Firewall and mail/dns configuration overview

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1 Operating system install

All machines were installed according to the partitioning given from the Solaris 2.5.1 CDROM.

The GZIP package executable was extracted from the Axil supplement CDROM. A directory, `/opt/bin` was created, and added to root's default path at the beginning. A link was made in `/opt/bin` from the `gzcat` executable to the extra name `zcat`. This allows the sequence:

```
# zcat foo.tar.gz | tar xvf -
```

to extract both compress'ed and gzip'ed tarballs.

During the development cycle, `ssh` was used to for logins and to transfer files (using `scp`). This was installed on each machine via `tar.gz` file loaded from a floppy. The firewall machine was used to login to the other two machines, as the firewall has direct connections (no routing needed) and one is not constrained by the firewall ruleset when on the firewall console.

The Solaris 2.5.1 Recommended patch set was downloaded from the Sun patch site, copied to each machine, and installed. Note: The latest Netscape communicator (4.04) will not run without this patch set, so if one wants to locate it on the web, one has to use another machine, and then use FTP.

2 Revision Control System

It is recommended all critical control files be revision controlled. This can be done with SCCS (now very old, and seldom maintained) or with RCS (available from GNU). The RCS package from `http://smc.vnet.net/solaris_2.5.html` was installed on `tunmail` and `tundmz`.

RCS archives files are the same file name with a `,v` appended. If the directory `RCS` exists, then they are placed there, otherwise, they are placed in the current directory. Creating `RCS` directories is recommended as it reduces the clutter in some directories.

Major commands are: ci, co and rcsdiff.

2.1 CO: Check Out

Use this program to get a previous revision of a file.

2.2 CI: Check In

Use this program to submit a new version of a file. Use with the `-l` option to checkout a writable copy of the file again, or with the `-u` option to checkout a read-only copy of the file again.

2.3 RCS Diff

This program compares the named file with the version in the repository, and lists the differences.

3 tunmail: Internal mail relay and DNS forwarder

The internal mail relay does all smart routing. It knows about all Newbridge and Affliated domains, and can forward mail to the Newbridge mailhub as appropriate.

It also knows all about all internal DNS servers, and can do queries to Newbridge's DNS servers, or query the Internet for resolution.

In addition, this machine holds the source code for all tools that were built.

3.1 Partitioning

A single 4Gb disks was used in this machine. A second 2Gb was also present, but it turned out to be unstable.

A root, large usr, opt partitions were created. A /var partition should have been created with 250Mb of space.

As a workaround, /var was moved to the /usr disk with a symlink. Note: It is necessary to reboot after such a move.

The bulk of the space was placed into /opt, in which the source was stored in /opt/src, and administrative logins were created in /opt/home.

```
tunmail-[/opt/etc/ns] 17 >df -k
Filesystem            kbytes    used   avail capacity  Mounted on
/dev/dsk/c0t2d0s0     117727   43053   62904    41%    /
/dev/dsk/c0t2d0s6     492367  198627  244510    45%    /usr
/proc                      0       0       0     0%    /proc
fd                         0       0       0     0%    /dev/fd
/dev/dsk/c0t2d0s5    3438834  209558 2885396     7%    /opt
swap                  215892     220  215672     1%    /tmp
```

3.2 Source tree

`/opt/src/sendmail-8.8.8` contains the source tree for sendmail. This software, when configured for Solaris, installs itself directly into /usr. A directory, /opt/sendmail was created, and the components were installed there. The directory makemap program, located in `/opt/src/sendmail-8.8.8/makemap` is also needed. A tar file was made for transfer to `tundmz`.

`/opt/src/bind8` contains the source, documentation and contributed modules for bind version 8. This software, when configured for Solaris, installs itself directly into /usr. A directory, /opt/bind was created, and all the executables were copied there. A tar file of this directory was made for transfer to `tundmz`.

`/opt/src/db.1.85` contains the source tree for the Berkeley DataBase routines that are needed by sendmail.

3.3 BIND: Berkeley Internet Name Daemon (DNS)

The software should be extracted to `/opt/bind`. Site local configuration files are kept in `/opt/etc/ns`.

