25 Bash Scripts Examples

The following section will cover 25 of the most popular bash scripting examples, including variable manipulation and echoing out various values. We will also cover functions, arrays, loops, and much more.

1. Hello World

Hello World is the simplest bash script to start with. We will create a new variable called **learningbash** and print out the words **Hello World**. First, open a new shell script file with a text editor of your choice:

```
nano hello.sh
```

Paste the following lines into it:

```
#!/bin/bash
#Creates a new variable with a value of "Hello World"
learningbash="Hello World"
echo $learningbash
```

The first line (**/bin/bash**) is used in every bash script. It instructs the operating system to use a bash interpreter as a command interpreter.

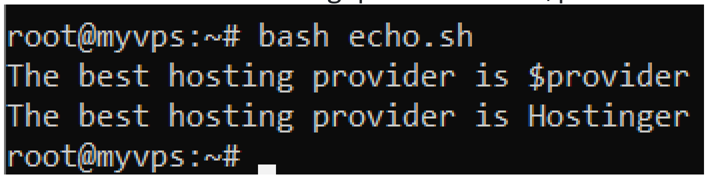
2. Echo Command

The **echo** bash command can be used to print out text as well as values of variables. In the following example, we will showcase how quotation marks affect the echo command. We will start by opening a new bash script file:

```
nano echo.sh
```

This simple bash script example will create a new variable and print it out while using different quotation marks.

```
#!/bin/bash
provider="Hostinger"
echo 'The best hosting provider is $provider'
echo "The best hosting provider is $provider"
```



```
root@myvps:~# bash echo.sh
The best hosting provider is $provider
The best hosting provider is Hostinger
root@myvps:~#
```

As you can see, if the echo bash command is used with double quotation marks "", then the script will print out the actual value of a variable. Otherwise, if the single quotation marks '' are used, it will print out only the name of a variable.

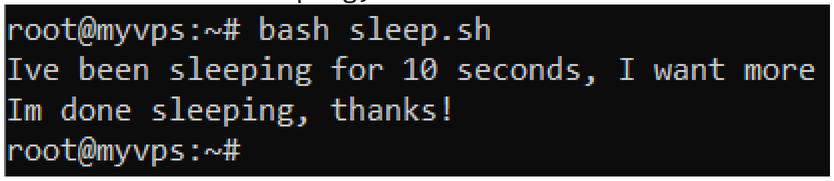
3. Sleep Command

Sleep command halts all currently running bash scripts and puts the system to sleep. Start by creating a new bash script file:

```
nano sleep.sh
```

Then, paste in the following simple script:

```
#!/bin/bash
sleep 10 && echo “I’ve been sleeping for 10 seconds, I want more” && sleep 10 &&
echo “I’m done sleeping, thanks!”
```



```
root@myvps:~# bash sleep.sh
Ive been sleeping for 10 seconds, I want more
Im done sleeping, thanks!
root@myvps:~#
```

The above example starts with a simple sleep bash command that will put your system to sleep for 10 seconds. After that, we combine the previously learned echo command with sleep – this way system will sleep for 10 seconds, then print out some words, sleep again, print out some words again and end its operation.

Pro Tip

A bash script can always be terminated by clicking **CTRL + C** without waiting for it to finish its operation.

4. Wait Command

wait is a built-in Linux command that waits for completion of running process. The wait command is used with a particular process id or job id.

Here's how to create a **wait** bash script. Begin by creating a new bash file:

```
nano wait.sh
```

Paste in the following:

```
#!/bin/bash
wait 1234
echo “Done”
```

Important! If no job ID is provided, the wait command waits until all child background jobs are completed.

5. Comments

Users can easily add comments to their bash scripts with the # symbol. It is extra useful if you've got a lengthy script that needs explaining on some lines.

Begin by creating a new bash script:

```
nano comments.sh
```

Then paste in the following:

```
#!/bin/bash
# Define a variable named Hostinger
provider="Hostinger"
# Print out the following text
echo 'The best hosting provider is $provider'
# Print out the following text with $provider variable value
echo "The best hosting provider is $provider"
```

Keep in mind that bash comments are only visible on a text editor.

