

## Splunk Fundamentals 1 Lab Exercises

Lab typographical conventions:

[sourcetype=db\_audit] **OR** [cs\_mime\_type] indicates either a source type or the name of a field.

**NOTE:** Lab work will be done on your personal computer or virtual machine, no lab environment is provided. We suggest you **DO NOT** do the lab work on your production environment.

The lab instructions refer to these source types by the types of data they represent:

Type	Sourcetype	Fields of interest
Web Application	access_combined_wcookie	action, bytes, categoryId, clientip, itemId, JSESSIONID, productId, referer, referer_domain, status, useragent, file
Database	db_audit	Command, Duration, Type
Web server	linux_secure	COMMAND, PWD, pid, process

## Lab Module 8 – Basic Commands

**NOTE:** Now that you understand the basics of searching in Splunk, we will make labs a little more challenging. This lab document has two sections. The first section includes the instructions without answers. The second section includes instructions with the expected search string (answer) in **red**.

### Description

In this lab, you will be using some of the common Splunk commands including fields, table, rename and dedup.

### Steps

**Scenario:** The Marketing team tracks all user sessions related to marketing campaigns. It would like a report of all user sessions that include purchase actions so that it can put a value on the different campaigns it's running.

#### Task 1: Search for the requested data.

1. Navigate to the Search view. (If you are in the **Home** app, click **Search & Reporting** from the column on the left side of the screen. You can also access the Search view by clicking the **Search** menu option on the green bar at the top of the screen.)

**NOTE:** For this course, you will be searching across all time using the main index. This is NOT a best practice in a production environment, but needed for these labs due to the nature of the limited dataset.

2. Enter a search that returns all web application events that include a purchase action with a web status of 200.

## Results Example:

[Hide Fields](#)
[All Fields](#)

Selected Fields

- host 1
- source 1
- sourcetype 1

Interesting Fields

- action 1
- bytes 100+
- categoryid 7
- clientip 100+
- date\_hour 24
- date\_mday 31
- date\_minute 60
- date\_month 2
- date\_second 60
- date\_wday 7
- date\_year 1
- date\_zone 1
- file 2
- ident 1
- index 1

i	Time	Event
>	4/30/17 11:57:14.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:14] "POST /cart/success.do?JSESSIONID=SD1SL7FF6ADFF89341&productId=FI-AG-G08 HTTP 1.1" 200 3767 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 986 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:57:13.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:13] "POST /success.do?action=purchase&categoryId=SHOOTER&productId=WC-SH-G04&JSESSIONID=SD1SL7FF6ADFF89341 HTTP 1.1" 200 268 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=SHOOTER&productId=WC-SH-G04" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:53:43.000 PM	198.35.3.23 - - [30/Apr/2017:23:53:43] "POST /success.do?action=purchase&categoryId=ARCADE&productId=MB-AG-G07&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2915 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=ARCADE&productId=MB-AG-G07" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /cart/success.do?JSESSIONID=SD8SL8FF6ADFF4957&productId=DC-SG-G02 HTTP 1.1" 200 594 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /success.do?action=purchase&categoryId=STRATEGY&productId=DC-SG-G02&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2752 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=STRATEGY&productId=DC-SG-G02" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:50:48.000 PM	92.46.53.223 - - [30/Apr/2017:23:50:48] "POST /cart/success.do?JSESSIONID=SD2SL10FF6ADFF4955&productId=WC-SH-A01 HTTP 1.1" 200 816 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_4) AppleWebKit/536.5 (KHTML, like Gecko) Chrome/19.0.1084.46 Safari/536.5" 231

3. Select the file field in the Interesting Fields list.

## Results Example:

Values	Count	%
success.do	16,139	89.991%
error.do	1,795	10.009%

4. Notice that there are two different files that were returned from the web server. They are: error.do and success.do. Our web development team informs us that the success.do is served when the order is processed and error.do is served when there is an error with the information being processed.
5. The team is only looking for successful purchases, so change your search to only return those.