3.3.1 `/opt/etc/ns/named.conf`

This file contains the configuration for BIND version 8. Documentation for this can be found on `tunmail` in `/opt/src/bind8/doc/html/config.html`, and on the Internet at `http://www.isc.org/bind8/config.html`.

Three zones are listed as being masters here, with the rest of them being transfered from either `nova` or from Newbrige's `kanmaster`. The use of the forwarders option means that `tunmail` can not query any other name servers. In order for it to resolve queries for internal names it must have those names in its cache: the easiest way to do this is make it a secondary for that zone.

With Raptor 5.0, the forwarders option is not necessary, so it will not be required to become a secondary for all zones, just the top level ones that one wants to have access to. This is particularly important for the reverse maps as there are some 600 of them that exist.

3.3.2 `/opt/etc/ns/RCS`

A directory to be used by ci/co. Please see section 2 on Revision Control System.

3.3.3 `/opt/etc/ns/root.cache`

This file provides the DNS server with a list of root name servers. They are never consulted when using Raptor Eagle 4.0, but the file must exist for BIND to start, and will be used with Raptor Eagle 5.0. A new version of this file can be generated by doing:

```
# dig . ns >root.cache
```

3.3.4 `/opt/etc/ns/master/db.dmz.tundra.com`

This file contains the forward zone file for the DMZ network. This file is duplicated on `tundmz` currently. Eagle 5.0 will permit this machine to do a zone transfer from `tundmz` to get this file.

In production, `nova.tundra.com` should do a zone transfer of this file from `tunmail`.

This file should be revision controlled, and kept in sync with the file on `tundmz`.

3.3.5 `/opt/etc/ns/master/db.0.0.127.in-addr.arpa`

The reverse map for the loopback addresses.

3.3.6 `/opt/etc/ns/master/db.244.168.192.in-addr.arpa`

This file contains the reverse zone file for one segment of the private network. When in production, this file should be moved to the primary DNS/NIS server, `nova.tundra.com`.

3.3.7 `/opt/etc/ns/master/db.246.168.192.in-addr.arpa`

This file contains the reverse zone file for the DMZ network. This file is duplicated on `tundmz` currently. Eagle 5.0 will permit this machine to do a zone transfer from `tundmz` to get this file.

This file should be revision controlled, and kept in sync with the file on `tundmz`.

3.3.8 `/opt/etc/ns/slave`

All zones transfered from either `nova` or from `kanmaster` are placed in this directory.

3.3.9 Symbolic links

Add the following links so that the system can find the software in standard places. In most cases, Solaris provides files by these names. They should be moved aside.

/etc/named.conf	→	/opt/etc/named.conf
/usr/sbin/in.named	→	/opt/bind/sbin/in.named
/usr/sbin/ndc	→	/opt/bind/sbin/ndc
/usr/sbin/named	→	/opt/bind/bin/named
/usr/bin/nslookup	→	/opt/bind/bin/nslookup
/opt/bin/addr	→	/opt/bind/bin/addr
/opt/bin/dig	→	/opt/bind/bin/dig
/opt/bin/dnsquery	→	/opt/bind/bin/dnsquery
/opt/bin/host	→	/opt/bind/bin/host
/opt/bin/nsupdate	→	/opt/bind/bin/nsupdate

3.3.10 `/etc/inet/hosts`

This file must contain an entry for `tunmail`. Other entries are optional.

3.3.11 `/etc/nsswitch.conf`

This file should list only `files` types, except for the "hosts" entry, which should read:

```
hosts:      files [NOTFOUND=continue] dns
```

3.3.12 `/etc/named.boot`

This should be an empty file to signal the system to start the named process on startup. The system looks for this file since it expects BIND version 4 rather than BIND version 8.

3.3.13 `/etc/resolv.conf`

This should list the IP address of the local system as the resolver. It should list the domain as being `tundra.com`.

```
domain tundra.com
nameserver 192.168.244.2
```

3.4 Sendmail

The software was installed in `/opt/sendmail`. Site local configuration files are kept in `/opt/sendmail/etc`.

