AWS CloudFormation notes

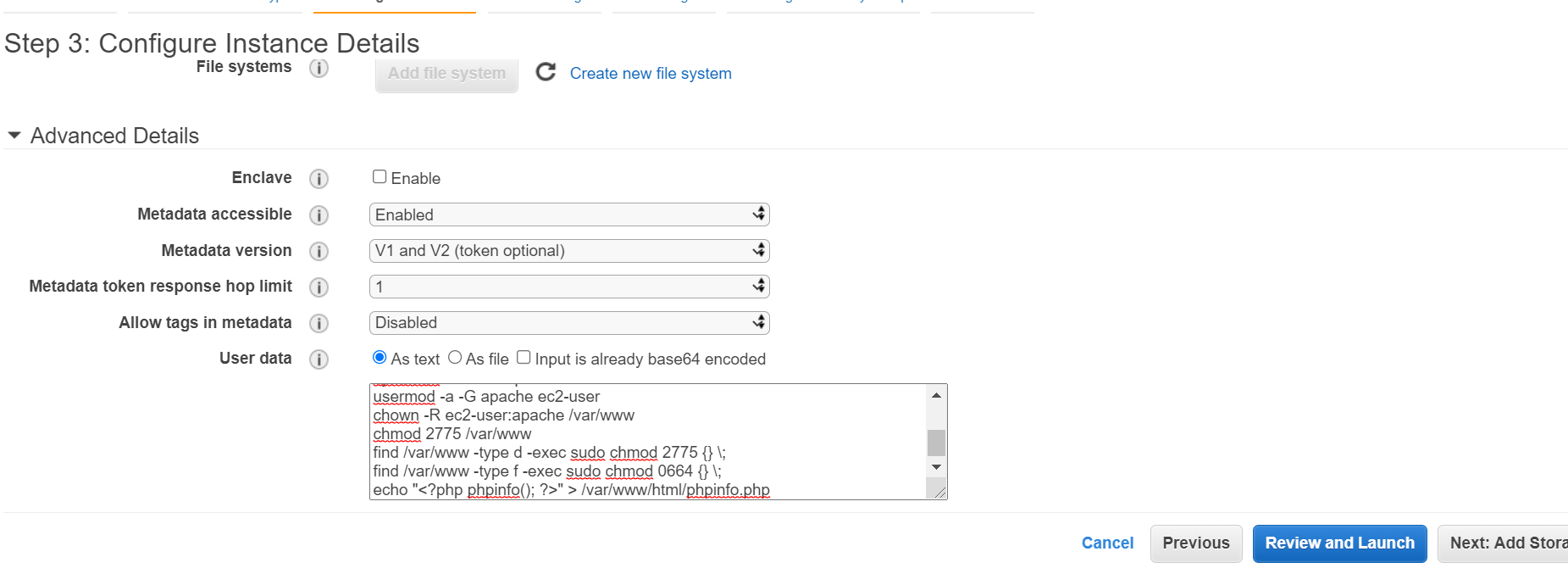
**EC2 User data:**

Ec2 user data is set of commands we mentioned while provisioning the EC2 instance so that while instance get crated this script will auto run so that what we want to configure it get configured automatically right after the EC2 up and running.

