## NAME

zic − timezone compiler

## SYNOPSIS

**zic** [**−v**] [**−d** *directory*] [**−l** *localtime*] [**−p** *posixrules*]
[**−L** *leapsecondfilename*] [**−s**] [**−y** *command*] [*filename*...]

## DESCRIPTION

The **zic** program reads text from the file(s) named on the command line and creates the time conversion information files specified in this input. If a *filename* is **−**, standard input is read.

These options are available:

**−d** *directory*
Create time conversion information files in the named directory rather than in the standard directory named below.

**−l** *timezone*
Use the given timezone as local time. **zic** will act as if the input contained a link line of the form

Link *timezone* localtime

**−p** *timezone*
Use the given timezone's rules when handling POSIX-format timezone environment variables. **zic** will act as if the input contained a link line of the form

Link *timezone* posixrules

**−L** *leapsecondfilename*
Read leap second information from the file with the given name. If this option is not used, no leap second information appears in output files.

**−v** Complain if a year that appears in a data file is outside the range of years representable by time(2) values.

**−s** Limit time values stored in output files to values that are the same whether they're taken to be signed or unsigned. You can use this option to generate SVVS-compatible files.

**−y** *command*
Use the given *command* rather than **yearistype** when checking year types (see below).

Input lines are made up of fields. Fields are separated from one another by any number of white space characters. Leading and trailing white space on input lines is ignored. An unquoted sharp character (#) in the input introduces a comment which extends to the end of the line the sharp character appears on. White space characters and sharp characters may be enclosed in double quotes (") if they're to be used as part of a field. Any line that is blank (after comment stripping) is ignored. Nonblank lines are expected to be of one of three types: rule lines, zone lines, and link lines.

A rule line has the form

Rule NAME FROM TO TYPE IN ON AT SAVE LETTER/S

For example:

Rule US 1967 1973 − Apr lastSun 2:00 1:00 D

The fields that make up a rule line are:

**NAME** Gives the (arbitrary) name of the set of rules this rule is part of.

**FROM** Gives the first year in which the rule applies. Any integer year can be supplied; the Gregorian calendar is assumed. The word *minimum* (or an abbreviation) means the minimum year representable as an integer. The word *maximum* (or an abbreviation) means the maximum year representable as an integer. Rules can describe times that are not representable as time values, with the unrepresentable times ignored; this allows rules to be portable among hosts with differing time value types.

**TO** Gives the final year in which the rule applies. In addition to *minimum* and *maximum* (as above), the word *only* (or an abbreviation) may be used to repeat the value of the **FROM** field.

**TYPE** Gives the type of year in which the rule applies. If **TYPE** is **–**, then the rule applies in all years between **FROM** and **TO** inclusive. If **TYPE** is something else, then *zic* executes the command

**yearistype** *year type*

to check the type of a year: an exit status of zero is taken to mean that the year is of the given type; an exit status of one is taken to mean that the year is not of the given type.

**IN** Names the month in which the rule takes effect. Month names may be abbreviated.

**ON** Gives the day on which the rule takes effect. Recognized forms include:

| | |
|---|---|
| 5 | the fifth of the month |
| lastSun | the last Sunday in the month |
| lastMon | the last Monday in the month |
| Sun>=8 | first Sunday on or after the eighth |
| Sun<=25 | last Sunday on or before the 25th |

Names of days of the week may be abbreviated or spelled out in full. Note that there must be no spaces within the **ON** field.

**AT** Gives the time of day at which the rule takes effect. Recognized forms include:

| | |
|---|---|
| 2 | time in hours |
| 2:00 | time in hours and minutes |
| 15:00 | 24-hour format time (for times after noon) |
| 1:28:14 | time in hours, minutes, and seconds |
| – | equivalent to 0 |

where hour 0 is midnight at the start of the day, and hour 24 is midnight at the end of the day. Any of these forms may be followed by the letter *w* if the given time is local ''wall clock'' time, *s* if the given time is local ''standard'' time, or *u* (or *g* or *z*) if the given time is universal time; in the absence of an indicator, wall clock time is assumed.

**SAVE** Gives the amount of time to be added to local standard time when the rule is in effect. This field has the same format as the **AT** field (although, of course, the *w* and *s* suffixes are not used).

**LETTER/S**

Gives the ''variable part'' (for example, the ''S'' or ''D'' in ''EST'' or ''EDT'') of timezone abbreviations to be used when this rule is in effect. If this field is **–**, the variable part is null.

A zone line has the form

| Zone | NAME | UTCOFF | RULES/SAVE | FORMAT | [UNTIL] |
|---|---|---|---|---|---|

For example:

| Zone | Australia/Adelaide | 9:30 | Aus | CST | 1971 Oct 31 2:00 |
|---|---|---|---|---|---|

The fields that make up a zone line are:

**NAME** The name of the timezone. This is the name used in creating the time conversion information file for the zone.

**UTCOFF**

The amount of time to add to UTC to get standard time in this zone. This field has the same format as the **AT** and **SAVE** fields of rule lines; begin the field with a minus sign if time must be subtracted from UTC.

**RULES/SAVE**

The name of the rule(s) that apply in the timezone or, alternately, an amount of time to add to local standard time. If this field is **–**, then standard time always applies in the timezone.

**FORMAT**

The format for timezone abbreviations in this timezone. The pair of characters **%s** is used to show where the ‘‘variable part’’ of the timezone abbreviation goes. Alternately, a slash (/) separates standard and daylight abbreviations.

**UNTIL** The time at which the UTC offset or the rule(s) change for a location. It is specified as a year, a month, a day, and a time of day. If this is specified, the timezone information is generated from the given UTC offset and rule change until the time specified. The month, day, and time of day have the same format as the IN, ON, and AT columns of a rule; trailing columns can be omitted, and default to the earliest possible value for the missing columns.

The next line must be a ‘‘continuation’’ line; this has the same form as a zone line except that the string ‘‘Zone’’ and the name are omitted, as the continuation line will place information starting at the time specified as the **UNTIL** field in the previous line in the file used by the previous line. Continuation lines may contain an **UNTIL** field, just as zone lines do, indicating that the next line is a further continuation.

A link line has the form

```
Link  LINK-FROM      LINK-TO
```

For example:

```
Link  Europe/Istanbul  Asia/Istanbul
```

The **LINK-FROM** field should appear as the **NAME** field in some zone line; the **LINK-TO** field is used as an alternate name for that zone.

Except for continuation lines, lines may appear in any order in the input.

Lines in the file that describes leap seconds have the following form:

```
Leap  YEAR  MONTH  DAY  HH:MM:SS  CORR  R/S
```

For example:

```
Leap  1974  Dec    31   23:59:60  +     S
```

The **YEAR**, **MONTH**, **DAY**, and **HH:MM:SS** fields tell when the leap second happened. The **CORR** field should be ‘‘+’’ if a second was added or ‘‘-’’ if a second was skipped. The **R/S** field should be (an abbreviation of) ‘‘Stationary’’ if the leap second time given by the other fields should be interpreted as UTC or (an abbreviation of) ‘‘Rolling’’ if the leap second time given by the other fields should be interpreted as local wall clock time.

## FILES

*/usr/local/etc/zoneinfo*

Standard directory used for created files.

## NOTES

For areas with more than two types of local time, you may need to use local standard time in the **AT** field of the earliest transition time’s rule to ensure that the earliest transition time recorded in the compiled file is correct.

## SEE ALSO

tzfile(5), zdump(8)

## COLOPHON

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