## Results Example:

[Hide Fields](#)
[All Fields](#)

Selected Fields

- host 1
- source 1
- sourcetype 1

Interesting Fields

- action 1
- bytes 100+
- categoryid 7
- clientip 100+
- date\_hour 24
- date\_mday 31
- date\_minute 60
- date\_month 2
- date\_second 60
- date\_wday 7
- date\_year 1
- date\_zone 1
- file 1

i	Time	Event
>	4/30/17 11:57:14.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:14] "POST /cart/success.do?JSESSIONID=SD1SL7FF6ADFF89341&productId=FI-AG-G08 HTTP 1.1" 200 3767 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 986 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:57:13.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:13] "POST /success.do?action=purchase&categoryId=SHOOTER&productId=WC-SH-G04&JSESSIONID=SD1SL7FF6ADFF89341 HTTP 1.1" 200 268 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=SHOOTER&productId=WC-SH-G04" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:53:43.000 PM	198.35.3.23 - - [30/Apr/2017:23:53:43] "POST /success.do?action=purchase&categoryId=ARCADE&productId=MB-AG-G07&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2915 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=ARCADE&productId=MB-AG-G07" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /cart/success.do?JSESSIONID=SD8SL8FF6ADFF4957&productId=DC-SG-G02 HTTP 1.1" 200 594 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /success.do?action=purchase&categoryId=STRATEGY&productId=DC-SG-G02&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2752 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=STRATEGY&productId=DC-SG-G02" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448

6. You will see fields that do not matter to the team. Use the fields command to only return the action, JSESSIONID and status fields. Does your search run faster using the command?

Results Example:

Interesting Fields

a action 1

a JSESSIONID 100+

# status 1

7. The fields list looks cleaner, but seeing the events like this might still be confusing for the team.

## Task 2: Put the data into an easy to read table.

8. Replace the `fields` command with the `table` command to display the data as a table. Results Example:

20 Per Page ☐ Format Preview ☐ < Prev 1 2 3 4 5 6 7 8 9 ... Next >

action	JSESSIONID	status
purchase	SD6SL5FF6ADFF89354	200
purchase	SD6SL5FF6ADFF89354	200
purchase	SD6SL5FF6ADFF89354	200
purchase	SD6SL5FF6ADFF89354	200

9. Change the order of the fields so that `JSESSIONID` is the first column.

Results Example:

20 Per Page ☐ Format Preview ☐ < Prev 1 2 3 4 5 6 7 8 9 ... Next >

JSESSIONID	action	status
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200

10. Session IDs are called "UserSessions" in the marketing data. Rename `JSESSIONID` so that your report matches the marketing data.

Results Example:

20 Per Page ☐ Format Preview ☐ < Prev 1 2 3 4 5 6 7 8 9 ... Next >

UserSessions	action	status
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200

11. Sort `UserSessions` using the `sort` command.

12. Notice that some `UserSessions` values show up multiple times. Also notice the number of events returned on the **Statistics** tab.

13. Remove the `sort` command and use `dedup` to remove any identical session values.

Results Example:

20 Per Page ▾ [Format](#) [Preview](#) ▾

< Prev 1 2 3 4 5 6 7 8 9 ... Next >

UserSessions ▾	action ▾	status ▾
SD6SL5FF6ADFF89354	purchase	200
SD1SL7FF6ADFF89341	purchase	200
SD3SL5FF3ADFF89564	purchase	200
SD8SL5FF4ADFF89311	purchase	200
SD6SL1FF6ADFF89561	purchase	200
SD5SL9FF9ADFF89548	purchase	200

14. How many events are now listed on the **Statistics** tab?

**NOTE:** As a best practice and for best performance, place dedup as early in the search as possible.

15. While having `action` and `status` fields displayed was nice for a sanity check of the data, the marketing team will not need to have these displayed. Remove them from your table display.

*Results Example:*

20 Per Page ▾ [Format](#) [Preview](#) ▾

< Prev 1 2 3 4 5 6 7 8 9 ... Next >

UserSessions ▾
SD6SL5FF6ADFF89354
SD1SL7FF6ADFF89341
SD3SL5FF3ADFF89564
SD8SL5FF4ADFF89311
SD6SL1FF6ADFF89561
SD5SL9FF9ADFF89548
SD0SL4FF2ADFF89269

## Splunk Fundamentals 1 Lab Exercises

Lab typographical conventions:

[sourcetype=db\_audit] **OR** [cs\_mime\_type] indicates either a source type or the name of a field.

**NOTE:** Lab work will be done on your personal computer or virtual machine, no lab environment is provided. We suggest you **DO NOT** do the lab work on your production environment.

The lab instructions refer to these source types by the types of data they represent:

Type	Sourcetype	Fields of interest
Web Application	access_combined_wcookie	action, bytes, categoryId, clientip, itemId, JSESSIONID, productId, referer, referer_domain, status, useragent, file
Database	db_audit	Command, Duration, Type
Web server	linux_secure	COMMAND, PWD, pid, process

## Lab Module 8 – Basic Commands with Solutions

**NOTE:** Now that you understand the basics of searching in Splunk, we will make labs a little more challenging. This lab document has two sections. The first section includes the instructions without answers. The second section includes instructions with the expected search string (answer) in red.

