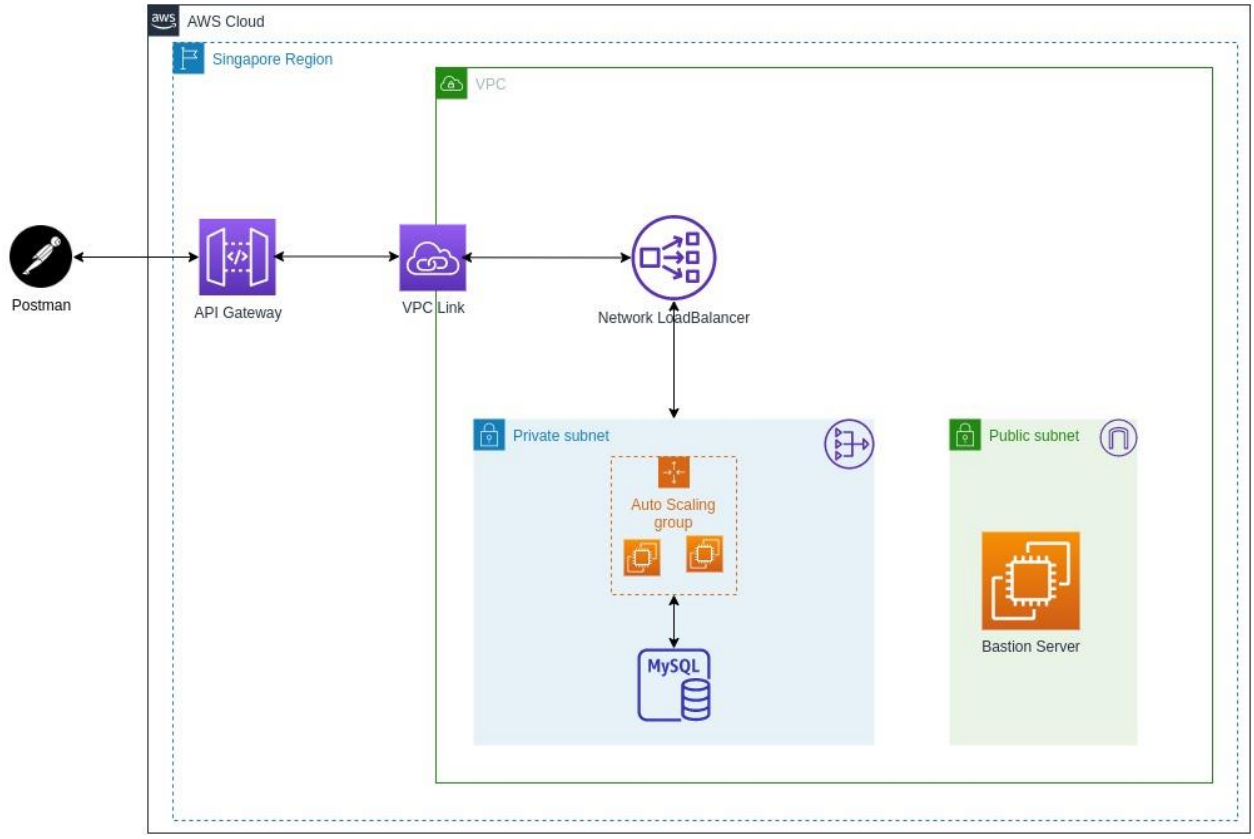
Deploy a Rest API using API Gateway with NLB via VPC Private Link

Design a highly available and scalable architecture using AWS services

1. Trigger rest call via postman or command prompt -> API Gateway ->NLB -> EC2 to host REST API (Auto Scaling /launch configuration/AMI static 2 instances) -> MySQL DB

