NAME cu – call another UNIX system

SYNOPSIS **cu** [**–c** *device* | **–l** *line*] [**–s** *speed*] [**–b** *bits*] [**–h**] [**–n**] [**–t**] [**–d**] [**–o** | **–e**]
[**–L**] [**–C**] [**–H**] *telno* | *systemname* [*local-cmd*]

AVAILABILITY SUNWbnuu

DESCRIPTION **cu** calls up another UNIX system, a terminal, or possibly a non-UNIX system. It manages an interactive conversation with possible transfers of files. It is convenient to think of **cu** as operating in two phases. The first phase is the connection phase in which the connection is established. **cu** then enters the conversation phase. The **–d** option is the only one that applies to both phases.

OPTIONS **cu** accepts many options. The **–c**, **–l**, and **–s** options play a part in selecting the medium; the remaining options are used in configuring the line.

–c *device* Force **cu** to use only entries in the "Type" field (the first field in the **/etc/uucp/Devices** file) that match the user specified *device*, usually the name of a local area network.

–s *speed* Specify the transmission speed (**300**, **1200**, **2400 9600**, **19200**, **38400**). The default value is "Any" speed which will depend on the order of the lines in the **/etc/uucp/Devices** file.

–l *line* Specify a device name to use as the communication line. This can be used to override the search that would otherwise take place for the first available line having the right speed. When the **–l** option is used without the **–s** option, the speed of a line is taken from the **/etc/uucp/Devices** file record in which **line** matches the second field (the Line field). When the **–l** and **–s** options are both used together, **cu** will search the **/etc/uucp/Devices** file to check if the requested speed for the requested line is available. If so, the connection will be made at the requested speed, otherwise, an error message will be printed and the call will not be made. In the general case where a specified device is a directly connected asynchronous line (for instance, **/dev/term/a**), a telephone number (*telno*) is not required. The specified device need not be in the **/dev** directory. If the specified device is associated with an auto dialer, a telephone number must be provided.

–b *bits* Force *bits* to be the number of bits processed on the line. *bits* is either **7** or **8**. This allows connection between systems with different character sizes. By default, the character size of the line is set to the same as the current local terminal.

–h Set communication mode to half-duplex. This option emulates local echo in order to support calls to other computer systems that expect terminals to be set to half-duplex mode.

–n Request user prompt for telephone number. For added security, this option will prompt the user to provide the telephone number to be dialed, rather than taking it from the command line.

–t Dial a terminal which has been set to auto answer. Appropriate mapping of carriage-return to carriage-return-line-feed pairs is set.

–d Print diagnostic traces.

–o Set an ODD data parity. This option designates that ODD parity is to be generated for data sent to the remote system.

–e Set an EVEN data parity. This option designates that EVEN parity is to be generated for data sent to the remote system.

–L Go through the login chat sequence specified in the **/etc/uucp/Systems** file. For more information about the chat sequence, see *TCP/IP and Data Communications Guide*

–C Run the *local-cmd* specified at the end of the command line instead of entering interactive mode. The **stdin** and **stdout** of the command that is run refer to the remote connection.

–H Ignore one hangup. This allows the user to remain in **cu** while the remote machine disconnects and places a call back to the local machine. This option should be used when connecting to systems with callback or dialback modems. Once the callback occurs subsequent hangups will cause **cu** to terminate. This option can be specified more than once. For more information about dialback configuration, see **remote**(4) and *TCP/IP and Data Communications Guide*

OPERANDS

The following operands are supported:

telno When using an automatic dialler, specifies the telephone number with equal signs for secondary dial tone or minus signs placed appropriately for delays of 4 seconds.

systemname Specifies a **uucp** system name, which can be used rather than a telephone number; in this case, **cu** will obtain an appropriate direct line or telephone number from a system file.

