iGNITE Technologies

Burp Suite for Pentester

Advanced Fuzzing

TABLE OF CONTENTS

Abstract

Whether it's guessing up a login credential or opting a valid payload for a specific vulnerability, both of these things are time-consuming and require a number of permutation and combination to built up a dictionary for them, if done manually. But what, if all these things are done with some simple click and you just need to sit and analyze the outcome it drops out?

Today in this publication, we'll learn the most common technique i.e. **"fuzzing"** that has been used since decays in order to deface a web-application, by exploiting some vulnerabilities over at the web-application with a list of pre-defined payloads that are offered by the burpsuite's intruder tab.

iGNITE Technologies

Introduction to Fuzzing

Introduction to Fuzzing

What is Fuzzing?

Fuzzing or Fuzz Testing plays a vital role in software testing procedures. It is a technique which is used for find bugs, errors, faults, and loophole by **injecting** a set of partially – arbitrary inputs called **fuzz** into the program of the application which is to be tested. A Fuzzer takes structure inputs in a file format to differentiate between valid and invalid inputs.
However, the **Fuzzer tools are best in identifying vulnerability** like SQL injection, buffer overflow, Cross-Site Scripting, OS command injection and many more.

How Burp Suite work as a Fuzzer?

Burp Suite comes with an integrated **HTML Fuzzer**, commonly termed as a **Burp Intruder.** This burp intruder gives us several opportunities to fuzz the injection points in the most customizable way we can.
In order to make a fuzzing attack possible, we need to add up a dictionary as a **payload list**. However, Burp Suite's Professional Edition gives us an option to opt **the predefined lists** containing the most common fuzz strings according to the attack types.
You might be wondering about how the fuzzing works here, right??
Let's clear it in some simple steps.

- First, we need to **intercept** the **HTTP Request**, therewith that we'll thus **share it with the Intruder.**
- As soon as we do so, we'll **define the parameters** or the injection points where the fuzzing needs to be done.
- Now, at last, the **attack type and payloads list** need to be defined up with that.

And as soon as we launch the fuzzing attack by hitting the **"Attack"** button, we'll get the output screen stating up all the possible hits and drop. Therewith it, we can thus analyse them and find a crucial hit.

Fuzz with the Burp's built-in Payload Lists

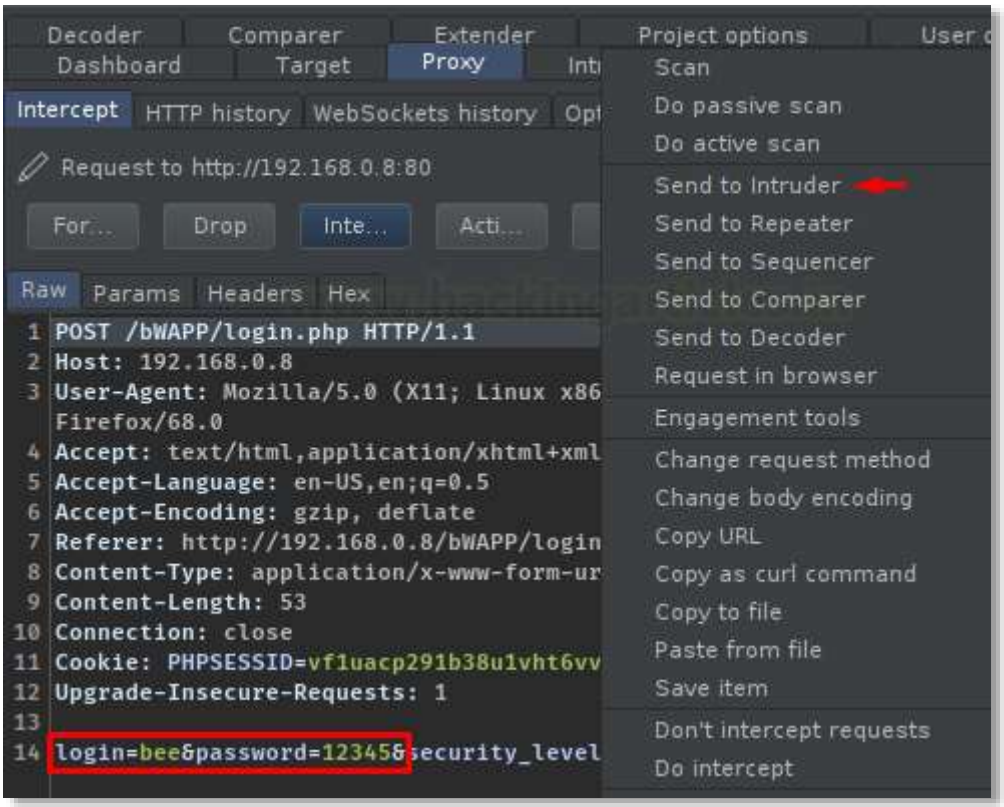
Fuzz with the Burp's built-in Payload Lists

Up till now, you might be clear about what fuzzing is, and how the Burp Suite's Intruder helps us to fuzz a web application. So let's take a deep dive and intercept some request in order to fuzz an application with the **burp's predefined payload lists.**

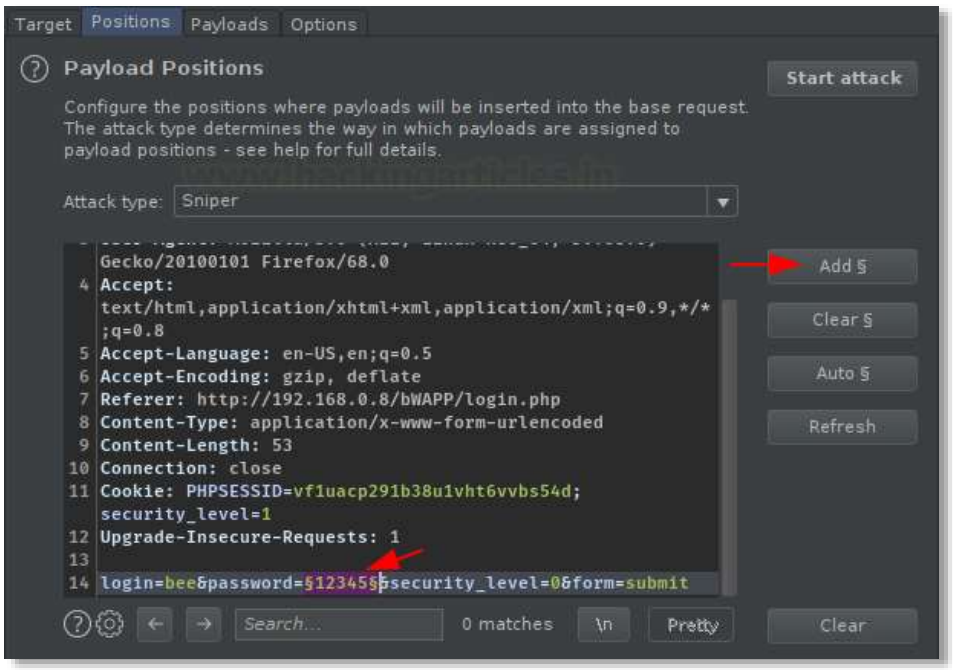
Fuzzing for Login Credentials

Usernames and Passwords plays a major role within an application, thereby if we could fuzz them in the best way, we would be able to bypass the authentication phase. So let's do it.

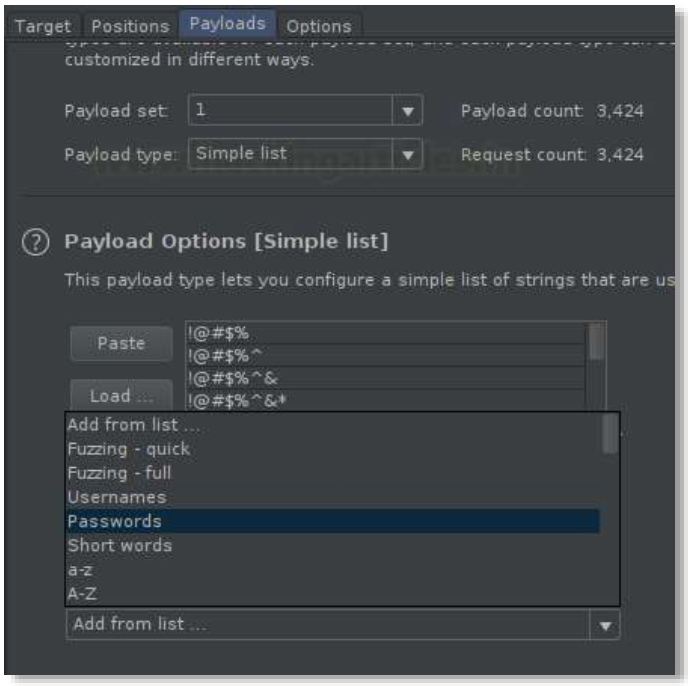
1. The Password field Fuzzing using Password list & Short words list
Turn ON the burp suite in order to intercept the request and then share the same to the **Intruder.**



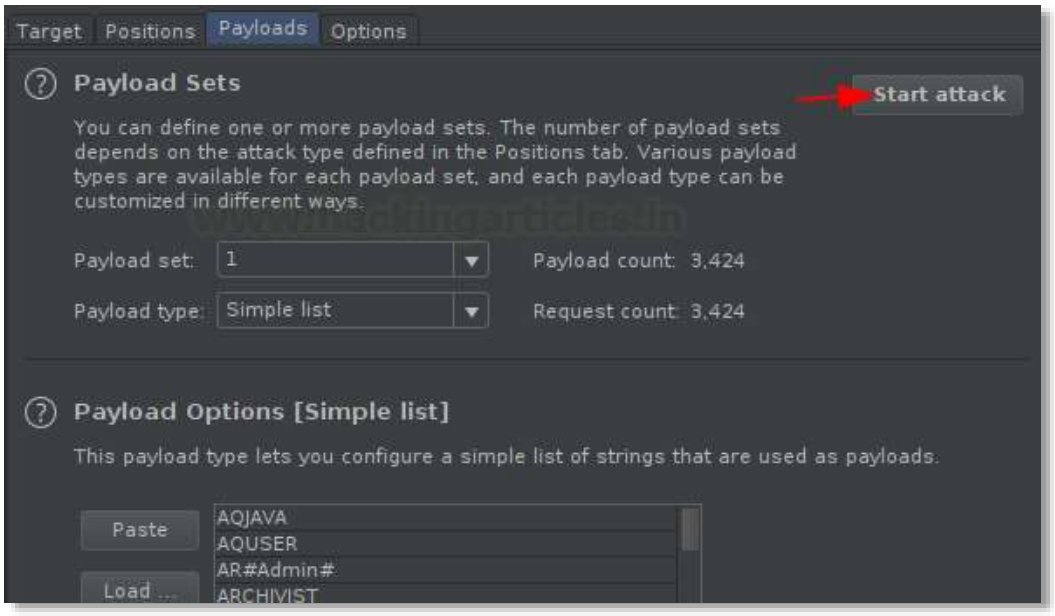
Now, configure the **Position** where the payload needs to injected by hitting the **Add** button. And even manipulate the **Attack Type** which determines how the payload will hit at the injection point (payload position).
Payload position: 12345 (User input as the password)
Attack type: Sniper (for one payload)



Choose the payload option to configure a **Simple list** of payload for the attack.
Burp suite Intruder contains fuzzing strings for testing a common Password, therefore let's opt the**Password option there.**



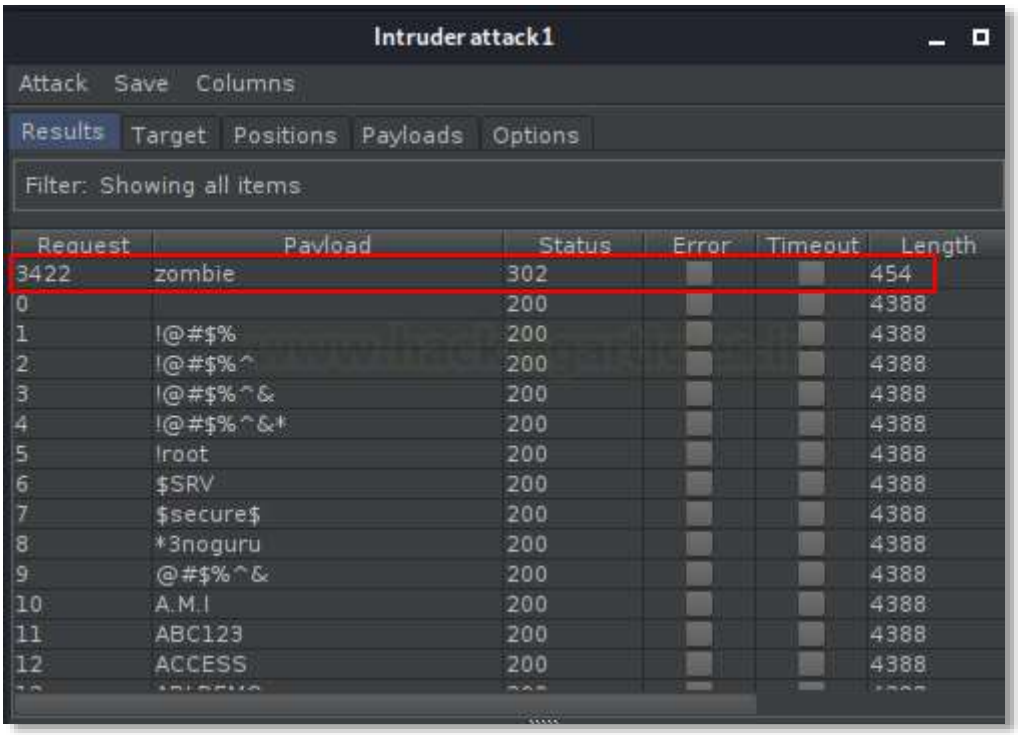
Hit the **"Attack"** button and initiate the attack.



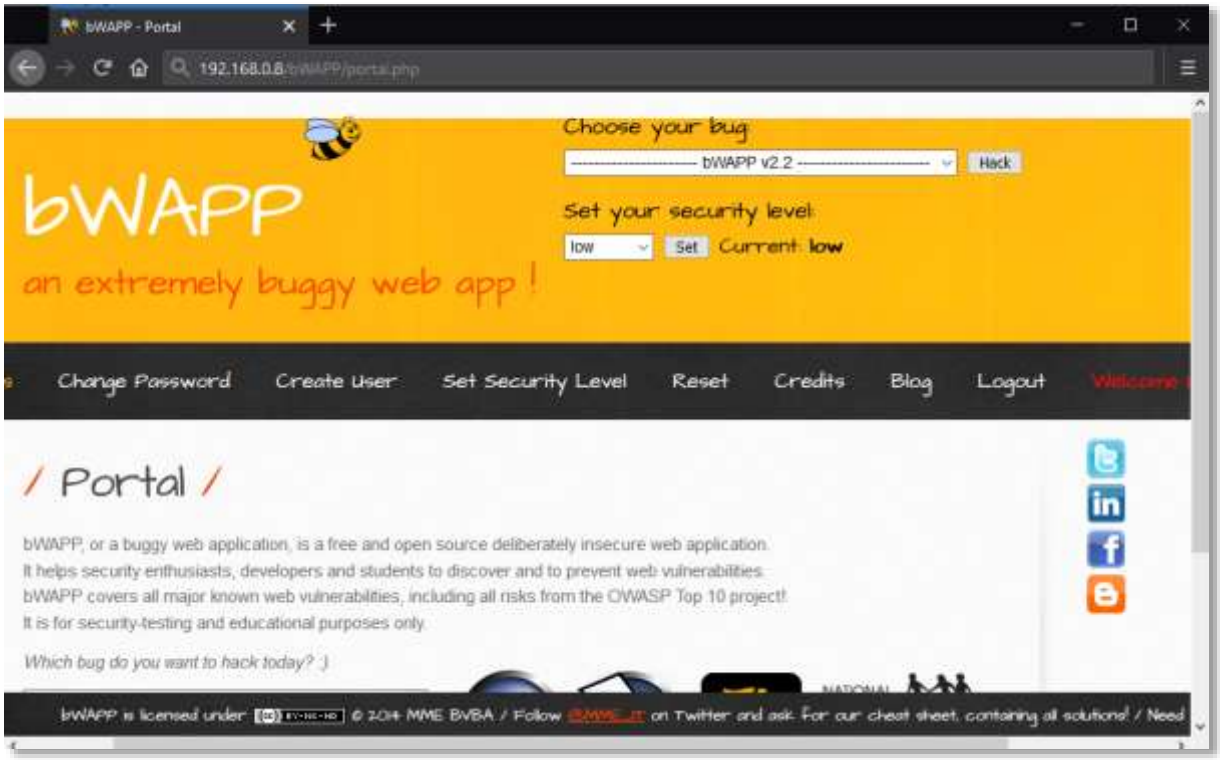
As soon as we do so, our burpsuite will start the attack by sending requests to hit the correct password for the respective username.

Now from a given list of applied strings, double click on the **length** section to sort them in the ascending order. Further, select the one which has the lowest length.

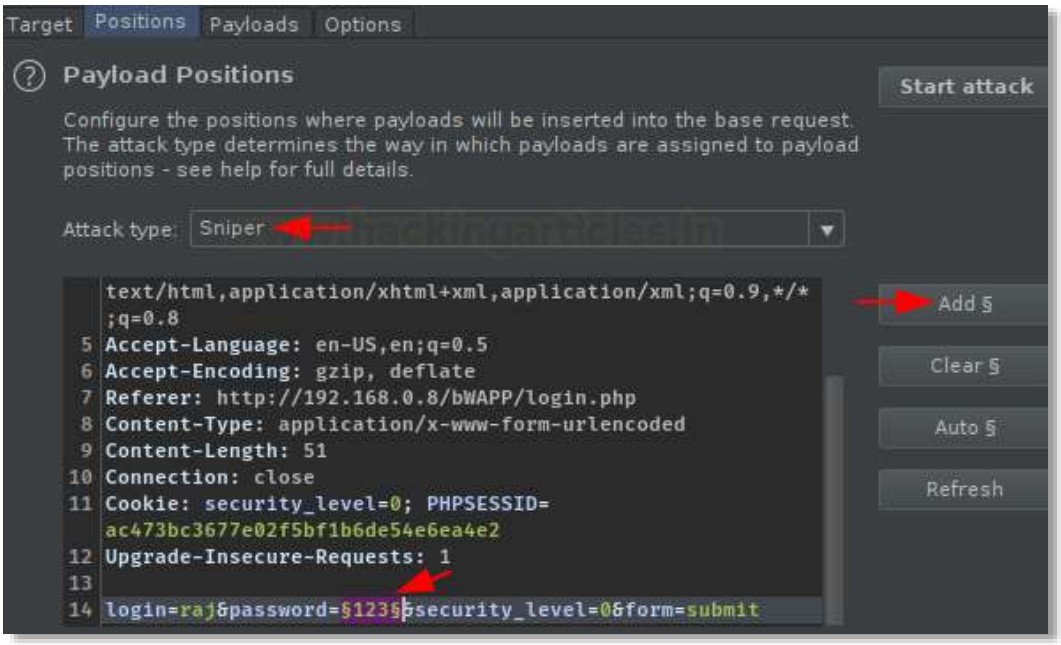
Cool !! From the below image, you can see that with the payload **"zombie"** we're are getting a **302 success.**



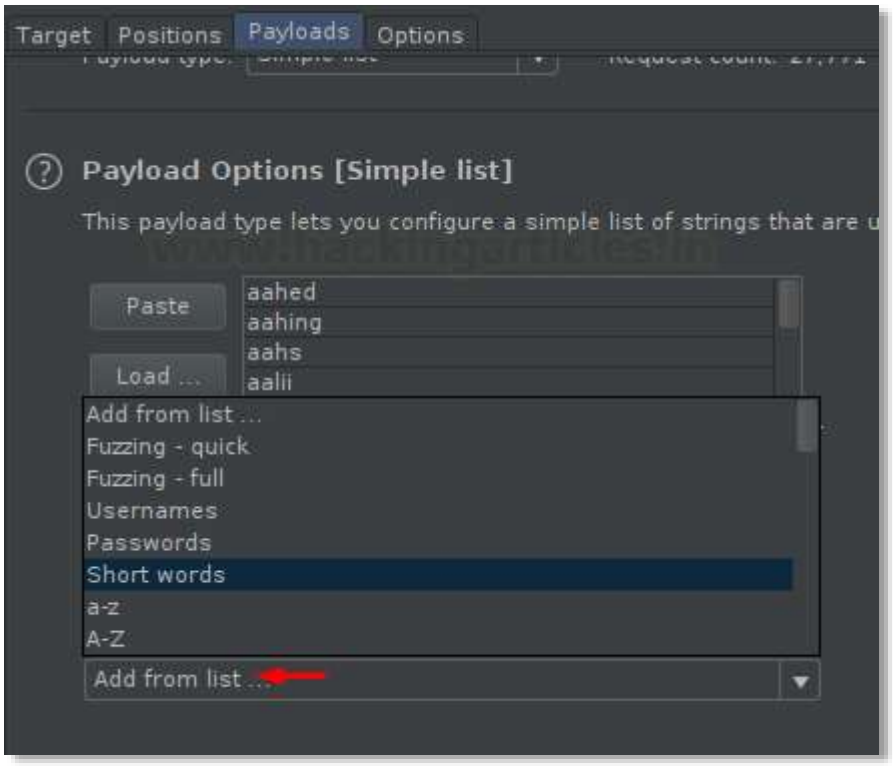
Let's check the response is made, use **bee : zombie** over the login field. And there we go, we'll are inside the application.



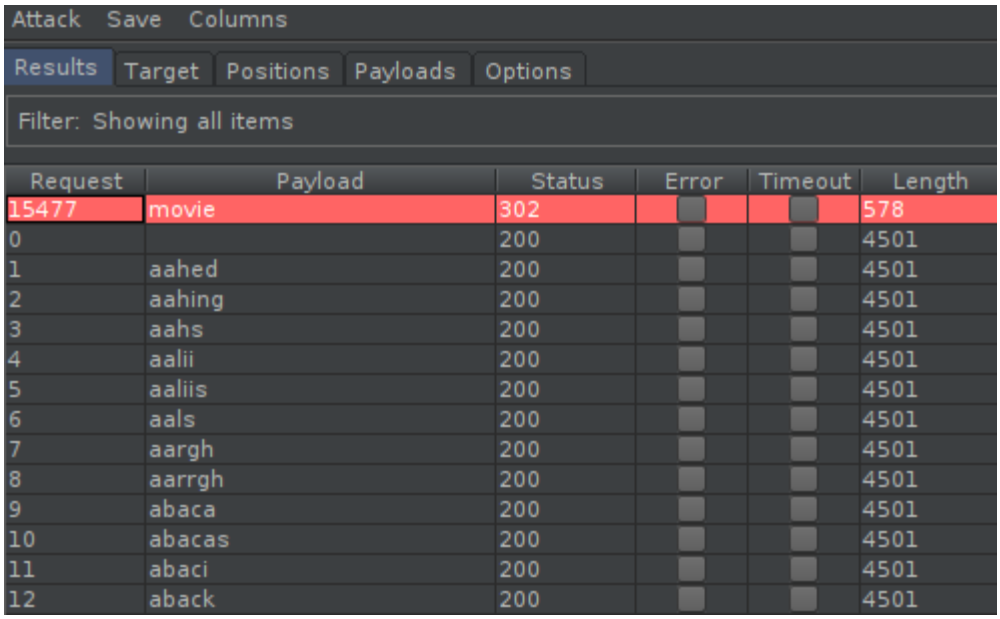
There are times, when the password that the user configured is not in the Password Payload list, therefore in such cases, we can use the other Burpsuite's predefined list i.e. **"Short Words"**
Let's capture the HTTP Request for the user **Raj,** and then, in the same way, we'll share it to the intruder tab.
Over there, we'll set the **Payload position** again i.e. 123 by hitting the **Add** button.



Now, for this time, rather than the Password option, we'll opt the **Short words** payload list.



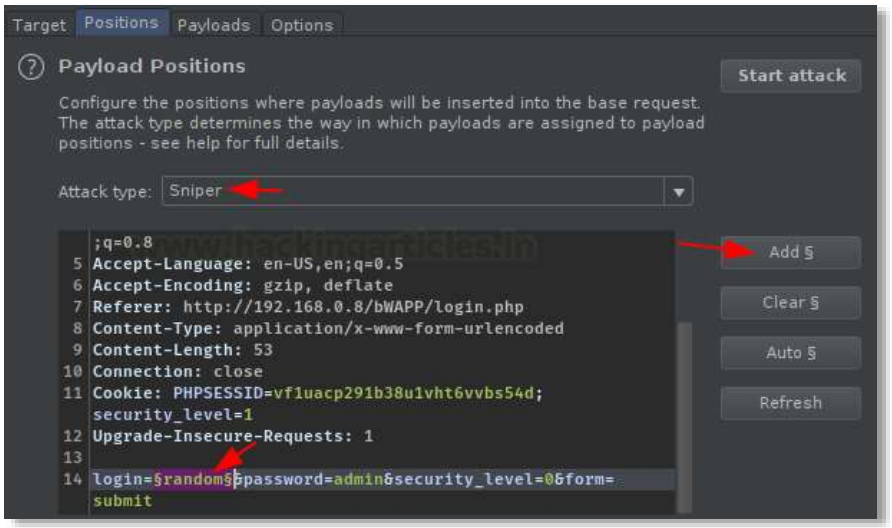
Time to go. Fire up the **Add** button and analyse the output response.
As soon as we sort the **length** option as in the ascending order, we'll get our password as **"movie"**



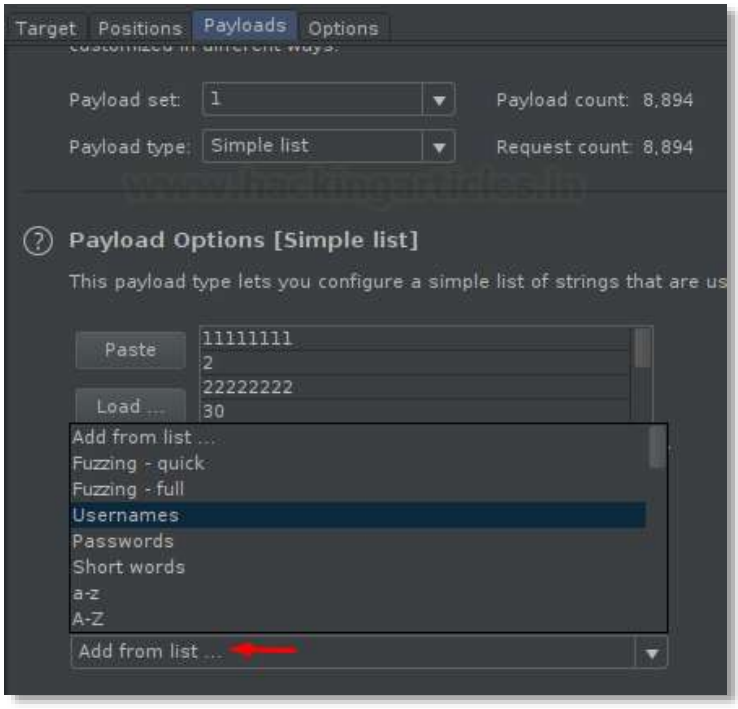
Request	Payload	Status	Error	Timeout	Length
15477	movie	302			578
0		200			4501
1	aahed	200			4501
2	aahing	200			4501
3	aahs	200			4501
4	aalii	200			4501
5	aaliis	200			4501
6	aals	200			4501
7	aargh	200			4501
8	aarrgh	200			4501
9	abaca	200			4501
10	abacas	200			4501
11	abaci	200			4501
12	aback	200			4501

2. The Username field fuzzing using Username list

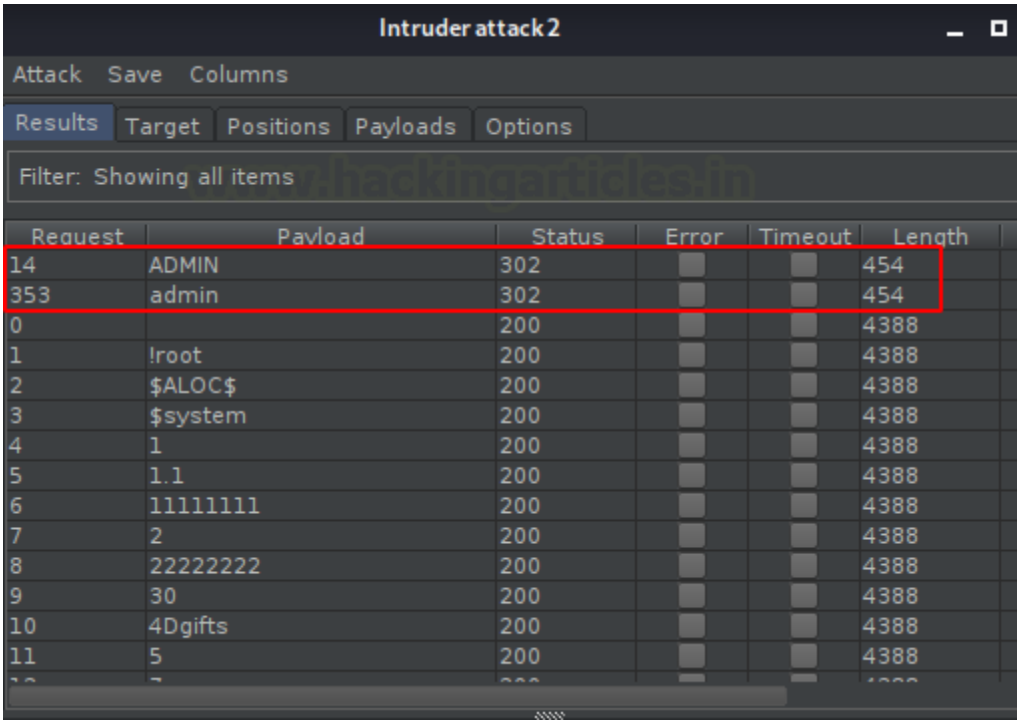
There are times, that we encounter such situations when there is a common password but we don't know how many users are having the same, and if they are, then what are their usernames.
Therefore, in order to solve this dilemma, burpsuite offers one more great payload list that contains all the common **usernames**. let's try to use that too.
Back into burpsuite and capture the **login request**, and share it with the intruder. Further, set the injection point to **"random"**.
Note –
Here we are guessing all the possible users with their ***password as "admin"***.



Now, after setting the payload position, its time to enroll for the payload type. Opt the **Usernames** payload list from the **Add from list…** option.

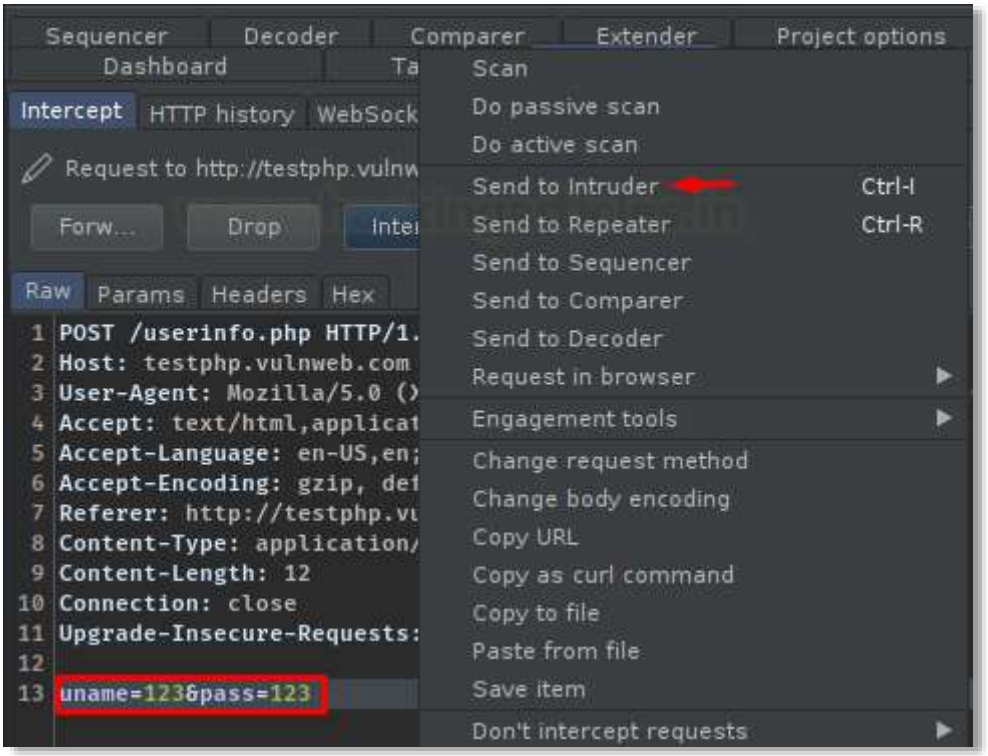


Hit the **“Attack”** button, and there we go. Great !! we got **“ADMIN” and “admin”** as the usernames for the most common password **admin** !!

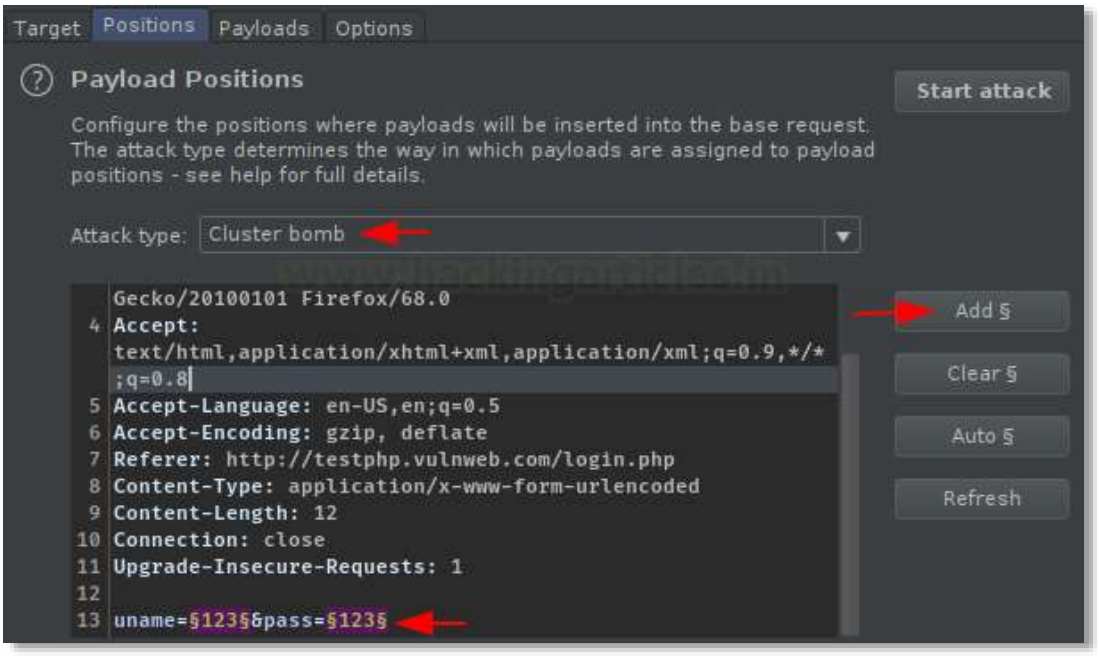


Fuzzing for SQL Injection

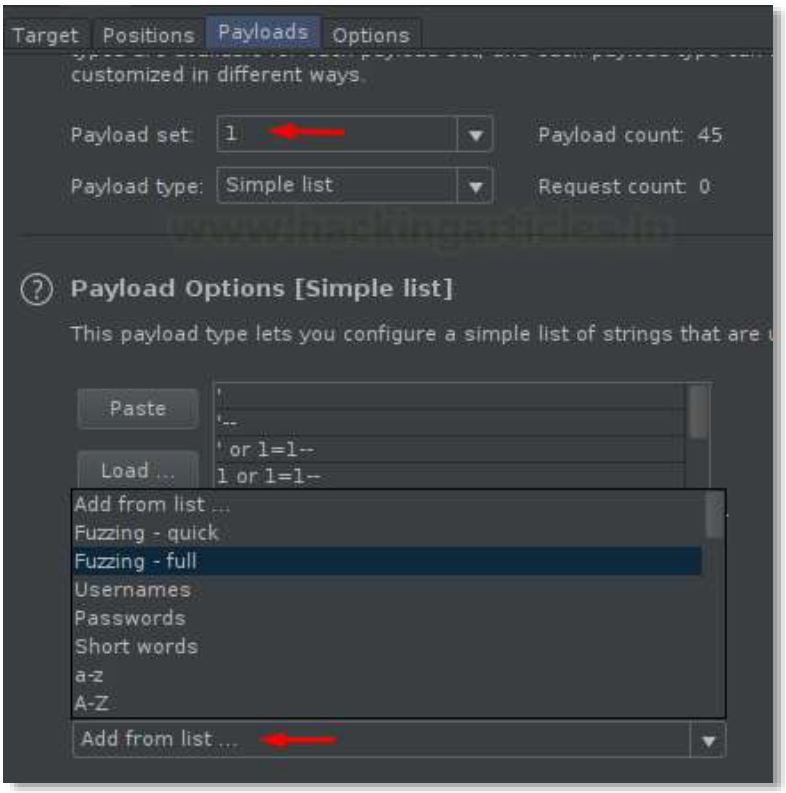
SQL Injection is one of the most crucial vulnerability one could find for. However, this vulnerability encountered majorly in **the user-input fields**. *To learn more about SQL Injection, click* **here**.
Burp Suite offers a separate Payload list for SQL Injection fuzzing, but the common fuzzing lists **the quick and the full** also contributes some payloads for SQL Injection, OS Command Injection, Cross-Site Scripting and many more. Therefore for this time, we'll be using the **Fuzzing – full** list in order to bypass the login portal.
Over with the similar way, let's capture the ongoing HTTP Request of the **test.vulnweb login portal**, and share it with the Intruder.