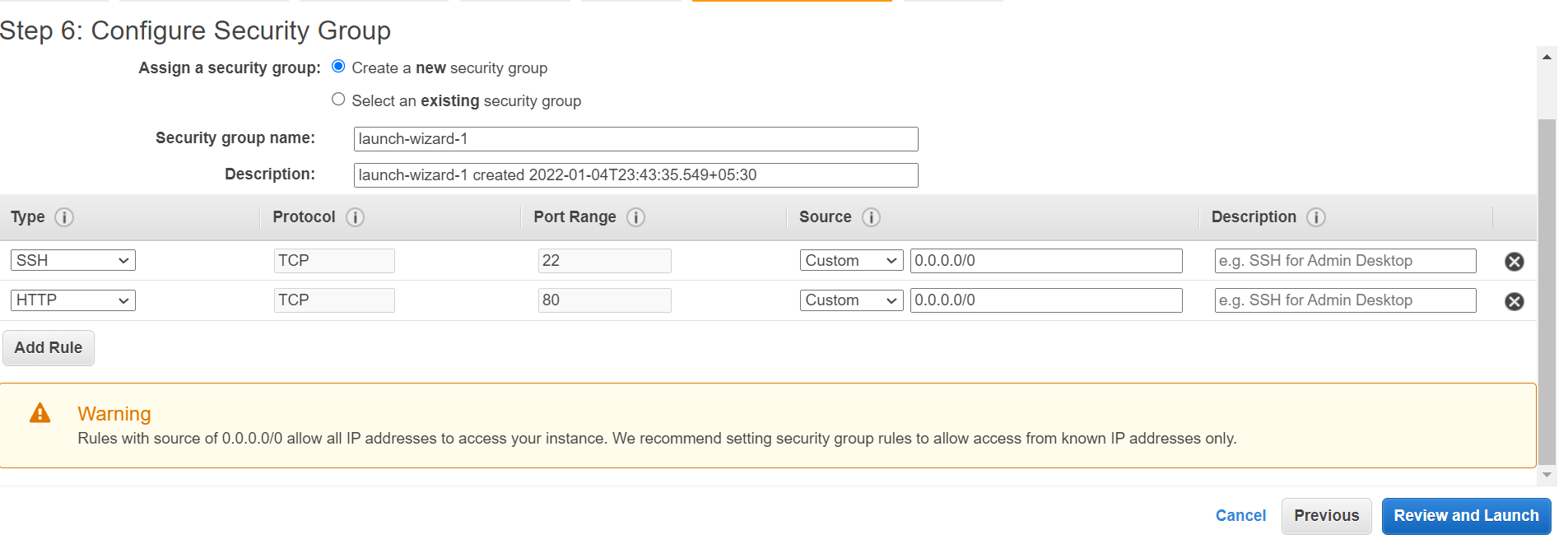
Task : Create a EC2 and Setup a Web server (Using User data)

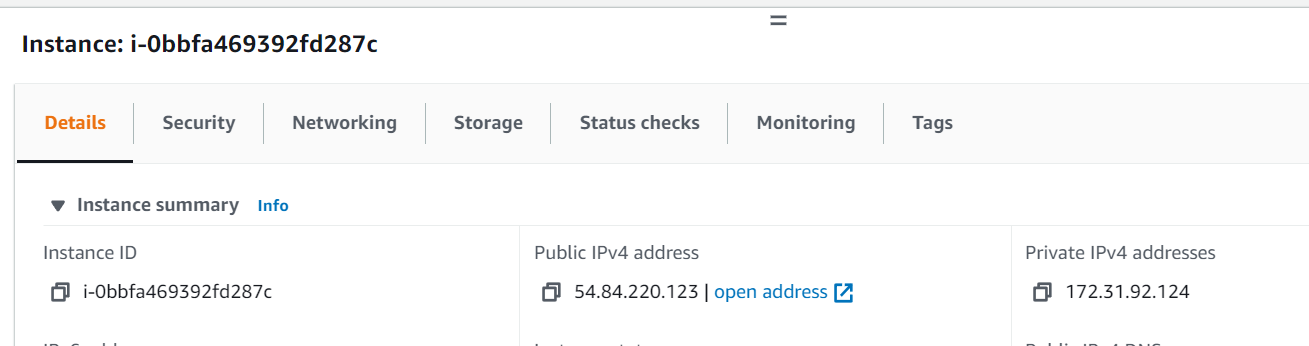
Here we are going to create an EC2 and configure it as a web server using EC2 user data approach manually

