

CRON QUICK REFERENCE

Job scheduling, crontab syntax, special strings, logging

Syntax

Crontab Format

```
# ┌── minute (0-59)
# │ ┌── hour (0-23)
# │ │ ┌── day of month (1-31)
# │ │ │ ┌── month (1-12)
# │ │ │ │ ┌── day of week (0-7, 0&7=Sun)
# │ │ │ │ │ └── command
```

Field Values

- *** Any value (wildcard)
- _** Value list: 1,3,5
- Range: 1-5
- /** Step: */10 (every 10)
- 0-59** Minutes range
- 0-23** Hours range
- 1-31** Day of month range
- 1-12** Month range (or JAN-DEC)
- 0-7** Day of week (0&7=Sun, or SUN-SAT)

Special Strings

Shorthand Schedules

- @reboot** Run once at startup
- @yearly** `0 0 1 1 *` — once a year (Jan 1)
- @monthly** `0 0 1 * *` — once a month (1st)
- @weekly** `0 0 * * 0` — once a week (Sunday)
- @daily** `0 0 * * *` — once a day (midnight)
- @hourly** `0 * * * *` — once an hour

Examples

Common Schedules

```
30 2 * * * /usr/local/bin/backup.sh
0 9 * * 1-5 /opt/report.sh
*/15 * * * * /usr/bin/health-check.sh
0 0 1 * * /opt/monthly-cleanup.sh
0 8,17 * * * /opt/notify.sh
```

Schedule Breakdown

- 30 2 * * *** Daily at 2:30 AM
- 0 9 * * 1-5** Weekdays at 9:00 AM
- */15 * * * *** Every 15 minutes
- 0 0 1 * *** First day of month, midnight
- 0 8,17 * * *** Daily at 8 AM and 5 PM

Environment

Setting Variables

```
SHELL=/bin/bash
PATH=/usr/local/bin:/usr/bin:/bin
MAILTO=admin@example.com
HOME=/home/deploy
* * * * * /opt/myjob.sh
```

Environment Notes

- SHELL** Shell used to run commands (default `/bin/sh`)
- PATH** Search path (cron default is minimal)
- MAILTO** Email output to this address (empty = no mail)
- HOME** Home directory for the cron job

Logging

Output & Logging

```
# redirect stdout + stderr to a log file
*/5 * * * * /opt/job.sh >> /var/log/job.log 2>&1
# discard all output
0 3 * * * /opt/job.sh > /dev/null 2>&1
# log only errors
0 3 * * * /opt/job.sh > /dev/null 2>> /var/log/job-err.log
```

Viewing Cron Logs

```
# Debian / Ubuntu (syslog)
grep CRON /var/log/syslog
# RHEL / CentOS
cat /var/log/cron
# journalctl (systemd)
journalctl -u cron --since "1 hour ago"
```

Common Schedules

Everyday Patterns

- 0 * * * *** Every hour on the hour
- */5 * * * *** Every 5 minutes
- */30 * * * *** Every 30 minutes
- 0 0 * * *** Daily at midnight
- 0 6 * * 1** Every Monday at 6 AM
- 0 0 1,15 * *** 1st and 15th of month
- 0 0 * * 5** Every Friday at midnight
- 0 0 1 1 *** Every January 1st

crontab Commands

Managing Crontabs

```
crontab -e # edit your crontab
crontab -l # list your crontab
crontab -r # remove your crontab
crontab -u alice -l # list another user's (root)
crontab /path/to/file # install crontab from file
```

System Crontab Locations

- /etc/crontab** System-wide crontab (has user field)
- /etc/cron.d/** Drop-in cron files
- /etc/cron.daily/** Scripts run daily
- /etc/cron.hourly/** Scripts run hourly
- /etc/cron.weekly/** Scripts run weekly
- /etc/cron.monthly/** Scripts run monthly
- /var/spool/cron/** Per-user crontab storage

Tips

Best Practices

- Use absolute paths** Cron PATH is minimal; always use full paths

- Redirect output** Avoid mail floods with `> /dev/null 2>&1``
- Lock files** Use `flock`` to prevent overlapping runs
- Test first** Run the command manually before scheduling
- Use MAILTO** Set `MAILTO=""`` to suppress all email
- Check timezone** Cron uses system time; verify with `date``

Preventing Overlap with flock

```
# only run if not already running
* * * * * /usr/bin/flock -n /tmp/job.lock /opt/job.sh
```