Kalki.IO Edge

AMI Installation and Licensing

www.kalkitech.com

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1. Introduction

Kalki.io Edge (KIOE) is a protocol gateway software with capability to collect data from field devices over many legacy and standard protocols and convert the data in to any other desired protocols. KIOE AMI on AWS brings capability to collect field device data directly to AWS and use other AWS services to process the data. It allows to provision KIOE on EC2 instances.

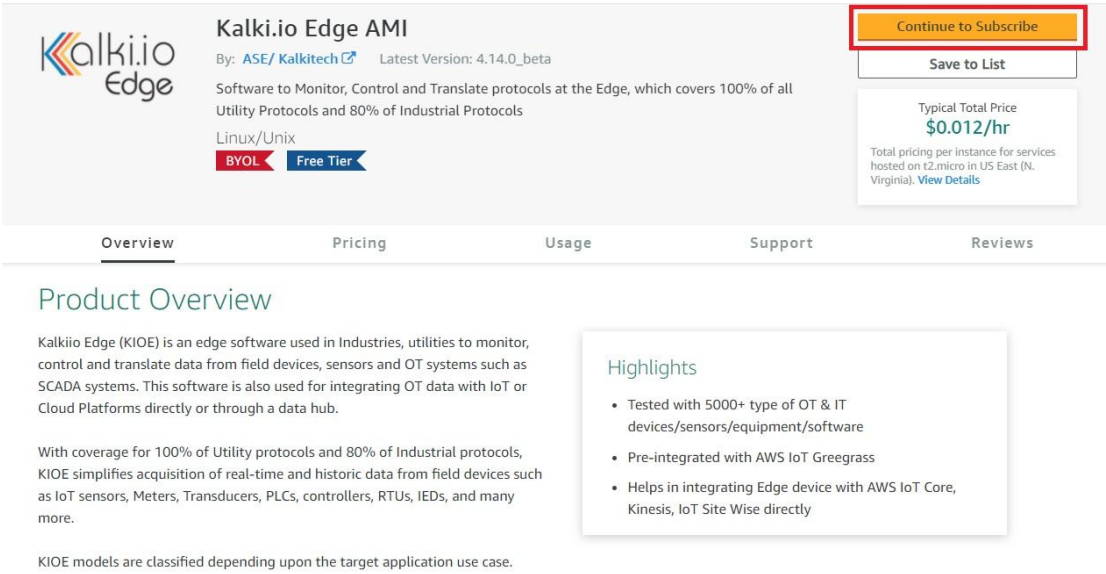
This document guides to use KIOE on EC2. Section 2 describes provisioning KIOE on AWS EC2. Section 5 describes procedure to license KIOE.

2. KIOE AMI

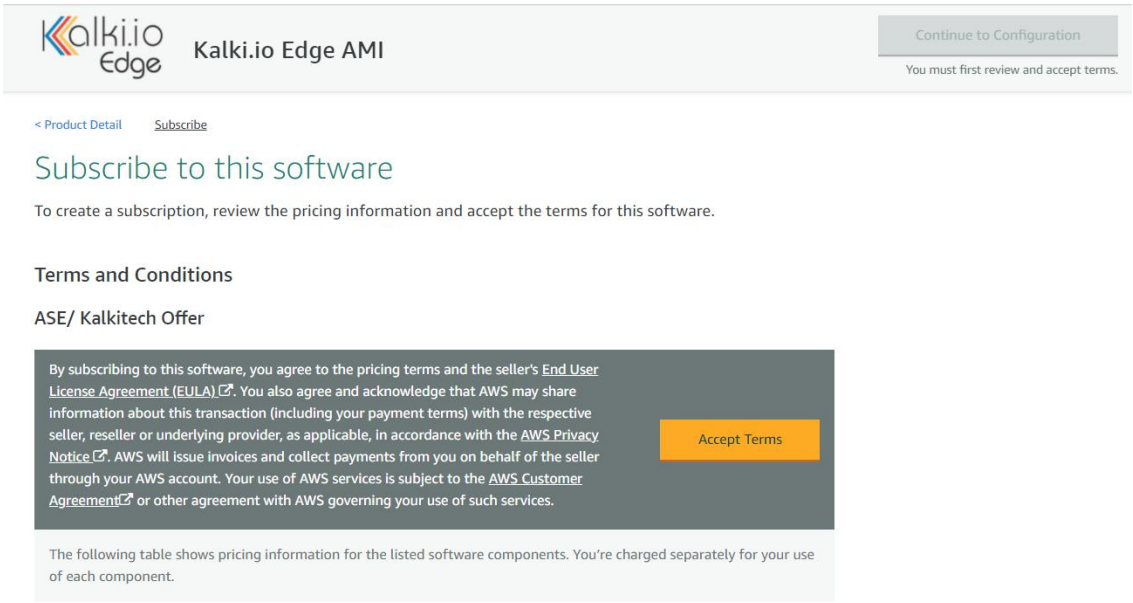
This section will guide you to provision KIOE AMI on your account. KIOE AMI is available here on AWS Marketplace

2.1 KIOE AMI Subscription

1. Subscribe to KIOE AMI by clicking on **Continue to Subscribe**. KIOE AMI is free for evaluation however you may get charged for AWS resources like compute, storage etc.

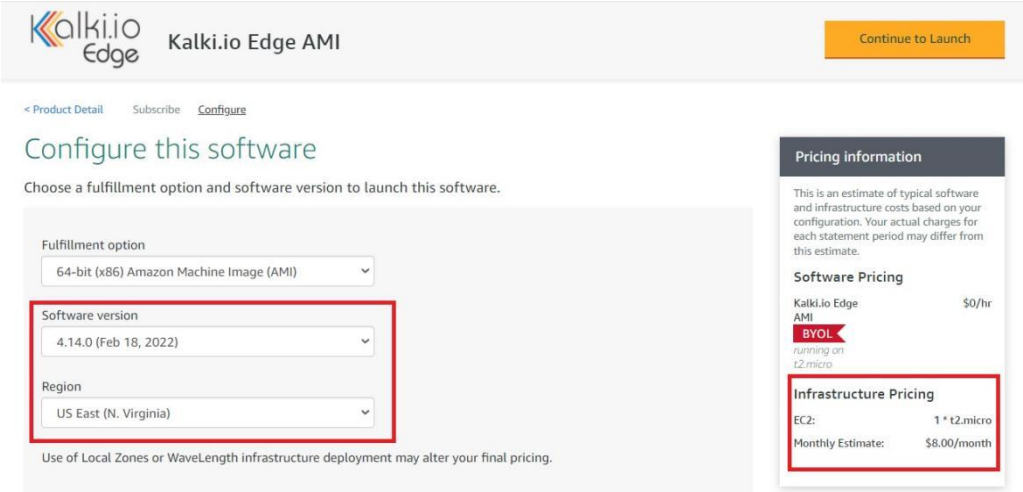


2. Successful subscription will take you to Subscription page. Read and Accept EULA for Kalki.ioEdge. **Note**:: It may take some time for subscription request to complete.



3. Select KIOE **Version** and **Region** of your choice. You can see corresponding Monthly bill Estimation on right hand side. This Estimation is for **t2.micro**.Click on **Continue to Launch** to move to next step.

