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DEMAND GENERATION

SENZMATE

DevicePulse.AI

User Manual

[V 5.4.9]

SENZMATE

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Introduction to DevicePulse.AI

In the rapidly evolving Internet of Things **(IoT)** landscape, delivering high-quality and reliable devices is key for companies to remain competitive, especially those offering IoT solutions to monitor and alert on critical situations, such as those encountered in hospital ICU departments. Proper maintenance of these devices is vital as it directly affects their performance, safety, and client satisfaction. Without rigorous continuous monitoring IoT devices are more likely to have defects, perform unreliably, and fail to meet consumer expectations. To address the challenges faced by IoT companies in delivering high-quality and reliable devices, Senzmate has developed an AI-driven platform, DevicePulse.AI This platform provides a comprehensive solution that integrates seamlessly with IoT and connected technology, enhancing testing and monitoring capabilities.

The solution can be set up in five easy steps:

- **Step 1 - Connect Data Stream**
  - ❖ Devices connected to various IoT platforms such as SenzMatica, Azure IoT and AWS IoT (Q3 2025) can be integrated with the DevicePulse.AI platform, allowing for streamlined data collection and analysis.

- **Step 2 - Define success criteria**
  - ❖ Users can define test cases according to their specific needs. Each test case can have a unique main test case with multiple sub-test cases to cover as many success criteria as needed. This flexibility supports and ensures thorough testing of all device functionalities.

- **Step 3 - Start monitoring**
  - ❖ This step enables users to perform two types of testing; **Production Feasibility Testing**, and **Continuous Testing**. For production feasibility testing, users must set a start and end time, and the testing will be conducted within that specified time frame. For continuous testing,

based on defined test cases, users need to schedule a time for report generation and notifications.

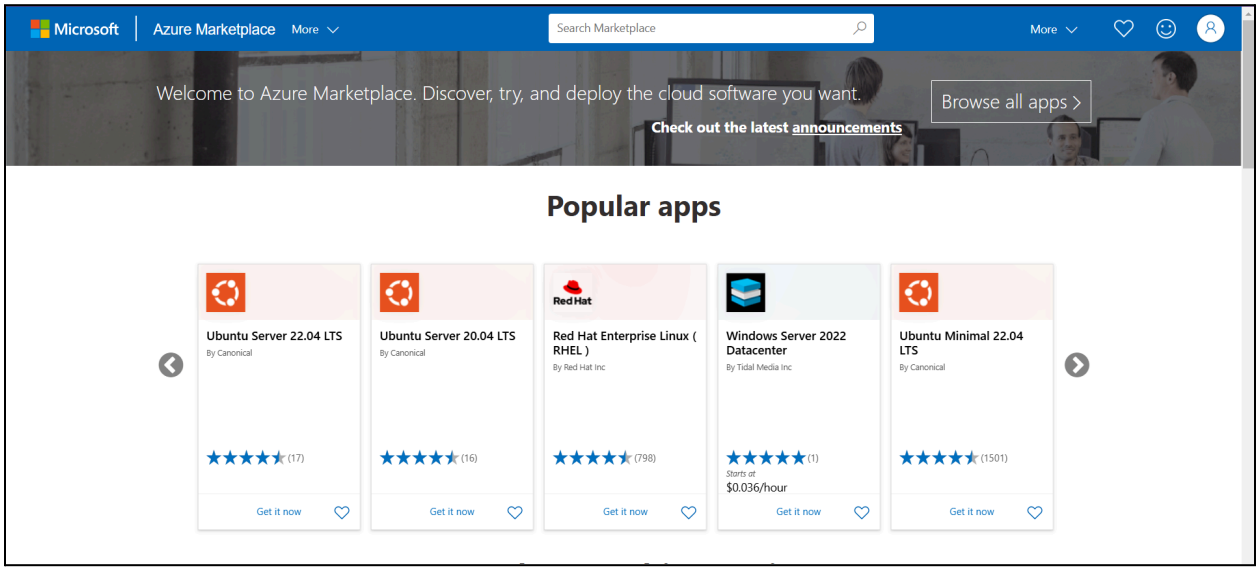
- **Step 4 - Root cause analysis**
  - ❖ The platform leverages AI algorithms to perform root cause analysis of the identified issues. This step provides insights into the underlying causes of defects, enabling more effective troubleshooting and resolution.

- **Step 5 - Knowledge Based Configuration**
  - ❖ The platform offers real-time conversational notifications about the status of the devices. This feature ensures that users are promptly informed of any issues, allowing for immediate action and resolution to establish this communication, users need to complete the configuration in this step, specifying the analysis name, uploading device-related knowledge, and providing API links to access data from the test devices for creating the required bot.

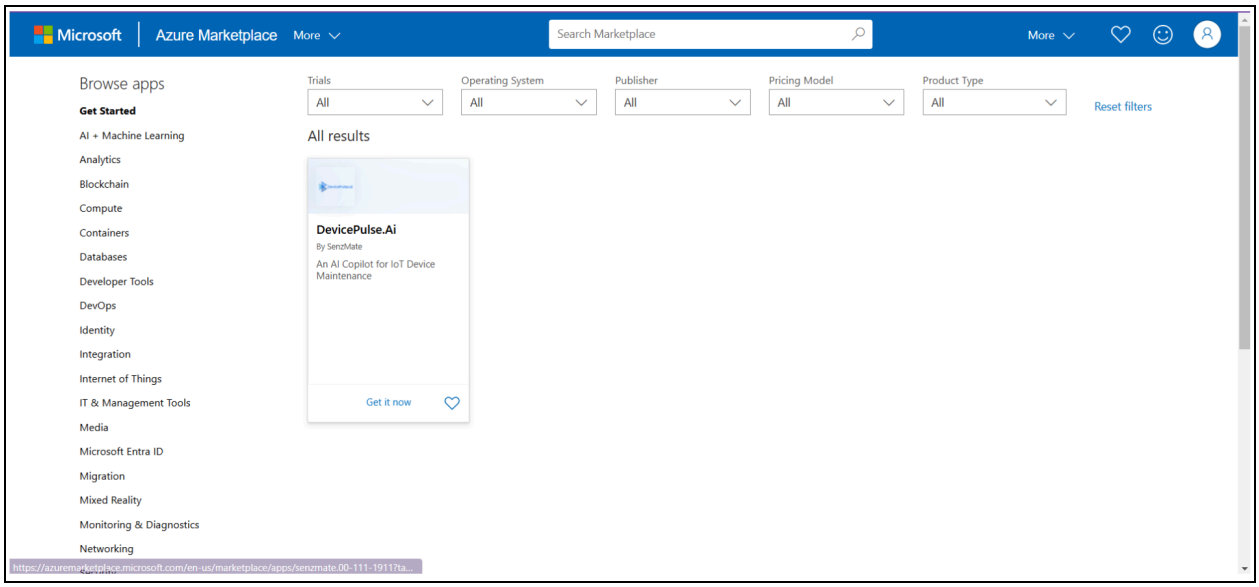
1.0 How to Subscribe to a DevicePulse.AI Plan on Azure Marketplace

Pre-requisites: If you don't have an Azure account, you need to create an account. To create a free account watch this How to create a free Microsoft Azure Account.

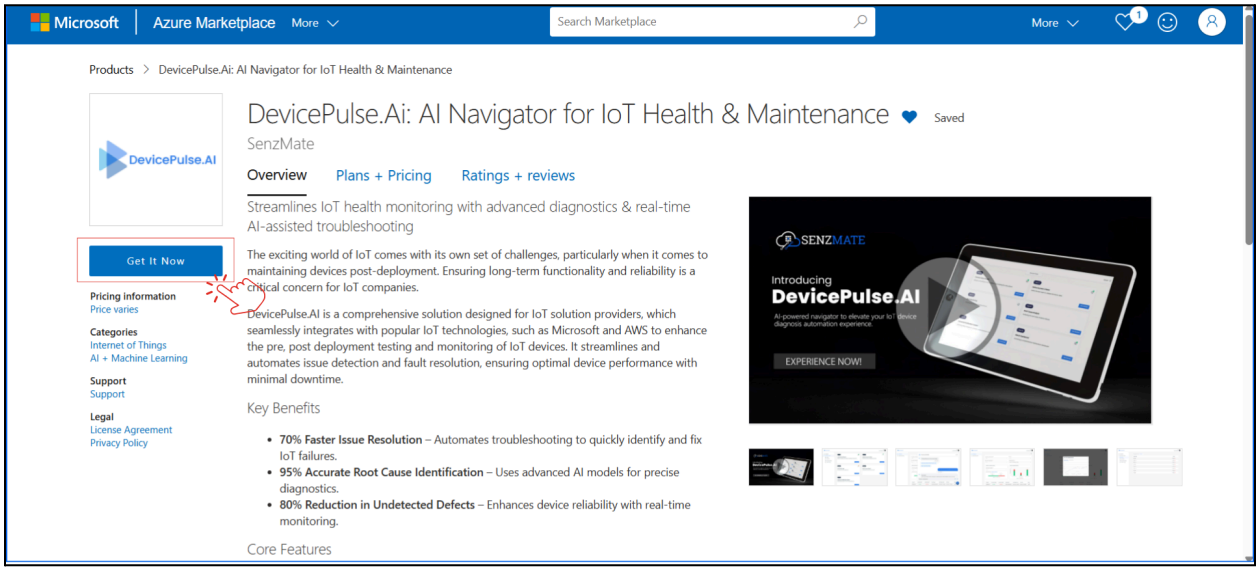
After creating your free account visit https://azuremarketplace.microsoft.com/en-US/ (Microsoft Azure Marketplace), where you can see the following page.



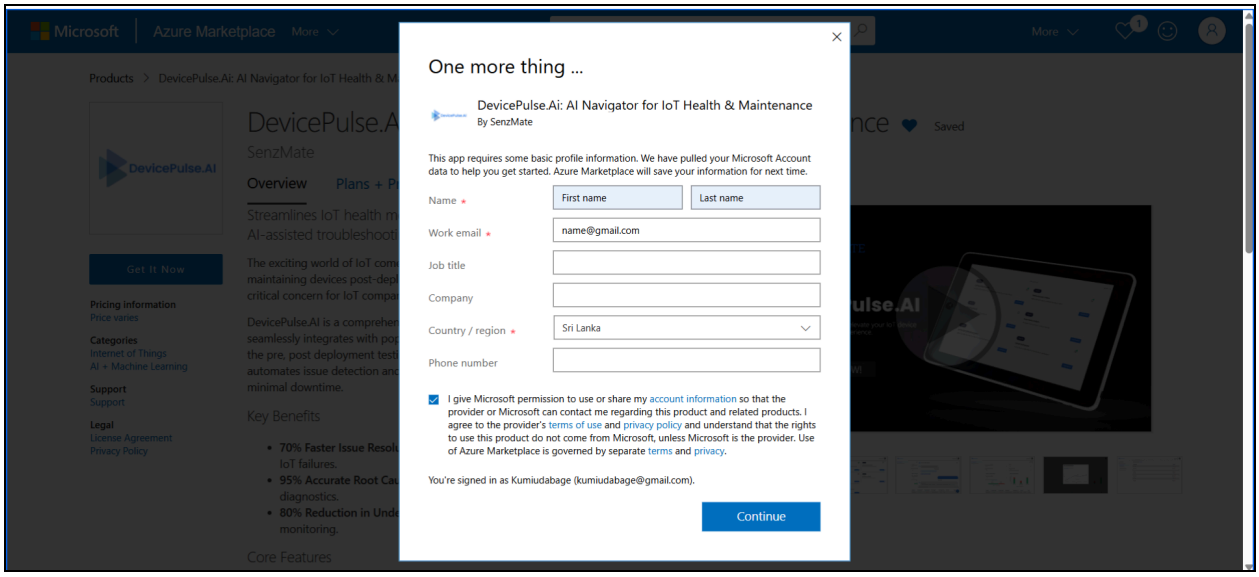
Search for ***DevicePulse.AI*** in the search bar. This will get the following page.



