

SAGE-AU'99 Approaches

Well, by the time you read this, early bird registration will be closed, and we will be in final preparations for our annual technical conference. I hope you are all planning to be there, and also convincing your colleagues of the value of this event. Please be sure to get your registration forms in as early as possible, so that we can plan accordingly.

Once again, we have drawn on both international and local pools of talent in order to bring you an interesting, educational and fun programme. Our technical conference programme includes the practical, the esoteric, and the humourous. We have expanded our tutorial programme into three days, and three simultaneous sessions; eleven tutorials in all. And we have done everything to keep the costs of the conference down, too. You will not find a more cost-effective event on the Australian calendar.

As with previous years, we have organised a dinner event, and we are also organising a special event for the Friday afternoon, so plan to be there until the close. This year's event is being held at a hotel, to maximise the opportunities for people to socialise and network.

This is SAGE-AU's major annual function, and a great place to meet and exchange ideas with your colleagues from around the country. I hope to see you there.

Geoff Halprin

SAGE-AU'99 Chair

www.sage-au.org.au/conf/

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Executive

General Information

The Australian Systems Administrator is the official newsletter of the Systems Administrators Guild of Australia. It is produced four times per year and distributed free of charge to members of SAGE-AU via e-mail or snail mail.

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President's Report

Over the past few months, there have been some very big issues appearing at a national level that directly affect members of SAGE-AU. The first of these issues was the commonwealth copyright act, which SAGE-AU responded to with an official submission. I have been informed that our submission was quoted widely in subsequent submissions to the working party and that our national profile has been enhanced as a result. It is absolutely essential that we be able to respond to critical issues such as these, and I would like to thank Andrew van der Stock, Geoff Halprin and Michael Ciavarella for their efforts in producing this submission. The final submission can be viewed at:

http://www.sage-au.org.au/news/press_release_19.03.99.html

Just as concerning is the current bill that has just been passed, regarding censorship of the Internet within Australia. These issues are further compounded by the question of the technical feasibility of the proposed legislation. We have produced a press statement regarding the ethical and professional issues raised by such legislation which can be viewed at:

http://www.sage-au.org.au/news/press_release_27.05.99.html

I think that the SAGE-AU executive's strong feelings about these type of important issues reflect the wider memberships views, and if you feel that you can contribute in a timely and effective manner, please do so. We really need all the assistance that we can get from the membership!!!

On a lighter note, I am pleased to announce that the winner of our "newsletter naming" competition was Anthony David <adavid@adavid.netinfo.net> for "SAGE Advice". We will organise a O'Reillys book voucher for you Anthony as soon as possible.

Lastly, don't forget your registration for the National Conference at Brighton-le-Sands from 5th-9th July in Sydney!!!

SAGE-AU currently has 470 members, and it would be great to break 500 members at or before the conference - so please consider making an effort to contact sysadmins you know who aren't members but should be.

Look forward to seeing you there.

Paul Young
President



Secretary's Report

This alas will be my last report as Secretary, as I will be taking on the roll of President of SAGE-AU. I hope I can live up to Paul Young and other past SAGE-AU Presidents' reigns. I have enjoyed my time as the National Secretary (yes, it is actually fun) and I hope my successor has just as much fun as I have had in this role. Oh well, on to some of the details you need to know.

Elections

As you will see, enclosed in this issue is SAGE-AU's first postal ballot sheet and envelope. Since changes to the rules a couple of years ago, we are now required to have a postal ballot when the need for an election arises. This has now happened - you will find overleaf statements from the various candidates; you should read them and decide on who you will vote for. Please do so now as it is important. Voting is not compulsory but it is necessary. Once you have voted, place the ballot sheet into the envelope and post it now! It is reply paid, so you don't need to find a stamp. Please vote and vote wisely.

Annual General Meeting

This year, as with all past years, SAGE-AU's Annual General Meeting (AGM) will be held in conjunction with SAGE-AU's annual conference. This year it will be held at the Brighton-Le-Sands Novotel in Sydney on Thursday the 8th of July, 1999 at 5:30pm. You don't have to be attending the conference to attend; all members are welcome. Even if you are not thinking of attending the conference and tutorials (which you would have to be mad to miss), please consider attending the AGM and possibly buying a ticket to the legendary Conference Dinner and catching up with old friends. I hope to see you all there.

Membership Renewals

Most old SAGE-AU members' membership last for 12 Months from July 1st to June 30th. It is defini-

tely that time of year again when the majority of members have to renew their dues. So most of you will have received (or are about to) a reminder in your email warning you that your membership is due for renewal soon. All you have to do is follow the instructions, ie. print out the message and attach payment details and send it on back to us. This is also an annual attempt to keep our records up to date with your personal details so please make an extra effort to correct the supplied details accompanying the renewal notice.

On the flip side, SAGE-AU keeps growing and growing. We are well into the new batch of key rings, which means we are rapidly approaching the 500 member mark. For those of you who are interested in the statistics, a state-wise breakdown is:

State	#
Victoria	139
Queensland	124
New South Wales	108
ACT	29
Tasmania	23
Western Australia	23
South Australia	8
Northern Territory	6
Overseas	13
Total	473

Well, that is all I have to report for this newsletter. Catch you in the next one, and hopefully I will see you all at this year's conference in Sydney.

Till then,

David Conran
SAGE-AU (Out-Going) Secretary

STOP PRESS STOP PRESS STOP PRESS

SAGE-AU requires a ballot to approve rule changes which will allow the guild to register as a not-for-profit organisation. This ballot is also included in this newsletter. Please return along with the election ballot.

* ***Have you sent your Conference registration form to SAGE-AU yet?***
 * ***Have you completed both ballot papers yet (election & rule change)?***

Statements from SAGE-AU Committee Candidates

Please read the following statements from the candidates for the SAGE-AU Committee, decide which four you wish to vote for, then complete the enclosed ballot paper and return in the reply paid envelope before 25th June 1999.

Jason Andrade

I've been involved with SAGE-AU for just over 5 years. I first found out about SAGE-AU when a member sent me a job ad he noticed, which I successfully applied for. The senior sysadmin at the site (one David Conran) was extremely involved with what appeared to be a collection of local sysadmins drinking beer, eating pizza and exchanging their day to day travails. It sounded interesting and after some persuasion (if I come, do I have to swap ALL the backup tapes today?) I joined as a member. I then found out SAGE-AU had a serious side - advancing the profession of system administration - which I definitely considered worthwhile.

