Bash C Style For Loop Example and Syntax

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How do I use the bash C style for loop under UNIX or Linux operating systems?

The bash C-style for loop share a common heritage with the C programming language. It is characterized by a three-parameter loop control expression; consisting of an initializer (EXP1), a loop-test or condition (EXP2), and a counting expression (EXP3). The syntax is as follows:


```
for (( EXP1; EXP2; EXP3 ))
do
    shell-command-1
        shell-command-2
done
```

Bash C-Style Example

```
#!/bin/bash
# Display message 5 times
for ((i = 0 ; i < 5 ; i++)); do
```

```
  echo "Welcome $i times."
done
```

Sample outputs:

```
Welcome 0 times.
Welcome 1 times.
Welcome 2 times.
Welcome 3 times.
Welcome 4 times.
```

Read An Array Using C Style For Loop

Bash provides one-dimensional array variables. An array is created automatically using the following compound assignments syntax:

```
array=( item1 item2 item3 ... itemN)
```

You can read an array using for loop as follows:

```
#!/bin/bash
# define an array called fruits
fruits=("Apple" "Mango" "Pineapple" "Banana" "Orange" "Papaya" "Watermelon")
len=${#fruits[*]}         # get total elements in an array

# print it
for (( i=0; i<${len}; i++ ));
do
    echo "${fruits[$i]}"
done
```

Here is another practical example that generates lighttpd web server configuration file to log real IP address of the visitors:

```
#!/bin/bash
_frontend_proxy_lan_ips=("10.10.29.72" "10.10.29.71" "10.10.29.70" "10.10.29.69" "10.10
t="/tmp/lighttpd.backend.conf.$$"
at=${#_frontend_proxy_lan_ips[*]}         # get total elements in an array
s=""

echo '### Log real client ips on all backends ###' >"$t"
echo 'server.modules += ( "mod_extforward" )'   >>"$t"
echo 'extforward.headers = ("X-Forwarded-For")' >>"$t"
echo 'extforward.forwarder = (' >>"$t"

# For loop
for (( i=0; i<${at}; i++ ));
do
    [ $i -lt $(( $at - 1 )) ] && s="," || s=""      # remove , for last item in an arra
        echo "      \"${_frontend_proxy_lan_ips[$i]}\" => \"trust\"${s} " >>"$t"
done

echo ')' >>"$t"

# Copy it
cp -f "$t" /etc/lighttpd/

# remove temp file
[ -f "$t" ] && rm -f "$t"
```

Sample outputs (sample config file generated by above script):

```
### Log real client ips on all backends ###
server.modules += ( "mod_extforward" )
extforward.headers = ("X-Forwarded-For")
extforward.forwarder = (
      "10.10.29.72" => "trust",
      "10.10.29.71" => "trust",
      "10.10.29.70" => "trust",
      "10.10.29.69" => "trust",
      "10.10.29.68" => "trust"
)
```

About the author: Vivek Gite is the founder of nixCraft, the oldest running blog about Linux and open source. He wrote more than 7k+ posts and helped numerous readers to master IT topics. Join the nixCraft community via RSS Feed, Email Newsletter or follow on Twitter.

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kmkkmk • Jun 10, 2011 @ 15:26

Hi,

I have just stumbled upon this site and like it a lot. Yet when reading Bash I was immediately thinking about Zsh and that I should have switched from to Zsh rather earlier than later. I would hardly put any effort in Bash and spent the time on Zsh instead.

Keep up the good work.

reply link

Jotne • Oct 10, 2012 @ 5:54

More simple example of array

GNU nano 2.2.6 File: a Modified

```
#!/bin/bash

fruits=("Apple" "Mango" "Pineapple" "Banana" "Orange" "Papaya" "Watermelc

for I in ${fruits[*]}; do
        echo $I
done
```

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