### Description

In this lab, you will be using some of the common Splunk commands including fields, table, rename and dedup.

### Steps

**Scenario:** The Marketing team tracks all user sessions related to marketing campaigns. It would like a report of all user sessions that include purchase actions so that it can put a value on the different campaigns it's running.

#### Task 1: Search for the requested data.

1. Navigate to the Search view. (If you are in the **Home** app, click **Search & Reporting** from the column on the left side of the screen. You can also access the Search view by clicking the **Search** menu option on the green bar at the top of the screen.)

**NOTE:** For this course, you will be searching across all time using the main index. This is NOT a best practice in a production environment, but needed for these labs due to the nature of the limited dataset.

2. Enter a search that returns all web application events that include a purchase action with a web status of 200. (`index=main sourcetype=access_combined_wcookie action=purchase status=200`)

Results Example:

[Hide Fields](#)
[All Fields](#)

Selected Fields

- `host` 1
- `source` 1
- `sourcetype` 1

Interesting Fields

- `action` 1
- `bytes` 100+
- `categoryid` 7
- `clientip` 100+
- `date_hour` 24
- `date_mday` 31
- `date_minute` 60
- `date_month` 2
- `date_second` 60
- `date_wday` 7
- `date_year` 1
- `date_zone` 1
- `file` 2
- `ident` 1
- `index` 1

#	Time	Event
>	4/30/17 11:57:14.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:14] "POST /cart/success.do?JSESSIONID=SD1SL7FF6ADFF89341&productId=FI-AG-G08 HTTP 1.1" 200 3767 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 986 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:57:13.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:13] "POST /success.do?action=purchase&categoryId=SHOOTER&productId=WC-SH-G04&JSESSIONID=SD1SL7FF6ADFF89341 HTTP 1.1" 200 268 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=SHOOTER&productId=WC-SH-G04" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:53:43.000 PM	198.35.3.23 - - [30/Apr/2017:23:53:43] "POST /success.do?action=purchase&categoryId=ARCADE&productId=MB-AG-G07&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2915 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=ARCADE&productId=MB-AG-G07" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /cart/success.do?JSESSIONID=SD8SL8FF6ADFF4957&productId=DC-SG-G02 HTTP 1.1" 200 594 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /success.do?action=purchase&categoryId=STRATEGY&productId=DC-SG-G02&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2752 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=STRATEGY&productId=DC-SG-G02" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:50:48.000 PM	92.46.53.223 - - [30/Apr/2017:23:50:48] "POST /cart/success.do?JSESSIONID=SD2SL10FF6ADFF4955&productId=WC-SH-A01 HTTP 1.1" 200 816 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_7_4) AppleWebKit/536.5 (KHTML, like Gecko) Chrome/19.0.1084.46 Safari/536.5" 231

3. Select the `file` field in the **Interesting Fields** list.

Results Example:

Values	Count	%
success.do	16,139	89.991%
error.do	1,795	10.009%

4. Notice that there are two different files that were returned from the web server. They are: `error.do` and `success.do`. Our web development team informs us that the `success.do` is served when the order is processed and `error.do` is served when there is an error with the information being processed.
5. The team is only looking for successful purchases, so change your search to only return those. (`index=main sourcetype=access_combined_wcookie action=purchase status=200 file=success.do`)

Results Example:

[Hide Fields](#)
[All Fields](#)

Selected Fields

- `host` 1
- `source` 1
- `sourcetype` 1

Interesting Fields

- `action` 1
- `bytes` 100+
- `categoryid` 7
- `clientip` 100+
- `date_hour` 24
- `date_mday` 31
- `date_minute` 60
- `date_month` 2
- `date_second` 60
- `date_wday` 7
- `date_year` 1
- `date_zone` 1
- `file` 1

#	Time	Event
>	4/30/17 11:57:14.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:14] "POST /cart/success.do?JSESSIONID=SD1SL7FF6ADFF89341&productId=FI-AG-G08 HTTP 1.1" 200 3767 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 986 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:57:13.000 PM	109.169.32.135 - - [30/Apr/2017:23:57:13] "POST /success.do?action=purchase&categoryId=SHOOTER&productId=WC-SH-G04&JSESSIONID=SD1SL7FF6ADFF89341 HTTP 1.1" 200 268 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=SHOOTER&productId=WC-SH-G04" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:53:43.000 PM	198.35.3.23 - - [30/Apr/2017:23:53:43] "POST /success.do?action=purchase&categoryId=ARCADE&productId=MB-AG-G07&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2915 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=ARCADE&productId=MB-AG-G07" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /cart/success.do?JSESSIONID=SD8SL8FF6ADFF4957&productId=DC-SG-G02 HTTP 1.1" 200 594 "http://www.buttercupgames.com/cart.do?action=purchase&" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448 host = web_application   source = access_30DAY.log   sourcetype = access_combined_wcookie
>	4/30/17 11:51:56.000 PM	198.35.3.23 - - [30/Apr/2017:23:51:56] "POST /success.do?action=purchase&categoryId=STRATEGY&productId=DC-SG-G02&JSESSIONID=SD8SL8FF6ADFF4957 HTTP 1.1" 200 2752 "http://www.buttercupgames.com/cart.do?action=addtocart&categoryId=STRATEGY&productId=DC-SG-G02" "Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; BOIE9;ENUS)" 448

