rename group — Rename groups of variables

Description

rename changes the names of existing variables to the new names specified. See [D] rename for the base rename syntax. Documented here is the advanced syntax for renaming groups of variables.

Quick start

Change the name of v1 to var1 and v2 to var2
rename (v1 v2) (var1 var2)

Change the name of V1 to v1 and V2 to v2
rename V1 V2, lower

Add suffix old to variables v1, v2, ... for one or more digits
rename v#,=old

Remove suffix old from all variables ending in old
rename *old  *

Remove prefix old from all variables beginning with old
rename old*  *

Note: A complete list of rules for renaming groups of variables appears below the syntax diagram.

Menu

Data > Data utilities > Rename groups of variables
**Syntax**

Rename a single variable

```
rename old new [, options1]
```

Rename groups of variables

```
rename (old1 old2 ...) (new1 new2 ...) [, options1]
```

Change the case of groups of variable names

```
rename old1 old2 ..., {upper|lower|proper} [options2]
```

where `old` and `new` specify the existing and the new variable names. The rules for specifying them are

1. `rename stat status`: Renames `stat` to `status`.
   
   Rule 1: This is the same `rename` command documented in [D] `rename`, with which you are familiar.

2. `rename (stat inc) (status income)`: Renames `stat` to `status` and `inc` to `income`.
   
   Rule 2: Use parentheses to specify multiple variables for `old` and `new`.

3. `rename (v1 v2) (v2 v1)`: Swaps `v1` and `v2`.
   
   Rule 3: Variable names may be interchanged.

4. `rename (a b c) (b c a)`: Swaps names. Renames `a` to `b`, `b` to `c`, and `c` to `a`.
   
   Rule 4: There is no limit to how many names may be interchanged.

5. `rename (a b c) (c b a)`: Renames `a` to `c` and `c` to `a`, but leaves `b` as is.
   
   Rule 5: Renaming variables to themselves is allowed.

6. `rename jan* *1`: Renames all variables starting with `jan` to instead end with `1`, for example, `janstat` to `stat1`, `janinc` to `inc1`, etc.
   
   Rule 6.1: `*` in `old` selects the variables to be renamed. `*` means that zero or more characters go here.

   Rule 6.2: `*` in `new` corresponds with `*` in `old` and stands for the text that `*` in `old` matched. `*` in `new` or `old` is called a wildcard character, or just a wildcard.

   * `rename jan* *`: Removes prefix `jan`.

   * `rename *jan *`: Removes suffix `jan`.

7. `rename jan? ?1`: Renames all variables starting with `jan` and ending in one character by removing `jan` and adding `1` to the end; for example, `jans` is renamed to `s1`, but `janstat` remains unchanged. `?` means that exactly one character goes here, just as `*` means that zero or more characters go here.

   Rule 7: `?` means exactly one character, `??` means exactly two characters, etc.

8. `rename *jan* **`: Removes prefix, midfix, and suffix `jan`, for example, `janstat` to `stat`, `injanstat` to `instat`, and `subjan` to `sub`.

   Rule 8: You may specify more than one wildcard in `old` and in `new`. They correspond in the order given.
rename jan*s* *s*1: Renames all variables that start with jan and contain s to instead end in 1, dropping the jan, for example, janstat to stat1 and janest to est1, but not janinc to inc1.

9. rename *jan* .*: Removes jan and whatever follows from variable names, thereby renaming statjan to stat, incjan71 to inc, ....

   Rule 9: You may specify more wildcards in old than in new.

10. rename *jan**: Removes jan and whatever follows from variable names, thereby renaming statjan to stat, incjan71 to inc, ....

   Rule 10: Wildcard . (dot) in new skips over the corresponding wildcard in old.

11. rename *pop jan=: Adds prefix jan to all variables ending in pop, for example, age1pop to janage1pop, ....

   rename (status bp time) admit=: Renames status to admitstatus, bp to admitbp, and time to admittime.

   rename whatever pre=: Adds prefix pre to all variables selected by whatever, however whatever is specified.

   Rule 11: Wildcard = in new specifies the original variable name.

   rename whatever =jan: Adds suffix jan to all variables selected by whatever.

   rename whatever pre=fix: Adds prefix pre and suffix fix to all variables selected by whatever.

12. rename v# stat#: Renames v1 to stat1, v2 to stat2, ...., v10 to stat10, ....

   Rule 12.1: # is like * but for digits. # in old selects one or more digits.

   Rule 12.2: # in new copies the digits just as they appear in the corresponding old.

13. rename v(#) stat(#): Renames v1 to stat1, v2 to stat2, ...., but does not rename v10, ....