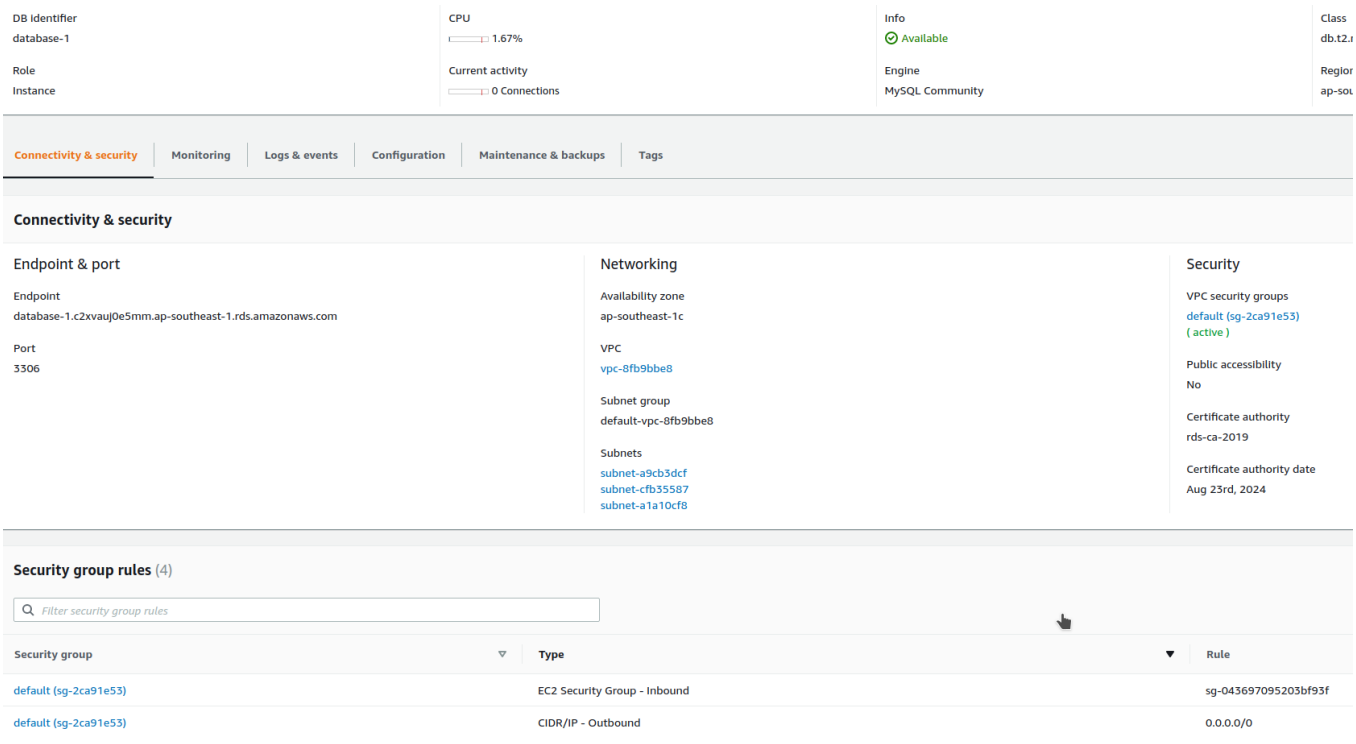
Architecture Diagram:



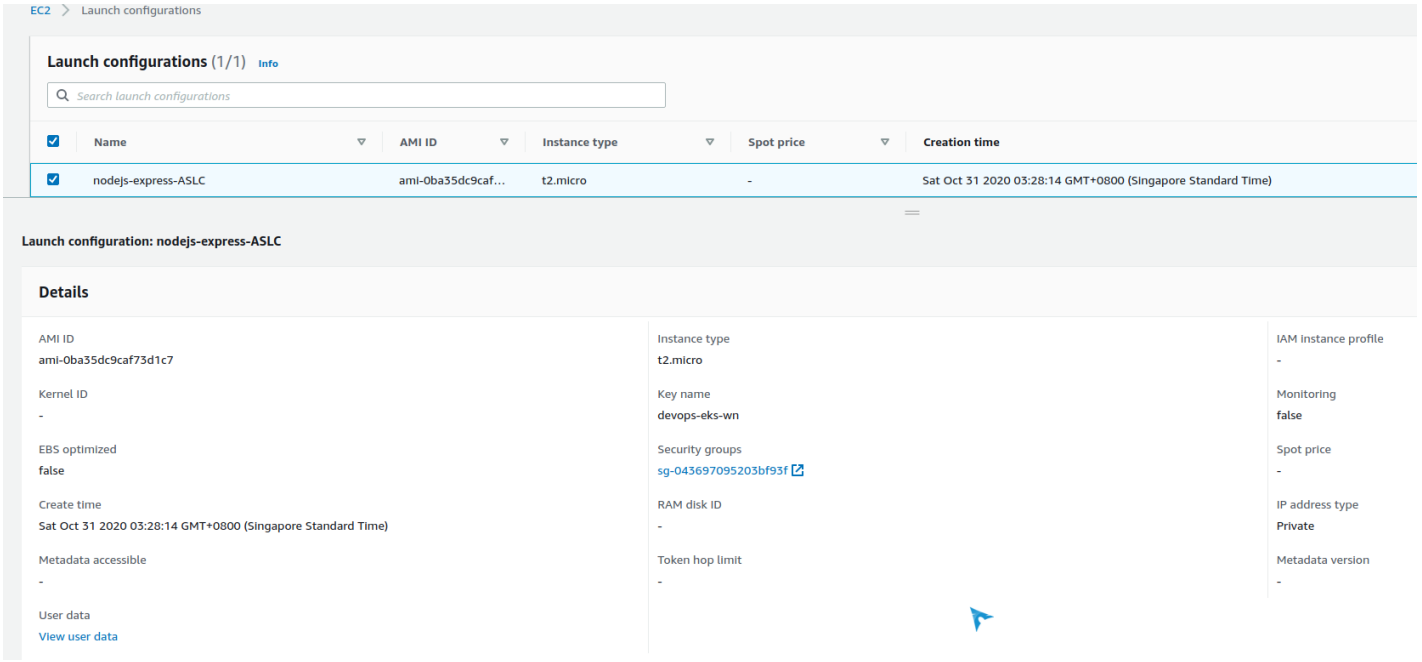
Assumptions: We do have a NodeJS student rest API application in a docker image in a Docker registry.

