

Make yourself at home

ENVIRONMENTAL



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Experienced users on Unix/Linux-based systems such as Ubuntu sometimes prefer to work in text mode from a terminal window. We'll show you some terminal tricks with environment variables. **BY HEIKE JURZIK**

Ubuntu's Terminal accessory opens a text-based command window that uses a command system called Bash (Bourne Again SHell).

Listing 1: env Example

```
01 huhn@asteroid:~$ env
02 TERM=xterm
03 SHELL=/bin/bash
04 USER=huhn
05 LS_COLORS=no=00:fi=00:...
06 PATH=/usr/local/bin:/usr/bin:/bin:/usr/bin/X11:/usr/games:/home/huhn/bin
07 IRCSERVER=irc.freenode.net
08 LANG=de_DE@euro
09 ...
```

To access the terminal window, select *Accessories | Terminal* in the Ubuntu main window.

If you enter a command like *ls* in the shell, the shell knows you want to call the */bin/ls* program. Bash knows where to look for executables, so you don't need to type in the full path. This path is defined in what is known as an environment variable. Variables of this kind are also used to modify the appearance of the shell prompt, set the time zone and

the user's home directory, and many other things.

An environment variable has three parts: the name, an assignment operator (=), and a value:

```
variable=value
```

The name can include upper- and lowercase letters, underlines, and numbers. The only restriction is that a name can't start with a number. If the value of the

Tip

Instead of using two separate commands (e.g., *LESS="-X"; export LESS*), you can define and export all at once: *export LESS="-X"*.

GLOSSARY

builtin: an abbreviation for "built-in command." Commands like this are built in to the shell, and you do not need to run a special program to use them.

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Listing 2: export Example

```
01 huhn@asteroid:~$ export
02 declare -x CHARSET="latin1"
03 declare -x LS_COLORS="no=00:fi=00:..."
04 declare -x IRCSERVER="irc.freenode.net"
05 ...
06 huhn@asteroid:~$ export -n IRCSERVER
```

variable contains blanks or nonstandard characters, you have to double-quote your input:

```
LESS="-X"
```

Welcome Home

Every user on an Ubuntu system has a place he or she can call home; Bash provides a fully furnished environment for every single account. To discover which variables your home uses, type *env* (for “environment”).

Listing 1 shows an example. Some of the variables in Listing 1 are set by the user. Other shell variables are predefined but can be modified as necessary. The convention is to use uppercase letters.

Table 1 gives an overview of common variables for Bash.

Looking into Cupboards

The *echo* command allows you to discover the value of a variable. To display the value of an environment variable, use the *echo* command with a dollar sign in front of the variable name:

```
huhn@asteroid:echo $LANG
de_DE@euro
huhn@asteroid:echo $PS1
\u@\h:\w\$\
```

The shell replaces the variables *\$LANG* and *\$PS1* with their respective values and then calls *echo* to output the text.

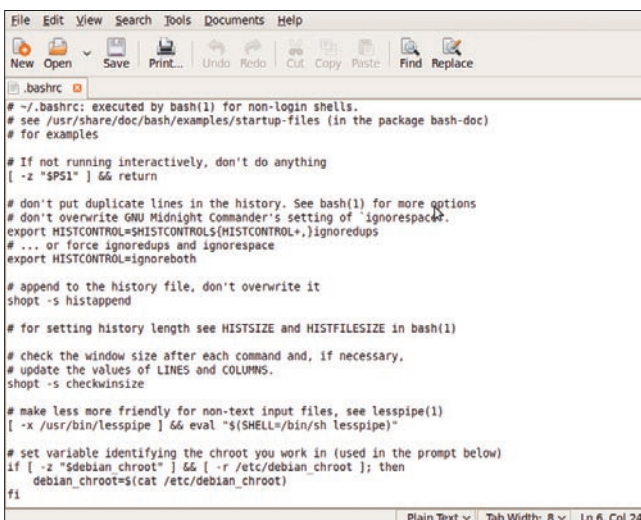
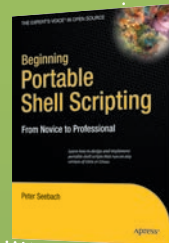


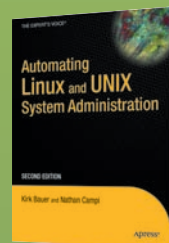
Figure 1: The *.bashrc* file in your home directory provides information on the Bash environment. First, choose Places in the Ubuntu main window and then Home Folder. If you don't see *.bashrc* in the File Browser, select the View menu and click on Show Hidden Files.