I learned a lot from the experiences of other sysadmins at the meetings and had fun too, which lead me to want to return something to the organisation. When they asked for local people to run for office I stuck my hand up and spent a couple of years as Queensland Treasurer and then President. I was elected for the national executive as a general committee member and have now held the national treasurer position for two years.

This year, I'd like to change my focus to other roles where I believe I can help build the organisation such as regional group coordination and increasing corporate awareness of SAGE-AU.

Alan Gough

Why I'm standing for election to the SAGE-AU committee :

Prime motivation is the apparently dis-organised response of industry groups to the Net Censorship debate. I'd like to see SAGE-AU involved in the creation of strong industry based lines of communication to governments probably via a peak industry lobby group.

I'm keen to continue the push for SAGE-AU to represent as wide a range of systems support as possible by actively seeking members from fields not currently well represented in SAGE-AU.

As a Tasmanian I'd like to continue the "rural Australian" representation from outside the Brisbane, Sydney, Melbourne axis and actively work at building membership from other areas of the country.

Geoff Halprin

I have been involved with SAGE-AU since its inception. I have been on the national Executive Committee since 1996, and have held the positions of general committee member and Vice-President.

My duties have included reworking several sections of the Rules of the Association, authoring our submission to government on the Copyright Amendment (Digital Agenda) Bill, and conference chair for SAGE-AU'99.

SAGE-AU is now in a difficult time in its history — its adolescence. We must grow to a membership level where we can sustain our activities, rather than survive based on a continuing reliance on volunteers who are already overworked.

We are now becoming more involved with advising and lobbying government, as our politicians discover the "new medium of the Internet" and attempt to legislate inappropriately in ways which impact all of us in our daily lives and in our duties. Australia is a small community, and we can play a key role in this area. I believe this is important for a professional guild.

I feel that I have one more term of energy to give to the Exec, and a number of goals that I would like to see us achieve in the next year.

Russell Noble

I have been involved in SAGE-AU for a number of years, and for the last year as a committee member. As a system administrator in an educational institution I found SAGE-AU to be an invaluable tool, and now moving into a private consultancy I hope to continue to work within SAGE-AU to promote the profession. Contributing to the newsletter and working with the conference programme committee this year has only served to reinforce the value I place upon active membership of SAGE-AU.

Andrew van der Stock

Andrew van der Stock has eight years experience in the IT industry, looking after a variety of operating systems under a wide range of operational modes. He has been a member of SAGE-AU since 1995 and currently holds the position of Vice President of the SAGE-Vic regional chapter. If elected, Andrew would work towards a more platform agnostic SAGE-AU, concentrating on providing relevant services to all our members, regardless of the number or type of systems they look after.

SAGE-AU Election Nominations

Here is the finalised list of nominations for positions on the national committee. Note that while there is no current nomination for the position of secretary:

- the rules provide for nominations and an election at the AGM
- one person indicated interest in the position but the nomination arrived late

<i>Postion/Nominees</i>	<i>Nominator</i>	<i>Seconder</i>
President David Conran	Scott Hamilton	Donna Ashelford
Vice President Paul Young	Nigel Maddock	Scott Hamilton
Secretary NONE*		
Treasurer Donna Ashelford	Eric Halil	Sam Lor
Committee Jason Andrade Alan Gough Geoff Halprin Russell Noble Andrew van der Stock	Peter Adams Geoffrey Day George Michaelson Donna Ashelford Donna Ashelford	Paul Shackel Anthony Vialle Leslie Elliott Simon Coggins Russell Noble
Associate Member Representative NONE*		
Returning Officer NONE*		
Assistant Returning Officer NONE*		

* These positions will be elected at the Annual General Meeting to be held at Novotel Brighton Beach, Sydney on Thursday 8th July at 5:30pm

Keyboard Wrist Protectors, Done Easy

Most SAGE-AU folk probably spend large amounts of each day at a keyboard, and get the usual benefits of this: sore wrists, arm cramps. I've been looking at various wrist protectors, and none of them were very good. I've found that microwave wheat sacks work absolute wonders for this. You can mold it to just the right shape to be comfortable, they cost almost nothing, and as an added bonus it can be heated up in a microwave for those cold mornings, or cold machine rooms.

For those who haven't seen them - imagine a small beanbag (typically around 10" long, and a couple of inches wide) filled with wheat kernels. That's a wheat sack. They're sold as an alternative to hot water bottles - you pop them in the microwave for a minute, and they're all toasty warm. Usually they cost about \$5.

Anthony Baxter <anthony@interlink.com.au>

An attendee's view : 1st Network Administration Conference and the 1st Workshop on Intrusion Detection

by Chris Saunderson (chris@optus.net.au)

This is a brief summary of the highlights of the NETA/IDW conference I attended in Santa Clara from the 7th-12th of April.

1st NETA Conference

Being an inaugural conference, the speakers were a mixed bag - some really good speakers, some not so good.

[Cable Modems and WAH]

Norm Schryer from AT&T Research Labs gave an outstanding talk on the change in the way that networks have evolved to meet the demands of the people who are using it. In particular, he focussed on his groups work with cable-modems and the fusion of home and work: Working at Home (WAH) and Working Out of Hours (WOOH) and universal messaging.

His message was that as global networks evolve to service a company's needs, the following lessons must be learned:

- 1) that distributed networks mean distributed responsibilities;
- 2) that plant remains the most reliable element of the network, but that core (server farms, NMS) are the most fragile;
- 3) the larger a network gets, the more difficult it is to secure and the easier it is to use the network against itself.

The work that AT&T have done has centred on the development of broadband networks (cable modems) as a tool to deliver the work infrastructure to WAH/WOOH company personnel.

Universal messaging is what AT&T Labs terms essentially being able to receive a message on any number of media. The example that Norm gave was the redirecting of PBX traffic down a cable modem to permit an employee to pick up their work phone from a phone connected to their cable modem.

The fragility of the core remains the most critical problem that companies seeking to deploy such technologies face. Norm ranked the following elements in order from most frequently failing to most reliable:

- * LAN
- * Servers
- * modem racks and home modems
- * cable plant
- * cable modems

In fact, over the 10 years that AT&T Labs have been working with cable modems, the cable plant has been more reliable than the phone plant they work with.

A central theme of his presentation remained that VPN's based on MS-Windows technology simply do not work. The TCP/IP stack on the average Windows machine is so fragile and open to (witting or unwitting change) that VPN's do not work. A more preferable option was the creation of a "moat" machine which simply encrypts all traffic going out via the cable modem back to the company premises. Don't use the WinTel platform for VPN's, insist on vendor interoperability. The optimal solution that AT&T found was to run a broadband network link from their ISP (RoadRunner) to their corporate premises, and then tunnelling from their employees homes to their corporate network.

