

cse15l-lab-reports

Lab Report 3

Command: `grep`

Searches a file or files for the given string, prints matching lines.

Switches

One interesting thing that can be prepended before `grep` are switches. Switches include options that allow your string keyword to ignore cases (upper and lower), show which line(s) the string was also found within the file, as well as inverting the search.

`-i`

```
[cs15lfa22ap@ieng6-201]:technical:203$ grep "introduction" biomed/rr74.txt
[cs15lfa22ap@ieng6-201]:technical:204$ grep "Introduction" biomed/rr74.txt
    Introduction
[cs15lfa22ap@ieng6-201]:technical:205$ grep -i "introduction" biomed/rr74.txt
    Introduction
```

The `-i` switch ignores the cases of the string you are searching with. Useful when the string you are searching for could be at the start of a sentence, thus this can eliminate having to deal with that capitalized letter.

`-c` & `-n`

```
[cs15lfa22ap@ieng6-201]:technical:206$ grep "vasodilator" biomed/rr74.txt
    isoforms of NOS, is a vasodilator of the pulmonary
    suggested as a compensatory vasodilator in the cerebral and
[cs15lfa22ap@ieng6-201]:technical:207$ grep -c "vasodilator" biomed/rr74.txt
2
[cs15lfa22ap@ieng6-201]:technical:208$ grep -n "vasodilator" biomed/rr74.txt
7:    isoforms of NOS, is a vasodilator of the pulmonary
341:    suggested as a compensatory vasodilator in the cerebral and
```

`-c` counts the number lines the string appears in and `-n` shows the lines where the string appeared in the file. They both can be useful when you need to keep track the amount of times a string shows up in a file.

-v

```

4
5      Introduction
6      NO, which may be synthesized by any of the three
7      isoforms of NOS, is a vasodilator of the pulmonary
8      circulation in many mammals. NO has been proposed as a
9      modulator of vascular tone and structure in the pulmonary
10     circulation, and previous studies using NOS inhibitors [ 1,
11     2] suggested that inhibition of NO increases acute hypoxic
12     pulmonary vasoconstriction. Chronic NOS inhibition did not
13     lead to development of pulmonary hypertension [ 3],
14     however, possibly because of a decrease in cardiac output.
15     These discrepancies have been addressed in recent studies
16     using mice that are deficient in NOS isoforms.
17     Three isoforms of NOS are found in the lung. The
18     principle isoform that is found in the pulmonary

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER

```

[cs15lfa22ap@ieng6-201]:technical:210$ grep -n "the" biomed/rr74.txt
6:      NO, which may be synthesized by any of the three
7:      isoforms of NOS, is a vasodilator of the pulmonary
9:      modulator of vascular tone and structure in the pulmonary
17:     Three isoforms of NOS are found in the lung. The
18:     principle isoform that is found in the pulmonary
20:     epithelium, and airway and vascular smooth muscle [ 5, 6],
21:     whereas nNOS is expressed in the bronchial epithelium and
25:     these isoforms [ 9, 10, 11, 12] suggest that eNOS-derived
27:     tone, as well as in attenuating the development of
32:     14, 15, 16]. Less is certain about the expression of NOS in
33:     the murine lung following hypoxia, with previous reports [
35:     levels. We therefore hypothesized that NOS isoforms are
37:     the increased susceptibility to hypoxic pulmonary
38:     hypertension in mice that lack eNOS [ 9, 12]. In the

```

```

[cs15lfa22ap@ieng6-201]:technical:212$ grep -v -n "the" biomed/rr74.txt
1:
2:
3:
4:
5:      Introduction
8:      circulation in many mammals. NO has been proposed as a
10:     circulation, and previous studies using NOS inhibitors [ 1,
11:     2] suggested that inhibition of NO increases acute hypoxic
12:     pulmonary vasoconstriction. Chronic NOS inhibition did not
13:     lead to development of pulmonary hypertension [ 3],
14:     however, possibly because of a decrease in cardiac output.
15:     These discrepancies have been addressed in recent studies
16:     using mice that are deficient in NOS isoforms.
19:     vasculature is eNOS [ 4]. iNOS is expressed in airway

```

The `-v` inverts your search and shows all lines where the string does not show up in a file. It is useful in the opposite way as `grep` is itself, finding all the lines where the specific string does not show up. It can also be seen that multiple switches can be used in the same command line.

File Name Search

`grep` can not only be used to search for strings in a file or files, but it can also search for strings in a filename or filenames.

Search Filename