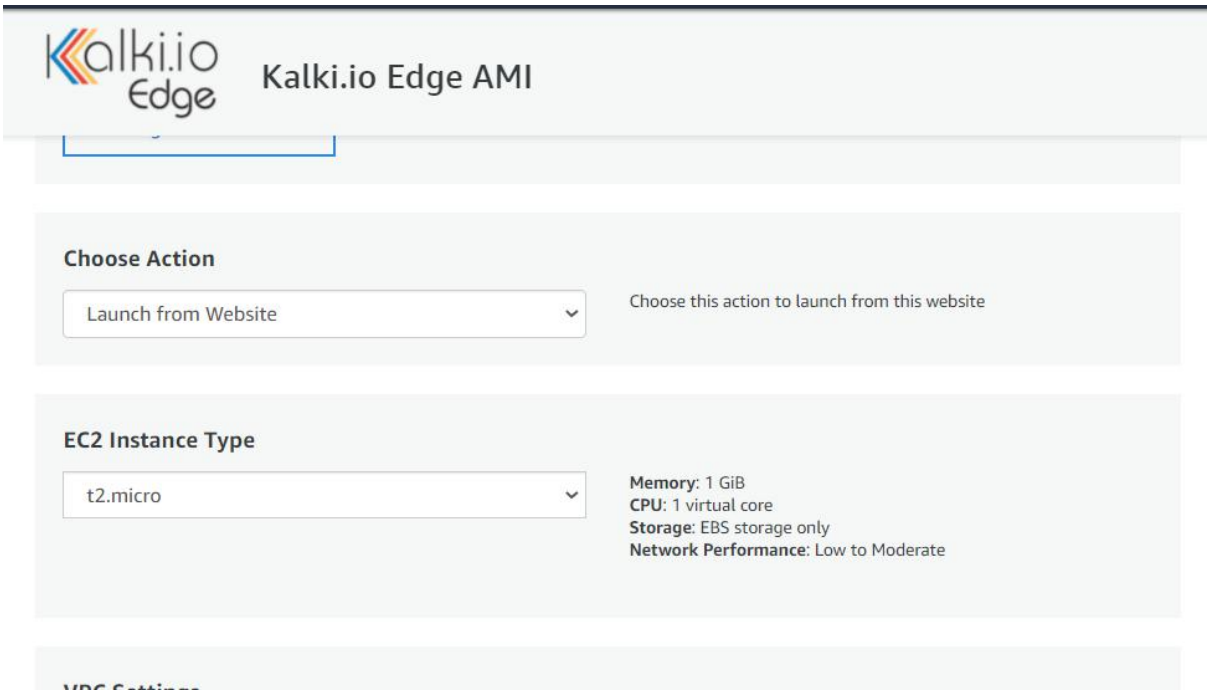
   Note: Estimation does not include KIOE license price.



4. AWS provides two methods of launching new instance. **Launch from Website** and **Launch through EC2**. Section 2.2 Explains provisioning KIOE AMI from Website. Section 2.3 explains **launch through EC2**. If you are new to AWS and provisioning an EC2 instance for the first time then it is recommended to use **Launch From Website**.

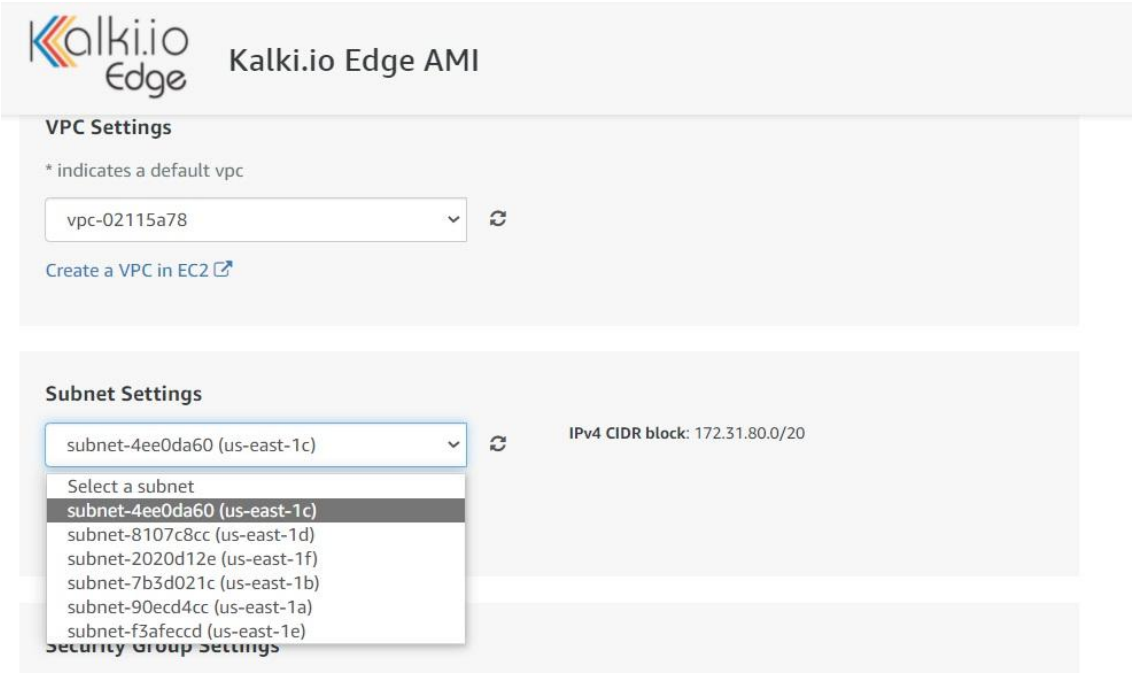
2.2 KIOEAMI Provisioning from Website

1. Set Launch Action to Launch from Website.

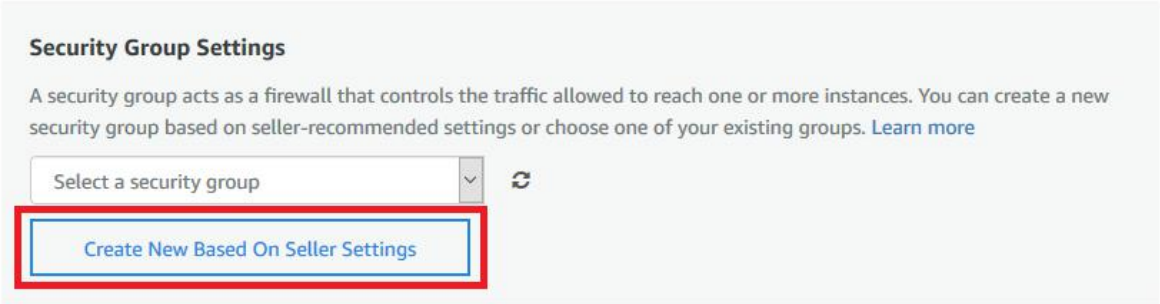


2. This will bring several settings on the same page regarding KIOE AMI launch configuration.
3. Select VPC for launch. This VPC should have at least one subnet with public access.
   Note: If you have not yet created any VPC in your account then default VPC will have subnets with public network access. This VPC can be selected for KIOE.

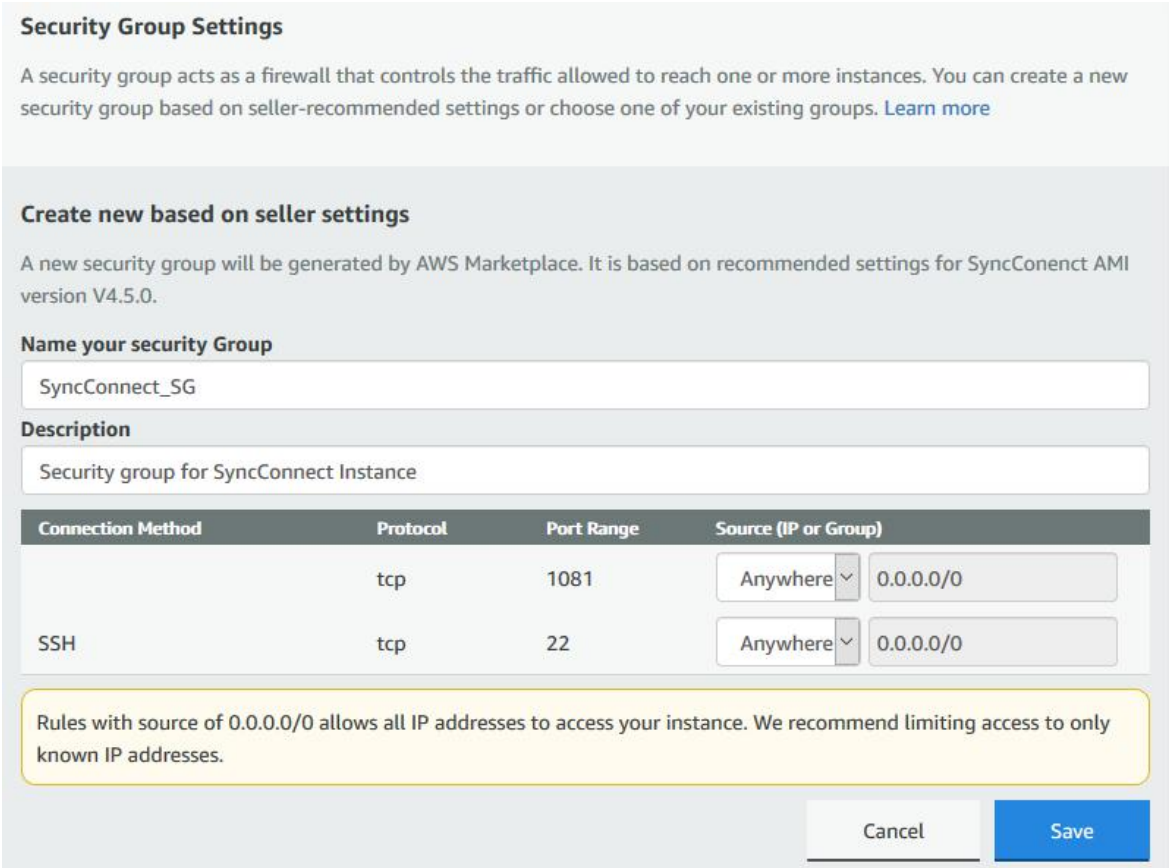
4. Select public subnet of your VPC.
   Note: If you are using default VPC then all subnets are public.