3.4.1 `/opt/sendmail/etc/RCS`

A directory to be used by ci/co. Please see section 2 on Revision Control System.

3.4.2 `/opt/sendmail/etc/tunmail.cf`

The standard sendmail configuration file. This file is created by m4 macros from `tunmail.mc` located on `tunmail` in `/opt/src/sendmail-8.8.8/cf/cf`. The command `make tunmail.cf` in that directory will create an updated version.

This file should *not* be edited, but this file should be placed under revision control.

3.4.3 `/opt/sendmail/etc/spammers`

A list of domains from which mail will not be accepted, usually because they are known spam sources.

This file should be placed under revision control.

`upd-map` must be run to update the database when changes are made.

3.4.4 `/opt/sendmail/etc/sendmail.cR`

A list of domains and hosts for which mail will be relayed. Email will not be accepted unless it is either destined to one of the domains listed in this file, or if it is being received via a connection from a host listed in this file.

This file should be placed under revision control.

3.4.5 `/opt/sendmail/etc/aliases`

A list of aliases for the local machine. These aliases are used to forward any email generated locally to appropriate persons. This file should alias a name to machine `polarbear` if they are to be a Lotus Notes user.

This file should be placed under revision control.

`upd-map` must be run to update the database when changes are made.

3.4.6 `/opt/sendmail/etc/mailertable`

This file directs all email to the affliates to the Newbridge mail hub. It directs that mail to `polarbear` and `nova` should be delivered directly rather than forwarded for the DMZ mail relay, which would otherwise be the default.

This file should be placed under revision control.

`upd-map` must be run to update the database when changes are made.

3.4.7 `/opt/sendmail/etc/upd-map`

This is a shell script. It is used to update all the database files in this directory.

3.4.8 Symbolic links

Add the following links so that the system can find the software in standard places. In most cases, Solaris provides files by these names. They should be moved aside.

/etc/mail/sendmail.cf	→	/opt/sendmail/etc/tunmail.cf
/etc/mail/aliases	→	/opt/sendmail/etc/aliases
/usr/lib/sendmail	→	/opt/sendmail/bin/sendmail
/opt/bin/makemap	→	/opt/sendmail/bin/makemap

3.5 `/etc/rc2.d`

Numerous files were removed from the `/etc/rc2.d` directory to prevent the system from starting up unnecessary daemons. Should these files be needed again, copies are available in `/etc/init.d`.

3.5.1 S01MOUNTFSYS

Mount system files. left intact.

3.5.2 S05RMTMPFILES

Clean out the `/tmp` directory. left intact.

3.5.3 S20sysetup

Configure the system if necessary. left intact.

3.5.4 S21perf

Start system performance monitoring. Unecessary: removed.

3.5.5 S30sysid.net

Sets hostname. left intact.

3.5.6 S47asppp

Starts PPP. No PPP desired: removed.

3.5.7 S69inet

Configures network interfaces and starts services. left intact.

3.6 `/etc/rc2.d/S70routes`

This file is added. It installs all the static routes that are required for email and DNS operation. Generally, this means routes to all of Newbridge and all affliates. As there are so many, a script is used with a loop to install all the routes. Again, variable subnet masking would have permitted a more efficient routing table.

Routes were created to: 138.120/16, 192.168/16, 172.16/12, and 10/8. That is, to Newbridge's class B, and to the three sets of private network address, just in case Newbridge starts using additional routes.

3.6.1 S70uucp

UUCP subsystem: removed.

3.6.2 S71rpc

Remote Procedure Call subsystem: removed.

3.6.3 S71sysid.sys

Performs additional configuration if necessary. left intact.

3.6.4 S72autoinstall

Installs software automatically from CD: left intact on tunmail.

3.6.5 S72inetsvc

Starts up other Internet services. Left intact.

3.6.6 S73nfs.client

Starts up NFS clients: left intact.

3.6.7 S74syslog

Starts up logging service. left intact.

3.6.8 S75cron

Starts up cron service. left intact.