[MRTG replacement]

Jeff Allen from WebTV Networks has made significant changes to the abilities and functionality of MRTG, transmuting it into the "Cricket" package. This features arbitrary numbers of variables for graphing, RRD support, out of box support for MIB-2, Cisco, Cascade ATM, PortMaster and USR Terminal Servers.

It looks like MRTG, it configures like MRTG, but boy, it's not MRTG.

[Bridging Firewalls]

Tom Limoncelli of Lucent Labs gave an interesting talk on the problems related to using bridging firewalls and the challenges related to maintaining and detecting them.

Lucent make a bridging firewall product which may be of interest down the track as an alternative method of implementing firewalls in certain areas of our network.

The bridging firewall model is a different one, and really appears to be the first wave of more application level services (proxy-caching for one) that will be available in the not too distant future.

[DNS:TNG]

Jim Reid of Philips gave an astoundingly good talk regarding challenges for DNS services with the arrival of Windows2000 and also for general trends in DNS.

Essentially, the challenges are migration to IPv6, dynamic DNS (particularly important regarding DHCP products being rolled out; as well as the move to DNS Notify/Incremental Updates) and increasing the security of the DNS in general.

The good news is that WINS is dead. The bad news is that the replacement is Active Directory and dynamic DNS updates. This is bad news because it is a push to LDAP based servers which is being driven by MS and proprietary coding.

IPv6 with it's 128bit addresses (including reverses - ip6.int) will prove a challenge to making efficient updates of DNS a problem.

Secure DNS is simply not workable. The first problem you have to solve is what do you protect - the DNS server? Access to that server? Queries to that server? Even using the most trivial of cryptographic checksumming/verification increases the size of the zone file, nameserver and latency in answering a query. Adding any kind of "real" authentication/checking into the DNS process is unworkable.

Dynamic DNS (DDNS) has a large number of problems which exacerbate the secure DNS issue. A large number of difficult-to-answer questions were posed, covering:

- * DDNS means write access to the zone data
 - no fine grained access control to the zone or the nameserver configuration
- * scaling issues for propagating changes organisation wide
 - integration with DHCP complicates this task
- * controlling the rate/frequency of updates
 - the "Monday morning rush" as people plug in/turn on their machines after a weekend
- * managing SOA records (each update incrementing the serial number!)
- * issues with getting DHCP to batch updates for efficiency

Windows2000 is the wild card in all of the future plans for DNS on the Internet. It depends almost entirely on DDNS for its name resolution and operation, but the trade-off is that MS DNS now looks far more WINS-like.

This means that there are weird WINS-like names (like _423424fhcjkfd) in zones, which of course is all undocumented.

A neat solution to the W2000 problem is to delegate the w2k.you.domain domain and corral your W2000 machines in there, then CNAME in your real DNS's to those machines.

Dynamic DNS and fwd/reverse zones - the question is who does what? There are a couple of models that are of use to us in planning things like IP/Name space management:

DHCP does all:

- permits atomic operations (2x operations at once)

- the least insecure method of operation
- dynamic name/address mapping, but isn't good for dialins (update storms)

DHCP does forward, client does reverse:

- this is how W2K works
- means asynchronous fwd/rev updates
- permits dialins to have fixed names
- means random computers updating DNS (security problem)

3rd party tools:

3rd party tools are a problem, as they:

- 1) cost dollars (QIP - \$10/IP)
- 2) once in never out, as they use proprietary protocols (updating of caches)
- 3) impose a working method.

RFC's

2137: Secure Dynamic DNS

1995: Incremental DNS update

BIND9 promises to provide a database backend which has been long waited for in the DNS world, and Paul Vixie is hard at work on this. It's a while off and is probably the biggest change in the DNS world coming.

The main point from Jim's paper was that the only DNS that is even making an attempt to address the serious issues of security and dynamicism is BIND.

Microsoft's method of handling these issues is neither open nor scalable nor usable.

[Splitting IP Networks]

Tom Limoncelli talked extensively about the problems that AT&T and Lucent technologies had in splitting into their respective workgroups and splitting a shared switched LAN gracefully. This was a practical talk resulting from experience, and contained many useful tips regarding issues such as DNS and NFS splitting and cabling issues.

[Evolution of VLAN/ELAN Architecture at Vanderbilt University]

John Brassil of Vanderbilt described a good model for the evolution of a VLAN architecture on an ATM network. His chief points were:

- 1) knowing the resources of the ATM network (meshed/partially-meshed)
- 2) planning for evolutionary change based on progressing a project rather than attempting to do it all at once.

- 3) close monitoring of the lower layers (<3) for resource shortages. This was particularly important at the switch level due to the design that they were attempting to implement.

Vanderbilt U is aiming to leverage their investment in Fore ATM to provide good service in a reasonably secure way. They also hoped to bring more rational connectivity and more manageable networks to areas within the university that traditionally had little or no connectivity, such as student dormitories. Managing the core of their network as well as controlling access from the ethernet at the edges and the development of VPN-style networks to segregate traffic as much as provide security were chief in the design.

Lowlights

Well, only the two talks that extolled the virtues of creating a NOC (duh), and how useful 'ping' 'arp' and 'traceroute' are as network diagnosis tools (major DUH).

1st Intrusion Detection Workshop

General remarks:

While the NETA conference was technical in nature, it was reasonably well grounded in practical advice and experiences in dealing with networks. The Intrusion Detection part was far more variable in its level of practicality. A large number of the papers described research projects into ID, with little practical application for a while yet.

Of particular note were the following papers:

1) Why monitoring mobile code is harder than it sounds

Gary McGraw of RST Technologies gave an outstanding presentation on "mobile code". His talk concentrated on the problems that Java, Javascript and ActiveX all share. The essential thrust is that Javascript is evil, ActiveX is even more evil, and that Java is badly misunderstood.

The use of javascript through our firewalls (especially the use of 3rd party code) should be discouraged (pron. "death to anyone who tries it") as the security risks to the data and operating systems that it executes on are far too high.

As if that wasn't bad enough, ActiveX. This should be IMMEDIATELY banned from all NAC machines. I know this will annoy the gamers, but it really is bad.

ActiveX has the problem that its so tightly woven into the OS that any security breach (and there are many) is going to cause untold havoc. When you combine that with JavaScript, there are some really scary scenarios.

