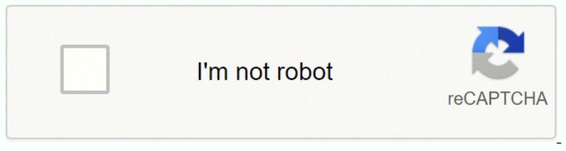

Next

Shell script take input from command line

Let's make our scripts interactive. We looked at one form of user input (command line arguments) in the previous section. Now we would like to introduce other ways the user may provide input to the Bash script. Following this we'll have a discussion on when and where is best to use each method. After the mammoth previous section this one is much easier to get through. Ask the User for Input If we would like to ask the user for input then we use a command called read. This command takes the input and will save it into a variable. read var1 Let's look at a simple example: introduction.sh #!/bin/bash echo Hello, who am I talking to? read varname echo It\'s nice to meet you $varname Let's break it down: Line 4 - Print a message asking the user for input. Line 6 - Run the command read and save the users response into the variable varname Line 8 - echo another message just to verify the read command worked. Note: I had to put a backslash (\ ) in front of the ' so that it was escaped. ./introduction.sh Hello, who am I talking to? Ryan It's nice to meet you Ryan Note: Ryan above is in italics just to show that it was something I typed in. On your terminal input will show up normally. You are able to alter the behaviour of read with a variety of command line options. (See the man page for read to see all of them.) Two commonly used options however are -p which allows you to specify a prompt and -s which makes the input silent. This can make it easy to ask for a username and password combination like the example below: login.sh #!/bin/bash read -p 'Username: ' uservar read -sp 'Password: ' passvar echo echo Thankyou $uservar we now have your login details On lines 4 and 5 above we include the prompt within quotes so we can have a space included with it. Otherwise the user input will start straight after the last character of the prompt which isn't ideal from a readability point of view. ./login.sh Username: ryan Password: Thankyou ryan we now have your login details So far we have looked at a single word as input. We can do more than that however. cars.sh #!/bin/bash echo What cars do you like? read car1 car2 car3 echo Your first car was: $car1 echo Your second car was: $car2 echo Your third car was: $car3 ./cars.sh What cars do you like? Jaguar Maserati Bentley Your first car was: Jaguar Your second car was: Maserati Your third car was: Bentley ./cars.sh What cars do you like? Jaguar Maserati Bentley Lotus Your first car was: Jaguar Your second car was: Maserati Your third car was: Bentley Lotus The general mechanism is that you can supply several variable names to read. Read will then take your input and split it on whitespace. The first item will then be assigned to the first variable name, the second item to the second variable name and so on. If there are more items than variable names then the remaining items will all be added to the last variable name. If there are less items than variable names then the remaining variable names will be set to blank or null. Reading from STDIN It's common in Linux to pipe a series of simple, single purpose commands together to create a larger solution tailored to our exact needs. The ability to do this is one of the real strenghs of Linux. It turns out that we can easily accommodate this mechanism with our scripts also. By doing so we can create scripts that act as filters to modify data in specific ways for us. Bash accomodates piping and redirection by way of special files. Each process gets it's own set of files (one for STDIN, STDOUT and STDERR respectively) and they are linked when piping or redirection is invoked. Each process gets the following files: STDIN - /proc//fd/0 STDOUT - /proc//fd/1 STDERR - /proc//fd/2 To make life more convenient the system creates some shortcuts for us: STDIN - /dev/stdin or /proc/self/fd/0 STDOUT - /dev/stdout or /proc/self/fd/1 STDERR - /dev/stderr or /proc/self/fd/2 fd in the paths above stands for file descriptor. So if we would like to make our script able to process data that is piped to it all we need to do is read the relevant file. All of the files mentioned above behave like normal files. summary #!/bin/bash echo Here is a summary of the sales data: echo ========== echo cat /dev/stdin | cut -d' ' -f 2,3 | sort Let's break it down: Lines 4, 5, 6 - Print a title for the output Line 8 - cat the file representing STDIN, cut setting the delimiter to a space, fields 2 and 3 then sort the output. cat salesdata.txt Fred apples 20 March 4 Susy oranges 5 March 7 Mark watermelons 12 March 10 Terry peaches 7 March 15 cat salesdata.txt | ./summary Here is a summary of the sales data: ========== apples 20 oranges 5 peaches 7 watermelons 12 So we now have 3 methods for getting input from the user: Command line arguments Read input during script execution Accept data that has been redirected into the Bash script via STDIN Which method is best depends on the situation. You should normally favor command line arguments wherever