3.6.9 S76nscd

Name Service Caching Daemon. Used primarily with NIS/NIS+: left intact.

3.6.10 S80PRESERVE

Saves VI files when the system crashes. left intact.

3.6.11 S88sendmail

Starts up sendmail: left intact.

3.6.12 S88utmpd

Clears the list of currently logged in people. Left intact.

3.6.13 S89bdconfig

Configures certain graphics cards. No graphics on this machine: Removed.

3.6.14 S91leoconfig

Another graphic card. Removed.

3.6.15 S92rtvc-config

Another graphic card. Removed.

3.6.16 S92volmgt

Volume manager automounts CDroms and floppys, and may allow someone to introduce a setuid executable. Removed.

3.6.17 S93cacheos.finish

The cache FS is only used on network clients. Removed.

3.6.18 S99audit

Start system auditing tools. left intact.

3.7 `/etc/defaultrouter`

The IP address of the DMZ side of the firewall is used. In this case, it is `192.168.244.3`.

4 tungate: Firewall machine

The firewall was installed with Solaris, as usual. The Raptor Eagle software was then extracted from tape and installed. The latest set of patches from Raptor were downloaded from their web site and applied.

Raptor modifies a number of system files: only those modifications in addition to Raptor's are listed here.

4.1 Partitioning

Two 1Gb disks were available in this machine. A root, usr and var partitions were created. The /var partition was configured to occupy all of the second 1Gb disk.

```
tungate# df -k
Filesystem            kbytes    used   avail capacity  Mounted on
/dev/dsk/c0t3d0s0     123231   11906   99005    11%    /
/dev/dsk/c0t3d0s6     655062  137834  451728    24%    /usr
/proc                      0       0       0     0%    /proc
fd                         0       0       0     0%    /dev/fd
/dev/dsk/c0t1d0s3     963662   39479  827823     5%    /var
swap                  266224     212  266012     1%    /tmp
```

The `/opt` space is normally located in the root partition. It was moved to the `/usr` partition after the first boot with the following sequence of commands. (Do this before installing any additional components)

```
# cd /
# mkdir /usr/local
# (cd /opt; tar cf - . ) | (cd /usr/local; tar xvf - )
# mv /opt /opt1
# ln -s /usr/local /opt
# rm -r /opt1
```

4.2 BIND: Berkeley Internet Name Daemon (DNS)

The stock Solaris version of named was used. It could also be replaced with the BIND 8 version if desired. It was needed because `DNSd` can not permit zone transfers, which are needed for Newbridge to act as a secondary for Tundra public zone files.

4.2.1 `/etc/named.boot`

This is a the stock bind 4.9 configuration file. The configuration directory is set to `/etc/ns`, which should be created.

No forwarders should be used.

4.2.2 /etc/ns/named.ca

This file provides the DNS server with a list of root name servers.

4.2.3 /etc/ns/db.0.0.127.in-addr.arpa

The reverse map for the loopback addresses.

4.2.4 /etc/ns/db.tundra.com

The public zone file for the Tundra domain. This file will be retrieved by Newbridge to provide secondary DNS service.

4.2.5 /etc/ns/db.96.57.236.207.in-addr.arpa

The zone file for the `96/27.57.207.in-addr.arpa` domain. Note that `/` is not allowed in a filename. This is the reverse DNS zone file. For an explanation of how to do classless IN-ADDR.ARPA delegation, please see RFC 2317.

4.2.6 /etc/inet/hosts

This file must contain an entry for `tundmz`. Other entries are optional.

4.2.7 /etc/nsswitch.conf

This file should list only `files` types, except for the "hosts" entry, which should read:

```
hosts:      files [NOTFOUND=continue] dns
```

4.2.8 /etc/named.boot

This should be an empty file to signal the system to start the named process on startup. The system looks for this file since it expects BIND version 4 rather than BIND version 8.

4.2.9 /etc/resolv.conf

This should list the IP address of the internal DNS server (tunmail) as the one and only resolver. This causes the firewall to resolve names using the internal DNS, even as it provides DNS service for the public addresses.

