over, but "special hours" continue to be in effect for a variety of locations on campus. Following are the hours for Computing Center-managed facilities for Summer I & II (May 31-August 6) and beyond. All staff offices will maintain their normal hours during this time. Additionally:

- **Print Services** will maintain their normal hours.
- The [Helpdesk](#) will be **open their normal hours**.
- The **ACS General Access/Adaptive Lab** ([ISB 110](#)):

**August 7 - August 29:** Monday - Friday: 9 am - 5 pm

### Hours for Other Campus Facilities

#### General Access Labs

- [WILLIS](#):  
**August 9-26:**  
 Monday - Friday: 8 a.m. to 5:50 p.m.  
 Saturday and Sunday: **Closed**  
  
**August 27-29:**  
 August 27 - 8 a.m. to 1:50 p.m.  
 August 28 - 9 a.m. to 5:50 p.m.  
 August 29 - Open at 1 p.m. and return to 24 Hour Schedule.
- [SLIS](#):  
 August 9 - August 23: **Closed**  
 August 24 - August 27: 10 a.m. - 6 p.m.
- [MUSIC](#):  
 Semester Break: August 7 - 29: **Closed**
- [SCS](#):  
 Semester Break: August 7 - 22: **Closed**
- [SOVA](#):

Semester Break: August 7 - 22: **Closed**

- [COE:](#)

Saturday August 7 - Sunday August 29: **Closed**

- [COBA:](#)

Saturday August 7 - Sunday August 29: **Closed**

- [CAS:](#)

**GAB 330:**

Semester Break: August 7 - 22: **Closed**

**GAB 550:**

Semester Break: August 7 - 22: **Closed**

**Terrill 220:**

Semester Break: August 7 - 22: **Closed**

**Wooten 120:**

Semester Break: August 7 - 22: **Closed**

- **UNT Dallas Campus- 155A**

**August 7 - August 29:** Monday - Friday: 9 am - 5 pm

- **Engineering General Access Lab ([englab@unt.edu](mailto:englab@unt.edu), Research Park, B129, 891-6733) -- August 9 - August 29: **Closed****

[Return to top](#)

[Page One](#)
[Campus Computing News](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pops-ups on Windows XP. Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)


## TECHNOLOGY in Support of the Academy

Omni Austin Hotel Downtown, Austin, Texas

February 16-18, 2005

## EDUCAUSE

 By [Claudia Lynch](#), *Benchmarks Online* Editor

**B**elieve it or not, it is time to start planning for the next EDUCAUSE Southwest Regional Conference. It is being held in Austin this year, February 16–8, 2005. The theme this time is "Technology in Support of the Academy."

If you would like to participate as a presenter, the deadline for submissions of presentation proposals is **October 4, 2004**. You can submit a proposal online at: <http://www.educause.edu/conference/swrc/2005/program.asp>

According to an e-mail message sent out to interested past participants, the program will follow four tracks (view full [descriptions](#)):

- Emerging Technology and Security Issues
- IT, Learning, and Teaching: What Works?
- Leadership Development
- Corporate Presentations

### Benefits of Presenting

As a presenter, you'll not only help create an innovative and informative program, you'll also:

- Gain recognition
- Spotlight your institution's achievements
- Make valuable contacts
- Hone your public speaking skills
- Build confidence and self-esteem
- Facilitate progress in the academic community

### Related Opportunities

- If your proposal addresses an effective technology-related practice or solution implemented on your campus, share it with colleagues by submitting your presentation content to the Effective Practices and Solutions [database](#).
- Consider submitting your material for publication in EDUCAUSE [Quarterly](#). EQ authors receive full editorial support and gain valuable exposure and recognition in a very visible professional forum. View author [testimonials](#) and publication [guidelines](#).





[Page One](#)
[Campus Computing News](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-ups on Windows XP, Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)

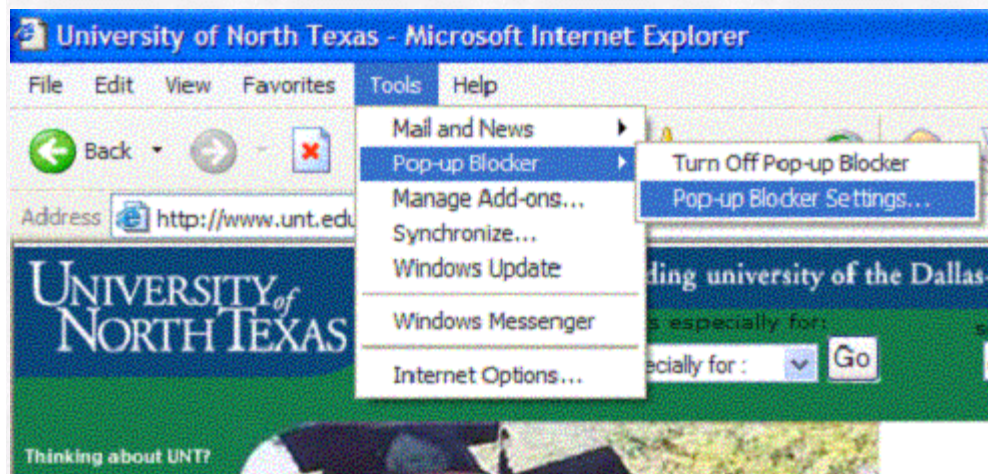
## Unblocking Pop-ups on Windows XP, Service Pack 2

By [Glenn Thorpe](#), Information Security Intern

Several University of North Texas online applications, such as EagleMail, WebCT, the <http://my.unt.edu> portal, and Remedy, require pop-up windows to function properly. [Service Pack 2](#), "Microsoft's response to many of the security woes that have plagued the company's flagship operating system, Web browser, and e-mail client," has a built in pop-up blocker enabled by default after installation. Therefore to maintain functionality of these online applications, you will have to add a rule to allow all pop-ups from all UNT websites.

### To change Pop-up Blocker settings

1. Open Internet Explorer.
2. On the **Tools** menu, point to **Pop-up Blocker**, and then click **Pop-up Blocker Settings**.



To add UNT to the allowed sites:

1. Under Address of Web site to allow, type `http://*.unt.edu`
2. Click Add
3. Click Close



**UNT CITC Information Security**  
<http://www.unt.edu/security/>

[Return to top](#)

[Page One](#)
[Campus Computing News](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pops on Windows XP, Service Pack 2](#)

SAS 9.1.2 has Landed.....with a THUD!

[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)


## SAS 9.1.2 has Landed.....with a THUD!

By [Dr. Elizabeth Hinkle-Turner](#), Student Computing Services Manager

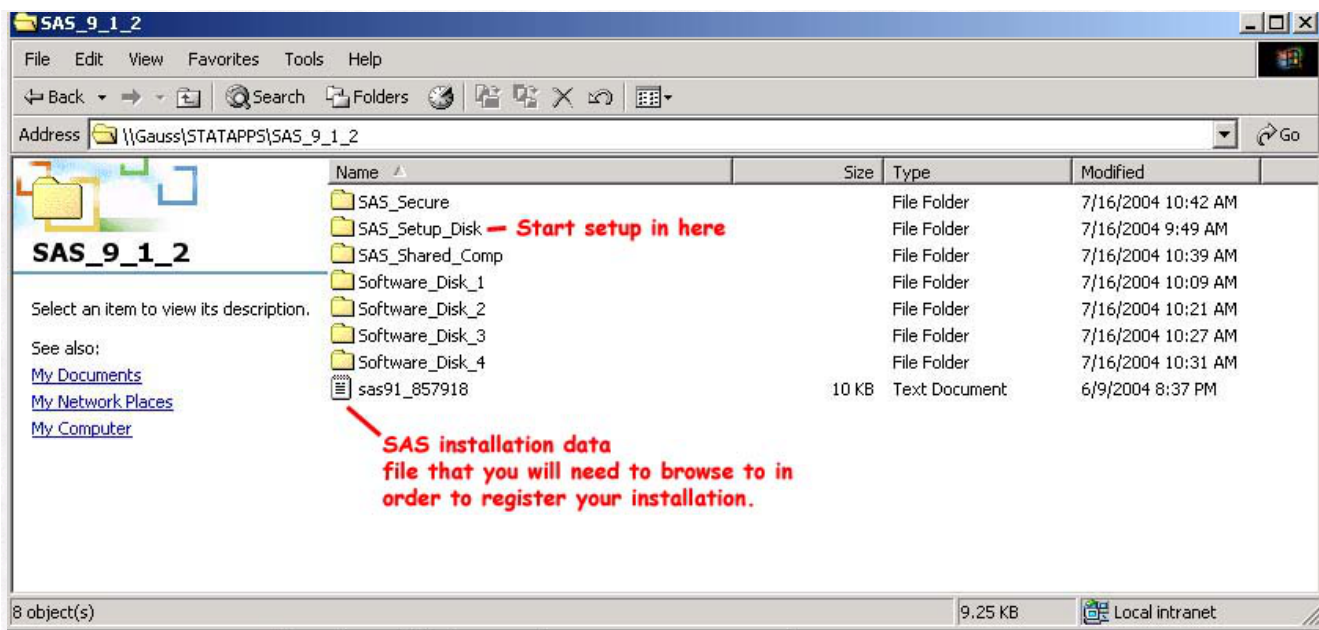
SAS 9.1.2 has arrived and has been fully tested and implemented by Research and Statistical Support Services and by the Academic Computing Services student computing team. For information about new functionality in this SAS version, please contact [the members of Research and Statistical Support](#). Me - I just install the stuff and, of course, make it available to you! So, the following article gives technical details on how to get SAS for your area of campus (this information is most appropriate for Network Managers -- ed.).