6. Get User Input

To take input from users, we'll use the **read** bash command. First, create a new bash shell file:

```
nano read.sh
```

Then, fill it with the script below:

```
#!/bin/bash
echo "What is your age?"
read age
echo "Wow, you look younger than $age years old"
```

In the above example, an age value was entered by the user. The output was then printed via the echo command.

7. Loops

A loop is an essential tool in various programming languages. To put it simply, a **bash loop** is a set of instructions that are repeated until a user-specified condition is reached. Start by creating a loop bash program:

```
nano whileloop.sh
```

Then paste in the following:

```
#!/bin/bash
n=0
while :
do
echo Countdown: $n
((n++))
done
```

This will work as a countdown to infinity until you press **CTRL + C** to stop the script.

Now that we've tested the while loop, we can move on to the for loop. Create a bash file for it:

```
nano forloop.sh
```

It should contain the script below:

```
#!/bin/bash
for (( n=2; n<=10; n++ ))
do
echo "$n seconds"
done
```

The script prints out numbers from 2 to 10 while adding the **seconds** keyword to it.

8. Create an Array

A **bash array** is a data structure designed to store information in an indexed way. It is extra useful if users need to store and retrieve thousands of pieces of data fast. What makes bash arrays special is that unlike any other programming language, they can store different types of elements. For example, you can use a bash array to store both strings and numbers.

Create a new file in the current directory:

```
nano array.sh
```

Combine the freshly learned **for** loop with a new indexed array:

```
#!/bin/bash
# Create an indexed array
IndexedArray=(egg burger milk)
#Iterate over the array to get all the values
for i in "${IndexedArray[@]}";do echo "$i";done
```

The script iterates over the **IndexedArray** and prints out all the values.

9. Conditional Statements

The most popular and widely used conditional statement is **if**. Even though the if statement is easy to write and understand, it can be used in advanced shell scripts as well.

Begin with a new bash file:

```
nano if.sh
```

Paste the code below in it:

```
#!/bin/bash
salary=1000
expenses=800
#Check if salary and expenses are equal
if [ $salary == $expenses ];
then
    echo "Salary and expenses are equal"
#Check if salary and expenses are not equal
elif [ $salary != $expenses ];
then
    echo "Salary and expenses are not equal"
fi
```

This script creates two new variables and compares whether they are equal or not.

10. Functions

A bash function is a set of commands that can be reused numerous times throughout a bash script. Create a new file:

```
nano function.sh
```

Then, paste in the following code – it creates a simple Hello World function.

```
#!/bin/bash
hello () {
   echo 'Hello World!'
}
hello
```

11. Display String Length

There are a couple of ways of counting string length in bash. We'll talk about the simplest. Create a file named **stringlength.sh**:

```
nano stringlength.sh
```

Fill it with the following:

```
#!/bin/bash
# Create a new string
mystring="lets count the length of this string"
i=${#mystring}
echo "Length: $i"
```

Here, the # operator is used to get the length of the string variable.

13. Find and Replace String

Another useful bash script for strings is **find and replace**. Create a file named **findreplace.sh**:

```
nano findreplace.sh
```

Then paste in the following bash script:

```
#!/bin/bash
first="I drive a BMW and Volvo"
second="Audi"
echo "${first/BMW/"$second"}"
```

The find and replace functionality doesn’t require any special commands, it can all be done with string manipulation.

14. Concatenate Strings

Concatenation is the term used for appending one string to the end of another string. Start by creating **concatenation.sh** file.

```
nano concatenation.sh
```

The simplest example would be the following:

```
#!/bin/bash
firststring="The secret is..."
secondstring="Bash"
thirdstring="$firststring$secondstring"
echo "$thirdstring"
```

The above script will connect the values of **firststring** and **secondstring** variables creating a whole new **thirdstring**.

A more advanced example would look like this:

```
#!/bin/bash
firststring="The secret is..."
firststring+="Bash"
echo "$firststring"
```

The script uses the **+=** operator to join the strings. With this method, you can concatenate strings with only one variable.

