**Report on “KAA IoT Platform”**

* What is KAA ?

Kaa is an IoT platform built on a modern cloud-native architecture and a fully customizable feature set. Kaa Enterprise addresses every aspect of IoT application enablement, from hardware-cloud integration and cross-device data exchange to personalized user experience.

* What are the KAA Features?
  1. Connectivity
     1. We can use standard, open protocols
     2. It has Encrypted channels to secure data
     3. We can connect directly or via Gateways
  2. Device Management
     1. We can add and manage device and their credentials
  3. Data Collection
     1. It can process structured and unstructured data
     2. We can configure data processing pipelines
  4. Data Visualization
     1. Interactive user dashboards
     2. We can customize dashboards and widgets
  5. Command Execution
     1. We can Execute commands remotely
     2. We can request current device status
     3. We can schedule message delivery
* What are the available Iot use cases?
  1. Industrial Iot
  2. Smart City
  3. Telecom
  4. Smart Energy
  5. Logistics
  6. Agriculture
  7. Automotive
  8. Smart Retail
  9. Healthcare
* What are the steps to get the understating of Kaa Iot Platform?
  1. Web Platform :-

We can sign up to their portal (<https://www.kaaproject.org/>) and see a demo of Building management System.

* + 1. Need to generate a token to login to BMS
    2. We can add a device and save the details.
    3. Through the web interface we can operate that device. This web-based thermostat that simulates an actual device by connecting to the Kaa platform via MQTT over Web Socket right from our browser.
    4. As of now they provide only BMS demo. To get the understanding of other Systems, we need to raise a request. Then they will give in-person demo.
  1. Sandbox :-

To run the Kaa Sandbox, your system must meet the following minimum requirements:

* 64-bit OS
* 4 GB RAM
* Virtualization enabled in BIOS
  + 1. We can install sandbox from (<https://www.kaaproject.org/community-edition/>)
    2. We would need Virtual box to run this sandbox which is an OVA (Open Virtual Appliance) image file.
    3. We can download Oracle VM form (<https://www.virtualbox.org/wiki/Downloads>), select the right host for your system and download.
       1. Keep the default setting and install
    4. Open the downloaded Kaa sandbox OVA extension file, keep the default setting and import it in VM.
       1. In VM go to the settings of “ Kaa Sandbox Ubuntu “ and
          1. Allocate 50% of your memory in “System>Motherboard” tab
          2. Allocate 2 CPU under “System>Processor ” tab
          3. Enable “Network Adapter and choose “Bridged Adapter” so that sandbox can be accessed from your host system.
          4. One these setup are done start the application
       2. After running the application successfully you will get a message on this screen, in my case it is “ The Kaa sandbox web interface is available at <http://192.168.1.7:9080/sandbox> “. If you have selected NAT network type then the above URL will be <http://127.0.0.1:9080/sandbox> .
       3. Open the above url in your browser, it will show all the available demo application and the available
       4. Login to the Kaa VM : Username – kaa, and password – kaa
    5. From the web interface you can go to any demo application and download the “Binary file “of your preferred platform for eg: java, c, c++ etc.
    6. For example download “Data collection demo “app for java platform.
    7. Run it using “ java –jar “jar filename”
    8. To login to Administration UI : username : devuser, password: devuser123 ( role – developer)
    9. Use username : admin, password : admin123 to get admin access
    10. You can configure log appenders and control the application through admin access.
    11. To save the logs you can setup mongo db or rest api etc.
    12. We can login to mongo shell and see all the collection which got saved when we launched the “Data collection demo application”
* What are the next steps?

As of now we are able to customize the backend. For example by default data will be saved in the mongo db installed in the Kaa VM. Now we can configure it through admin section and save it in mongo db installed in host system. We can also configure a custom REST API which will be served.

So now how can we customize the application to our expectation is the main challenge. And then adding our custom devices and getting the data from that would be the next steps.

* Conclusion

After going through the Kaa documentation, watching their youtube channel videos and some other sources I have found that it is very huge platform. They have limited free demos available on their web platform, but that are something which we can adopt, like interface and flow. Their sandbox which have more demo application, almost all of them are not supporting in recent library versions which we are using for eg: Ios apps, java binary apps.