possible. They are the most convenient for users as the data will be stored in their command history so they can easily return to it. It is also the best approach if your script may be called by other scripts or processes (eg. maybe you want it to run periodically using CRON). Sometimes the nature of the data is such that it would not be ideal for it to be stored in peoples command histories etc. A good example of this is login credentials (username and password). In these circumstances it is best to read the data during script execution. If all the script is doing is processing data in a certain way then it is probably best to work with STDIN. This way it can easily be added into a pipeline. Sometimes you may find that a combination is ideal. The user may supply a filename as a command line argument and if not then the script will process what it finds on STDIN (when we look at If statements we'll see how this may be achieved). Or maybe command line arguments define certain behaviour but read is also used to ask for more information if required. Ultimatately you should think about 3 factors when deciding how users will supply data to your Bash script: Ease of use - which of these methods will make it easiest for users to use my script? Security - Is there sensitive data which I should handle appropriately? Robustness - Can I make it so that my scripts operation is intuitive and flexible and also make it harder to make simple mistakes? read varName Read input from the user and store it in the variable varName. /dev/stdin A file you can read to get the STDIN for the Bash script Usability Your choice of input methods will have an impact on how useable your script is. Activities Let's dabble with input. Create a simple script which will ask the user for a few pieces of information then combine this into a message which is echo'd to the screen. Add to the previous script to add in some data coming from command line arguments and maybe some of the other system variables. Create a script which will take data from STDIN and print the 3rd line only. Now play about with creating a script which will behave as a filter. Create a script which will rearrange the output of the command ls -l in a useful way (eg maybe you only print the filename, size and owner) (Hint: awk can be useful here). In this topic, we will learn how to read the user input from the terminal and the script. To read the Bash user input, we use the built-in Bash command called read. It takes input from the user and assigns it to the variable. It reads only a single line from the Bash shell. Below is the syntax for its implementation. Syntax read Follow the given examples to read user input from the Bash Script: Example 1: In this example, we read both the single and multiple variables from the Bash Script by using read command. Program: #!/bin/bash # Read the user input echo "Enter the user name: " read first_name echo "The Current User Name is $first_name" echo echo "Enter other users'names: " read name1 name2 name3 echo "$name1, $name2, $name3 are the other users." See the Bash Console: Output: What will happen if we don't pass any variable with the read command? If we don't pass any variable with the read command, then we can pass a built-in variable called REPLY (should be prefixed with the $ sign) while displaying the input. It can be explained using the below program: Program: #!/bin/bash # using read command without any variable echo "Enter name : " read echo "Name : $REPLY" On Bash Console: Output: Example 2: In this example, we enter the input on the same PROMPT by using the -p command line option as follows: read -p PROMPT #!/bin/bash read -p "username:" user_var echo "The username is: " $user_var See the Bash Console: Output: Example 3: This example is to keep the input on silent mode, such that whatever be a user input on the command line will be hidden to others. So, we pass a username and hide the password (silent mode) by using the command line options (-s, -p) commonly as follows: read -sp PROMPT Where -s allows a user to keep the input on silent mode and -p to input on newly command prompt. Program: #!/bin/bash read -p "username : " user_var read -sp "password : " pass_var echo echo "username : " $user_var echo "password : " $pass_var See the Bash Console: Output: NOTE: At the 5th line of the script, we have given a blanked line with echo command, because if we do not make it blank then, it will give output with both the password and username on the same PROMPT as the below image. So, write your script by adding a blank echo command line. Example 4: This example is to enter multiple inputs using an array. So use the -a command line option as follows: read -a Where -a helps script to read an array, and variable_name refers to an array. Program: #!/bin/bash # Reading multiple inputs using an array echo "Enter names : " read -a names echo "The entered names are : ${names[0]}, ${names[1]}." See the code on Bash Console: Output: Next TopicBash Date Format

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