6. You will see fields that do not matter to the team. Use the `fields` command to only return the `action`, `JSESSIONID` and `status` fields. Does your search run faster using the command?

(index=main sourcetype=access\_combined\_wcookie action=purchase status=200 file=success.do | fields action, JSESSIONID, status)

Results Example:

Interesting Fields

a action 1

a JSESSIONID 100+

# status 1

7. The fields list looks cleaner, but seeing the events like this might still be confusing for the team.

## Task 2: Put the data into an easy to read table.

8. Replace the `fields` command with the `table` command to display the data as a table. (index=main sourcetype=access\_combined\_wcookie action=purchase status=200 file=success.do | table action, JSESSIONID, status).

Results Example:

20 Per Page [Format](#) [Preview](#) < Prev 1 2 3 4 5 6 7 8 9 ... Next >

action	JSESSIONID	status
purchase	SD6SL5FF6ADFF89354	200
purchase	SD6SL5FF6ADFF89354	200
purchase	SD6SL5FF6ADFF89354	200
purchase	SD6SL5FF6ADFF89354	200

9. Change the order of the fields so that `JSESSIONID` is the first column. (index=main sourcetype=access\_combined\_wcookie action=purchase status=200 file=success.do | table JSESSIONID, action, status).

Results Example:

20 Per Page [Format](#) [Preview](#) < Prev 1 2 3 4 5 6 7 8 9 ... Next >

JSESSIONID	action	status
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200

10. Session IDs are called "UserSessions" in the marketing data. Rename `JSESSIONID` so that your report matches the marketing data. (index=main sourcetype=access\_combined\_wcookie action=purchase status=200 file=success.do | table JSESSIONID, action, status | rename JSESSIONID as UserSessions).

Results Example:

20 Per Page [Format](#) [Preview](#) < Prev 1 2 3 4 5 6 7 8 9 ... Next >

UserSessions	action	status
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200
SD6SL5FF6ADFF89354	purchase	200

11. Sort `UserSessions` using the `sort` command. (index=main sourcetype=access\_combined\_wcookie action=purchase status=200 file=success.do | table JSESSIONID, action, status | rename JSESSIONID as UserSessions | sort UserSessions)

12. Notice that some `UserSessions` values show up multiple times. Also notice the number of events returned on the **Statistics** tab.

13. Remove the `sort` command and use `dedup` to remove any identical session values. (`index=main sourcetype=access_combined_wcookie action=purchase status=200 file=success.do | dedup JSESSIONID | table JSESSIONID, action, status | rename JSESSIONID as UserSessions`)

Results Example:

20 Per Page [Format](#) [Preview](#) < Prev 1 2 3 4 5 6 7 8 9 ... Next >

UserSessions	action	status
SD6SL5FF6ADFF89354	purchase	200
SD1SL7FF6ADFF89341	purchase	200
SD3SL5FF3ADFF89564	purchase	200
SD8SL5FF4ADFF89311	purchase	200
SD6SL1FF6ADFF89561	purchase	200
SD5SL9FF9ADFF89548	purchase	200

14. How many events are now listed on the **Statistics** tab?

**NOTE:** As a best practice and for best performance, place `dedup` as early in the search as possible.

15. While having `action` and `status` fields displayed was nice for a sanity check of the data, the marketing team will not need to have these displayed. Remove them from your table display. (`index=main sourcetype=access_combined_wcookie action=purchase status=200 file=success.do | dedup JSESSIONID | table JSESSIONID | rename JSESSIONID as UserSessions`).

Results Example:

20 Per Page [Format](#) [Preview](#) < Prev 1 2 3 4 5 6 7 8 9 ... Next >

UserSessions
SD6SL5FF6ADFF89354
SD1SL7FF6ADFF89341
SD3SL5FF3ADFF89564
SD8SL5FF4ADFF89311
SD6SL1FF6ADFF89561
SD5SL9FF9ADFF89548
SD0SL4FF2ADFF89269