Create an EC2 from Console use 0-ec2-user-data.sh userdata

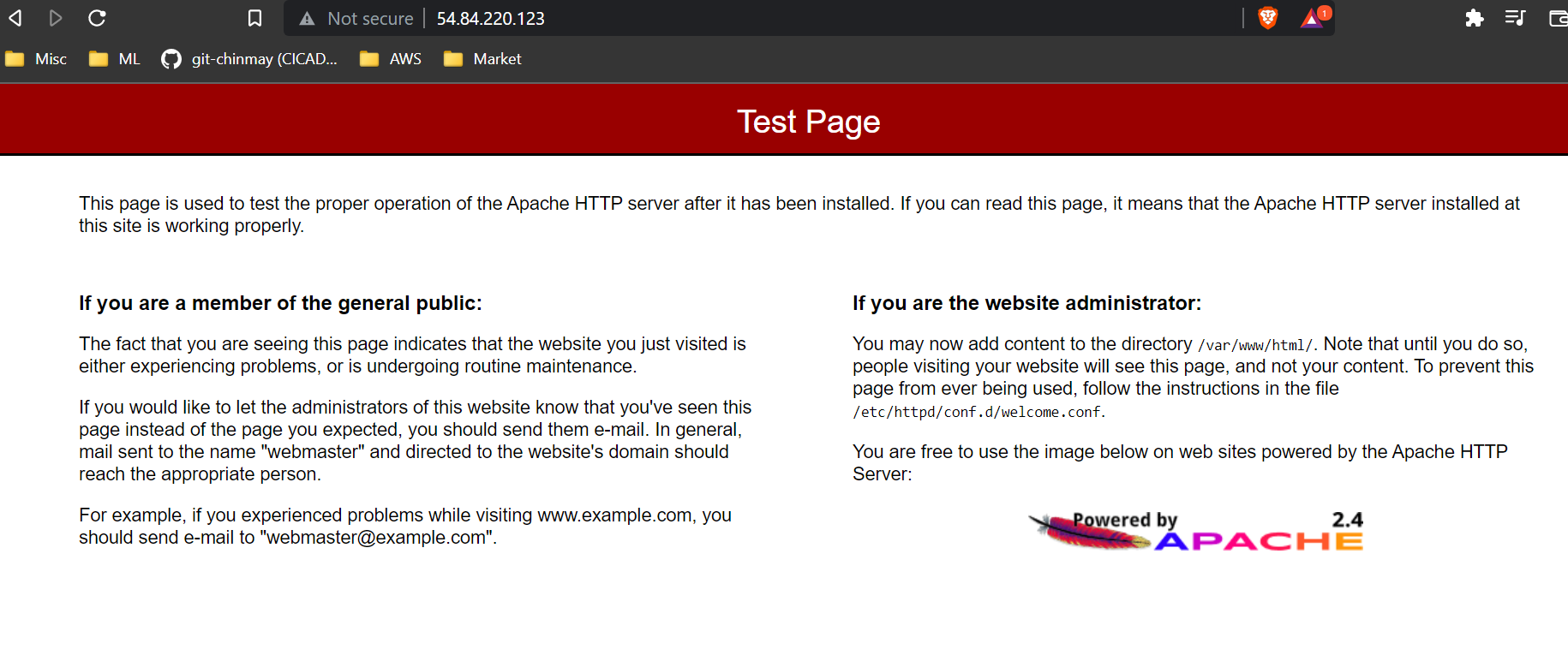


Configure security

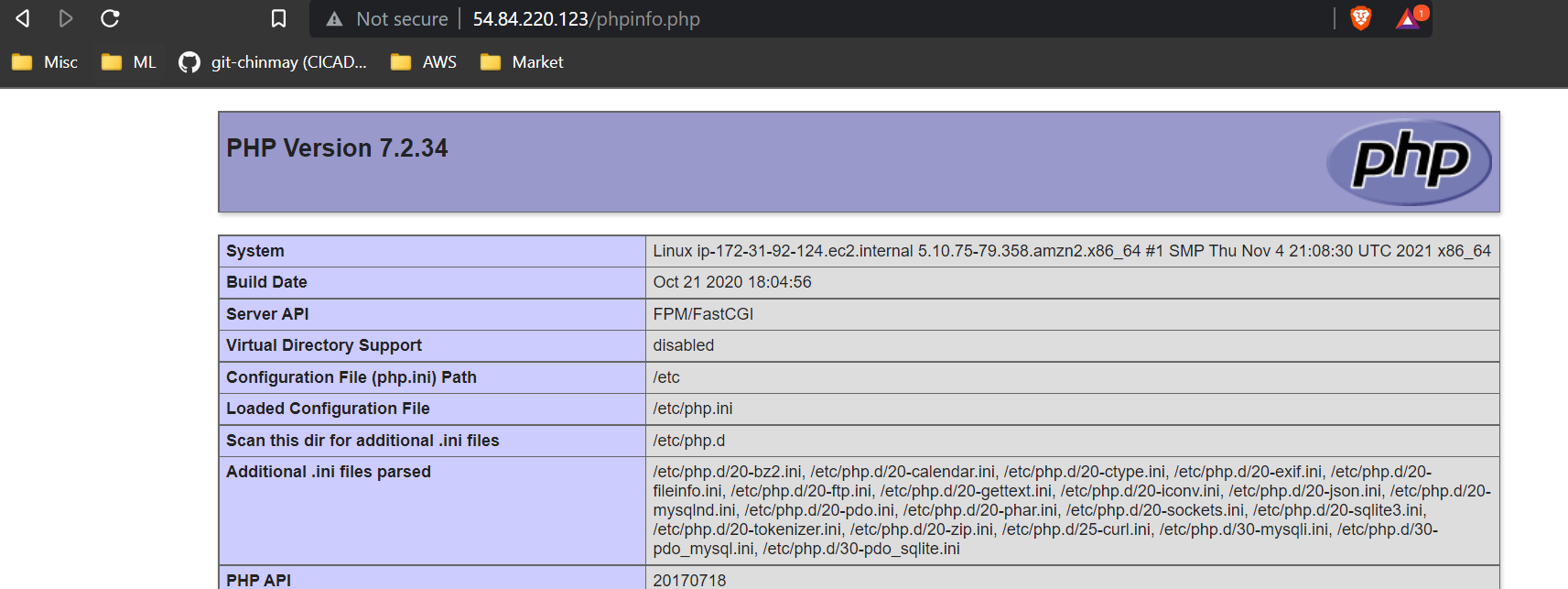
Open the public IP in browser. It will take time to get configured so have some patients (Copy the IP, don’t use the open address option)



Webpage is ready.