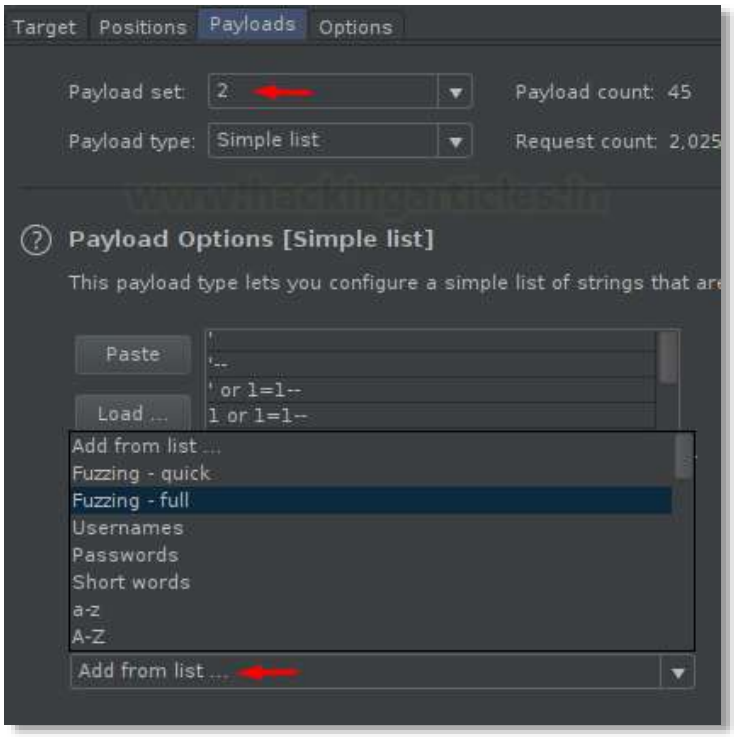
Time to set the positions and the attack type. Here, I've **added both the positions** i.e. uname and pass for fuzzing. Along with it, I've opted **Cluster Bomb** this time as we're having two payload positions.



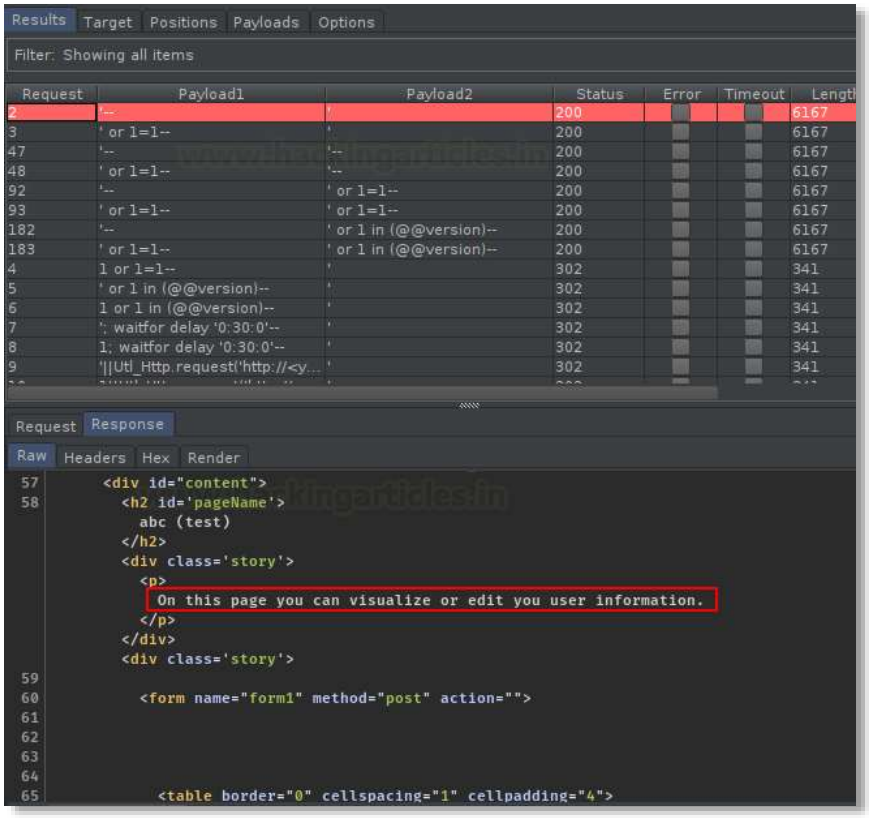
With all this, let's select the **Fuzzing – full** list for payload **position 1** in order to find the SQL vulnerability within the application.



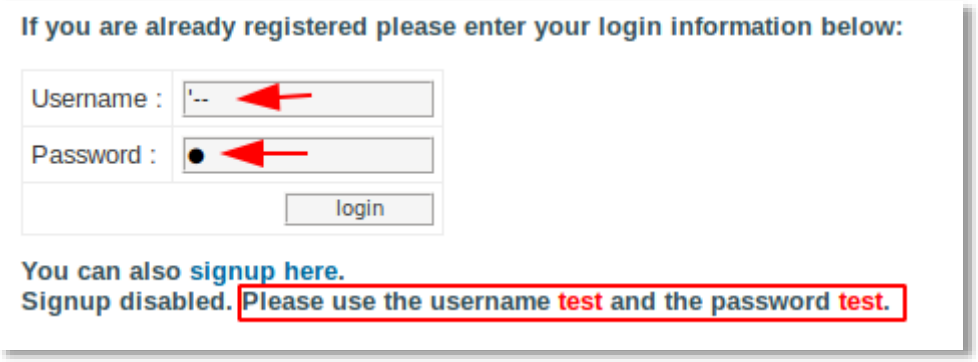
For **position 2** select the same.



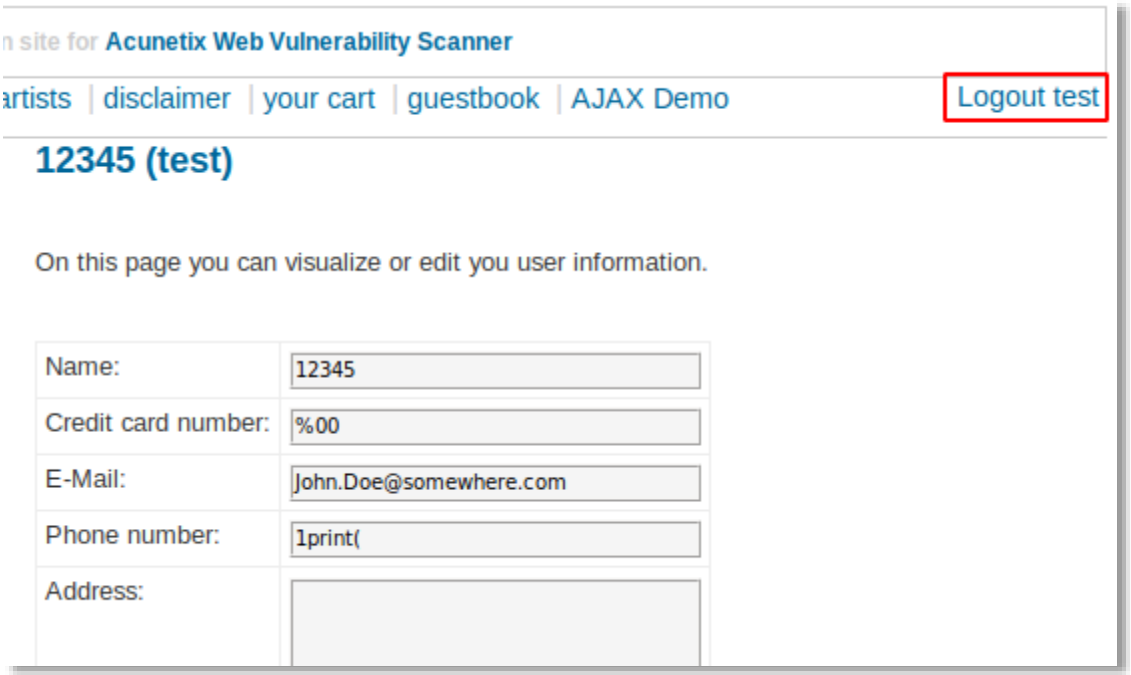
Cool !! From the below screenshot, you can see that we got **some successful responses** as when we alter the **length** section in the **descending order**.



Let's now check the first captured response in the login fields as **username = '–** and **password = '**



Wonderful !! From the below screenshot, you can see that we've successfully bypassed the Login credentials.

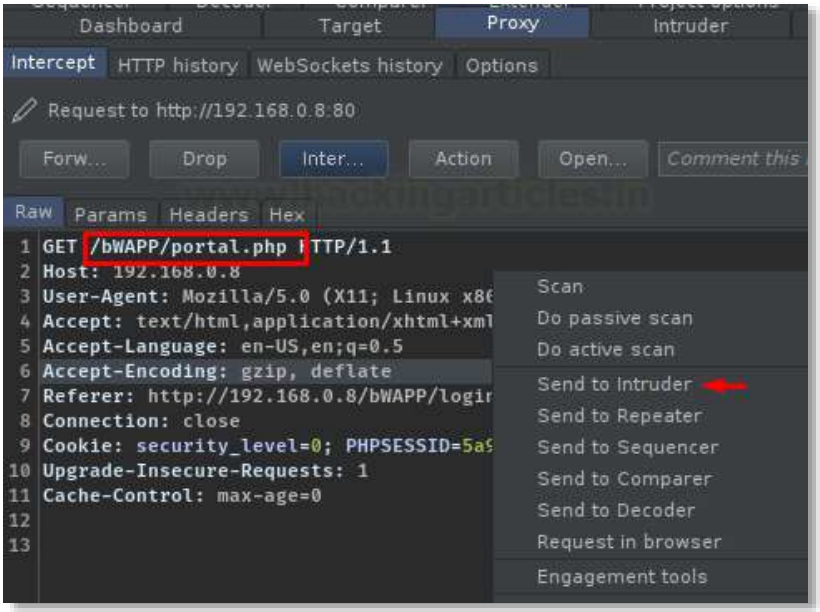


Fuzzing to find Hidden Files

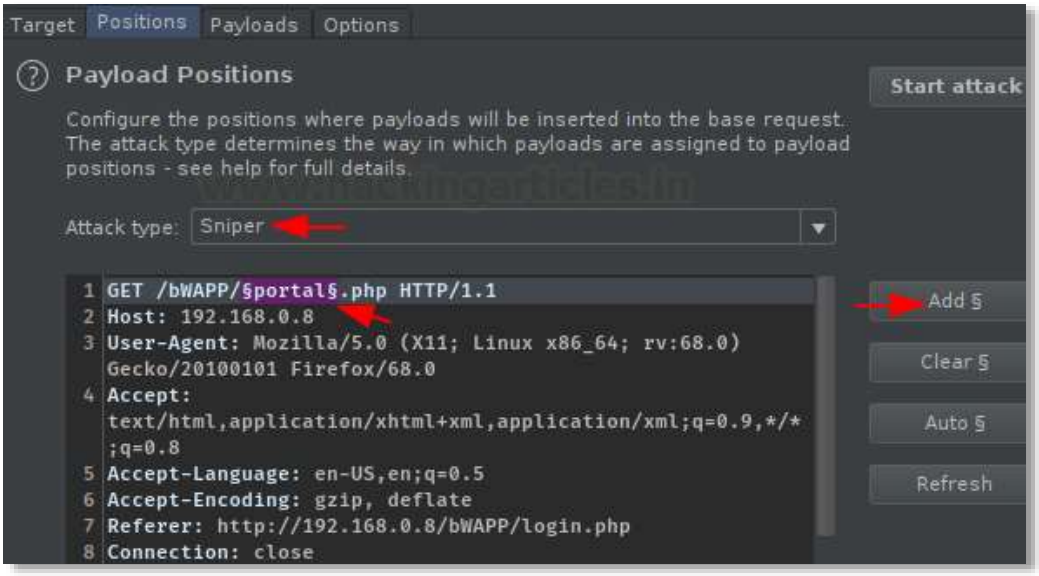
There are many web pages that are hidden for the common users but they exist over on a web-application. However, it is quite difficult to determine that, which webpage is giving a **200** *Success,* **302** *Redirection or a* **404** *Not Found.*

Thus, in order to make our work easy, burpsuite drop out with some amazing payload lists which contains almost a number of commonly used webpages that are somewhere hidden inside the webpage.

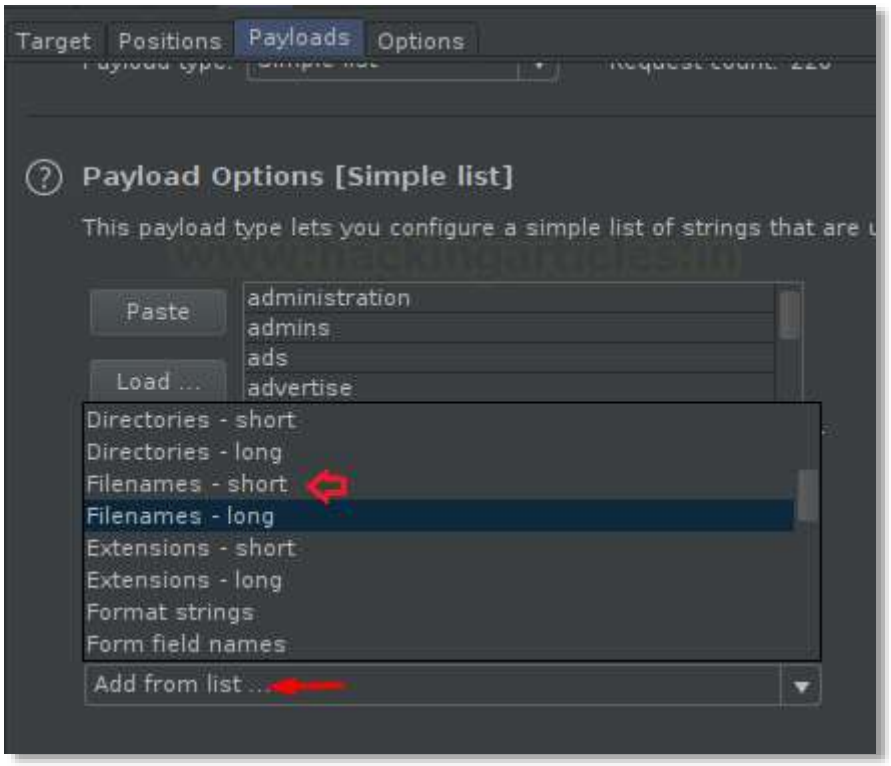
Back with the bWAPP web-application dashboard, let's **capture an HTTP Request**, and therewith it, we'll again share it with the intruder.



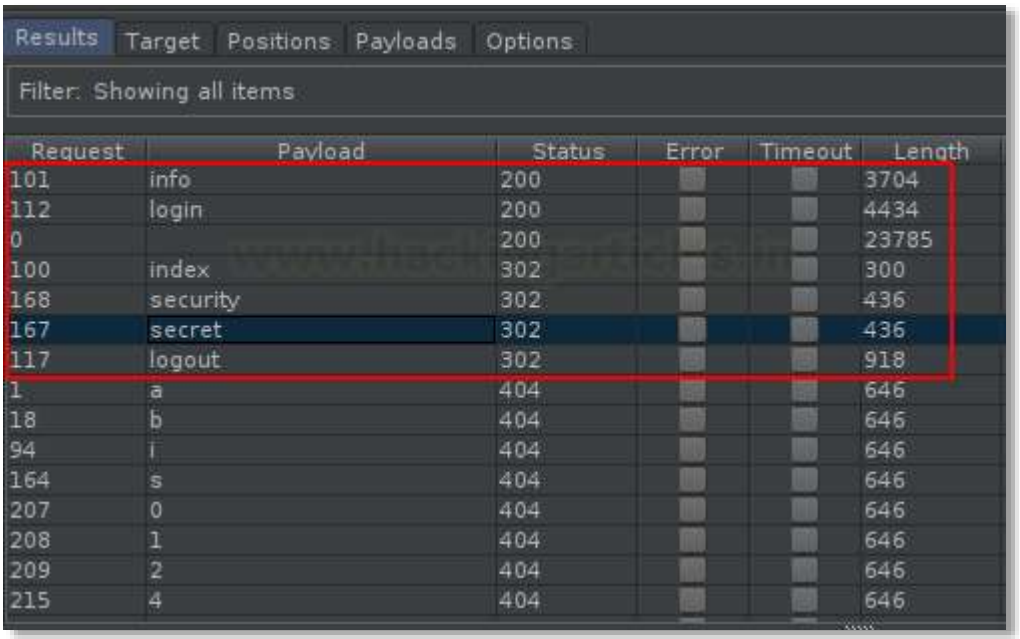
Configuring the payload position to **"portal"** and the attack type to **"Sniper".**



Now, let's opt the Payload list, and for this time we'll choose it to **"Filename – short".** Further, we'll hit the**"Attack"** button to proceed.

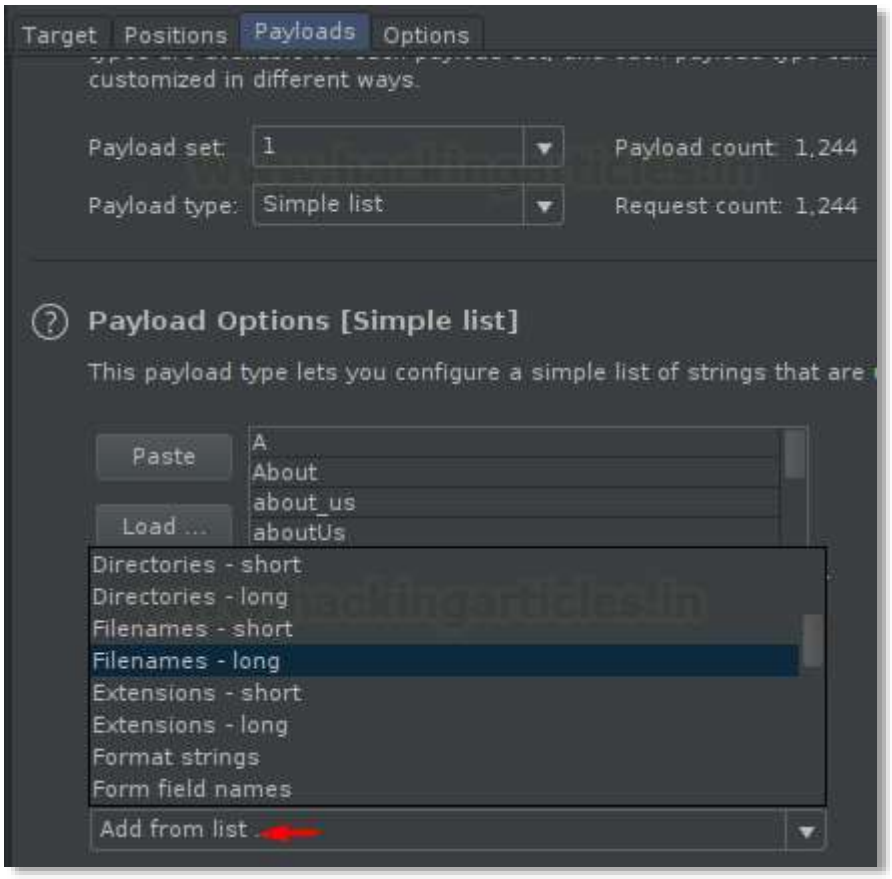


From the below image, we can see that there are a number of files that are unknown to us, let's check this **secret** one.

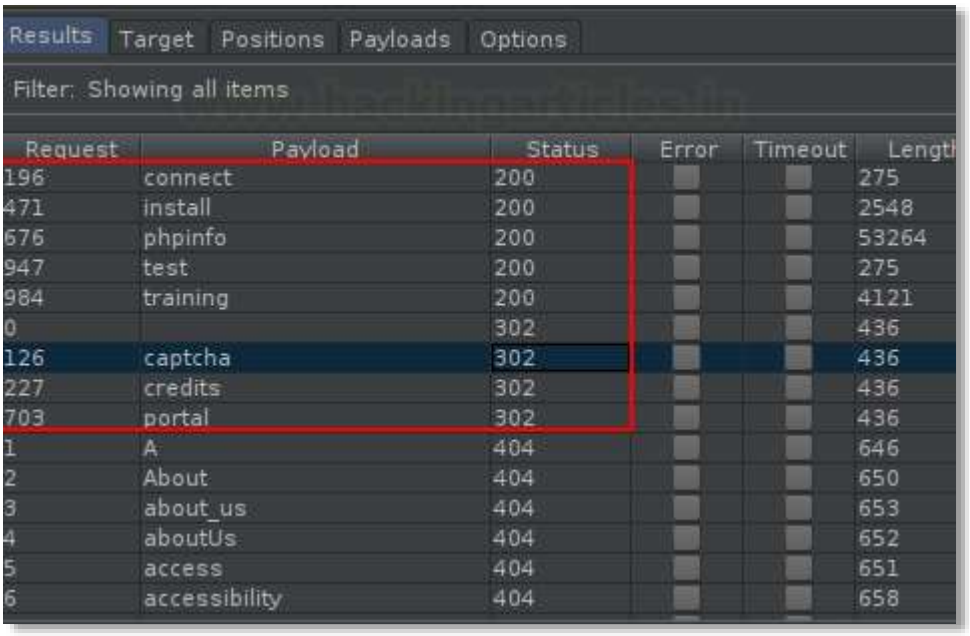


As soon as we manipulate **portal.php** with **secret.php,** we'll thus land up to an unexpected page that says **"Your secret: Any Bug?"**

These were the most common filenames that are largely available at web-applications, but what about the unique ones? The **Filenames – long** gives us the possibility to hunt them too.
Now, rather than the **Filenames – short**, let's opt the **Filenames – long** in the Payload Options.

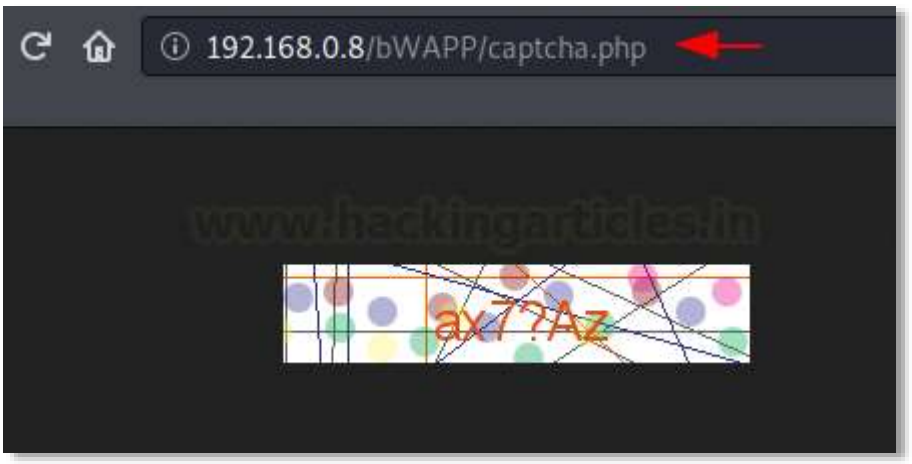


As soon as we hit the **Attack** button, the fuzzing get's started up and thus within a few minutes we're presented with the redirecting web pages.



Request	Payload	Status	Error	Timeout	Length
196	connect	200			275
471	install	200			2548
676	phpinfo	200			53264
947	test	200			275
984	training	200			4121
0		302			436
126	captcha	302			436
227	credits	302			436
703	portal	302			436
1	A	404			646
2	About	404			650
3	about_us	404			653
4	aboutUs	404			652
5	access	404			651
6	accessibility	404			658

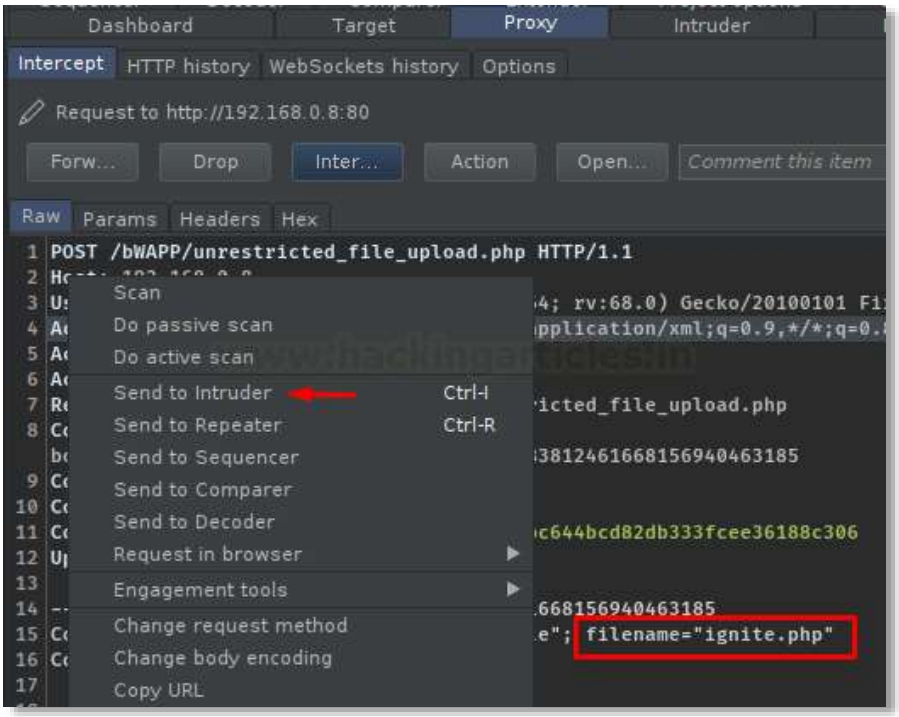
Let's manipulate **portal.php** with **captcha.php** and let's check what it offers to us.



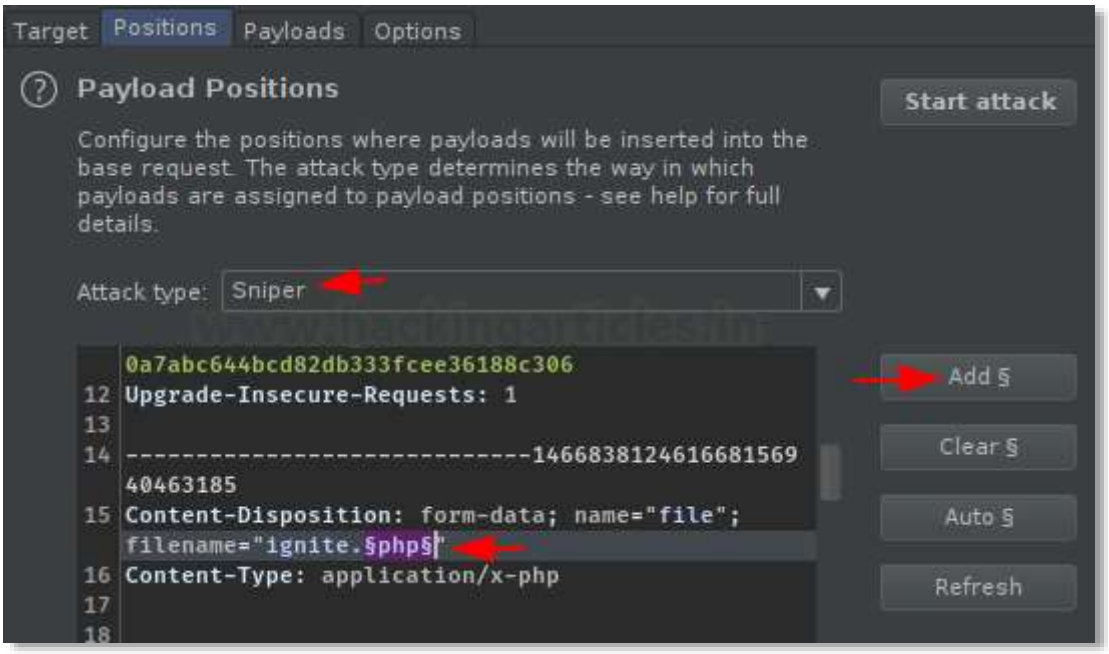
Fuzz to find Restricted File Upload Extensions

File upload vulnerability is one of the major problems within web-based applications. Here the **attackeruploads** a **file with** some **malicious codes within it,** which **thus could be executed on th e server** directly. You can learn more about file upload vulnerability from here.
There are times when the web-developers blocks up some certain file extensions in order to make their web-applications secure. However, ensuring which extension is blocked by the developer is quite impossible to find out.
But, we can do this task in one of the most simplest way i.e. by **fuzzing. Burp's Intruder** is having a payload list in-built for this thing too, let's use it this time.
Initially, over at the file upload option, select a specific file.

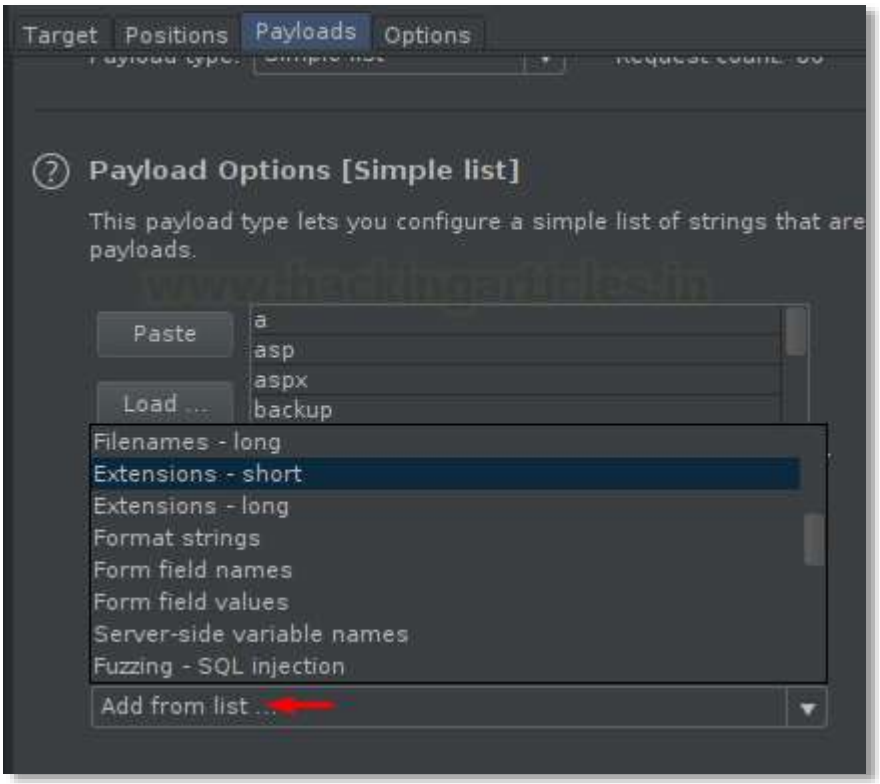
Capture the request in a similar way that we did earlier, and share it to the intruder.



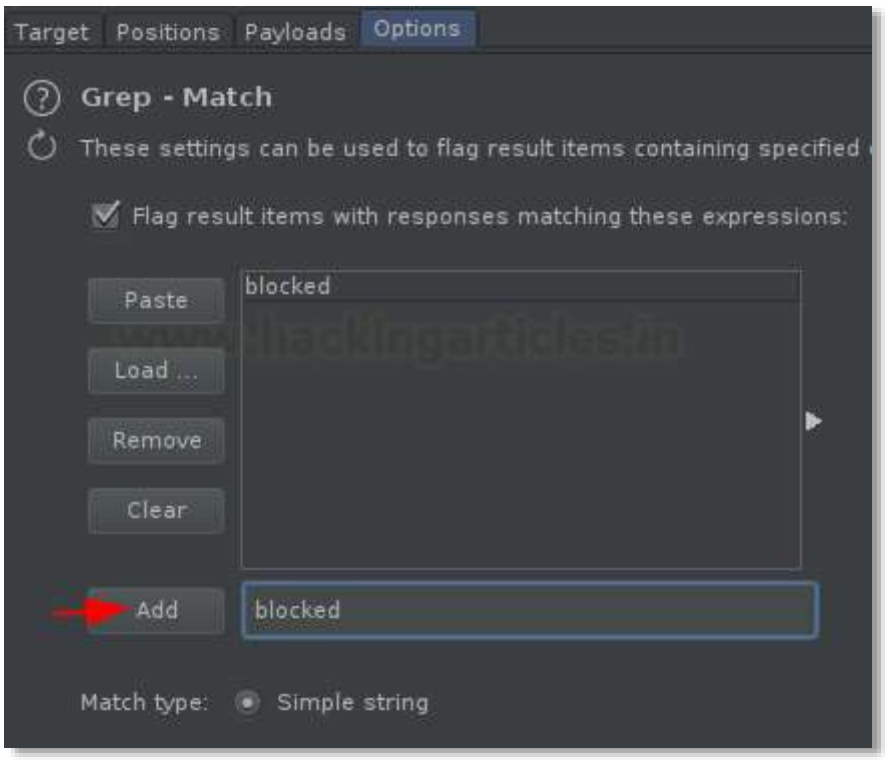
Now, let's setup Paylaod positions, here we'll do it with the file extension we're having.



At last, we're now at our favorite section, i.e. opting the built-in payload list. Choose the **Extensions – short** and hit the **"Attack"** button in order to initiate the fuzzing.