15. Check if a Number is Even or Odd

Odd and even numbers can be easily divided using the **if** statement and some simple math. Create a file named **evenoddnumbers.sh**:

```
nano evenoddnumbers.sh
```

The script uses the read command to read user input and divides it by 2. If the answer is 0, the number is even.

```
#!/bin/bash
read -p "Enter a number and I will check if its odd or even " mynumber
if [ $((mynumber%2)) -eq 0 ]
then
echo "Your number is even"
else
echo "Your number is odd."
fi
```

16. Generate Factorial of Number

The factorial of a number is the result of all positive descending integers. For example, the factorial of 5 would be 120:

```
5! = 5*4*3*2*1 = 120
```

Factorial scrips are very useful for users learning about recursion. Start by creating a **.sh** file executable:

```
factorial.sh
```

The following script will ask the user to enter a number they want to get the factorial of and use a **for loop** to calculate it.

```
#!/bin/bash
echo Enter the number you want to get factorial for
read mynumber
```

```
factorial=1
for ((i=1;i<=mynumber;i++))
do
factorial=$(($factorial*$i))
done
echo $factorial
```

17. Create Directories

It is effortless to create directories in bash unless you need to create a lot of directories quickly. In the following example, we will use the bash script to create a set of directories with the same subdirectories in each.

First, create a file named **directories.sh**:

```
nano directories.sh
```

Then paste in the following code:

```
#!/bin/bash
mkdir -p {Math,English,Geography,Arts}/{notes,examresults,portfolio}
```

The script creates 4 main directories: **Math**, **English**, **Geography**, and **Arts**. The **Notes**, **examresults**, and **portfolio** subdirectories are also created inside each.

If you were to replace the ***/*** symbol in the middle with _, the script would look like this:

```
#!/bin/bash
mkdir -p {Math,English,Geography,Arts}_{notes,examresults,portfolio}
```

Here is the output for it displaying a merge of the two directories:

18. Read Files

To read a file in bash, you will need to create a sample file first. Do so with the following command:

```
nano mysamplefile.txt
```

Fill it with some sample data:

```
Out of all scripting languages, bash is the most popular one. It allows
programmers to run scripts effortlessly in a variety of Linux distros.
```

Then create the actual script file:

```
nano readfiles.sh
```

Fill it with the following lines:

```
#!/bin/bash
myvalue=`cat mysamplefile.txt`
echo "$myvalue"
```

Running the script results in this output:

19. Print Files With Line Count

We'll print a file with its line count. Let's create it first:

```
nano cars.txt
```

In our example, we will fill it with our favorite car brands:

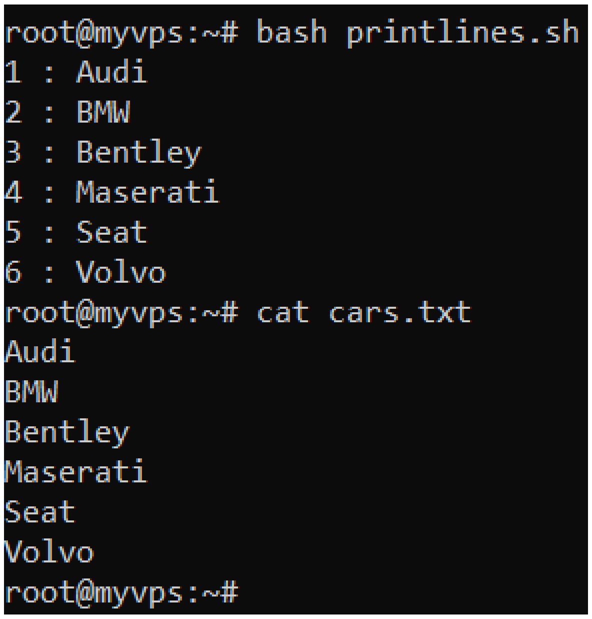
```
Audi
BMW
Bentley
Maserati
Seat
Volvo
```

Save the file and create a new bash script:

```
nano printlines.sh
```

Then paste in the following code:

```
#!/bin/bash
myfile='cars.txt'
i=1
while read lines; do
echo "$i : $lines"
i=$((i+1))
done < $myfile
```



```
root@myvps:~# bash printlines.sh
1 : Audi
2 : BMW
3 : Bentley
4 : Maserati
5 : Seat
6 : Volvo
root@myvps:~# cat cars.txt
Audi
BMW
Bentley
Maserati
Seat
Volvo
root@myvps:~#
```

The file contents of **cars.txt** match the printout of the while loop script.