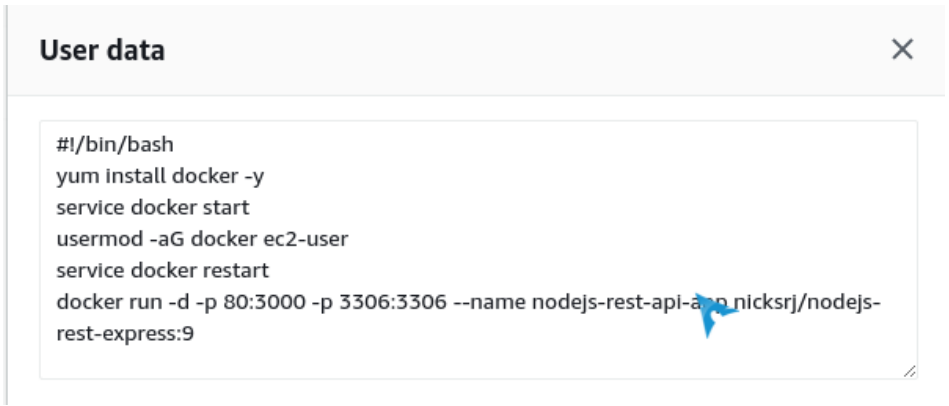
Steps

1> We need to create an instance of RDS MYSQL in private subnet and create database inside for the application. Also, pls open port 3306 only to the SG of Autoscaling instances.

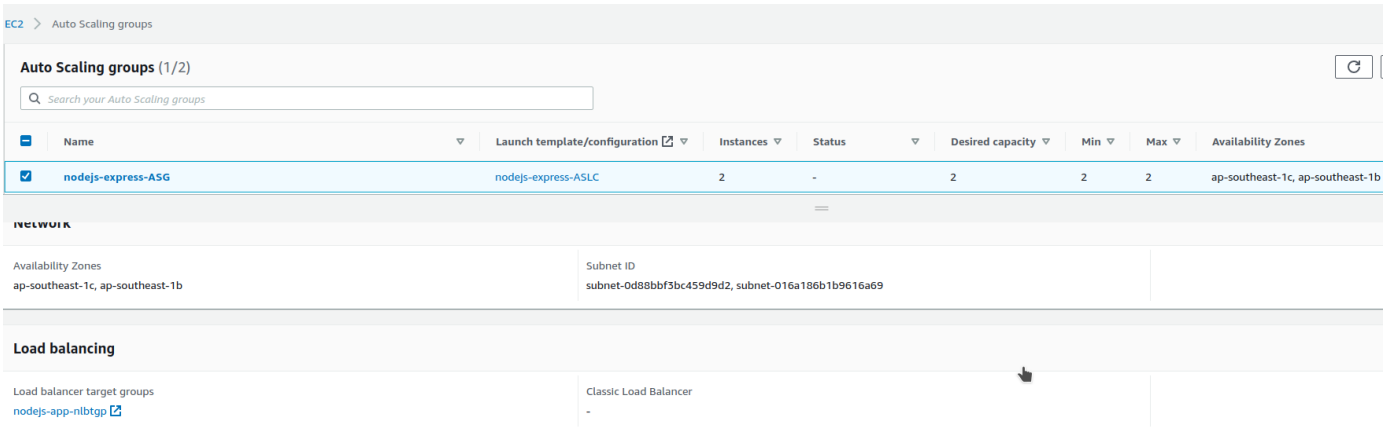


2> We need to create an Autoscaling Launch Config with user data to pull the docker image and run it. Also, we need to open only certain ports which is required like 80, 443, 22 (only from Public Bastion server) and 3306.