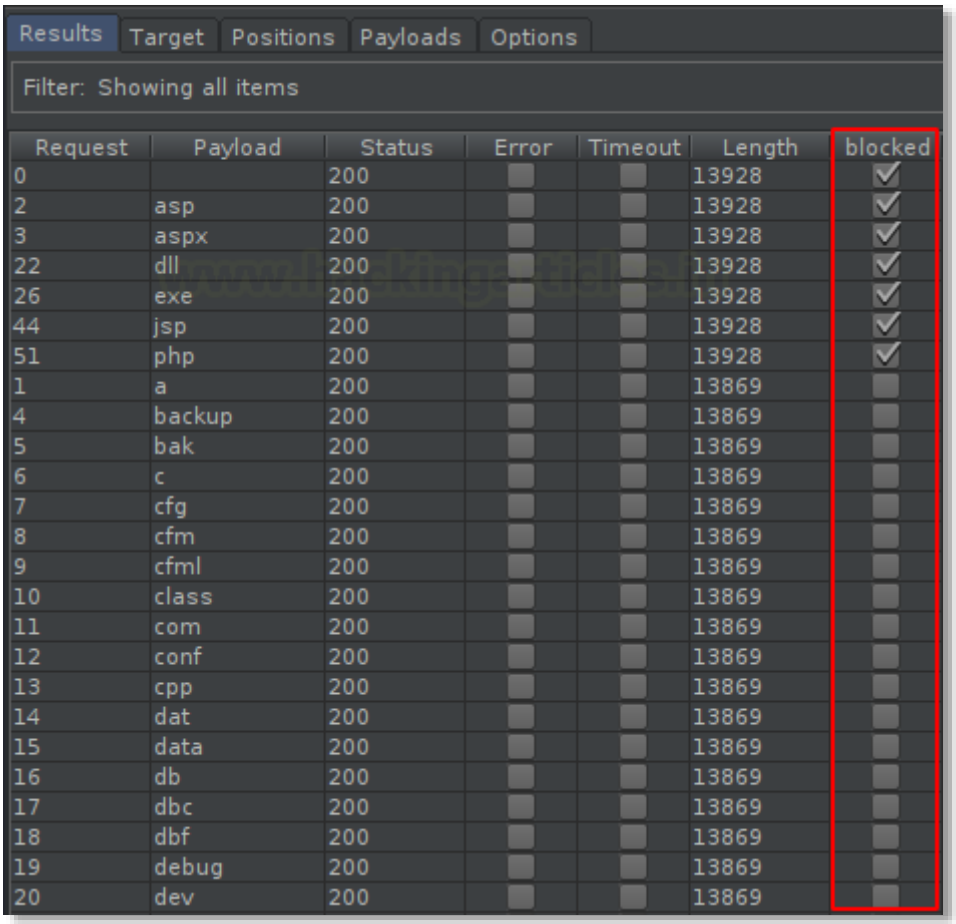


Let's make the output somewhat simpler to analyze, we'll use the **grep option** in order to determine which **extensions are blocked** and which are not.
Therefore, at the **Options** tab, scroll down to the **Grep – Match** field, there remove all the predefined keywords and add **"blocked"** over there.



Note –
This "blocked" keyword has been added intentionally, as this is the error generated at when a wrong file extension is uploaded. So rather than blocked keyword, you have to use the one that displays as a part of an error message when you upload a restricted file.
As soon as we fire up the **"Attack"** button, we'll be redirected to the next page where the outputs are displayed. Double click on the **"blocked"** section in order to sort the Request.

Cool !! From the below image, you can see that we got all the **blocked extensions mentioned**. Now with this, we can simply upload any file with an extension rather than the marked ones.



Results | Target | Positions | Payloads | Options

Filter: Showing all items

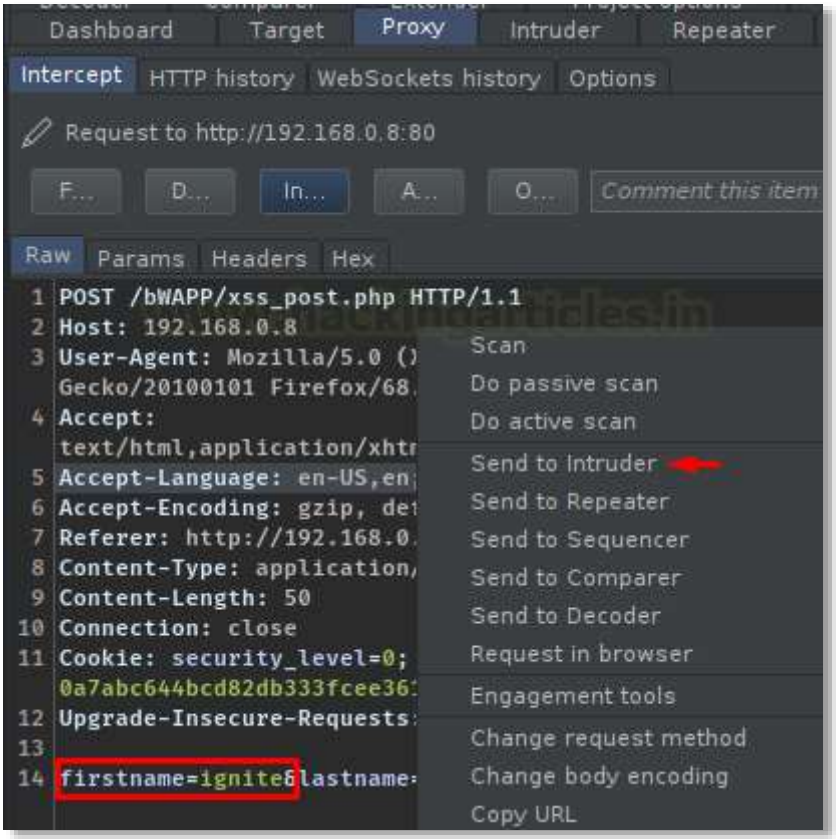
Request	Payload	Status	Error	Timeout	Length	blocked
0		200	☐	☐	13928	☑
2	asp	200	☐	☐	13928	☑
3	aspx	200	☐	☐	13928	☑
22	dll	200	☐	☐	13928	☑
26	exe	200	☐	☐	13928	☑
44	jsp	200	☐	☐	13928	☑
51	php	200	☐	☐	13928	☑
1	a	200	☐	☐	13869	☐
4	backup	200	☐	☐	13869	☐
5	bak	200	☐	☐	13869	☐
6	c	200	☐	☐	13869	☐
7	cfg	200	☐	☐	13869	☐
8	cfm	200	☐	☐	13869	☐
9	cfml	200	☐	☐	13869	☐
10	class	200	☐	☐	13869	☐
11	com	200	☐	☐	13869	☐
12	conf	200	☐	☐	13869	☐
13	cpp	200	☐	☐	13869	☐
14	dat	200	☐	☐	13869	☐
15	data	200	☐	☐	13869	☐
16	db	200	☐	☐	13869	☐
17	dbc	200	☐	☐	13869	☐
18	dbf	200	☐	☐	13869	☐
19	debug	200	☐	☐	13869	☐
20	dev	200	☐	☐	13869	☐

Fuzzing for Cross-Site Scripting

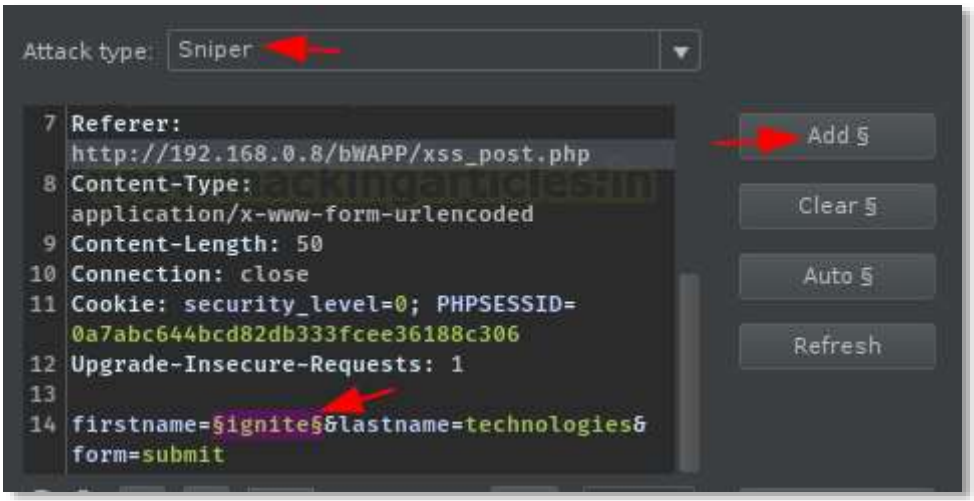
Cross-Site **S**cripting often abbreviated as **"XSS"** is a client-side code injection attack where malicious **scripts are injected into trusted websites** where the input-**parameters** are **not properly sanitized** or validated. You can learn more about Cross-Site Scripting from **here**.

However, such attacks are quite difficult when we try to exploit them with the bare hands, as they were secured up with some validations. Therefore, in order to exploit such validated applications, we need some fuzzing tools and thus for the fuzzing thing, we can count **on BurpSuite's Intruder tab**.

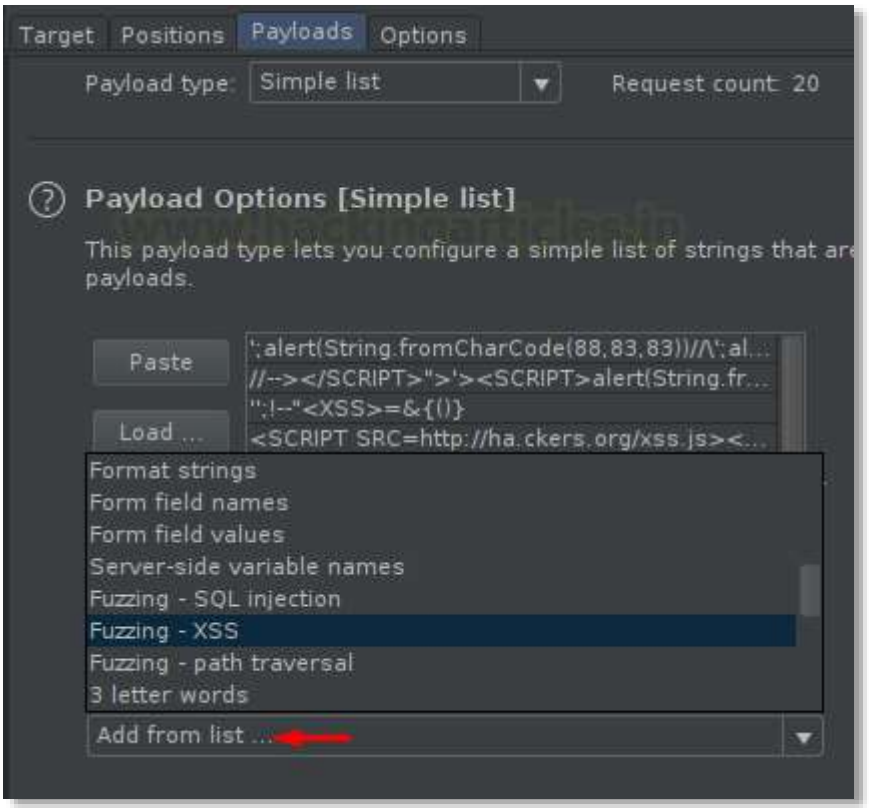
Turn ON your Proxy service and capture the ongoing HTTP request with Burp Suite's **Intercept** option, therewith it, share it all to the **Intruder.**



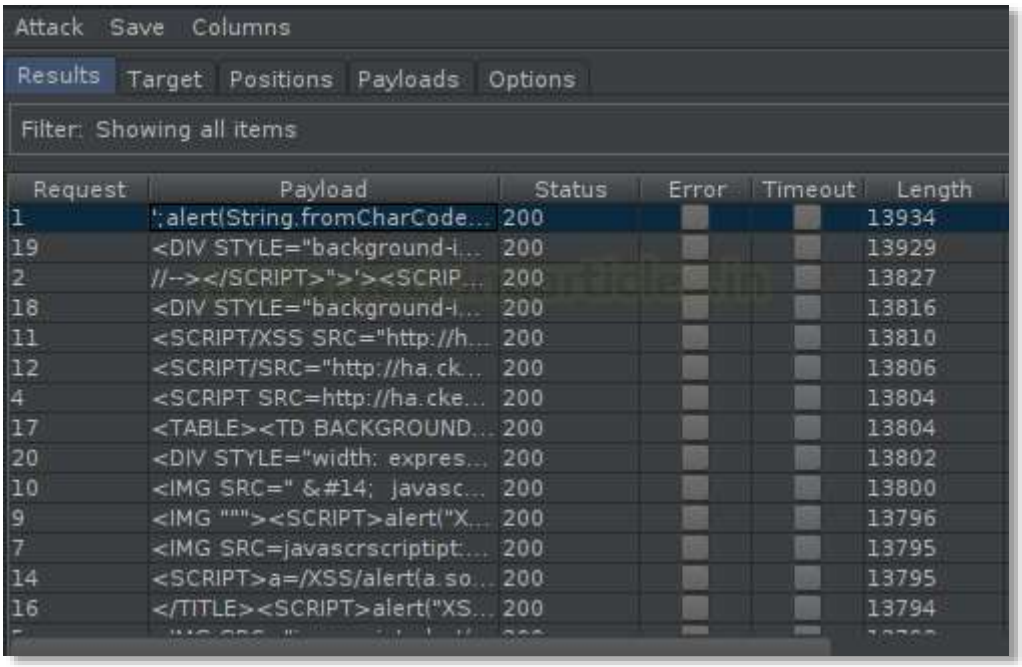
Let's now configure the input parameters, hit the **"Add"** button to set the **payload position** with **"ignite"**and set the **Attack type** to **"Sniper".**



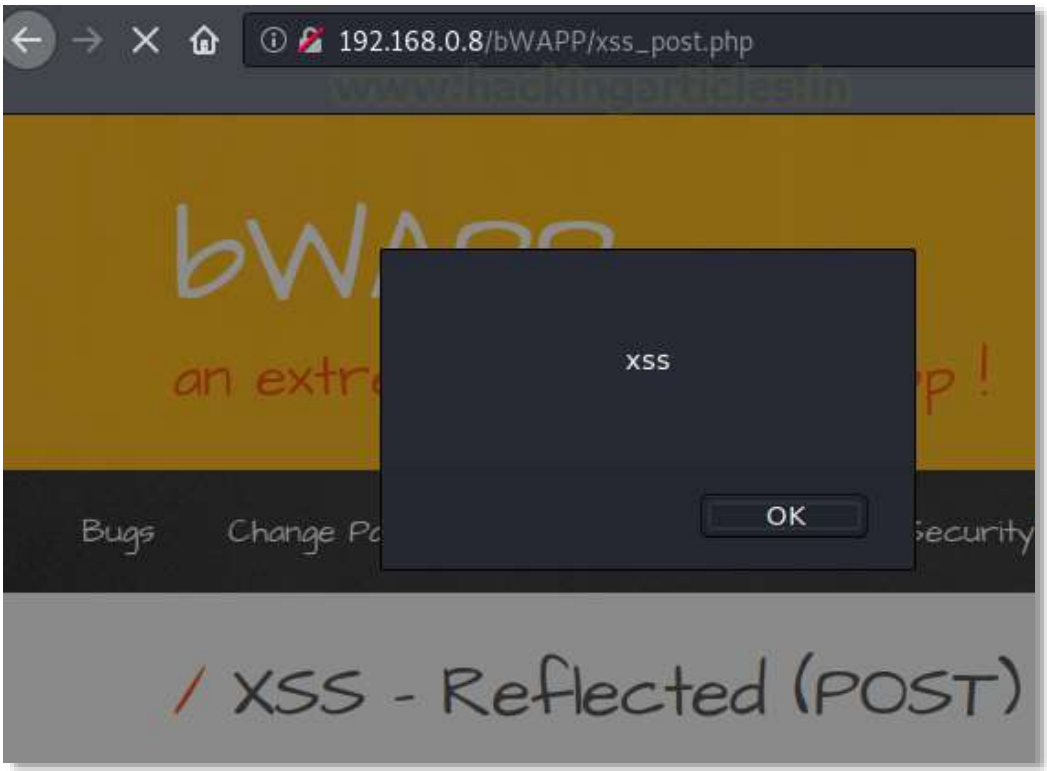
Time to customize the most important thing i.e. the payload list, click on **Add from list..** button and **scroll** until you get the "Fuzzing – XSS" option. Further, hit the **"Attack"** button to initiate the fuzzer.



And there we go, within a few minutes we'll get the output list with all the success hits and drops. Double click on the **length section** to sort them out in the **descending order**.



Cool !! Now, share any of them to the browser in order to check the response is made. And there it is, the browser hits our payload and showed up the response embedded within it as **"XSS"**

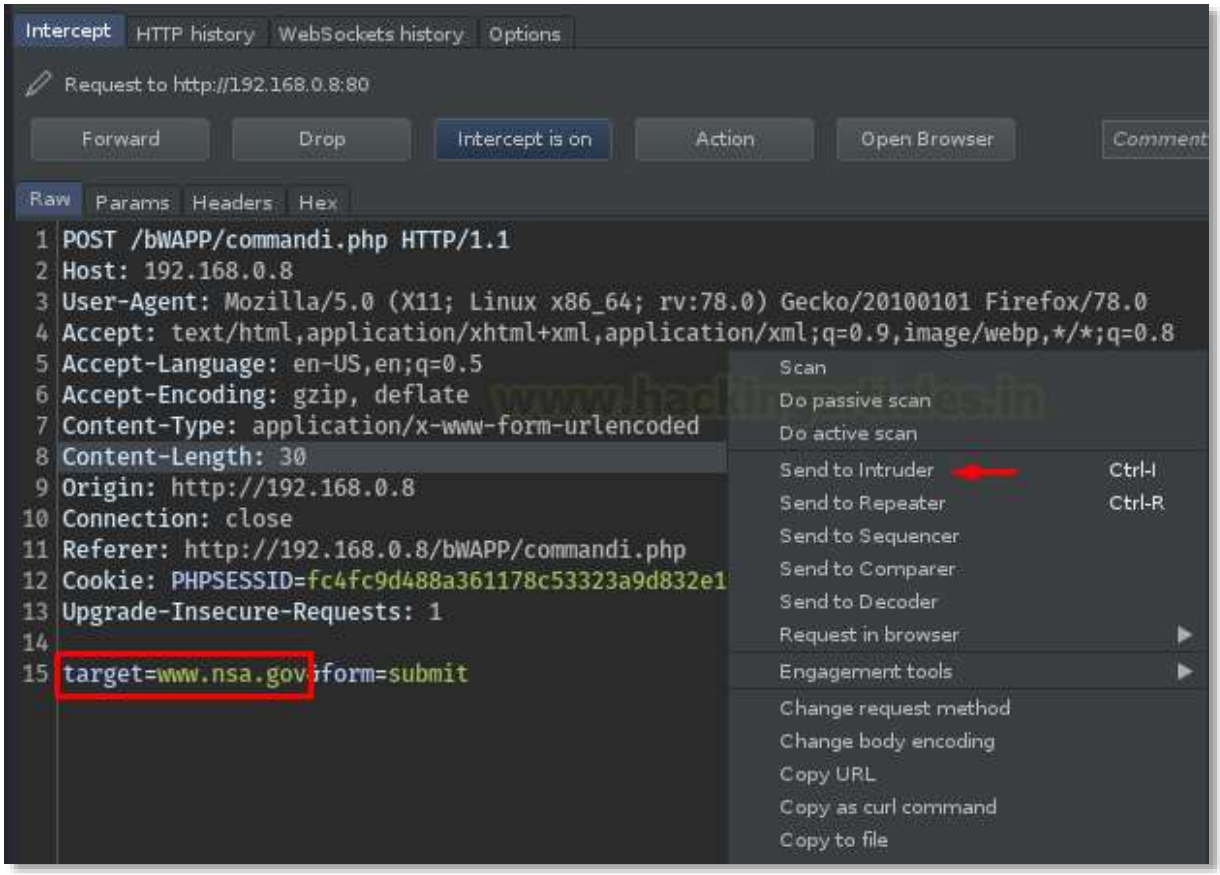


Fuzzing for OS Command Injection

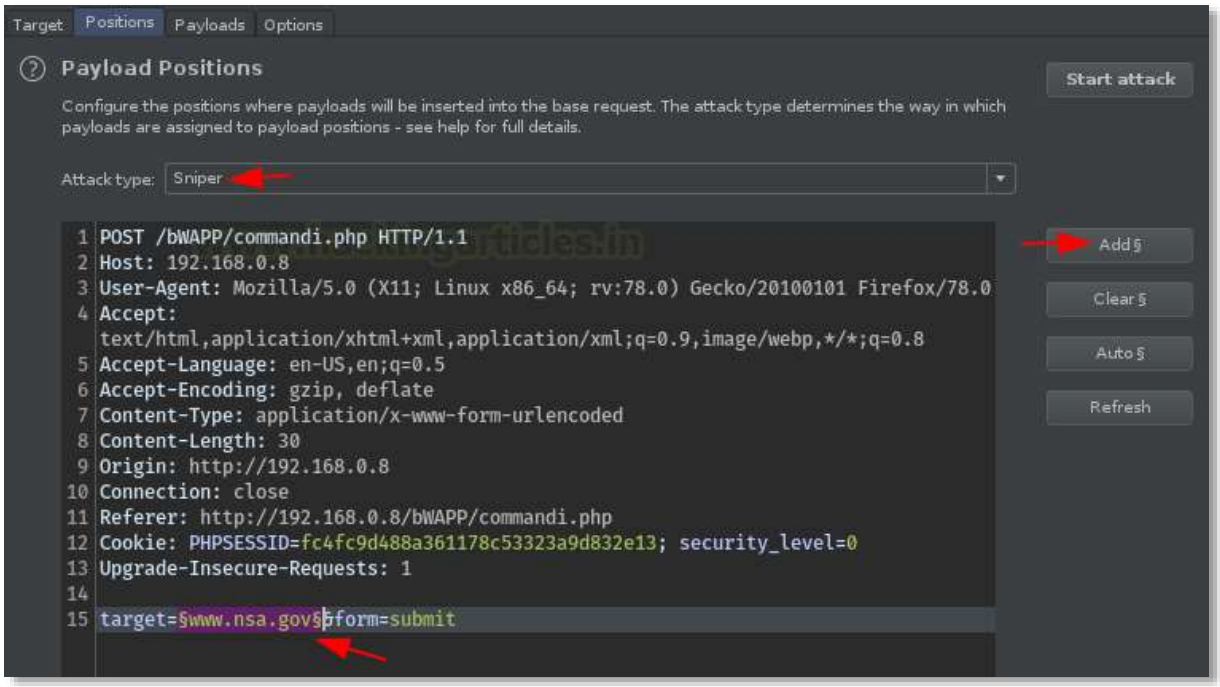
OS Command Injection or Shell Injection is that vulnerability where the attacker tries to executes **arbitrary commands** directly through a vulnerable application, there in order to retrieve information of the webserver or try to **make unauthorized access** into the server. You can surf the complete vulnerability from **here**.

However, there is no such pre-defined list for this OS Command Injection but still, we can exploit it with the all-in-one fuzzing list i.e. with "***Fuzzing – quick"***

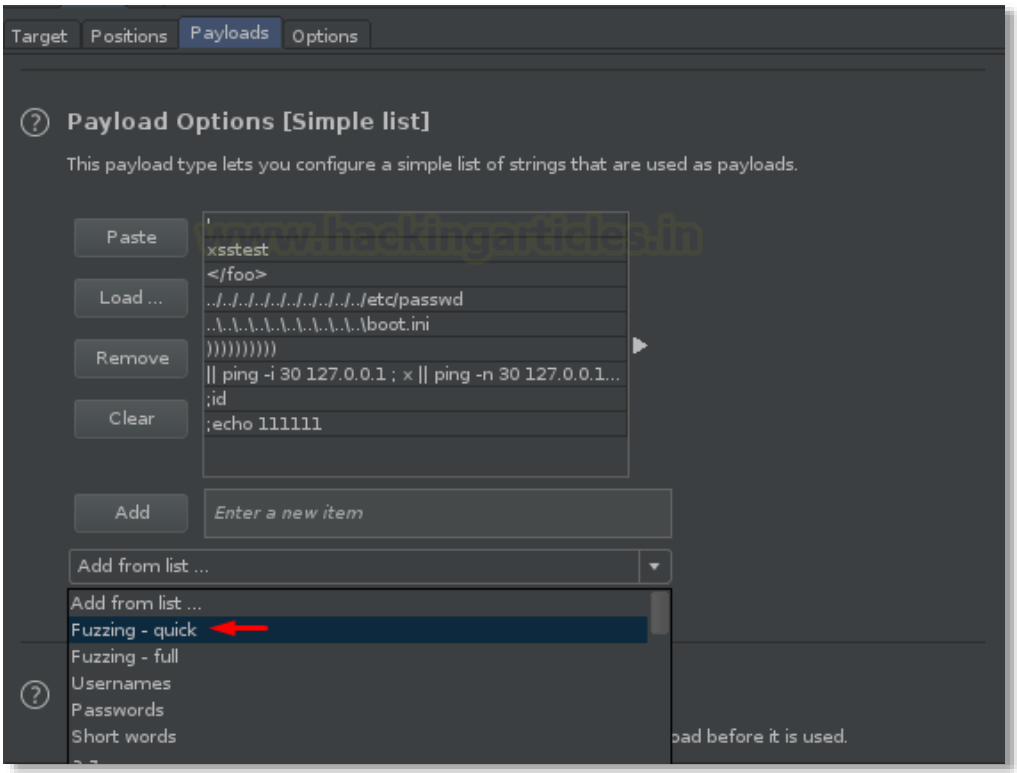
As we did earlier, capture the request again and share it with the Intruder.



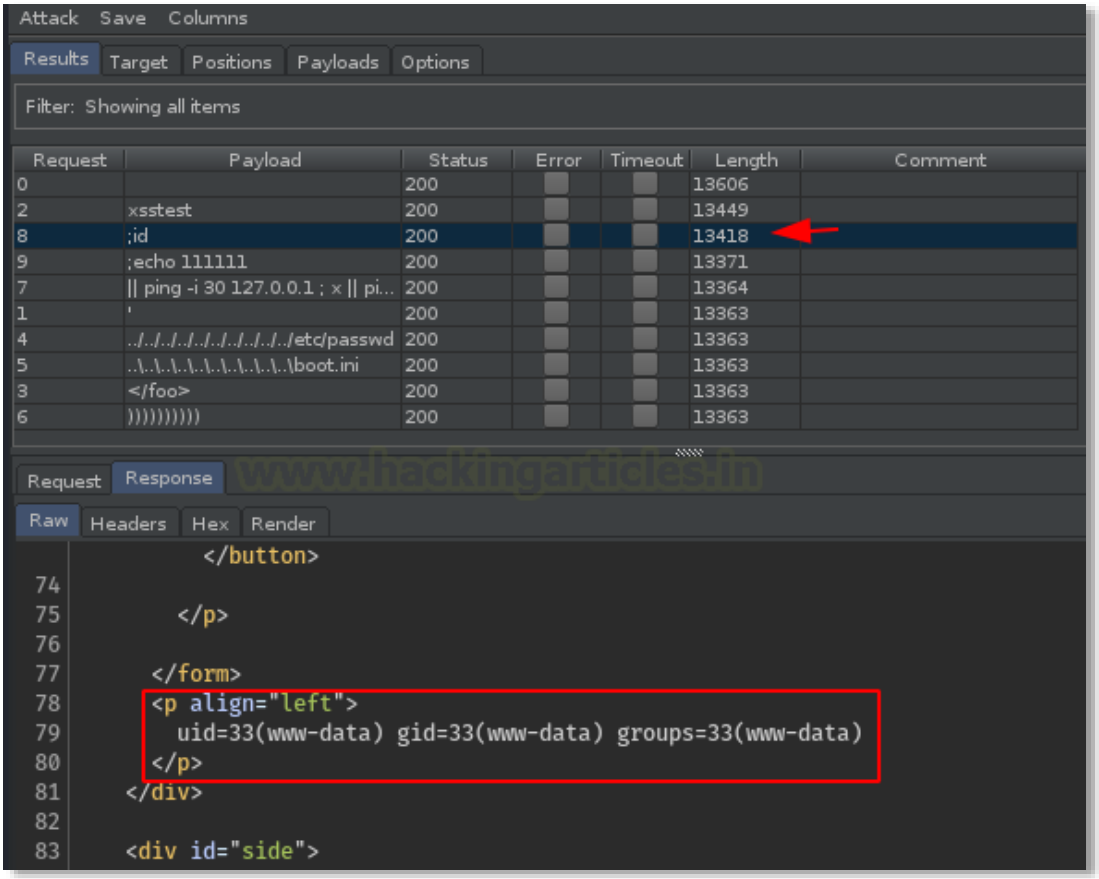
Further, lets set the injection point to **"www.nsa.gov"** by hitting the **Add** button and set the attack type to **Sniper.**



Let's now opt the smallest and deadliest list to fuzz this injection point. And therewith that hit the**"Attack"** button to initiate the attack.



Within a few seconds, we'll get our output. Alter the length section as in Descending order in order to analyse the responses.
There we go, the **";id"** payload is working perfectly here.



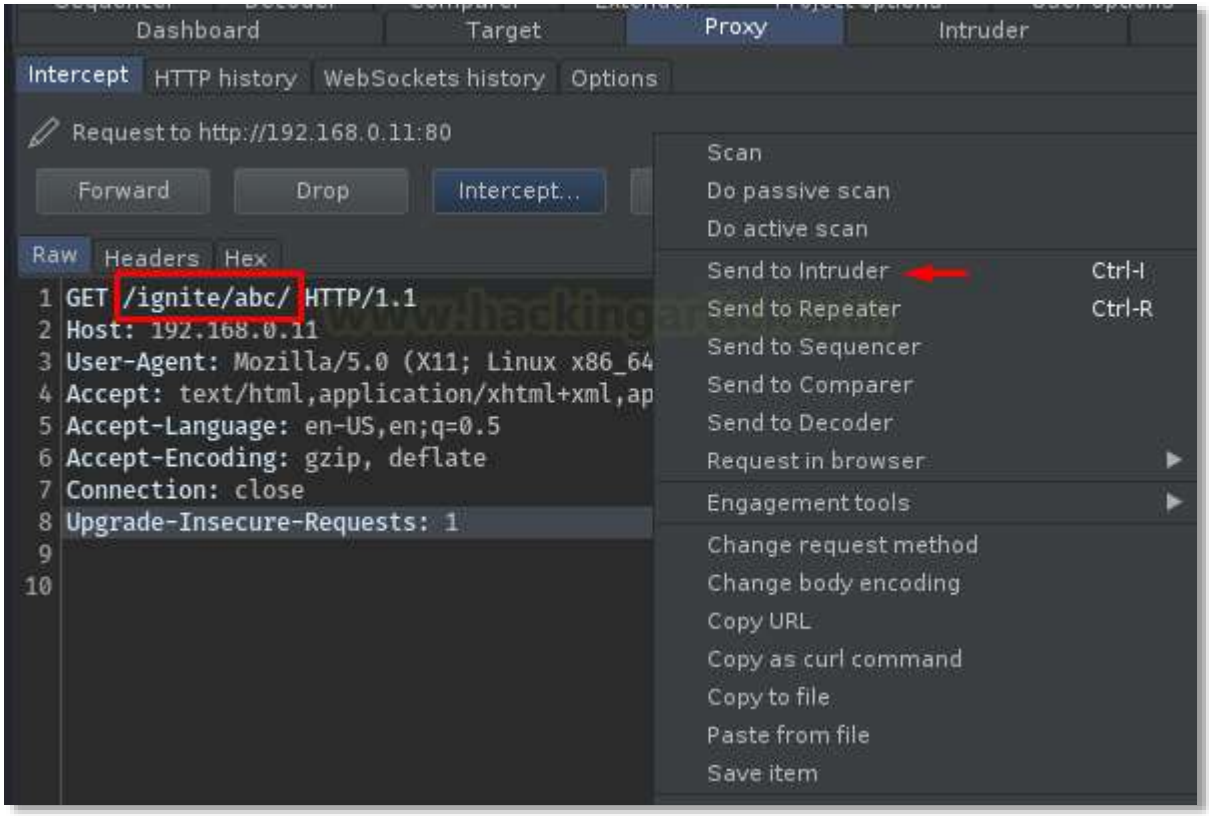
Let's check the same in the browser too. From the below screenshot you can see that our payload has been triggered out by the web-server.

Fuzzing for Hidden Directories

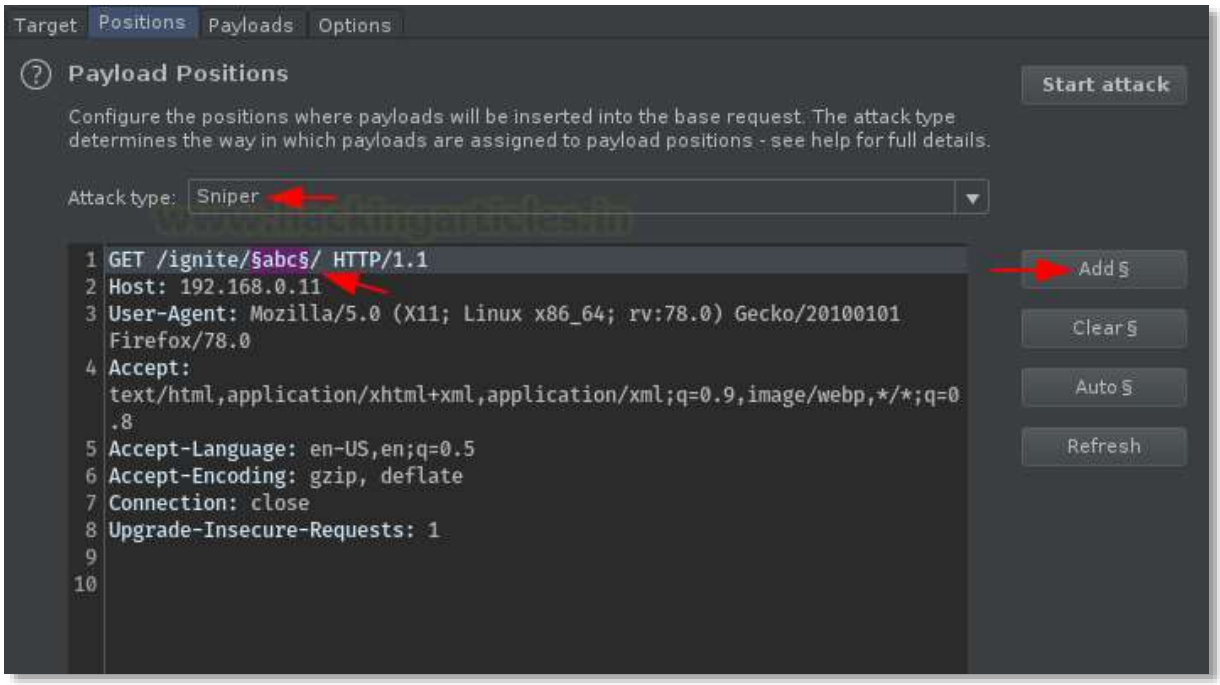
Similar to the web pages, there are some directories too that are hidden from the normal users, but yes they exist over the application.

However, it's about to impossible to find these directories with the naked eyes. Therefore, to make our work easy and to make this task possible, burpsuite offers an amazing payload list that will drop out all the hidden directories within a few seconds. Thereby, this attack is also known as Web Directory Bruteforcing, you can check the same from **here**.