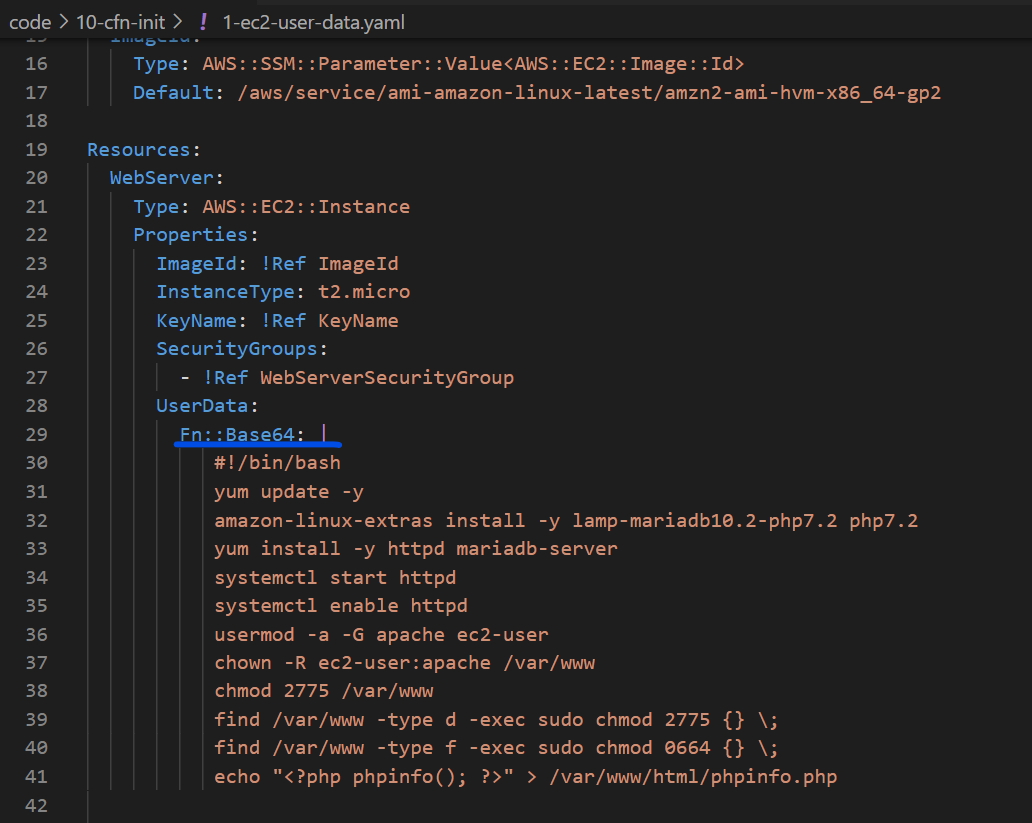


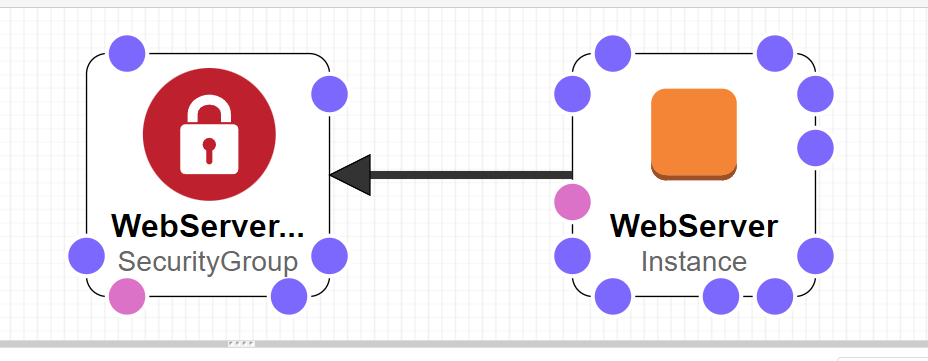
Php also running



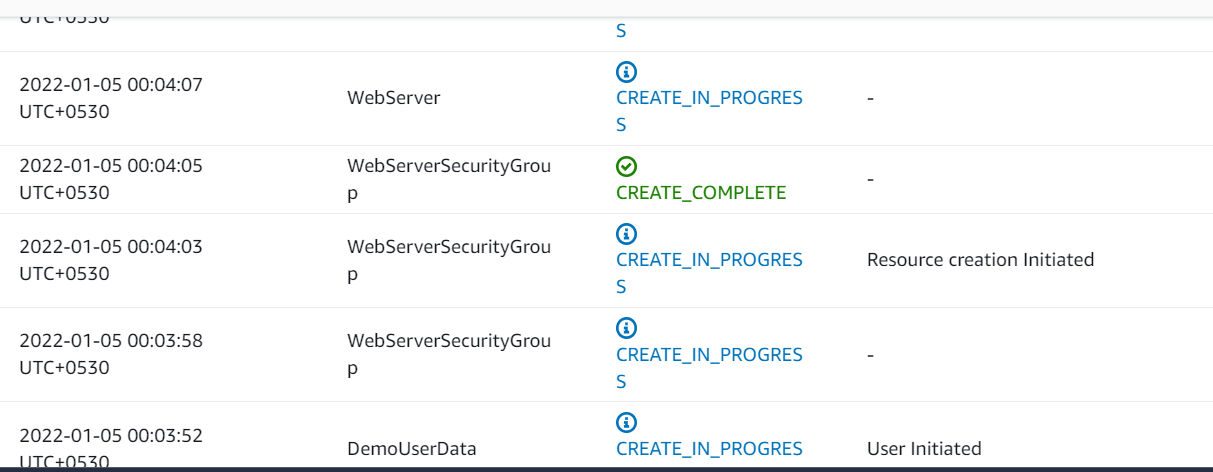