USAGE

Connection Phase

cu uses the same mechanism that **uucp**(1C) does to establish a connection. This means that it will use the **uucp** control files **/etc/uucp/Devices** and **/etc/uucp/Systems**. This gives **cu** the ability to choose from several different media to establish the connection. The possible media include telephone lines, direct connections, and local area networks (LAN). The **/etc/uucp/Devices** file contains a list of media that are available on your system. The **/etc/uucp/Systems** file contains information for connecting to remote systems, but it is not generally readable.

Note: **cu** determines which **/etc/uucp/Systems** and **/etc/uucp/Devices** files to use based upon the name used to invoke **cu**. In the simple case, this name will be "cu", but you could also have created a link to **cu** with another name, such as "pppcu", in which case **cu** would then look for a "service=pppcu" entry in the **/etc/uucp/Sysfiles** file to determine which **/etc/uucp/Systems** file to use.

The *telno* or *systemname* parameter from the command line is used to tell **cu** what system you wish to connect to. This parameter can be blank, a telephone number, a system name, or a LAN specific address.

telephone number	A telephone number is a string consisting of the tone dial characters (the digits **0** through **9**, ∗, and **#**) plus the special characters **=** and −. The equal sign designates a secondary dial tone and the minus sign creates a **4** second delay.
system name	A system name is the name of any computer that **uucp** can call; the **uuname**(1C) command prints a list of these names.
LAN address	The documentation for your LAN will show the form of the LAN specific address.

If **cu**'s default behavior is invoked (not using the −**c** or −**l** options), **cu** will use the *telno* or *systemname* parameter to determine which medium to use. If a telephone number is specified, **cu** will assume that you wish to use a telephone line and it will select an automatic call unit (ACU). Otherwise, **cu** will assume that it is a system name. **cu** will follow the **uucp** calling mechanism and use the **/etc/uucp/Systems** and **/etc/uucp/Devices** files to obtain the best available connection. Since **cu** will choose a speed that is appropriate for the medium that it selects, you may not use the −**s** option when this parameter is a system name.

The −**c** and −**l** options modify this default behavior. −**c** is most often used to select a LAN by specifying a Type field from the **/etc/uucp/Devices** file. You must include either a *telno* or *systemname* value when using the −**c** option. If the connection to *systemname* fails, a connection will be attempted using *systemname* as a LAN specific address. The −**l** option is used to specify a device associated with a direct connection. If the connection is truly a direct connection to the remote machine, then there is no need to specify a *systemname*. This is the only case where a *telno* or *systemname* parameter is unnecessary. On the other hand, there may be cases in which the specified device connects to a dialer, so it is valid to specify a telephone number. The −**c** and −**l** options should not be specified on the same command line.

Conversation Phase

After making the connection, **cu** runs as two processes: the *transmit* process reads data from the standard input and, except for lines beginning with ˜, passes it to the remote system; the *receive* process accepts data from the remote system and, except for lines beginning with ˜, passes it to the standard output. Normally, an automatic DC3/DC1 protocol is used to control input from the remote so the buffer is not overrun. Lines beginning with ˜ have special meanings.

Commands

The *transmit* process interprets the following user initiated commands:

˜.	Terminate the conversation.
˜!	Escape to an interactive shell on the local system.
˜!*cmd . . .*	Run *cmd* on the local system (via **sh** −**c**).