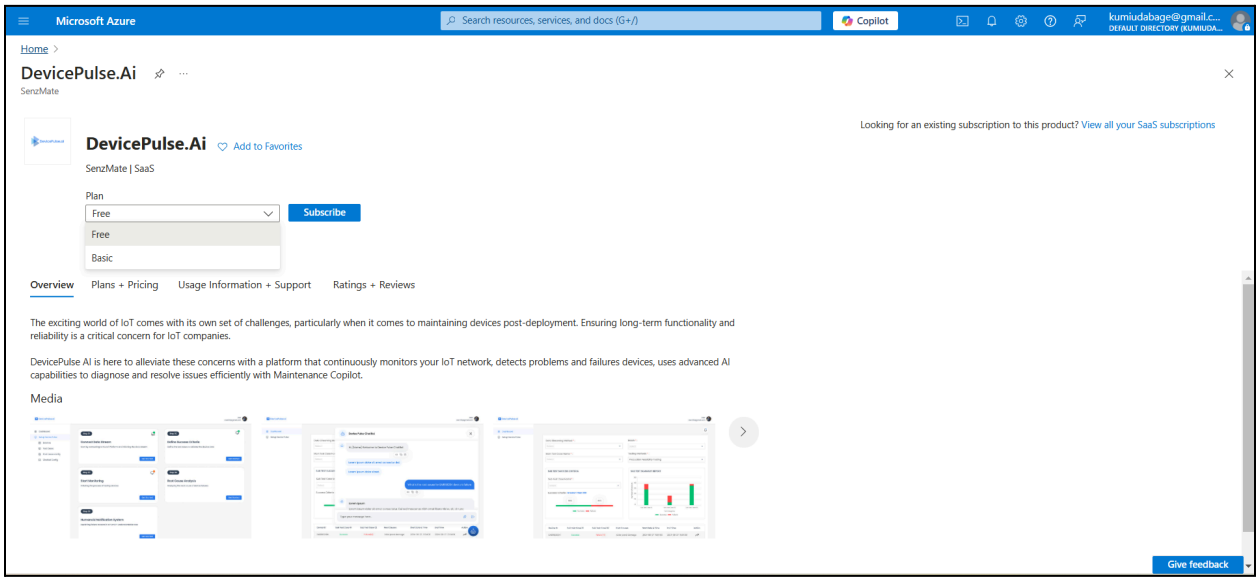
1. Select DevicePulse.AI You will be redirected to our main page as below.



2. A popup will then appear as shown below. Enter your **name**, **work email**, and **country.** After agreeing to the terms by ticking the checkbox, click the '*Continue*' button.



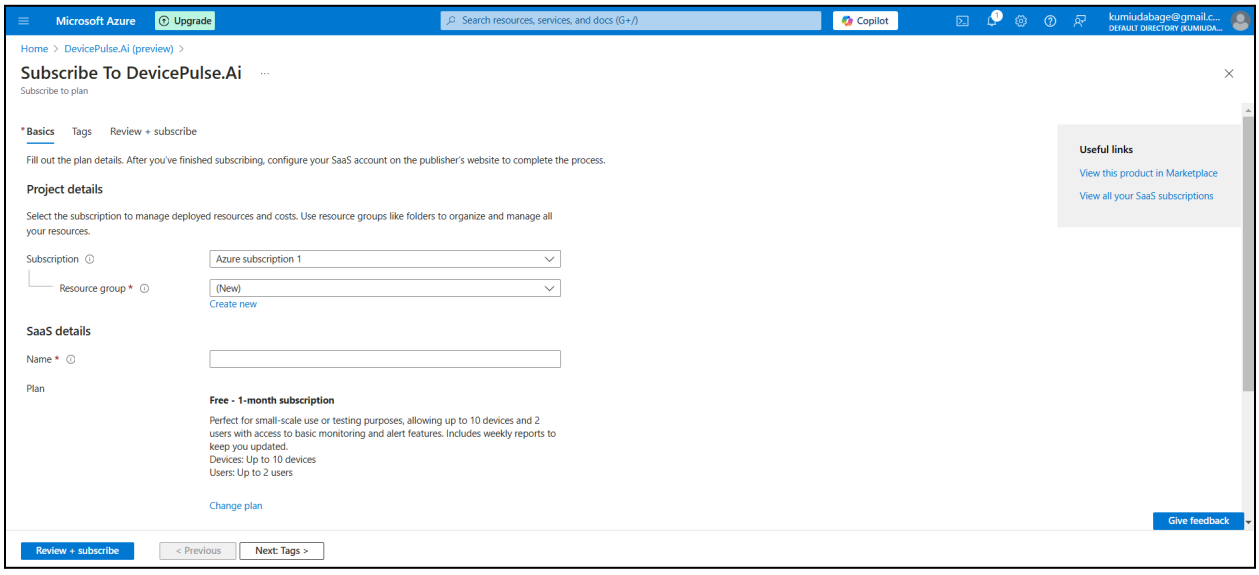
3. Next, choose the desired plan and click on the '**Subscribe**' button.



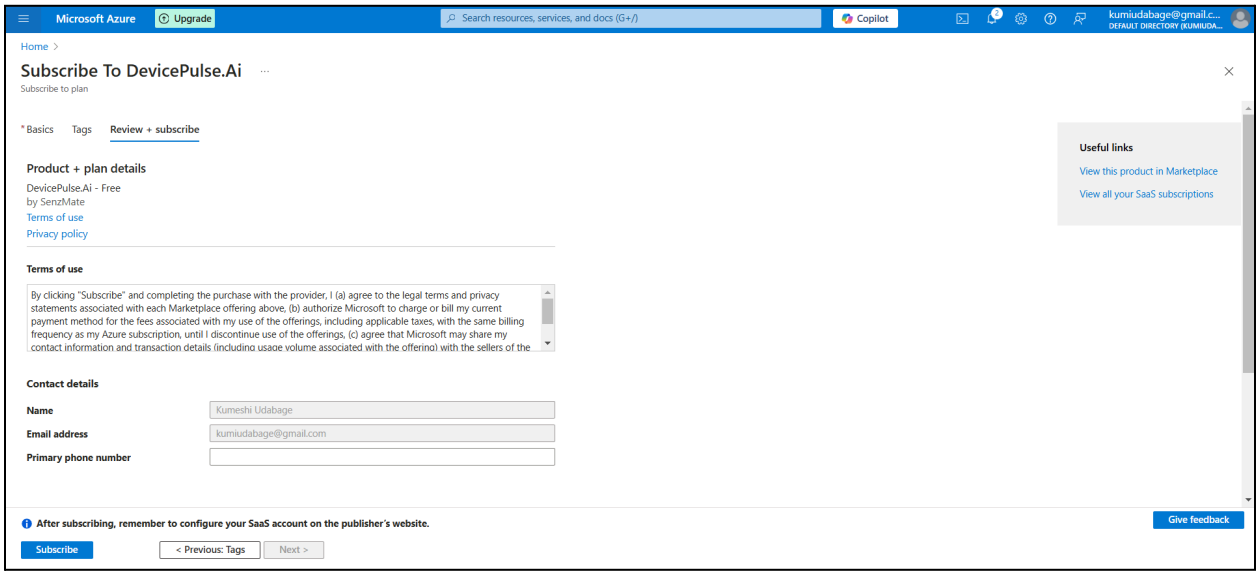
PC: According to the package you have selected the available features may be different. The following table shows the available features for each package separately.

Free	Basic	Premium
Onboarding up to 10 IoT devices	Onboarding up to 100,000 IoT devices	Onboarding up to 100,000 IoT devices
Setting criteria for failures	Setting criteria for failures	Setting criteria for failures
Getting instant failure alerts	Getting instant failure alerts	Root Cause Analysis / Chatbot access
Accessing failure reports	Accessing failure reports	Getting instant failure alerts with root cause
		Accessing failure reports including root cause analysis
		Feedback Record mechanism from the Field officer after the solution is given

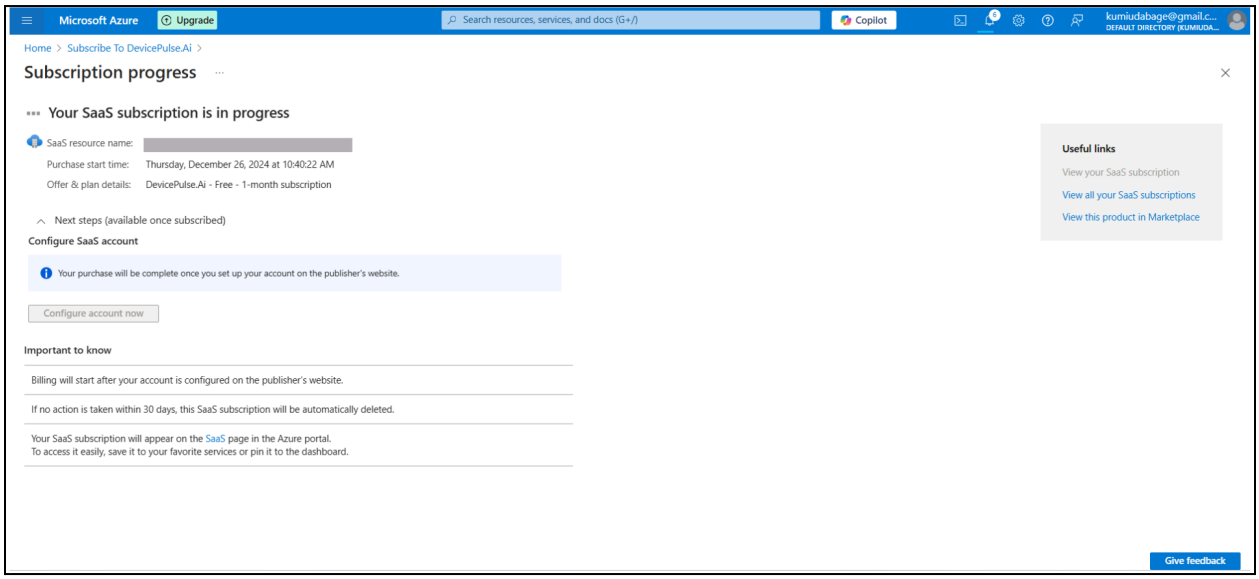
4. Then you will see the following screen. Enter a name under 'SaaS Details,' select 'Senzmate' as the Resource Group, and then click on **'Review + Subscribe'**.



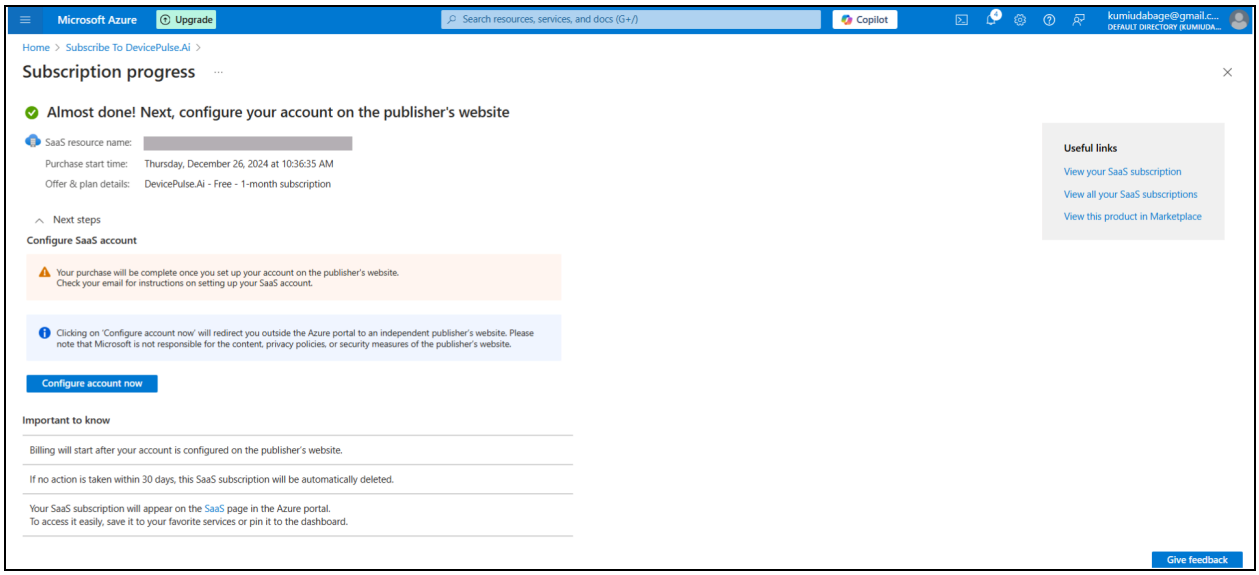
5. You will be redirected to the next page. Click the **'Subscribe'** button to continue.



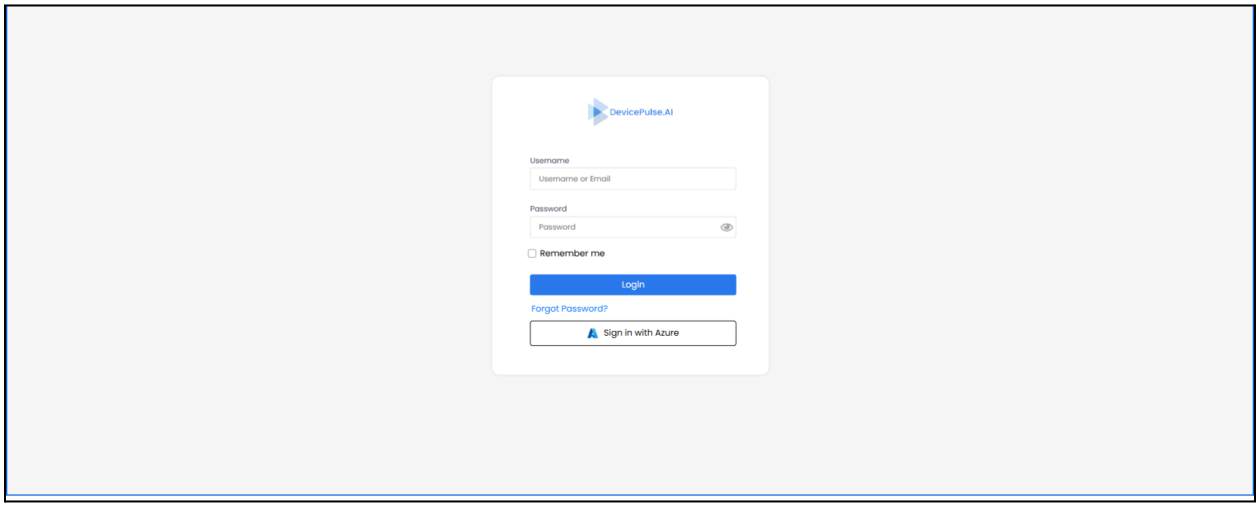
6. After that, you will be taken to the following page.