```
[cs15lfa22ap@ieng6-201]:technical:223$ grep "002" grep-results.txt
plos/journal.pbio.0020001.txt
plos/journal.pbio.0020010.txt
plos/journal.pbio.0020012.txt
plos/journal.pbio.0020013.txt
plos/journal.pbio.0020019.txt
plos/journal.pbio.0020028.txt
plos/journal.pbio.0020035.txt
plos/journal.pbio.0020040.txt
plos/journal.pbio.0020042.txt
plos/journal.pbio.0020043.txt
plos/journal.pbio.0020046.txt
plos/journal.pbio.0020047.txt
plos/journal.pbio.0020052.txt
plos/journal.pbio.0020053.txt
plos/journal.pbio.0020054.txt
plos/journal.pbio.0020063.txt
plos/journal.pbio.0020064.txt
plos/journal.pbio.0020067.txt
plos/journal.pbio.0020068.txt
plos/journal.pbio.0020071.txt
plos/journal.pbio.0020073.txt
plos/journal.pbio.0020100.txt
plos/journal.pbio.0020101.txt
plos/journal.pbio.0020105.txt
plos/journal.pbio.0020112.txt
plos/journal.pbio.0020113.txt
plos/journal.pbio.0020116.txt
plos/journal.pbio.0020121.txt
plos/journal.pbio.0020125.txt
plos/journal.pbio.0020127.txt
plos/journal.pbio.0020133.txt
plos/journal.pbio.0020140.txt
plos/journal.pbio.0020145.txt
plos/journal.pbio.0020146.txt
plos/journal.pbio.0020147.txt
```

Used to search for files with names that contain the string "002". Can be helpful when trying to find specific file names, filtering out all the files that do not contain the string in their name.

Search Filetype

```
[cs15lfa22ap@ieng6-201]:technical:221$ grep ".txt" grep-results.txt
plos/journal.pbio.0020001.txt
plos/journal.pbio.0020010.txt
plos/journal.pbio.0020012.txt
plos/journal.pbio.0020013.txt
plos/journal.pbio.0020019.txt
plos/journal.pbio.0020028.txt
plos/journal.pbio.0020035.txt
plos/journal.pbio.0020040.txt
plos/journal.pbio.0020042.txt
plos/journal.pbio.0020043.txt
plos/journal.pbio.0020046.txt
plos/journal.pbio.0020047.txt
plos/journal.pbio.0020052.txt
plos/journal.pbio.0020053.txt
plos/journal.pbio.0020054.txt
plos/journal.pbio.0020063.txt
plos/journal.pbio.0020064.txt
plos/journal.pbio.0020067.txt
plos/journal.pbio.0020068.txt
plos/journal.pbio.0020071.txt
plos/journal.pbio.0020073.txt
plos/journal.pbio.0020100.txt
plos/journal.pbio.0020101.txt
plos/journal.pbio.0020105.txt
plos/journal.pbio.0020112.txt
plos/journal.pbio.0020113.txt
plos/journal.pbio.0020116.txt
plos/journal.pbio.0020121.txt
plos/journal.pbio.0020125.txt
plos/journal.pbio.0020127.txt
plos/journal.pbio.0020133.txt
plos/journal.pbio.0020140.txt
plos/journal.pbio.0020145.txt
plos/journal.pbio.0020146.txt
```

Used to search for files that have the same type as the string. This can be quite useful when you want to filter out specific types of files, the examples shows the command line filtering out any file that is not a txt file.

Search Folder

```
[cs15lfa22ap@ieng6-201]:technical:230$ find government > find-government.txt  
[cs15lfa22ap@ieng6-201]:technical:231$ grep ".txt" find-government.txt  
government/About_LSC/CONFIG_STANDARDS.txt  
government/About_LSC/Comments_on_semiannual.txt
```