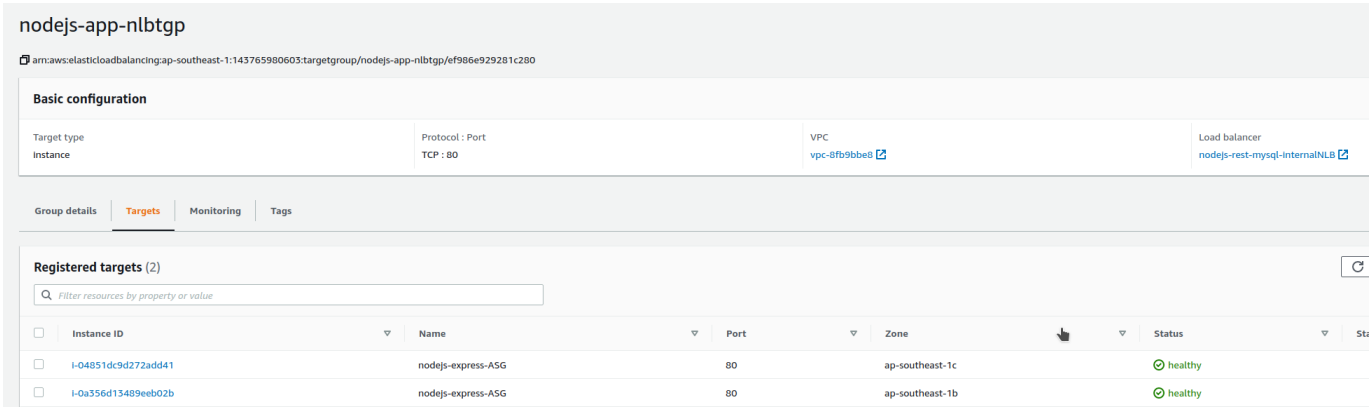




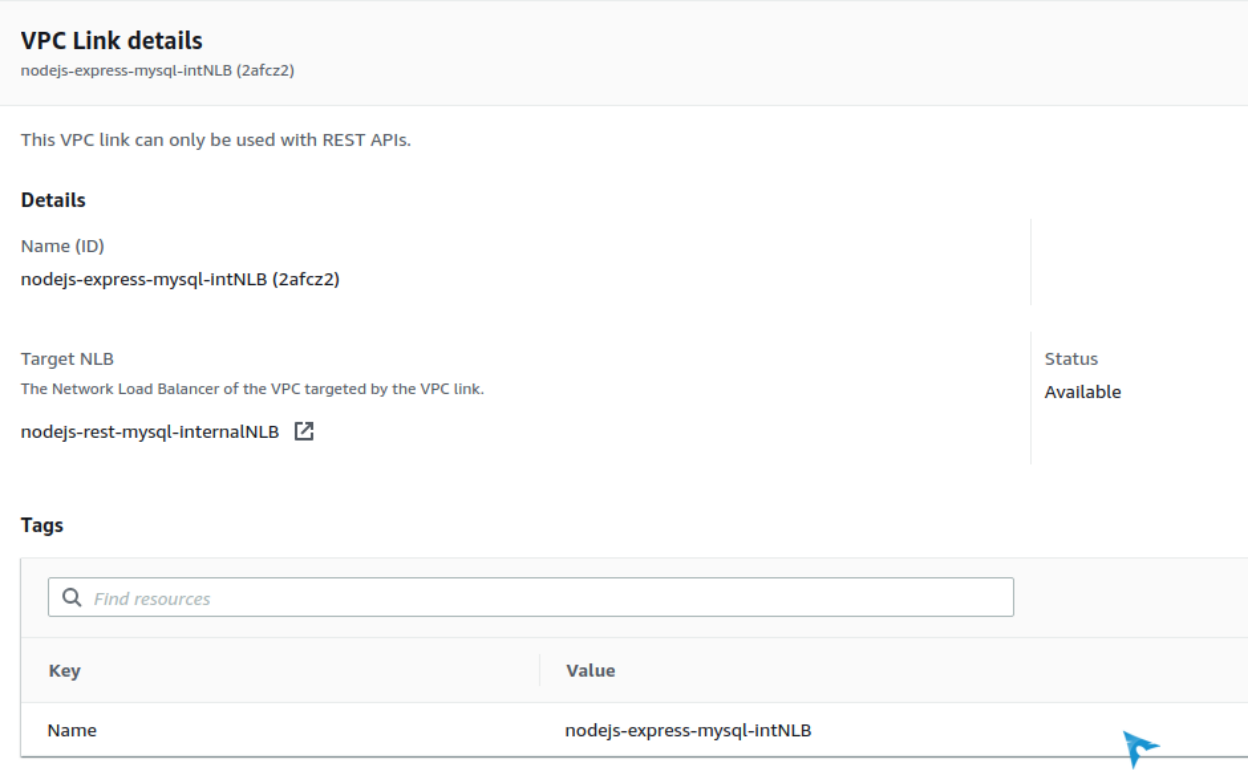
3> We need to create an Autoscaling group within private subnets and give the desired, min and max counts. We also need to select NLB. We can create the internal NLB later and can also attach is it later.