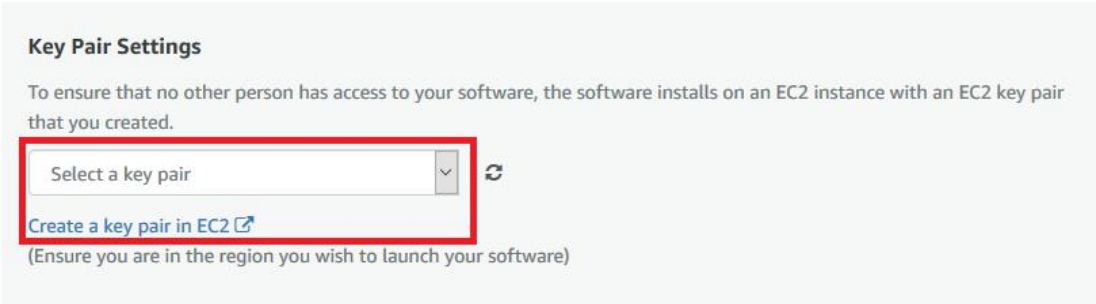
5. KIOE AMIs security group must allow access to SSH TCP port(22) and KIOE Configuration TCP Port (1081). You can select your existing Security Group which allows these inbound connections by selecting one of available Security Group from Drop down in Select Security Group. You can create a new Security Group with above mentioned TCP ports open for inbound TCP connection by clicking on **Create New Based on Seller Settings**.



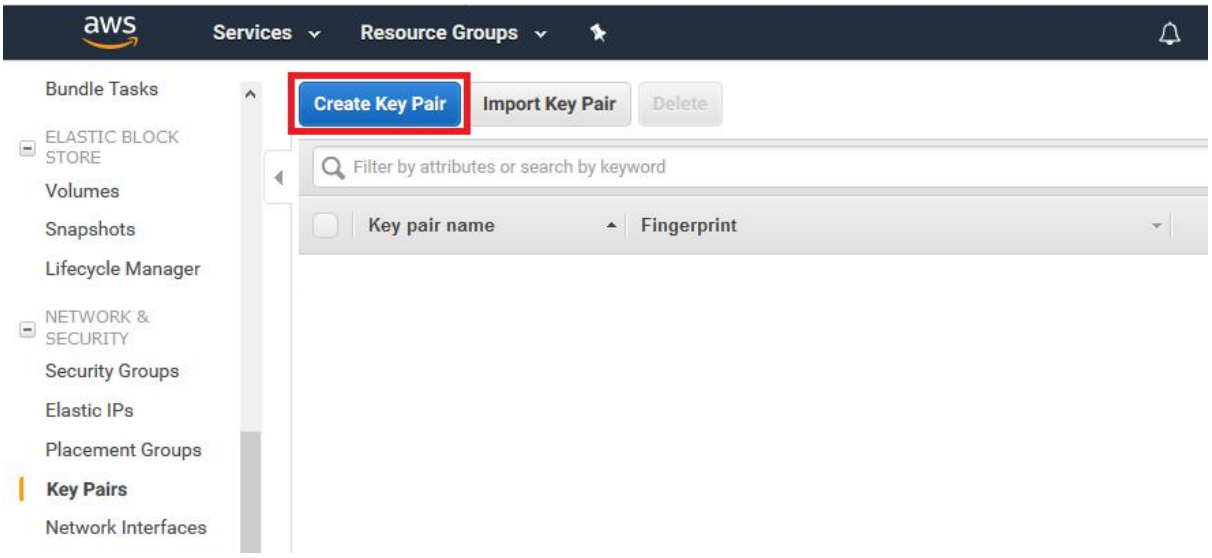
This will bring a prompt to create Security Group. Fill Security Group Name and Description and click on save to create Security Group.



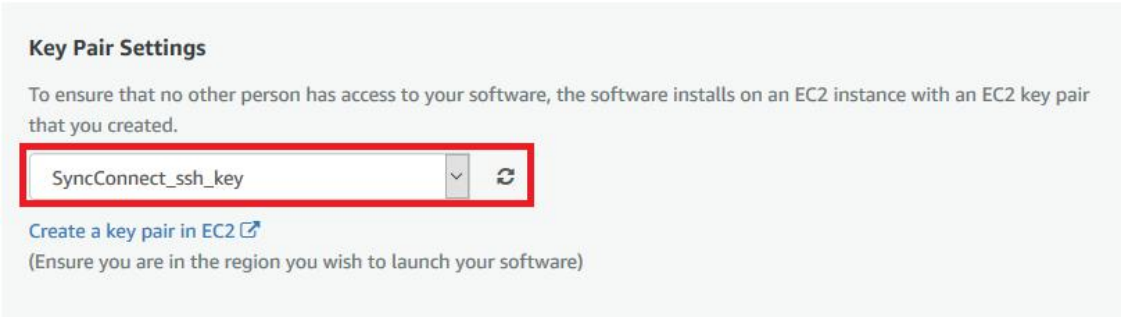
6. Select SSH key pair to be used for logging in to your EC2 instance. You can either select existing SSH key or create a new key.



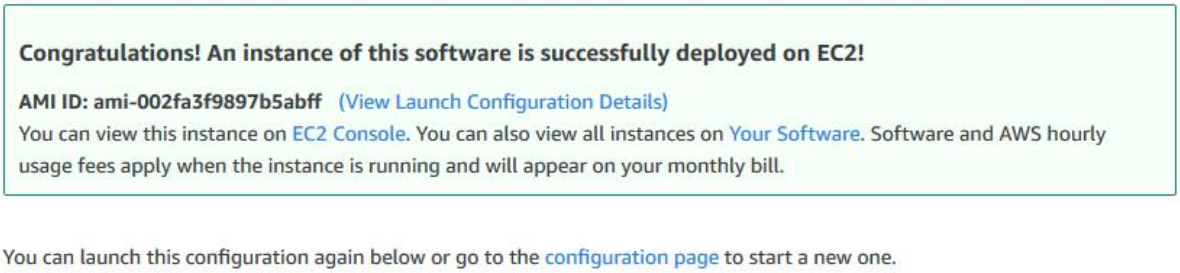
If you do not have existing key then create new key pair by clicking on **Create New Key Pair in EC2** link. This will take you to following page as shown below. Click on create new SSH key. Give suitable name to your key and click on create. This will prompt to save key file. Save this file on your local machine.



Switch back to launch settings in AWS Marketplace launch page. Click on refresh button next to Select Key pair drop down. You should find your newly created key in dropdown.