4.3 /etc/rc2.d

No changes need to be done to this directory, as the Raptor installation disables all services that should be disabled.

4.4 `/etc/defaultrouter`

The IP address of the internet service provider router. Currently, this is `207.236.57.97`.

4.5 `/usr/adm/sg/config.cf`

This file is edited to set the `dnsd` service to `Disabled`.

4.6 `/usr/adm/sg/oldlogs`

This directory is removed. A new directory, `/var/raptor/oldlogs` is created, and a symbolic is used to point to this. This places all old logs on the auxiliary disk where there is more space.

4.7 `/etc/rc2.d/S70routes`

This file is added. It installs all the static routes that are required for the firewall operation. Currently this includes routes to: 138.120.102.0, 192.168.243.0, and 192.168.247.0.

When the 138.120.102/24 network is no longer in use, the route to it on the firewal should be removed. Due lack of variable subnet support, Solaris currently installs this as a route to 138.120/16, and thus the entire Newbridge network becomes reachable to the firewall. Firewall rules prevent the rest of Newbridge from suddendly using the Tundra firewall.

4.8 `/etc/inet/hosts`

The following hosts are defined in this file, and are used in other configuration files.

localhost the localhost, 127.0.0.1

tunmail the internal mail relay

tungate the internal interface on the firewall

dmzgate the DMZ interface on the firewall

tundmz the DMZ mail relay

bgsgate the router that leads to the Internet

tundra.com the public interface of the firewall (aka tunpub)

www.tundra.com the public IP address for the Web server

4.9 `/etc/inet/netmasks`

The 207.236.57 network must be listed as having a netmask of 255.255.255.224. The Raptor installation does this.

4.10 `/etc/inet/inetd.conf`

Raptor takes care of modifications to this file.

4.11 `/etc/hostname.hme3:1`

This file create the virtual IP address on the public interface for the web server. The file should should contain “www.tundra.com”

5 tundmz: DMZ Mail relay

The DMZ system serves as a mail relay: it isolates SMTP connections from going directly from the Internet and the internal mail server. It can also serve as a DNS server and a mail relay for any other DMZ located machines (i.e. web servers).

In the test configuration, the machine also has a web server installed on it for testing. The web server is configured to run with a virtual IP address to simulate having two different machines on the DMZ. When the real web server is installed, the virtual IP can be removed, and given to the real web server.

A subdomain, `dmz.tundra.com` is created so that web servers and the like can find a valid forward/reverse DNS mapping, yet not interfere with the public IP addresses that are redirected to them.

5.1 Partitioning

Two 1Gb disks were available in this machine. A root, usr, var and opt partitions were created. Root and usr were placed on the boot disk. The /var and /opt partitions were configured to occupy the second 1Gb disk. Approximately 700Mb was allocated to /var, and 300Mb to /opt.

```
tundmz-[/] 33 >df -k
Filesystem            kbytes    used   avail capacity  Mounted on
/dev/dsk/c0t3d0s0      30991   10322   17579    37%    /
/dev/dsk/c0t3d0s6     233615   86990  123265    42%    /usr
/proc                      0       0       0     0%    /proc
fd                         0       0       0     0%    /dev/fd
/dev/dsk/c0t1d0s7     737952  129555  534607    20%    /var
/dev/dsk/c0t1d0s6     384183   30291  315482     9%    /opt
swap                  224912      20  224892     1%    /tmp
```

5.2 BIND: Berkeley Internet Name Daemon (DNS)

The software should be extracted to `/opt/bind`. Site local configuration files are kept in `/opt/etc/ns`.

5.2.1 `/opt/etc/ns/named.conf`

This file contains the configuration for BIND version 8. Documentation for this can be found on `tunmail` in `/opt/src/bind8/doc/html/config.html`, and on the Internet at `http://www.isc.org/bind8/config.html`.

With Raptor Eagle 4.0, one must set the forwarders option to the IP address of the DMZ side of the firewall. Raptor Eagle 5.0 will not require this.

The configuration directory is set to `/opt/etc/ns`.

