

# Bash Heredoc

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When writing shell scripts you may be in a situation where you need to pass a multiline block of text or code to an interactive command, such as [tee](#) , `cat` , or [sftp](#) .

In Bash and other shells like Zsh, a Here document (Heredoc) is a type of redirection that allows you to pass multiple lines of input to a command.

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```
[COMMAND] <<[-] 'DELIMITER'
```

```
HERE-DOCUMENT
```

```
DELIMITER
```

- The first line starts with an optional command followed by the special redirection operator `<<` and the delimiting identifier.
  - You can use any string as a delimiting identifier, the most commonly used are EOF or END.
  - If the delimiting identifier is unquoted, the shell will substitute all variables, commands and special characters before passing the here-document lines to the command.
  - Appending a minus sign to the redirection operator `<<-`, will cause all leading tab characters to be ignored. This allows you to use indentation when writing here-documents in shell scripts. Leading whitespace characters are not allowed, only tab.
- The here-document block can contain strings, variables, commands and any other type of input.
- The last line ends with the delimiting identifier. White space in front of the delimiter is not allowed.

## Basic Here-doc Examples

In the following example, we are passing two lines of text containing an [environment variable](#) and a command to `cat` using a here document.

```
cat << EOF
The current working directory is: $PWD
You are logged in as: $(whoami)
EOF
```

As you can see from the output below, both the variable and the command output are substituted:

Output

```
The current working directory is: /home/linuxize
You are logged in as: linuxize
```

Let's see what will happen if we enclose the delimiter in single or double quotes.

```
cat <<- "EOF"
The current working directory is: $PWD
You are logged in as: $(whoami)
EOF
```

## Output

```
The current working directory is: $PWD
You are logged in as: $(whoami)
```

If you are using a heredoc inside a statement or loop, use the `<<-` redirection operation that allows you to indent your code.

```
if true; then
  cat <<- EOF
  Line with a leading tab.
  EOF
fi
```

## Output

```
Line with a leading tab.
```

Instead of displaying the output on the screen you can redirect it to a file using the `>`, `>>` operators.

```
cat << EOF > file.txt
The current working directory is: $PWD
You are logged in as: $(whoami)
```

If the file.txt doesn't exist it will be created. When using > the file will be overwritten, while the >> will append the output to the file.

The heredoc input can also be piped. In the following example the [sed](#) command will replace all instances of the l character with e :

```
cat <<'EOF' | sed 's/l/e/g'
Hello
World
EOF
```

Output

```
Heeeo
Wored
```

To write the piped data to a file:

```
cat <<'EOF' | sed 's/l/e/g' > file.txt
Hello
World
EOF
```

Using here-doc is one of the most convenient and easiest ways to execute multiple commands on a remote system over [SSH](#).

When using unquoted delimiter make sure you escape all variables, commands and special characters otherwise they will be interpolated locally:

```
ssh -T user@host.com << EOF
echo "The current local working directory is: $PWD"
echo "The current remote working directory is: \$PWD"
EOF
```

Output

```
The current local working directory is: /home/linuxize
The current remote working directory is: /home/user
```

You may also want to set up an [SSH key-based authentication](#) and connect to your Linux servers without entering a password.

## Conclusion

In this guide, you have learned what is `here-doc` and how to use it in your shell scripts.

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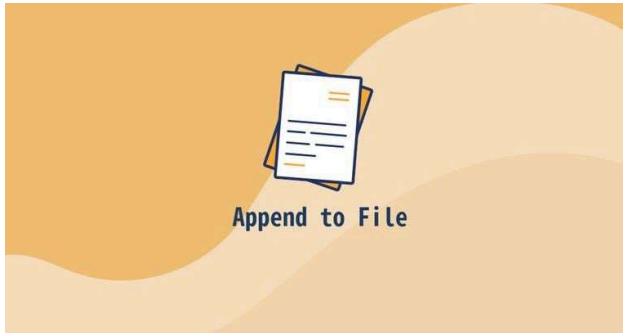
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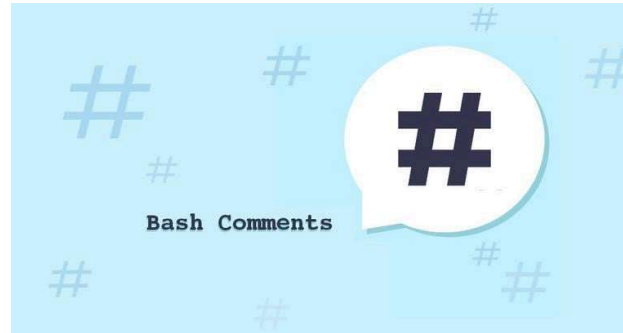
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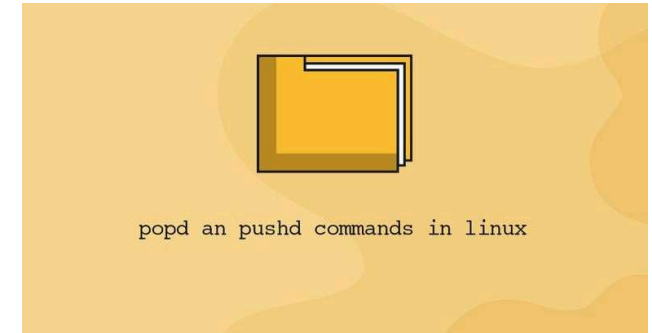
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