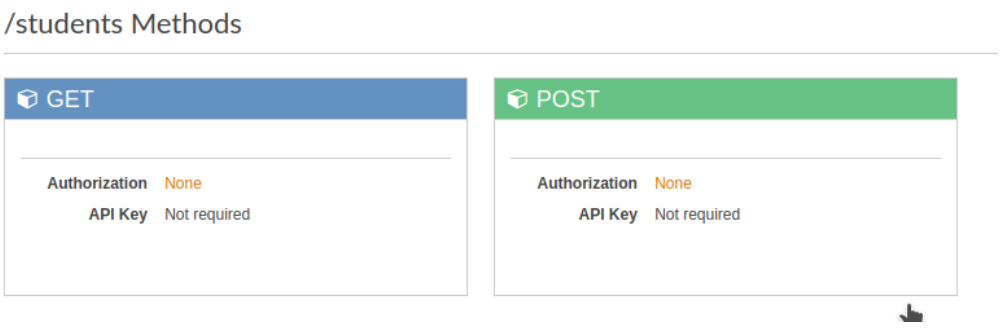
4> We need to create an Internal ELB with listener to port 80 and select the private subnets that we selected while creating Autoscaling Group. Later then register the servers in NLB and later check whether the target group is healthy. Post that we can also whether we are able to reach to API via Public Bastion server cause it's within the VPC.

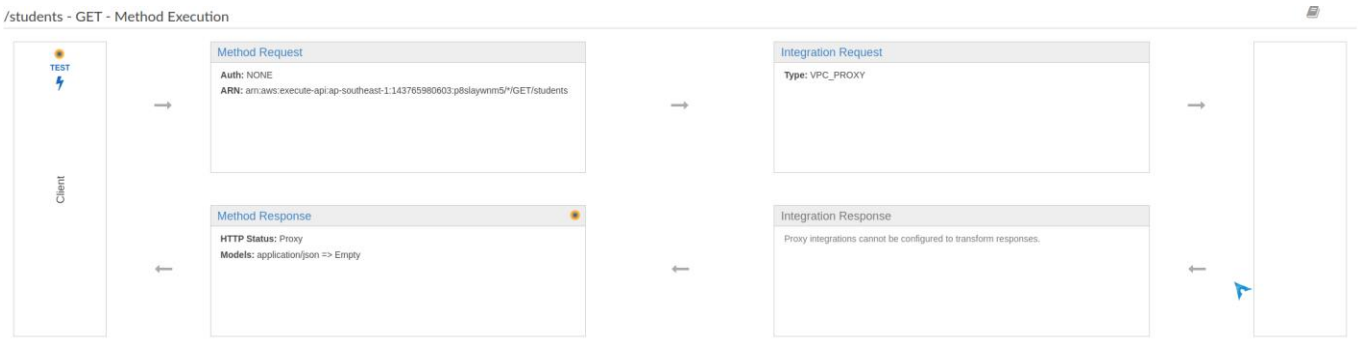


5> We need to create a VPC link in API Gateway with the above created internal NLB. It will take few minutes to create.