We can perform all above steps using CloudFormation Template

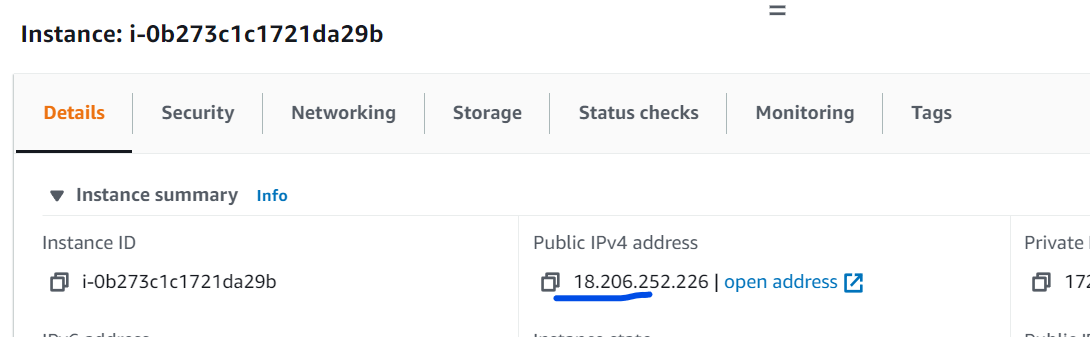
Important function is to notice use of Fn::Base64 to declare the userdata script