### SAS - The EASY Way

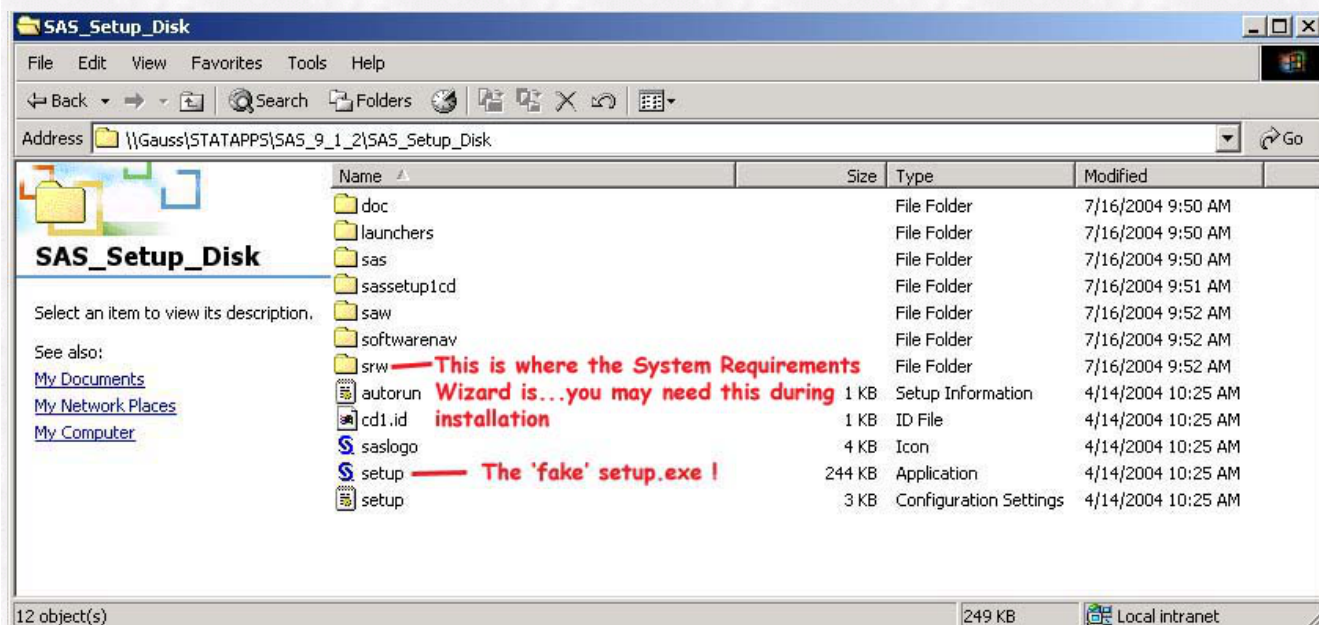
SAS has to be metered and we have provided that service for you via ZENworks Application Metering. The actual SAS installation media can be found on `\\GAUSS\STATAPPS\SAS_9_1_2\`. If you wish to install and create your own application objects please see the instructions below. Otherwise, you can just use the Application Object we have already created in: **StatApps.Applications.ACS.Acad.UNT**. The license container for SAS 9.1.2 is located in **Application Metering.ACS.Acad.UNT**.

### SAS - The CHALLENGING Way

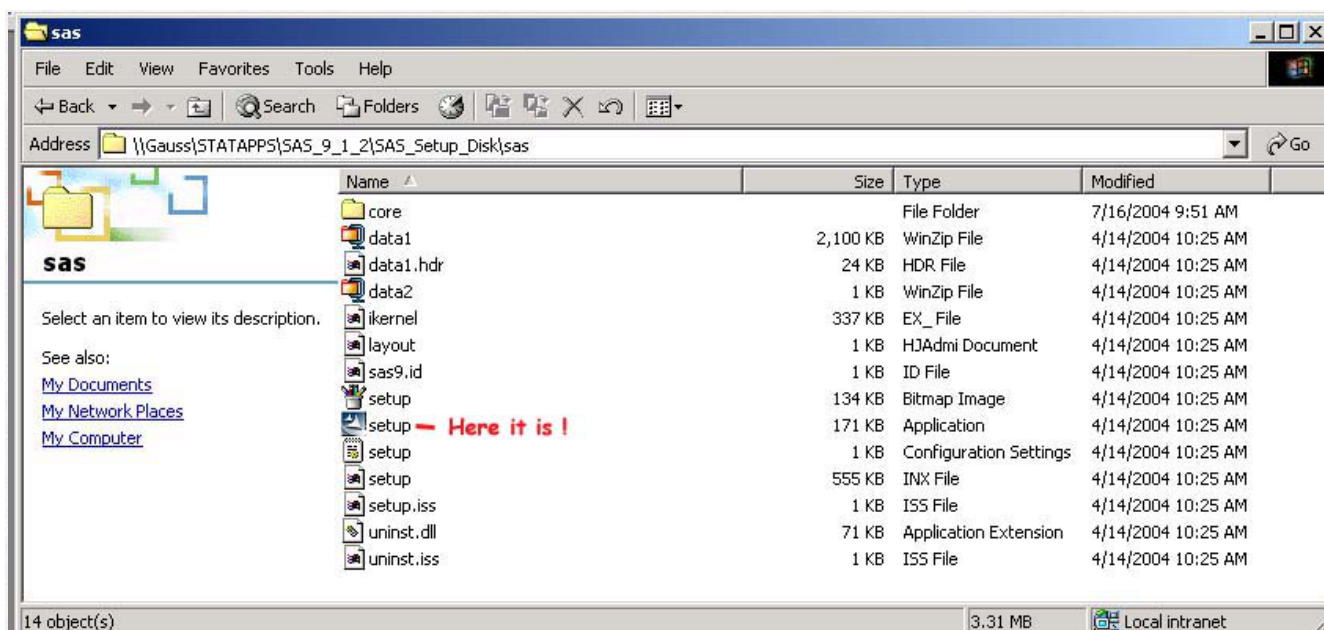
If you choose to go the 'create your own' route - my, you have got some fun ahead of you! Once you get the setup process started, however, the rest is easy. Getting the setup process to begin rolling is the difficult part! I knew I was in for some real joy when the application arrived on about 25 CD-ROMs! This brought back memories of installing Photoshop 2.0 from sixteen floppies on my Macintosh Quadra about 10 years ago! Luckily, most of those CD-ROMs contain 'extraneous features' (otherwise known as 'digital junk') and the RSS folks narrowed the field down to *only 7 CD-ROMs* that are needed for installation (approximately five gigabytes???? they've got to be kidding!). The contents of those CD-ROMs are located in folders of the same name in the SAS\_9\_1\_2 directory on GAUSS\STATAPPS:



The first issue is finding the true **setup.exe**. Common sense would tell one that it is the **setup.exe** located right here.....



