

In this file:

- 1) User Command : umask [-S] [mask]
- 2) C System Calls : mode\_t umask(mode\_t cmask);

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User Commands umask(1)

NAME  
umask - get or set the file mode creation mask

SYNOPSIS  
/usr/bin/umask [-S] [mask]

sh  
umask [ooo]

csh  
umask [ooo]

ksh  
umask [-S] [mask]

#### DESCRIPTION

The umask utility sets the file mode creation mask of the current shell execution environment to the value specified by the mask operand. This mask affects the initial value of the file permission bits of subsequently created files. If umask is called in a subshell or separate utility execution environment, such as one of the following:

```
(umask 002)
nohup umask ...
find . -exec umask ...
```

it does not affect the file mode creation mask of the caller's environment. For this reason, the /usr/bin/umask utility cannot be used to change the umask in an ongoing session. Its usefulness is limited to checking the caller's umask. To change the umask of an ongoing session you must use one of the shell builtins.

If the mask operand is not specified, the umask utility writes the value of the invoking process's file mode creation mask to standard output.

sh  
The user file-creation mode mask is set to ooo. The three octal digits refer to read/write/execute permissions for owner, group, and other, respectively (see chmod(1), chmod(2), and umask(2)). The value of each specified digit is subtracted from the corresponding 'digit' specified by the system for the creation of a file (see creat(2)). For example, umask 022 removes write permission for group and other (files normally created with mode 777 become mode 755. Files created with mode 666 become mode 644).

- o If ooo is omitted, the current value of the mask is printed.
- o umask is recognized and executed by the shell.
- o umask can be included in the user's .profile (see profile(4)) and invoked at login to automatically set the user's permissions on files or directories created.

csh  
See the description above for the Bourne shell (sh)umask built-in.

ksh  
The user file-creation mask is set to mask. mask can either be an octal number or a symbolic value as described in chmod(1). If a symbolic value is given, the new umask value is the complement of the result of applying mask to the complement of the previous umask value. If mask is omitted, the current value of the mask is printed.

**OPTIONS**

The following option is supported:

-S Produces symbolic output.

The default output style is unspecified, but will be recognized on a subsequent invocation of `umask` on the same system as a mask operand to restore the previous file mode creation mask.

**OPERANDS**

The following operand is supported:

**mask** A string specifying the new file mode creation mask. The string is treated in the same way as the mode operand described in the `chmod(1)` manual page.

For a `symbolic_mode` value, the new value of the file mode creation mask is the logical complement of the file permission bits portion of the file mode specified by the `symbolic_mode` string.

In a `symbolic_mode` value, the permissions `op` characters `+` and `-` are interpreted relative to the current file mode creation mask. `+` causes the bits for the indicated permissions to be cleared in the mask. `-` causes the bits of the indicated permissions to be set in the mask.

The interpretation of mode values that specify file mode bits other than the file permission bits is unspecified.

The file mode creation mask is set to the resulting numeric value.

The default output of a prior invocation of `umask` on the same system with no operand will also be recognized as a mask operand. The use of an operand obtained in this way is not obsolescent, even if it is an octal number.

**OUTPUT**

When the mask operand is not specified, the `umask` utility will write a message to standard output that can later be used as a `umask` mask operand.

If `-S` is specified, the message will be in the following format: "u=%s,g=%s,o=%s\n",

owner permissions, group permissions, other permissions

where the three values will be combinations of letters from the set `{r, w, x}`. The presence of a letter will indicate that the corresponding bit is clear in the file mode creation mask.

If a mask operand is specified, there will be no output written to standard output.

**EXAMPLES**

Example 1: Using the `umask` command

Either of the commands:

```
umask a=rx,ug+w
umask 002
```

sets the mode mask so that subsequently created files have their `S_IWOTH` bit cleared.

After setting the mode mask with either of the above commands, the `umask` command can be used to write the current value of the mode mask:

```
example$ umask
0002
```

The output format is unspecified, but historical implementations use the obsolescent octal integer mode format.

```
example$ umask -S
u=rwx,g=rwx,o=rx
```

Either of these outputs can be used as the mask operand to a subsequent invocation of the umask utility.

Assuming the mode mask is set as above, the command:

```
umask g-w
```

sets the mode mask so that subsequently created files have their S\_IWGRP and S\_IWOTH bits cleared.

The command:

```
umask --w
```

sets the mode mask so that subsequently created files have all their write bits cleared. Notice that mask operands r, w, x, or anything beginning with a hyphen (-), must be preceded by - to keep it from being interpreted as an option.

ENVIRONMENT VARIABLES

See environ(5) for descriptions of the following environment variables that affect the execution of umask: LANG, LC\_ALL, LC\_COLLATELC\_CTYPE, LC\_MESSAGES, and NLSPATH.

EXIT STATUS

The following exit values are returned:

- 0 The file mode creation mask was successfully changed, or no mask operand was supplied.
- >0 An error occurred.

ATTRIBUTES

See attributes(5) for descriptions of the following attributes:

ATTRIBUTE TYPE	ATTRIBUTE VALUE
Availability	SUNWcsu
Interface Stability	Standard

SEE ALSO

chmod(1), csh(1), ksh(1), sh(1), chmod(2), creat(2), umask(2), profile(4), attributes(5), environ(5), standards(5)

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System Calls umask(2)

NAME

umask - set and get file creation mask

SYNOPSIS

```
#include <sys/types.h>
#include <sys/stat.h>

mode_t umask(mode_t cmask);
```

DESCRIPTION

The umask() function sets the process's file mode creation mask to cmask and returns the previous value of the mask. Only the access permission bits of cmask and the file mode creation mask are used. The mask is inherited by child processes. See intro(2) for more information on masks.

RETURN VALUES

The previous value of the file mode creation mask is returned.

## ATTRIBUTES

See attributes(5) for descriptions of the following attributes:

ATTRIBUTE TYPE	ATTRIBUTE VALUE
MT-Level	Async-Signal-Safe

## SEE ALSO

mkdir(1), sh(1), intro(2), chmod(2), creat(2), mknod(2),  
open(2), stat(3HEAD), attributes(5)

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