   Rule 13.1: (##) in old selects exactly one digit. Similarly, (##) selects exactly two digits, and so on, up to ten # symbols.

   Rule 13.2:(#) in new means reformat to one or more digits. Similarly, (##) reformats to two or more digits, and so on, up to ten # symbols.

   rename v(#) stat(#): Renames v01 to stat01, v02 to stat02, ...., v10 to stat10, ...., but does not rename v0, v1, v2, ...., v9, v100, ....

14. rename v# v(#): Renames v1 to v01, v2 to v02, ...., v10 to v10, v11 to v11, ...., v10 to v10, v101 to v101, ....

   Rule 14: You may combine #, (#), (##), ... in old with any of #, (#), (##), ... in new.

   rename v(##) v(#): Renames v01 to v1, v02 to v2, ...., v10 to v10, ...., but does not rename v001, etc.

   rename stat(#) to stat_20(#): Renames stat10 to stat_2010, stat11 to stat_2011, ...., but does not rename stat1, stat2, ....

   rename stat(#) to stat_200(#) : Renames stat1 to stat_2001, stat2 to stat_2002, ...., but does not rename stat10 or stat_2010.
15. rename v# (a b c): Renames v1 to a, v10 to b, and v2 to c if variables v1, v10, v2 appear in that order in the data. Because three variables were specified in new, v# in old must select three variables or rename will issue an error.

Rule 15.1: You may mix syntaxes. Note that the explicit and implied numbers of variables must agree.

rename v# (a b c), sort: Renames (for instance) v1 to a, v2 to b, and v10 to c.

Rule 15.2: The sort option places the variables selected by old in order and does so smartly. In the case where #, (#), (##), ... appear in old, sort places the variables in numeric order.

rename v* (a b c), sort: Renames (for instance) valpha to a, vbeta to b, and vgamma to c regardless of the order of the variables in the data.

Rule 15.3: In the case where * or ? appears in old, sort places the variables in alphabetical order.

16. rename v# v#, renumber: Renames (for instance) v9 to v1, v10 to v2, v8 to v3, ..., assuming that variables v9, v10, v8, ... appear in that order in the data.

Rule 16.1: The renumber option resequences the numbers.

rename v# v#, renumber sort: Renames (for instance) v8 to v1, v9 to v2, v10 to v3, .... Concerning option sort, see rule 15.2 above.

rename v# v#, renumber(10) sort: Renames (for instance) v8 to v10, v9 to v11, v10 to v12, ....

Rule 16.2: The renumber(#) option allows you to specify the starting value.

17. rename v* v#, renumber: Renames (for instance) valpha to v1, vgamma to v2, vbeta to v3, ..., assuming variables valpha, vgamma, vbeta, ... appear in that order in the data.

Rule 17: # in new may correspond to *, ?, #, (#), (##), ... in old.

rename v* v#, renumber sort: Renames (for instance) valpha to v1, vbeta to v2, vgamma to v3, .... Also see rule 15.3 above concerning the sort option.

rename *stat stat#, renumber: Renames, for instance, janstat to stat1, febstat to stat2, .... Note that # in new corresponds to * in old, just as in the previous example.

rename *stat stat(##), renumber: Renames, for instance, janstat to stat01, febstat to stat02, ....

rename *stat stat#, renumber(0): Renames, for instance, janstat to stat0, febstat to stat1, ....

rename *stat stat#, renumber sort: Renames, for instance, aprstat to stat1, augstat to stat2, ....

18. rename (a b c) v#, addnumber: Renames a to v1, b to v2, and c to v3.

Rule 18: The addnumber option allows you to add numbering. More formally, if you specify addnumber, you may specify one more wildcard in new than is specified in old, and that extra wildcard must be #, (#), (##), ....

19. rename a(#)(#) a(#)[2](#)[1]: Renames a12 to a21, a13 to a31, a14 to a41, ..., a21 to a12, ....

Rule 19.1: You may specify explicit subscripts with wildcards in new to make explicit its matching wildcard in old. Subscripts are specified in square brackets after a wildcard in new. The number refers to the number of the wildcard in old.
rename *stat* *[2]stat*[1]: Swaps prefixes and suffixes; it renames bpstata to astatbp, rstater to erstatr, etc.

rename *stat* *[2]stat*: Does the same as above; it swaps prefixes and suffixes.

Rule 19.2: After specifying a subscripted wildcard, subsequent unsubscripted wildcards correspond to the same wildcards in old as they would if you had removed the subscripted wildcards altogether.

rename v#a# _v#_[1]_a#[2]: Renames v1a1 to v1_1_a1, v1a2 to v1_1_a2, ..., v2a1 to v2_2_a1, ....