...but one would be *wrong* to assume this! You can click on this **setup.exe** all day long and it will launch a setup wizard which promptly does... nothing! I've decided that this is some sort of statistical experiment that the company is conducting to determine how many times a hapless network manager will click on a setup executable that does nothing before he gives up (in my case, it was two times...I have limited patience!)! The **REAL setup.exe** is located here:



and after finding it, setup is pretty straightforward....except.....be prepared for all sorts of great stuff to happen along the way (we have never been able to duplicate an exact installation, it seems to vary from computer to computer): for example when I first ran the application, I got this message:

**"SAS has determined that your computer does not meet minimum system requirements for installation. Please run the System Requirements Wizard."**

Fortunately I am intelligent enough to figure out that the **folder 'srw'** (see picture above) stands for "System Requirements Wizard" and sure enough, if you run THAT setup.exe (let's see...we are now up to three setup.exe's and counting.....), various things like SAS Private Java Runtime Environment 1.4.1 and Microsoft DATA Access Components, etc. may be installed on your machine. Several reboots may be required.

By this time approximately 45 minutes has passed and one still hasn't actually begun installing the application.....

Return to the SAS setup and run it again. Everything should be good to go now. The first hurdle to overcome is the **Retrieve SAS Installation Data** window. Choose the option **File**. Browse to the **sas91\_857918** file indicated in the picture above. That authenticates your license and allows you to continue.

Click....Click.....Click...

You eventually come to the **Select Components** windows. Choose **SAS 9.1** only.

At last! You start getting the messages: "Please insert the disk labeled: ----" Simply browse to the different folders in `\\GAUSS\STATAPPS\SAS_9_1_2` and select them as needed. **ex.** `\\GAUSS\STATAPPS\SAS_9_1_2\Software_Disk_1`. After that it is pretty smooth sailing.

### Please Note

- A recommendation from the SAS folks: make sure that your Windows machine is fully patched before beginning installation - apparently some of the updates included in the Microsoft patches are needed for full SAS functionality.
- As always, should you have a technical issue with SAS installation, [feel free to e-mail me](#).
- Any questions about licensing issues or individual copies of SAS should be directed to the [RSS team](#).

[Return to top](#)

[Page One](#)

[Campus Computing News](#)

[Summer Break Hours](#)

[EDUCAUSE](#)

[Unblocking Pops on Windows XP, Service Pack 2](#)

[SAS 9.1.2 has Landed.....with a THUD!](#)

**Checkin 4.0 adds new monthly statistics chart to its reporting features**

[Today's Cartoon](#)

[RSS Matters](#)

[The Network Connection](#)

[Link of the Month](#)

[WWW@UNT.EDU](#)

[Short Courses](#)

[IRC News](#)

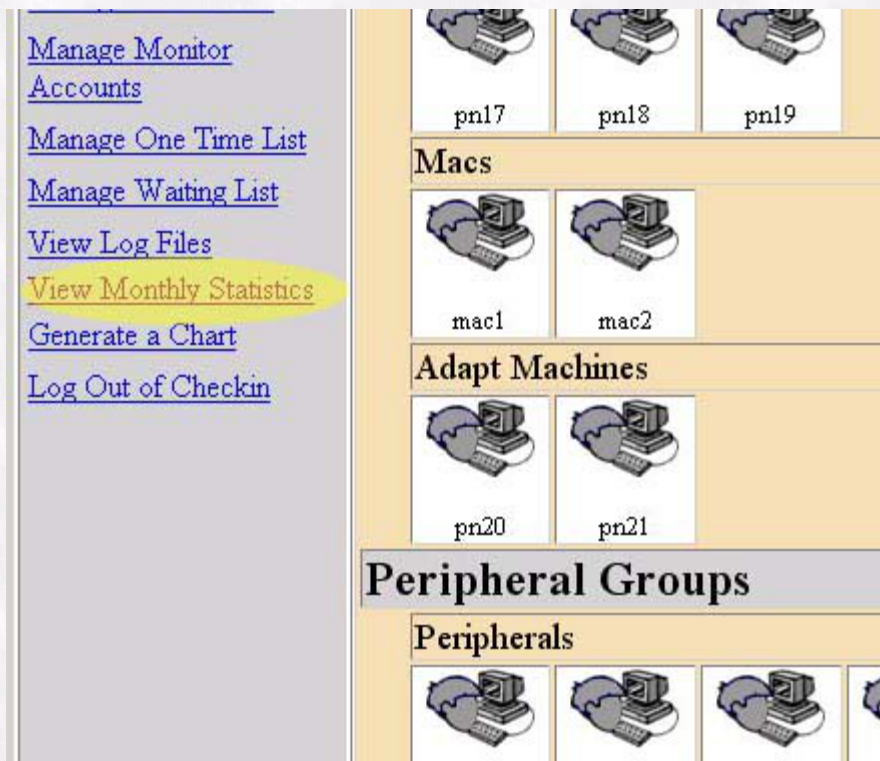
[Staff Activities](#)

[Subscribe to Benchmarks Online](#)

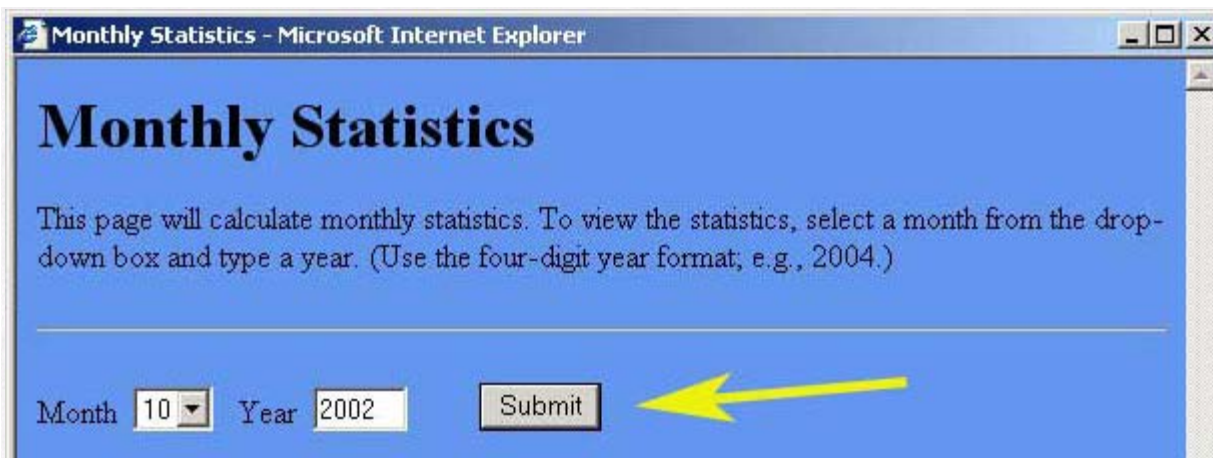
## Checkin 4.0 adds new monthly statistics chart to its reporting features