7. Click on **Launch** button to launch the KIOE AMI. You should see similar window stating successful launch

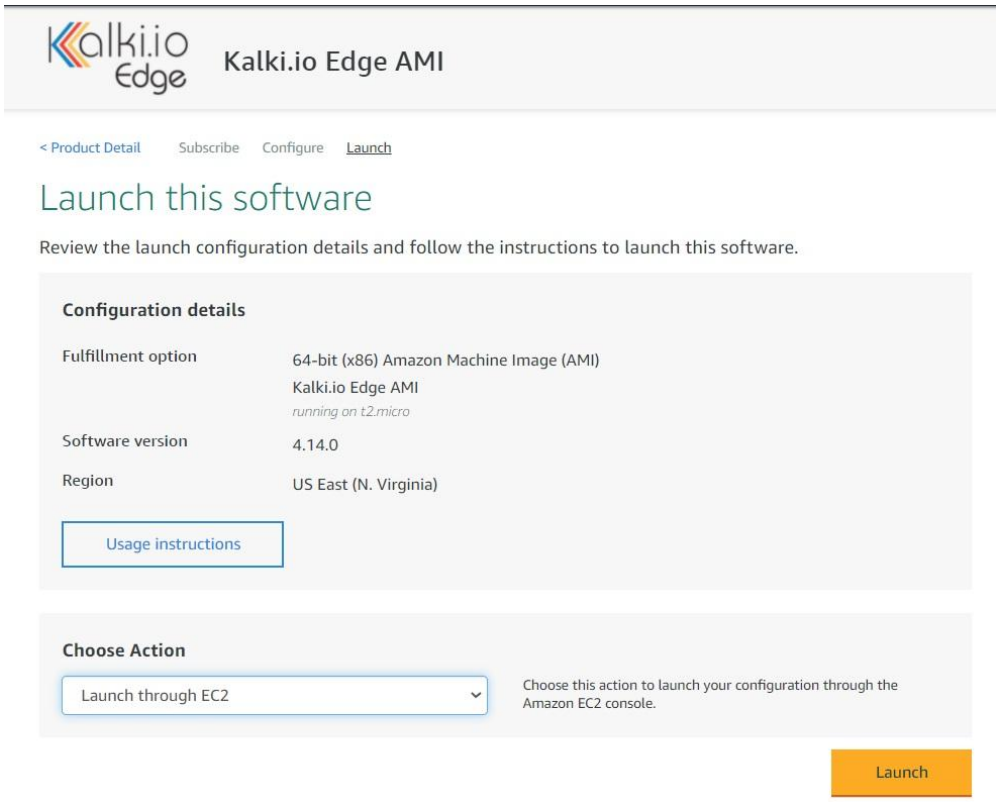


8. It will take couple of minutes for KIOE AMI to be provisioned. You can find your instance information in Services -> EC2 -> Running Instances. Now you should go to Section 2.4 and validate KIOE AMI installation.

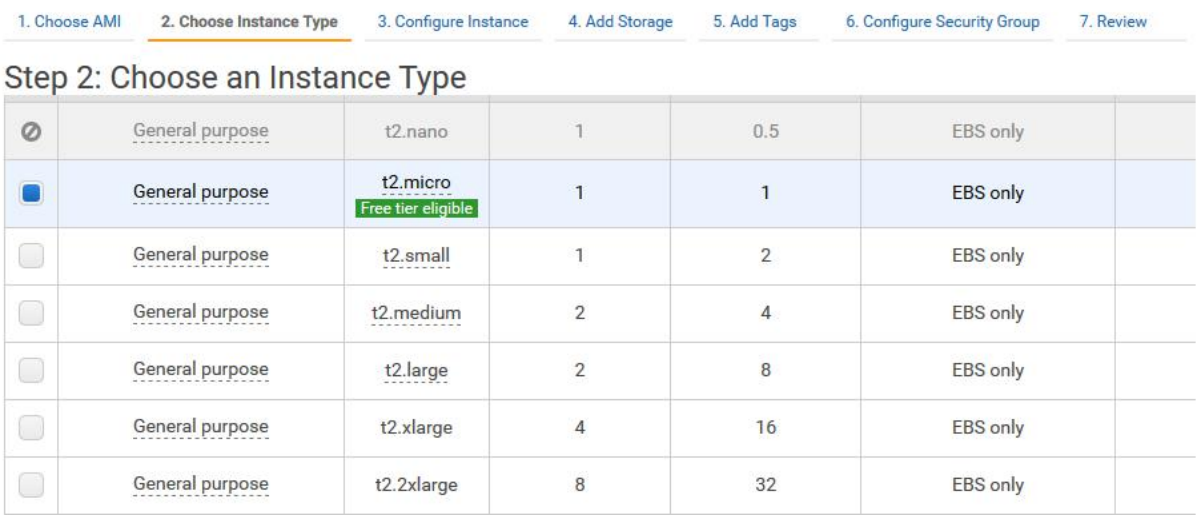
2.3 KIOE AMI Provisioning from EC2 console

It is assumed that you have already subscribed to KIOE AMI. Refer Section 2.1 for Subscription procedure. Follow these steps to install KIOE AMI through EC2 launch wizard

1. Select **Launch through EC2** and click on **Launch**

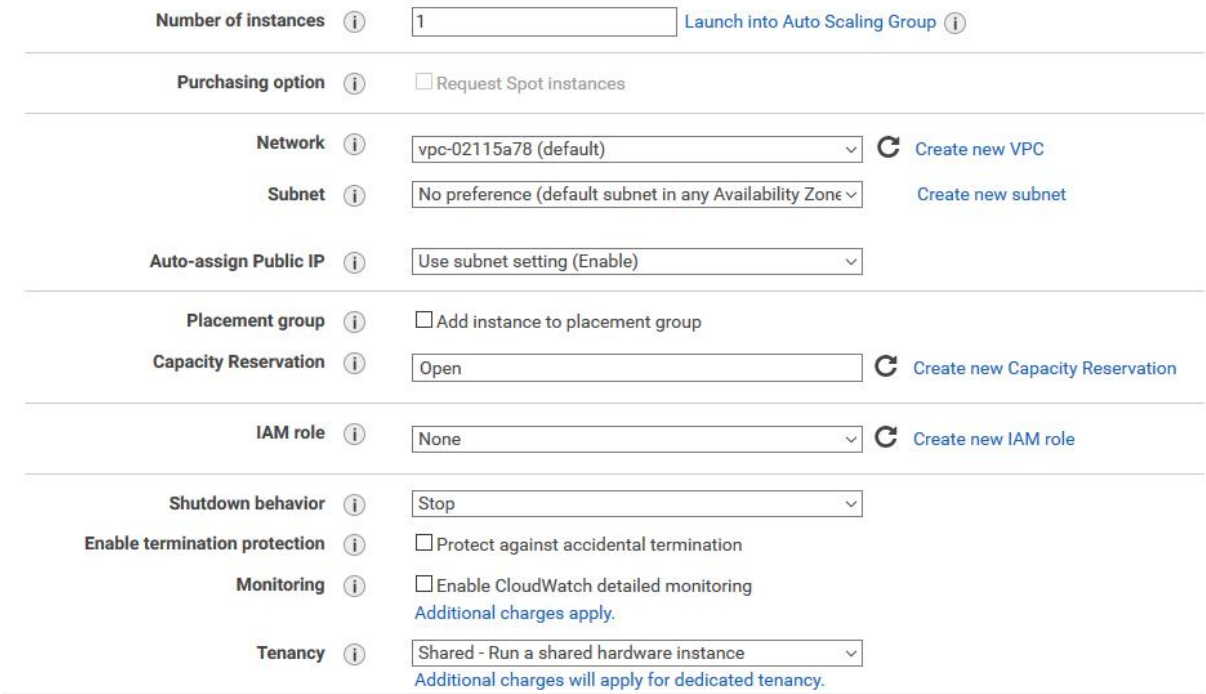


2. Select Instance type. It is recommended to use t2.micro for evaluation. You may choose any of the allowed instance types. For more information on Instance type selection refer Appendix A. Click on **Next Configure Instance Details** to move to next step.