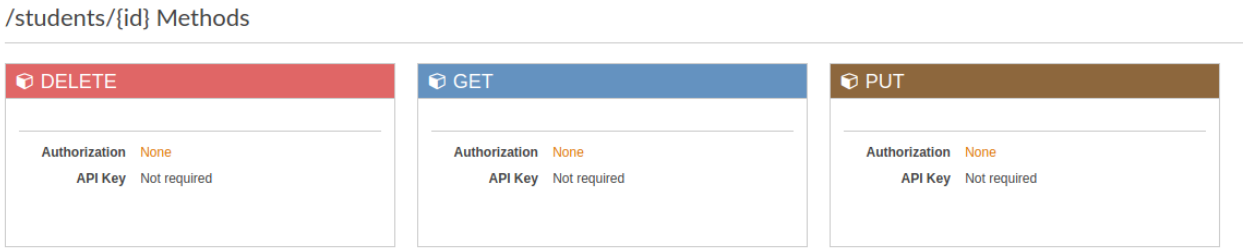


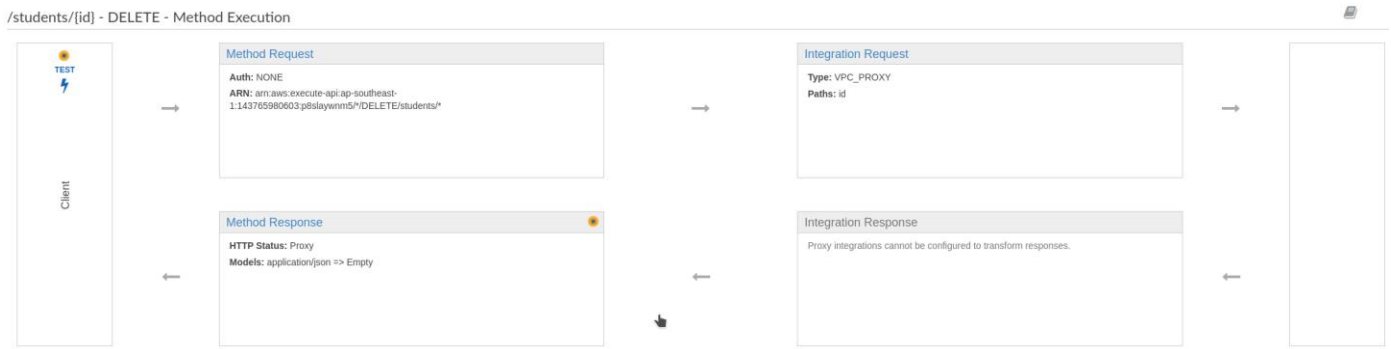
6> Create an API with a name “student-nodejs” and give the scope to regional. Post that create a root resource “/students” and then create two methods inside the resource, which is [GET] and [POST]. Both the method request will be integrating with VPC link and need to select the VPC link that we created above. The endpoint to these request will be NLB DNS like http://nlbdns/students



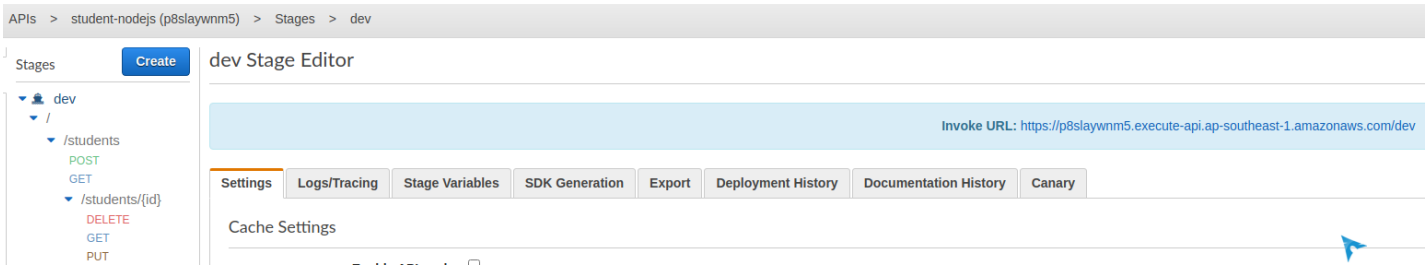


7> Create sub resource in /students as /students/{id} and create three methods GET, POST and DELETE and these three-method request will also via VPC Link, and need to append {id} at the of endpoint. Like http://nlbdns/students/{id}





8> Once we are done with the resources then we need to deploy the API and create a stage. In our case, I have created dev stage. Once we deploy an API, we will get an API endpoint, which we will use to invoke to call the API.



9> We need to export the stage as swagger+Postman extensions and import it in the Postman collection and test it.