By [Dr. Elizabeth Hinkle-Turner](#), Student Computing Services Manager

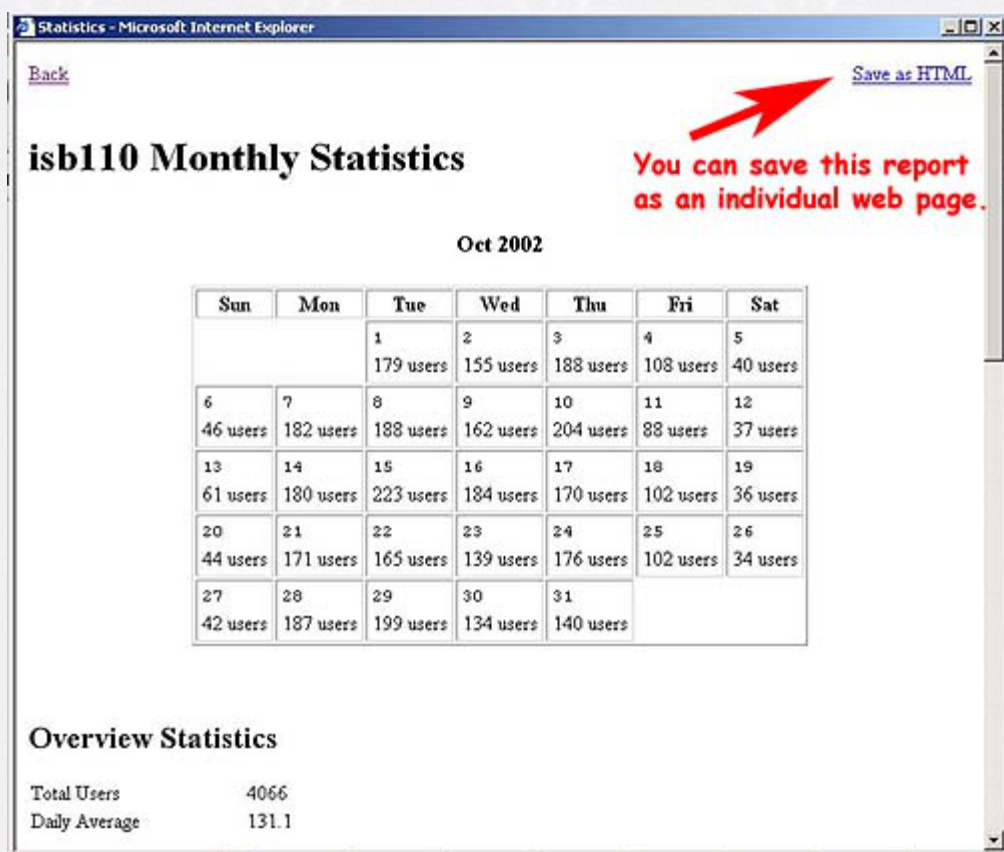
Nick Wagner, Checkin 4.0 programmer until just recently, created a monthly statistics chart for Checkin 4.0 in response to requests by lab managers for such a feature. The new reporting tool is easy-to-use by all Checkin administrators. Simply choose **View Monthly Statistics** from the left-hand menu on the administrator's lab screen:



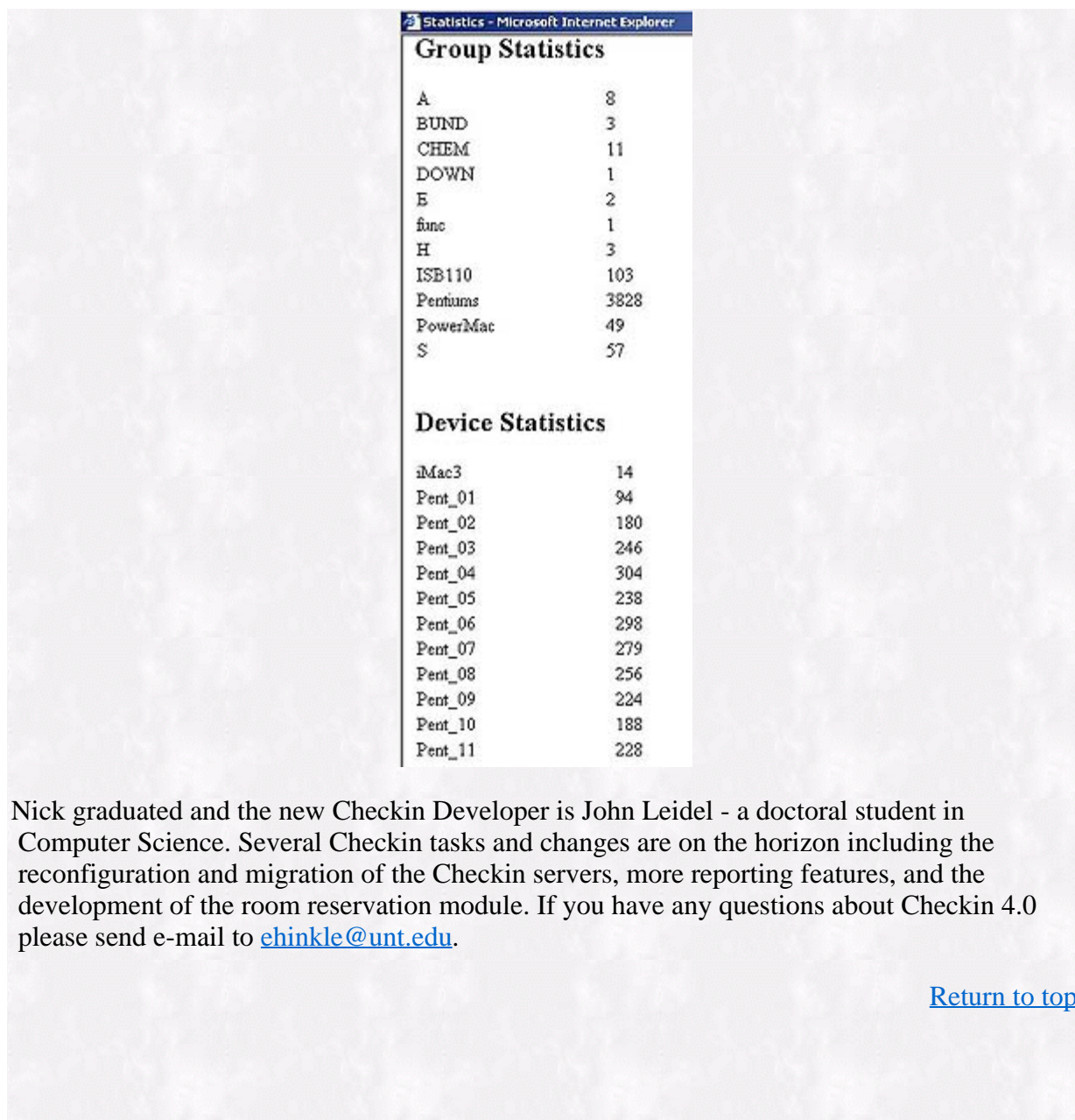
Select the month and year you wish to view:



The report that is returned can be saved as an HTML page for printing or posting elsewhere:



Statistics for individual workstations and peripherals are included - an especially helpful feature for checking usage of high dollar items for future budgetary decisions:



Nick graduated and the new Checkin Developer is John Leidel - a doctoral student in Computer Science. Several Checkin tasks and changes are on the horizon including the reconfiguration and migration of the Checkin servers, more reporting features, and the development of the room reservation module. If you have any questions about Checkin 4.0 please send e-mail to [ehinkle@unt.edu](mailto:ehinkle@unt.edu).

[Return to top](#)



[Page One](#)

[Campus Computing News](#)

[Summer Break Hours](#)

[EDUCAUSE](#)

[Unblocking Pop-ups on Windows XP, Service Pack 2](#)

[SAS 9.1.2 has Landed.....with a THUD!](#)

[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)

Today's Cartoon

[RSS Matters](#)

[The Network Connection](#)

[Link of the Month](#)

[WWW@UNT.EDU](#)

[Short Courses](#)

[IRC News](#)

[Staff Activities](#)

[Subscribe to Benchmarks Online](#)

maincontent

## Today's Cartoon

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**“Our cell phones surf the net, play MP3 and video clips, take photos, play games, send text messages, track your investments, forecast the weather, deliver the news, and receive e-mail. But if you want to talk, that costs extra.”**

From "Today's Cartoon by Randy Glasbergen", posted with special permission. For many more cartoons, please visit [www.glasbergen.com](http://www.glasbergen.com).

[Return to top](#)

[Page One](#)
[Campus Computing](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-ups on Windows XP, Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)

# Network Connection

By [Dr. Philip Baczewski](#), Associate Director of Academic Computing

## Whither Wireless?

It's been over two years since my first [adventures in wireless networking](#) and in that time, predictably, WiFi technology has improved and come down in price. WiFi service has also increased in availability, with coffee shops, motels, and even the [UNT campus](#) offering wireless access to their clientele. Still, even with these improvements, wireless networking has limited utility due to limitations in bandwidth and less than ubiquitous availability. It could be just a matter of time before wireless technology approaches the standards of the wired network, but the question is will it be soon enough?

