AWS :

Load Balancer HTTPS Setup with Route 53 and Certificate Manager & HTTP Redirect to HTTPS

Step 1: first buy your own custom domain.

Step 2: login to aws management console and navigate to ec2 dashboard
Step 3 : create a linux ec2 instance ,for better usage try to allocate elastic ip to your ec2 instance .
Step 4 : now connect the ec2 instance using ec2 instance connect and install httpd server into it and create a new index.html page.for this apply the following commands:
sudo su
yum update -y
yum install httpd
systemctl start httpd
systemctl enable httpd
cd /var/www/html
nano index.html
Then create your desired html page ,we are choosing the simple one.

```
<!DOCTYPE html>
<html>
<head>
<title>WELCOME TO CLOUD ENVIRONMENT</title>
</head>
<body>

<h1>Hey,this is cloud demo from cloud</h1>
<p>cloudservices</p>

</body>
</html>
```

Step 5: After creating the html page then try to access it by pasting the public ip or (elastic ip) of your instance on browser.please make sure your instance allows https and http inbound rules in security group.

Step 4: Now, navigate to load balancer and create a new application load balancer .

Step 5: select the Application load balancer ,name the application load balancer ,select “internet- facing” scheme,ip address type will be “ipv4”,listener will be HTTP .Select the desired vpc and all the availability zones,then click on next:configure security settings.

Step 6: leave the default security settings and click on next:configure security groups .

Step 7: in security group settings ,Create a new security group and allow http and https traffic from anywhere,then click on next:configure routing.

Step 8: in routing settings,create a new target group ,name the target group and select “instance” target type and allow HTTP protocol.in health check path will be “/index.html” (index.html is your html file,if your html file name is different then update that one).then click on Next:Register Targets.

Step 9:in register target settings ,select your instance and click on “add to register” then click on Next:Review.

Step 10:review all the settings and click on “Create” to create the load balancer.
Step 11:After creating the load balancer ,first make sure your target is healthy.after the status will be healthy then move to the next step.

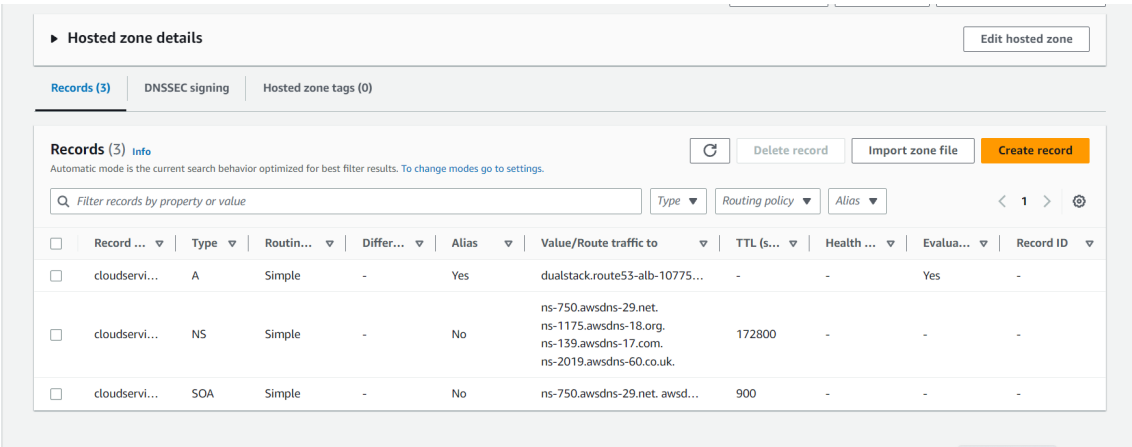
Step 12: Now go to overview of your load balancer ,copy the DNS name of your load balancer and paste in your desired browser .your will get your hosted website or html page (in our case we host a html page) so we get the html page .

Step 13: Now ,move to route53 console and create a hosted zone : to create a hosted zone ,name the zone the same as your custom domain and make it a “public hosted zone” then click on create .

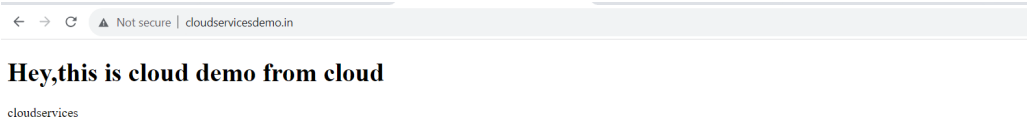
Step 14 : after creating the hosted zone ,first change the DNS name servers of your domain with your hosted zone name servers.Copy all the name servers of your hosted zone on your domain name servers (domain name servers will be find on the platform from where you bought your domain e.g.,godaddy or route53)

Step 15: After updating the DNS name server ,navigate to your hosted zone and create a new record .

Step 16: To create the simple record ,leave the record name blank ,select the record type : “A-route traffic to an ipv4 address and some AWS resources” then select the values alias as “Alias to Application and classic Load Balancer”. And select the same region where your load balancer is created and then select your created load balancer. Then click on “create record”.



Step 17: After creating the record successfully ,paste http://<custom domain> on the browser, you will also get your html page….!!



But it is not secure so it's time to make it secure .

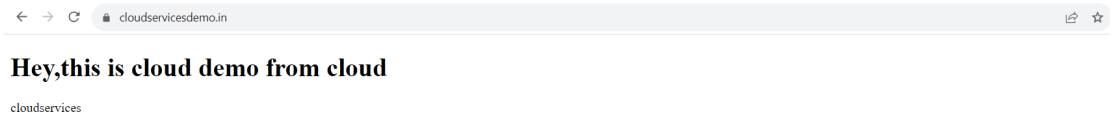
Steps for SSL certificate:

Step 18: now ,move to aws certificate manager or search first in the search bar and request a certificate .
Step 19: For certificate,select the certificate type “request a public certificate” then click on next.
Step 20 : paste your custom domain as domain name ,select “DNS validation-recommended” as validation method,leave the key algorithm by default and then click on request.

Step 21:After making the request for certificate ,go to route53 records and create a new sample record of CNAME type (which is used for SSL certification).for CNAME,paste the CNAME and CVALUE of your created certificate(you can get this by edit your SSL certificate).

Step 22:Now check the status of the certificate,it should be updated from “request” to “Issued”.
Step 23 : now ,navigate to load balancer console and select your load balancer attach to route53 and update its listeners .add one more listeners which is “HTTPs” where action should be forward and select your target group attach to your load balancer then select the SSL certificate that you have created for one step before.then click on “add”.

Step 24: Now, go to the browser and search for https://<custom-domain> ,now this time , you will get your html page on your domain with a lock sign which indicates secure .



For www.<custom-domain>

Step 25: but if we search for www.<custom-domain> ,it would not work because this is not suitable for www .To make it suitable for www ,go to the record section and create a new simple record of “A type” ,this time fill the record name with “www” and the rest will be same as create above .

Step 26: Now ,if you paste your custom domain with www ,now you will get your html page .

To redirect the http page to https :

Step 27: now ,if you search the custom domain with http ,you will get your html page but unsecure .to make that anytime anyone who enter the domain with http ,it also redirect this to https .for this ,follow the following step:

Step 28:Go to load balancer and select HTTP listener and edit the rules of it and delete the forward rule and add action and select “Redirect to” , “HTTPs” at port “443”.click on update .

Step 29: Now, after following step 28,if you search for http:\\<custom-domain>,you will get your html page but this time it will be secure.Well it's done!!

Successfully done!!!