20. Delete Files

To delete an existing file, you can use an **if** statement to check if the file exists and instruct the bash script to remove it. Start by creating the bash script file:

```
nano deletefiles.sh
```

The following script will create a new file named **cars.txt**, and then – with the help of the if statement – check if it exists and delete it.

```
#!/bin/bash
myfile='cars.txt'
touch $myfile
if [ -f $myfile ]; then
   rm cars.txt
   echo "$myfile deleted"
fi
```

21. Test if File Exists

To check if a given file exists, users can perform conditional tests. In this case, we'll use an **if** statement with a **-f** flag. The flag checks if a given file exists and is a regular file. Start by creating the script file:

```
nano exists.sh
```

Copy and paste the following script:

```
#!/bin/bash
MyFile=cars.txt
if [ -f "$MyFile" ]; then
echo "$MyFile exists."
else
echo "$MyFile does not exist."
fi
```

Running the script results in the following output:

22. Check Inodes and Disk Usage

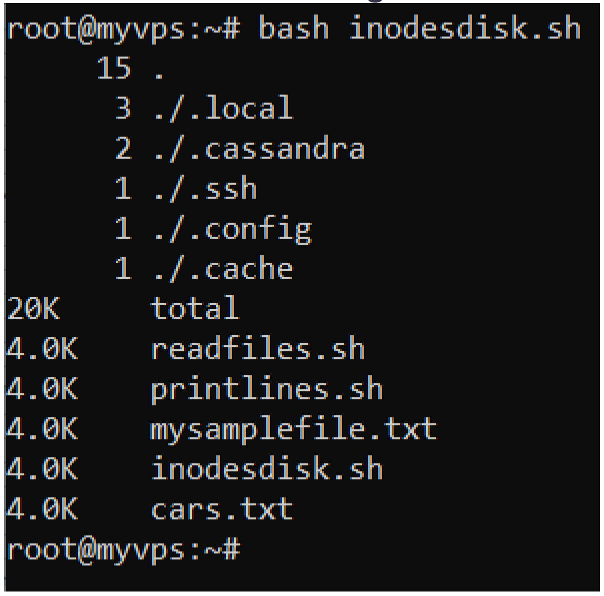
Inodes represent data units on a physical or virtual server. Each text file, video, folder, HTML file, or script is 1 inode. We'll check how many inodes there are in a directory, as too many can cause the system to slow down significantly. Start by creating the bash script:

```
nano inodesdisk.sh
```

Paste in the following code – it will check inodes in descending order as well as show disk usage in a given directory:

```
#!/bin/bash
find . -printf "%h\n" | cut -d/ -f-2 | sort | uniq -c | sort -rn
du -shc * | sort -rh
```

It will look something like this on the command line:



```
root@myvps:~# bash inodesdisk.sh
     15 .
      3 ./.local
      2 ./.cassandra
      1 ./.ssh
      1 ./.config
      1 ./.cache
20K     total
4.0K    readfiles.sh
4.0K    printlines.sh
4.0K    mysamplefile.txt
4.0K    inodesdisk.sh
4.0K    cars.txt
root@myvps:~#
```

The given directory has 15 inodes and all files take up 20KB.

23. Send Email Example

It is possible to send mail via bash scripts as well. In order to do so, users first need a functional mail transport agent. On Ubuntu 22.04, the installation command will look like this:

```
sudo apt-get install mailutils
```

Once you've taken care of the mail transport agent installation, create a new bash script:

```
nano mail.sh
```

Here are its contents:

```
#!/bin/bash
```

```
Recipient="myawesomeinbox@domain.tld"
Mysubject="Regarding our talk"
Mymessage="Call me"
`mail -s $Mysubject $Recipients <<< $Mymessage`
```

Important! The above script is meant for testing purposes only as it won't work normally with services like Gmail. We recommend using **PHPMailer** instead.