## Withering Wireless?

There seems to be a technology race these days between cell phones and other wireless enabled devices such as notebook computers and PDAs. Notebooks and PDAs have more sophisticated applications and more readable screens, but cell phones have the distinct advantage of being much more portable and useful from pretty much anywhere but the more remote areas of the U.S. (I know that I'm always surprised when I think I'm in the middle of nowhere, but my cell phone still can find its network).

Cell phones also have an advantage of general utility. [Arguing](#) that the iPod and similar devices will eventually converge to cell phones, [DrunkenBlog](#) makes the point that, "the word here is serviceable. If it's 'good enough', and you're going to need your phone with you anyways, you at first carry around the extra gadgets and then eventually make what's on the phone work and save some pockets."

My phone is now my pager and my default digital camera. As a pager, it has all the functionality of the other little box that used to hang from my belt. As a camera, it is serviceable and good enough for vacation pictures and other oddities that I just have to document. My phone is also an Internet browser of sorts, but my choices of information are limited to the sources my service provider has decided to make available (very limited serviceability, but at least I can get sports scores). My phone has a calendar, and if the address book supported more contact information, I might not need a PDA, although mine is handy for taking notes at meetings and maintaining a to-do list.

I imagine that my next phone will have more characteristics of a PDA ([some phones](#) already do). My ideal phone would have [Bluetooth](#) (if the [security](#) improves) to sync with my Macintosh OS X system, and the ability to support a portable Bluetooth keyboard for taking notes. Using a headset (Bluetooth again) would take away any problems with it being too bulky to comfortably handle as a handset, but I still would want something that wouldn't weigh me down too much. All that plus some reasonably fast Internet service via my cell

phone provider would pretty much relegate my WiFi use to eliminating one more cable to the computer on my desk. That's not much of a future for WiFi.

## Meeting the Challenge

A recent article series by [Forbes.com](#) explores some of the challenges facing the wireless technology market. In parts [one](#) and [two](#) of an article series entitled "Pushing WiFi's Limits," Forbes laid out the two primary issues regarding wireless technology: speed and range.

When I started using WiFi two years ago, the supported standard was IEEE 802.11b which provides a bandwidth of about 11 megabits per second, roughly the speed of a wired 10-base-T connection (i.e. 1990's wired network technology speed). Since that time, the IEEE 802.11g standard has been adopted and is supported by most of the new wireless gadgets on the market. 802.11g runs about 5 times faster than its predecessor, but costs less. The cheapest 802.11b base station I could find two years ago was about \$80. The median price for an 802.11g base station today is about \$80. Similar price comparisons can be made for wireless adapter cards as well.

A 5-times increase in speed for less money is impressive, but that's still only the speed of your average dialup modem (which is not yet defined as "broadband", in other words, not as fast as Cable Modem or DSL). Most web surfing works fine, but anything that's rich in media (i.e. sound, lots of graphics, or video), will be less than high quality at WiFi speeds. Even audio streaming may tax a WiFi connection. I am bound to the wired network for my Apple PowerBook computer because network backups take too long at the paltry 802.11b speed we can support here.

The Forbes article describes a couple of new competing standards, including the yet to be adopted [802.11n](#) standard which will reportedly run at speeds greater than 100 megabits per second. This approaches broadband speeds and would make wireless equal to many wired networks and increase its utility for accessing Internet-based information and media.

## Getting in Range

Even if the bandwidth issue is solved, the range issue remains an impediment to WiFi utility. Wireless in your house is great, unless it only works well in one room. Likewise, wireless access on campus is great unless it doesn't happen to be available in your classroom or office. The answer so far has been to deploy as many wireless base stations as it takes to get the needed coverage. Apple has even turned this concept into a consumer product called [Airport Express](#). It acts as a standalone base station or as a bridge to your Airport (Apple brand) WiFi network as well as a wireless USB print server, and you can plug your stereo into it to play your iTunes music through the big speakers.

So you can improve the wireless access in your house, but what if you want wireless access from anywhere in your town? Well the answer is to move to [Grand Haven, Michigan](#), of course. Grand Haven has [laid claim](#) to being the first fully WiFi city in the U.S. Grand Haven provides wireless access to the door of every building, although [coverage](#) "is limited within the Grand Haven cemetery and nearby densely wooded area." To use the service you have to sign up with [Ottawa Wireless](#), the company which provides the wireless and Internet service. Still, the \$20-\$25 per month cost makes this an attractive option (certainly more so than my \$50 per month DSL service).

Such use of wireless technology almost can't be done without the coordination of a municipality, since it requires use of right-of-ways and mounting points such as public buildings and power poles. It may only be possible to do in a small town like Grand Haven,

and then only if a large enough number of residents participate by signing up for service. Whereas the cell phone companies have put a lot of money into infrastructure by putting their transceivers on towers throughout the U.S., I doubt the same will happen for WiFi. WiFi base stations in most cases have to directly connect to a wired network and don't have the range of a cell tower. However, a company called [Belair Networks](#) has a solution which creates a "mesh" of wireless base stations that can talk to each other and pass network traffic along until it can get onto the wired network. In other words, we have the technology, but just not the marketplace yet to support a wide-scale deployment.

## WiFi Nigh?

In spite of competition from other forms of wireless access, WiFi could find a niche for itself as a replacement for wired networks. With sufficient bandwidth on the horizon, WiFi is a great choice for new installations in old buildings, where running new wires through old walls is an expensive task. The [Dell'Oro Group](#) seems to agree. They've authored a [report](#) which predicts a 20% growth in WiFi product sales for 2004, with particularly large growth in enterprise installations.

I see WiFi as comparable to other wireless solutions in their own markets. Digital satellites have made major inroads into the cable TV markets. Cell phones have started to replace land lines as people's default service. I think a number of factors have influence these trends. First, a wireless network is less expensive to maintain than a wired network. Second, wireless companies have had to work harder to break into their respective markets and have provided the equipment at a loss in order to get your commitment for the service (did you pay for your cell phone?). Their customer service has generally been better too. I'd rather deal with almost anyone but my local cable TV company.

A power company could be your next WiFi provider. We don't have power poles in my neighborhood, but maybe one day a company will contract with the city to put WiFi base stations on the street lights. 100 megabits per second or better would satisfy my home internet requirements, especially if it's at a lower cost. It certainly wouldn't hurt to have some additional competition for the DSL and cable modem providers.

[Return to top](#)

[Skip Navigation Links](#)

[Page One](#)

[Campus Computing News](#)

[Summer Break Hours](#)

[EDUCAUSE](#)

[Unblocking Pop-ups on Windows XP, Service Pack 2](#)

[SAS 9.1.2 has Landed.....with a THUD!](#)

[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)

[Today's Cartoon](#)

[RSS Matters](#)

[The Network Connection](#)

**Link of the Month**

[WWW@UNT.EDU](#)

[Short Courses](#)

[IRC News](#)

[Staff Activities](#)

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## Link of the Month

*Each month we highlight an Internet, USENET Special Interest Group (SIG), or similar mailing list(s) or website(s).*



### Campus Chat Food Court

If you were on campus this summer you noticed the presence of the absence of the Campus Chat Food Court. That will all change August 30, although you may find it open, sporadically, the week of August 23. Go to <http://www.unt.edu/union/food.htm> for more information about the new Food Court vendors (scroll down to the middle of the page), hours of operation, etc. Other Union food venues are highlighted on this webpage also.

[Return to top](#)

[Page One](#)
[Campus Computing](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-ups on Windows XP, Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)

## IRC News



Minutes provided by Sue Ellen Richey,  
Recording Secretary\*

No IRC meeting was held in July, therefore there are no minutes to report.

\* For a list of IRC Regular and Ex-officio Members click [here](#).

### IRC Meeting Schedule

The [IRC](#) generally meets on the third Tuesday of each month, from 2-4 p.m., in the Administration Building Board Room. From time to time there are planned exceptions to this schedule. All meetings of the IRC, its program groups, and other committees, are open to all faculty, staff, and students.