Java, on the other hand, was described as being "misunderstood". The Java 2 security model (as opposed

to Java 1) is good, but it's slow. The problem is that there are always those who would like to improve performance at the expense of security (this sentence is pronounced "Microsoft, while not known for their codes performance, care less about security"). The use of Java is not so bad due to this security model.

This presentation was valuable as a "why Java shouldn't be feared, just watched carefully" heads-up.

2) "Defending against the Wily Surfer - Web-Based Attacks and Defenses"

Dan Klein (from Cybertainment Inc) is worth hearing just because he's a good speaker. Dan runs Cyberotika, one of the Internet's busiest adult sites, and has vast experience (as he's been the target of all of the attacks that are out there) in defending against some of the nastiest and subtle attacks against web sites. These range from straight denial of service through to frame-spoofing and defrauding the webmaster of click-through revenue, to credit card number stealing.

He's seen it all and presented a broad brush of problems that webmasters must defend against. The paper is well worth a read.

(Dan's opening sentence was "I peddle smut, I corrupt the youth of the Internet, I bring flesh onto your PC" with a slide that said "YES, my mother KNOWS what I do for a living...")

3) "Design and Integration Principles for Large-Scale Infrastructure Protection"

Ed Amoroso (AT&T) gave an outstanding presentation on some of the pitfalls that "security experts" enforce on companies. The most striking example was the deployment of Intrusion Detection Systems (IDS). Generally speaking, these are deployed at logical choke points (internet gateways, gateways to other corporate networks), whereas the majority of problems that occur on a network are initiated from within the network itself. This segued onto a good outline of threats from inside and measures to take to minimise internal threats. Realistic security threat analysis, identification of _real_ critical systems (including network infrastructure) etc.

Summary

Overall, these conferences were worth the time invested. Meeting other professionals in the networking world is always worthwhile, and the exchange of ideas that I had in the breaks between presentations as well as dinner, lunch, etc helped flesh out some thoughts that have been running around in my head. The only real downside was the variable quality of the presentations, particularly in the IDS workshop.

My recommendation is that the NETA conference is a worthwhile investment in time and personnel, and I have a few ideas for papers that I'd be interested in writing to present at the 2nd conference.

What I like in a hotel

by Brian Mellak (brian@gremlin.com.au)

After having the joys of working interstate spasmodically, from a few hours to a few weeks, this is my wish list of things to have in a hotel when you get sent interstate by your employer.

1. Food. This is most important. A hotel with a 24hr kitchen is a really good idea.

This comes in very handy when you finally get back to your hotel room after a long hard day or in the wee hours of the morning when all the local restaurants or McDonalds have closed 4 hours ago. There is something about having diet-coke and a bag of chips from the local 24hr service station or vending machine at 4am (if you can find one) that doesn't really appeal to me! Eating in at the hotel is also good in that you can bill everything back to the room and its easier for your employer and you as it makes the expense claims easier to make.

2. Location of the hotel. A definite must that it's close to where you are working otherwise you have wasted travel time.

3. A Laundry. This is handy for long stays or when you're jetting back to your home base and then flying out the same day or the next to some other location. Getting your laundry done by the hotel (if they provide that service) will cost you a lot. Business shirts are \$7-\$15 each, some include ironing, others its extra \$2-\$5.

I know my current employer will not pay that price for my laundry.

4. An iron. Enough said.

5. The room. I like a room that hasn't had smokers in it. Something about the stale smell...

6. A gym/pool. If its a trip where you're not expected to or don't end up working like a dog, then being able to shoot off to the gym/pool before or after work can be really relaxing. It saves you the cost of going off to one of the local gyms/pools and paying casual rates.

mmm.. that's about it!

logrot; yet another file rotation program

by Luke Mewburn (lukem@netbsd.org)

One of the things I like doing is programming utilities that make my job (and others) easier, whether other system administrators or other users.

One of the tools I've written I thought might be useful to other SAGE-AU-er's is 'logrot', which rotates files in a 'safe' and very configurable manner.

logrot rotates the given logfiles as atomically as possible, so that the time-window in which the logfile doesn't exist is quite small. This is useful for when the method of logging isn't an open file descriptor maintained between log messages. (E.g., a program which opens the logfile and appends for each message).

By default, the rotated file 'foo' is put into 'foo.d/foo.YYMMDD', although the target pathname is fully configurable.

There is support for filtering the logfile, sending signals to given processes, and executing commands before and after rotation.

The sequence of events is:

- * Rotate logfile to temporary filename, and create original log
- * Send a signal to a given process, or execute a 'notify' command. Wait for a few seconds for this to complete.
- * Optionally preprocess the temporary file
- * Copy the temporary file to the rotated file, optionally filtering (via stdin/stdout) and compressing.
- * Optionally postprocess the rotated file

Almost everything described above is user-configurable.

logrot is available from:

<ftp://ftp.cs.rmit.edu.au/pub/utils/logrot-1.4.tar.gz>

Please email me if you have any feedback.

Which Whois?

Using the various Whois servers for operational purposes, and historical oddities in their use

by Bruce Campbell (bruce.campbell@apnic.net)

As many people in the Internet Industry are aware, trying to find a responsible person when a remote machine is acting up or you have a troublesome spammer plaguing your systems can be a difficult task.

RFC954 specifies a service protocol known as 'whois', later extended in RFCs 1714, 1835, 1913, 1914. Details vary, but the basics of it is a simple query/response system. A whois client is usually available on every decent operation system, or there are various web interfaces.

(<http://www.apnic.net/maps/>)

The usefulness of whois is locating a responsible person for a given domain, hostname or IP address to the extent that you can quickly obtain the address and phone number who may be able to help you further, ie:

```
$ whois remote.machine.ip.address
```

```
% Results for remote.machine.ip.address
```

```
person: Joe Blow
phone: +1 555 1234 5678
email: joe.blow@example.com
```

Unfortunately, there is no one central whois server to ease the task of locating such information, and without knowing which whois server contains which information, you are back at square one.

WHOIS - Tracking down IP Numbers:

As a starting indicator (for tracking down IP numbers) there are three Regional Internet Registries in the world today, who between them have information on every IP address in use. These are (use the -h option on your whois client to use a specific whois server):

```
Whois: whois.apnic.net
Name: APNIC (Asia-Pacific Network Information
Centre).
Realm: Asia Pacific, Afghanistan to Pitcairn.
Nic-Handle Format: [A-Z]*[0-9]*-AP
```

```
Whois: whois.arin.net
Name: ARIN (American Registry for Internet
Numbers).
Realm: Canada, North and South America, Sub-
saharan Africa.
Nic-Handle Format: [A-Z]*[0-9]*-ARIN
```

```
Whois: whois.ripe.net
Name: RIPE (Riseaux IP Europeens)
Realm: Europe and surrounding areas (inc Middle
East).
Nic-Handle Format: [A-Z]*[0-9]*-RIPE
```

Due to the Internet being historically US-Centric the ARIN database has references to the other two RIRs and should be considered a default server in the absence of other information.