```
[cs15lfa22ap@ieng6-201]:technical:232$ grep "Media" find-government.txt  
government/Media  
government/Media/5_Legal_Groups.txt  
government/Media/AP_LawSchoolDebts.txt  
government/Media/A_Perk_of_Age.txt  
government/Media/A_helping_hand.txt  
government/Media/Abuse_penalties.txt  
government/Media/Advocate_for_Poor.txt  
government/Media/Aid_Gets_7_Million.txt  
government/Media/All_May_Have_Justice.txt  
government/Media/Annual_Fee.txt  
government/Media/Anthem_Payout.txt  
government/Media/Assuring_Underprivileged.txt  
government/Media/Attorney_gives_his_time.txt  
government/Media/Avoids_Budget_Cut.txt  
government/Media/Barnes_Volunteers.txt  
government/Media/Barnes_new_job.txt  
government/Media/Barnes_pro_bono.txt
```

This time, `grep` is used to search for any file that is contained within any folders that contain the string "media". Like the previous examples, this is another way of filtering out unwanted files, but this time they are organized under separate folders.

Anchors

`grep` also has the ability to add anchors before the desired string you would like to search up in a file.

Start of Word

```
[cs15lfa22ap@ieng6-201]:technical:246$ grep "\<a" 911report/chapter-10.txt
```

After the attacks had occurred, while crisis managers were still sorting out a number of unnerving false alarms, Air Force One flew to Barksdale Air Force Base in Louisiana. One of these alarms was of a reported threat against Air Force One itself, a threat eventually run down to a misunderstood communication in the hectic While the plan at the elementary school had been to return to Washington, by the time Air Force One was airborne at 9:55 A.M. the Secret Service, the President's advisers, and Vice President Cheney were strongly advising against it. President Bush reluctantly acceded to this advice and, at about 10:10, Air Force One changed course and began heading due west. The immediate objective was to find a safe location-not too far away-where the President could land and speak to the American people. The Secret Service was also interested in refueling the aircraft and paring down the size of the traveling party. The President's military aide, an Air Force officer, quickly researched the options and, sometime around 10:20, identified Barksdale Air Force Base as an appropriate interim destination.

When Air Force One landed at Barksdale at about 11:45, personnel from the local Secret Service office were still en route to the airfield. The motorcade consisted of a military police lead vehicle and a van; the proposed briefing theater had no phones or electrical outlets. Staff scrambled to prepare another room for the President's remarks, while the lead Secret Service agent reviewed the security for security reasons was taped and not broadcast live, and the traveling party returned to Air Force One. The next destination was discussed: once again the Secret Service recommended against returning to Washington, and the Vice President agreed. Offutt Air Force Base in Nebraska was chosen because of its elaborate command and control facilities, and because it could accommodate overnight lodging for 50 persons. The Secret Service wanted a place where the President could spend several Air Force One arrived at Offutt at 2:50 P.M. At about 3:15, President Bush met with his principal advisers through a secure video teleconference.

Rice said President Bush began the meeting with the words, "We're at war," and that Director of Central Intelligence George Tenet said the agency was still assessing who was responsible, but the early signs all pointed to al Qaeda. That evening the Deputies Committee returned to the pending The secretary of defense directed the nation's armed forces to Defense Condition 3, an increased state of military readiness.

For the first time in history, all nonemergency civilian aircraft in the United States were grounded, stranding tens of thousands of passengers across the country.

The command "<a" means to find all lines that contains at least one word that begins with the letter "a". Useful in finding lines that contain words that begin with a string, filtering all that do not.

End of Word

```
[cs15lfa22ap@ieng6-201]:technical:247$ grep "e\>" 911report/chapter-10.txt
```

After the attacks had occurred, while crisis managers were still sorting out a number of unnerving false alarms, Air Force One flew to Barksdale Air Force Base in Louisiana. One of these alarms was of a reported threat against Air Force One itself, a threat eventually run down to a misunderstood communication in the hectic White House Situation Room that morning.

While the plan at the elementary school had been to return to Washington, by the time Air Force One was airborne at 9:55 A.M. the Secret Service, the President's advisers, and Vice President Cheney were strongly advising against it. President Bush reluctantly acceded to this advice and, at about 10:10, Air Force One changed course and began heading due west. The immediate objective was to find a safe location-not too far away-where the President could land and speak to the American people. The Secret Service was also interested in refueling the aircraft and paring down the size of the traveling party. The President's military aide, an Air Force officer, quickly researched the options and, sometime around 10:20, identified Barksdale Air Force Base as an appropriate interim destination.

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the agency was still assessing who was responsible, but the early signs all pointed to al Qaeda.⁶ That evening the Deputies Committee returned to the pending presidential directive they had labored over during the summer.

The secretary of defense directed the nation's armed forces to Defense Condition 3,

The command "e>" means to find all lines that contains at least one word that ends with the letter "e". Useful in finding lines that contain words that end with a specific string.

End of Line