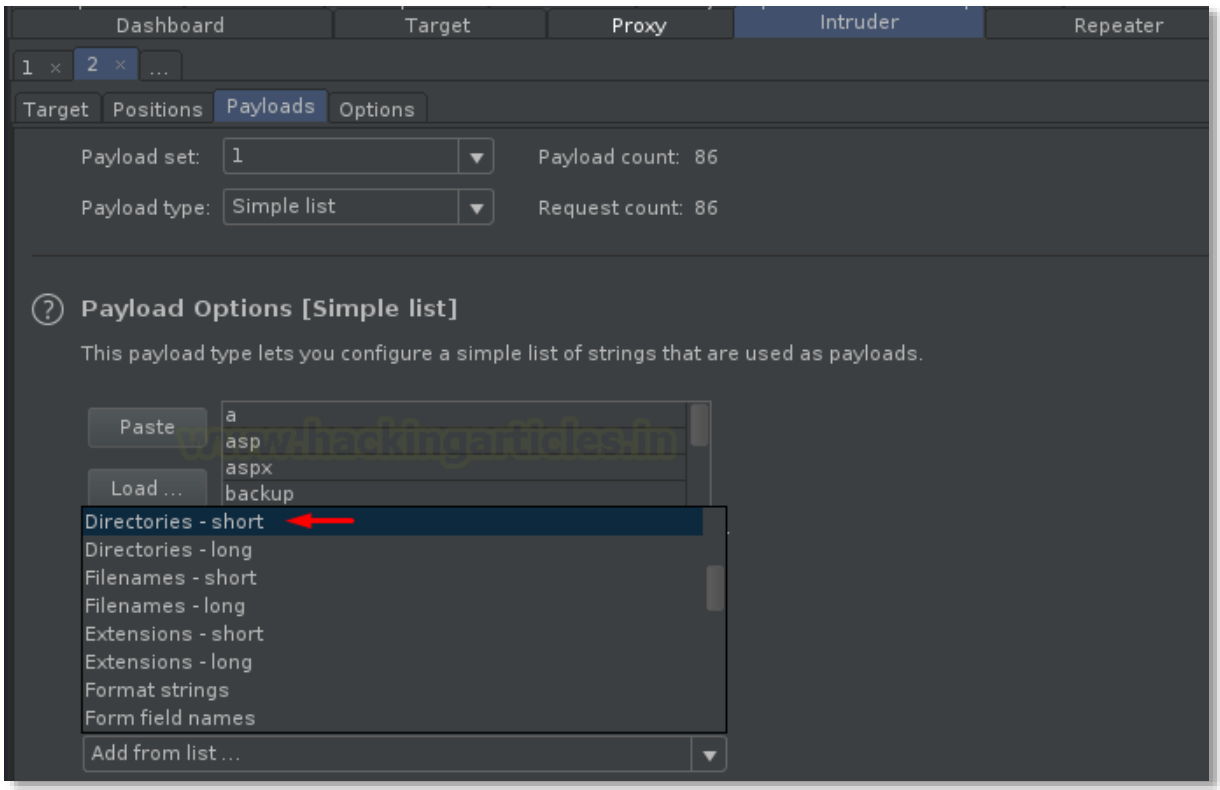
Over at the application, place a **random keyword** so that it would be easy to set out **an injection point**. As in our case, we've injected **"abc"** after the web application's URL. Further, capture the Request and share the same to the intruder.



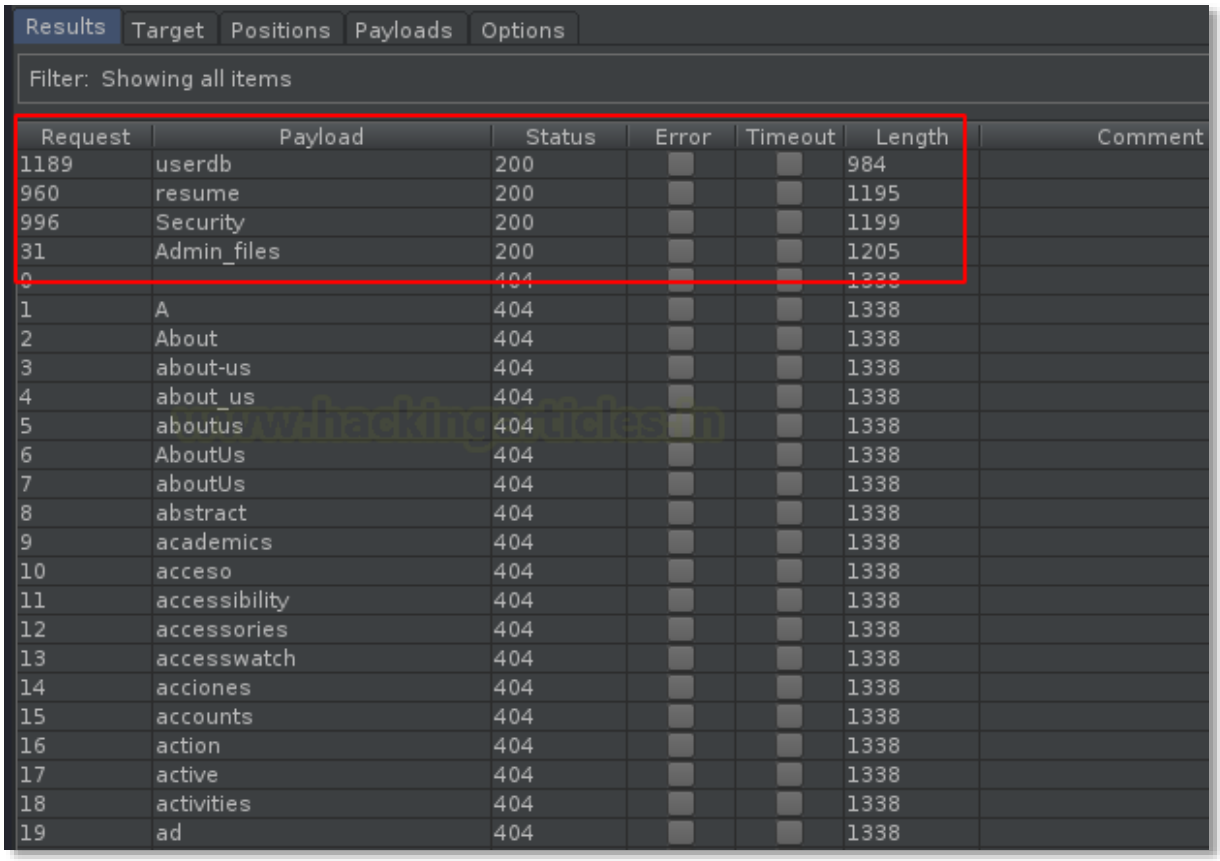
Now, here comes the role of our keyword**,** select it and hit the **Add** button.



Time to move further at our favourite step, select the Dictionary – short payload list from the **Add from list…** option.



As soon as we hit the **Attack** button, our fuzzing will get starts up and within a few minutes, we'll be presented with a list of **hidden files**.

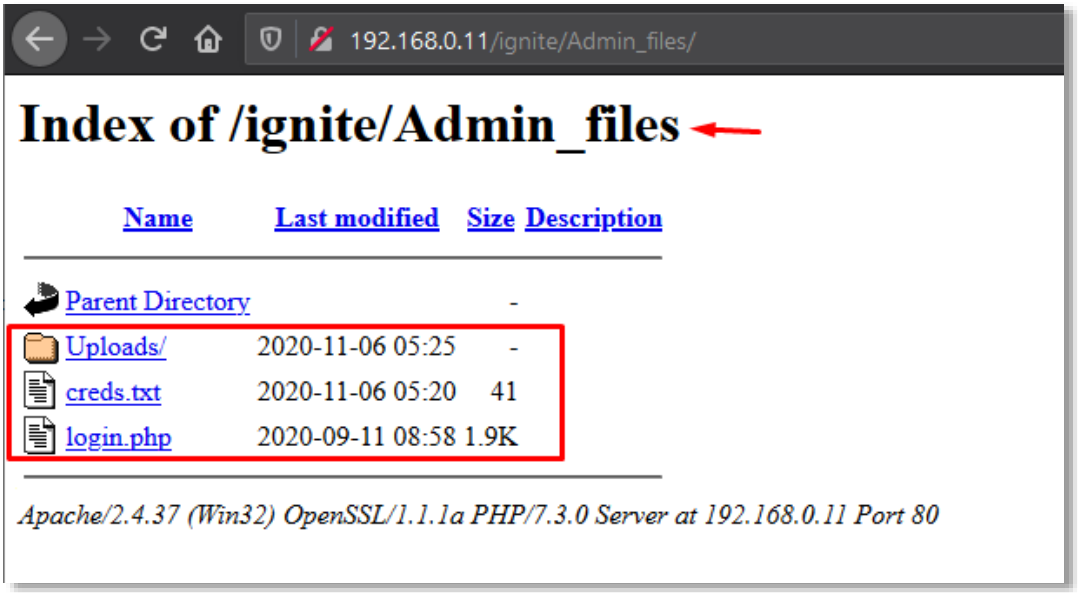


Results | Target | Positions | Payloads | Options

Filter: Showing all items

Request	Payload	Status	Error	Timeout	Length	Comment
1189	userdb	200			984	
960	resume	200			1195	
996	Security	200			1199	
31	Admin_files	200			1205	
0		404			1338	
1	A	404			1338	
2	About	404			1338	
3	about-us	404			1338	
4	about_us	404			1338	
5	aboutus	404			1338	
6	AboutUs	404			1338	
7	aboutUs	404			1338	
8	abstract	404			1338	
9	academics	404			1338	
10	acceso	404			1338	
11	accessibility	404			1338	
12	accessories	404			1338	
13	accesswatch	404			1338	
14	acciones	404			1338	
15	accounts	404			1338	
16	action	404			1338	
17	active	404			1338	
18	activities	404			1338	
19	ad	404			1338	

Seems like the **Admin_files** is having some juicy content, let's check it out in the browser.



192.168.0.11/ignite/Admin_files/

Index of /ignite/Admin_files

Name	Last modified	Size	Description
Parent Directory		-	
Uploads/	2020-11-06 05:25	-	
creds.txt	2020-11-06 05:20	41	
login.php	2020-09-11 08:58	1.9K	

Apache/2.4.37 (Win32) OpenSSL/1.1.1a PHP/7.3.0 Server at 192.168.0.11 Port 80

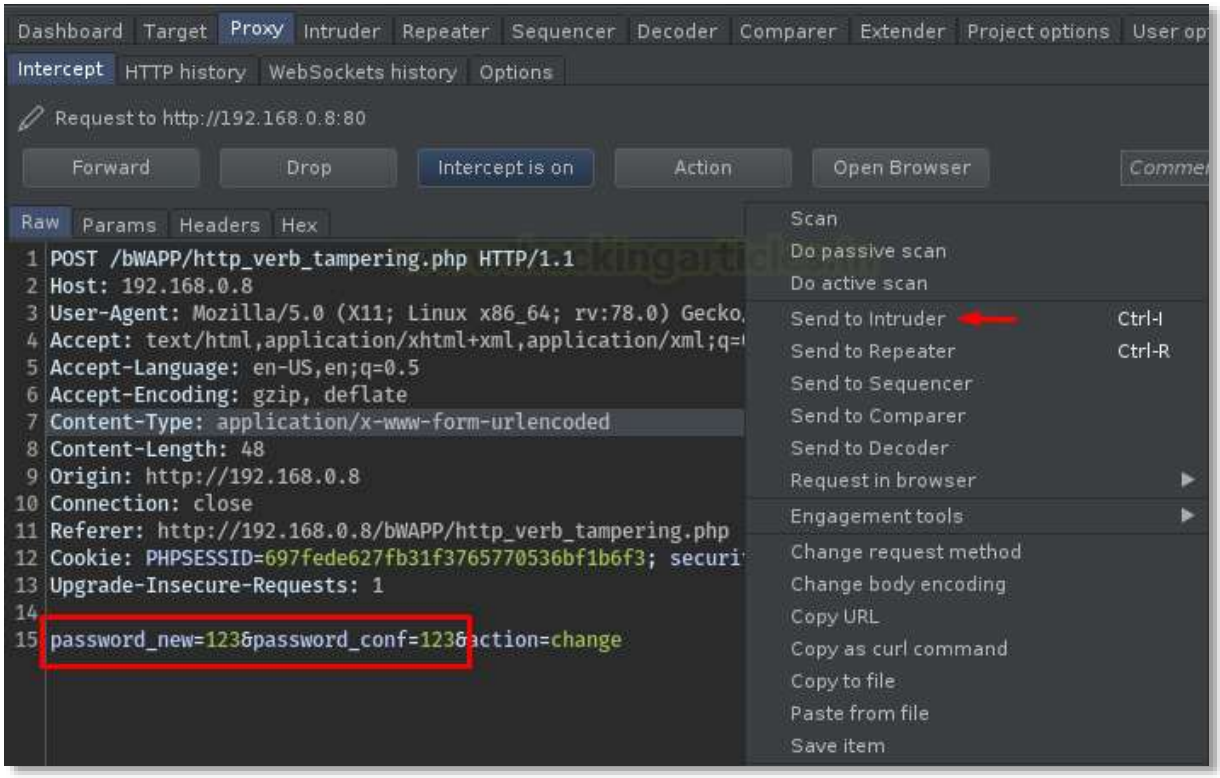
Fuzzing for HTTP Verb Tampering

HTTP Verbs are majorly used by web-developers while developing an application, during this phase they use the most common verb methods i.e. ***GET & POST****. But rather than these two, there are* ***a number of HTTP methods exists up****, that if injected at a wrong place could thus lead to some drastic results.*

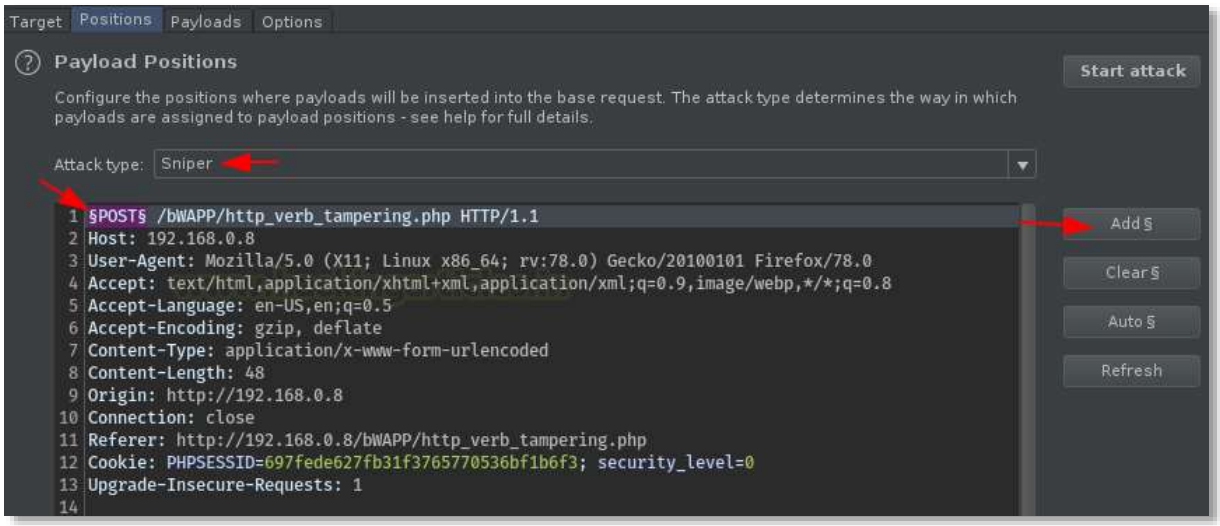
However, in such attacks, the attacker **manipulates up the HTTP method** that was set up by the developer with an unwanted method, and if the output with the other HTTP method drops out with "200" Success, then the application might face some defacements.

Thereby in order to make this attack much simpler, burpsuite drops out an **in-built payload list** with all the **HTTP Methods integrated within it**. So let's check it out about what it offers.

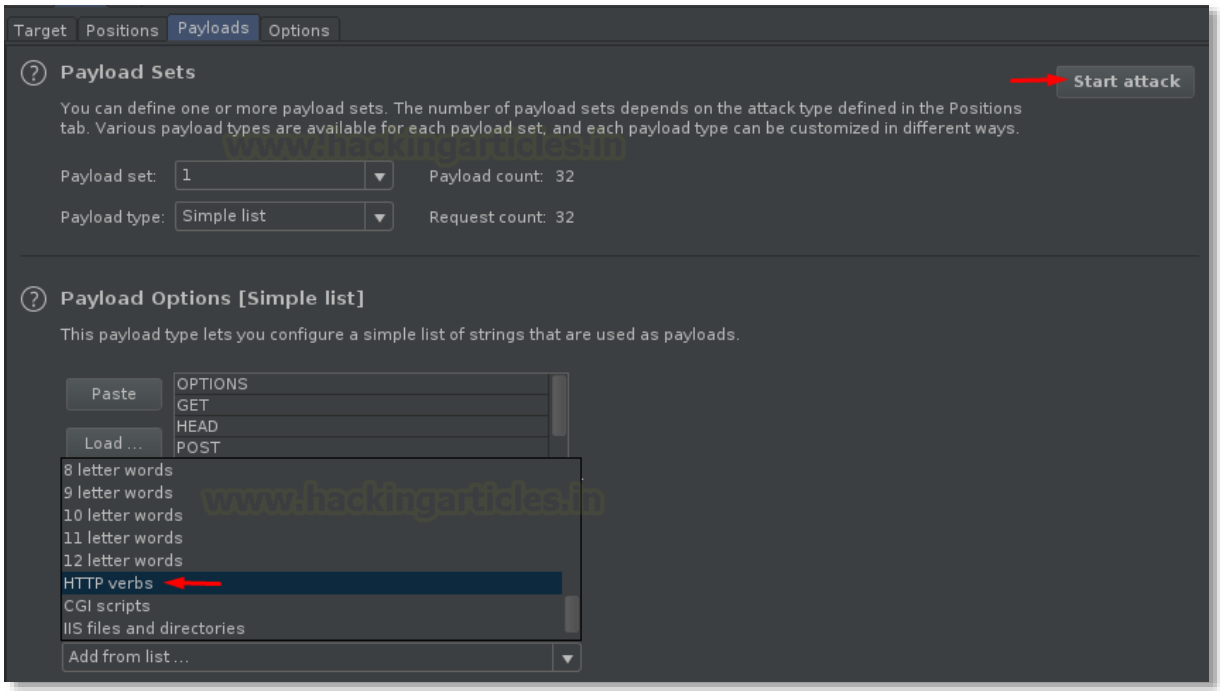
In a similar way, we did earlier, **capture the ongoing HTTP Request** and thus share it with the **Intruder**.



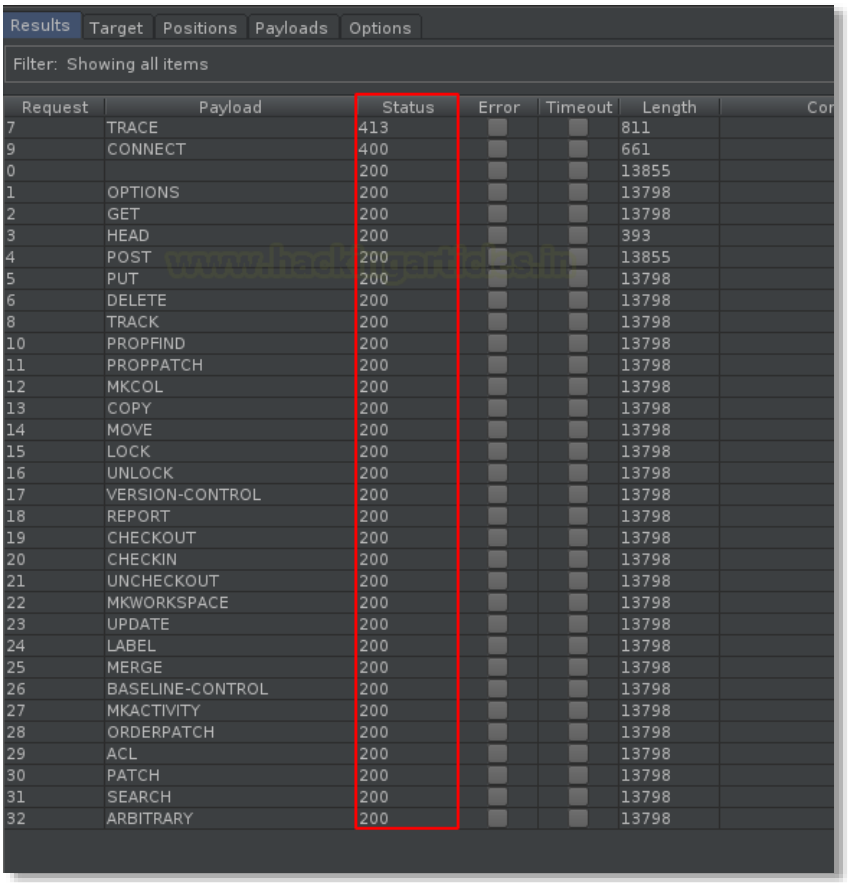
Now, this time we won't set the payload position at the input values, but rather, we'll set them up to the HTTP Request i.e. the **"POST"** method.



In the most simpler way, choose the payload list as **"HTTP verbs",** and hit the **Attack** button.

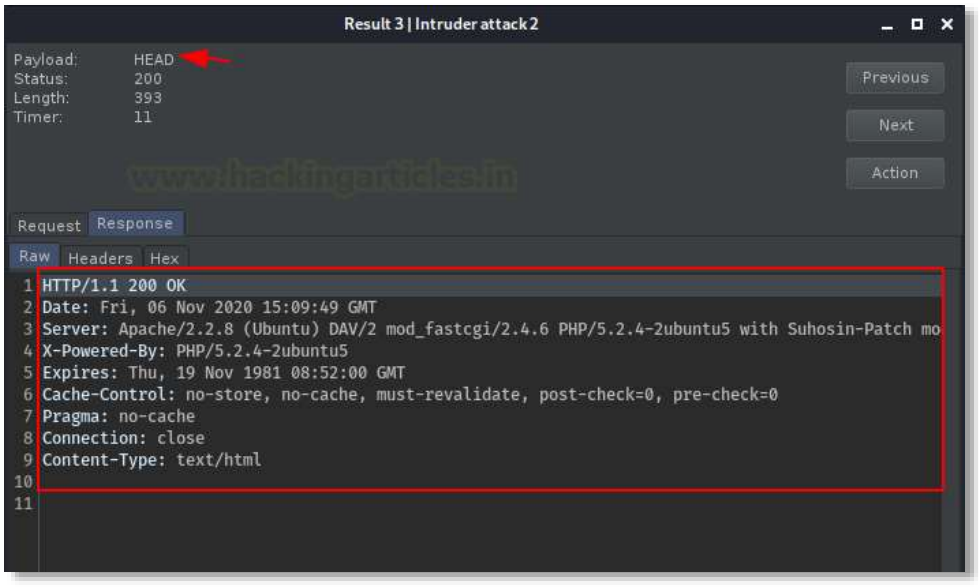


Time to analyse, here we'll see the **"Status"** section. We are testing the most vulnerable website, as the **200 success** is with almost every HTTP method we set out.



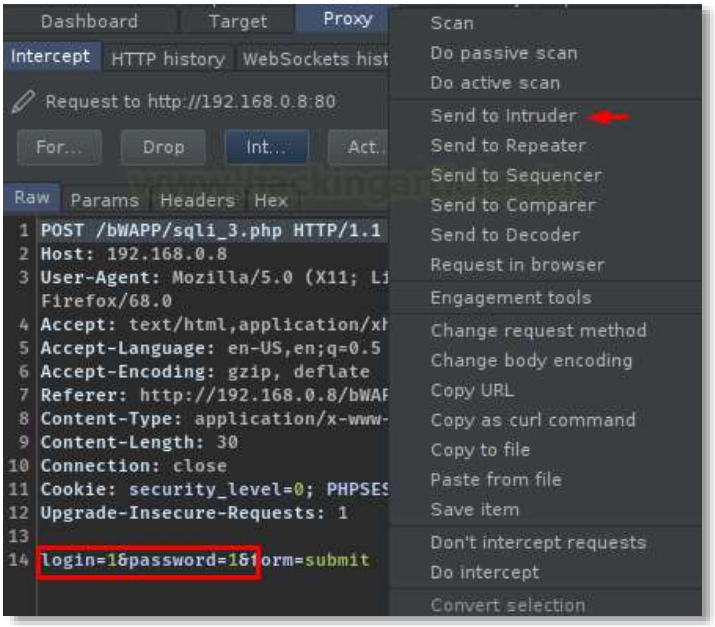
Request	Payload	Status	Error	Timeout	Length	Cor
7	TRACE	413			811	
9	CONNECT	400			661	
0		200			13855	
1	OPTIONS	200			13798	
2	GET	200			13798	
3	HEAD	200			393	
4	POST	200			13855	
5	PUT	200			13798	
6	DELETE	200			13798	
8	TRACK	200			13798	
10	PROPFIND	200			13798	
11	PROPPATCH	200			13798	
12	MKCOL	200			13798	
13	COPY	200			13798	
14	MOVE	200			13798	
15	LOCK	200			13798	
16	UNLOCK	200			13798	
17	VERSION-CONTROL	200			13798	
18	REPORT	200			13798	
19	CHECKOUT	200			13798	
20	CHECKIN	200			13798	
21	UNCHECKOUT	200			13798	
22	MKWORKSPACE	200			13798	
23	UPDATE	200			13798	
24	LABEL	200			13798	
25	MERGE	200			13798	
26	BASELINE-CONTROL	200			13798	
27	MKACTIVITY	200			13798	
28	ORDERPATCH	200			13798	
29	ACL	200			13798	
30	PATCH	200			13798	
31	SEARCH	200			13798	
32	ARBITRARY	200			13798	

Now, let's check the response from the **HEAD method,** as we're aware that a request with this method only shows up the Header part and hides up all the HTML code within it.

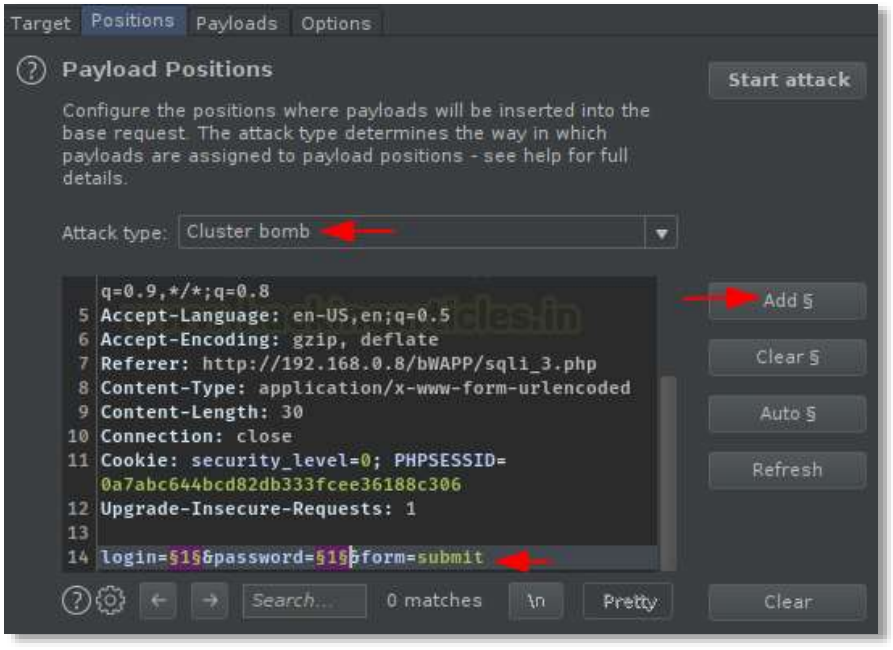


Fuzzing for SQL Injection

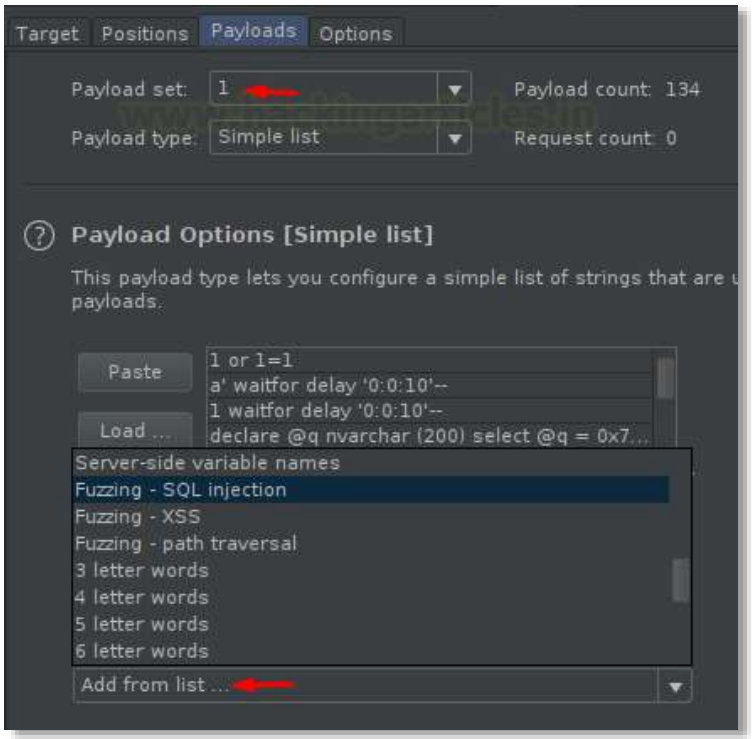
Over in our previous article, we had exploited an SQL suffering **acuart's login portal**, there we used the Fuzzing – full list to accomplish the task, but Burp Suite is having a **separate payload list** specially designed to encounter an SQL vulnerability. So let's try to use it here in this section.
Back with the similar way, **intercept the request** and share it with the **Intruder**.



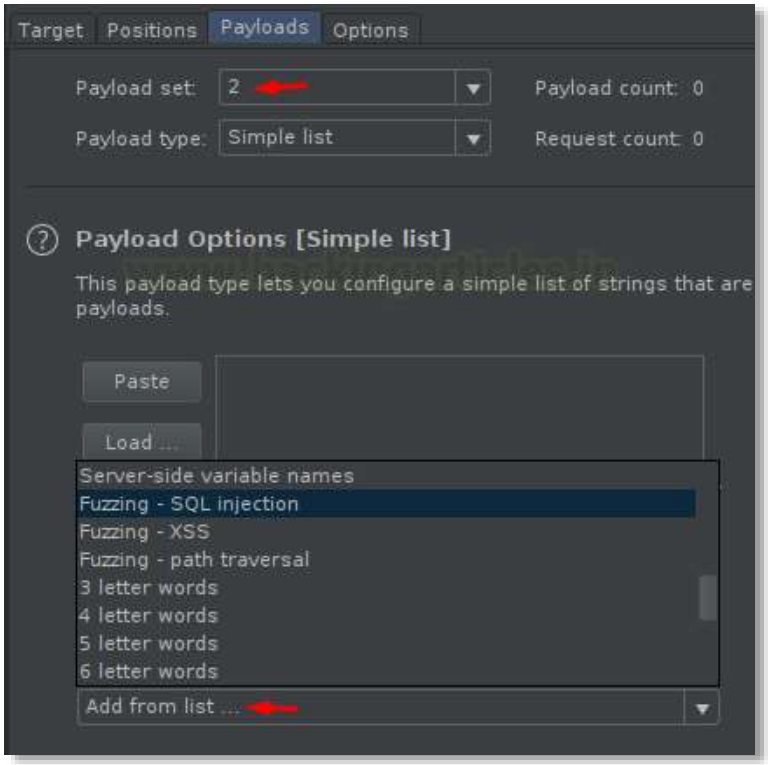
Now, with this, let's configure the injection points. Select "1" and "1" and then hit the **Add** button to set them as **payload 1** and **payload 2** respectively. But with all these things, don't forget to change the Attack type to **"Cluster Bomb"** as there are 2 payloads.



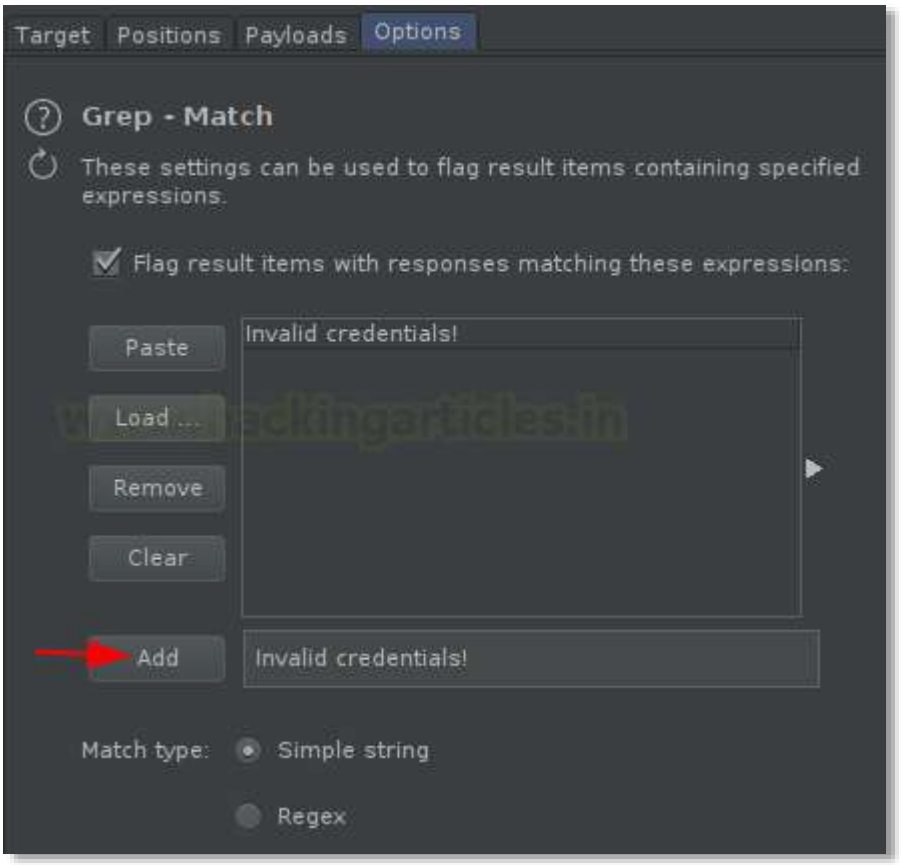
I hope you know what we need to do next. Select the ***Fuzzing – SQL Injection*** for payload 1 from the options provided.



And then opt the **same for Payload 2**.