Rule 19.3: Using subscripts, you may refer to the same wildcard in old more than once. Subscripts are commonly used to interchange suffixes at the ends of variable names. For instance, you have districts and schools within them, and many of the variable names in your data match *_#_#. The first number records district and the second records school within district. To reverse the ordering, you type rename *_#_# *_#_[3]_#_[2]. When specifying subscripts, you refer to them by the position number in the original name. For example, our original name was *_#_* so [1] refers to *, [2] refers to the first #, and [3] refers to the last #.

<table>
<thead>
<tr>
<th>Specifier</th>
<th>Meaning in old</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>0 or more characters</td>
</tr>
<tr>
<td>?</td>
<td>1 character exactly</td>
</tr>
<tr>
<td>#</td>
<td>1 or more digits</td>
</tr>
<tr>
<td>(#)</td>
<td>1 digit exactly</td>
</tr>
<tr>
<td>(##)</td>
<td>2 digits exactly</td>
</tr>
<tr>
<td>(###)</td>
<td>3 digits exactly</td>
</tr>
<tr>
<td>...</td>
<td>10 digits exactly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specifier</th>
<th>May correspond in old with</th>
<th>Meaning in new</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>*, ?, #, (#), ...</td>
<td>copies matched text</td>
</tr>
<tr>
<td>?</td>
<td>?</td>
<td>copies a character</td>
</tr>
<tr>
<td>#</td>
<td>#, (#), ...</td>
<td>copies a number as is</td>
</tr>
<tr>
<td>(#)</td>
<td>#, (#), ...</td>
<td>reformats to 1 or more digits</td>
</tr>
<tr>
<td>(##)</td>
<td>#, (#), ...</td>
<td>reformats to 2 or more digits</td>
</tr>
<tr>
<td>...</td>
<td>#, (#), ...</td>
<td>reformats to 10 digits</td>
</tr>
<tr>
<td>(##########)</td>
<td>#, (#), ...</td>
<td>skip</td>
</tr>
<tr>
<td>.</td>
<td>*, ?, #, (#), ...</td>
<td>skip</td>
</tr>
<tr>
<td>=</td>
<td>nothing</td>
<td>copies entire variable name</td>
</tr>
</tbody>
</table>

Specifier # in any of its guises may also correspond with * or ? if the renumber option is specified.
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<table>
<thead>
<tr>
<th>options1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>addnumber</td>
<td>add sequential numbering to end</td>
</tr>
<tr>
<td>addnumber(#)</td>
<td>addnumber, starting at #</td>
</tr>
<tr>
<td>renumber</td>
<td>renumber sequentially</td>
</tr>
<tr>
<td>renumber(#)</td>
<td>renumber, starting at #</td>
</tr>
<tr>
<td>sort</td>
<td>sort before numbering</td>
</tr>
<tr>
<td>dryrun</td>
<td>do not rename, but instead produce a report</td>
</tr>
<tr>
<td>r</td>
<td>store variable names in r() for programming use</td>
</tr>
</tbody>
</table>

These options correspond to the first and second syntaxes.

<table>
<thead>
<tr>
<th>options2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>upper</td>
<td>uppercase ASCII letters in variable names (UPPERCASE)</td>
</tr>
<tr>
<td>lower</td>
<td>lowercase ASCII letters in variable names (lowercase)</td>
</tr>
<tr>
<td>proper</td>
<td>propercase ASCII letters in variable names (Propercase)</td>
</tr>
<tr>
<td>dryrun</td>
<td>do not rename, but instead produce a report</td>
</tr>
<tr>
<td>r</td>
<td>store variable names in r() for programming use</td>
</tr>
</tbody>
</table>

These options correspond to the third syntax. One of upper, lower, or proper must be specified.

Options for renaming variables

`addnumber` and `addnumber(#)` specify to add a sequence number to the variable names. See item 18 of Syntax. If # is not specified, the sequence number begins with 1.

`renumber` and `renumber(#)` specify to replace existing numbers or text in a set of variable names with a sequence number. See items 16 and 17 of Syntax. If # is not specified, the sequence number begins with 1.

`sort` specifies that the existing names be placed in order before the renaming is performed. See item 15 of Syntax for details. This ordering matters only when `addnumber` or `renumber` is also specified or when specifying a list of variable names for `old` or `new`.

`dryrun` specifies that the requested renaming not be performed but instead that a table be displayed showing the old and new variable names. It is often a good idea to specify this option before actually renaming the variables.

`r` is a programmer’s option that requests that old and new variable names be stored in r(). This option may be specified with or without `dryrun`.