⊘	General purpose	t2.nano	1	0.5	EBS only	
■	General purpose	t2.micro Free tier eligible	1	1	EBS only	
☐	General purpose	t2.small	1	2	EBS only	
☐	General purpose	t2.medium	2	4	EBS only	
☐	General purpose	t2.large	2	8	EBS only	
☐	General purpose	t2.xlarge	4	16	EBS only	
☐	General purpose	t2.2xlarge	8	32	EBS only	

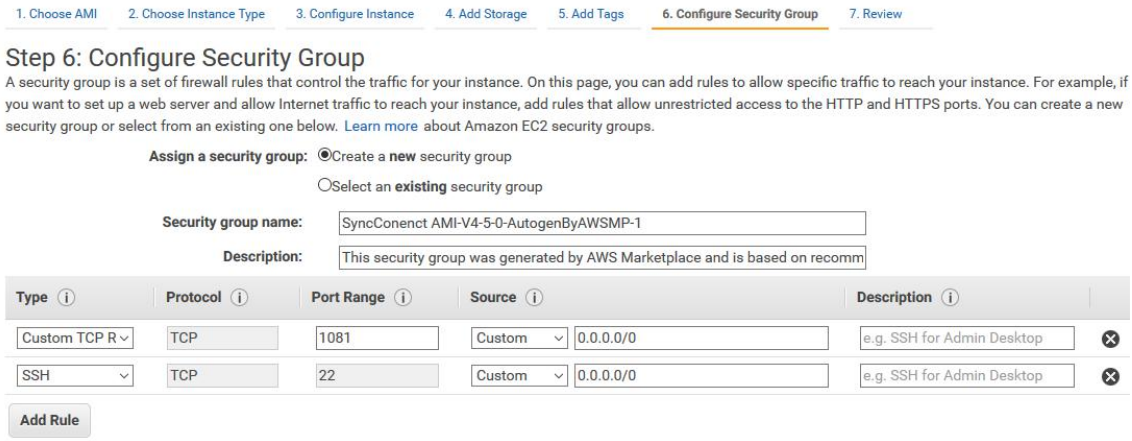
3. Select valid configuration for each entry. Make sure that KIOE AMI Instance have a public IP and Networking configuration allows it to be accessed publicly. Click on **Add Storage** to move to next step



4. Select Storage for KIOE AMI. Default 8GB General Purpose SSD should be sufficient for basic workloads. Click on **Add Tags** to move to next step

5. Add Tags as per your need. Click on **Configure Security Group** to move to next step.

6. Select existing Security Group or create a new one. SSH TCP Port (22) and KIOE Configuration TCP Port (1081) should be kept open for inbound connection. You can create new Security Group or select Existing Security Group. Following Window shows creation of new Security Group with required inbound connection.

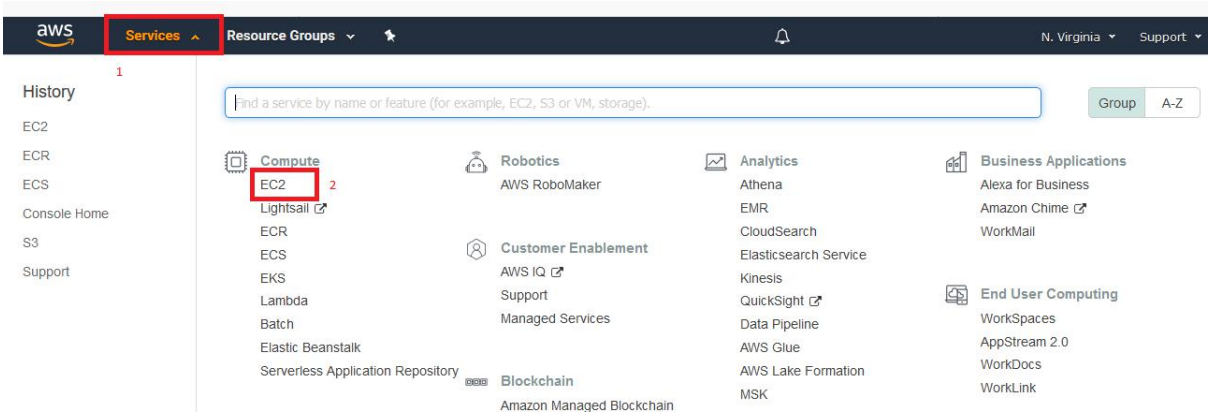


7. Click on **Review and Launch** to move to move to next step. Here you can review the launch configuration. If all configuration are as per required Click on **Launch** to launch the EC2 instance. You will prompted for SSH key. You can either select existing key or create a new key pair. Select your choice and Launch the instance.

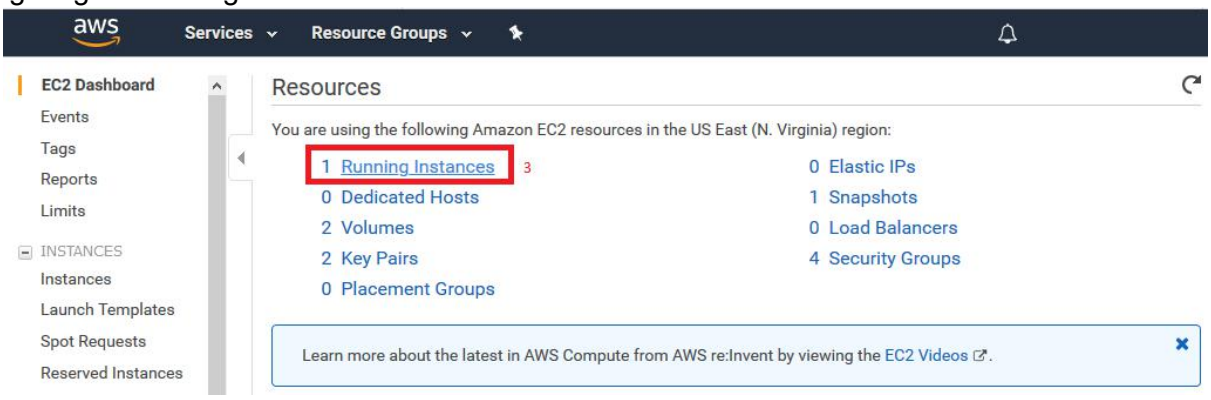
2.4 Validating AMI Instance

These steps will help in validating whether KIOE AMI have been successfully provisioned with required permissions.

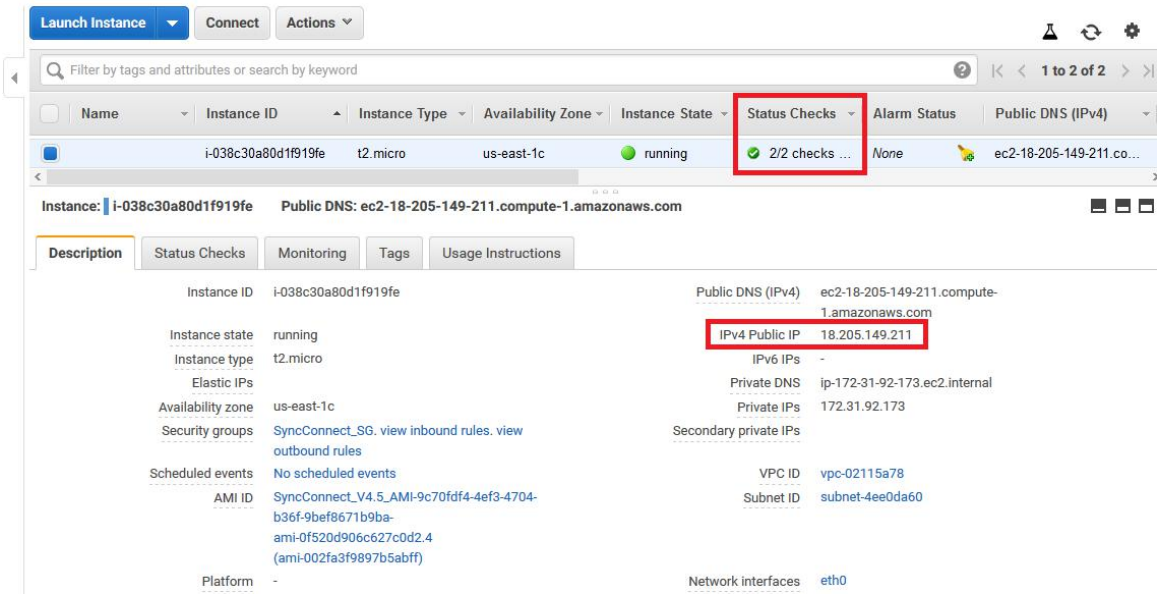
1. *EC2 Instance instantiation Check*: Navigate to **Services** -> **EC2**, In EC2 dashboard and open **Running Instances**. Select **KIOE EC2** instance.