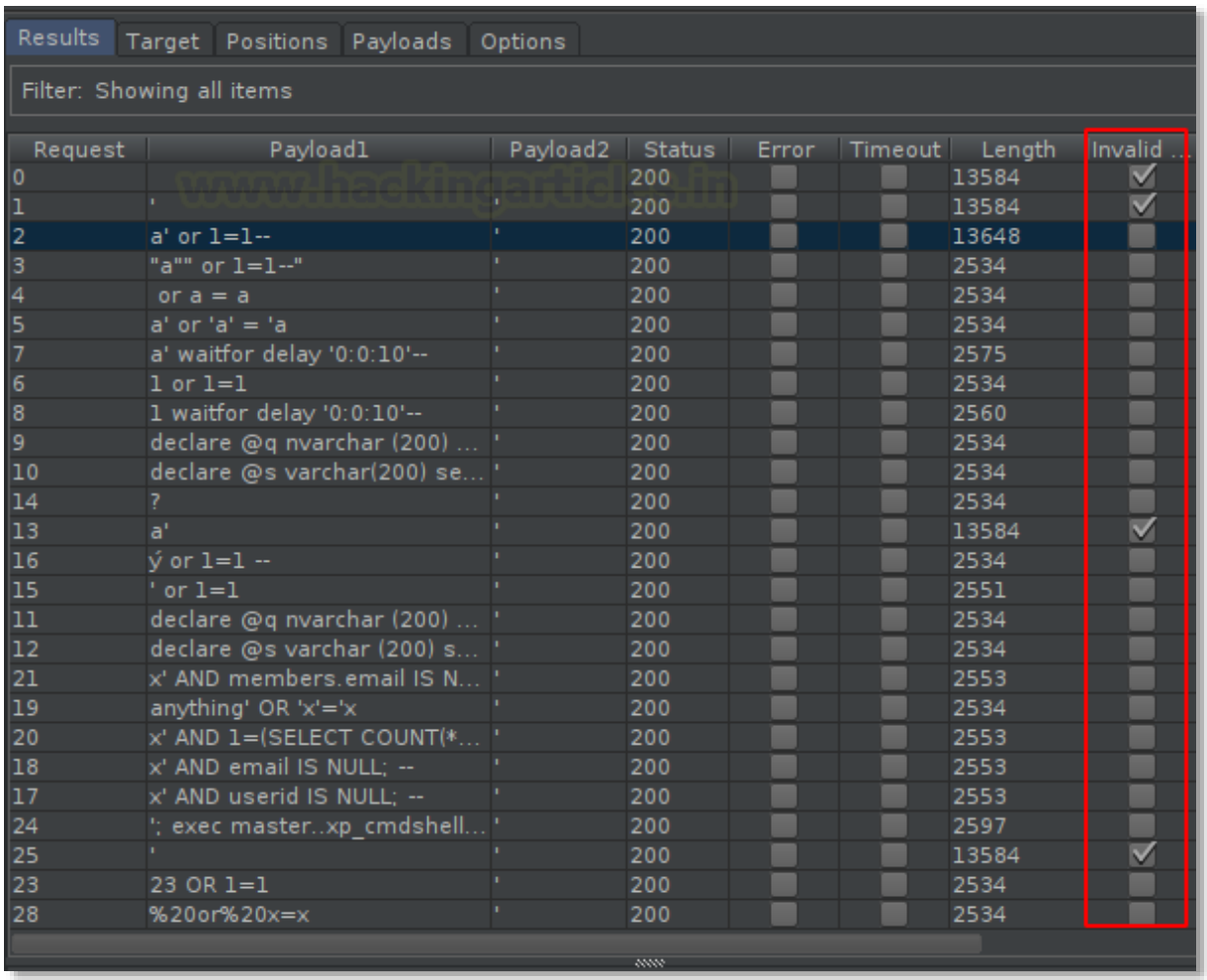


Before hitting the **"Attack"** button, let's make this fuzz more appealing by setting up the **Grep Match** value.



Note –
Here, we've used the phrase **"Invalid credentials!"** *intentionally, as this is the error generated at when some wrong credentials are entered. So rather than* **"Invalid credentials!"***, you have to set the one that displays as a part of an error message when you fails to get logs in.*

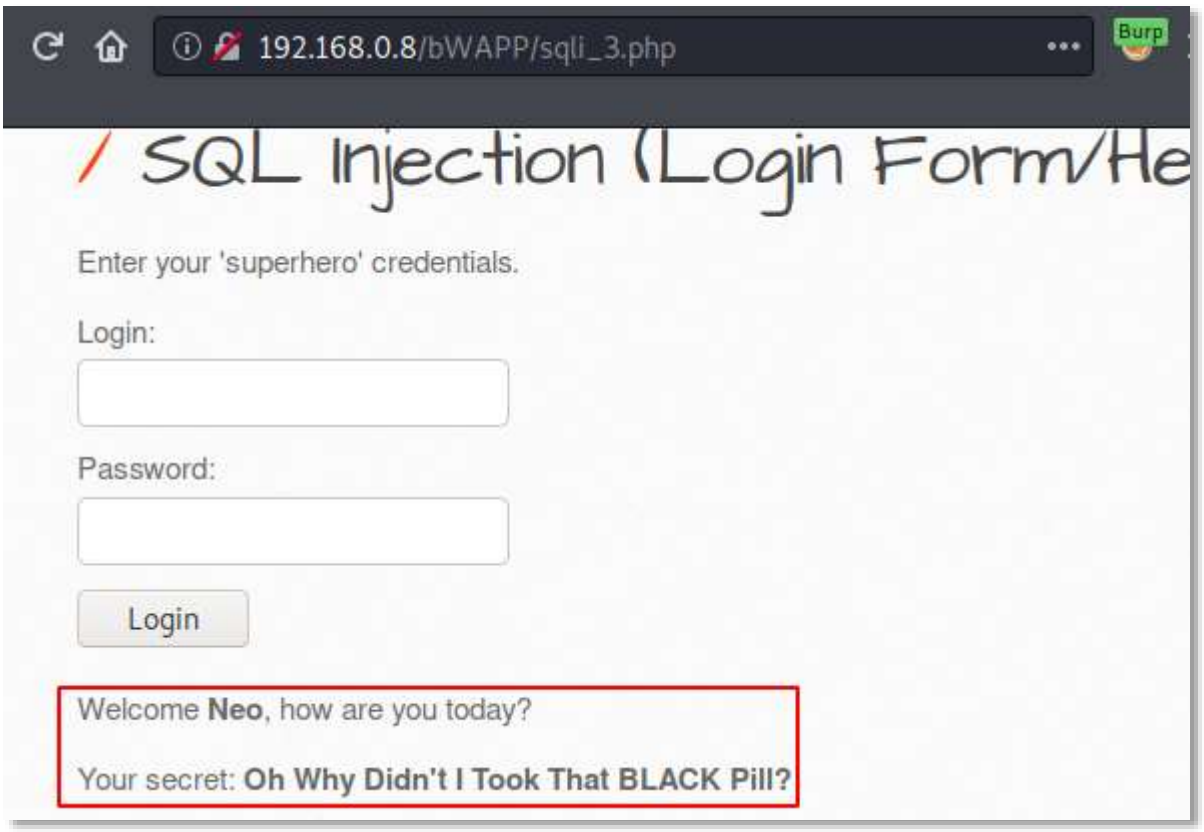
Now, hit the **"Attack"** button in order to initiate the attack. And with that, we'll get a list of all the payloads that can give a successful login.



Request	Payload1	Payload2	Status	Error	Timeout	Length	Invalid ...
0			200			13584	☑
1	'	'	200			13584	☑
2	a' or 1=1--	'	200			13648	
3	"a"" or 1=1--"	'	200			2534	
4	or a = a	'	200			2534	
5	a' or 'a' = 'a	'	200			2534	
7	a' waitfor delay '0:0:10'--	'	200			2575	
6	1 or 1=1	'	200			2534	
8	1 waitfor delay '0:0:10'--	'	200			2560	
9	declare @q nvarchar (200) ...	'	200			2534	
10	declare @s varchar(200) se...	'	200			2534	
14	?	'	200			2534	
13	a'	'	200			13584	☑
16	ý or 1=1 --	'	200			2534	
15	' or 1=1	'	200			2551	
11	declare @q nvarchar (200) ...	'	200			2534	
12	declare @s varchar (200) s...	'	200			2534	
21	x' AND members.email IS N...	'	200			2553	
19	anything' OR 'x'='x	'	200			2534	
20	x' AND 1=(SELECT COUNT(*...	'	200			2553	
18	x' AND email IS NULL; --	'	200			2553	
17	x' AND userid IS NULL; --	'	200			2553	
24	'; exec master..xp_cmdshell...	'	200			2597	
25	'	'	200			13584	☑
23	23 OR 1=1	'	200			2534	
28	%20or%20x=x	'	200			2534	

Opt one and check its response in the browser.

Great !! And there we go, ”***I wish I could have seriously taken that BLACK Pill !!”***



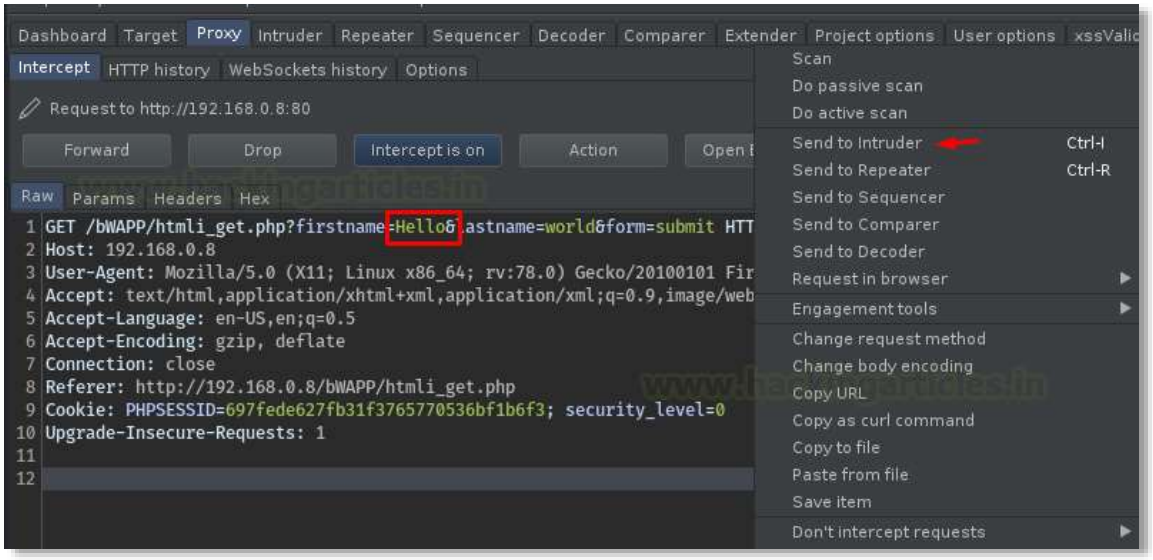
iGNITE Technologies

Fuzzing with Customized Lists

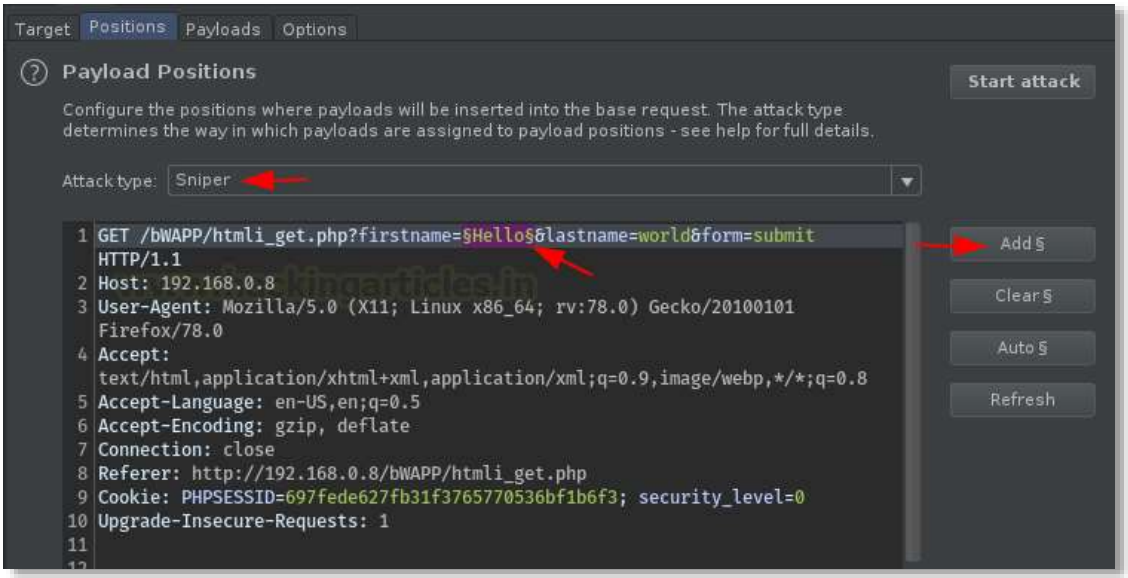
Fuzzing with Customized Lists

Manipulating Burp Suite's pre-defined payloads

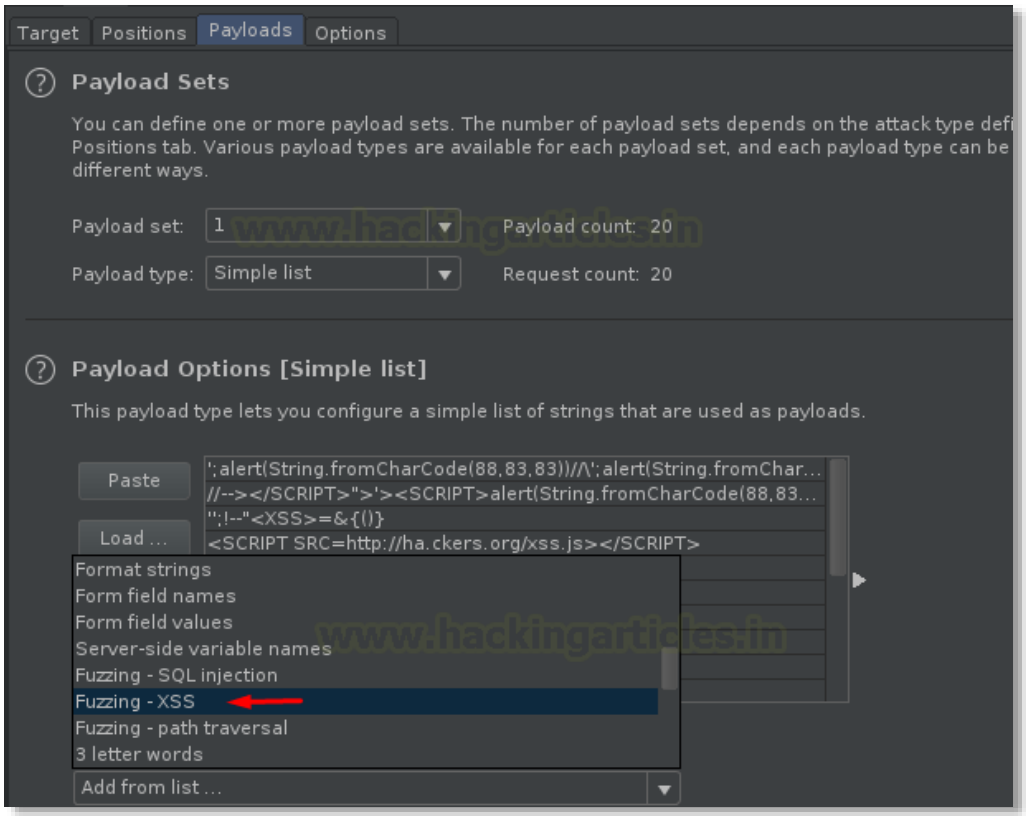
You might be wondering about, what, if I want to fuzz with my own payloads but along with that I also want the pre-defined lists.
However, the Burp suite developers might also have experienced the same thing too, thereby they designed a button called **ADD** with an **input field** where we can type and inject our payload along with the predefined lists.
So, let's make it more clear by capturing an HTTP Request and sharing it with the Intruder.



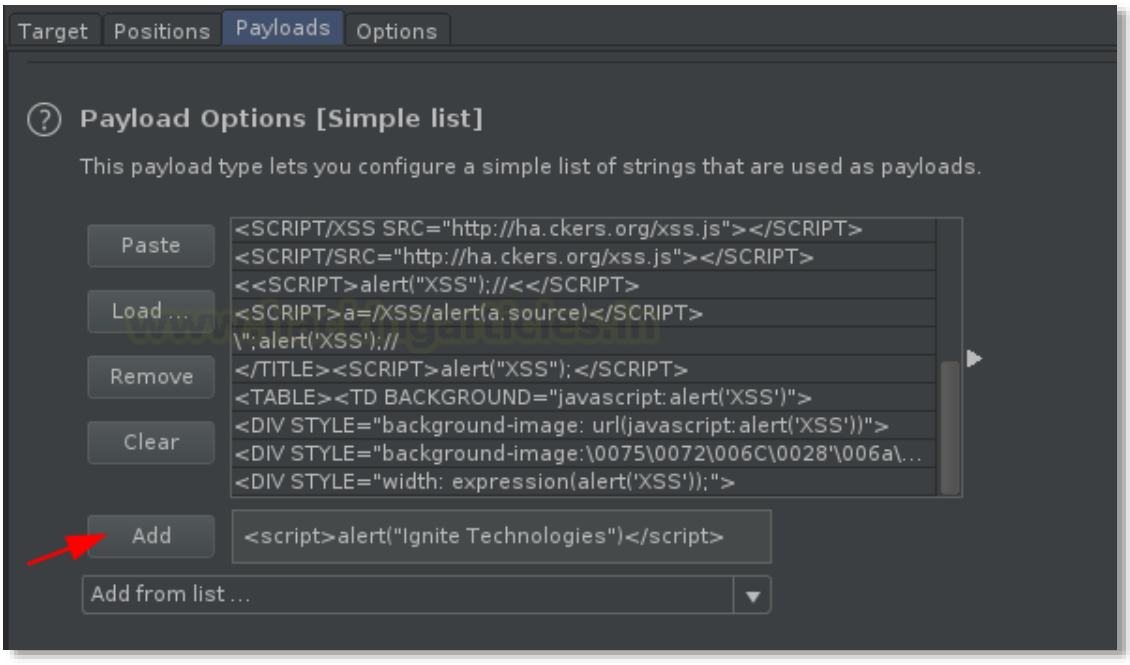
Now, we know all the best things that we need to do next… Hit "**Add $"** at the selected text in order to set the **injection point**.



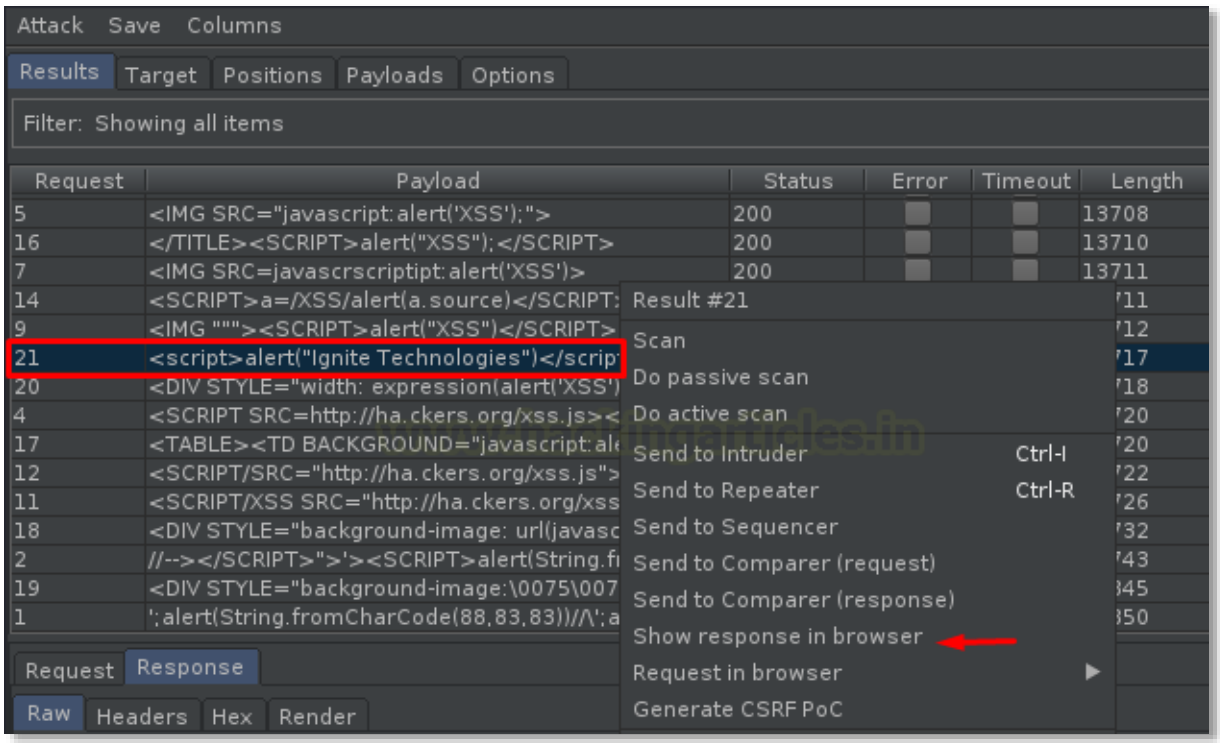
Let's first select the predefined lists, here we're using the most favourable list i.e. **"*Fuzzing – XSS*".**



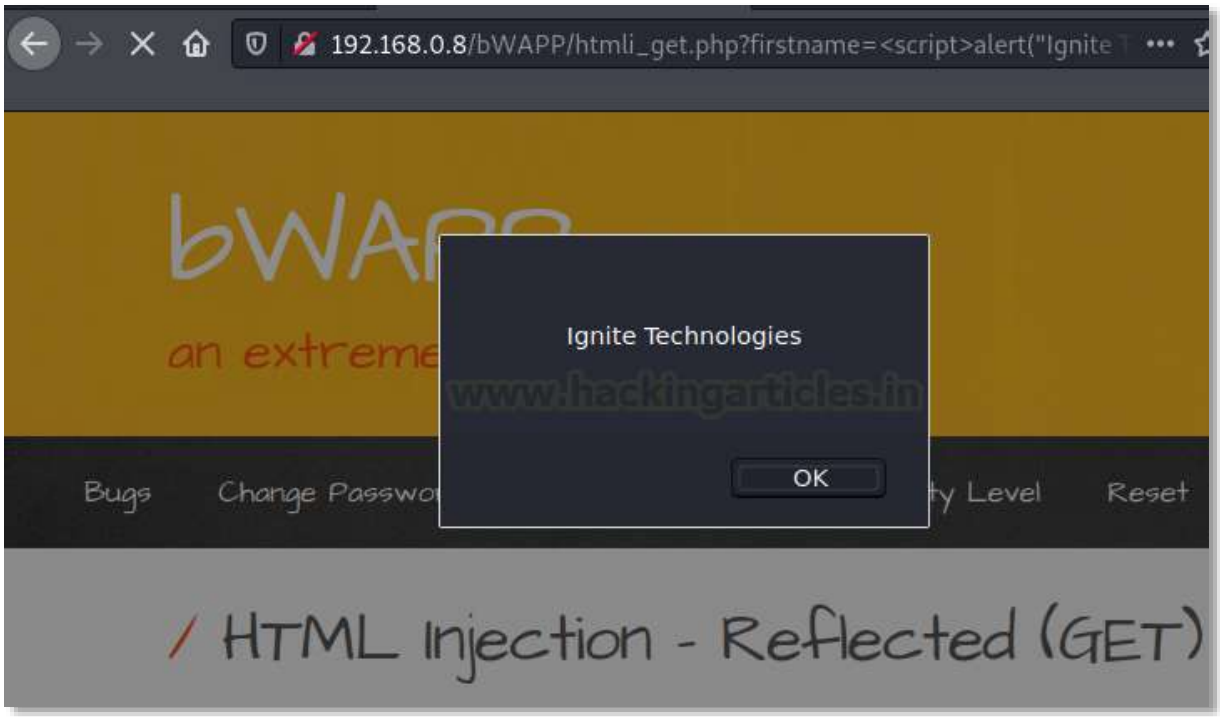
With this, let's spice up the thing by injecting our customized payload as ***<script>alert("Ignite Technologies")</script>***



Time to find out our payload from the heap, and there it is, let's give a right click and check its response in the browser.

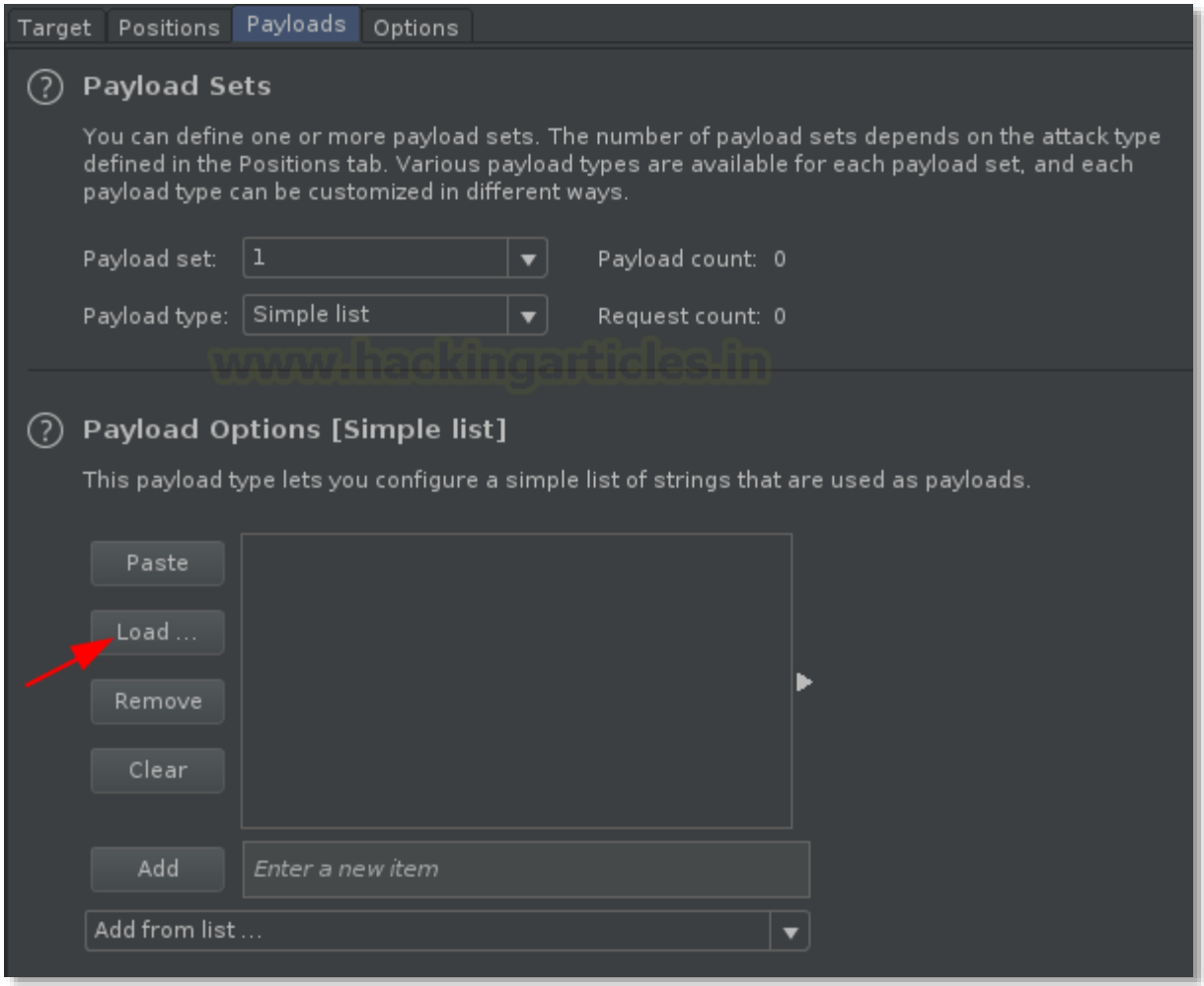


It's working !! We got **"Ignite Technologies"** being popped-out from the screen.

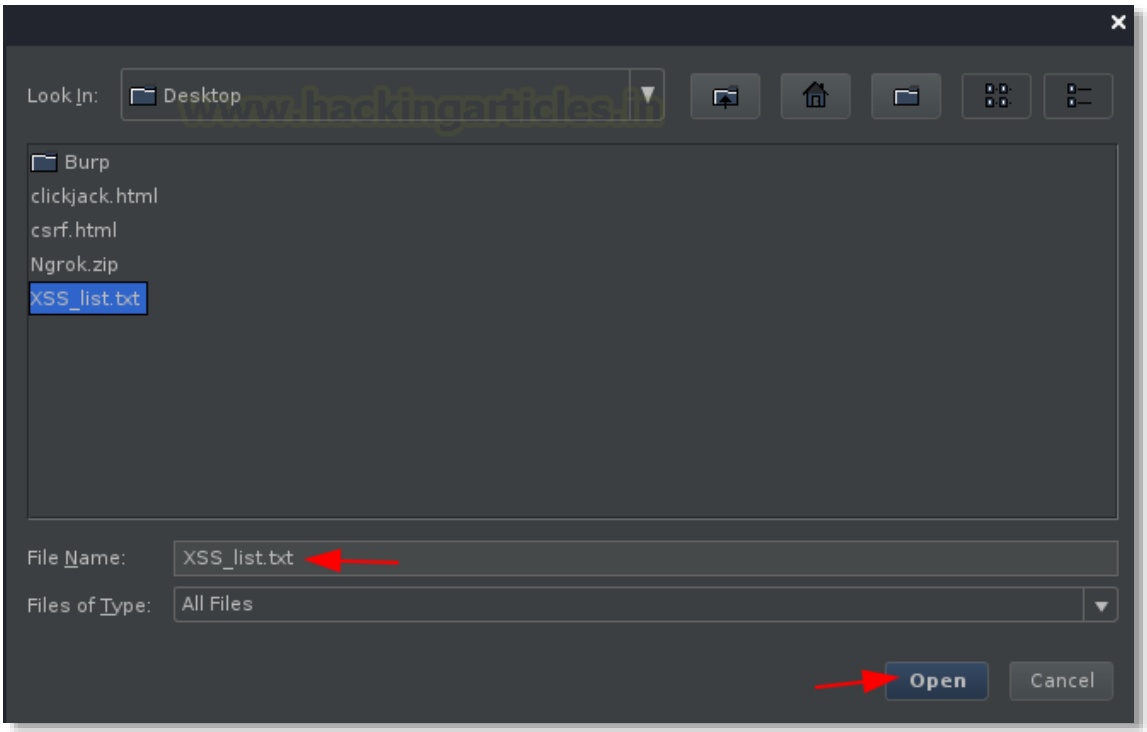


Injecting our Customised Payload Lists

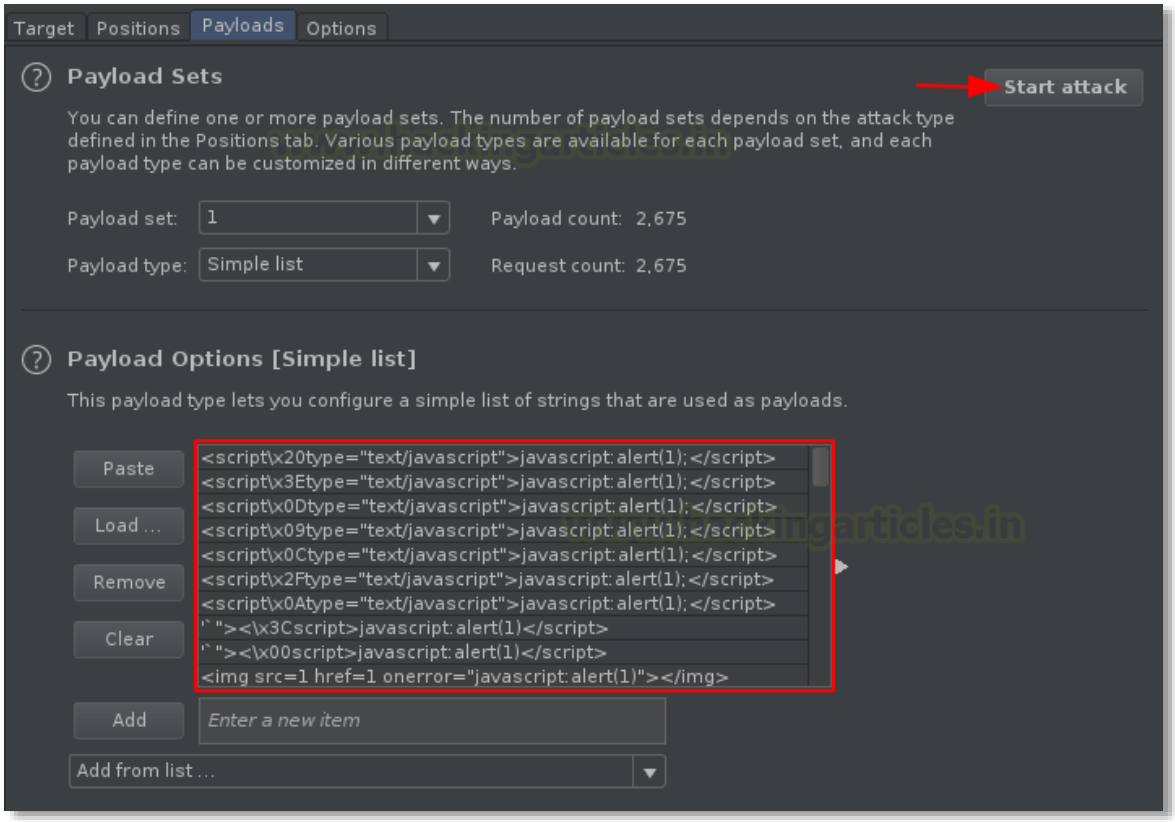
We might have seen a number of payload lists all around over at the internet, so do we need to type the individual payload and hit the **Add** *button in order to get that.*
No !! As along with the pre-defined lists and the input field for the payloads, burp suite also provides an opportunity to take advantage of these things too.
Over at the left side above the **Add** button, we're having one more button labelled as "**Load".** This burp suite functionality helps us in the most amazing way it can, i.e. it allows us to **load any payload list for our fuzzing attack.**



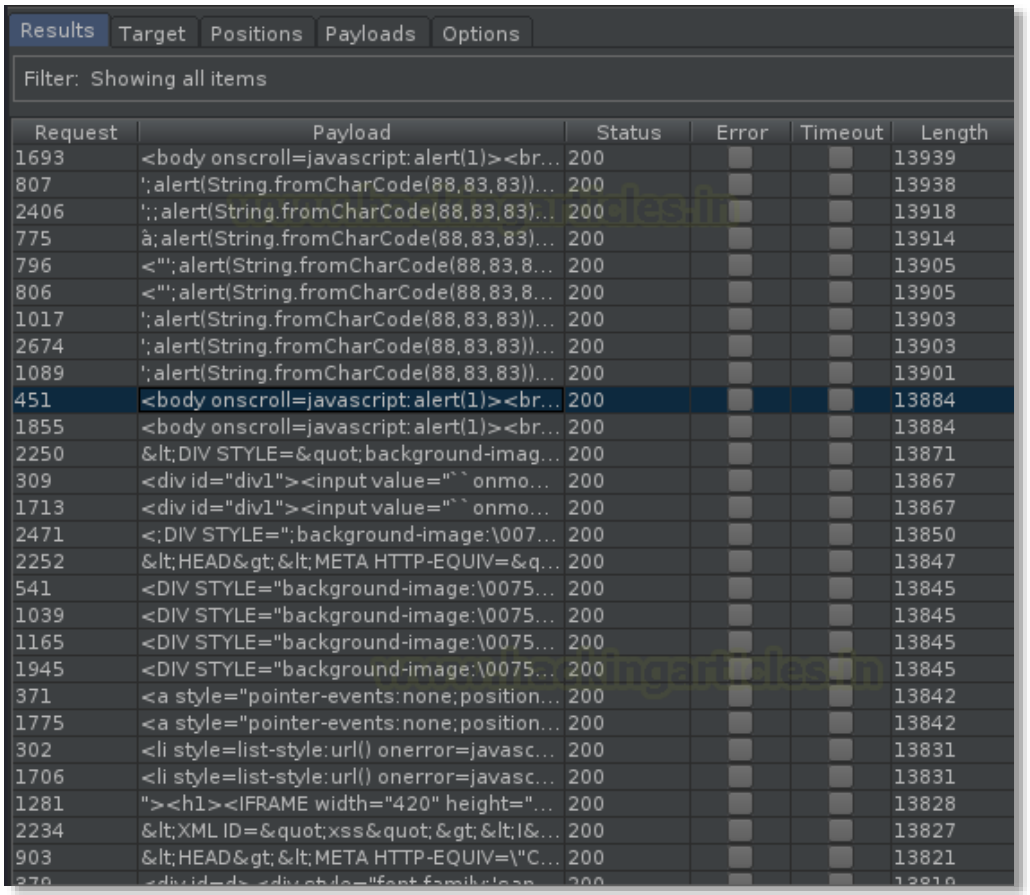
Click on the **Load** button and **select the payload list** that you want to fuzz with.