Options for changing the case of groups of variable names

`upper`, `lower`, and `proper` specify how the variables are to be renamed. `upper` specifies that ASCII letters in variable names be changed to uppercase; `lower`, to lowercase; and `proper`, to having the first ASCII letter capitalized and the remaining ASCII letters in lowercase. One of these three options must be specified. Note that these options do not handle Unicode characters beyond the plain ASCII range. To change Unicode characters in the variable names to uppercase, lowercase, or titlecase, use functions `ustrupper()`, `ustrlower()`, and `ustrtitle()`. See the technical note in Remarks and examples.

`dryrun` and `r` are the same options as documented directly above.
Remarks and examples

Remarks are presented under the following headings:

Advice

Explanation

* matches 0 or more characters; use ?* to match 1 or more
* is greedy
# is greedier

Advice

1. Read [D] rename before reading this entry.
2. Read items 1–19 (the Rules) under Syntax above before reading the rest of these remarks.
3. Specify the dryrun option when using complicated patterns. dryrun presents a table of the old and new variable names rather than actually renaming the variables, so you can check that the patterns you have specified produce the desired result.

Explanation

The rename command has three syntaxes; see Syntax. See [D] rename for details on the first syntax, renaming a single variable. The remaining two syntaxes are for renaming groups of variables and for changing the case of groups of variables. These two syntaxes are the ones we will focus on for the remainder of this manual entry. Here they are again:

rename (old₁ old₂ ...) (new₁ new₂ ...)
rename old₁ old₂ ..., {upper|lower|proper}

The second syntax shown above merely changes the case of variables, such as MPG or mpg or Mpg. For instance, to rename all variables to be lowercase, type

rename *, lower

The first syntax shown above is more daunting and more powerful. The first syntax has two styles, with and without parentheses:

rename (bp₀ bp₁) (bp₁ bp₀)
rename pop*80 pop*_1980

You can combine the two styles whenever it is convenient.

rename v* (mpg weight displacement)
rename (mpg weight displacement) v#, addnumber
rename (bp₀ bp₁ pop*80) (bp₁ bp₀ pop*_1980)

We summarize all of this by simply writing the syntax as

rename old new, ...

and referring to old and new.

Wildcards play different but related roles in old and new. When you type

rename pop*80 pop*_1980
the wildcard (\* in this case) in old specifies which variables are to be renamed, and in new the wildcard stands for the text that appears in the variables to be renamed. In this case, there is just one wildcard, but sometimes there are more.

In old, \* means zero or more characters go here. Specifying pop\*80 means find all variables that begin with pop and end in 80. Say that doing so results in three variables being found: poplt2080, pop204080, and pop41plus80. To understand how \* is interpreted in new, it is useful to write the three found variables like this:

\[
pop\*80 = \text{pop} + \star + 80
\]

<table>
<thead>
<tr>
<th>old variable</th>
<th>* is</th>
<th>→ new</th>
</tr>
</thead>
<tbody>
<tr>
<td>poplt2080</td>
<td>lt20</td>
<td>pop_\lt20_1980</td>
</tr>
<tr>
<td>pop204080</td>
<td>2040</td>
<td>pop_2040_1980</td>
</tr>
<tr>
<td>pop41plus80</td>
<td>41plus</td>
<td>pop_41plus_1980</td>
</tr>
</tbody>
</table>

\* in new refers to what was found by \* in old. So the new pattern pop\_*\_1980 will assemble the following new variable names for each of the old names:

Thus typing rename pop\*80 pop\_*\_1980 is equivalent to typing

rename poplt2080 pop_\lt20_1980
rename pop204080 pop_2040_1980
rename pop41plus80 pop_41plus_1980

There are three basic wildcard characters for specification in old, and they filter the variables to be renamed:

* 0 or more characters go here
? exactly 1 character goes here
# number goes here (this one comes in 11 flavors!)

The generic # listed above collects all the digits. The other 10 flavors are (#), which means exactly 1 digit goes here; (##), which means exactly 2 digits go here; and so on, up to exactly 10 digits go here.