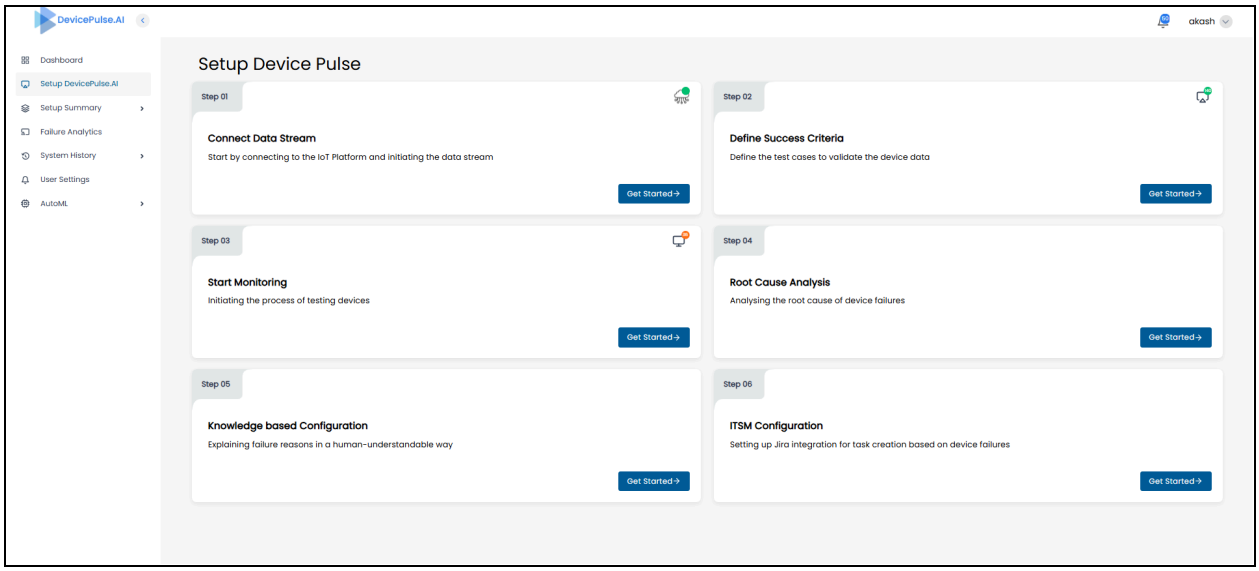
7. Once the SaaS subscription is successfully activated, the **'Configure Account Now'** button will become available. Click on it to proceed to the next step.



8. After you successfully select the package you need in the Azure Market Place and configure your account, you will be directly connected to our DevicePulse.AI platform login page.
9.

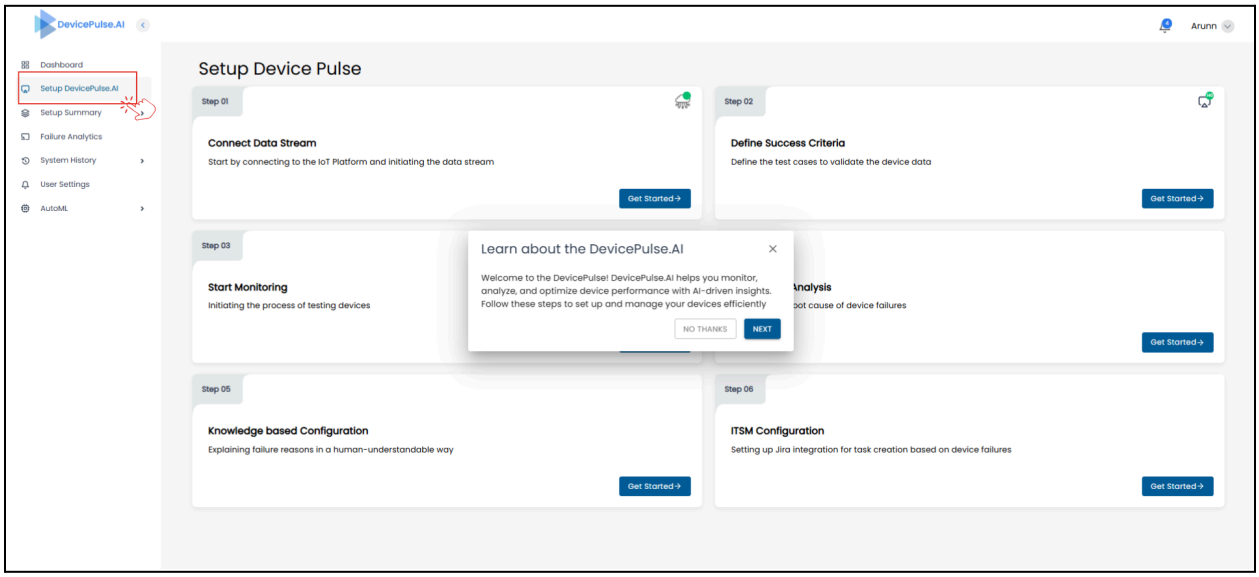


10. There you can click the "**Sign in with Azure"** option, and then you will be taken directly to the "**Setup DevicePulse.AI"** module as follows.

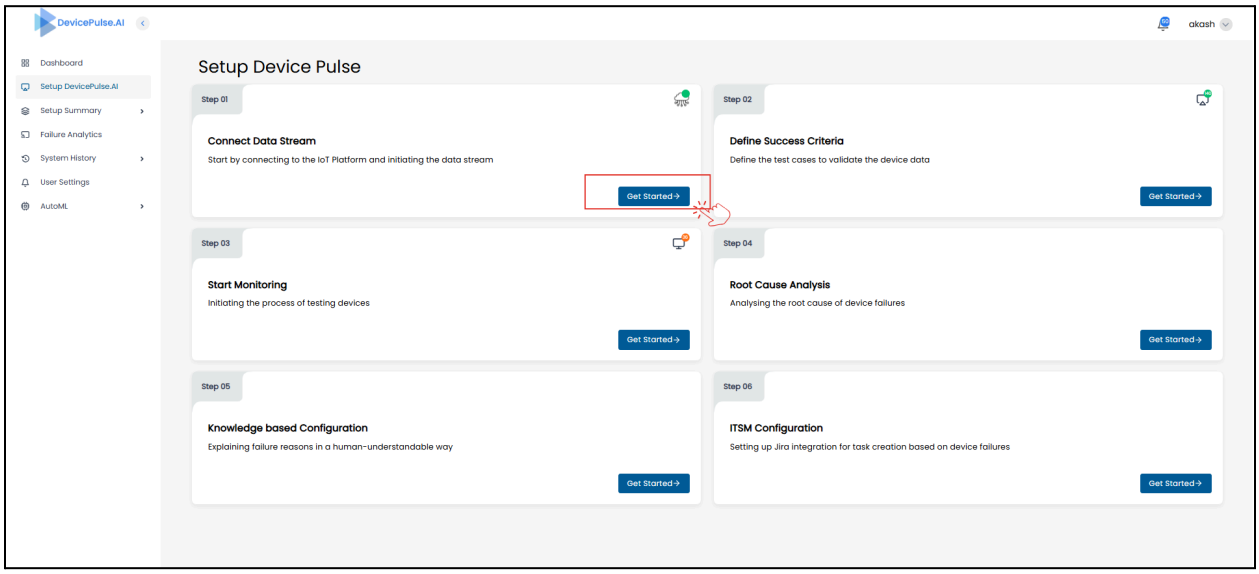


2.0 Connecting devices with DevicePulse.AI

1. As soon as you log in you will see the Get Started Guide. Please do follow this guide as it will provide valuable information when you do want to set up the system. When you are ready, click **“Setup DevicePulse.AI.”**



2. Then the following page will appear. Click the **Get Started** button in step 1. (Important: To connect with Device Pulse.AI and test your devices, ensure that they are onboarded already to either our SenzMatica platform or the Azure IoT platform.)

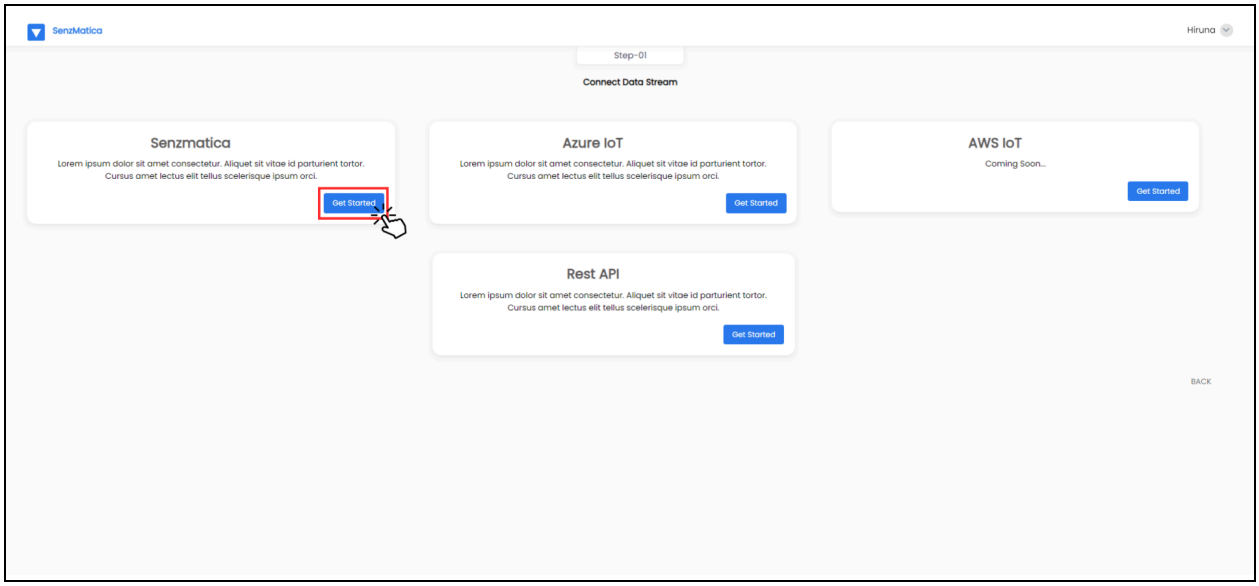


2.1 Connecting through SenzMatica

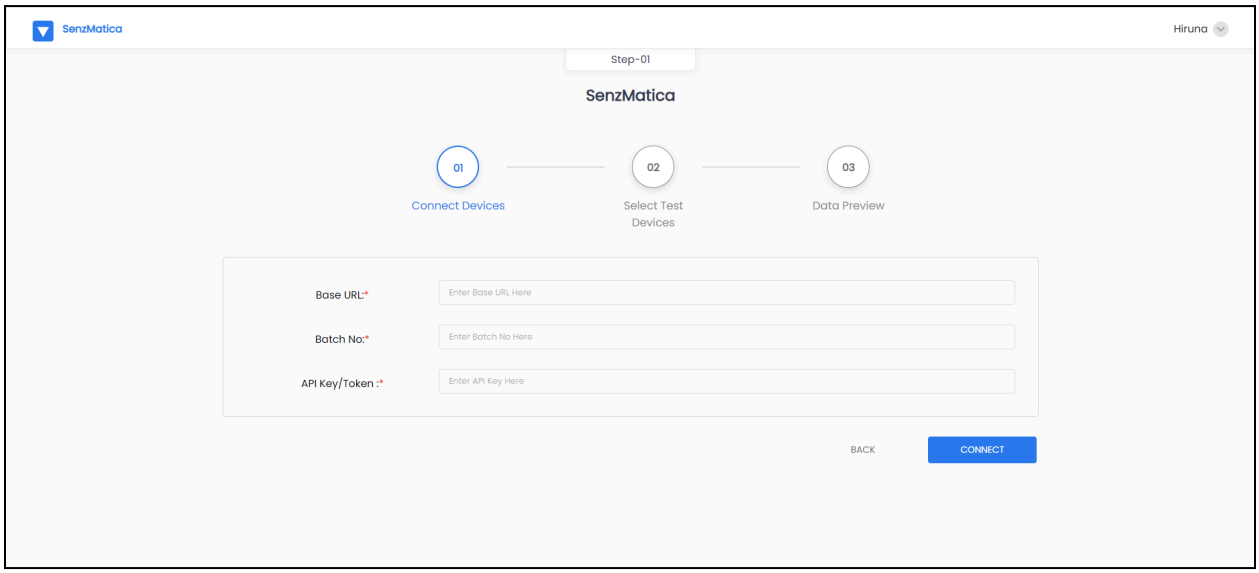
Pre-requisites: Make sure to onboard your devices to the SenzMatica platform first if you wish to use the SenzMatica data streaming option. To onboard devices to SenzMatica refer to this document. Onboarding devices to the SenzMatica platform

If your devices are connected to SenzMatica then follow the below steps.