[Return to top](#)

[Page One](#)
[Campus  
Computing  
News](#)
[Summer Break  
Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-  
ups on Windows  
XP, Service  
Pack 2](#)
[SAS 9.1.2 has  
Landed.....with a  
THUD!](#)
[Checkin 4.0  
adds new  
monthly  
statistics chart  
to its reporting  
features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network  
Connection](#)
[Link of the  
Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to  
Benchmarks  
Online](#)

## Research and Statistical Support University of North Texas

### RSS Matters

Link to the last RSS article here: [Installing SAS 9.1 From A 4-Disc CD Archive](#)  
- Ed.

#### Moderators and Mediators

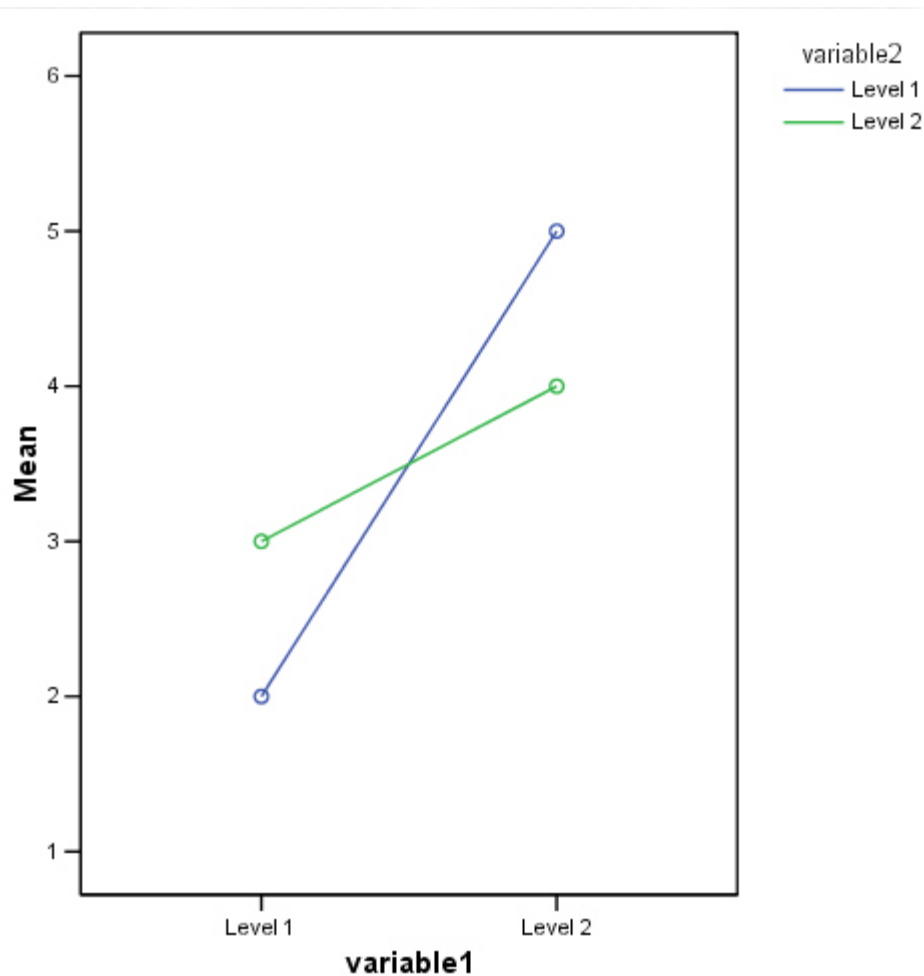
By [Dr. Mike Clark](#), Research and Statistical Support Services Consultant

As is the usual case, I offer some discussion on a topic which I am currently exploring that has come up due to requests of some who have come into the office. This time the focus is on moderators and mediator variables in multiple regression, with applications of how to implement such analyses using various resources. In multiple regression we analyze the predictive ability of two or more independent (predictor) variables for a dependent variable. We are typically interested in a measure of the total variance in the dependent variable explained by our predictors, as well as the relative importance of the various predictor variables.

The first thing to do is to determine which type of relationship we are interested in, one that involves a moderator or mediator, and this can be somewhat confusing because some incorrectly use them interchangeably or might reference one when they mean the other. For those familiar with typical analysis of variance, a moderator will probably seem straightforward in its interpretation. It is simply a variable that interacts with another variable in predicting the dependent variable. With the mediator we have a somewhat different relationship between the predictor variables, such that one variable in effect accounts for the relationship between an independent and dependent variable. Each of these will be discussed in turn.

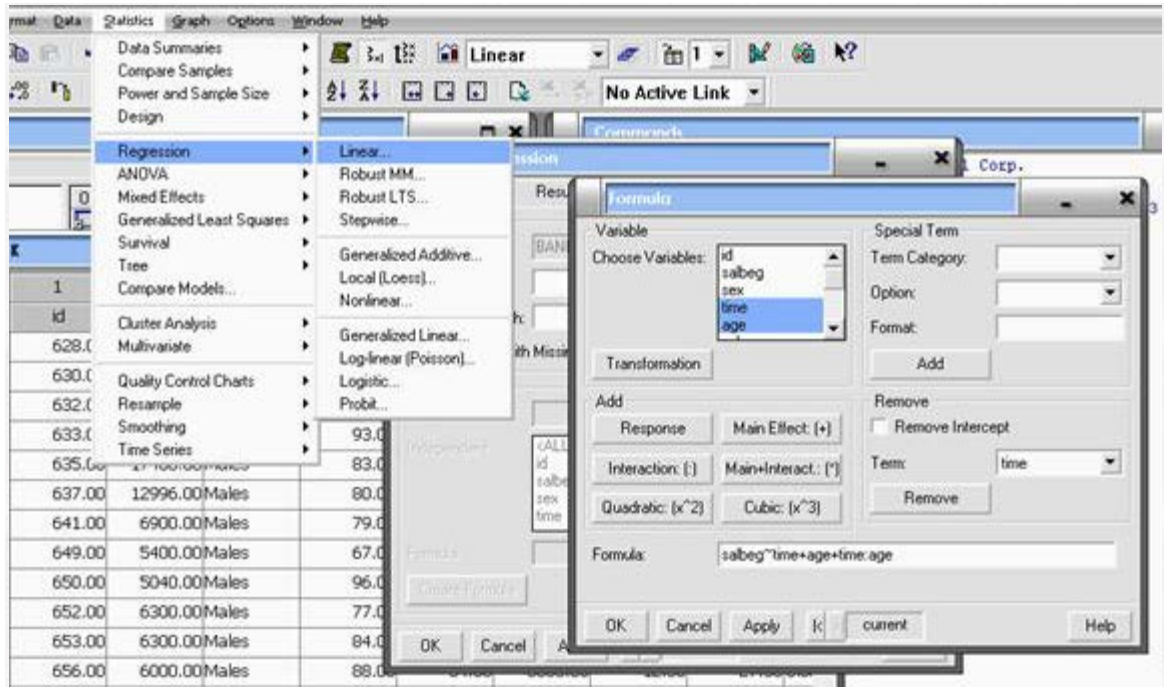
#### Moderators

As mentioned, moderators in multiple regression analysis have a parallel to interactions seen in ANOVA, the primary difference being that now we can involve continuous predictor variables. The picture below shows an example of an interaction between two two-level categorical variables in ANOVA.



