

## SYSTEM INFORMATION

### Hostname

### Internet (IP) address

### Ethernet address

### Hub and port numbers

### Emergency contact person

### Boot command

### Disk partitions, tape drives, etc.

# UNIX<sup>®</sup> SYSTEM ADMINISTRATION HANDBOOK

SECOND EDITION

A Prentice Hall book by Evi Nemeth, Garth Snyder, Scott Seebass, and Trent R. Hein. ISBN 0-13-151051-7

Information and on-line orders: <http://www.admin.com/>

## COMMON COMMAND EXAMPLES

```
ifconfig plumb # Solaris: probe for network interfaces
ifconfig lo0 127.0.0.1 up # Loopback interface
ifconfig en0 inet 128.130.240.1 up netmask
0xFFFFF00 broadcast 128.130.240.255
```

```
route add net 128.130.138.0 128.130.240.12 1
route add default 128.130.240.12 1
# BSD/OS and OSF/1 use -net and -host and no metric
route add -net 128.130.138.0 128.130.240.12
route add default 128.130.240.12
```

```
netstat -rn # Routing table (numeric addresses)
netstat -I en0 5 # Monitor en0 at 5-second intervals
netstat -in # Interfaces (numeric addresses)
```

```
dump 0uf /dev/nrst0 /users # Level 0 dump
dump 0f - /usr | (cd /mnt; restore rvf -) # Copy
```

```
tar cf - /from | (cd todir; tar xvfp -) # Copy dir
```

```
# Find object files larger than 1MB not accessed in a year
find /users -type f -name "*.o" -size +1048576c
-atime +365 -print
```

```
# List all C source files sorted by number of lines
find . -name "*.c" -exec wc -l {} \; | sort -nr
# A more efficient version
```

```
find . -name "*.c" -print | xargs wc -l | sort -nr
```

```
# Run in daemon mode, process queue every 30 min
sendmail -bd -q30m
```

```
# Run in address test mode with a new config file
sendmail -bt -C/etc/sendmail.cf.new
```

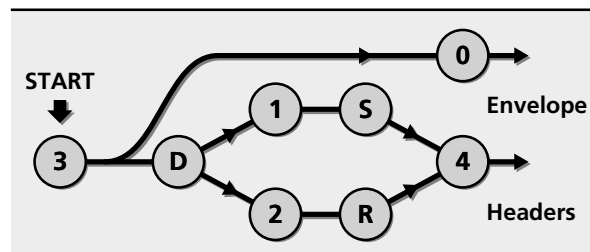
```
ps -axu # User-oriented output in BSD (slow)
```

```
ps -axl # Technical output in BSD (fast)
```

```
ps -ef # User-oriented output in System V
```

```
ps -efl # Technical output in System V
```

## SENDMAIL RULESET ORDER



## TOKENS USED IN SENDMAIL.CF

Token	Debug	Meaning
\$@		Match zero tokens (V8 only)
\$-	^R	Match exactly one token
\$+	^Q	Match one or more tokens
\$*	^P	Match zero or more tokens
\$X		Match value of macro variable X
\$&X		Match value of X at run time
\$=X	^SX	Match any token in class X
\$~X	^TX	Match any token not in class X

The Debug column shows the tokens as they will be printed by `sendmail` in address test mode (`sendmail -bt`).

## DNS RECORD TYPES

Type	Syntax
SOA	zone [ttl] IN SOA primary admin serial refresh retry expire min
NS	zone [ttl] IN NS host
A	hostname [ttl] IN A ipaddr
PTR	ipaddr [ttl] IN PTR hostname
MX	hostname [ttl] IN MX pref host ...
CNAME	nickname [ttl] IN CNAME hostname
RP	hostname [ttl] IN RP admin txt
TXT	name [ttl] IN TXT text ...

In SOA, *primary* is the IP address of the primary name server, and *admin* is the email address of the administrator with the @ replaced by a period.

The last four values are timeouts in seconds. Secondaries check in every *refresh* seconds; if the primary cannot be contacted, the secondaries try again every *retry* seconds. After *expire* seconds, a secondary will stop trying. *min* is the default time-to-live (ttl) for all records.