All the above, the 3 + 10 = 13 wildcard characters, can appear in new, where each has a different but related meaning:

* copy corresponding text from old as is
? copy corresponding character from old
# copy corresponding number from old as is
(\#) reformat corresponding number from old to 1 or more digits
(##) reformat corresponding number from old to 2 or more digits
...
In addition, *new* allows two special wildcard characters of its own:

* = copy the entire original variable name
. = skip the corresponding text in *old*

With the above information and the definitions of the options, you can derive on your own the first eighteen rules given in Syntax. The nineteenth rule concerns subscripting. In *new*, you can specify explicitly to which wildcard in *old* you are referring. You can type

```
rename pop*80 pop_*1980
```
or you can type

```
rename pop*80 pop_*[1]1980
```

thus making it explicit that the * in *new* is referring to the text matched by the first wildcard in *old*. That * corresponds to * is hardly surprising, especially when there is only one * in *old*, so let’s complicate the example:

```
rename v*_* outcome_*_*
```

You can type that command, or you can type

```
rename v*_* outcome_*[1]_*[2]
```

More importantly, you can specify the subscripts in whatever order you wish, so you could type

```
rename v*_* outcome_*[2]_*[1]
```

That command would interchange the text in *old* matched by the two wildcards.

* matches 0 or more characters; use ?* to match 1 or more

1*a in *old* matches *louisiana* and it matches *la* because * means zero or more characters. What if you want to match *louisiana* and *lymphoma* but not *la*?

For instance, say you have from–to variables named from*to* and from variables named from*. The problem is that variable *fromtoledo* would match from*to*. To avoid that, rather than describing the from–to pattern from*to*, you use from?*to?*. Thus you could type

```
rename from?*to? from_*to_*
```

?* is not a secret wildcard we have yet to tell you about—it is merely the two wildcards ? and * in sequence. ? means exactly one character goes here, and * means zero or more characters go here, so ?* means one or more characters go here. In the same way, ??* means two or more characters go here, and so on.

* is greedy

Consider the existing variable *assessment* and pattern *s* in *old*. Clearly, *s* matches *assessment*, but how? That is, among these possibilities,

```
<table>
<thead>
<tr>
<th></th>
<th>s</th>
<th>*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>+</td>
<td>s</td>
<td>essment</td>
</tr>
<tr>
<td>as</td>
<td>+</td>
<td>s</td>
<td>essment</td>
</tr>
<tr>
<td>asse</td>
<td>+</td>
<td>s</td>
<td>sment</td>
</tr>
<tr>
<td>asses</td>
<td>+</td>
<td>s</td>
<td>ment</td>
</tr>
</tbody>
</table>
```


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which one is true? We need to know the answer to know what each of the corresponding wildcards in new will mean. The answer is that * is greedy, and the pattern is matched from left to right. As we move through the variable name from left to right, at each step * takes the most characters possible, subject to the pattern working out.

\[
\begin{array}{ccc}
* & s & *

d \text{assessment} = \text{asses} + s + \text{ment}
\end{array}
\]

Thus the first * in new would stand for asses and the second would stand for ment.

The “subject to the pattern working out” part is important. Variable sunglasses would be broken out by *s* as

\[
\begin{array}{ccc}
* & s & *

d \text{sunglasses} = \text{sunglasse} + s + \text{nothing}
\end{array}
\]

But by *s?*, the breakout would be

\[
\begin{array}{ccc}
* & s & ? & *

d \text{sunglasses} = \text{sunglas} + s + e + s
\end{array}
\]

# is greedier

Wildcard # in old is greedier than *, which means that when * and # are up against each other, # wins.

Consider the pattern ** and the variable name v1234. Given that * is greedy and that the # specifies one or more digits, the possible solutions are

\[
v1234 = * #
\]

\[
\begin{array}{c}
v123 + 4 \\
v12 + 34 \\
v1 + 234 \\
v + 1234
\end{array}
\]

The solution chosen by rename is the last one, v + 1234. Thus you can type

\[
\text{rename ** period_#}[2]
\]

without concern that some digits might be lost.

💡 Technical note

You cannot directly use functions ustrupper(), ustrlower(), and ustrtitle() in your rename command. You must first create a local macro with the new variable name and then use that macro in your rename command. For example,

\[
\begin{array}{c}
\text{. local new = ustrlower(Ubicación)} \\
\text{. rename Ubicación `new’}
\end{array}
\]
You can use multiple local macros in a varlist. For example,

```stata
    . local new1 = ustrlower(Ubicación1)
    . local new2 = ustrlower(Ubicación2)
    . rename (Ubicación1 Ubicación2) ('new1' 'new2')
```

For more information about local macros, see [U] 18.3.1 Local macros.

Stored results

`rename` stores nothing in `r()` by default. If the `r` option is specified, then `rename` stores the following in `r()`:

Scalar

- `r(n)`: number of variables to be renamed

Macros

- `r(oldnames)`: original variable names
- `r(newnames)`: new variable names

Variables that are renamed to themselves are omitted from the recorded lists.

Also see

[D] `rename` — Rename variable
[D] `generate` — Create or change contents of variable
[D] `varmanage` — Manage variable labels, formats, and other properties