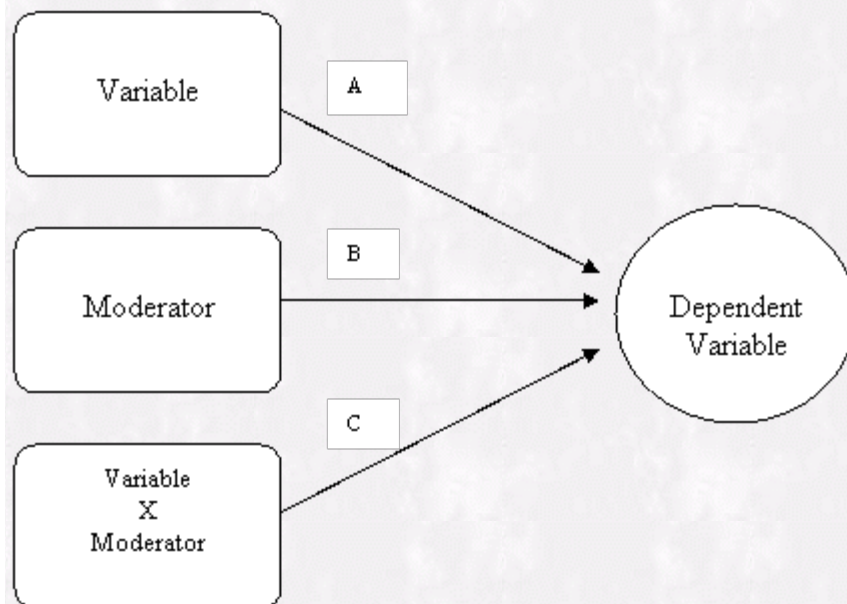
In typical analysis of variance, interactions are part of the output by default. In multiple regression, interactions are not as often looked at, and usually must be specified. Below is an example of how to do so through the menu system of S-Plus. First enter your main effects, followed by the interaction and then you are all set. Depending on the stat package used this may or may not be an option in the menu system. An alternative method is to create an interaction variable as simply the product of the two variables in question. For example in SPSS one can create the interaction term as the product of the two main effect variables, which is easily accomplished using the Transform/Compute menu.





In testing for moderators, continuous variables should be centered. This is done by simply transforming the variable to one in which the mean is subtracted from each response. In addition, categorical variables must be transformed using dummy or effects coding. Baron & Kenny (1986) even suggest that for a continuous X categorical interaction one could dichotomize the continuous variable under certain conditions. The reasons for transforming variables are somewhat technical, and rather than go into it here one is invited to consult Aiken & West (1991) for the details. The gist is that some sort of transformation of the variables will need to occur in order to test for interactions.

The diagram below offers an overview of what we are looking at in determining if a variable moderates the effects of another variable. If path c is significant then one variable can be seen to moderate another. If this is the case one must be cautious in their interpretation of significant main effects, as they can be seen as a reflection of the underlying interaction.



## Mediators

Mediator variables account for the relationship between a predictor and the dependent variable. An example that might work here comes from my old job in the Counseling and Testing department here on campus, where one of the many tests proctored there is the Graduate Record Exam. Many international students take the test, and many do not do so well on the verbal portion of the exam. Rather than claim some relationship between ethnicity and verbal ability, one would probably find that English language proficiency mediates the relationship between ethnicity and scores of verbal ability. In other words, these people may in all actuality be very proficient in their general verbal skill, but as English is perhaps not their strong suit, they may have difficulty with this particular exam's way of testing that skill. Another example would be if someone administered an intelligence test to school age children and proclaimed a relationship between shoe size and intelligence. One could probably think of any number of variables that could act as mediators for that relationship.

To test for mediators, one can begin by estimating three regression equations: (1) the mediator predicted by the independent variable, (2) the dependent variable predicted by the independent variable, and (3) the dependent variable predicted by the mediator and independent variable. To begin with, we must have significant relationships found for the equations (1) and (2). Then if the effect of the IV on the DV decreases dramatically when the mediator is present (e.g., its effect becomes nonsignificant), then the mediator may be accounting for the effects of the independent variable in question. Overall power for equation (3) is diminished due to the correlation between the independent variable and mediator, and so rigid adherence to the p-value may not tell the whole story. Also look at the size of the coefficients, namely, if the coefficient for the independent variable diminishes noticeably with the addition of the mediator to the equation.

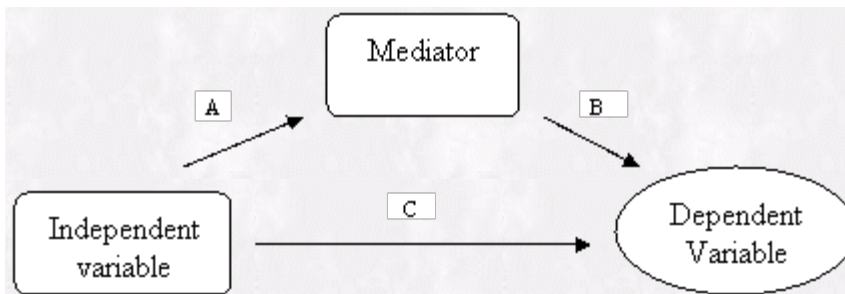
In examining possible mediation, the Sobel (1982) test offers a significance test in which a z score is calculated such that we can determine whether the indirect effect of the IV on the DV by means of the mediator is significantly different from zero. Given the output of the regression equations (1) and (3) above we have all we need to calculate the statistic. Calculate  $a$ , which equals the unstandardized coefficient of the IV when predicting the mediator by itself, and its standard error  $s_a$ . From the equation (3) take the unstandardized coefficient  $b$  for the mediator and its standard error  $s_b$ . To obtain the statistic, input those calculations in the following variant of the Sobel's original formula:

$$z = \frac{a * b}{\sqrt{b^2 s_a^2 + a^2 s_b^2 + s_a^2 s_b^2}}$$

For an online calculation of the statistic see the following website:

<http://people.ku.edu/~preacher/sobel/sobel.htm>

To summarize with a diagram as we did with moderators, see the figure below. When the relationships noted by paths A and B are controlled one should see an attenuation of the effect denoted by path C. Note that there are other means for testing mediation and other factors to consider when doing so. One is encouraged to consult the resources listed below as a starting point.



## Conclusion

This month's *Benchmarks Online* article offered an introduction to moderators and mediators. Moderators and mediators may be able to offer more to the story of the relationships among variables in multiple regression. Things can get more complicated than presented here, including using both moderators and mediators in an analysis. However, if theory suggests such avenues of research, one should be able to accomplish such analyses with modern statistical packages and/or a little elbow grease.

## Resources

Aiken, L.S., & West, S.G. (1991). *Multiple regression: Testing and Interpreting Interactions*. Sage Publications.

Baron, R.M., & Kenny, D.A. (1986). *The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations*. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

Holmbeck, G.N. (1997). Toward Terminological, Conceptual, and Statistical Clarity in the Study of Mediators and Moderators: Examples from the Child-Clinical and Pediatric Psychology Literatures. *Journal of Consulting and Clinical Psychology*, 65(4), 599-610.

MacKinnon, D.P., Warsi, G., Dwyer, J.H. (1995). A Simulation Study of Mediated Effect Measures. *Multivariate Behavioral Research*, 30(1), 41-62.

Schroeder, L.D., Sjoquist, D.L., & Stephan, P.E. (1986). *Understanding Regression Analysis*. Sage Publications.

[Return to top](#)

[Page One](#)
[Campus Computing News](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-ups on Windows XP, Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)

# WWW@UNT.EDU

## Make Your Lifasier

By [Shane Jester](#), Campus Web Administrator

I'm going to step on my soapbox; something I don't do that often. I recently had a web developer make a comment to me about how they view content creation and design. Loosely quoted: "I don't use tools like FrontPage. I prefer to do all my HTML by hand in a text editor."

The funny thing is, I had the same philosophy about six years ago. However, I realized at some point that this "philosophy" is not only a little arrogant, but also a huge waste of time. I do believe that you need a very good knowledge of HTML, CSS, javascript, SQL, usability concepts, and probably several different scripting languages to be a good, professional web developer. However, I don't believe that you have to write all the code by hand to prove your knowledge.

In the end, you're only proving your knowledge to yourself. The end-user doesn't know that you hand-code and more importantly, they don't care. They are only interested in the end-product. The web editing software packages today are very powerful, timesaving tools that allow you to create a web framework in a matter of minutes. Why waste your time typing tedious `<TR><TD></TD></TR>` for every column of a table, when you can do it with one click and drag of the mouse? Furthermore, any decent editing package today gives you the ability to view the html in-line to allow you to make subtle changes to your code if necessary.

Even free software packages are often better alternatives to editing everything via a text-editor. So instead of spending your time typing out all the code, spend your time doing research on usability and good design techniques. I guarantee that it will lead to a much better website than being concerned about showing off your skills, or that the HTML is not "clean".