Navigating to Running Instances



2. Here you will see a list of EC2 instances. Make Sure that instance State for KIOE is Running and Status Checks have passed. if you have recently provisioned the KIOE AMI then it may take couple of minutes for **Status Checks** to come as **2/2 Checks Passed**. This confirms successful instantiation of KIOE AMI. Note down Public IPv4 Address of instance. This IP address will be used for configuring KIOE.



3. Kalki.io Sign up and KIOE Licensing

Once KIOE AMI is provisioned you will require **KIOE License** to use KIOE.

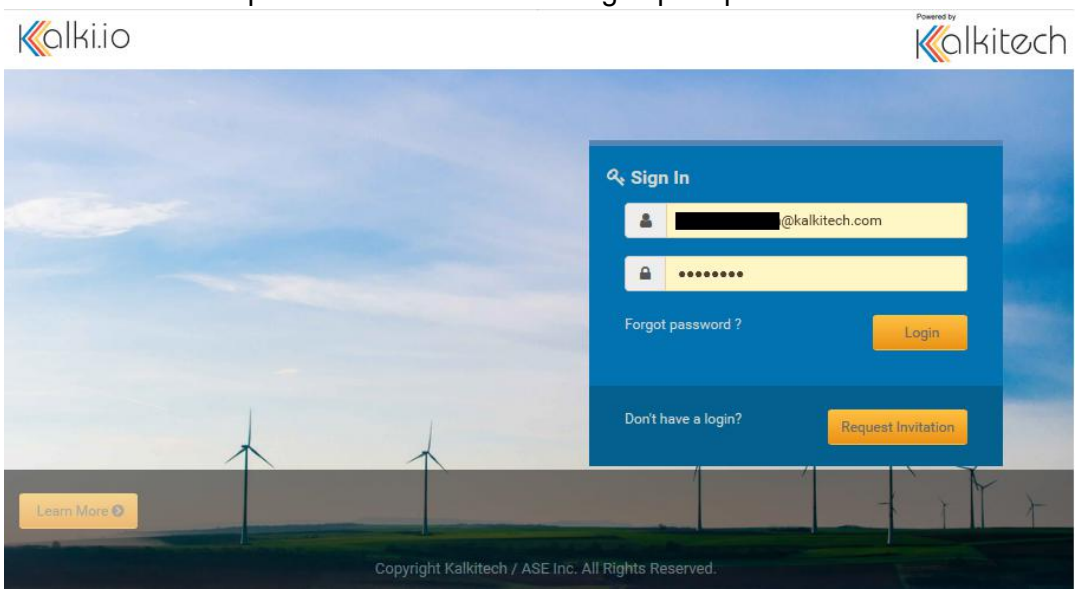
Request on following link to get an evaluation license for KIOE. An account will be created for you in kalki.io (*us.kalki.io* or *in.kalki.io*) and the login credentials will be sent to you via email:

https://kalkitech.com/support/sales-support/kioelicense

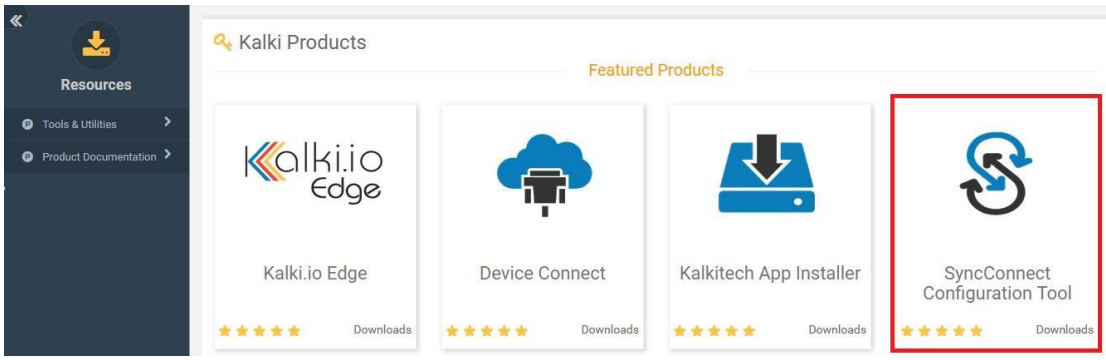
NOTE: Add the message note as "**Request for KIOE AMI license request**" when sending the request. Usually it will take 1 business day to create an account.

3.1 Downloading SCT(Configuration Utility)

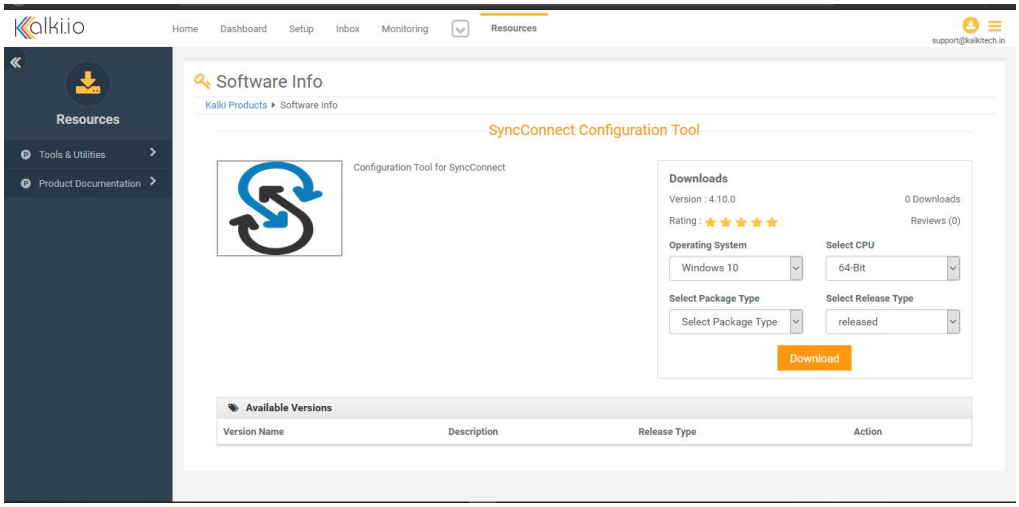
1. To obtain the SCT, login to your account in kalki.io (*us.kalki.io* or *in.kalki.io*) using your username and password. You will see a log in prompt as shown below.



2. Click on Resources then SCT as shown below



3. You will see a page as shown below. Select your Operating System, System Architecture(64 Bit/ 32 Bit). A list of SCT set ups will come in lower half of page



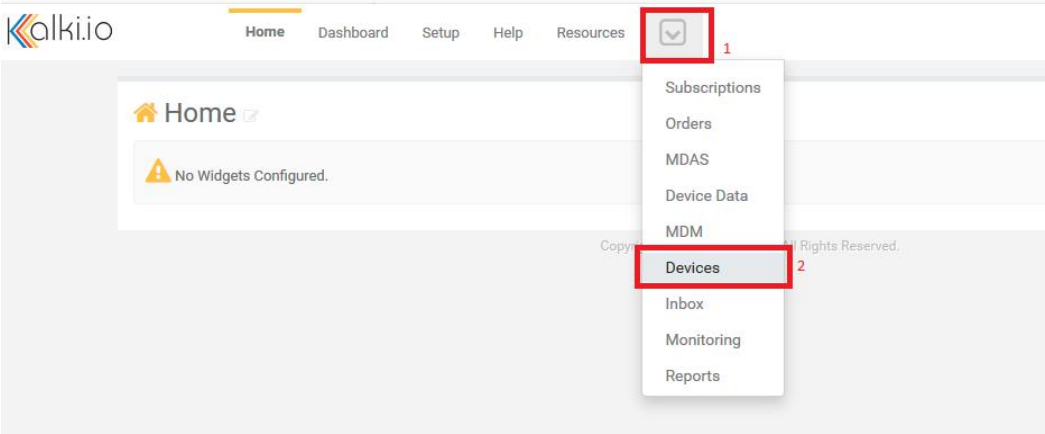
Click on Download Action for SCT.