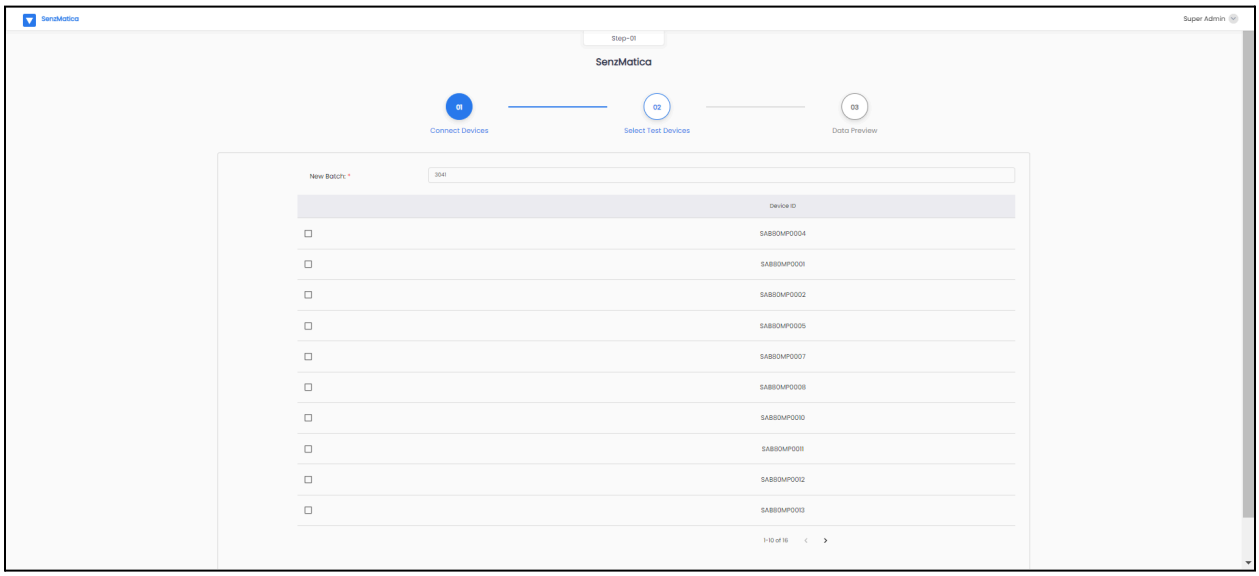
1. Click the **"Get started"** button in the SenzMatica option.



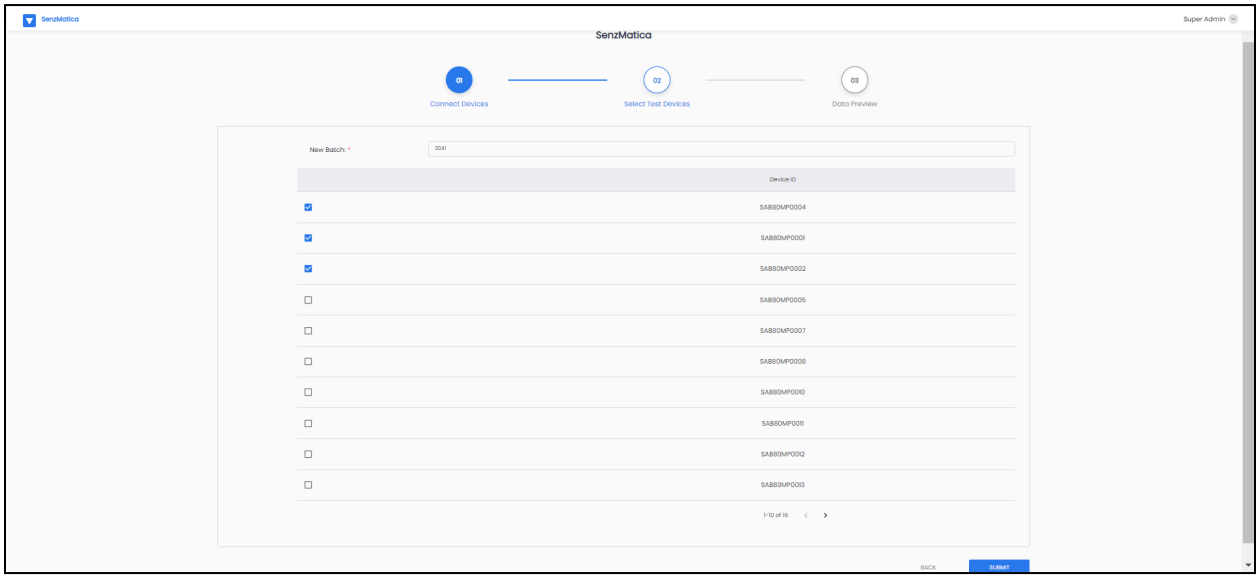
2. It will appear as follows, with three sub-steps. Enter the Base URL, Batch number (In the SenzMatica platform, devices are assigned to a specific batch), and API key/token associated with the SenzMatica platform where testing devices are connected.



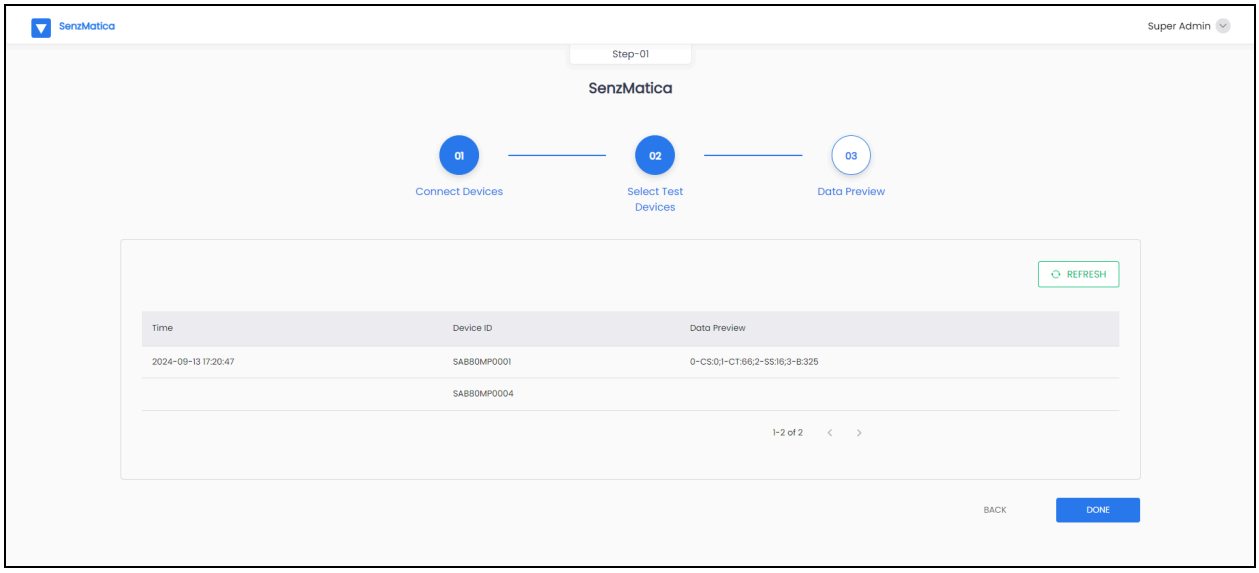
3. If all the entered details are correct, then in sub-step 2, all the devices under the previously defined batch will be listed.



4. You can select the devices you wish to test and rename them with a new batch number to identify that specific set. This batch number will be used in all subsequent steps to reference the selected devices.



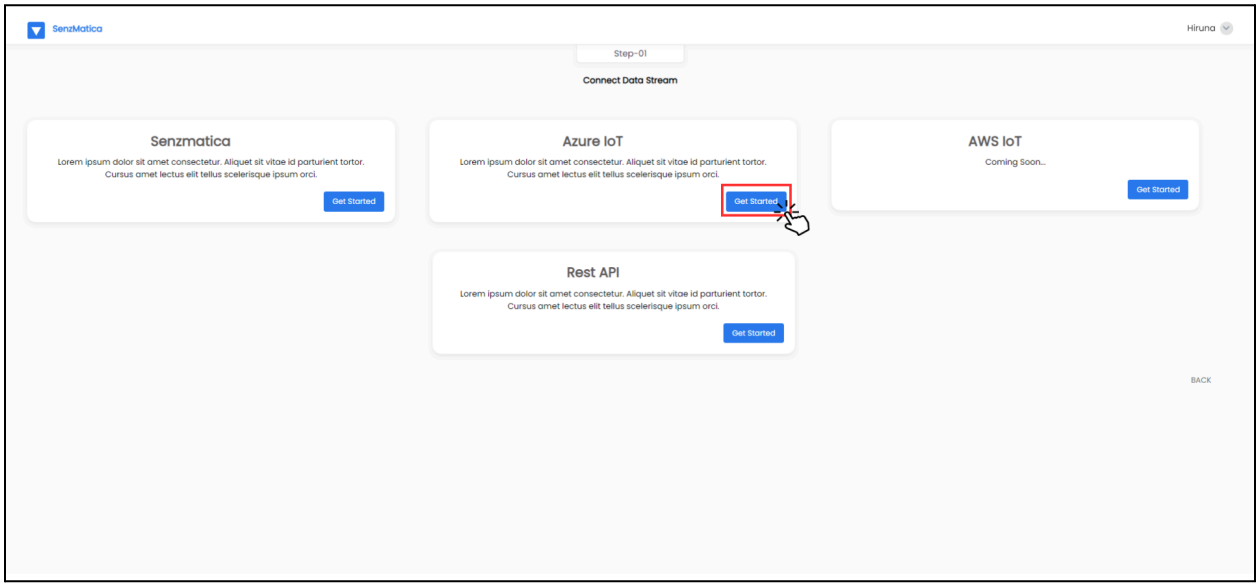
5. After submission, sub-step 3 will display the latest data for the selected devices, indicating that your test devices have successfully connected to the Device Pulse.AI platform.



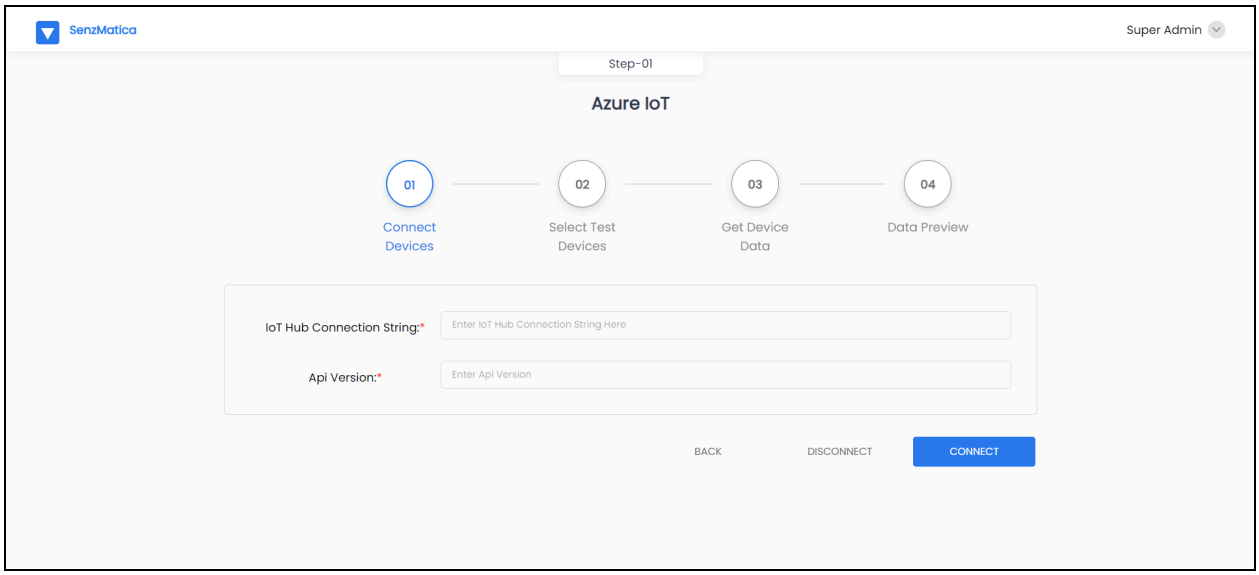
2.2 Connecting through the Azure IoT platform

If your devices are connected to Azure IoT then follow the below steps.