We suggest the following values:

<i>refresh</i>	21600	(6 hours)
<i>retry</i>	1800	(30 minutes)
<i>expire</i>	1209600	(2 weeks)
<i>min</i>	432000	(5 days)

In RP, *admin* is the administrator's email address (similarly encoded), and *txt* is the *name* of a TXT record (or set of TXT records) that contains further information.

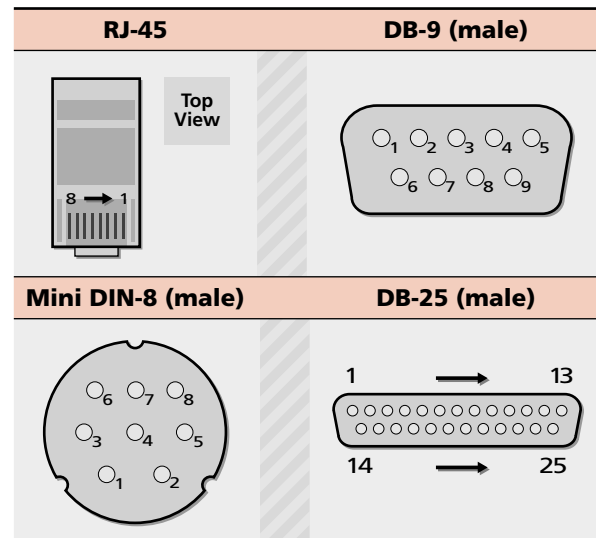
Remember to update the SOA's *serial* field whenever you modify a zone's configuration files.

## SUGGESTED HARDWARE VENDORS

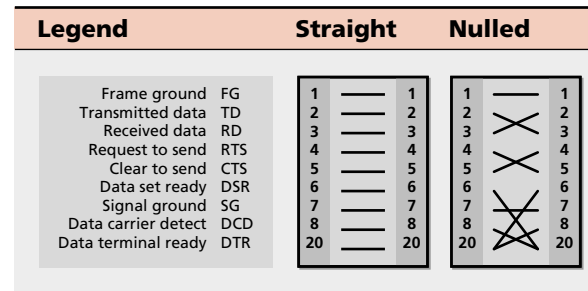
This is a table of network hardware vendors that we still trust, recommend, and use ourselves today. We have no association or connection with any of these vendors.

Vendor	State	Telephone
<b>Cables and connectors</b>		
AMP	PA	(800) 522-6752
Anixter	IL	(708) 677-2600
Belden Cable	IN	(319) 983-5200
Black Box Corporation	PA	(412) 746-5500
Krone	CO	(800) 992-9901
Lan-Tech	CO	(303) 695-9473
Newark Electronics	IL	(312) 784-5100
The Siemon Company	CT	(203) 274-2523
<b>Test equipment</b>		
Fluke	WA	(800) 323-5700
The Siemon Company	CT	(203) 274-2523
Wavetek	CA	(800) 854-2708
<b>Repeaters and hubs</b>		
Allied Telesis	CA	(415) 964-2771
Cabletron	NH	(603) 332-9400
<b>Routers</b>		
Cisco Systems	CA	(415) 326-1941

## PINOUTS FOR SERIAL CONNECTORS



## DB-25 TO DB-25 RS-232 CONNECTIONS



## MINI DIN-8/DB-9 STRAIGHT CABLES

DIN-8	DB-9	DB-25	Signal and function
3	2	2	TD Transmitted data
5	3	3	RD Received data
6	8	4	RTS Request to send
2	7	5	CTS Clear to send
-	6	6	DSR Data set ready
4,8	5	7	SG Signal ground
7	4	8	DCD Data carrier detect
1	1	20	DTR Data terminal ready

## FOUR-PAIR UTP WIRING FOR RJ-45

Pair	Colors	Wired to	Diagram
1	White/Blue	Pins 4/5	
2	White/Orange	Pins 3/6	
3	White/Green	Pins 1/2	
4	White/Brown	Pins 7/8	

a. This scheme reflects the TIA/EIA-568A standard.