~**$***cmd . . .*	Run *cmd* locally and send its output to the remote system.
~**%cd**	Change the directory on the local system. Note: ~**!cd** will cause the command to be run by a sub-shell, probably not what was intended.
~%**take** *from* [*to*]	Copy file *from* (on the remote system) to file *to* on the local system. If *to* is omitted, the *from* argument is used in both places.
~%**put** *from* [*to*]	Copy file *from* (on local system) to file *to* on remote system. If *to* is omitted, the *from* argument is used in both places.
~~ *line*	Send the line ~ **line** to the remote system.
~%**break**	Transmit a **BREAK** to the remote system (which can also be specified as ~**%b**).
~%**debug**	Toggles the –**d** debugging option on or off (which can also be specified as ~**%d**).
~**t**	Prints the values of the termio structure variables for the user's terminal (useful for debugging).
~**l**	Prints the values of the termio structure variables for the remote communication line (useful for debugging).
~%**ifc**	Toggles between DC3/DC1 input control protocol and no input control. This is useful when the remote system does not respond properly to the DC3 and DC1 characters (can also be specified as ~%**nostop**).
~%**ofc**	Toggles the output flow control setting. When enabled, outgoing data may be flow controlled by the remote host (can also be specified as ~%**noostop**).
~%**divert**	Allow/disallow unsolicited diversions. That is, diversions not specified by ~%**take**.
~%**old**	Allow/disallow old style syntax for received diversions.
~%**nostop**	Same as ~%**ifc**.

The *receive* process normally copies data from the remote system to the standard output of the local system. It may also direct the output to local files.

The use of ~%**put** requires **stty**(1) and **cat**(1) on the remote side. It also requires that the current erase and kill characters on the remote system be identical to these current control characters on the local system. Backslashes are inserted at appropriate places.

The use of ~%**take** requires the existence of **echo**(1) and **cat**(1) on the remote system, and that the remote system must be using the Bourne shell, **sh**. Also, **tabs** mode (see **stty**(1)) should be set on the remote system if tabs are to be copied without expansion to spaces.

When **cu** is used on system X to connect to system Y and subsequently used on system Y to connect to system Z, commands on system Y can be executed by using ˜˜. Executing a tilde command reminds the user of the local system **uname**. For example, **uname** can be executed on Z, X, and Y as follows:

uname
Z
˜[X]!uname
X
˜˜[Y]!uname
Y

In general, ˜ causes the command to be executed on the original machine. ˜˜ causes the command to be executed on the next machine in the chain.

EXAMPLES

To dial a system whose telephone number is **9 1 201 555 1234** using **1200** baud (where dialtone is expected after the **9**):

example% cu –s 1200 9=12015551234

If the speed is not specified, "Any" is the default value.

To login to a system connected by a direct line:

example% cu –l /dev/term/b

or

example% cu –l term/b

To dial a system with a specific line and speed:

example% cu –s 1200 –l term/b

To use a system name:

example% cu systemname

ENVIRONMENT

See **environ**(5) for descriptions of the following environment variables that affect the execution of **cu**: **LC_CTYPE**, **LC_MESSAGES**, and **NLSPATH**.

EXIT STATUS

The following exit values are returned:

0 Successful completion.
>0 An error occurred.

FILES

/etc/uucp/Devices device file
/etc/uucp/Sysfiles system file
/etc/uucp/Systems system file
/var/spool/locks/* lock file

SEE ALSO

cat(1), **echo**(1), **stty**(1), **uname**(1), **ct**(1C), **uuname**(1C), **uucp**(1C), **remote**(4), **environ**(5)

TCP/IP and Data Communications Guide

NOTES

The **cu** utility takes the default action upon receipt of signals, with the exception of:

SIGHUP Close the connection and terminate.

SIGINT Forward to the remote system.

SIGQUIT Forward to the remote system.

SIGUSR1 Terminate the **cu** process without the normal connection closing sequence.

The **cu** command does not do any integrity checking on data it transfers. Data fields with special **cu** characters may not be transmitted properly. Depending on the interconnection hardware, it may be necessary to use a ~. to terminate the conversion, even if **stty 0** has been used. Non-printing characters are not dependably transmitted using either the **~%put** or **~%take** commands. **~%put** and **~%take** cannot be used over multiple links. Files must be moved one link at a time.

There is an artificial slowing of transmission by **cu** during the **~%put** operation so that loss of data is unlikely. Files transferred using **~%take** or **~%put** must contain a trailing newline, otherwise, the operation will hang. Entering a CTRL-D command usually clears the hang condition.