4. Install SCT on a Windows Machine. This machine will be used for configuring KIOE.

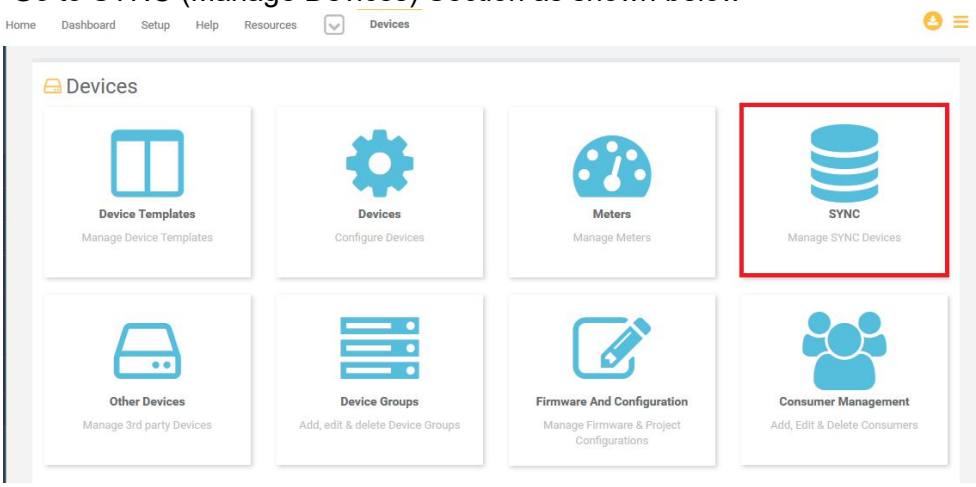
3.2 Downloading KIOE Device License

KIOE Licenses can be downloaded from the account in ***kalki.io***. Follow these steps to download KIOE Licenses.

1. Log in to your kalki.io account.
2. Go to Devices Section. You may need to expand the top bar.

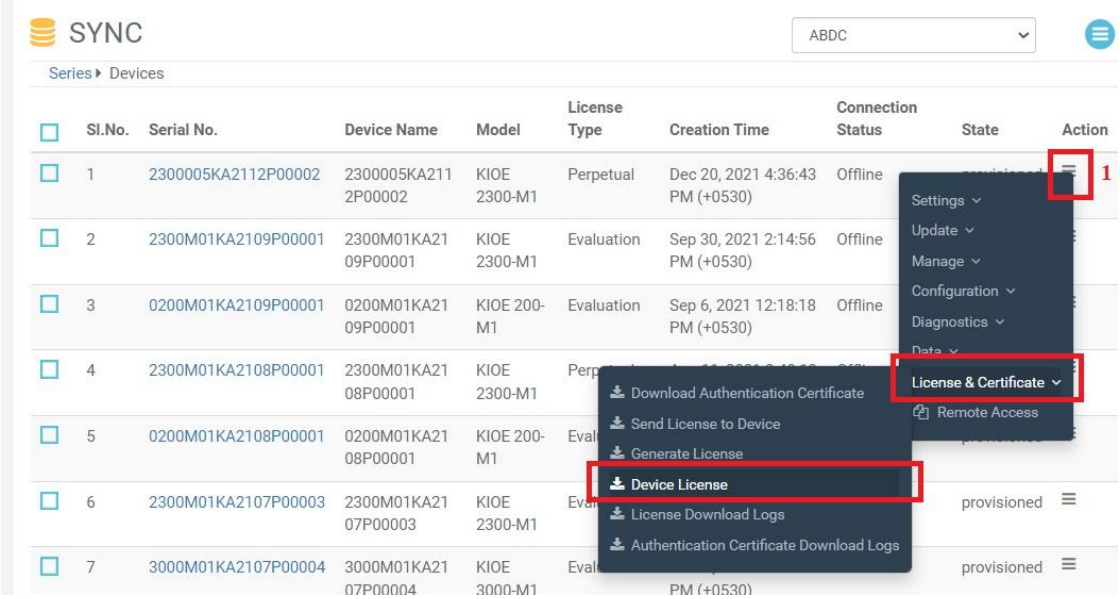


3. Go to SYNC (Manage Devices) Section as shown below



4. Select Kalki.io Edge

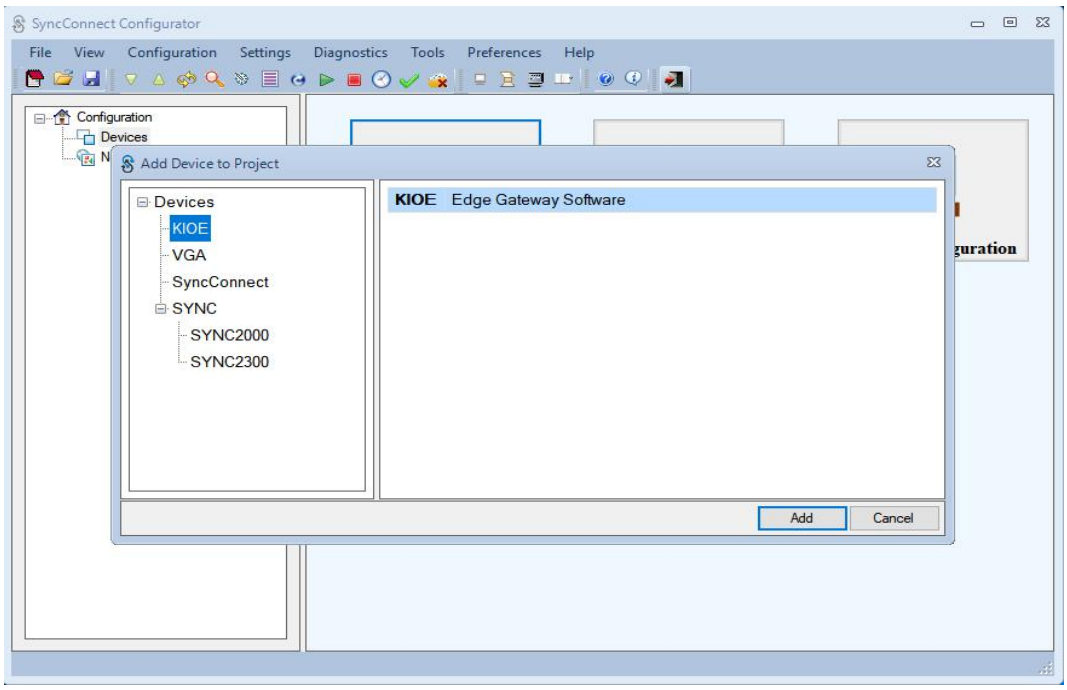
5. You will see a list of KIOE available in your account. Click on actions -> License & Certificate -> Device License. Enter password for you certificate and save the license. This password will be used later while installing licenses to device.



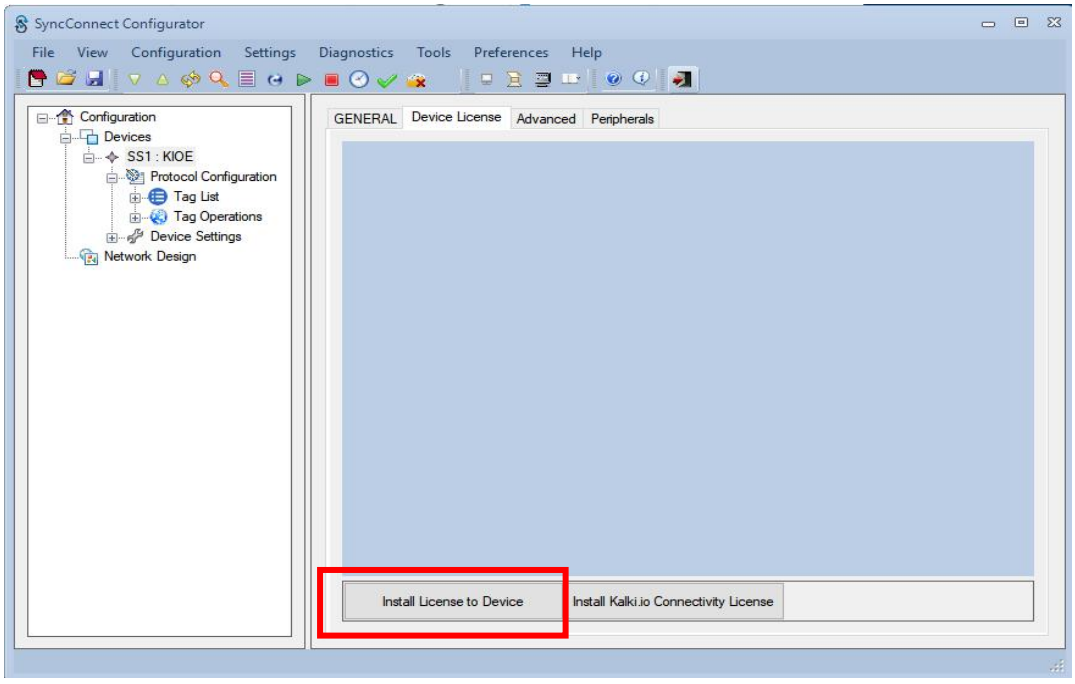
3.3 Installing KIOE Licenses on to AMI

Once license files are downloaded from kalki.io, they can be installed in the KIOE host. This section will explain how to install and verify KIOE licenses on AMI.