## DISK BLOCK SIZES

System	du	df	quot
Solaris 2.4	512 <sup>a</sup>	512 <sup>a</sup>	1024
HP-UX 9.0	1024	1024	2048 <sup>b</sup>
IRIX 5.2	512 <sup>a</sup>	512 <sup>a</sup>	1024
SunOS 4.1.3	1024	1024	1024
DEC's OSF/1 2.0	512 <sup>a</sup>	512 <sup>a</sup>	1024
BSD/OS 2.0	512 <sup>c</sup>	1024	-

a. You can get 1K blocks with the **-k** option.

b. True only with **quot -h**.

c. Uses environment variable **BLOCKSIZE**, if defined.

## CONTROLLING RUNNING PROCESSES

Proc	Operation	Command
<b>cron</b>	Reread <b>crontab</b> (BSD)	<b>kill -HUP pid</b>
<b>gated</b>	Reread config file	<b>kill -HUP pid</b>
	Dump current state	<b>kill -INT pid</b>
	Graceful shutdown	<b>kill -TERM pid</b>
	Toggle tracing	<b>kill -USR1 pid</b>
	Check net interfaces	<b>kill -USR2 pid</b>
<b>inetd</b>	Reread config file	<b>kill -HUP pid</b>
<b>init</b>	Go to single-user mode	<b>kill -TERM 1</b>
(BSD)	Reread terminal config	<b>kill -HUP 1</b>
<b>init</b>	Go to single-user mode	<b>telinit S</b>
(Sys V)	Change run level	<b>telinit level</b>
	Reread <b>inittab</b> file	<b>telinit -q</b>
<b>named</b>	Reread config files	<b>kill -HUP pid</b>
	Dump DB and cache	<b>kill -INT pid</b>
	Dump stats	<b>kill -IOT pid</b>
	Dump stats (some OSs)	<b>kill -ABRT pid</b>
	Dump database files	<b>kill -TERM pid</b>
	Increment debug level	<b>kill -USR1 pid</b>
	Turn off debugging	<b>kill -USR2 pid</b>
	Toggle query logging	<b>kill -WINCH pid</b>

## USEFUL INTERNET SITES

Category	URL
<b>Software</b>	<a href="ftp://ftp.uu.net/">ftp://ftp.uu.net/</a> <a href="ftp://wuarchive.wustl.edu/">ftp://wuarchive.wustl.edu/</a> <a href="ftp://gatekeeper.dec.com/">ftp://gatekeeper.dec.com/</a>
<b>Sysadmin</b>	<a href="http://www.usenix.org/">http://www.usenix.org/</a> <a href="http://www.ora.com/">http://www.ora.com/</a>
<b>Banking</b>	<a href="http://www.wellsfargo.com/">http://www.wellsfargo.com/</a> <a href="http://www.mastercard.com/">http://www.mastercard.com/</a> <a href="http://www.bofa.com/">http://www.bofa.com/</a>
<b>Consumer goods</b>	<a href="http://www.internet.net/">http://www.internet.net/</a> <a href="http://internet-plaza.net/">http://internet-plaza.net/</a> <a href="http://www.hot.presence.com/">http://www.hot.presence.com/</a> <a href="http://www.cdnw.com/">http://www.cdnw.com/</a>
<b>Travel</b>	<a href="http://www.goalamo.com/">http://www.goalamo.com/</a> <a href="http://www.vegas.com/">http://www.vegas.com/</a> <a href="http://www.travelweb.com/">http://www.travelweb.com/</a>
<b>Shipping</b>	<a href="http://www.ups.com/">http://www.ups.com/</a> <a href="http://www.fedex.com/">http://www.fedex.com/</a>
<b>Government</b>	<a href="http://www.odci.gov/">http://www.odci.gov/</a> <a href="http://www.uspto.gov/">http://www.uspto.gov/</a>
<b>Weather</b>	<a href="http://cirrus.sprl.umich.edu/wxnet/">http://cirrus.sprl.umich.edu/wxnet/</a>