NAT in Sun Solaris8. IP Filter 3.4.16.

This procedure was tried in Solaris8 on Intel M/C but should work for any UNIX platform on any architecture.

For forwarding IP packets from one local network to another local network is really simple. We need to enable ip_forwarding
#ndd -set /dev/ip ip_forwarding 1
and that will take care of everything. The above scenario assumes both the networks runs on private IP numbers.(10.*.*.*, 172.*.*.*, 192.168.*.*). For forwarding a local network IP packet to the Internet, we need to use NAT, NPAT, proxy, . . .for the above said private IP are non-routable. Even if we go for NAT, NPAT, proxy, we need to enable this ip_forwarding

Downloading and Installing....

Pre-compiled binary version of the S/W "IP Filter" which takes care of NAT is not easily available. Source code is available from ftp://coombs.anu.edu.au/pub/net/ip-filter. This must be compiled and then installed. For compiling we need to have **make**. For Solaris, the make which is at /usr/ccs/bin is ok. GNU make seems to have some problem. We also need to have GCC. This can be D/L from www.sunfreeware.com The latest at this time of writing is GCC2.95.2
#gunzip -d gcc-2.95.2-sol8-intel-local.gz
This will un-compress the file and create int package gcc-2.95.2-sol8-intel-local, which can be installed as
#pkgadd -d gcc-2.95.2-sol8-intel-local
Note : This GCC takes about 60MB of space. You should have at least 60MB in your tmp dir for storing the un-compressed package file and another 60MB in your /usr/local dir for installing the compiler package.

By default, gcc is installed in /usr/local It will create sub-dirs like /usr/local/bin /usr/local/include /usr/local/lib /usr/local/doc and install all its necessary files.
Take care to add /usr/local/bin to your path variable. This is where the gcc compiler resides. (/usr/local/bin/gcc is a hard link to /usr/local/bin/i386-pc-solaris2.8) It is also recomended to add /usr/ccs/bin to your path.

Then un-compress the IP Filter package into some tmp dir.
#ginzip -d ip-fil3.4.16.tar
This will create the ip-fil3.4.16.tar file. This has to un-tared
#tar -xvf ip-fil3.4.16.tar
This will create a dir called ip_filter3.4.16 and install all the source code inside.
To compile the package, be at the source code dir and issue,
 # make solaris *--> substitute with whatever OS you run*
If you have all the compile stuff pre-installed and configured, the above command will compile the package.
To make the package issue a

 # make install-sunos5 --> *substitute with whatever OS you run*
To get more info/help about parameters just edit the Makefile.
This command will create the package which can be installed to any system using the pkgadd command. This package by default will be on ip_filter3.4.16/Sunos5/i386-5.8/ipf.pkg
Once the package building is complete, you will be prompted weather to install it or not. You can answer yes install or cancel and install at a different time/place using the package ipf.pkg

This IP Filter package is installed into
/usr/sbin for binary files,
/usr/kernel/drv for kernel drivers
/opt/ipf for documents and other assorted files
/etc/opt/ipf for configuration files.

We have a default /etc/opt/ipf/ipf.conf and /etc/opt/ipf/nat.conf
ipf.conf deals with firewalling rules and nat.conf deals with NAT.
The default nat.conf can be edited to suit your needs. It should be edited to reflect your network ID and in, out interfaces.

A sample nat.conf is below:
map ipdptp0 192.168.10.1/24 -> 0/32 proxy port ftp ftp/tcp
map ipdptp0 192.168.10.1/24 -> 0/32 portmap tcp/udp 10000:40000
map ipdptp0 192.168.10.1/24 -> 0/32
Note: The above configuration assumes ipdptp0 as the modem dial up interface.

Restart the machine for the changes to take place. This IP Filter would start itself every time the machine starts. If you use a ppp connection as your out interface, you need to do
#/sbin/ipnat -C -f/etc/opt/ipf/nat.conf
#/sbin/ipf -y
to inform changes in the ppp line to IP Filter.

Point this machine as your gateway in your clients and happy NATing

Crosschecking the setup.

#modinfo | grep "IP Filter" --> 149 feaa2fdc 17db0 74 1 ipf (IP Filter V3.4.16)
the above numbers would be differen depending up-on the version you run
#ndd -get /dev/ip ip_forwarding --> should return '1' meaning is set
Check the file /etc/opt/ipf/nat.conf for correct network number and interface setup
Check the gateway setup in the clients.

Suggested Reading Materials and other links...

http://www.riddleware.com/solx86/nat-config.html
http://photon.nepean.uws.edu.au/ppp/nat.html
http://cheops.anu.edu.au/~avalon/ip-filter.html --> IP Filter HomePage
http://www.obfuscation.org/ipf/ --> HOWTO
ftp://coombs.anu.edu.au/pub/net/ip-filter/ip-fil3.4.16.tar.gz
http from http://coombs.anu.edu.au/~avalon/ip-fil3.4.16.tar.gz