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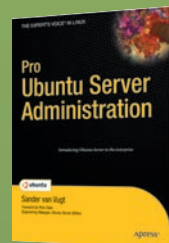
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Language and Locale

The `LANG` command lists the language and locale settings for your environment. To see the locale options available on your system, type:

```
locale -a
```

If your Ubuntu system is configured for US English (the `en_US.utf8` locale) but your preference is for British English, you can change the language setting with the following command:

```
LANG=GB
```

The shell even lets you define the language setting for certain specific applications:

```
LANG=GB firefox
```

Also, you can configure your environment for different languages:

```
LANG=FR firefox
```

If the language you want to add doesn't appear with the `locale -a` command, you will need to install it through the Ubuntu repositories. To do so, try going to the Synaptic package manager

and looking for your language with the Search tool.

Change

As you have seen, you can easily change a variable by entering its name, the assignment operator, and the value. Variables defined in this way are only valid for the current terminal session. To export the settings, you need the aptly named `export` command. This command makes the settings accessible to child processes and subshells.

For example, if you are an IRC user, you can set the `IRC_NICK`, `IRC_NAME`, and `IRC_SERVER` variables for the current Bash shell to tell command line--based IRC clients which nick and name to use to log on automatically to a specific IRC server. If you then launch a second shell from the first one and try to output the values of the new variables, you won't see a thing. First you need to quit the second shell by typing `exit` (Ctrl + D) and export the new variables. Now open a new shell from the first one and you will see that it has inherited variables, which are now available in the subshell.

The `export` builtin has more tricks up its sleeve. In combination with the `-p` option, or when called without any parameters, it displays a list of all exported

variables. The `-n` option deletes a variable from the list. Listing 2 gives a couple of examples.

Home Improvements

Any variables you *export* are only effective in the current shell and its child processes. To set up a variable permanently, you need to modify your Bash configuration file and reload your environment. To do so, add your new `export` commands to one of the Bash startup files, such as `~/bashrc` (Figure 1), then parse the file once you've finished your home improvements:

```
source ~/.bashrc
```

Listing 3 shows a couple of practical environment variables, including comments, that should make you feel at home. ■

Listing 3: Environment Variables

```
01 # prevents "less" from leaving an
    empty
02 # screen at the end of the output:
03
04 export LESS="-X"
05
06 # adds a touch of color: user
    prompt in
07 # green, root prompt in red:
08
09 if [ $(id -u) = 0 ] ; then
10     COLOR1='\[\033[00;31m\'
11 else
12     COLOR1='\[\033[01;32m\'
13 fi
14
15 COLOR2='\[\033[00;33m\'
16 COLOR3='\[\033[00;37m\'
17 PS1=$COLOR1'[\u@h'$COLOR2'
    \W'$COLOR1']'$COLOR3'\$ '
18 PS2=$COLOR1'>'$COLOR3' '
19
20 # I want the CET time zone on my
    server in Canada:
21
22 export TZ=CET
23
24 # I want ispell to use the correct
    character set
25 # and the correct dictionary:
26
27 export DICTIONARY=ngerman
28 export CHARSET=latin1
```

Table 1: Standard Bash Environment Variables

Variable	Meaning
<code>CDPATH</code>	Search path for the <code>cd</code> command
<code>EDITOR</code>	Standard text editor
<code>HISTFILE</code>	History file (e.g., <code>~/bash_history</code>)
<code>HISTSIZE</code>	Maximum number of commands in history
<code>HOME</code>	Home directory for the user account
<code>HOSTNAME</code>	Hostname
<code>LANG</code>	Language for program output, such as the date format, etc., assuming none of the <code>LC_</code> variables (see below) have been set. With the <code>locale</code> command, you can output a listing of all defined language variables.
<code>LC_ALL</code> <code>LC_</code> variables.	Country setting, such as <code>C</code> or <code>de</code> ; this overrides <code>LANG</code> and any other <code>LC_</code> variables.
<code>LC_MESSAGES</code>	Language for program and error messages
<code>LC_TIME</code>	Time format
<code>LOGNAME</code>	Login name of user
<code>MAIL</code>	Path to the user's mailbox (incoming mail)
<code>MANPATH</code>	Search path for man pages
<code>PATH</code>	Search path for executables
<code>PS1</code>	Default appearance of the shell prompt. For non-privileged users, this is typically <code>\u@h:~\w\$</code> (<code>huhn@asteroid:~\$</code> in this example); for the administrator, this is typically <code>\h:\w\$</code> (<code>asteroid:~#</code>).
<code>PWD</code>	Name of the current directory ("print working directory")
<code>SHELL</code>	Full pathname of the current shell (<code>/bin/bash</code>)
<code>TERM</code>	Terminal settings, such as <code>xterm</code> or <code>vt100</code>
<code>TZ</code>	Time zone, such as <code>CET</code> or <code>MET</code>