NAME
at, **batch**, **atq**, **atrm** - queue, examine or delete jobs for later execution

SYNOPSIS
at [**-q** *queue*] [**-f** *file*] [**-mldbv**] *time*
at [**-q** *queue*] [**-f** *file*] [**-mldbv**] **-t** [[*CC*]*YY*]*MMDDhhmm*[*.SS*]
at -c *job* [*job ...*]
at -l [*job ...*]
at -l -q *queue*
at -r *job* [*job ...*]

atq [**-q** *queue*] [**-v**]

atrm *job* [*job ...*]

batch [**-q** *queue*] [**-f** *file*] [**-mv**] [*time*]

DESCRIPTION
The **at** and **batch** utilities read commands from standard input or a specified file which are to be executed at a later time, using sh(1).

at   executes commands at a specified time;

atq   lists the user's pending jobs, unless the user is the superuser; in that case, everybody's jobs are listed;

atrm   deletes jobs;

batch executes commands when system load levels permit; in other words, when the load average drops below 1.5 times number of active CPUs, or the value specified in the invocation of **atrun**.

The **at** utility allows some moderately complex *time* specifications. It accepts times of the form *HHMM* or *HH:MM* to run a job at a specific time of day. (If that time is already past, the next day is assumed.) As an alternative, the following keywords may be specified: **midnight**, **noon**, or **teatime** (4pm) and time-of-day may be suffixed with **AM** or **PM** for running in the morning or the evening. The day on which the job is to be run may also be specified by giving a date in the form *month-name day* with an optional *year*, or giving a date of the forms *DD.MM.YYYY*, *DD.MM.YY*, *MM/DD/YYYY*, *MM/DD/YY*, *MMDDYYYY*, or *MMDDYY*. The specification of a date must follow the specification of the time of day. Time can also be specified as: [**now**] + *count time-units*, where the time-units can be **minutes**, **hours**, **days**, **weeks**, **months** or **years** and **at** may be told to run the job today by suffixing the time with

today and to run the job tomorrow by suffixing the time with **tomorrow**.

The **at** utility also supports the POSIX time format (see **-t** option).

For both **at** and **batch**, commands are read from standard input or the file specified with the **-f** option and executed. The working directory, the environment (except for the variables TERM, TERMCAP, DISPLAY and _) and the *umask* are retained from the time of invocation. An **at** or **batch** command invoked from a su(1) shell will retain the current userid. The user will be mailed standard error and standard output from his commands, if any. Mail will be sent using the command sendmail(8). If **at** is executed from a su(1) shell, the owner of the login shell will receive the mail.

The superuser may use these commands in any case. For other users, permission to use **at** is determined by the files */var/at/at.allow* and */var/at/at.deny*.

If the file */var/at/at.allow* exists, only usernames mentioned in it are allowed to use **at**. In these two files, a user is considered to be listed only if the user name has no blank or other characters before it on its line and a newline character immediately after the name, even at the end of the file. Other lines are ignored and may be used for comments.

If */var/at/at.allow* does not exist, */var/at/at.deny* is checked, every username not mentioned in it is then allowed to use **at**.

If neither exists, only the superuser is allowed use of **at**. This is the default configuration.

IMPLEMENTATION NOTES

Note that **at** is implemented through the cron(8) daemon by calling atrun(8) every five minutes. This implies that the granularity of **at** might not be optimal for every deployment. If a finer granularity is desired, the */etc/cron.d/at* file can be edited and will be read by the system crontab, from which the SHELL and PATH environment variables are inherited.

OPTIONS

-q *queue*

Use the specified queue. A queue designation consists of a single letter; valid queue designations range from *a* to *z* and *A* to *Z*. The *c* queue is the default for **at** and the *E* queue for **batch**. Queues with higher letters run with increased niceness. If a job is submitted to a queue designated with an uppercase letter, it is treated as if it had been submitted to batch at that time. If **atq** is given a specific queue, it will only show jobs pending in that queue.

-m   Send mail to the user when the job has completed even if there was no output.

-f *file* Read the job from *file* rather than standard input.

-l   With no arguments, list all jobs for the invoking user. If one or more job numbers are given, list only those jobs.

-d   Is an alias for **atrm** (this option is deprecated; use **-r** instead).

-b   Is an alias for **batch**.

-v   For **atq**, shows completed but not yet deleted jobs in the queue; otherwise shows the time the job will be executed.

-c   Cat the jobs listed on the command line to standard output.

-r   Remove the specified jobs.

-t   Specify the job time using the POSIX time format. The argument should be in the form [[*CC*]*YY*]*MMDDhhmm*[.*SS*] where each pair of letters represents the following:

        CC   The first two digits of the year (the century).
        YY   The second two digits of the year.
        MM The month of the year, from 1 to 12.
        DD   the day of the month, from 1 to 31.
        hh   The hour of the day, from 0 to 23.
        mm The minute of the hour, from 0 to 59.
        SS   The second of the minute, from 0 to 60.

      If the *CC* and *YY* letter pairs are not specified, the values default to the current year. If the *SS* letter pair is not specified, the value defaults to 0.

FILES

/var/at/jobs   directory containing job files
/var/at/spool   directory containing output spool files
/var/run/utx.active   login records
/var/at/at.allow   allow permission control
/var/at/at.deny   deny permission control
/var/at/jobs/.lockfile job-creation lock file

EXAMPLES

To run a job at 4pm three days from now, use:

at 4pm + 3 days

To run a job at 10:00am on July 31, use:

at 10am Jul 31

To run a job at 1am tomorrow, use:

at 1am tomorrow

SEE ALSO

nice(1), sh(1), umask(2), atrun(8), cron(8), sendmail(8)

AUTHORS

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BUGS

If the file */var/run/utx.active* is not available or corrupted, or if the user is not logged on at the time **at** is invoked, the mail is sent to the userid found in the environment variable LOGNAME. If that is undefined or empty, the current userid is assumed.

The **at** and **batch** utilities as presently implemented are not suitable when users are competing for resources. If this is the case, another batch system such as *nqs* may be more suitable.

Specifying a date past 2038 may not work on some systems.