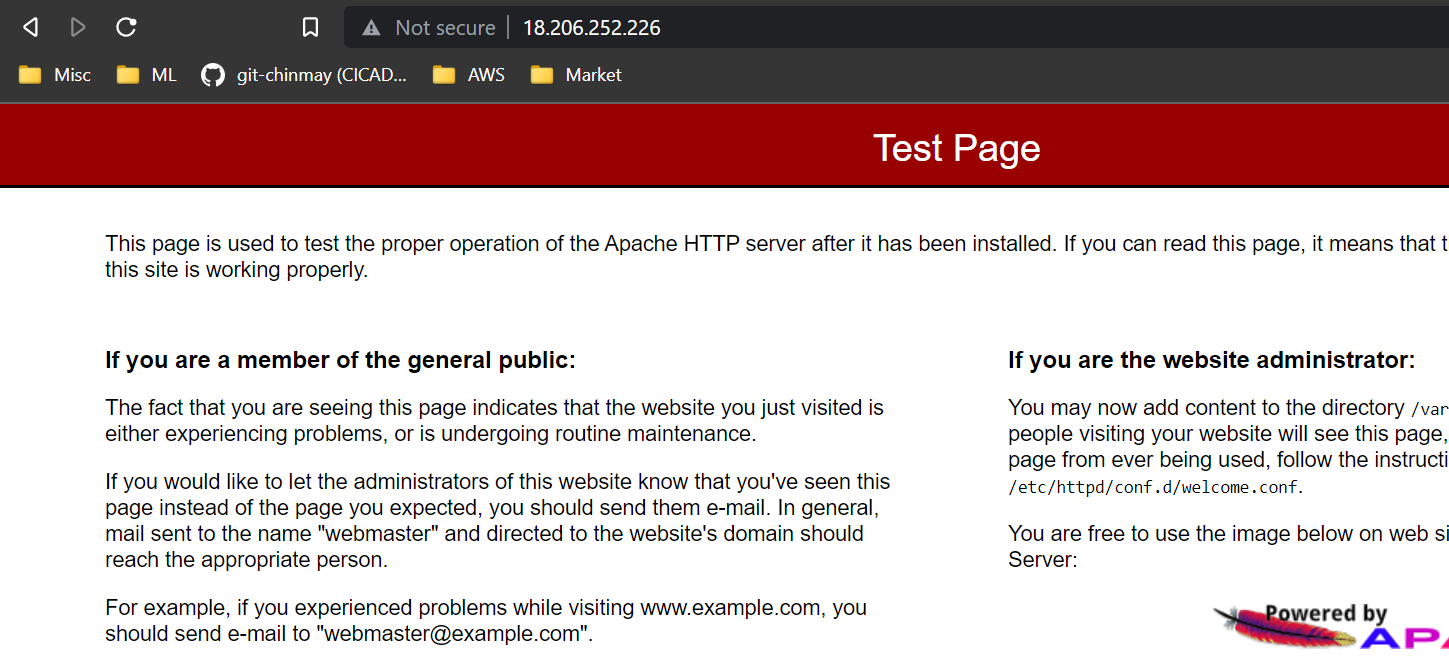




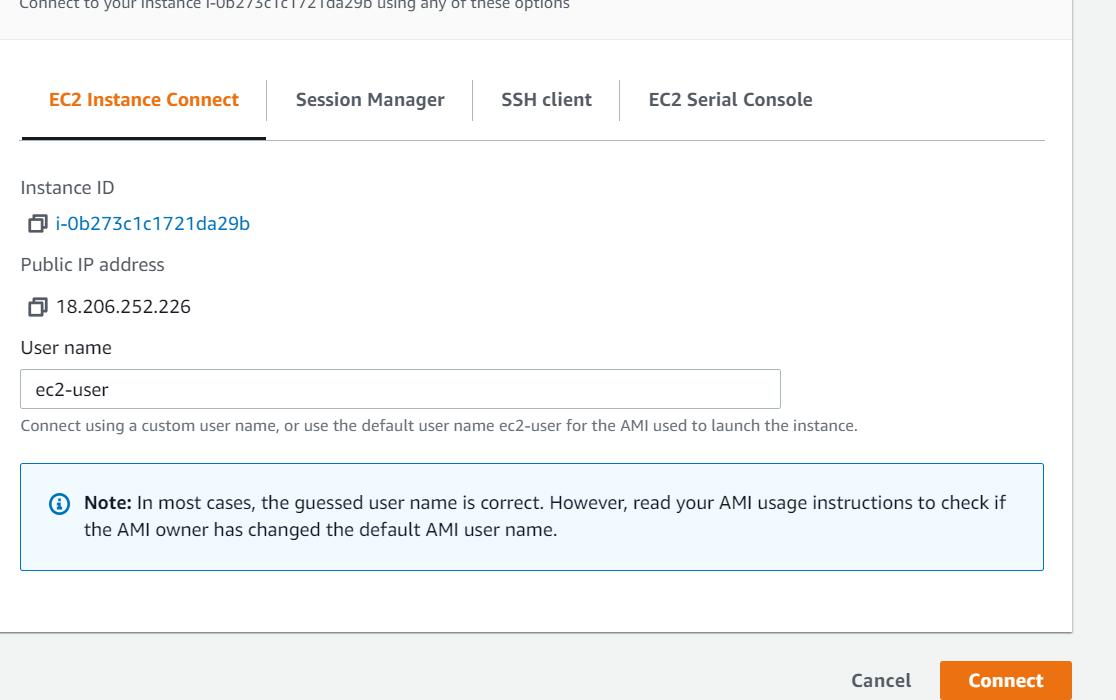
Create the stack

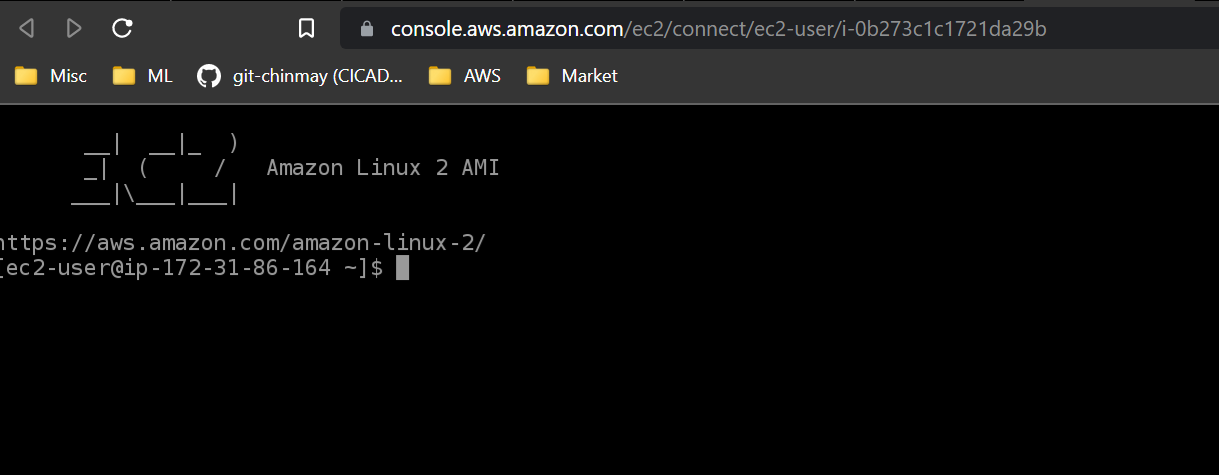




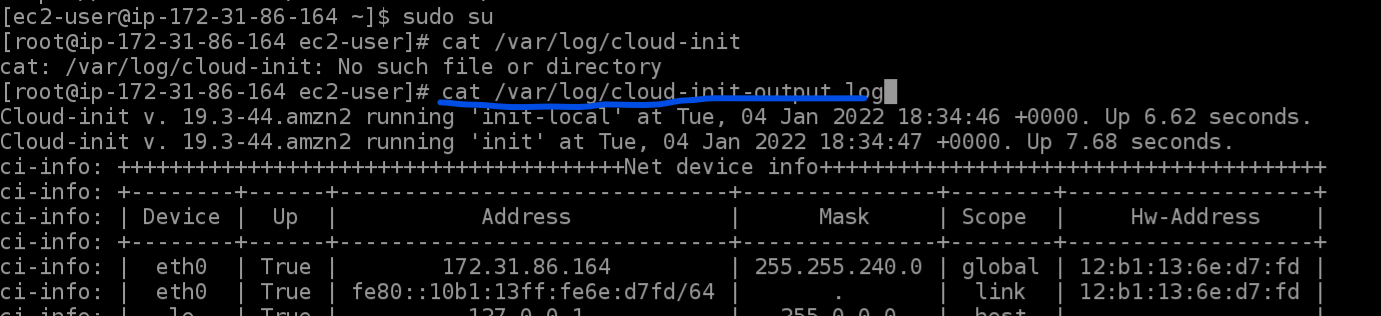


If we connect to the EC2





If we want to see what are the commands runs we can see inside the EC2 logs



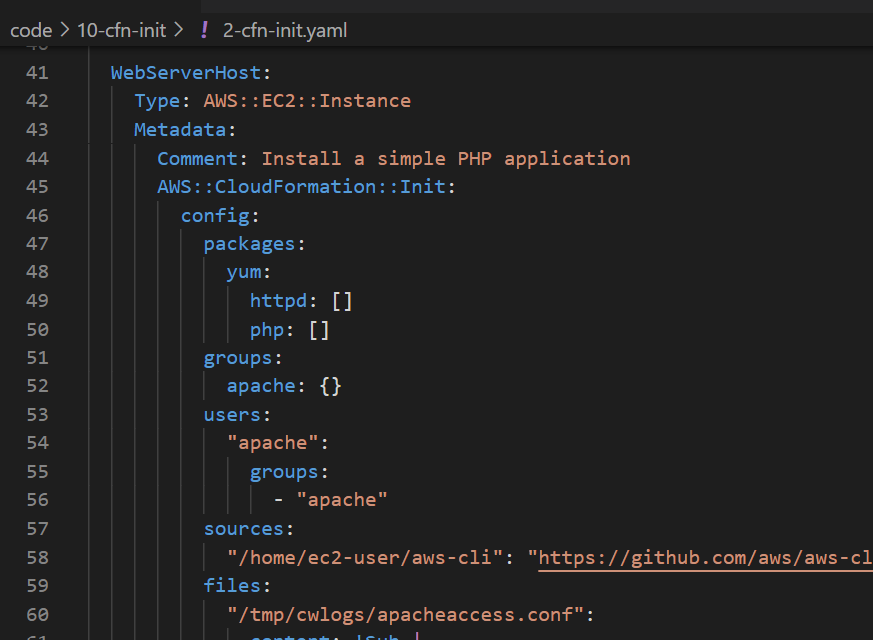
**CloudFormation helper Script:**

There are 4 python scripts come default in Amazon AMI Linux 2, we can also install them using yum on non Amazon Linux2 machines.

* cfn-init : Used to retrieve and interpret the resource metadata, installing packages, creating files and starting services.
* cfn-signal : wrapper script used by resources to talk back to CloudFormation for example to say resource creating was successful or not
* Cfn-get-metadata : A wrapper script to retrieve all metadata of a resource or path
* Cfn-hup : A daemon to check the updates to metadata and run custom hooks if foun any update.

**Cfn-init :**

Init structure is like below



Packages: used to download and install packages

Groups: Define user groups

Users: Define users and which group they belong to

Sources : Downlaod or archive files inside the Ec2

Files: Created files inside the EC2 using inline or can be pulled from a URL

Commands : run a seies of commands

Services : Run series of services using sysvinit

**AWS::CloudFormation::Authentication:**

Used to specify authentication credentials for files and sources in AWS::CloudFormation::Init

Two types:

* Basic : When the source is a URL
* S3 : When the source is an S3 bucket

**Function Fn::Sub : (!Sub)**

* Substitute function. Substitute a variable from a text.
* We can use it combing with Reference and Pseudo variables.
* String must contain ${<variable name>}

**Services:**

* Launch a bunch of services at EC2 instance launch.
* 
* It ensures services are started when file changed or package are updated.