1. Launch SCT from start menu and Add ***KIOE*** device in the configuration as shown below.

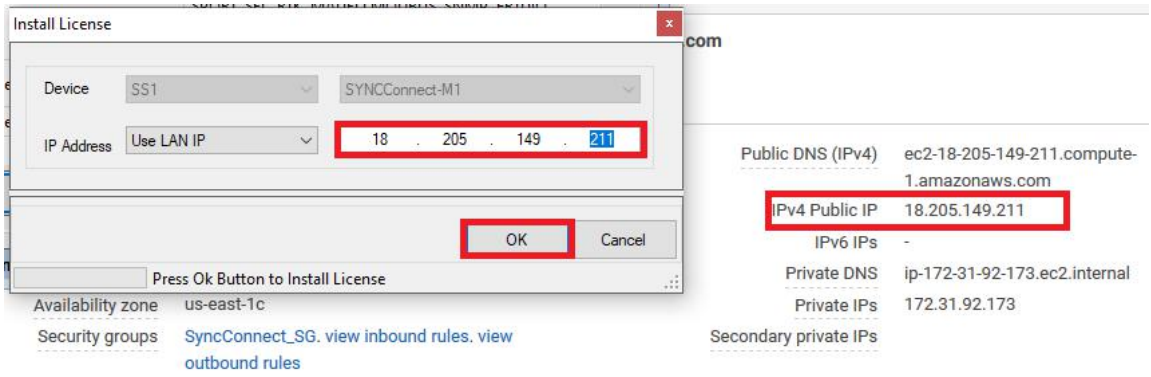


This will add **KIOE** device in left Pane's device tree. Select this device. Go to **Device License**. Click on **Install License to Device**.

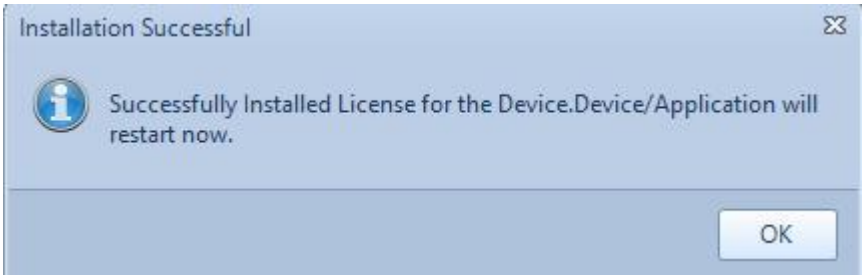


Browse the license downloaded in Section 4.2.

You will see License information. Click on OK to move to next step. Following prompt will appear for IP address of KIOE. Here provide IP address of KIOE host.

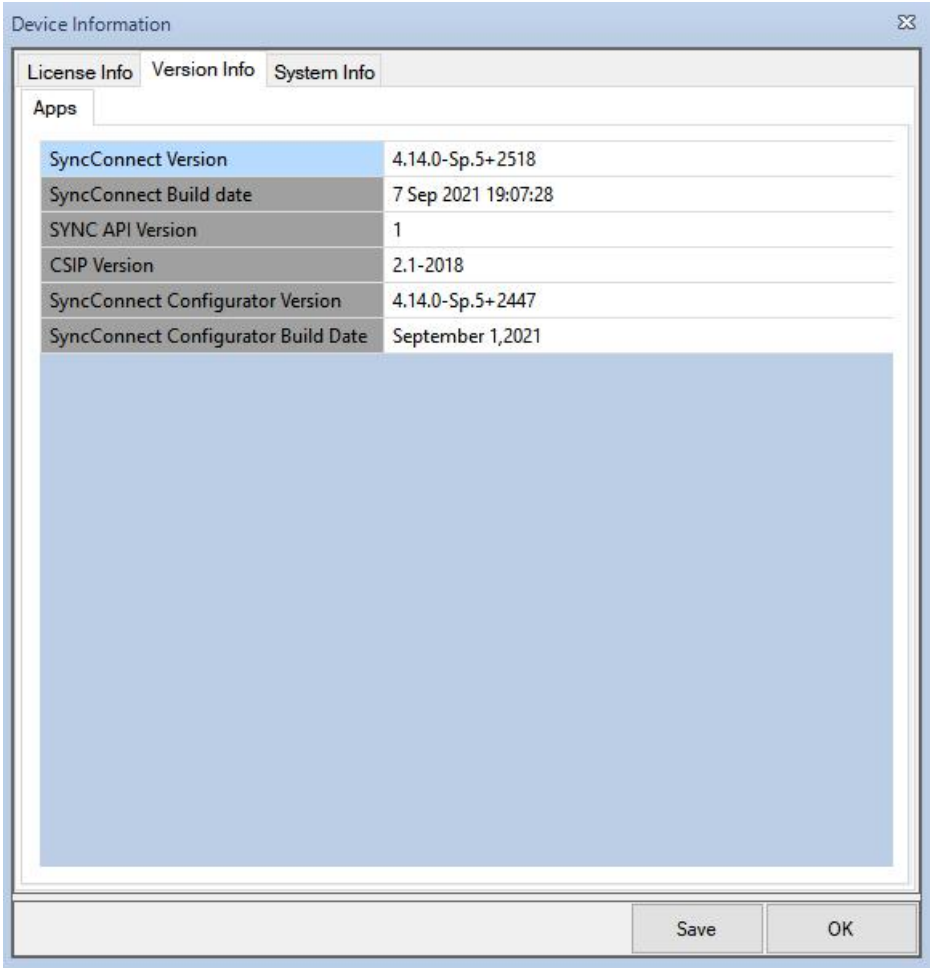


You should get following prompt. KIOE will restart after this operation. Wait for a minute and move to next step.



This step verifies **KIOE version**. In SCT toolbar go to **Settings -> Version Information**. Provide IP for KIOE host and press OK.

If you get version for software in **Version Info** tab, this confirms successful installation of KIOE Licenses.
You can get more information about licensed protocols in **License Info** tab.



Appendix A

KIOE linearly consumes more resources as number of tags in operation increase. Following Sections provides Compute resources required for tag counts.

A.1 Tag count to EC2 Instance type

Following table gives tag count to instance type. It is recommended to use t2 instances for most workloads. Same t3 instances can be used for workloads requiring high network throughput.

Serial Number	Tag Count	Instance Type	Instance Type (with ICCP or IEC 61850)
1	0 - 500	t2.micro	t2.small
2	500-1000	t2.small	t2.medium
3	1000-2000	t2.medium	t2.large
4	2000-5000	t2.large	t2.xlarge
5	5000 - 10000	t2.xlarge	t2.2xlarge

A.2 Tag count to ECS Memory and Process units

Following table gives CPU and RAM units required in ECS containers

Serial Number	Tag Count	CPU(Units)	RAM(MB)	ICCP and IEC 61850 tags	
				CPU(Units)	RAM(MB)
1	0 - 500	512	512	1024	1024
2	500-1000	512	1536	1024	3048
3	1000-2000	1024	3048	2048	5120
4	2000-5000	2048	5120	3048	7168
5	5000 - 10000	3048	8192	4096	8192