As an example, take the IP address of one of your main servers. Chances are (since this is an Australian article), you are within Australia and thus within the APNIC geographic realm.

In the example below I'll use the IP address of one of our main servers (which *happens* to be whois.apnic.net ;)

```
$ whois -h whois.apnic.net 203.37.255.97
```

```
inetnum: 203.37.255.96 - 203.37.255.127
netname: APNIC-AP-1
descr: Asia Pacific Network Information
Center, Pty. Ltd.
```

```
[snip]
person: APNIC Network Operations
phone: +61 7 3367 0490
e-mail: technical@apnic.net
```

The above is sufficient information to be able to report a problem. However, since this is Australia with a rather muddled Internet history, you may not have actually received the requested information or you may have seen the AUNIC-AU entry which (inadvertently) invites you to contact Telstra.

This is where knowledge of the various whois servers comes in handy. In the AUNIC-AU case the AUstralian Network Information Centre is the authoritative source for addresses in the range of 203.0.0.0 to 203.63.255.255, due to that range having being allocated by InterNIC prior to the establishment of APNIC in late 1993 and hold further information at their whois server, whois.aunic.net :

```
Whois: whois.aunic.net
Name: AUNIC (AUstralian Network Information
Centre)
Realm: Australia names '.au' and 203/10
Nic-Handle Format: [A-Z]*[0-9]*-AU
```

```
$ whois -h whois.aunic.net 203.37.255.97
```

```
inetnum: 203.37.255.96 - 203.37.255.127
netname: ASIAPACIFICNETW-AU
descr: Asia Pacific Network Information
Center
```

```
[snip]
tech-c: PAG4
remarks: Created 19980603
changed: register@aunic.net 19980603
source: AUNIC
[end of response]
```

(Normally the above AUNIC record will also be visible at whois.apnic.net as well).

A downside to the whois servers is that they will sometimes refer to information which is not contained on the same whois server. In the above 'PAG4' is not on the AUNIC whois server, but seems to be an InterNIC nic-handle by virtue of it matching the '[A-Z]*[0-9]*' pattern. Querying InterNIC results in:

```
Whois: whois.internic.net
Name: InterNIC (Internet Network Information
Center)
Realm: .com, .org, .net (and others)
Nic-Handle Format: [A-Z]*[0-9]*
```

```
$ whois -h whois.internic.net PAG4
```

```
Gampe, Paul A (PAG4) paulg@APNIC.NET
Asia Pacific Network Information Center
+61-7-3367-0490 (FAX) +61-7-3367-0482
```

Again, we have found some contact information.

Returning to the original example, you may not have received any contact information regarding your own machine. This is due to some more historical oddities. APNIC was established in 1993 to administer specific IP address ranges within the Asia Pacific Region. If you work for an organisation which obtained address space prior to APNIC's establishment then chances are your entry is not in the APNIC database.

Your organisation may have obtained address space from the InterNIC, however due to yet another historical oddity the InterNIC will not have any information on these allocations.

In '95/'96, it was becoming obvious that the InterNIC was struggling to keep up with the Internet explosion and so ARIN was established in 1996 to take over the InterNIC's IP address duties leaving InterNIC to manage the domains.

```
$ whois -h whois.arin.net 139.130.64.98
      (our router, apnic1.lnk.telstra.net)
```

```
Australian Academic and Research Network (NET-
AARNET1)
Canberra ACT 2601
AUSTRALIA
```

```
Netname: AARNET
Netnumber: 139.130.0.0
```

```
Coordinator:
Huston, Geoff (GH105-ARIN) gih@TELSTRA.NET
+61 2 6208 1908 (FAX) +61 2 6208 6165
```

Again, we have found some contact information although in this instance it is slightly outdated and possibly incorrect. In some cases (if you are trying to track down addresses in Europe), the ARIN result may refer to another Registry.

Another historical oddity is the shift of AARNET/Telstra to AARNET2/Optus. As Telstra Internet grew out (in some respects) of the former AARNET many of the configurations stayed the same (including Geoff :), resulting in the above confusion. Unfortunately, as someone in another universe worked out precisely what the Internet is for, we are stuck with this sometimes inexplicable version.

(If you feel bewildered at having to know all of the historical events just to find out contact details, have a look at <http://www.geektools.com/> which has a pretty thorough whois interface.)

If the output you received is obviously incorrect (ie, it refers to the person who occupied your position 4 years ago), the details can be updated to reflect reality... covered in the next article.

WHOIS - Tracking Down Domain Names:

Sometimes, the information obtained by tracking down the IP address is incorrect. Most of these times, the contact information given in the forward domain names is correct, but again finding information for a given host/domain name can be confusing.

Assuming that you have a hostname, the first step is to work out where its TLD (Top Level Domain) Registry is. In the case of domain names ending in '.com', '.net', '.org', this is the InterNIC:

```
$ whois -h whois.internic.net apnic.net
```

```
Registrant:
Asia Pacific Network Information Center (APNIC-
DOM)
```

```
Domain Name: APNIC.NET
```

```
+61-7-3367-0490 (FAX) +61-7-3367-0482
```

In the case of domain names ending in '.au', this is AUNIC again:

```
$ whois -h whois.aunic.net ftp.questnet.net.au
```

```
% No entries found for the selected source(s).
```

Of course, to find out information about a given name, you need to trim it down to the domain portion:

```
$ whois -h whois.aunic.net questnet.net.au
```

```
% No entries found for the selected source(s).
```

What's going on here? Another historical oddity. connect.com.au administers names in the 'net.au' namespace.

```
Whois: whois.connect.com.au
Name: CCAIR (connect.com.au Internet Registry)
Realm: .net.au, CCA IP Allocations.
Nic-Handle Format: [A-Z]*[0-9]*-CC-AU
```

```
$ whois -h whois.connect.com.au questnet.net.au
```

```
% RIVEDb(3.0.0a16) with ISI/Qwest RPSL exten-
sions
```

```
domain:      questnet.net.au
descr:      QUESTNet (ACN: )
             The Prentice Centre
[snip]
```

As you may have guessed, tracking down whois information for domain names can be frustrating at times, coupled with having to keep trimming the full name down until you get an answer (ie, its perfectly valid to have acct.acme.com.zz administered by different staff to devel.acme.com.zz).

