

**NAME**

rcsfile – format of RCS file

**DESCRIPTION**

An RCS file's contents are described by the grammar below.

The text is free format: space, backspace, tab, newline, vertical tab, form feed, and carriage return (collectively, *white space*) have no significance except in strings. However, white space cannot appear within an id, num, or sym, and an RCS file must end with a newline.

Strings are enclosed by @. If a string contains a @, it must be doubled; otherwise, strings can contain arbitrary binary data.

The meta syntax uses the following conventions: '|' (bar) separates alternatives; '{' and '}' enclose optional phrases; '{' and '\*}' enclose phrases that can be repeated zero or more times; '{' and '+}' enclose phrases that must appear at least once and can be repeated; Terminal symbols are in **boldface**; nonterminal symbols are in *italics*.

```

rcstext    ::= admin {delta}* desc {deltatext}*

admin      ::= head      {num};
              { branch   {num}; }
              access     {id}*;
              symbols     {sym : num}*;
              locks       {id : num}*; {strict ;}
              { comment   {string}; }
              { expand     {string}; }
              { newphrase }*

delta      ::= num
              date        num;
              author      id;
              state        {id};
              branches     {num}*;
              next          {num};
              { newphrase }*

desc       ::= desc       string

deltatext  ::= num
              log          string
              { newphrase }*
              text          string

num        ::= {digit | .}+

digit      ::= 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

id         ::= {num} idchar {idchar | num}*

sym        ::= {digit}* idchar {idchar | digit}*

idchar     ::= any visible graphic character except special

special    ::= $ | , | . | : | ; | @

string     ::= @{any character, with @ doubled}*@

newphrase  ::= id word* ;

word       ::= id | num | string | :
```

Identifiers are case sensitive. Keywords are in lower case only. The sets of keywords and identifiers can overlap. In most environments RCS uses the ISO 8859/1 encoding: visible graphic characters are codes 041–176 and 240–377, and white space characters are codes 010–015 and 040.

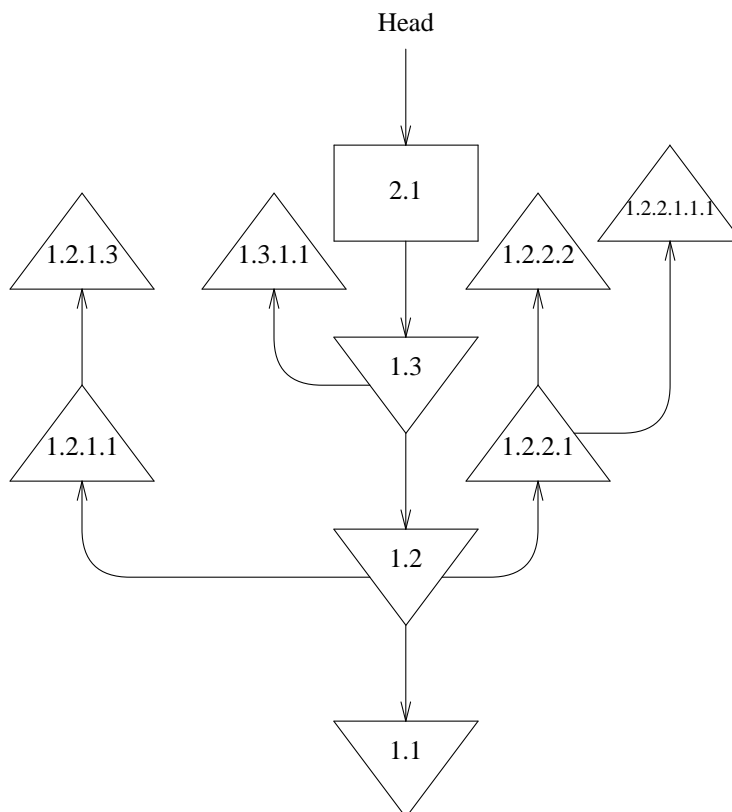
Dates, which appear after the **date** keyword, are of the form *Y.mm.dd.hh.mm.ss*, where *Y* is the year, *mm* the month (01–12), *dd* the day (01–31), *hh* the hour (00–23), *mm* the minute (00–59), and *ss* the second (00–60). *Y* contains just the last two digits of the year for years from 1900 through 1999, and all the digits of years thereafter. Dates use the Gregorian calendar; times use UTC.

The *newphrase* productions in the grammar are reserved for future extensions to the format of RCS files. No *newphrase* will begin with any keyword already in use.

The *delta* nodes form a tree. All nodes whose numbers consist of a single pair (e.g., 2.3, 2.1, 1.3, etc.) are on the trunk, and are linked through the **next** field in order of decreasing numbers. The **head** field in the *admin* node points to the head of that sequence (i.e., contains the highest pair). The **branch** node in the *admin* node indicates the default branch (or revision) for most RCS operations. If empty, the default branch is the highest branch on the trunk.

All *delta* nodes whose numbers consist of  $2n$  fields ( $n \geq 2$ ) (e.g., 3.1.1.1, 2.1.2.2, etc.) are linked as follows. All nodes whose first  $2n-1$  number fields are identical are linked through the **next** field in order of increasing numbers. For each such sequence, the *delta* node whose number is identical to the first  $2n-2$  number fields of the deltas on that sequence is called the branchpoint. The **branches** field of a node contains a list of the numbers of the first nodes of all sequences for which it is a branchpoint. This list is ordered in increasing numbers.

The following diagram shows an example of an RCS file's organization.



## IDENTIFICATION

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**SEE ALSO**

rcsintro(1), ci(1), co(1), ident(1), rcs(1), rcsclean(1), rcsdiff(1), rcsmerge(1), rlog(1)

Walter F. Tichy, RCS—A System for Version Control, *Software—Practice & Experience* **15**, 7 (July 1985), 637-654.