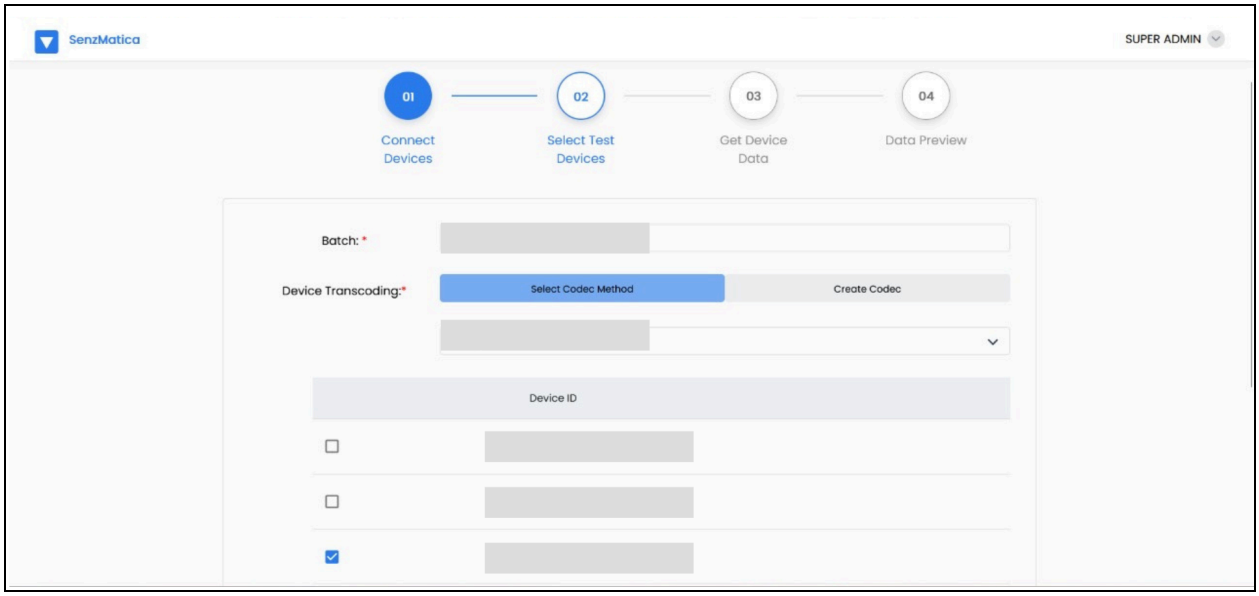
1. Click the **“Get Started”** button in the Azure IoT option.



2. It will show the screen as below with four sub-steps. In the first sub-step you need to enter the IoT hub connection string and API version where your testing devices are connected in Azure. Then click the **“Connect”** button.
3.

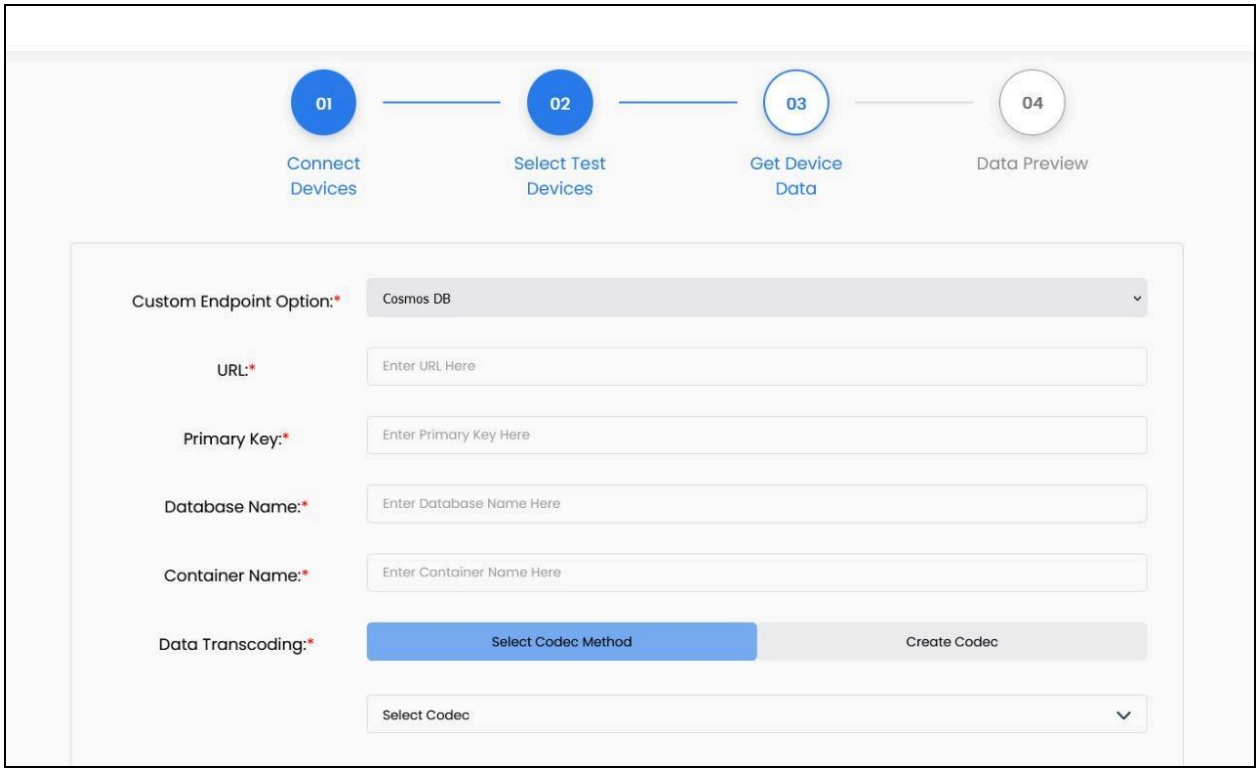


4. In sub-step 2 you need to select the exact test devices you are going to test through DevicePulse.AI. Enter a unique number for the test batch to identify the testing devices. Importantly here you should select a script file that is already created earlier or you need to upload a script file here including all the details of the test device category such as interval , persistence , sensors, actuators and connectivity protocol.
5. (Important: When creating a script file both class name and file name should be the same. The method should be **“Convert”**. The parameters passing to the method should be **“Object”**. Only the java.util library can be used. No outside libraries can be used.)

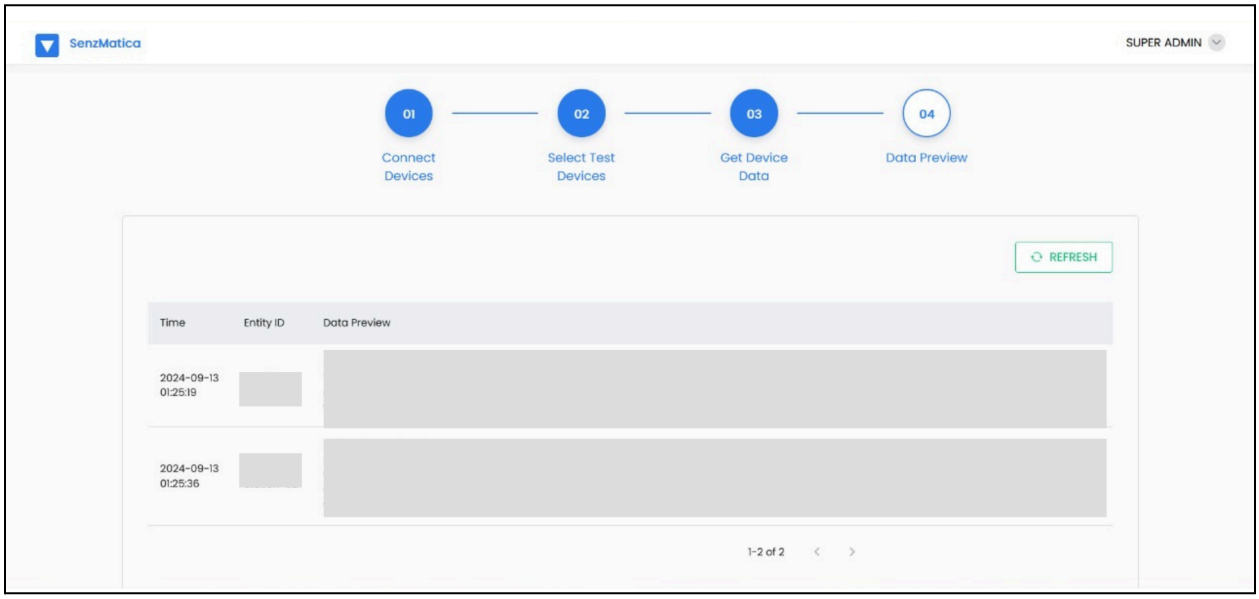


6. Then click the **"Submit"** button there and it will navigate to the sub-step 3(Get Device Data). It will appear as below. You need to choose the custom endpoint option.
   (Important: When creating a script file both class name and file name should be the same. The method should be **"Convert"**. The parameters passing to the method should be **"Object"** . Only the java.util library can be used. No outside libraries can be used.)

7. We are using Cosmos DB for now; enter the URL, primary key, database name, and container name and again select a codec file which was created earlier or create a new codec to change the data format of the devices.



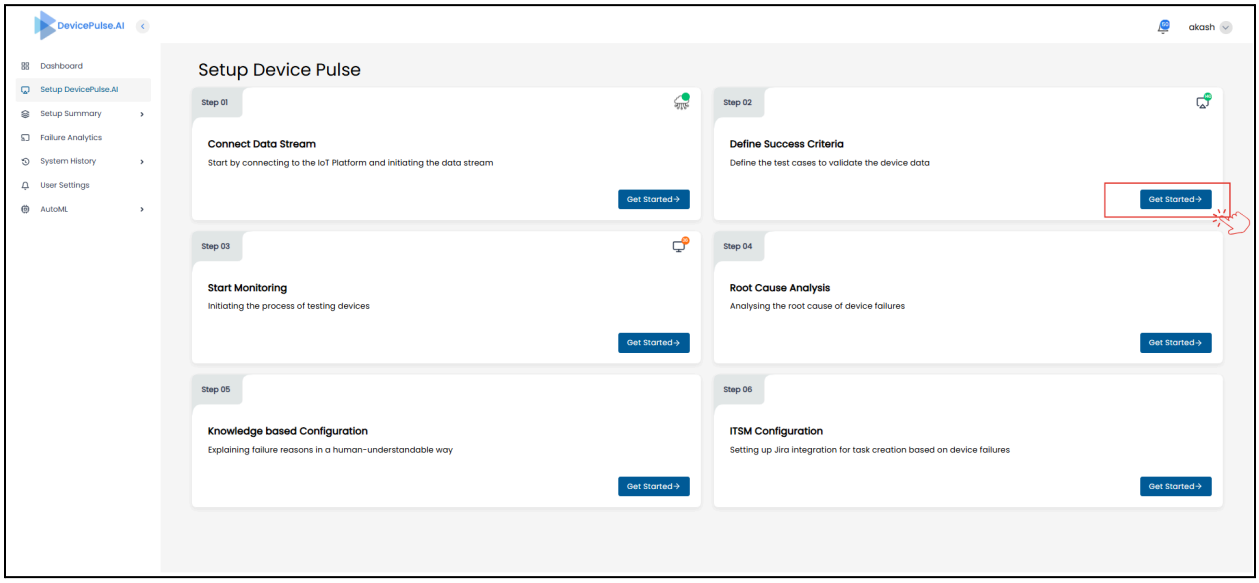
8. Click the **"Connect"** button thereafter adding the above details. If those details are correct, it will show the latest data of the selected devices as below.



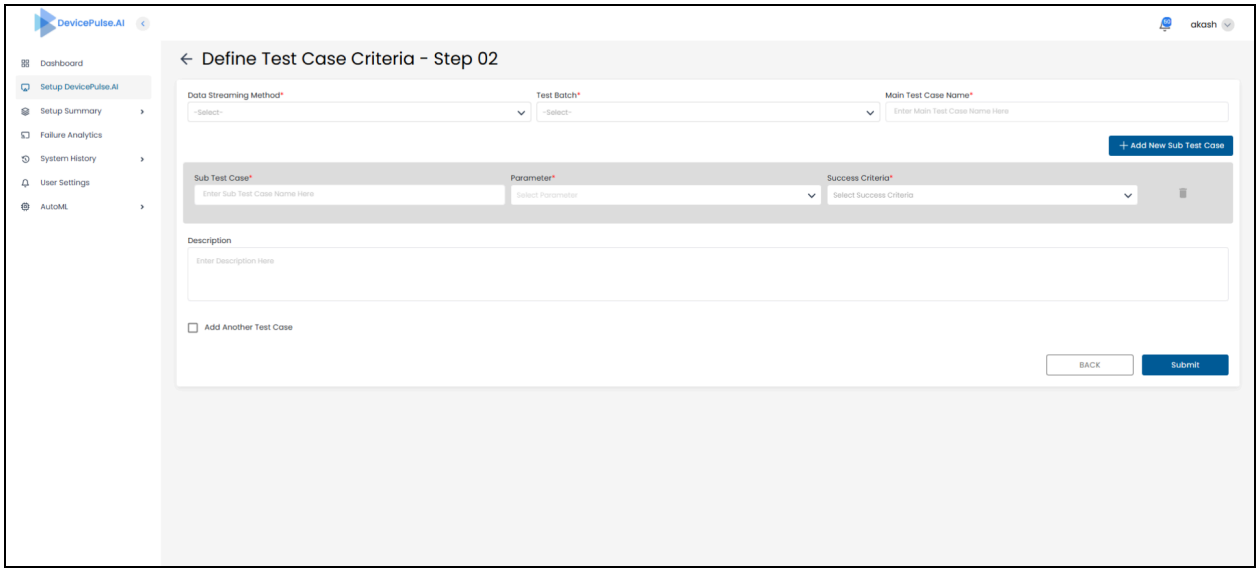
3.0 Defining Test cases and success criteria

Testing areas will vary depending on your device categories. Our platform allows you to create fully customizable test cases with success criteria tailored to your devices. Follow the steps below.