5.2.2 `/opt/etc/ns/RCS`

A directory to be used by ci/co. Please see section 2 on Revision Control System.

5.2.3 `/opt/etc/ns/root.cache`

This file provides the DNS server with a list of root name servers. They are never consulted when using Raptor Eagle 4.0, but the file must exist for BIND to start, and will be used with Raptor Eagle 5.0. A new version of this file can be generated by doing:

```
# dig . ns >root.cache
```

5.2.4 `/opt/etc/ns/db.dmz.tundra.com`

This file contains the forward zone file for the DMZ network. This file is duplicated on `tunmail` currently. Eagle 5.0 will permit `tunmail` to do a zone transfer to get this file.

This file should be revision controlled.

5.2.5 `/opt/etc/ns/db.246.168.192.in-addr.arpa`

This file contains the reverse zone file for the DMZ network. This file is duplicated on `tunmail` currently. Eagle 5.0 will permit `tunmail` to do a zone transfer to get this file.

This file should be revision controlled.

5.2.6 Symbolic links

Add the following links so that the system can find the software in standard places. In most cases, Solaris provides files by these names. They should be moved aside.

/etc/named.conf	→	/opt/etc/ns/named.conf
/usr/sbin/in.named	→	/opt/bind/sbin/in.named
/usr/sbin/ndc	→	/opt/bind/sbin/ndc
/usr/sbin/named	→	/opt/bind/bin/named
/usr/bin/nslookup	→	/opt/bind/bin/nslookup
/opt/bin/addr	→	/opt/bind/bin/addr
/opt/bin/dig	→	/opt/bind/bin/dig
/opt/bin/dnsquery	→	/opt/bind/bin/dnsquery
/opt/bin/host	→	/opt/bind/bin/host
/opt/bin/nsupdate	→	/opt/bind/bin/nsupdate

5.2.7 `/etc/inet/hosts`

This file must contain an entry for `tundmz`. Other entries are optional.

5.2.8 /etc/nsswitch.conf

This file should list only `files` types, except for the "hosts" entry, which should read:

```
hosts:      files [NOTFOUND=continue] dns
```

5.2.9 /etc/named.boot

This should be an empty file to signal the system to start the named process on startup. The system looks for this file since it expects BIND version 4 rather than BIND version 8.

5.2.10 /etc/resolv.conf

This should list the IP address of the local system as the resolver. It should list the domain as being `dmz.tundra.com`.

```
domain dmz.tundra.com
nameserver 192.168.246.2
```

5.3 Sendmail

The software should be extracted to `/opt/sendmail`. Site local configuration files are kept in `/opt/sendmail/etc`.

5.3.1 /opt/sendmail/etc/RCS

A directory to be used by ci/co. Please see section 2 on Revision Control System.

5.3.2 /opt/sendmail/etc/tundmz.cf

The standard sendmail configuration file. This file is created by m4 macros from `tundmz.mc` located on `tunmail` in `/opt/src/sendmail-8.8.8/cf/cf`. The command `make tundmz.cf` in that directory will create an updated version.

This file should *not* be edited, but this file should be placed under revision control.

5.3.3 /opt/sendmail/etc/spammers

A list of domains from which mail will not be accepted, usually because they are known spam sources.

This file should be placed under revision control.

`upd-map` must be run to update the database when changes are made.

5.3.4 `/opt/sendmail/etc/sendmail.cR`

A list of domains and hosts for which mail will be relayed. Email will not be accepted unless it is either destined to one of the domains listed in this file, or if it is being received via a connection from a host listed in this file.

On the DMZ mail relay, with Raptor 4.0, all connections appear to originate from the firewall, so the second check is not effective. Raptor 5.0 will permit the real source address to be visible, making the second test useful.

This file should be placed under revision control.

5.3.5 `/opt/sendmail/etc/aliases`

A list of aliases for the local machine. These aliases are used to forward any email generated locally to appropriate persons. In general, this is limited to cron job output for root.

This file should be placed under revision control.

`upd-map` must be run to update the database when changes are made.

5.3.6 `/opt/sendmail/etc/mailertable`

This file directs all email to the `tundra.com` domain to the internal mail server.