```
[cs15lfa22ap@ieng6-201]:technical:249$ grep "e[[:cntrl:]]*$" 911report/chapter-10.txt
Louisiana. One of these alarms was of a reported threat against Air Force One
While the plan at the elementary school had been to return to Washington, by the time
course and began heading due west. The immediate objective was to find a safe
down the size of the traveling party. The President's military aide, an Air Force
phones or electrical outlets. Staff scrambled to prepare another room for the
narrowly escaped direct attack. Extraordinary security precautions were put in place
have him return to Washington and ordered Air Force One back to Andrews Air Force
Base. He was flown by helicopter back to the White House, passing over the
from the White House. After emphasizing that the first priority was to help the
The agenda in those first days is worth noting, partly as a checklist for future
crisis planners. It began with problems of how to help victims and stanch the
The very process of reviewing these issues underscored the absence of an effective
of protection and preparedness. Though a number of agencies had some part of the
attacks. Eventually, 768 aliens were arrested as "special interest" detainees. Some
(such as Zacarias Moussaoui) were actually in INS custody before 9/11; most were
directing this effort as "risk minimization," both to find out who had committed the
their proceedings terminated, and 8-one of whom was Moussaoui-were remanded to the
custody of the U.S. Marshals Service. The inspector general of the Justice
Department found significant problems in the way the 9/11 detainees were
In response to a request about the counterterrorism benefits of the 9/11 detainee
terrorist organization and that it had obtained new leads helpful to the
The government's ability to collect intelligence inside the United States, and the
Three questions have arisen with respect to the departure of Saudi nationals from the
video teleconferences of the interagency group Clarke chaired, and Clarke said he
By late in the evening of September 11, the President had addressed the nation on the
included Vice President Cheney, Secretary of State Powell, Secretary of Defense
States had to make it clear to Pakistan, Afghanistan, and the Arab states that the
have harbored the attackers, including Iraq, Afghanistan, Libya, Sudan, and Iran. He
the overall message should be that anyone supporting al Qaeda would risk harm. The
agreed to every U.S. request for support in the war on terrorism. The next day, the
ordered Secretary Rumsfeld to develop a military plan against the Taliban. The
they got the message, and hit them hard if they did not. He made clear that the
his chief lieutenants, including Ayman al Zawahiri; tell the United States what the
Ladin and his deputies and shut down al Qaeda camps within 24 to 48 hours, or the
its resources to eliminate terrorism as a threat, punish those responsible for the
```

The "\$" anchor that follows the search string (in this case "e") means to find all lines that end with the specified string. Similar to the one above, it is quite handy in finding lines that end with a particular string. Note: "[[:cntrl:]]" is needed in the command in this case because `grep` is expecting an Unix line like ending. If the segment above is omitted, the output will just be the entire text file,

although all the lines that end with the searched string will be highlighted:

```
[cs15lfa22ap@ieng6-201]:technical:250$ grep "e*$" 911report/chapter-10.txt
```

WARTIME

After the attacks had occurred, while crisis managers were still sorting out a number of unnerving false alarms, Air Force One flew to Barksdale Air Force Base in Louisiana. One of these alarms was of a reported threat against Air Force One itself, a threat eventually run down to a misunderstood communication in the hectic White House Situation Room that morning.

While the plan at the elementary school had been to return to Washington, by the time Air Force One was airborne at 9:55 A.M. the Secret Service, the President's advisers, and Vice President Cheney were strongly advising against it. President Bush reluctantly acceded to this advice and, at about 10:10, Air Force One changed course and began heading due west. The immediate objective was to find a safe location-not too far away-where the President could land and speak to the American people. The Secret Service was also interested in refueling the aircraft and paring down the size of the traveling party. The President's military aide, an Air Force officer, quickly researched the options and, sometime around 10:20, identified Barksdale Air Force Base as an appropriate interim destination.

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[Back to index](#)

[Back to github](#)