1. Click the **“Get started”** button in step 2(Define success criteria).



2. You will then see the following overview.

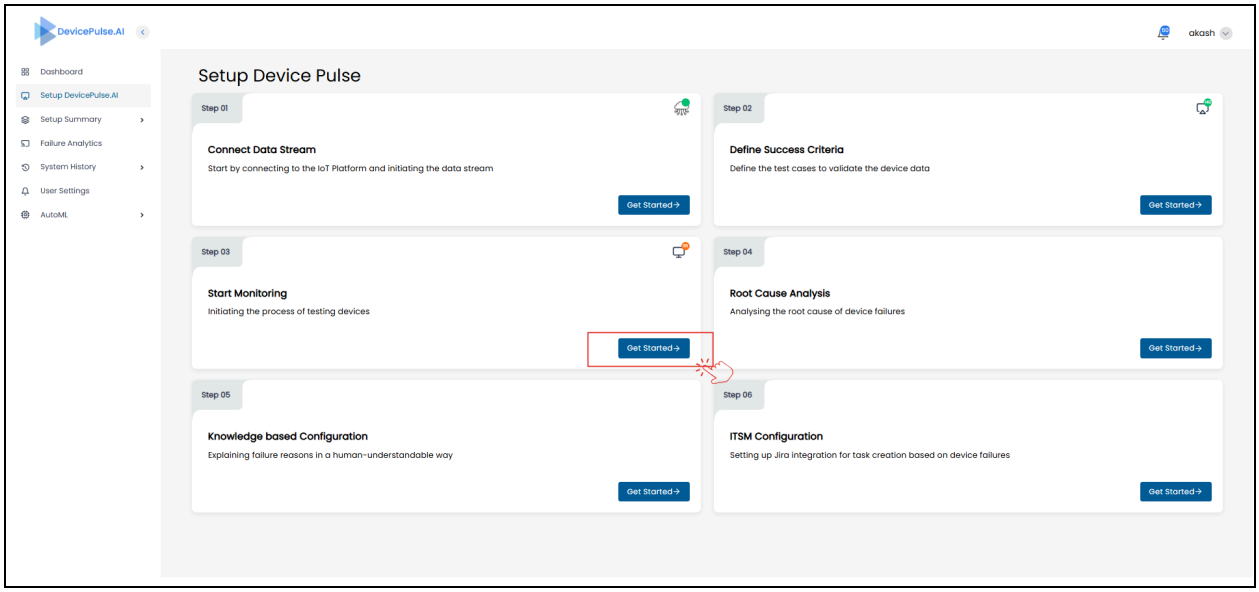


3. Select the data streaming method and the batch to which the testing devices belong. Next, define a main test case and any sub-test cases that fall under it. Multiple sub-test cases can be created under a single main test case. For example, if you need to test the battery and temperature of 'Category A' devices, you can create the main test case as 'Category A devices' and sub-test cases like 'Battery measurement' and 'Temperature measurement.' For each sub-test case, select the parameter where the device passes the value and define the success criteria.

   (Important: Under success criteria you can select any according to the devices and test cases.)

4.0 Start Monitoring

To begin testing or monitoring the performance of your devices, proceed with step 3.

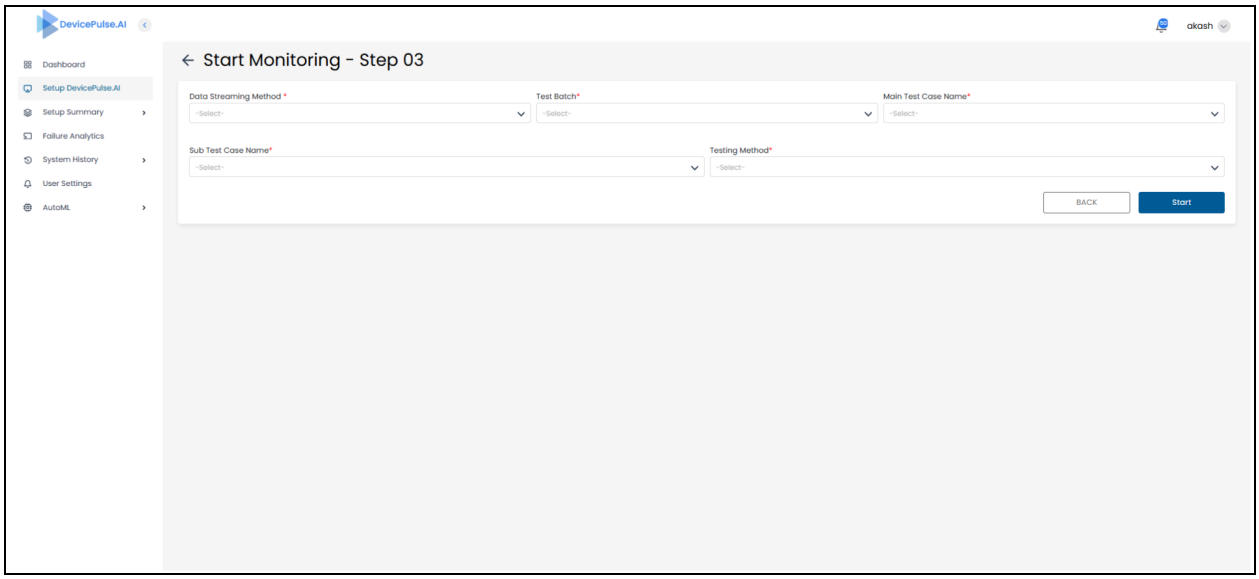


The DevicePulse.AI platform supports two types of testing: **Production Feasibility Testing** and **Continuous Testing**.

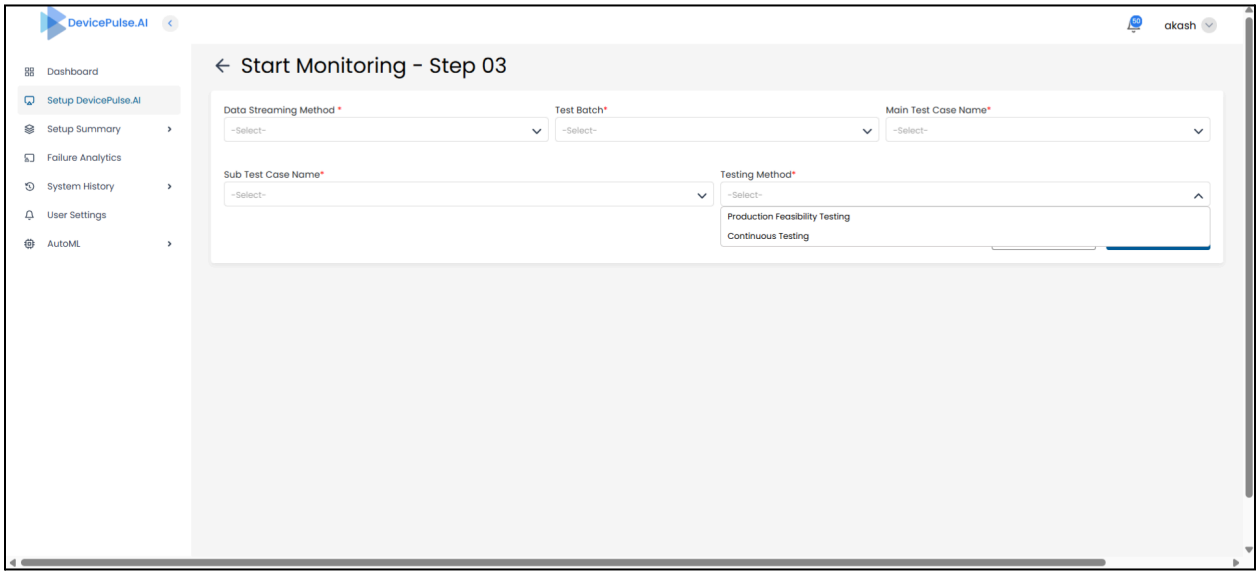
4.1 Production Feasibility Testing

Production feasibility testing refers to the testing process conducted over a specified period during the production phase, typically before deploying the devices. To perform production feasibility testing, follow these steps

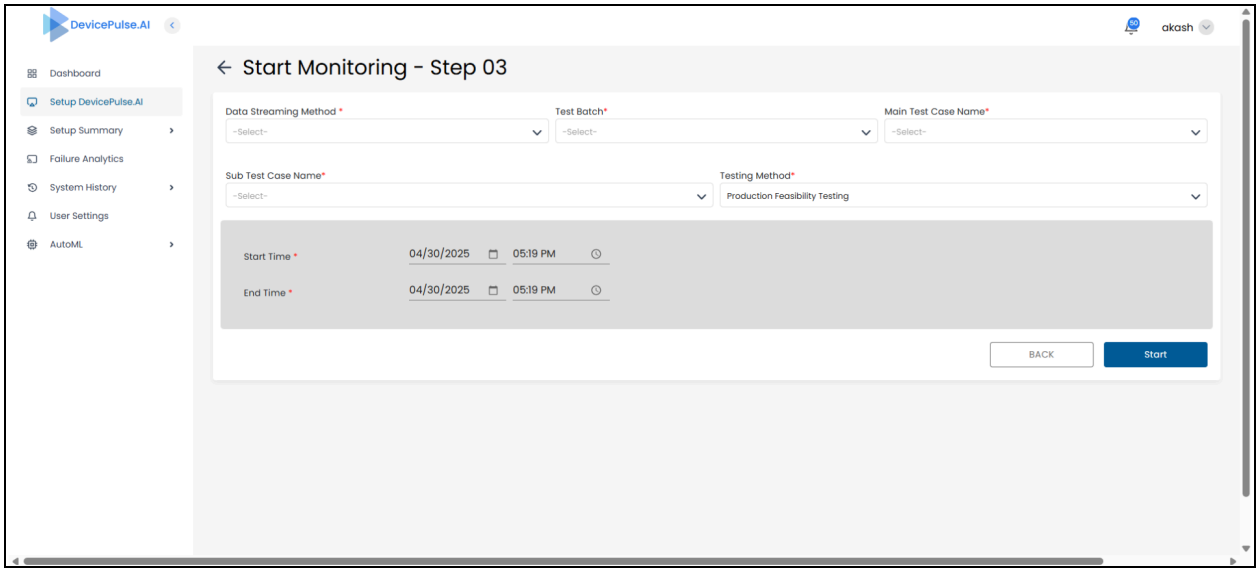
1. After clicking the **"Get started"** button, you will see the following page.



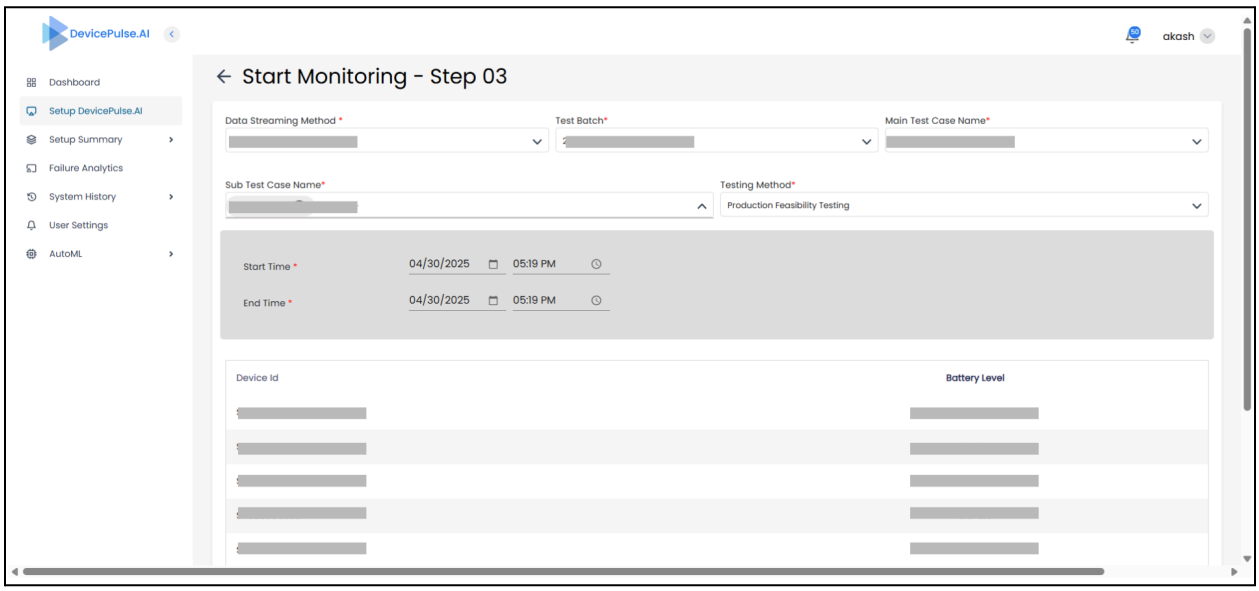
2. Select the data streaming method, test batch, main test case, and sub-test cases defined in the previous steps. You can choose multiple sub-test cases simultaneously. Then, under the testing method, select **"Production Feasibility Testing."**