Fortunately Geektools have set up whois-servers.net which will return the whois server (if known) for a specific subdomain.

```
lname="ftp.questnet.net.au"
while [ "$lname" ] ; do
  host$lname.whois-servers.net
  lname="'echo $lname | cut -sd \. ' -f 2-'"
done

Host not found.
Host not found.
net.au.whois-servers.net is a nickname for
whois.connect.com.au
au.whois-servers.net is a nickname for
whois.aunic.net
```

Some countries do not have whois servers available, and thus more esoteric methods must be used to find out who actually administers the machine.

Hopefully this article covers the basics of using whois and finding out which whois server is appropriate.

Further Information:

```
http://www.apnic.net/db/
http://www.apnic.net/maps/
Updating the Whois database(s) (next article)
```

Divining Faults in PC's and Other Occult Black Arts

by David Conran (lucifer@maths.uq.edu.au)

Picture yourself going on a strange journey, beyond science and common sense; you see a signpost up ahead, it reads ... "The SysAdmin Twilight Zone".

Tonight's interlude is set in a quaint little department in a ill travelled corner of one of the last ivory towers in society. You meet two sysadmins preparing to fix what seems to be a simple problem, a broken PC in a lab. Little do they know that this is no ordinary PC, for it is fresh from the forges of hell located deep inside the SysAdmin Twilight Zone.

"The PC keeps rebooting," said the mentor SysAdmin, "We will probably have to pull it apart to find out what is wrong."

"What do you mean 'keeps rebooting'?"

"I mean, it displays the BIOS and reboots".

"Oh ...". After a bit of un-chaining and un-plugging they manage to get it into a position to pull it apart.

"Alright," announces the mentor as he ponders the sum of his experience and diagnosis skills, "Lets try it without the network card; we will start with the least likely fault location". The card is summarily removed.

"Turn it on?" ask the acolyte.

"Yes."

"You're joking!" exclaims the acolyte as the PC miraculously boots beyond the BIOS banner. The mentor looks stunned. It was not meant to be that easy surely, he thought. The BIOS reports that the PC now has 481960K installed; this of course is a surprise to both sysadmins as they knew it only had 32Meg installed.

"Lets boot it again," he states.

"Nope .. back to the rebooting now," sighs the acolyte. The mentor meditates for a few seconds and requests the acolyte to get an old ISA video card, thinking the BIOS configuration must be screwed, and maybe it is the Plug and Play memory which is

stuffed. After all, this is a PC that has been seriously worked by students for over 2.5 years. He then takes a deep breath and blows on the motherboard.

"Why did you do that?" complains the acolyte as he fails to escape the enveloping dust cloud.

"Maybe the dust is shorting out something," the mentor mutters as he gropes around the motherboard pressing on BIOS chips trying vainly to re-seat the connections. "Try it now..."

"Nope, no luck ... still rebooting."

"Kill the power and try it again."

"Still nothing."

"Ok, lets remove the HD and CDROM," the mentor thinks aloud, "Maybe it's the IDE bus".

"Ok ..."

"Clear?"

"Yes."

"Power on."

"Its working!!" The mentor sighs a small sigh of relief to himself, at last we have tracked it down a little more.

"Um, boss, why is it detecting the cpu as 'i(unknown)'? That would be a bad thing huh?"

"What?!?, reboot it again."

The acolyte flicks the switch. "Oh, this time it is working again, it has detected it as a pentium."

"Yes, I think it is the CMOS memory which is stuffed, lets get in there and reset it."

"Damn, missed it. Rebooting. Um .. we didn't detect the cpu again".

Oh well, thinks the mentor, at least we are this far, hopefully resetting the BIOS settings will fix it.

"Um, how do I reset it?" the acolyte states as he stares at the BIOS menu.

"Go to the 'load defaults'".

"Ok, rebooting Oh bugger! Its looping again!"

Hmmm .. ok, thinks the mentor, sensing the scent trail of a hunt. "Lets clear the CMOS settings via the mother board jumper"

"Which one is it?"

"Isn't it labelled?"

"Nope".

The mentor sighs; yes, we do have to pay the occasional price for the cheap motherboards we bought for the labs. "I think we have a manual, I'll go look."

Of course dear readers, nothing is ever simple in the SysAdmin Twilight Zone. No matter how hard they looked they could not find it, because, as we stated earlier, this is no ordinary PC from no ordinary manufacturer, unless you happen to shop in the Twilight Zone.

"Couldn't find it!"

"Oh well ... process of elimination time."

"This one looks like it."

"Yes .. it gets my vote too."

"Ok, now try it." The PC boots.

"Hey we are back in business" the acolyte gleefully announces. The mentor, whose years of experience are now starting to stand on end like the hairs on the back of his neck, starts to suspect that the laws of physics and nature are not necessarily in agreement today. He decides to order another reboot.

"Kick it again .."

"Why?"

"Just do it!"

"Its looping again," winces the acolyte.

"I thought it would," justifies the mentor.

"There is not much left ... remove the floppy?" asked the acolyte.

"Yerp," the mentor replies.

"Clear?"

"Yes."

"Nope, still rebooting."

"Memory" they both think aloud.

"We will pull out one bank, and swap it with the other to eliminate that as a cause, unless it is both banks of course."

"Sounds reasonable to me," answers the acolyte. The power supply gets relocated as it is on top of the memory, so the scene now looks very gruesome to the undergrad students who a walking past.

"Ok, one bank of memory removed ... try it now."

"Hey its working, and it detects the cpu this time. Its looking good. It's failing on the HD and Floppy, I'll take them out of the BIOS."

"That would be a good plan," comments the mentor.

"Hmmm seems ok now," states the junior, "Should we start putting it back together?"

"Lets add the HD, and leave the CD off and see how we go, no need to complicate things," espouses the Mentor. "Ok .. clear?"

"Yes .. give it the space juice!"

"Hmmm ... it detected the HD, but it is complaining about B: drive."

"Um .. did you check the BIOS settings when we reset it, maybe it thinks we have a 5-1/4" drive?" suggests the mentor.

"Ok ... nope ... B drive is set to none."

The mentor realises at this point that they have definitely made a slight detour off reality as he checks the cables connecting the floppy drives and the motherboard. They are all correct. Years of experience tell him that this should not be happening, unless the motherboard is fried. Perhaps it is in some bizarre state, or some traces on it have been damaged and it is only partially functioning.