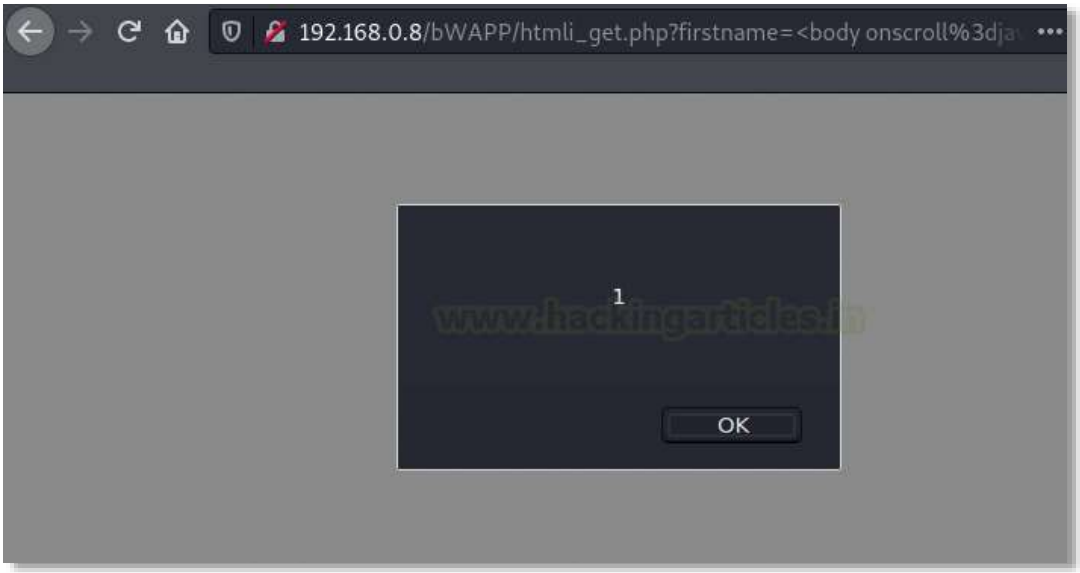
As soon as we do so, the empty box will get filled up with all the strings that are within the list.



Time to start. Hit the **Attack** button and analyse the output it offers.



Let's check the response for the **selected** one. Great !! From the below screenshot, we can see that **the payload is working** in the best way that it is designed to be.



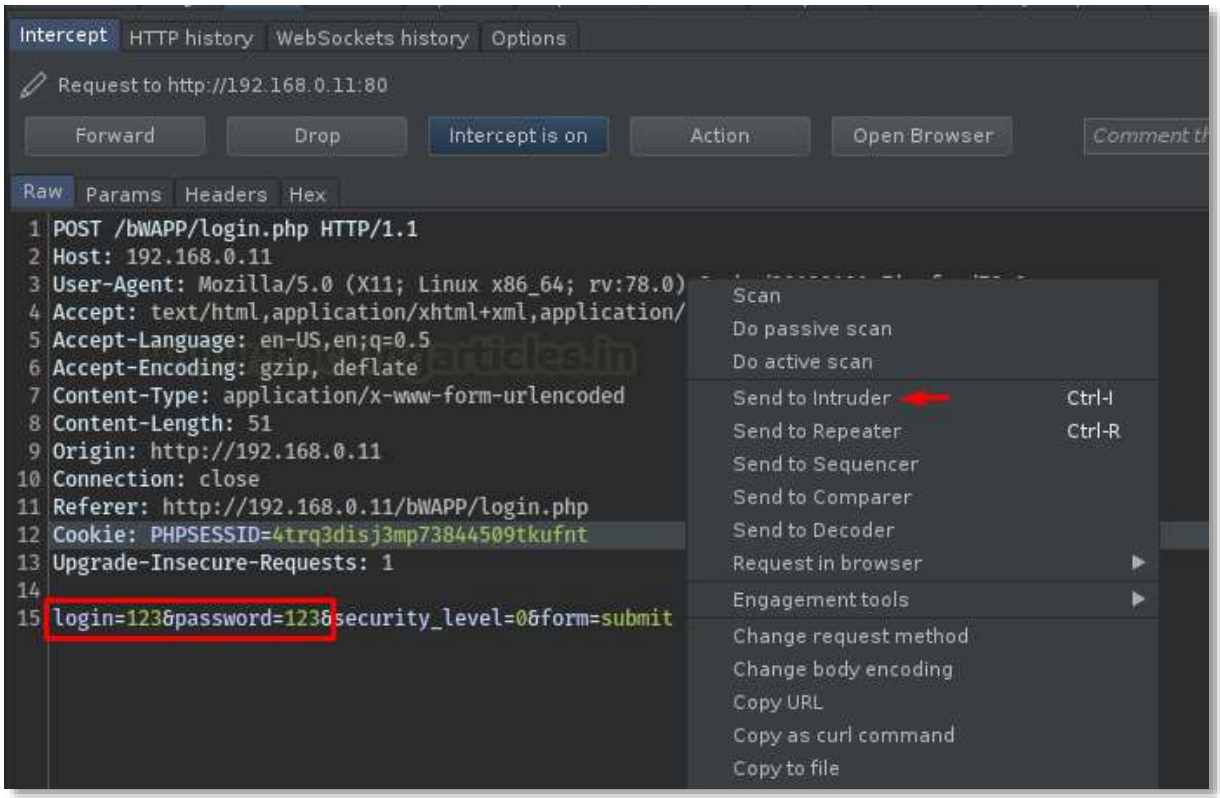
Fuzzing with the Attack Type

Fuzzing with the Attack Type

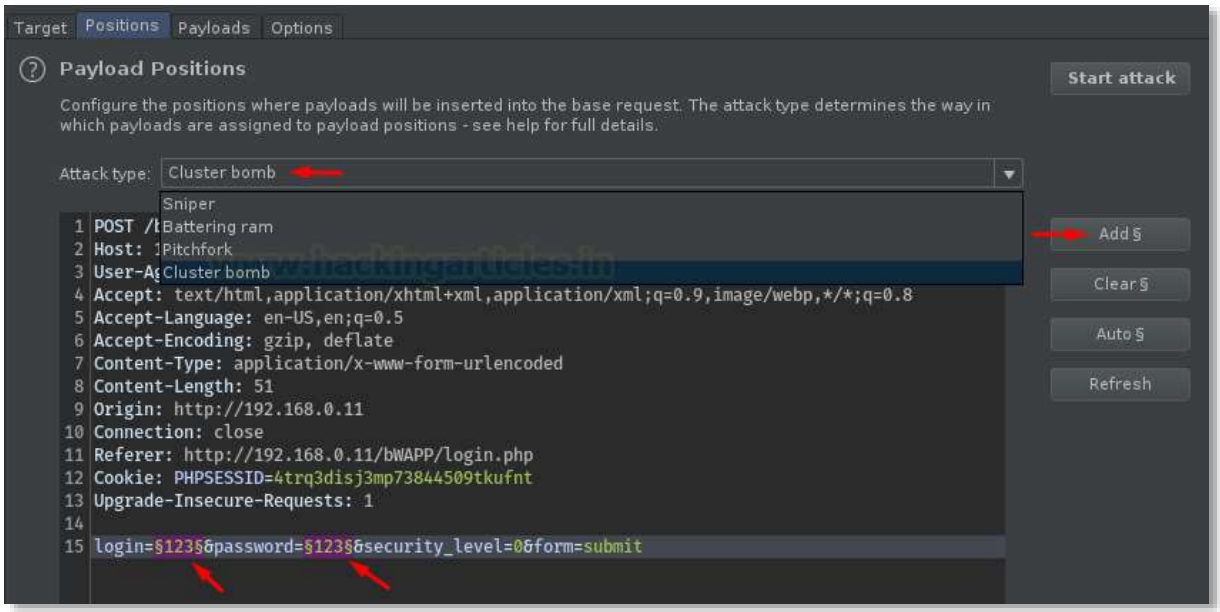
Up till now, you might have seen that over in all the attacks scenarios, we've used **Sniper** as an attack type. We did this because sniper uses a **single set of payloads** and targets a **single position** in turn with it.*But, with this, we can't set multiple payload positions over in the same Request.*
Thereby for such situation, where we need to set different input parameters as injection points, we can use the other attack types offered by Burpsuite.
So, let's dig somewhat deeper and explore one of the most common attack types i.e. ***Cluster Bomb****, here we'll try to fuzz the username and password of the users by injecting* ***two different payload*** *lists respectively at the different injection points.*

Cluster Bomb

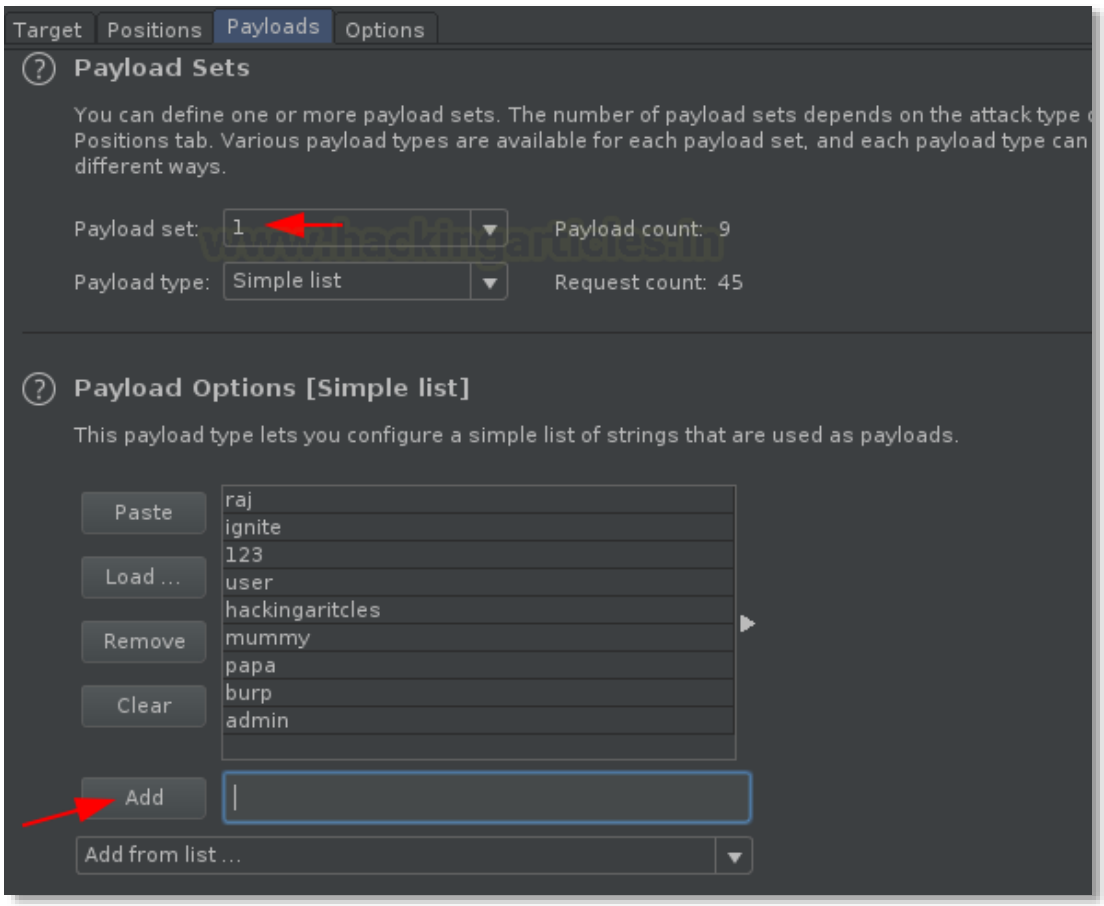
Back with the similar way, let's capture the ongoing HTTP Request and share it with the Intruder.



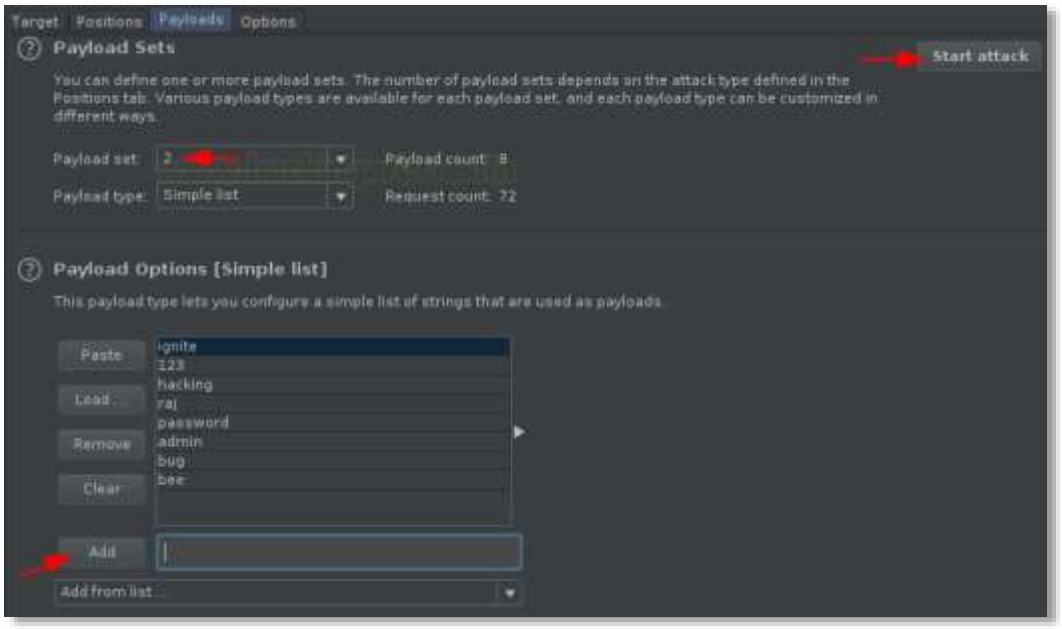
Now, let's configure the payload positions by selecting the input values of login and password fields with the **Add $** button. Therewith it, opt the Attack type to **Cluster Bomb.**



Time to fill the empty box with a list of all possible usernames.

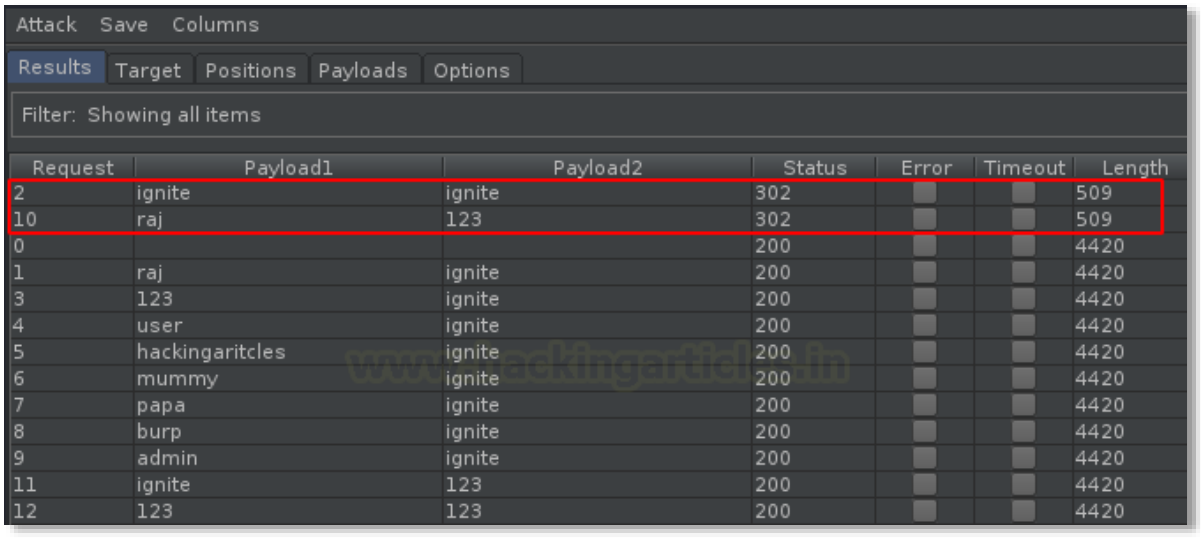


Now, with the usernames, we need some passwords too. So, let's configure **payload 2** positions with all the possible password that can exist for a username.



As soon as we hit the **"Attack"** button, the fuzzer will start, and we'll get the output screen having all the combinations of the usernames and passwords.
But wait, let's first clear the background concept behind this, like how the two different payload lists will work such in order to give a successful **302 Redirection**.

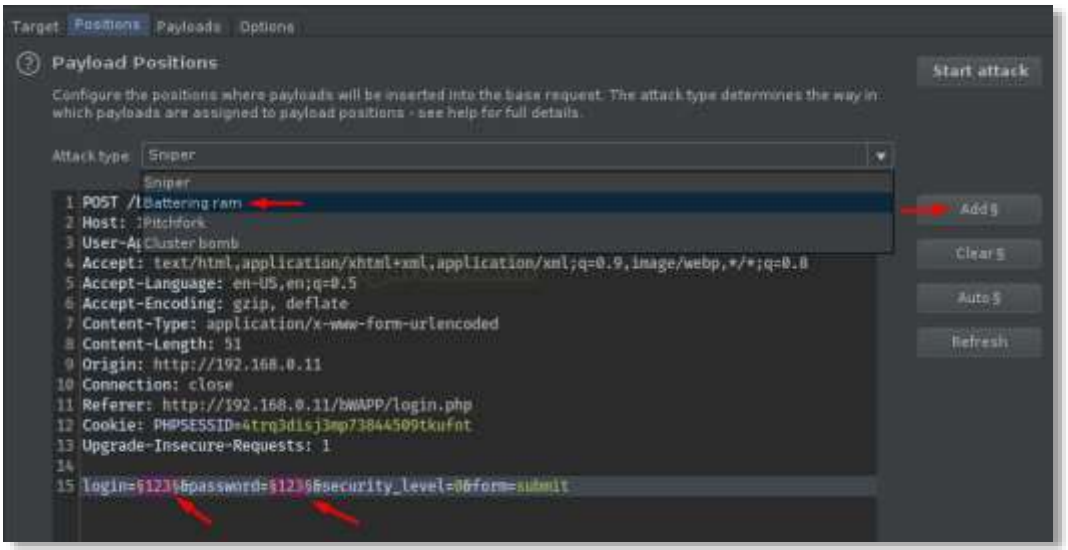
Here, in this attack, the first password from the payload list 2 will fuzz all the usernames from payload list 1, similarly, then the second password will fuzz all the usernames again and the attack goes on…. i.e. the next payload(password) from the payload list 2 will fuzz all the payloads(usernames) from payload list 1.
Therefore, the total number of requests generated in this attack is the product of the number of payloads in all defined payload sets.



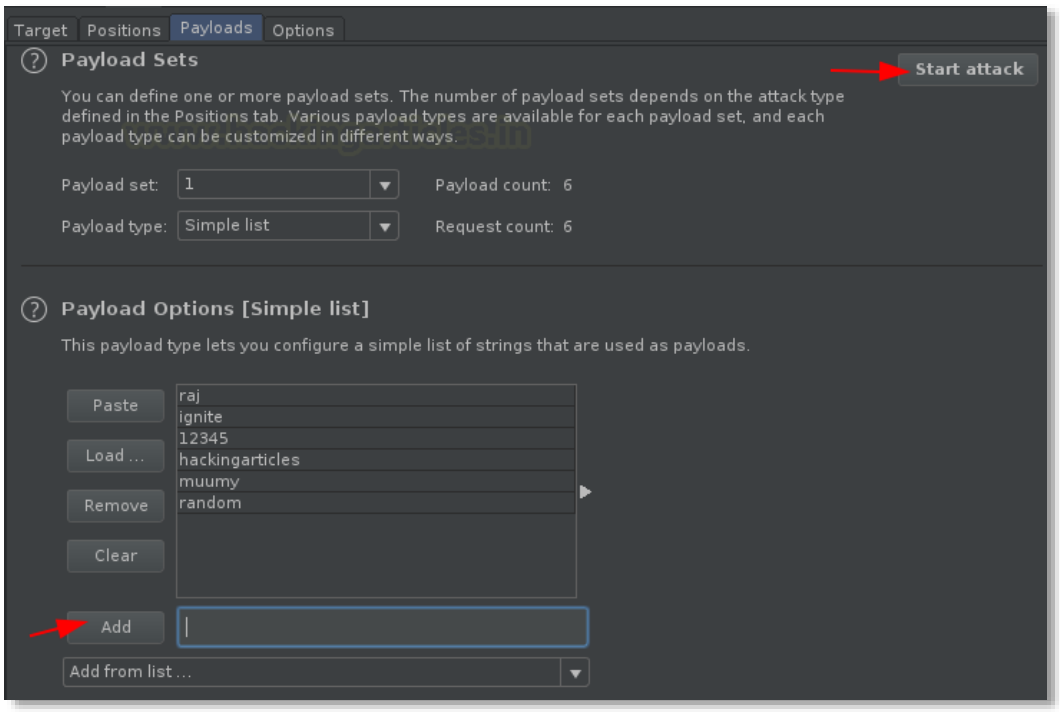
Request	Payload1	Payload2	Status	Error	Timeout	Length
2	ignite	ignite	302			509
10	raj	123	302			509
0			200			4420
1	raj	ignite	200			4420
3	123	ignite	200			4420
4	user	ignite	200			4420
5	hackingaritcles	ignite	200			4420
6	mummy	ignite	200			4420
7	papa	ignite	200			4420
8	burp	ignite	200			4420
9	admin	ignite	200			4420
11	ignite	123	200			4420
12	123	123	200			4420

Battering ram

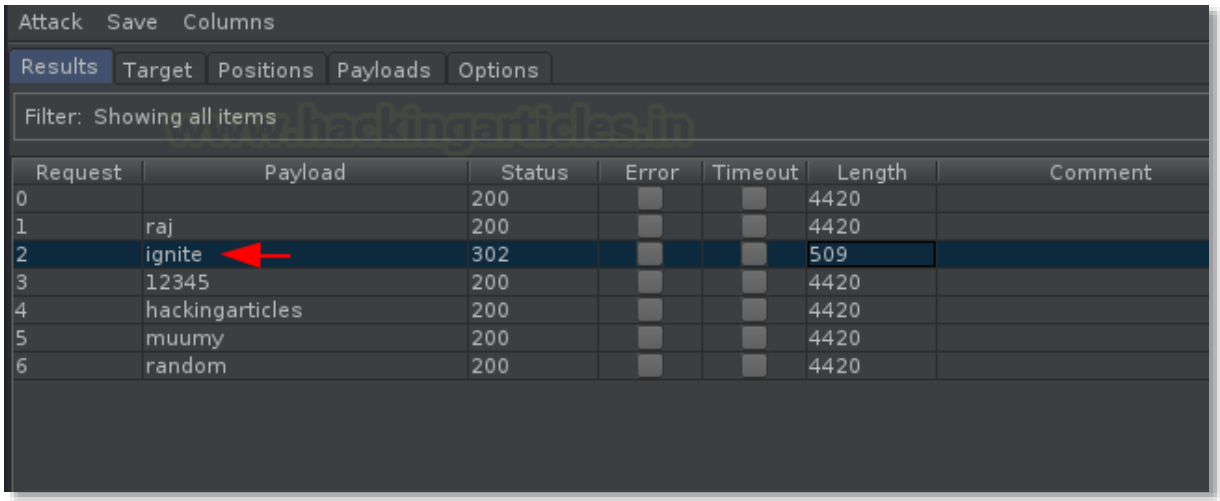
The Battering ram attack type is most favourite of Bug Bounty Hunters, as it requires a **single set of payload lists** to hit the vulnerability at multiple positions within the request.
Here, a single list is injected at different payload positions i.e. it used where the same input is to be inserted in multiple places within the request.
Let's make it more clear by manipulating the attack type to **Battering ram** within the captured request. Here, we'll try to find out the accounts that are having their **passwords as similar to their usernames**.



Now, let's inject some payloads by typing them at the input field. And then further, let's start the attack by hitting the **"Attack"** button.



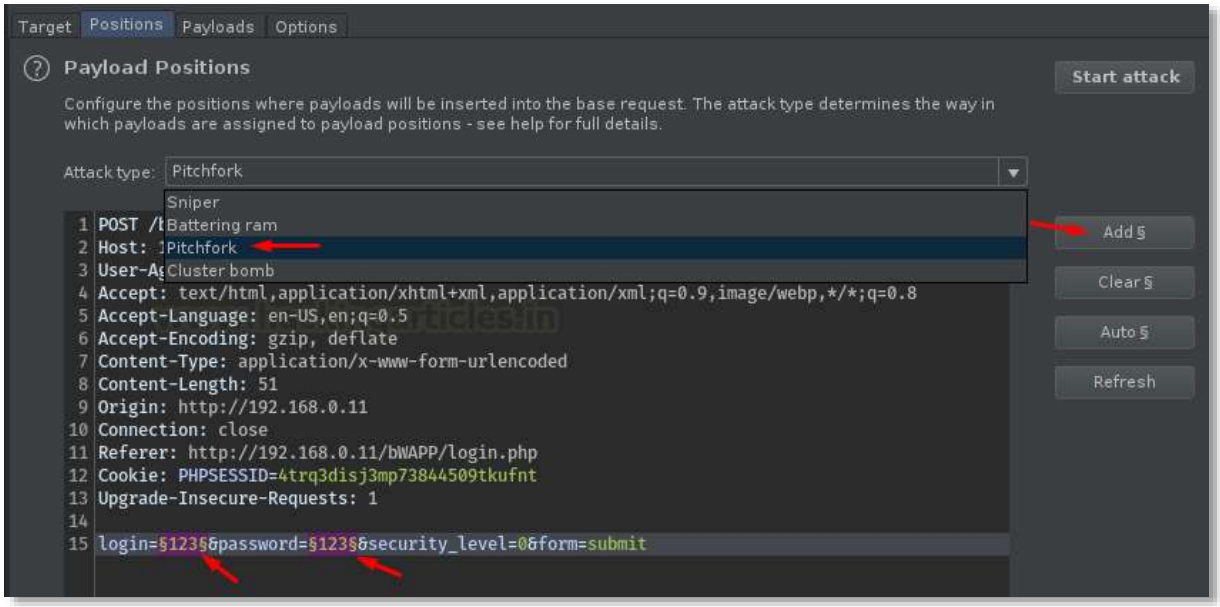
And there we go, we're back with an output list. From the below image you can see that the total number of requests are equal to the number of payloads we injected. And with this, I don't think so, that there is a need to sort the length or the status bars, as the output as **"ignite"** with **302** Redirection is clear.



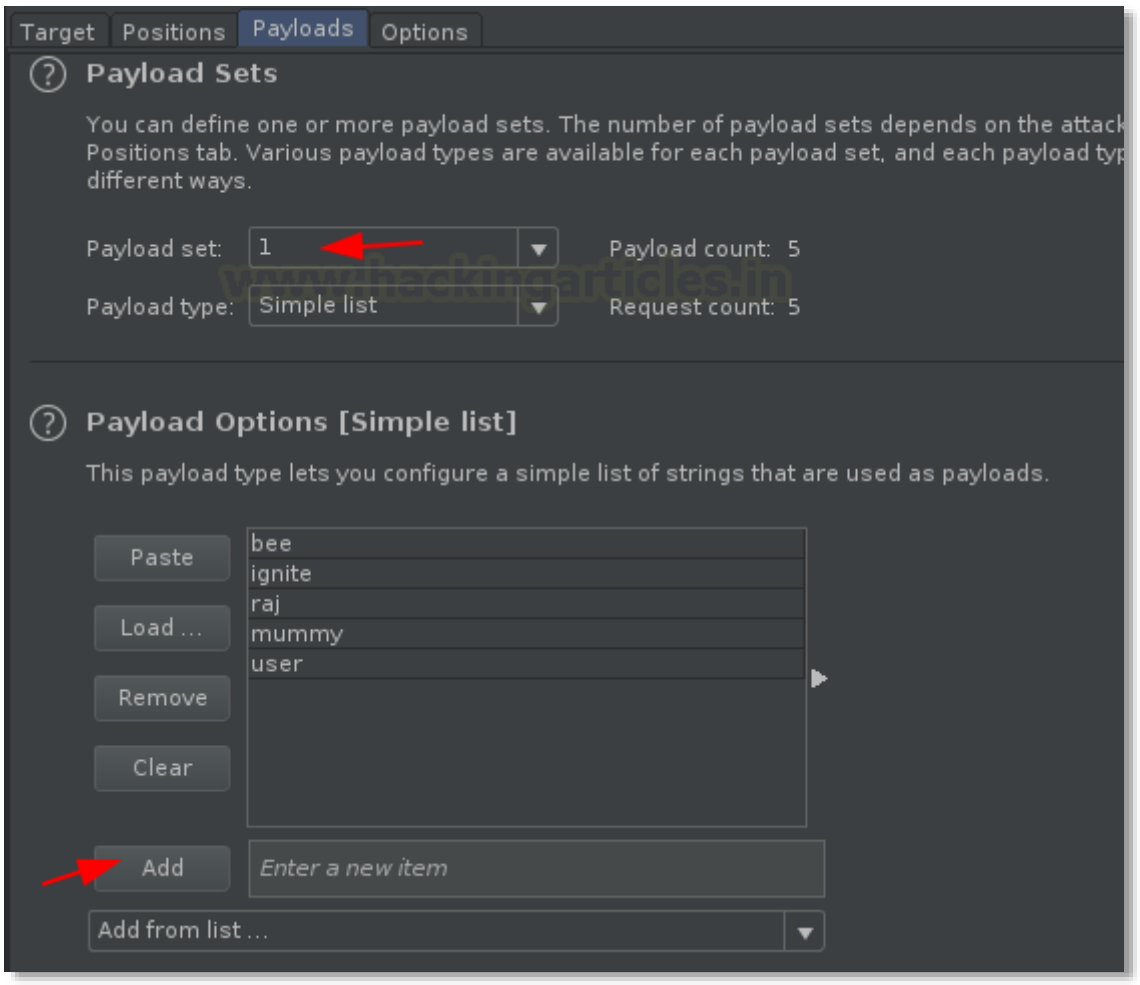
Pitchfork

This attack type is completely different from all the other three, although it carries **multiple payload sets and different injection points**. *But, it does not fuzz up the things, i.e. it simply checks the first payload from payload list one with the first payload from the payload list 2, and if they found to be the correct credential, it passes a success.*

Let's try it too, for the above-captured request that we've used. Simply manipulate the attack type to**"Pitchfork"** and mark the payload positions by selecting them and hitting the **"Add"** button.

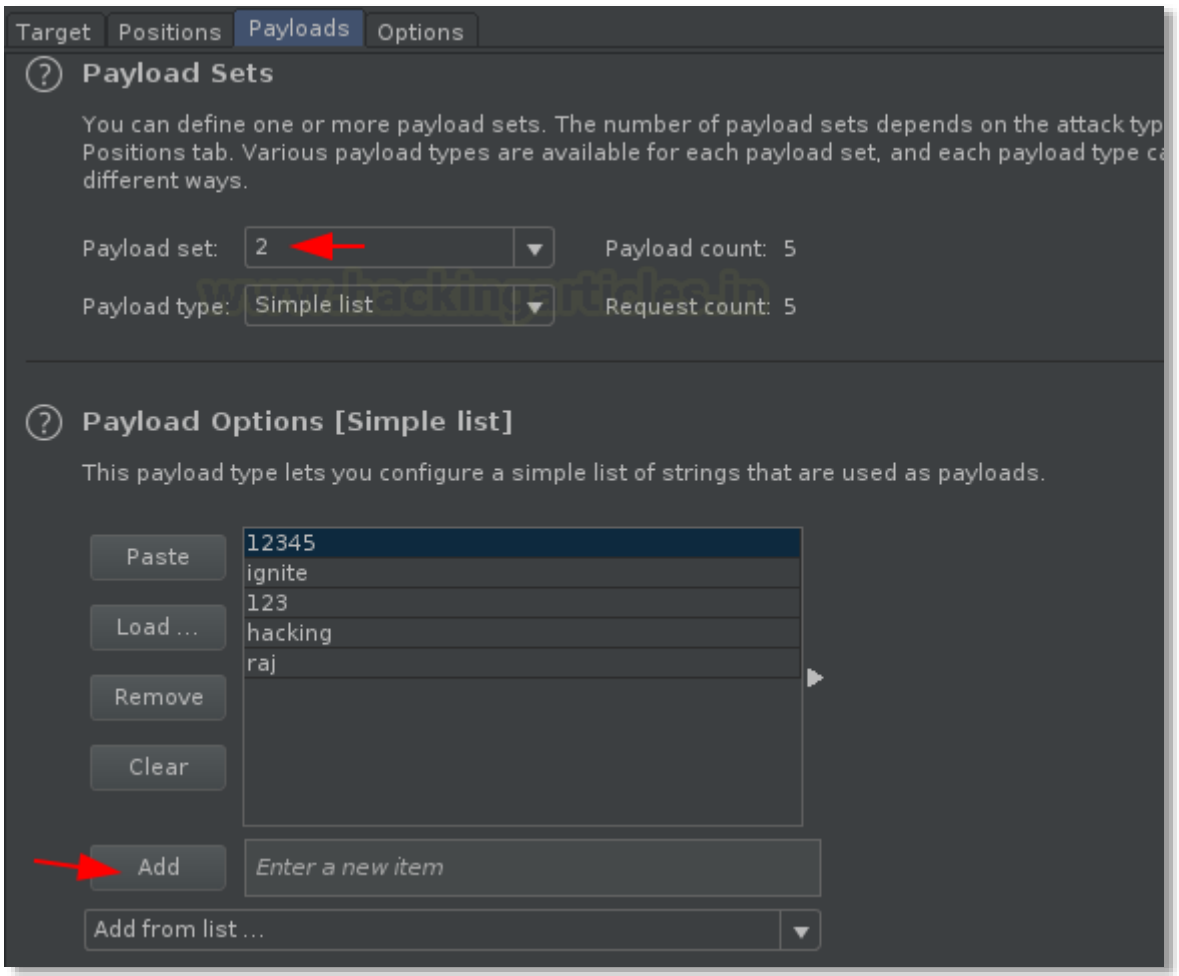


Let's do the same as we did it for **Cluster Bomb,** select the payload set and inject the payload lists.