3. Next, enter the start time and end time for the period during which you want to test your devices



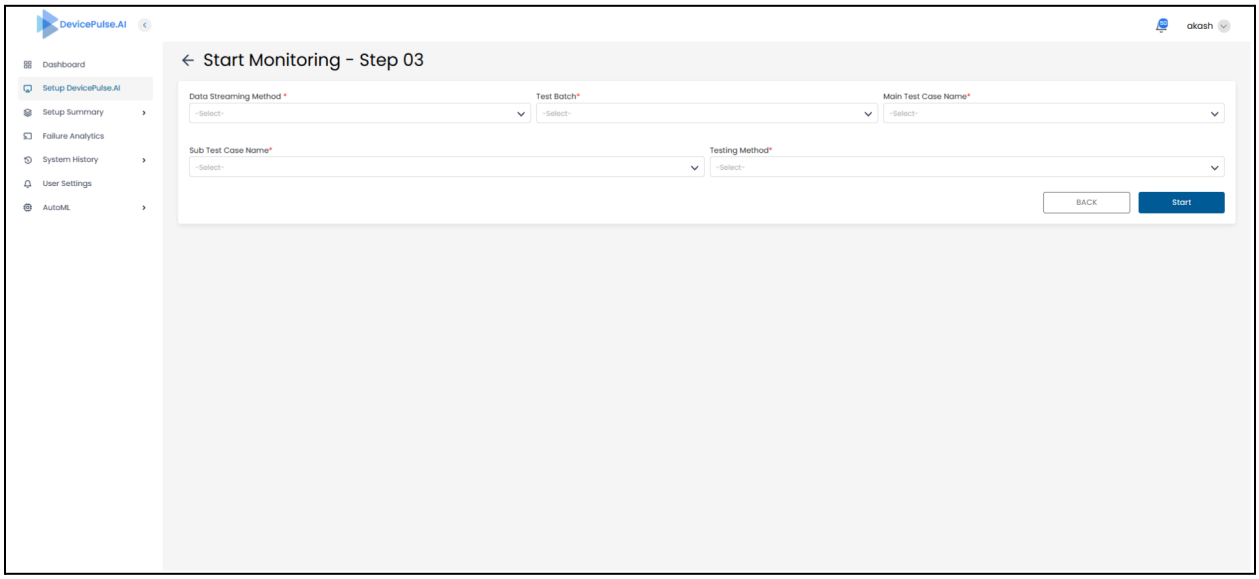
4. Then, for the selected sub-test cases and devices, you will see the defined parameter ranges.



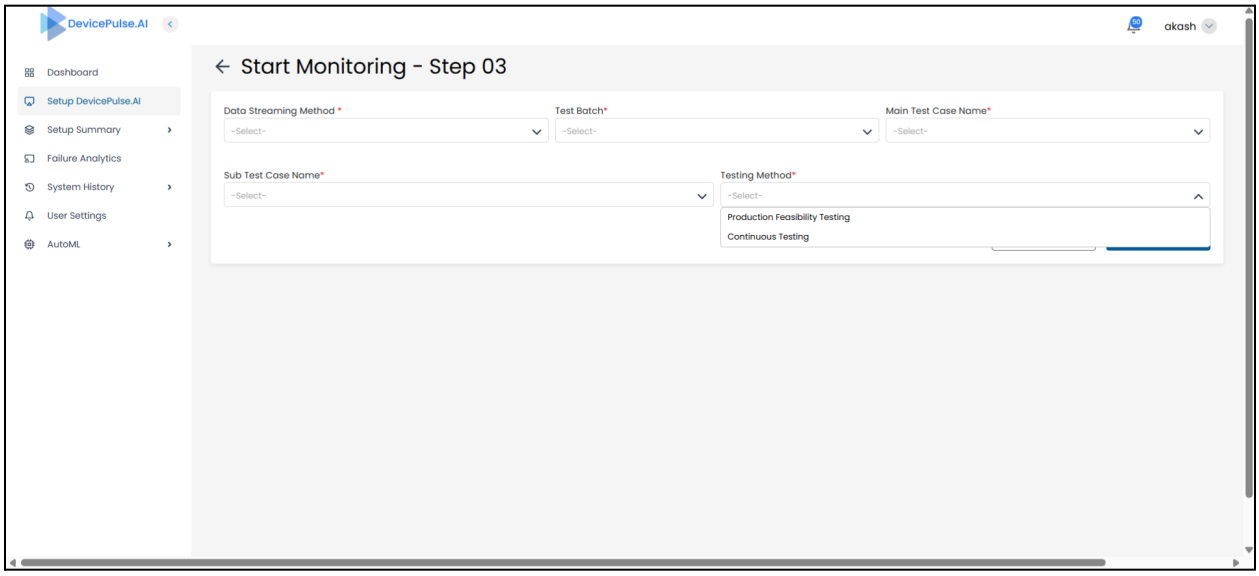
4.2 Continuous Testing

Continuous testing refers to an ongoing testing process where users receive reports and notifications at scheduled intervals. This type of testing is typically performed after devices have been deployed and are active to ensure they function correctly over time. To conduct continuous testing, follow these steps.

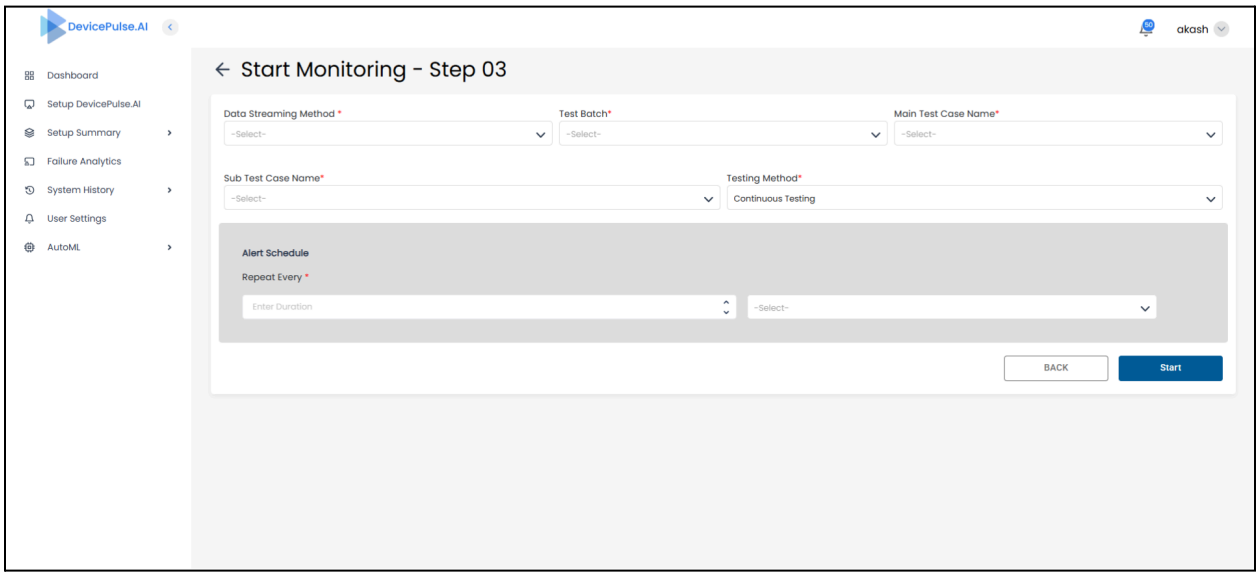
1. After clicking the **“Get started”** button, you will see the following page.



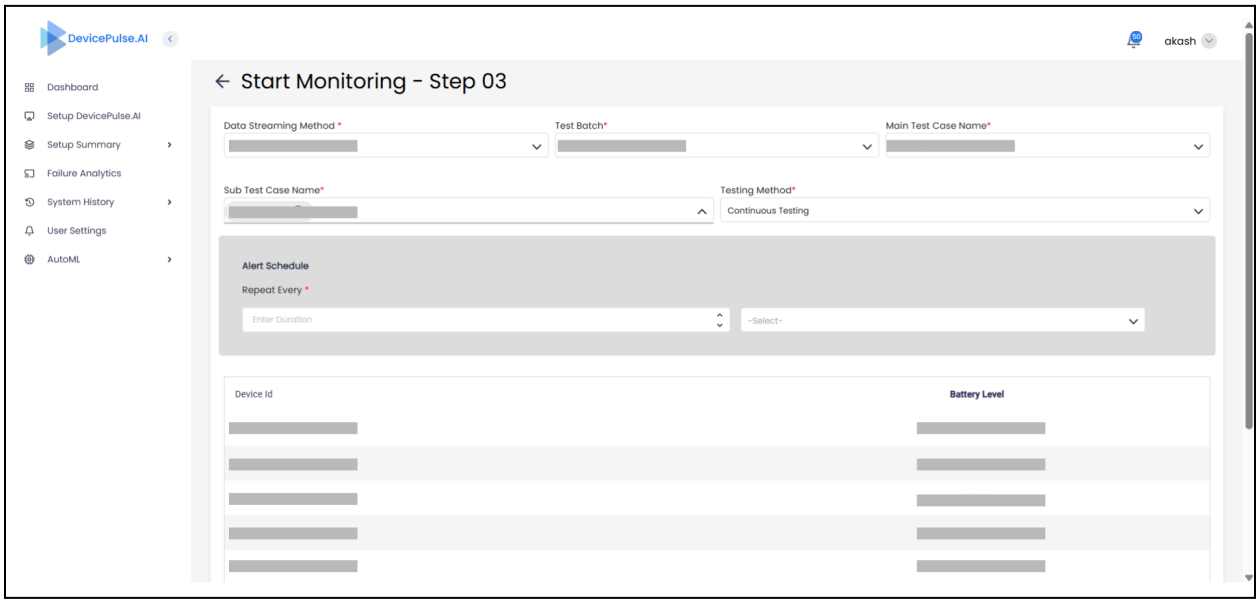
2. Select the data streaming method, test batch, main test case, and sub-test cases defined in the previous steps. You can choose multiple sub-test cases simultaneously. Then, under the Testing Method, select **'Continuous testing.'**



3. Next, enter the repeat interval to determine the duration during which you want to test your devices and send failure alerts.