This file should be placed under revision control.

`upd-map` must be run to update the database when changes are made.

5.3.7 `/opt/sendmail/etc/upd-map`

This is a shell script. It is used to update all the database files in this directory.

5.3.8 Symbolic links

Add the following links so that the system can find the software in standard places. In most cases, Solaris provides files by these names. They should be moved aside.

/usr/lib/sendmail	→	/opt/sendmail/bin/sendmail
/opt/bin/makemap	→	/opt/sendmail/bin/makemap
/etc/mail/sendmail.cf	→	/opt/sendmail/etc/tundmz.cf
/etc/mail/aliases	→	/opt/sendmail/etc/aliases

5.4 Apache Web server

The Apache Web server was installed from the Axil supplement CDROM. This is done by using tar. It extracts into `/opt/APACHEhttpd`.

5.4.1 `/opt/APACHEhttpd/docs/index.html`

This file was updated to contain a test page.

5.4.2 /opt/APACHEhttpd/conf/httpd.conf

The file was edited. The `ServerAdmin` and `ServerName` fields were updated to contain valid data.

5.4.3 /etc/rc2.d/S89apache

This file was copied from /opt/APACHEhttpd/initapache.

5.4.4 /etc/hostname.le0:1

This file was created to install a virtual IP for the web server. The IP address that is to be added is placed in this file.

5.5 /etc/rc2.d

Numerous files were removed from the `/etc/rc2.d` directory to prevent the system from starting up unnecessary daemons. Should these files be needed again, copies are available in `/etc/init.d`.

5.5.1 S01MOUNTFSYS

Mount system files. Leave intact.

5.5.2 S05RMTMPFILES

Clean out the `/tmp` directory. Leave intact.

5.5.3 S20sysetup

Configure the system if necessary. Leave intact.

5.5.4 S21perf

Start system performance monitoring. Unecessary: removed.

5.5.5 S30sysid.net

Sets hostname. Leave intact.

5.5.6 S47asppp

Starts PPP. No PPP desired: removed.

5.5.7 S69inet

Configures network interfaces and starts services. Leave intact.

5.5.8 S70uucp

UUCP subsystem: removed.

5.5.9 S71rpc

Remote Procedure Call subsystem: removed.

5.5.10 S71sysid.sys

Performs additional configuration if necessary. Leave intact.

5.5.11 S72autoinstall

Installs software automatically from CD: Removed.

5.5.12 S72inetsvc

Starts up other Internet services. Last line starts `/usr/sbin/inetd` has been commented out. This disables most TCP and UDP services. If telnet or FTP is needed, then inetd must be enabled again.

5.5.13 S73nfs.client

Starts up NFS clients: removed.

5.5.14 S74syslog

Starts up logging service. Leave intact.

5.5.15 S75cron

Starts up cron service. Leave intact.

5.5.16 S76nscd

Name Service Caching Daemon. Used primarily with NIS/NIS+: removed.

5.5.17 S80PRESERVE

Saves VI files when the system crashes. Leave intact.

5.5.18 S88sendmail

Starts up sendmail. The stock Sun version checks to see if `/var/mail` is NFS mounted, and complains if certain options aren't set. Remove these checks, as NFS should never be active, and we don't deliver locally anyway.

5.5.19 S88utmpd

Clears the list of currently logged in people. Leave intact.

5.5.20 S89bdconfig

Configures certain graphics cards. No graphics on this machine: Removed.

5.5.21 S91leoconfig

Another graphic card. Removed.

5.5.22 S92rtvc-config

Another graphic card. Removed.

5.5.23 S92volmgt

Volume manager automounts CDroms and floppys, and may allow someone to introduce a setuid executable. Removed.

5.5.24 S93cacheos.finish

The cache FS is only used on network clients. Removed.

5.5.25 S89apache

See section 5.4 on Apache.

5.5.26 S99audit

Start system auditing tools. Leave intact.

5.6 `/etc/defaultrouter`

The IP address of the DMZ side of the firewall is used. In this case, it is `192.168.246.1`.