"Try it now," states the mentor in a calm voice.

"Did you just do what I think you just did?"

"Yes," the mentor states calmly.

"Ok ... but I don't see why putting the power supply on it's side would fix anything. ... Nope, we still have a B drive somewhere."

"Disconnect the floppy and reboot."

"OK ... nope still have a B, maybe we should just give in, and try a different motherboard," suggests the acolyte sensing that this is getting futile.

"I am not ready to give up on this yet, it just doesn't seem right. Pull the HD off again .. and try it."

"Ok," sighs the acolyte, but to his surprise, the B drive message is gone.

"What the? Its gone."

The mentor lets out a sly grin; he has seen the crack in reality, he has

realised that this is no ordinary PC, that he has to use all the occult powers that were passed on to him from his mentor when he was an acolyte to extricate himself and his own acolyte from this private hell and hopefully exorcise this demonic PC in the process.

"Try it now with the A drive removed but the HD on."

"OK" as the acolyte busily sets about making his master's wishes a reality. "Done"

"Power it on."

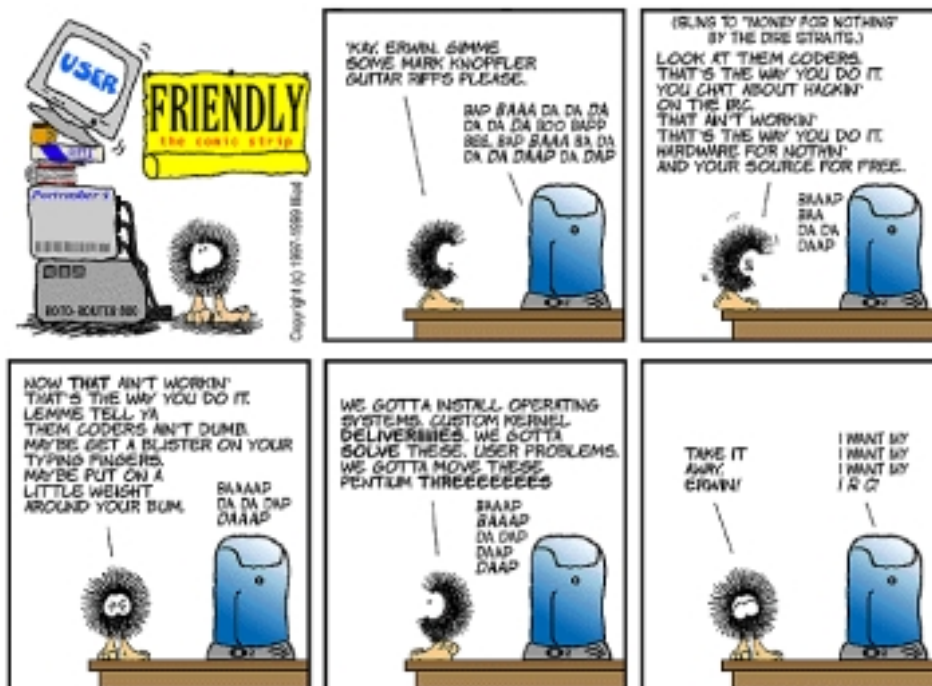
"Ok ... booting ... hey .. it sees the drive and the OS, what is going on?"

"Its the power supply, it doesn't have the guts anymore to produce the current or voltage necessary to start everything and keep it running," states the Mentor. "Lets grab one from the old 486 in my room."

As the camera pans out, we leave the scene of the two System Administrators performing the last of the open heart surgery upon the PC in question, if only they had bothered to read the place of manufacture on the offending power supply it would have saved them so much time and stress, because dear reader, as we the viewers of this little foray know, it was labelled:

"Made in the Twilight Zone"

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Regional Groups

NSW Chapter Report : Titus Chiu

The NSW Chapter has been progressing well since the last report. Regular monthly meetings have been held in Sydney with an average attendance of around 20 people over the past two months. This is an increase from an average of around 8 due to interesting topics presented in the past two meetings. Hopefully we can continue this good run!

In March, a general discussion on security took place as well as the NSW Chapter Annual General Meeting, where the current committee members stepped aside due to other commitments (such as the national exec) or work. Nominations were called on the floor, and the following were elected unopposed:

President: Titus Chiu
Secretary: Andrew Whyte

Treasurer: David Scott
Sydney Organiser: Zebee Johnstone

In April, Zebee Johnstone from the School of Computer Science and Engineering of University of New South Wales gave a run down on using MRTG (Multi Router Traffic Grapher) with minimal setup and fuss as well as various tricks and tips on using SNMP in general. A general discussion on the future direction of the NSW chapter was called on the floor in particular on marketing to increase member numbers ahead of the July conference. Feedback was positive and a few ideas will be followed up.

Queensland Chapter Report : Tony Shepherd

The Queensland regional group continues to see good numbers of attendees to our monthly meetings, despite the problems we have had in securing a good location. In the last twelve months, we have tried four different locations, and believe our latest venue is the best we have had for some time. We are using a lecture theatre at the University of Queensland. It is in one of the new buildings at the St Lucia Campus and provides excellent audio and visual facilities (see the monthly meeting announcements for full directions).

Finding a "good" venue proved to be quite a difficult task. There were many conference rooms, but few provided all of the features we were looking for. Requiring something which was easy to get to, seated 25-50 people, provided good parking, good public transport, allowed us to cater ourselves, did not require someone to "man the door" and was not too expensive ruled many venues out. Some venues had most of the features but there was always something that made it unworkable; they were too small, would not let us cater (that was obviously where they make their money), etc. The venue at Queensland University had all of the features we were looking for, although it is not as central as we would have liked. You can't have everything I suppose.

One of the main reasons we are seeing a good turn out each month is the range of interesting talks that are being presented. Sam Lor, our regional secretary, has been instrumental in organising these presentations. Many thanks to Sam.

Talks so far this year have covered topics on looking after large mirror sites (Jason Andrade spoke about

the mirror. AArnet archive), ATM (Tony Sarathchandra spoke on how and why they have been using it at Queensland University) and a talk on NetWare v5.0 and how it compared with NT Server 4.0 and the differences between it and NetWare v4.11.

On a different note, this financial year is nearly at an end and the winter conference is upon us. What that means regionally for the Queensland chapter is that our AGM is also looming (held at the June meeting) and it is time to start thinking about the executive committee for upcoming year. Having a strong executive committee is essential to having a strong regional chapter. The people who are on the committee are there to ensure that everything moves along smoothly, regular and interesting monthly meeting and talks are given and new members, as well as existing members, continue to be an active part of SAGE-AU on both a regional and national level. It is our members, and the commitment they provide to our organisation, which makes SAGE-AU an interesting and useful group of professionals.