24. Update Packages

Keeping the system and all of its applications up to date is crucial. You can create a bash script to do it. Mind that this script requires root privileges. First, create the bash script file:

```
nano maintenance.sh
```

Fill it with these lines:

```
#!/bin/bash
apt-get update
apt-get upgrade
```

Make sure to preface the script with the sudo command when you run it:

```
sudo bash maintenance.sh
```

Important!Apt package manager is used on Debian based distributions only. If you're using a different distribution, make sure to update the command accordingly.

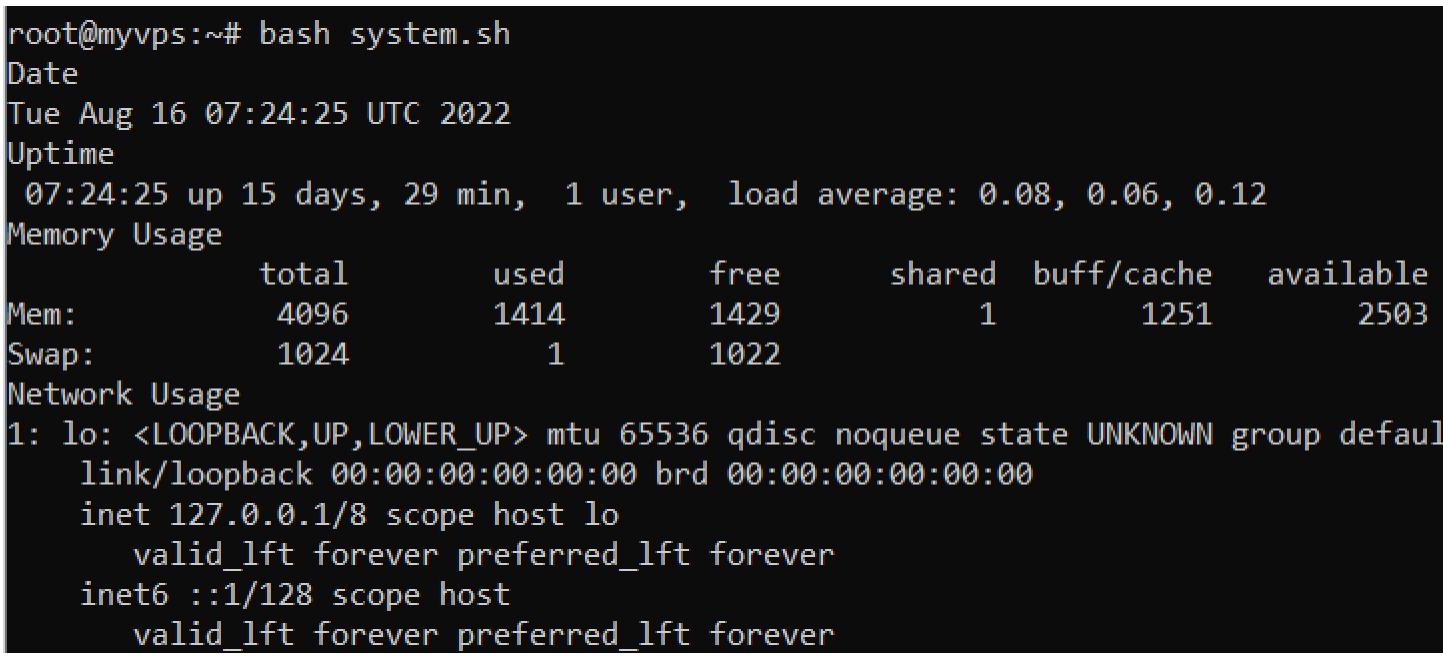
25. Show Server Information

The following script will list a few important server metrics: system’s date, uptime as well as memory, and network usage statistics. We’ll start by creating a new file for it:

```
nano system.sh
```

Here’s the script for it:

```
#!/bin/bash
echo "Date"
date
echo "Uptime"
uptime
echo "Memory Usage"
free -m
echo "Network Usage"
ip a
```



```
root@myvps:~# bash system.sh
Date
Tue Aug 16 07:24:25 UTC 2022
Uptime
 07:24:25 up 15 days, 29 min,  1 user,  load average: 0.08, 0.06, 0.12
Memory Usage
              total        used        free      shared  buff/cache   available
Mem:           4096        1414        1429           1        1251        2503
Swap:          1024           1        1022
Network Usage
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
```