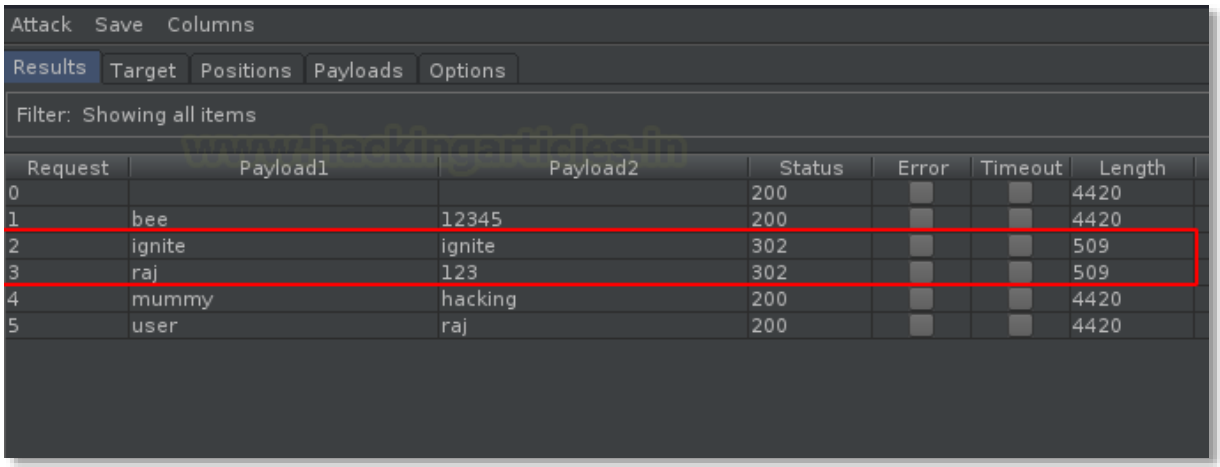


In a similar manner, set the corresponding payloads in Payload set 2 for the payloads of list 1 i.e.

```
bee : 12345
ignite : ignite
raj : 123
mummy : hacking
user : raj
```



Now as soon as we hit the **Attack** button, in order to start the fuzz, we'll be redirected to a new window, where we'll have the successful login credentials.



Request	Payload1	Payload2	Status	Error	Timeout	Length
0			200			4420
1	bee	12345	200			4420
2	ignite	ignite	302			509
3	raj	123	302			509
4	mummy	hacking	200			4420
5	user	raj	200			4420

iGNITE Technologies

Fuzzing with Payload Type

Fuzzing with Payload Type

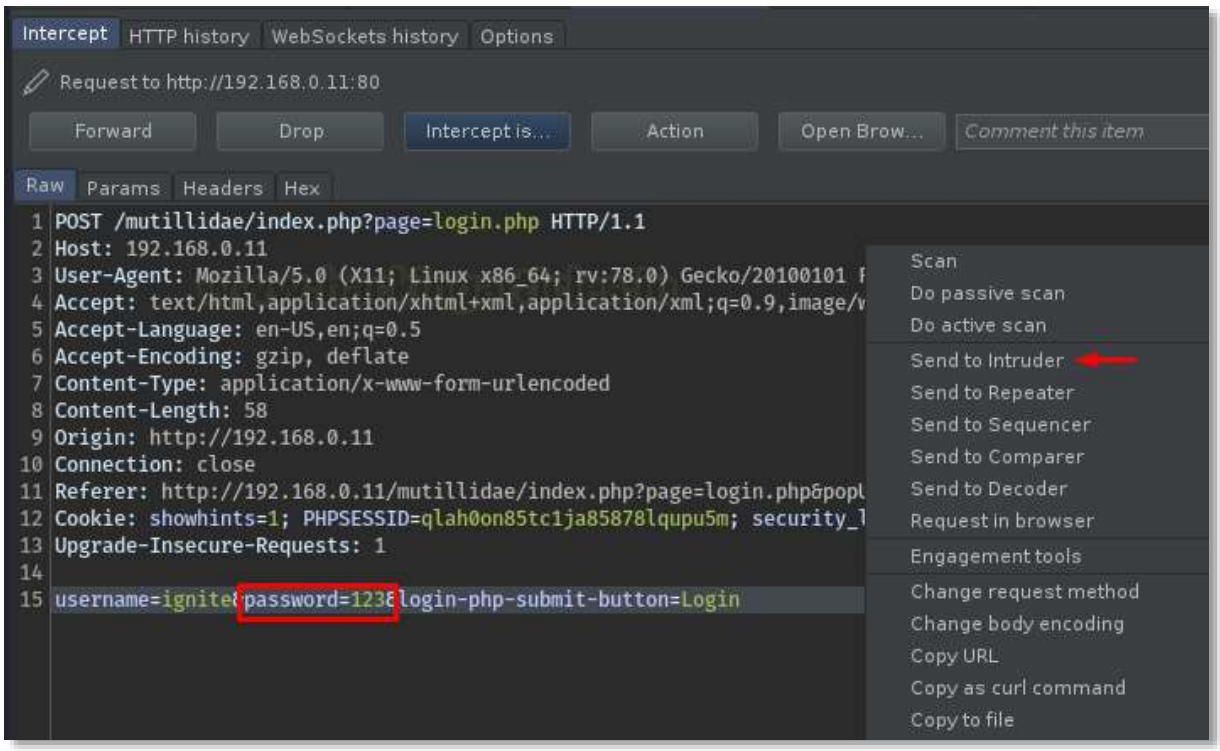
As we're aware of this fact that the **payload type** in Burpsuite's Intruder tab is designed to **manage and create payloads** as per our convenience. Although we've only used the **Simple list** option within it, there are a number of other lists too that are still hidden from our eyes. Let's explore them one by one.

Brute forcer

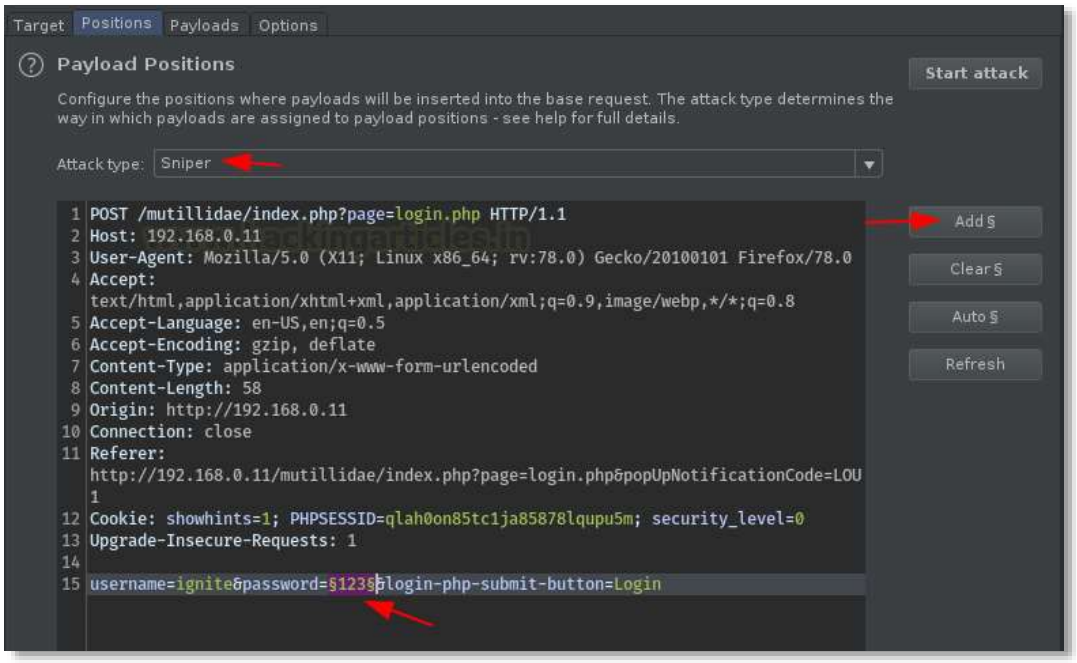
Sometimes, people confuse up with the two terms fuzzing and brute-forcing, thereby in order to segregate the two, burpsuite has an inbuilt payload type as **brute forcer,** which takes the **input string** and **generates payloads** of specified lengths that contain all permutations of a specified input character set.

So, this time, we won't specify any payload list, but rather we'll configure burpsuite to make its own payloads and inject them at the mentioned payload positions.

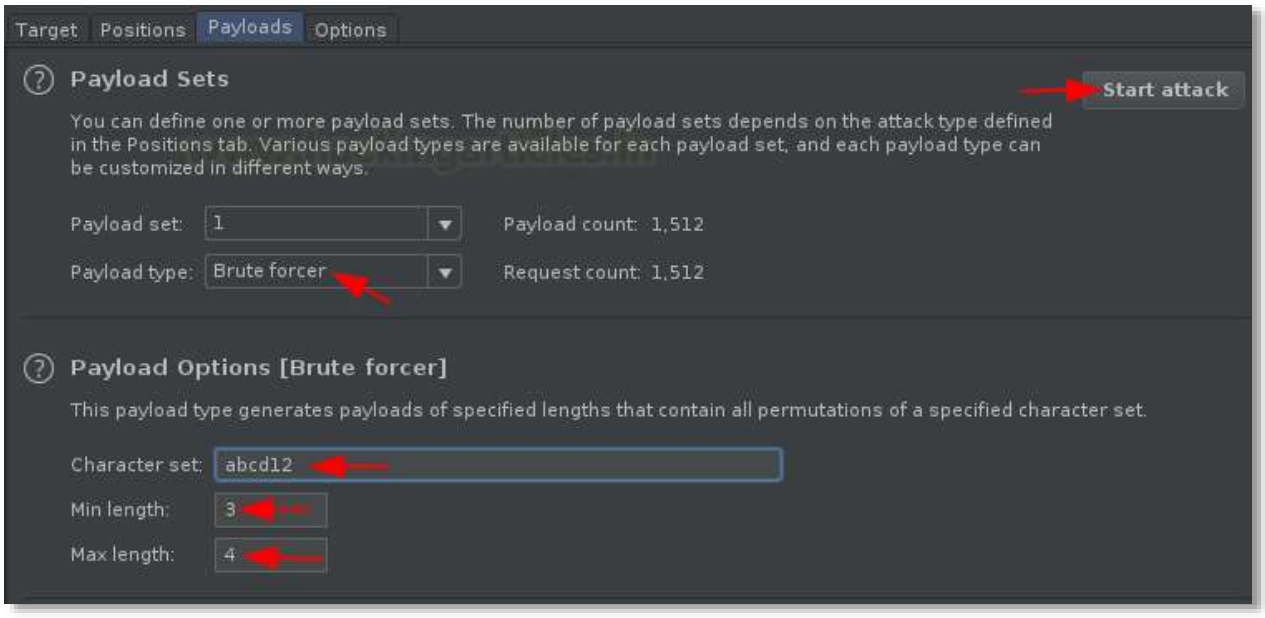
Turn **ON** your burpsuite monitor and capture the **HTTP request** made by the Mutillidae's login portal, and thereby share it to the **intruder**.



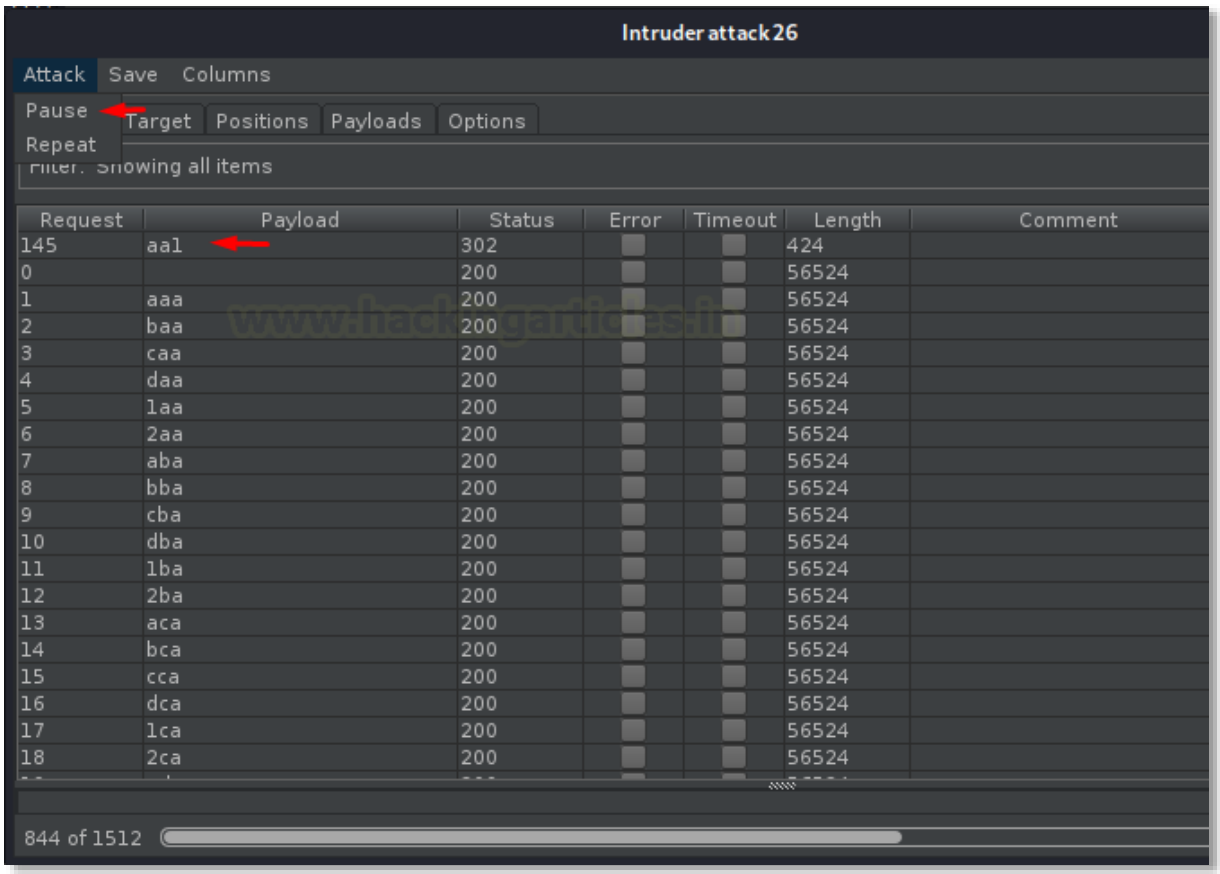
Now with this, we'll fuzz the password field, as we did earlier select **123** as the **injection point** and set the attack type to **Sniper**.



Time to configure the most important thing, from the **payload type** option select Brute forcer and therewith it, fill up the empty input field.
Character Set – The set of characters that are to be used in payloads.
Min Length – The length of the shortest payload
Max Length – The length of the longest payload
Note :
The total **number** of **payloads** will be **increased up** with the size of the character set and the maximum length.



And at last, hit the **Attack** button. Sit back and relax because now the burp suite will do its work, it will create and match the payload with the username provided for the correct password.
Great !! From the below image you can see that we got the payload as **"aa1"** with **302 redirections,** seems to be a successful one. Now, navigate at the top of the intruder tab and select **Attack,** there hit the pause button in order to **pause** the fuzzer.



Character Frobber

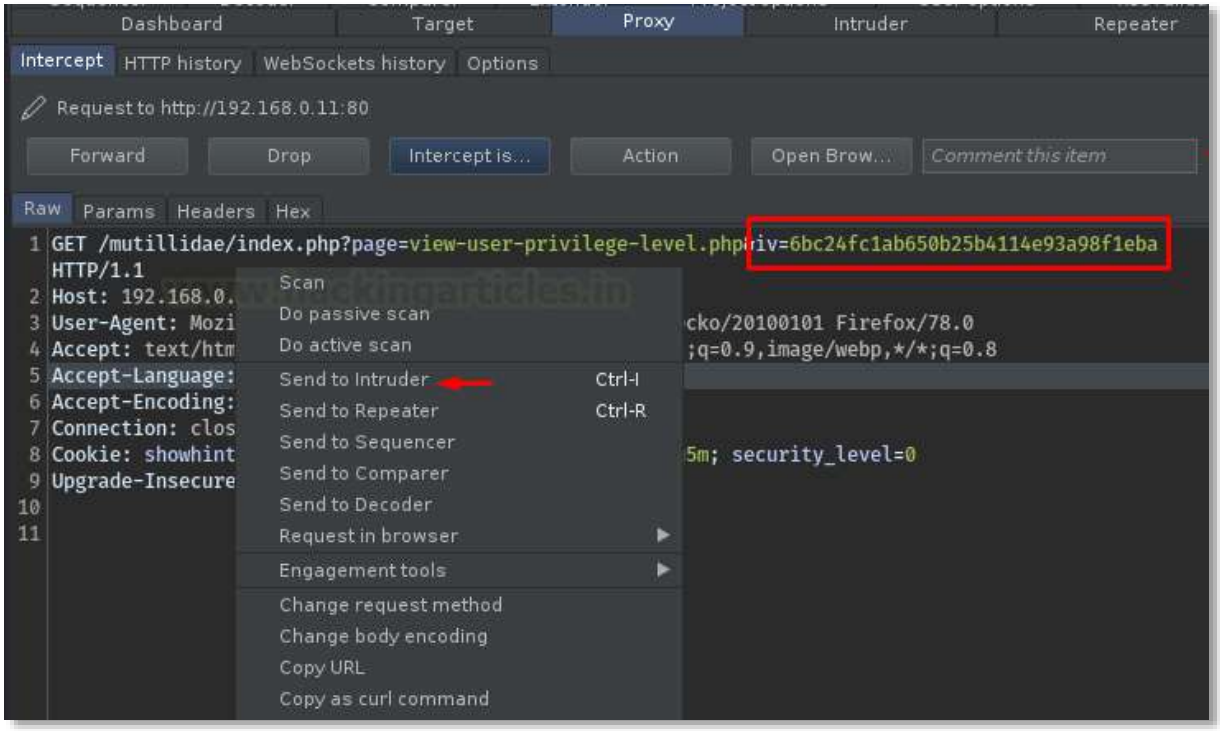
During a penetration test, there are times when we get encountered with such situations where a string is responsible for the application's response, i.e. if we manipulate the string value with a valid one then the response will get altered. Such situations normally occur when we do an account takeover, where we try to manipulate the user ID with one of a genuine user.

But, if we try to manipulate the characters of the string manually, it may take up to weeks and months to find out a valid request, thereby in order to make our work easy, burpsuite offers an amazing payload type i.e. **Character Forbber** which modifies the value of each character position on the existing base string by **incrementing** the **ASCII code** of a specific **character by one**.

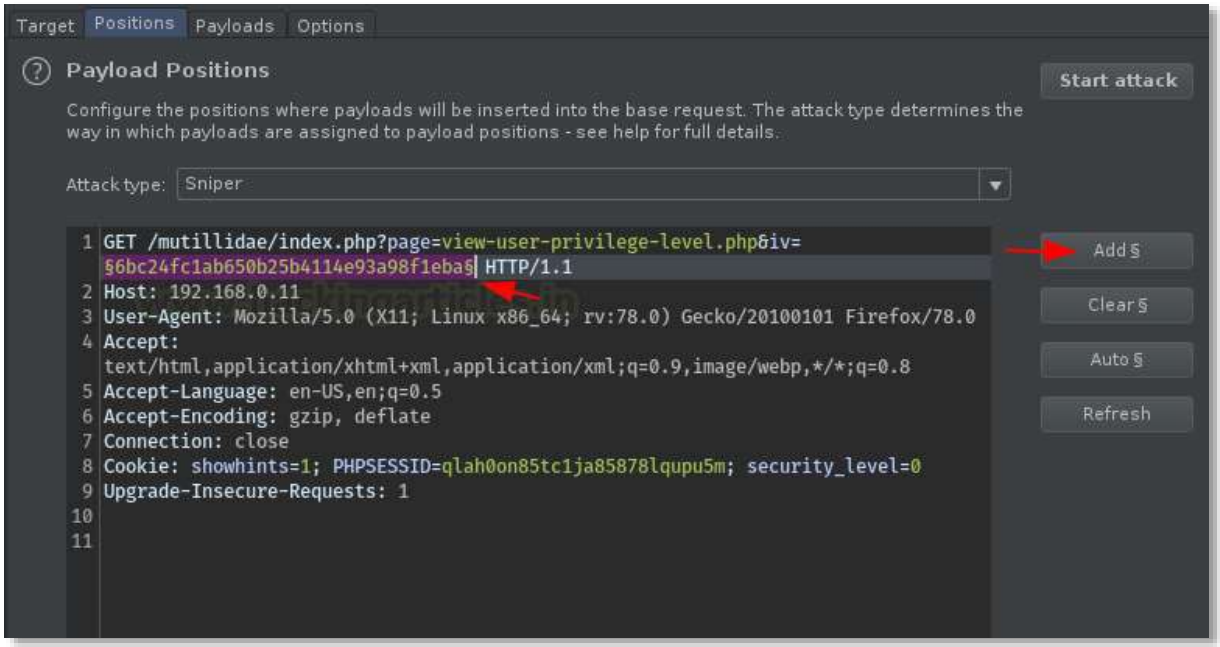
Now, back into the Mutillidae application, over at the left side of the dashboard, select **OWASP 2017 > Broken Authentication & Session Management > Privilege Escalation > Via CBC- Bit Flipping** and capture the request.

From the above image, we can see that a string is passing over into the URL, seems like its responsible for the user to have an **application ID, User ID and group ID**

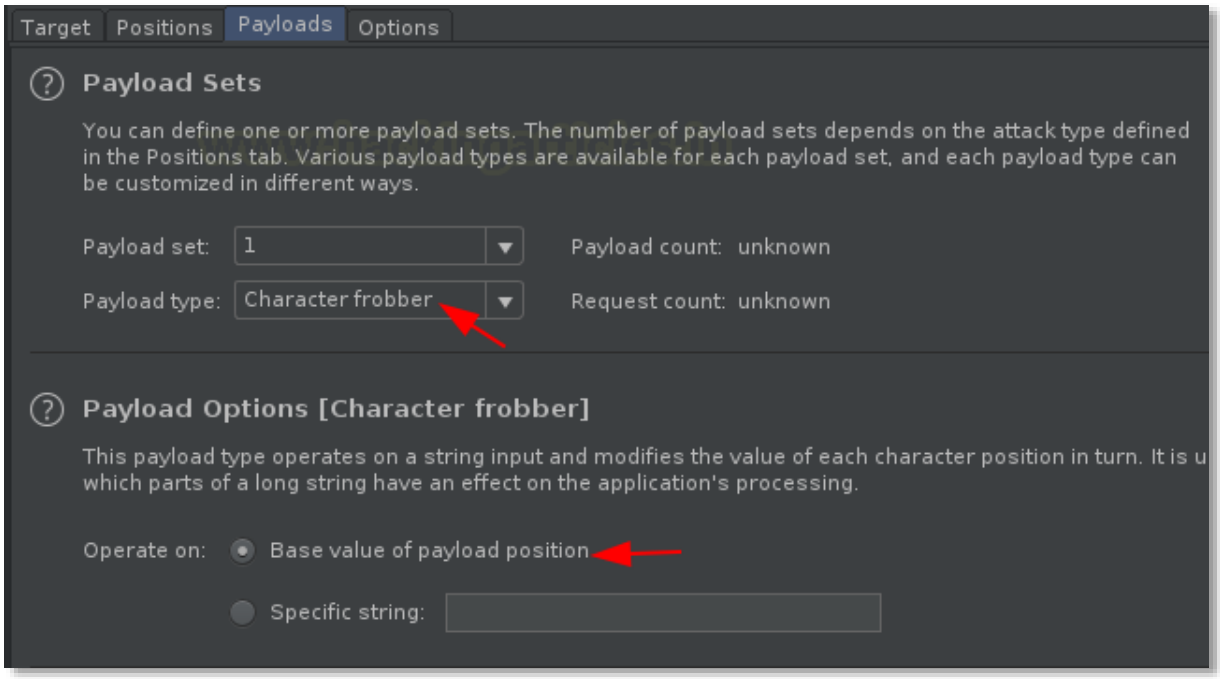
Now, as soon as we capture the passing HTTP Request, we'll directly share it to the intruder for further processing.



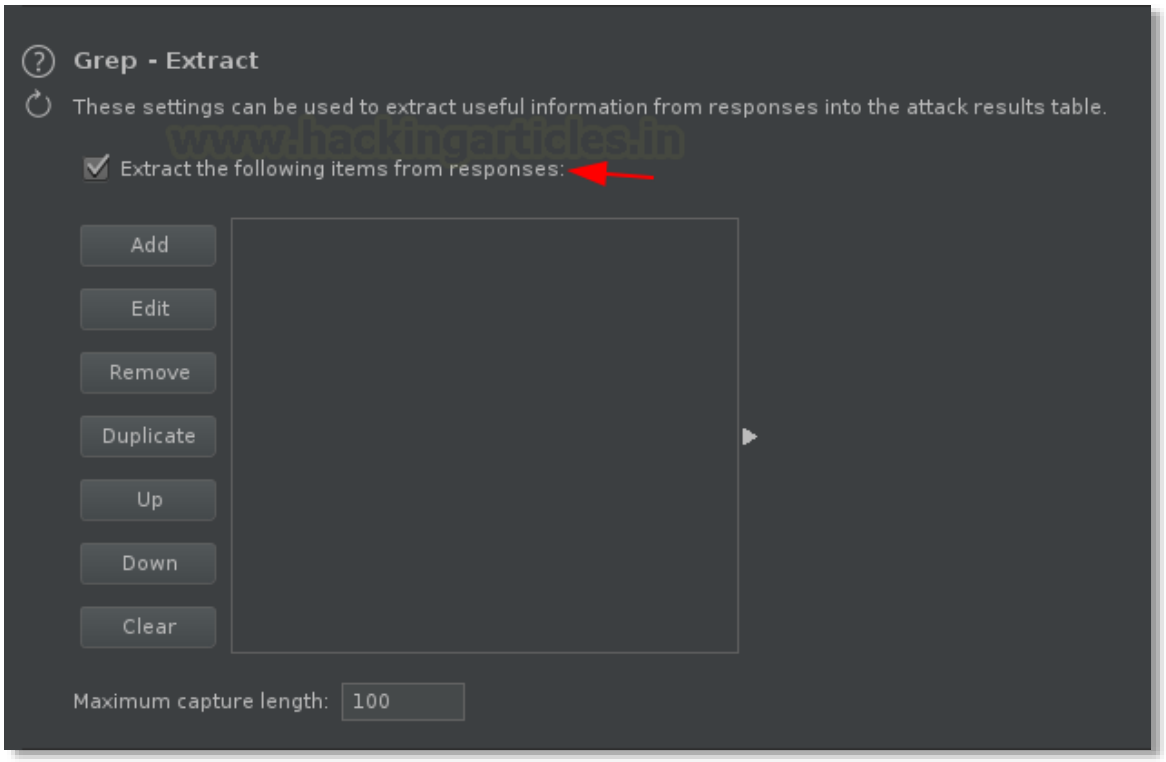
Let's set our **payload position** to this passing string.



Time to opt, choose the payload type to **Character frobber** and select the **operate on** option to the **"Base value of payload position"**

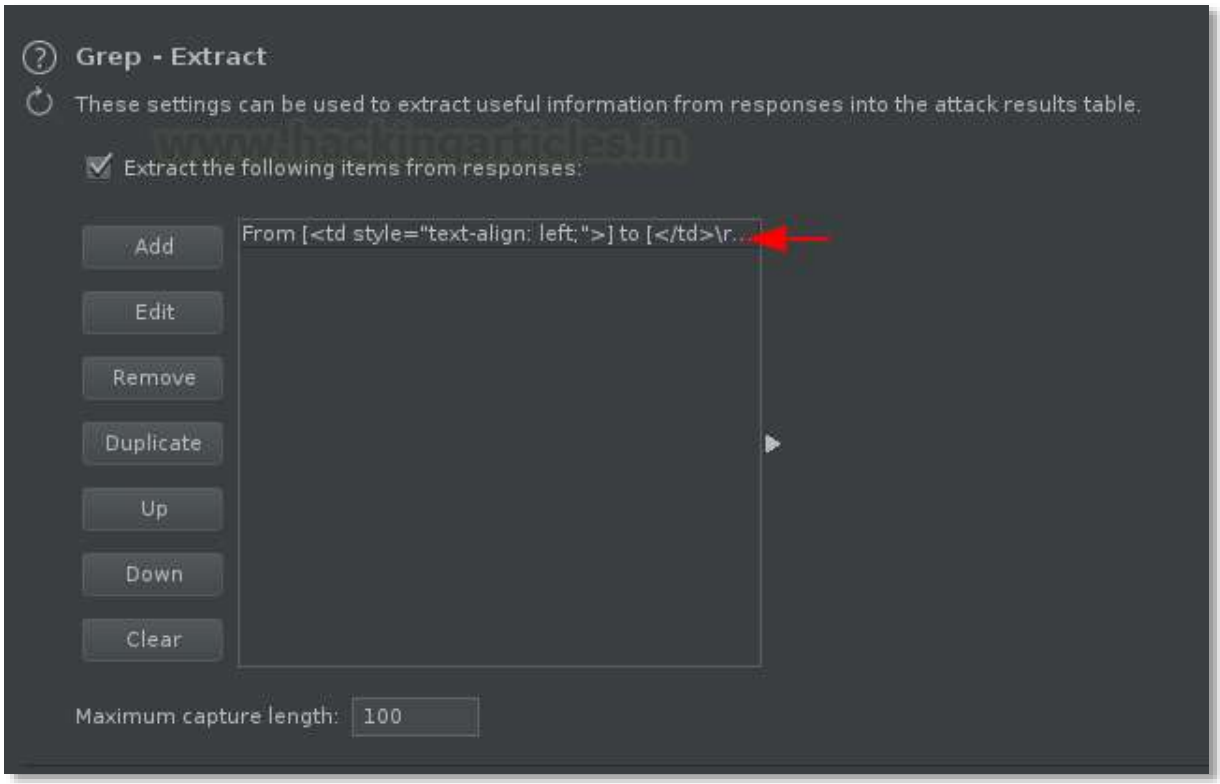


Now, let's make this attack somewhat more appealing with the use of the **"Grep Extract"** option, which will thereby help us in order to identify which payload sting is defined to which **application ID.** Therefore, at the **Options** tab, scroll down to the **Grep – Extract** field, check the **"Extract the following items from responses"** and click on the **"Add"** button.

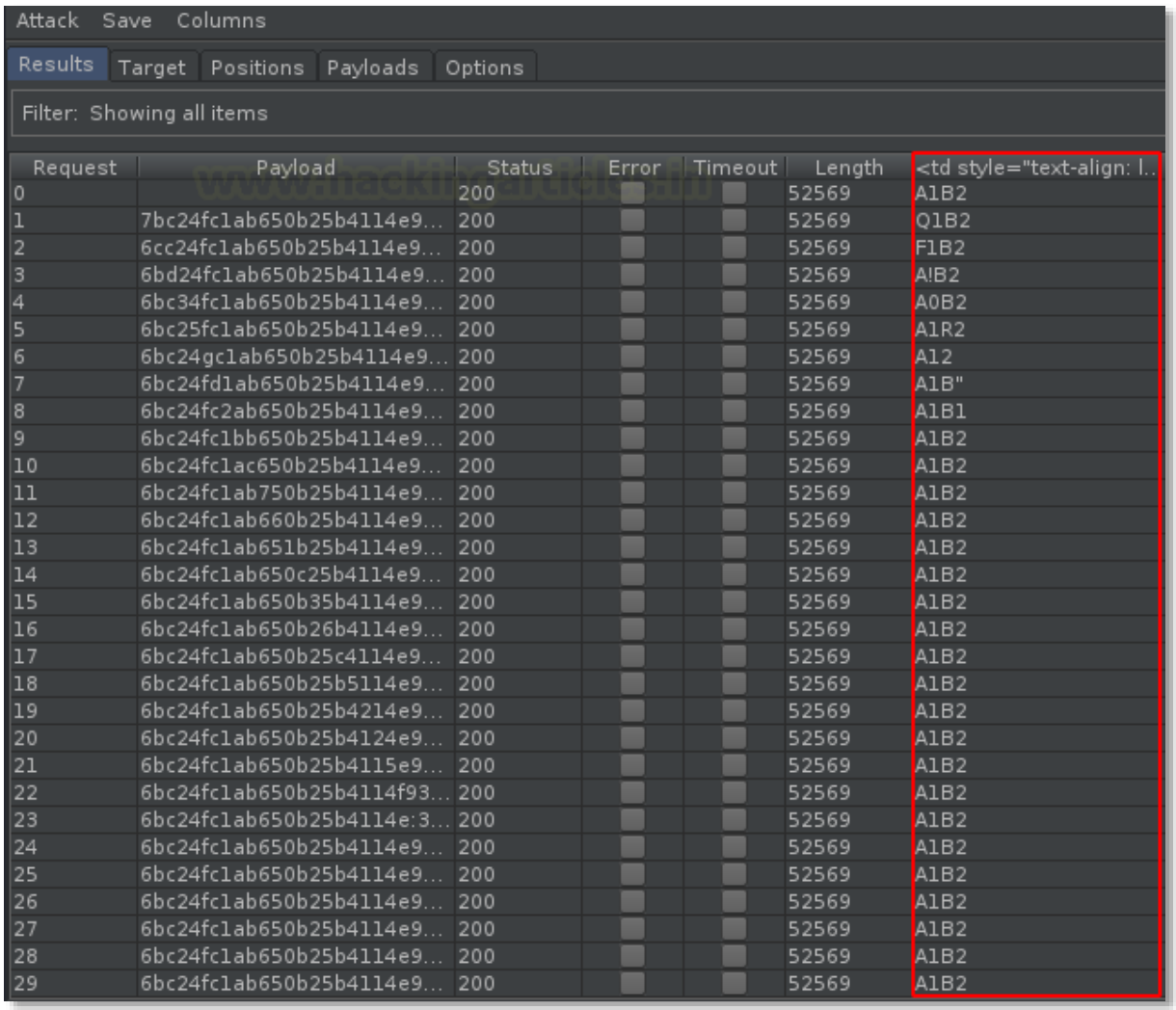


You'll be redirected to a new window, click the **fetch response** button and the search for **"Application ID"**there, further select the output and hit **OK,** as in our case we're having **"A1B2".**

And there it is!! Hit the **"Attack"** button and initiate the fuzzer. (Rather than application ID, you can opt the User ID or the Group ID.)



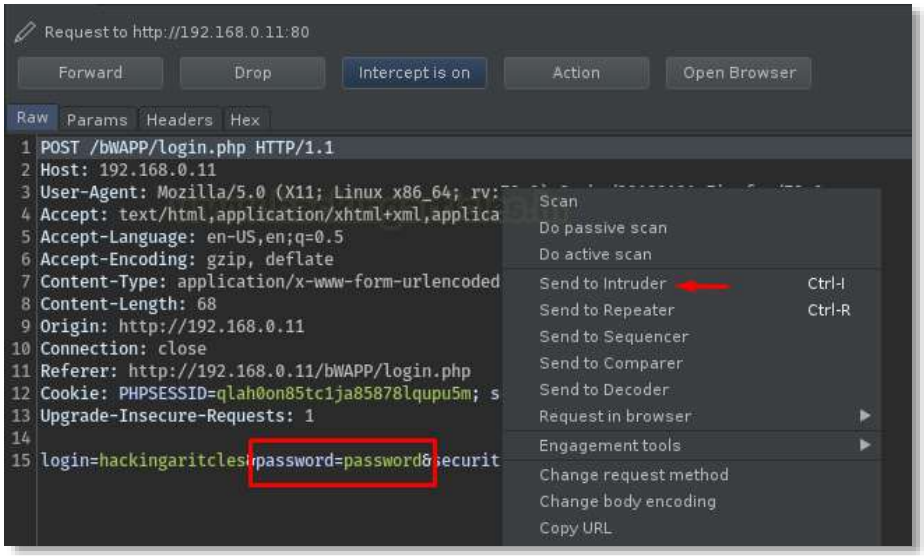
Cool!! From the below image, we can see that we've successfully captured all the strings that correspond to a specific application ID.
In the output, you can notice that the payloads are almost similar to one another but there is an increment in the characters one after the other.