Due to increased work and family commitments, I will not be running for any positions on the Queensland executive for the upcoming year. I would like to thank my colleagues, Julianne Weekers (Qld Treasurer) and Sam Lor (Qld Secretary) for all their help and support during the last year. I am sure that with the influx of new people we regularly see at our monthly meetings that we will have no trouble filling the executive positions with excellent candidates at the June AGM.



ACT Chapter Report : Roy Meuronen

SAGE-AU in Canberra has continued to run on target and on budget so far this year.

On target - we have held a meeting each month.

On budget - we have spent no money.

The February meeting started off with an open agenda given that we had no formal presentations arranged. This quickly evolved into a most interesting discussion of tips and tricks on contracting in the IT industry. Recently arrived from down south, Matt Gillard was able to shed some much needed light for those of us who have yet to make the jump to the dark side.

March saw a report by chapter secretary Steve Jenkin on his visit to the US for the Linuxworld conference. While sifting through Steve's showbag of goodies, we were told many stories of the latest advancements in Linux. While Steve's presentation was long on tech-talk, it was, for some, disappointingly short on party stories.

As a last minute ring-in for the April meeting, Richard Siggs, owner of local ISP Spirit Networks, was a highlight to the year so far. With intentions of talking for

about half an hour from his very brief notes, he proceeded to captivate the audience for two hours with stories of technical, political, and system administrative interest. Going from dealing with the local telcos, to router and proxy configuration issues, to handling user support, to the possible implications of Internet censorship legislation being passed, the lively discussion involved the whole group.

Upcoming highlights include a presentation on SaMBa 2 by Andrew Tridgell at the May meeting on Tuesday the 25th.

Meetings of the ACT chapter of SAGE-AU are held on the last Tuesday of each month starting at 6:00pm.

At the offices of:

Computer Training and Consultancy (CT&C)
4/40 Thesiger Court Deakin
(Upstairs in the AFPA building)
See <http://www.ctc.com.au/contacts.html> for a map.

Refreshments are provided.

Items for Sale

Item	Member Price (\$)
SAGE Job Description Booklet	15.00
SAGE Computing Policy Booklet	15.00
SAGE System Security Booklet	15.00
SAGE Educating & Training Booklet	15.00
SAGE-AU'94 Proceedings	15.00
SAGE-AU'95 Proceedings	15.00
SAGE-AU'96 Proceedings	25.00
SAGE-AU'97 Proceedings	25.00
SAGE-AU'98 Proceedings	25.00
SAGE-AU'98 Conference Video CDROM	50.00
SAGE-AU Coffee Mugs	5.00

Note:
Postage & handling is charged at \$3 for the first item, and \$2 for each additional item.

Many of these items are in short supply, so "first in, best dressed". To order any of these items please complete an order form which you can find at:

<ftp://ftp.sage-au.org.au/pub/SAGE-AU/Forms>

Mailing Lists

sage-au	sage-au-exec
sage-au-announce	sage-au-membership
sage-au-chairs	sage-au-jobs
sage-au-conf	sage-au-skills
sage-au-pubs	sage-au-standards
sage-rg-exec	sage-rg-tres
sage-nsw-exec	sage-nsw
sage-qld-exec	sage-qld
sage-vic-exec	sage-vic
sage-wa-exec	sage-wa
sage-bris	sage-rocky
sage-tas	sage-act

Most of the mailing lists are available for members to subscribe to.

Please see the page on the website, at: <http://www.sage-au.org.au/resource/maillist.html> for information about joining the various lists.

Regional Groups



Victorian Chapter

The Victorian group currently meets on the second Tuesday of the month at 6:45pm at

The Public Office
Top floor
100 Adderley Street
West Melbourne
Ph: 9328 2821

- President:** Luke Mewburn
Luke.Mewburn@member.sage-au.org.au
- Vice-President:** Andrew van der Stock
Andrew.vanderstock@member.sage-au.org.au
- Secretary:** Steven Pemberton
Steven.Pemberton@member.sage-au.org.au
- Treasurer:** David Keegel
David.Keegel@member.sage-au.org.au
- List Chair:** Morrie Wyatt
Morrie.Wyatt@member.sage-au.org.au

The group mailing list is sage-vic@sage-au.org.au.



Queensland Chapter

The Queensland group currently meets at 7:00pm on the second Thursday of every month at

Room 343, Level 3
General Purpose South Building (No. 78)
The University of Queensland
Staff House Road
St Lucia Brisbane

- Chair:** Anthony Shepherd
Anthony.Shepherd@member.sage-au.org.au
- Secretary:** Sam Lor
Sam.Lor@member.sage-au.org.au
- Treasurer:** Julianne Weekers
Julianne.Weekers@member.sage-au.org.au

The group mailing list is sage-qld@sage-au.org.au.



NSW Chapter

The NSW group currently meets on the second Tuesday of every month at 6:45pm at

Level 9/50 Miller Street
North Sydney
Phone 02 9779 1869 or
0417 232 934 for entry after 7pm

- President:** Titus Chiu
Titus.Chiu@member.sage-au.org.au
- Treasurer:** David Scott
David.Scott@member.sage-au.org.au
- Secretary:** Andrew Whyte
Andrew.Whyte@member.sage-au.org.au
- Syd. Organiser:** Zebbee Johnstone
Zebbee.Johnstone@member.sage-au.org.au

The group mailing list is sage-nsw@sage-au.org.au.



ACT Chapter

The ACT group currently meets at 6:00pm on the last Tuesday of every month (excluding December) at

Computer Training & Consultancy
4/40 Thesiger Court
(upstairs in the AFPA building)
Deakin

- Interim President:** Roy Meuronen
Roy.Meuronen@member.sage-au.org.au
- Interim Secretary/ Treasurer:** Steve Jenkin
Steve.Jenkin@member.sage-au.org.au

The group mailing list is sage-act@sage-au.org.au.



Tasmanian Chapter

The Tasmanian group currently meets on the third Monday of every month at a different location depending on the event being held (check <http://www.sage-au.org.au/rg/tas> for info.)

- President:** Geoffrey Day
Geoffrey.Day@member.sage-au.org.au
- Secretary:** Bron Godwana
Bron.Godwana@member.sage-au.org.au
- Treasurer:** Vacant

The group mailing list is sage-tas@sage-au.org.au.