[Return to top](#)

[Page One](#)
[Campus Computing News](#)
[Summer Break Hours](#)
[EDUCAUSE](#)
[Unblocking Pop-ups on Windows](#)
[XP, Service Pack 2](#)
[SAS 9.1.2 has Landed.....with a THUD!](#)
[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)
[Today's Cartoon](#)
[RSS Matters](#)
[The Network Connection](#)
[Link of the Month](#)
[WWW@UNT.EDU](#)
[Short Courses](#)
[IRC News](#)
[Staff Activities](#)
[Subscribe to Benchmarks Online](#)

## Short Courses

By [Claudia Lynch](#), *Benchmarks Online* Editor

The Summer Short Courses are over. We will be offering similar classes this fall, starting some time in September. See the [Short Courses](#) page for information on the courses we offered this summer.

### Customized Short Courses

Faculty members can request customized short courses from ACS, geared to their class needs. Other groups can request special courses also. Contact ACS for more information (ISB 119, 565-4068, [lynch@unt.edu](mailto:lynch@unt.edu)).

### Especially for Faculty and Staff Members

In addition to the [ACS Short Courses](#), which are available to students, faculty and staff, staff and faculty members can take courses offered through the [Human Resources](#) Department, the [Center for Distributed Learning](#), and the UNT Libraries' [Multimedia Development Lab](#). Additionally, the Center for Continuing Education and Conference Management offers a variety of [courses](#) to both UNT and the general community, usually for a small fee.

### EIS Training

#### Electronic Procurement (ePro) Training Classes

The following dates have been set for training. Note there are two classes given on each date - an Approver's class and an ePro Coordinator's class. Please e-mail Traci Carter at [tcarter@unt.edu](mailto:tcarter@unt.edu), indicating the date you plan to attend and for which class. Because seats are limited, please respond early to assure a spot in the training session of your choice.

\*\*\* All classes will be conducted in the Gateway Center, Room 52.

#### EPro Coordinator Class Dates/Times

- Aug 26 - 1:00 PM to 5:00 PM

#### Approver's Class Dates/Times

- Aug 26 - 10:00 AM to 11:00 AM

#### Timekeeper Training

All Timekeeper Training sessions are held in ESSC 152 from 9:00am-Noon. You can register online (<https://home.unt.edu/hr/training/treg.htm>) or by calling (940) 565-4246.

### **Timekeeper Session Dates**

- Wednesday, Sept 8
- Wednesday, Oct 6
- Wednesday, Nov 3
- Wednesday, Dec 1

### **GroupWise Training**

Information about GroupWise training can be found at the GroupWise course [site](#).

If you would like to have a Basic GroupWise seminar for your area, please contact Jason Gutierrez, Network Computing Services, [jasong@unt.edu](mailto:jasong@unt.edu).

**GroupWise SPAM class:** A class on using GroupWise to Combat Unsolicited Email (a.k.a SPAM) was offered on March 25th, 2004. If you were unable to participate in this class, it will be offered again. Until then, the class materials are available online in PDF format (Acrobat) at [http://ncs.unt.edu/gw/basicgroupwise/downloads/PDF/Dealing\\_with\\_SPAM.pdf](http://ncs.unt.edu/gw/basicgroupwise/downloads/PDF/Dealing_with_SPAM.pdf).

### **Center for Distributed Learning**

The Center for Distributed Learning offers courses especially for Faculty Members. A list of topics and further information can be found at [http://www.unt.edu/cdl/training\\_events/index.htm](http://www.unt.edu/cdl/training_events/index.htm)

The center also offers a "Brown Bag" series which meets for lunch the first Thursday of each month at Noon in Chilton 245. The purpose of this group is to bring faculty members together to share their experiences with distributed learning. One demonstration will be made at each meeting by a faculty member with experience in distributed learning. More information on these activities can be found at the [Center for Distributed Learning](#) Website.

### **Technical Training**

Technical Training for campus network managers is available, from time to time, through the Network Computing Services (NCS) division of the Computing and Information Technology Center. Check the NCS [site](#) to see if and when they are offering any training.

### **UNT Mini-Courses**

There are a variety of courses offered, for a fee, to UNT faculty, staff and students as well as the general public. For additional information surf over to <http://www.pware.com/index.cfm?clientid=2694a>

### **Alternate Forms of Training**

Many of the [General Access Labs](#) around campus have tutorials installed on their computers. For example, the College of Education has Macromedia Tutorials for DreamWeaver 4.0, Flash 5.0 and Fireworks 4.0.

The [Training](#) Web site has all sorts of information about alternate forms of training. Computer Based Training (CBT) is one of the alternatives offered.

For further information on CBT at UNT, [Check Out the CBT Website for all Your Online Training Needs](#) in this issue of *Benchmarks Online*.

[Return to top](#)

[Page One](#)

[Campus Computing News](#)

[Summer Break Hours](#)

[EDUCAUSE](#)

[Unblocking Pop-ups on Windows XP, Service Pack 2](#)

[SAS 9.1.2 has Landed.....with a THUD!](#)

[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)

[Today's Cartoon](#)

[RSS Matters](#)

[The Network Connection](#)

[Link of the Month](#)

[WWW@UNT.EDU](#)

[Short Courses](#)

[IRC News](#)

**Staff Activities**

[Subscribe to Benchmarks Online](#)

## Staff Activities

### Transitions

#### No longer working in the Computing and Information Technology Center:

- **Ruthie Bekker**, I/O Operator, Printing Services, MTS (part-time).
- **Rita Barello**, CPU Operator, MTS (part-time).
- **Margaret Ambuehl**, UNT/HSC Payroll/Personnel Data Systems Team Leader.

[Return to top](#)



[Page One](#)

[Campus Computing News](#)

[Summer Break Hours](#)

[EDUCAUSE](#)

[Unblocking Pop-ups on Windows XP, Service Pack 2](#)

[SAS 9.1.2 has Landed.....with a THUD!](#)

[Checkin 4.0 adds new monthly statistics chart to its reporting features](#)

[Today's Cartoon](#)

[RSS Matters](#)

[The Network Connection](#)

[Link of the Month](#)

[WWW@UNT.EDU](#)

[Short Courses](#)

[IRC News](#)

[Staff Activities](#)

[Subscribe to Benchmarks Online](#)

## Don't Forget Our Monthly Columns!

By [Claudia Lynch](#), *Benchmarks Online* Editor

In addition to our feature articles, *Benchmarks Online* publishes monthly columns that are focused on specific aspects of computing here at UNT (and beyond, in some cases). Check out what is waiting for you this month:

- [RSS Matters](#) - "RSS Matters" is the monthly column written by the Research and Statistical Support [Group](#) in Academic Computing Services. Their articles focus on topics of a statistical and/or research methods nature. **This month's article is by Dr. Mike Clark and is titled "Moderators and Mediators."**

- [The Network Connection](#) - "The Network Connection" may well be the longest running column in computer publishing history. Certainly in University of North Texas computer [publishing history](#).

**This month Dr. Baczewski asks the intriguing question "Whither Wireless?" Read all about it!**

- [Link of the Month](#) - As it says on the top of the "Link of the Month" page, "each month we highlight an Internet, USENET Special Interest Group (SIG), or similar mailing list(s) or Website(s)." Lately we have been confining ourselves to featuring UNT specific sites. **This month we help answer questions about the Campus Chat Food Court.**

- [WWW@UNT.EDU](#) - "WWW@UNT.EDU" is a monthly column written by the Central Web Support [Group](#) in Academic Computing Services. The topics usually focus, in some way, on World-Wide-Web-related issues. **This month, Shane Jester gives you some tips on how to "Make Your Life Easier," at least from a web authoring standpoint.**

- [Short Courses](#) - Every semester, Academic Computing Services (ACS) offers short courses on computer-related topics, many of them having to do with statistical research. This column keeps you up-to-date on what is being offered and when as well as other training opportunities.

- [IRC News](#) - As their Webpage [says](#), "the IRC is an advisory and oversight body created to foster communication and cooperation between and among UNT information resources providers and users." We publish the minutes of the IRC meetings each month, when they are available.

- [Staff Activities](#) - This column focuses on new employees, people who are no longer employed at the Computing and Information Technology Center, awards and recognitions and other items of interest featured here.

[Return to top](#)