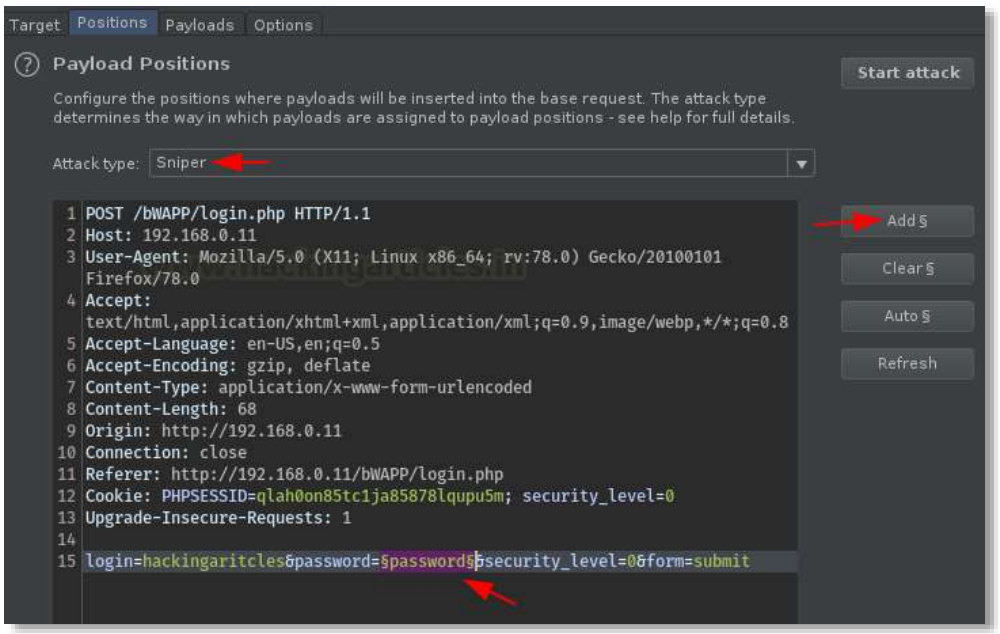
Request	Payload	Status	Error	Timeout	Length	<td style="text-align: l..
0		200			52569	A1B2
1	7bc24fc1ab650b25b4114e9...	200			52569	Q1B2
2	6cc24fc1ab650b25b4114e9...	200			52569	F1B2
3	6bd24fc1ab650b25b4114e9...	200			52569	AIB2
4	6bc34fc1ab650b25b4114e9...	200			52569	A0B2
5	6bc25fc1ab650b25b4114e9...	200			52569	A1R2
6	6bc24gc1ab650b25b4114e9...	200			52569	A12
7	6bc24fd1ab650b25b4114e9...	200			52569	A1B"
8	6bc24fc2ab650b25b4114e9...	200			52569	A1B1
9	6bc24fc1bb650b25b4114e9...	200			52569	A1B2
10	6bc24fc1ac650b25b4114e9...	200			52569	A1B2
11	6bc24fc1ab750b25b4114e9...	200			52569	A1B2
12	6bc24fc1ab660b25b4114e9...	200			52569	A1B2
13	6bc24fc1ab651b25b4114e9...	200			52569	A1B2
14	6bc24fc1ab650c25b4114e9...	200			52569	A1B2
15	6bc24fc1ab650b35b4114e9...	200			52569	A1B2
16	6bc24fc1ab650b26b4114e9...	200			52569	A1B2
17	6bc24fc1ab650b25c4114e9...	200			52569	A1B2
18	6bc24fc1ab650b25b5114e9...	200			52569	A1B2
19	6bc24fc1ab650b25b4214e9...	200			52569	A1B2
20	6bc24fc1ab650b25b4124e9...	200			52569	A1B2
21	6bc24fc1ab650b25b4115e9...	200			52569	A1B2
22	6bc24fc1ab650b25b4114f93...	200			52569	A1B2
23	6bc24fc1ab650b25b4114e:3...	200			52569	A1B2
24	6bc24fc1ab650b25b4114e9...	200			52569	A1B2
25	6bc24fc1ab650b25b4114e9...	200			52569	A1B2
26	6bc24fc1ab650b25b4114e9...	200			52569	A1B2
27	6bc24fc1ab650b25b4114e9...	200			52569	A1B2
28	6bc24fc1ab650b25b4114e9...	200			52569	A1B2
29	6bc24fc1ab650b25b4114e9...	200			52569	A1B2

Numbers

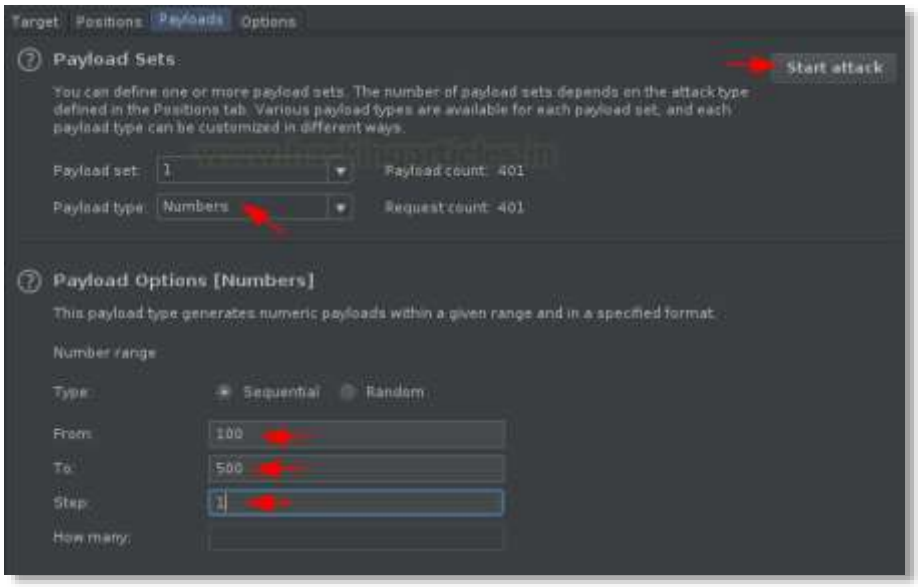
Similar to the brute forcer, this payload type is specifically **designed for the numbers** part. Many bug hunters love this payload type as its acts as their helping hand majorly in the **OTP Bypass attacks**.
Although the method to use this payload is same, whether you use it for OTP bypass or login brute force.
So, let's understand the working of this payload type by capturing the ongoing HTTP request of a login page.



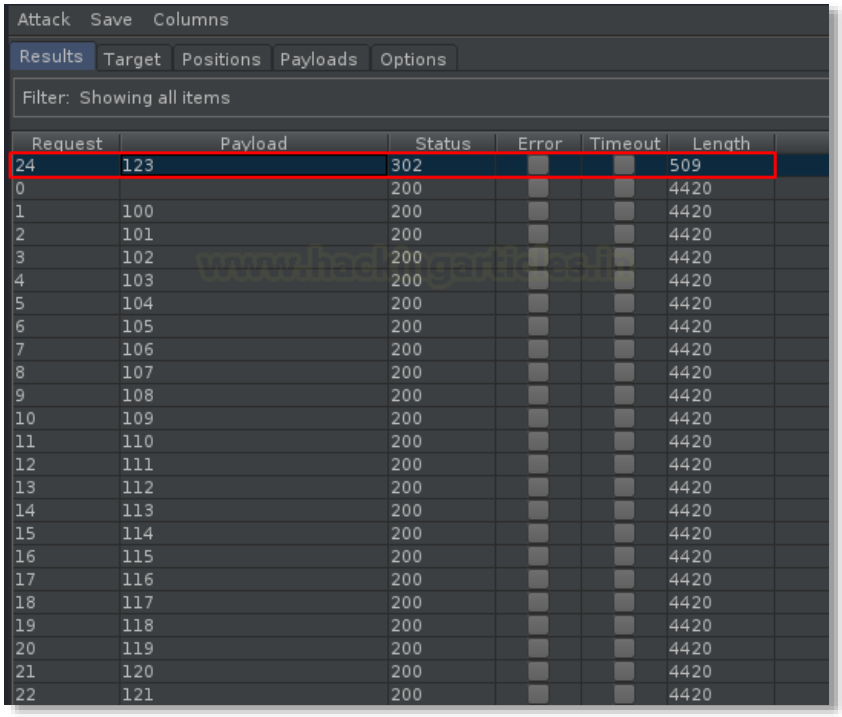
As soon as we share it to the Intruder, we'll thus need to set the **positions** for it, here let's mark the password field and set the attack type to **"Sniper"**.



Choose **Numbers** from the payload type options provided and further configure the following as per your requirement.
From – The fuzzing will start from that payload.
To – The last Payload
Steps – *This indicates the iteration*, here I've set it to ***"1"*** i.e. the next payload after 100 will be 101, 102, 103 and so on. And if we set it "***2***", then the next payload after 100 will be 102,104,106 with an increment of 2,



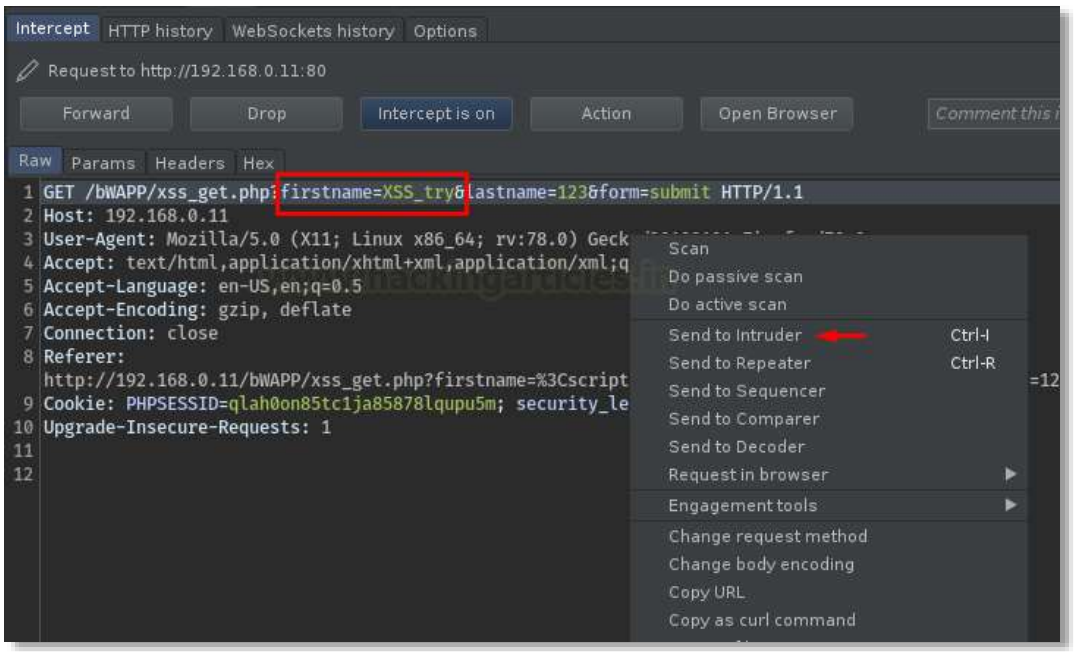
As soon as you set all these things, hit the **"Attack"** button and sit back and wait for the response. Within a few minutes, we'll get a **302 Redirection** at 123.



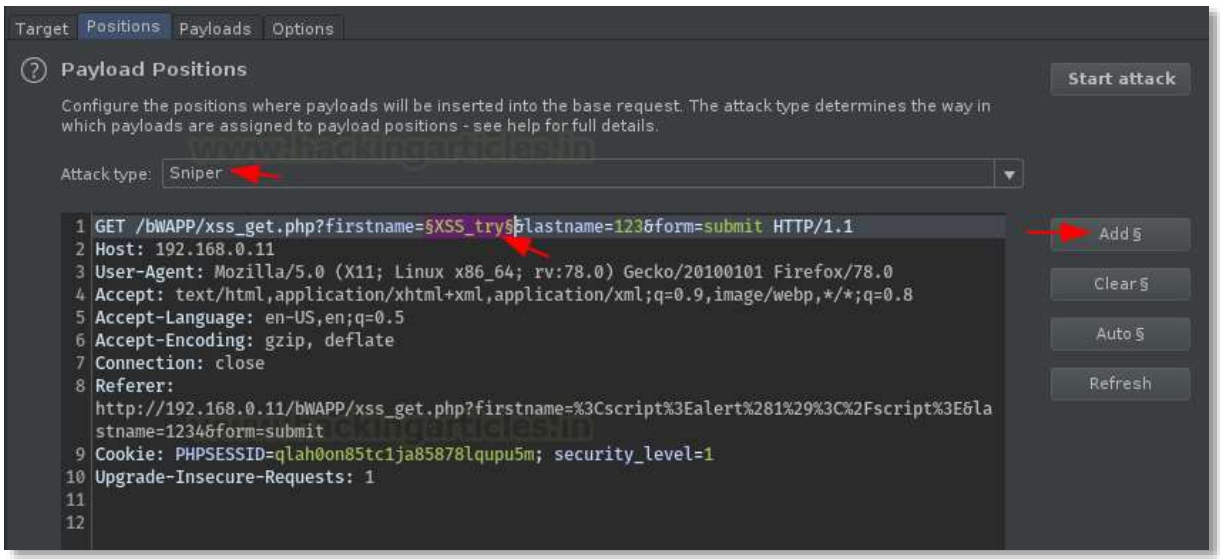
Request	Payload	Status	Error	Timeout	Length
24	123	302			509
0		200			4420
1	100	200			4420
2	101	200			4420
3	102	200			4420
4	103	200			4420
5	104	200			4420
6	105	200			4420
7	106	200			4420
8	107	200			4420
9	108	200			4420
10	109	200			4420
11	110	200			4420
12	111	200			4420
13	112	200			4420
14	113	200			4420
15	114	200			4420
16	115	200			4420
17	116	200			4420
18	117	200			4420
19	118	200			4420
20	119	200			4420
21	120	200			4420
22	121	200			4420

Case Modification

Sometimes it's difficult to determine, that in which case the user has set his/her password. Thereby in order to solve this dilemma, burpsuite has a payload type integrated within itself, which adjust the cases (lower & upper) of the base value and create payloads within from that.
However, this is not for the passwords only, there are times when the developer blocks some specific cases for their input field, thereby in order to determine such, we can use this too.
Let's capture the request and check its practical exposure.

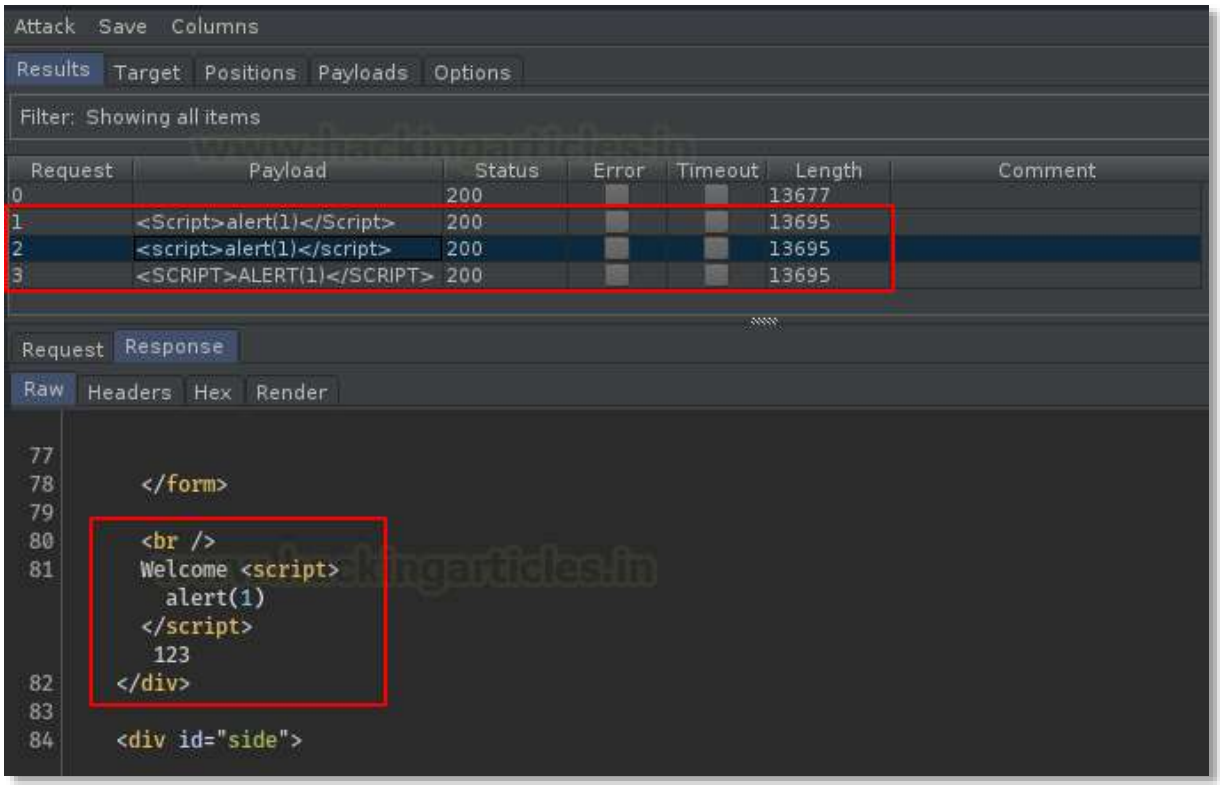


You know what we need to do next, select the payload position and opt Sniper as an **Attack type** for it.

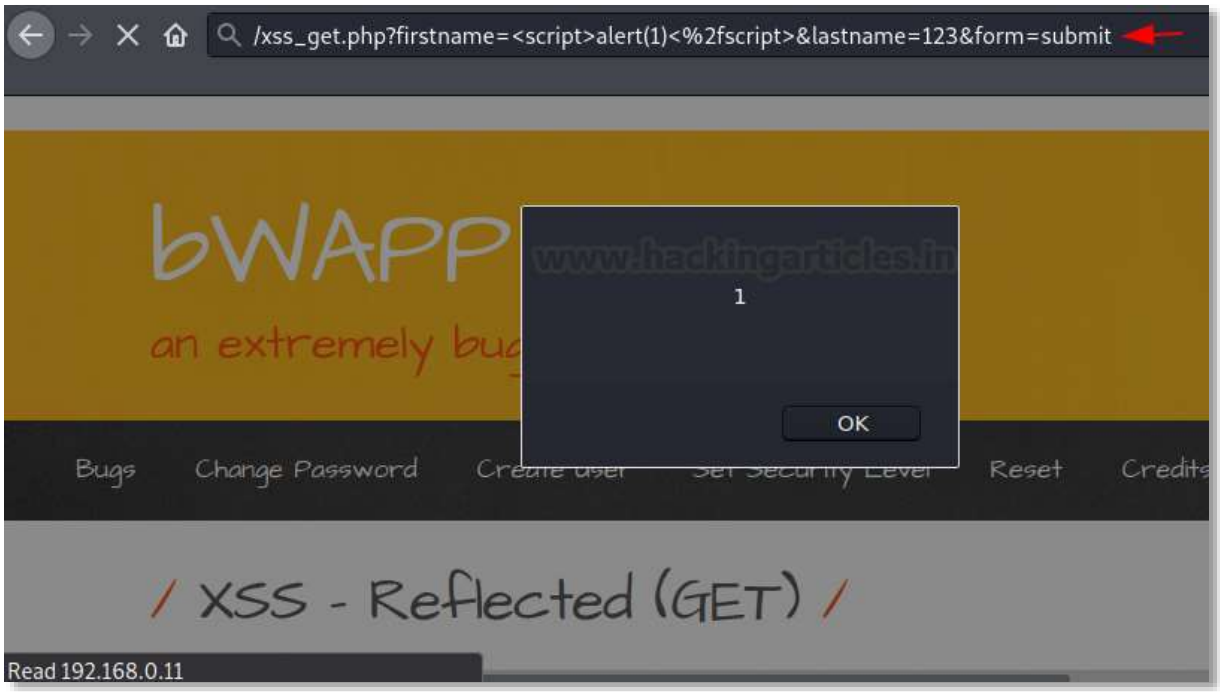


Now, here comes the best past. Opt **Case modification** from the provided list and configure the same. Fill the empty box with an XSS script and hit the **Attack** button. (Here we're testing for the **XSS**vulnerability as many times the developer blocks up "SCRIPT" or "script" keyword.)

Cool!! We got our payload injected at the correct place. Do a right-click, opt **"Show Response in Browser"**to check the same where Javascript is enabled.

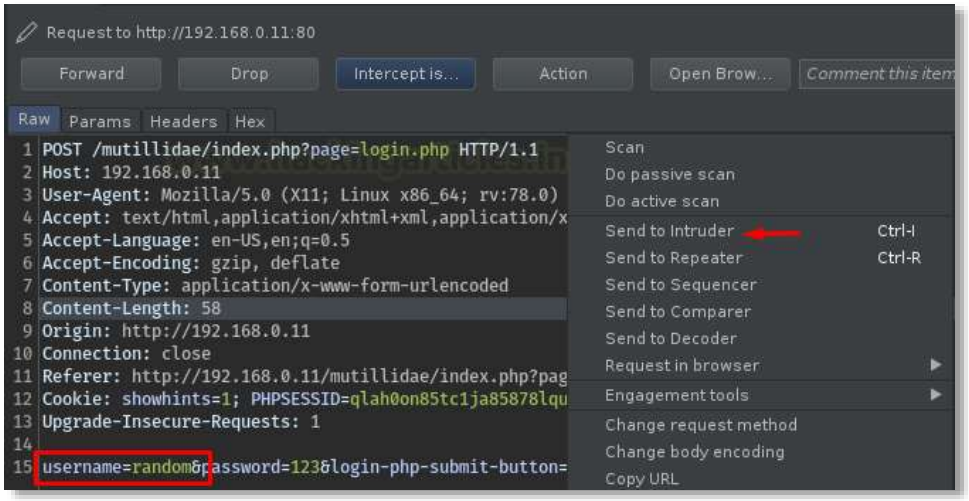


And there we go, we got the pop up reflected with **"1"**.

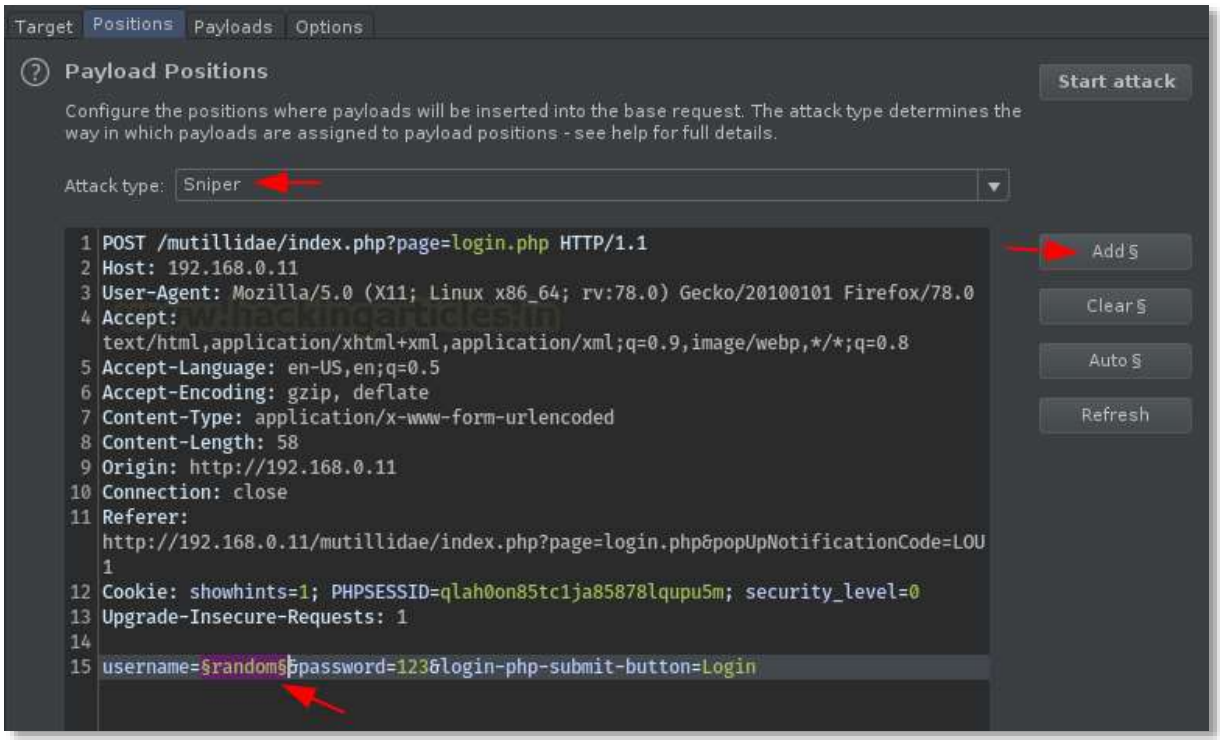


Username generator

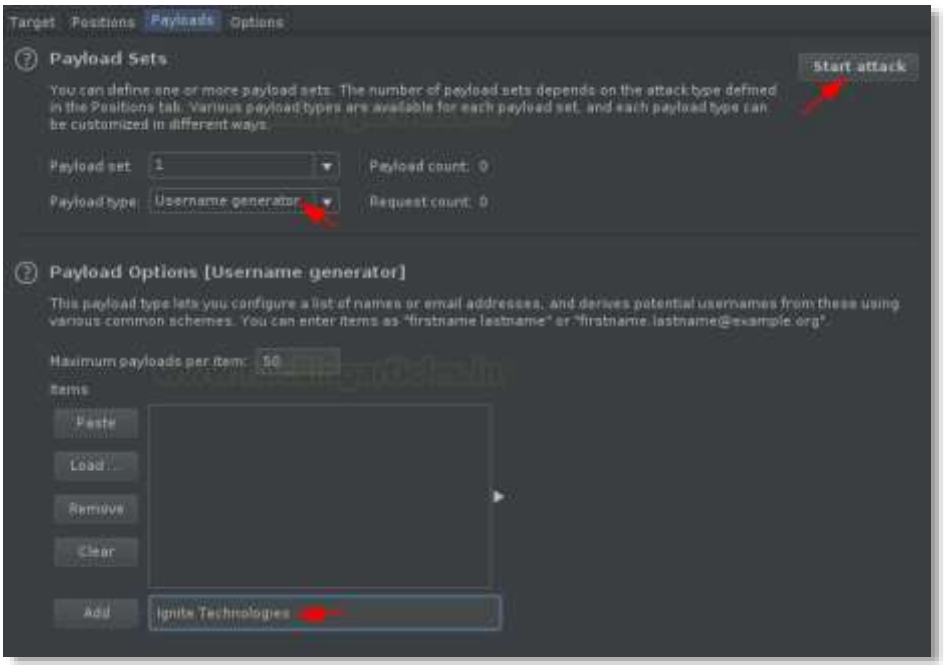
During a social engineering attack, its simple to gather information about the user whether it is his name or contact number, even there are times we can even guess up the password too, but the most difficult thing is to identify the username he set.
Therefore in order to get out of such situations, burpsuite offers one more great **payload type**, where we just need to **give a specific name** and it itself will generate all the possible usernames and check them according to the injected password.
Wonder, how this could be done?? Check out the following scenario.
Capture the Request with a random username and correct password and share it all to the Intruder.



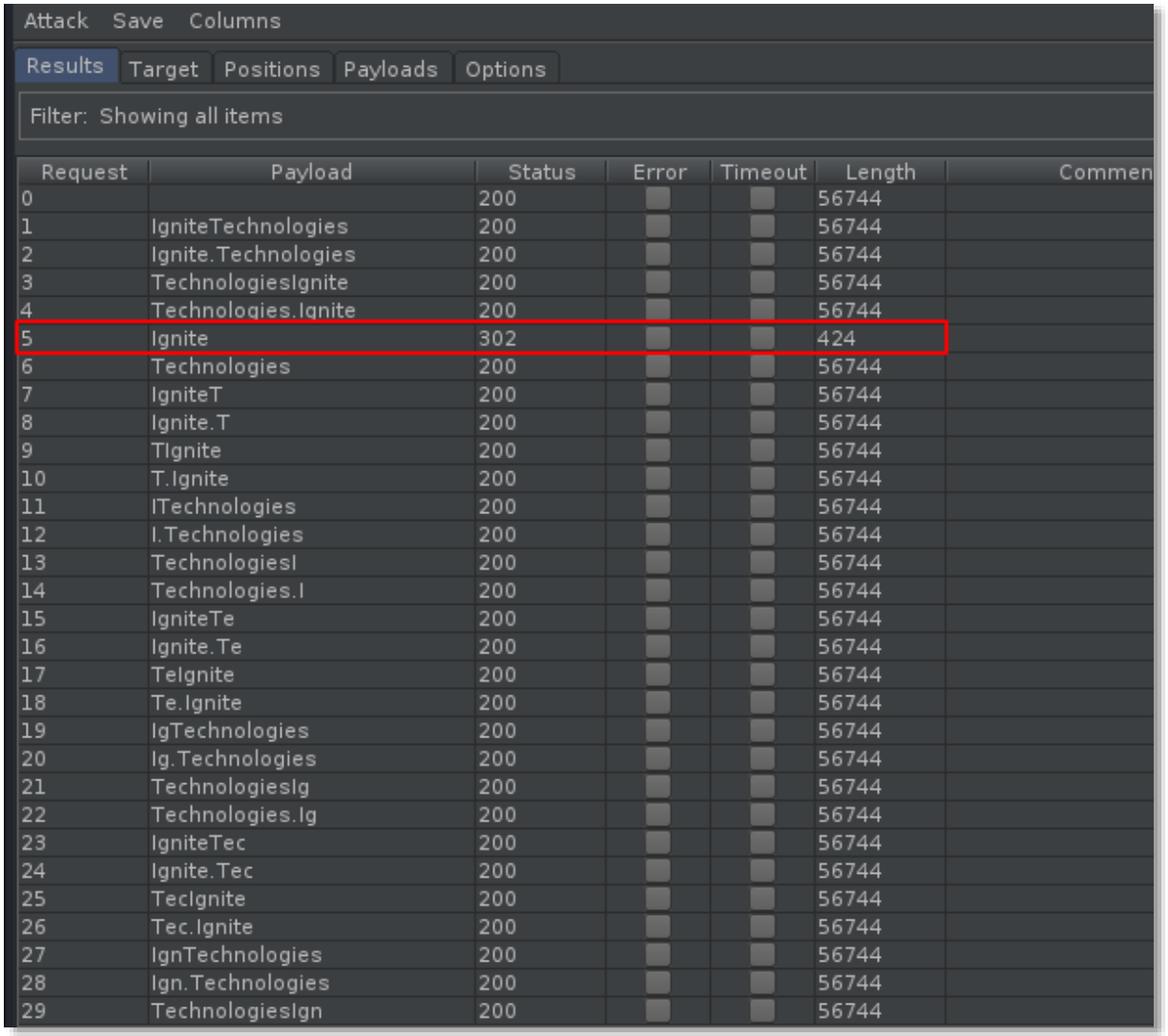
Now, time to set our payload position, select **"random"** and click the **Add** button, further opt the attack type to **Sniper.**



And there we are, select **"Username generator",** from the payload type and enter the name you wish for, for the usernames. Here, in our case, we've used **"Ignite Technologies."**
We can even select the maximum number of payloads i.e. the usernames, here we've also set that to 50.



As soon as we hit the **Attack** button, our fuzzer will starts up and with this, we can see a huge number of usernames are there enrolled into the list, and we got ours as **Ignite** !!



Request	Payload	Status	Error	Timeout	Length	Commen
0		200			56744	
1	IgniteTechnologies	200			56744	
2	Ignite.Technologies	200			56744	
3	TechnologiesIgnite	200			56744	
4	Technologies.Ignite	200			56744	
5	Ignite	302			424	
6	Technologies	200			56744	
7	IgniteT	200			56744	
8	Ignite.T	200			56744	
9	TIgnite	200			56744	
10	T.Ignite	200			56744	
11	ITechnologies	200			56744	
12	I.Technologies	200			56744	
13	TechnologiesI	200			56744	
14	Technologies.I	200			56744	
15	IgniteTe	200			56744	
16	Ignite.Te	200			56744	
17	TeIgnite	200			56744	
18	Te.Ignite	200			56744	
19	IgTechnologies	200			56744	
20	Ig.Technologies	200			56744	
21	TechnologiesIg	200			56744	
22	Technologies.Ig	200			56744	
23	IgniteTec	200			56744	
24	Ignite.Tec	200			56744	
25	TecIgnite	200			56744	
26	Tec.Ignite	200			56744	
27	IgnTechnologies	200			56744	
28	Ign.Technologies	200			56744	
29	TechnologiesIgn	200			56744	

About Us

About Us

"Simple training makes Deep Learning"

"IGNITE" is a worldwide name in IT field. As we provide high-quality cybersecurity training and consulting services that fulfil students, government and corporate requirements.
We are working towards the vision to "Develop India as a Cyber Secured Country". With an outreach to over eighty thousand students and over a thousand major colleges, Ignite Technologies stood out to be a trusted brand in the Education and the Information Security structure.

We provide training and education in the field of Ethical Hacking & Information Security to the students of schools and colleges along with the corporate world. The training can be provided at the client's location or even at Ignite's Training Center.
We have trained over 10,000 + individuals across the globe, ranging from students to security experts from different fields. Our trainers are acknowledged as Security Researcher by the Top Companies like - Facebook, Google, Microsoft, Adobe, Nokia, Paypal, Blackberry, AT&T and many more. Even the trained students are placed into a number of top MNC's all around the globe. Over with this, we are having International experience of training more than 400+ individuals.

The two brands, Ignite Technologies & Hacking Articles have been collaboratively working from past 10+ Years with about more than 100+ security researchers, who themselves have been recognized by several research paper publishing organizations, The Big 4 companies, Bug Bounty research programs and many more.

Along with all these things, all the major certification organizations recommend Ignite's training for its resources and guidance.
Ignite's research had been a part of number of global Institutes and colleges, and even a multitude of research papers shares Ignite's researchers in their reference.

iGNITE Technologies

What We Offer

Ethical Hacking

The Ethical Hacking course has been structured in such a way that a technical or a non-technical applicant can easily absorb its features and indulge his/her career in the field of IT security.

Bug Bounty 2.0

A bug bounty program is a pact offered by many websites and web developers by which folks can receive appreciation and reimbursement for reporting bugs, especially those affecting to exploits and vulnerabilities.
Over with this training, an indivisual is thus able to determine and report bugs to the authorized before the general public is aware of them, preventing incidents of widespread abuse.

Network Penetration Testing 2.0

The Network Penetration Testing training will build up the basic as well advance skills of an indivisual with the concept of Network Security & Organizational Infrastructure. Thereby this course will make the indivisual stand out of the crowd within just 45 days.

iGNITE Technologies

Red Teaming

This training will make you think like an "Adversary" with its systematic structure & real Environment Practice that contains more than 75 practicals on Windows Server 2016 & Windows 10. This course is especially designed for the professionals to enhance their Cyber Security Skills

CTF 2.0

The CTF 2.0 is the latest edition that provides more advance module connecting to real infrastructure organization as well as supporting other students preparing for global certification. This curriculum is very easily designed to allow a fresher or specialist to become familiar with the entire content of the course.

Infrastructure Penetration Testing

This course is designed for Professional and provides an hands-on experience in Vulnerability Assessment Penetration Testing & Secure configuration Testing for Applications Servers, Network Deivces, Container and etc.

Digital Forensic

Digital forensics provides a taster in the understanding of how to conduct investigations in order for business and legal audien ces to correctly gather and analyze digital evidence.