MacOS – Set / Change $PATH Variable Command

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Published: 2013-08-25 · Archived: 2026-04-05 21:56:36 UTC

I need to add dev tools (such as JDK and friends) to my PATH. How do I change $PATH variable in OS X 10.8.x? Where does $PATH get set in OS X 10.8 Mountain Lion or latest version of macOS?

Tutorial details	
Difficulty level	Easy
Root privileges	No
Requirements	macOS terminal
Category	Linux shell scripting
Prerequisites	Apple macOS/OS X with bash
OS compatibility	BSD • Linux • macOS • OS X • Unix
Est. reading time	3 minutes

$PATH is nothing but an environment variable on Linux, OS X, Unix-like operating systems, and Microsoft Windows. You can specify a set of directories where executable programs are located using $PATH. The $PATH variable is specified as a list of directory names separated by colon (:) characters.

MacOS Print $PATH Settings

To print the current settings, open the Terminal application and then printf command or echo command

```
echo "$PATH"
```

OR

```
printf "%s\n" $PATH
```

Here is what I see

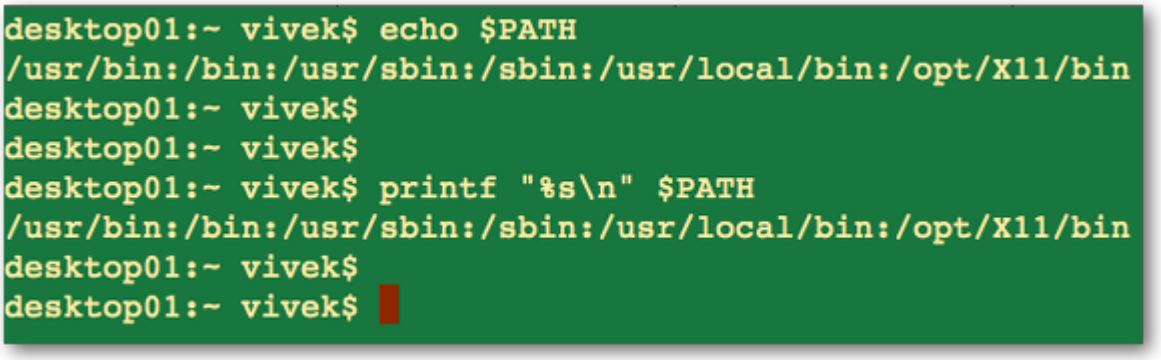

Fig.01: Displaying the current $PATH settings using echo / printf on OS X

macOS (OS X): Change your PATH environment variable

You can add path to any one of the following method:

1. `$HOME/.bash_profile` file using export syntax.
2. `/etc/paths.d` directory.

Method #1: `$HOME/.bash_profile` file to set or change $PATH under macOS

1. Open the Terminal app on macOS.
2. The syntax is as follows using the export command to add to the PATH on macOS:

```
export PATH="$PATH:/new/dir/location1"
export PATH="$PATH:/new/dir1:/dir2:/dir/path/no3"
```

3. In this example, add the /usr/local/sbin/modemZapp/ directory to $PATH variable. Edit the file `$HOME/.bash_profile`, enter:
   `$ vi $HOME/.bash_profile`
   OR
   `$ nano ~/.bash_profile`
4. Append the following export command:

```
export PATH="$PATH:/usr/local/sbin/modemZapp"
```

5. Save and close the file when using vim/vi as a text editor by pressing the `Esc`, type `:wq` and press the `[Enter]` key. Then, to apply changes immediately enter the following source command:
   `$ source $HOME/.bash_profile`

OR

```
$ . $HOME/.bash_profile
```

6. Finally, verify your new path settings, enter:

```
$ echo "$PATH"
```

Sample outputs:

```
/usr/bin:/bin:/usr/sbin:/sbin:/usr/local/bin:/opt/X11/bin:/usr/local/sbin/modemZapp
```

Method #2: `/etc/paths.d` directory

Apple recommends the path_helper tool to generate the PATH variable i.e. helper for constructing PATH environment variable. From the man page:

> The path_helper utility reads the contents of the files in the directories **/etc/paths.d** and **/etc/manpaths.d** and appends their contents to the PATH and MANPATH environment variables respectively.
>
> (The MANPATH environment variable will not be modified unless it is already set in the environment.)
>
> Files in these directories should contain one path element per line.
>
> Prior to reading these directories, default PATH and MANPATH values are obtained from the files **/etc/paths** and /etc/manpaths respectively.

To list existing path try the ls command. For example:

```
$ ls -l /etc/paths.d/
```

Sample outputs:

```
total 16
-rw-r--r--  1 root  wheel  13 Sep 28  2012 40-XQuartz
```

You can use the cat command to see path settings in 40-XQuartz:

```
$ cat /etc/paths.d/40-XQuartz
```

Sample outputs:

```
/opt/X11/bin
```

To set /usr/local/sbin/modemZapp to $PATH, enter:

```
sudo -s 'echo "/usr/local/sbin/modemZapp" > /etc/paths.d/zmodemapp'
```

OR use vi text editor as follows to create /etc/paths.d/zmodemapp file:

```
$ sudo vi /etc/paths.d/zmodemapp
```

And append the following text:

```
/usr/local/sbin/modemZapp
```

Save and close the file. You need to reboot the system. Alternatively, you can close and reopen the Terminal app to see new $PATH changes. For instance:

```
echo "$PATH"
```

You can show sorted path as follows:

```
echo "${PATH//:/$'\n'}" | sort
```

Conclusion

MacOS set or Change $PATH settings using any one of the following method as per your needs:

1. Use the .bash_profile file when you need to generate the PATH variable for a single user account with Bash.
2. Use the `/etc/paths.d/` directory or folder via the path_helper command tool to generate the PATH variable for all user accounts on the system. This method only works on OS X Leopard and higher macOS version.

See the following manual pages using the help command or man command on your macOS / OS X machine:

```
$ man bash
$ man path_helper
$ help export
```

See also:

- Customize the bash shell environments from the Linux shell scripting wiki.
- $PATH variable
- UNIX: Set Environment Variable

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