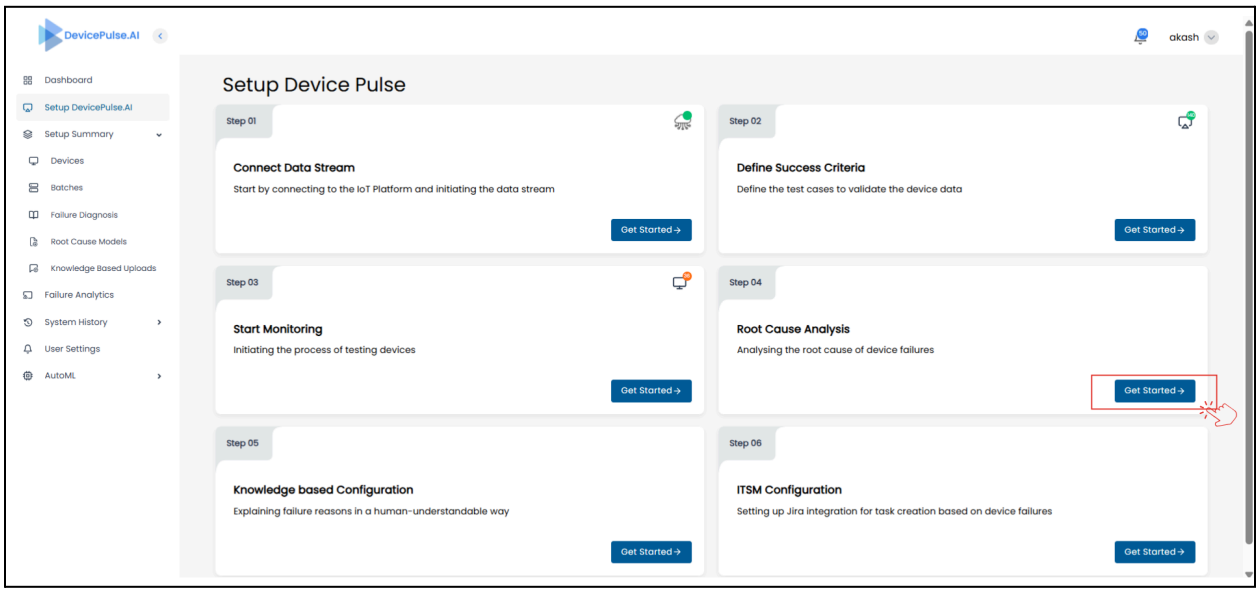


4. Then, for the selected sub-test cases and devices, you will see the defined parameter ranges.

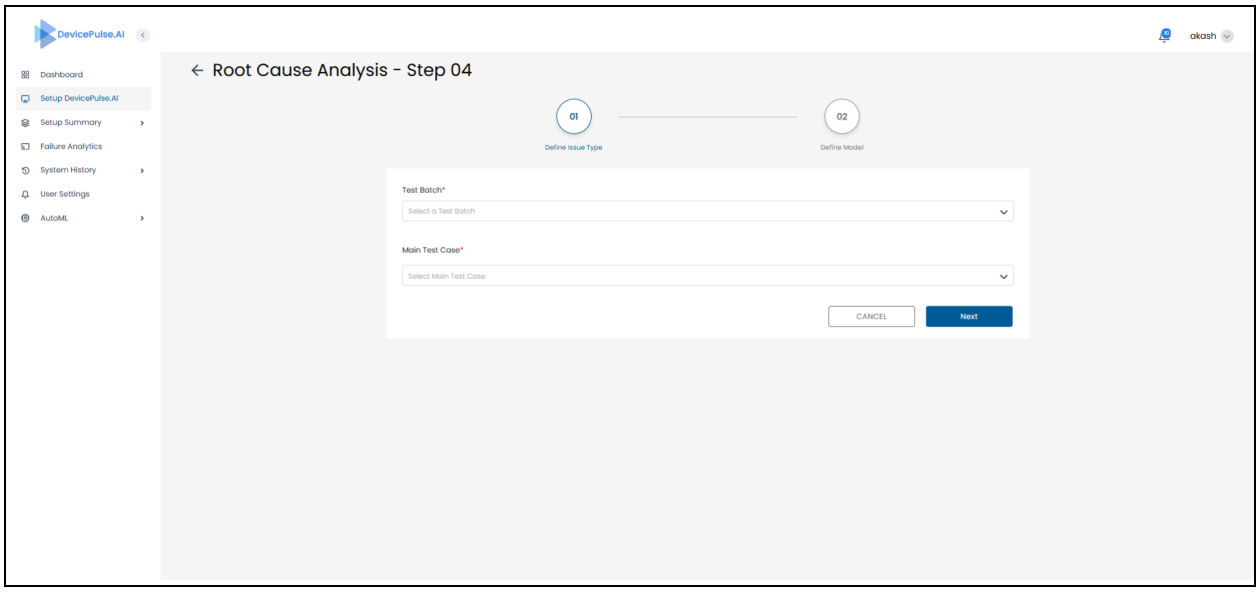


5.0 Root Cause Analysis

If you need to find out and get notified about the root cause of the failure, proceed with step 04.



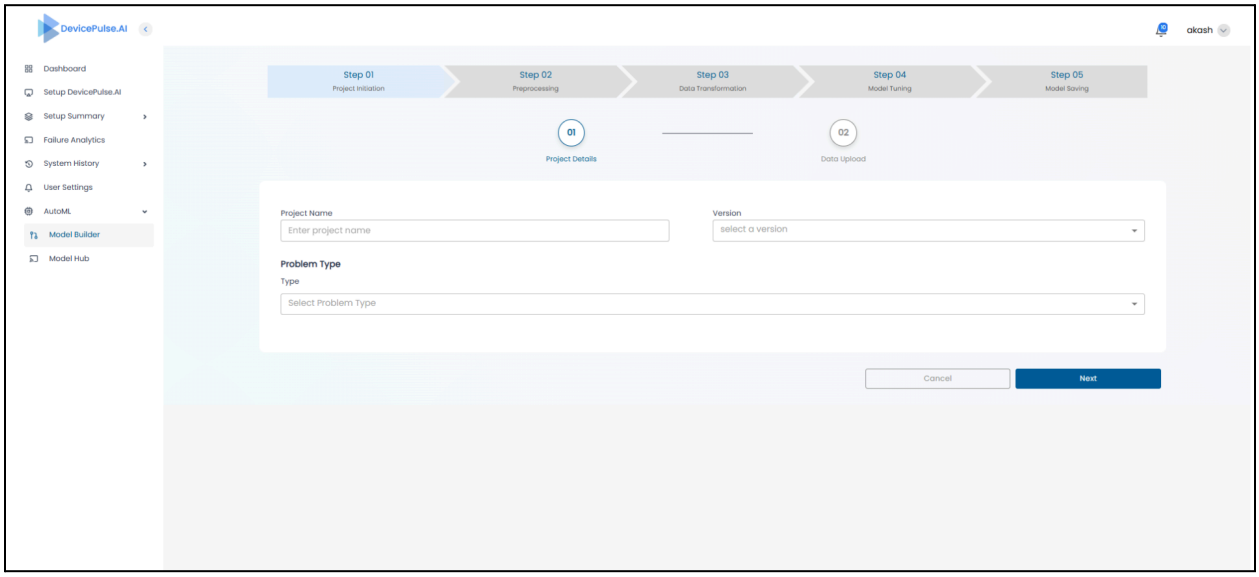
1. After clicking the "**Get Started"** button, you will navigate to the following page. Select the test batch that includes the devices for which you want to identify root causes. Under the Main test case drop-down, all the main test cases will be displayed related to the selected test batch. Choose one of them for which you want to identify the root causes and click "**Next**."



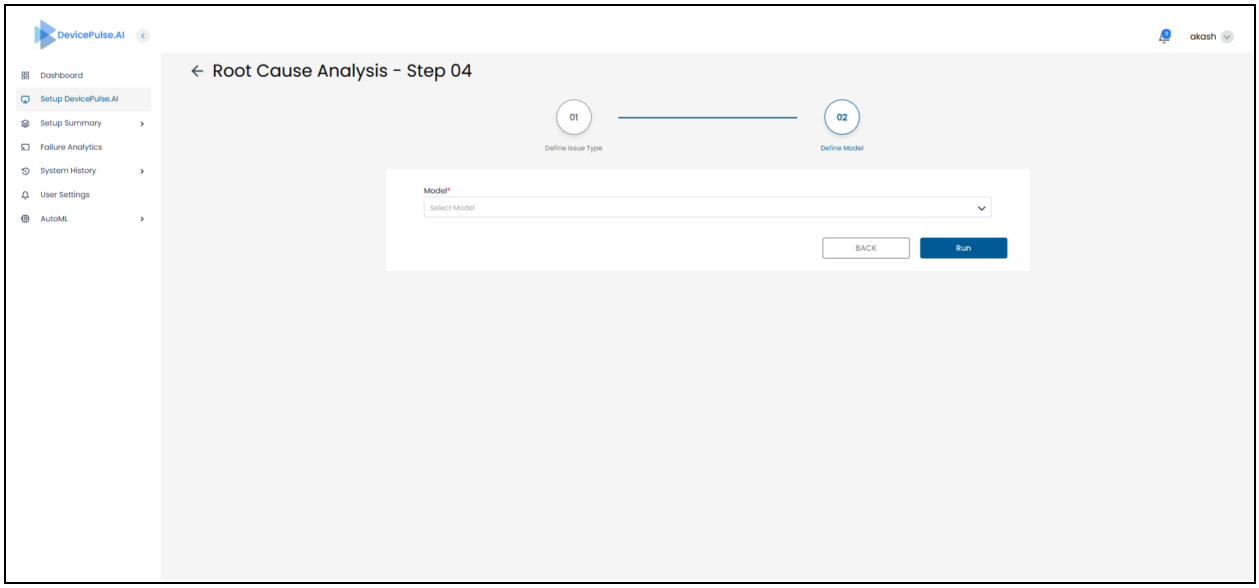
2. Clicking "**Next,"** will take you to this page. This is where you can either build a new model or assign an existing model to a batch to detect the root cause for a failure. If you don't have a trained model, you can choose "**Build New Model"** option.

3. Then you will be navigated to the page below, where you can train the AI model, a process that contains a number of steps. Note: To train the model

you should have the relevant domain knowledge and be familiar with the process of training an ML model.

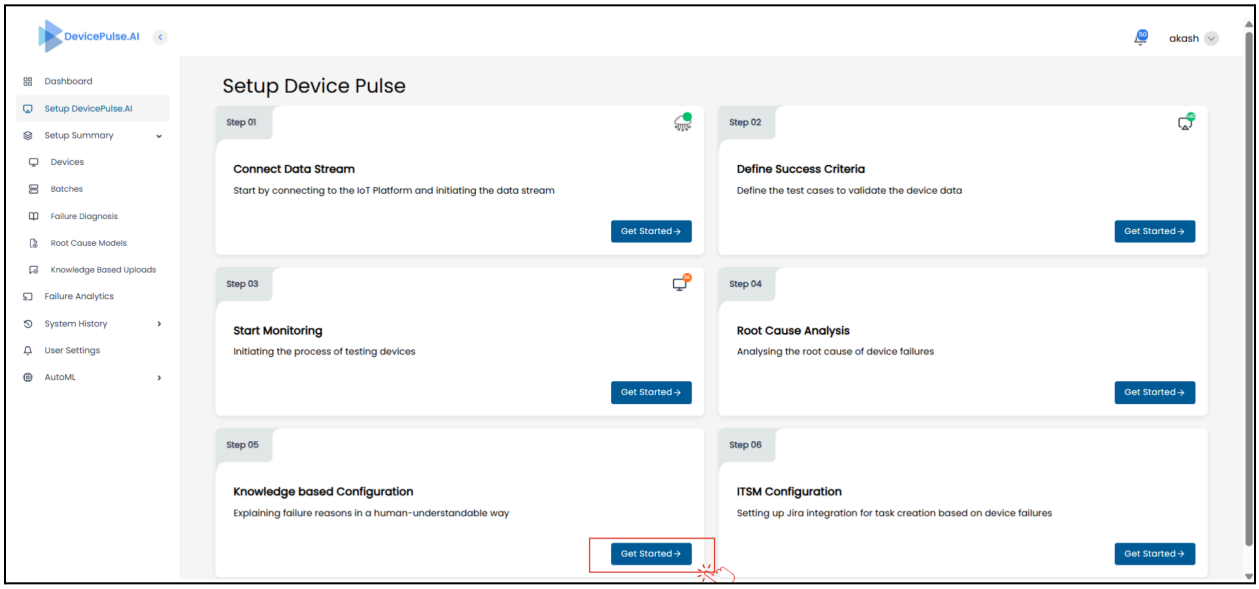


4. After you have trained the model, choose **"Select a Model"** option. You will see the page below. Under the **Model** dropdown, you will see listed all the trained models. You can select the model that is suitable and trained for your selected test batch and main test case. Click **Run** set activate the monitoring and testing. When failures are discovered on the assigned test batch devices, the Root Cause analysis will identify what is causing the problem and send out the relevant notifications automatically.

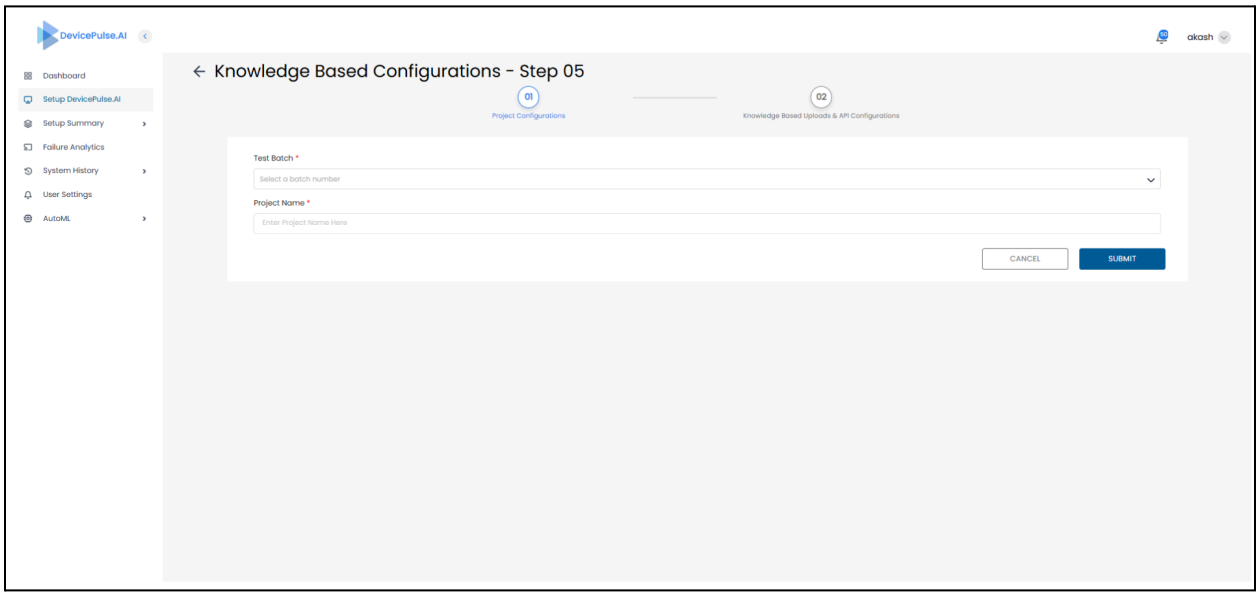

DevicePulse.AI
akash
Dashboard
Setup DevicePulse.AI
Setup Summary
Failure Analytics
System History
User Settings
AutoML
Root Cause Analysis - Step 04
01
Define Issue Type
02
Define Model
Model*
Select Model
BACK
Run

6.0 AI Navigator

To use the AI Navigator to chat and explore possible solutions for the device failures, proceed with step 5.

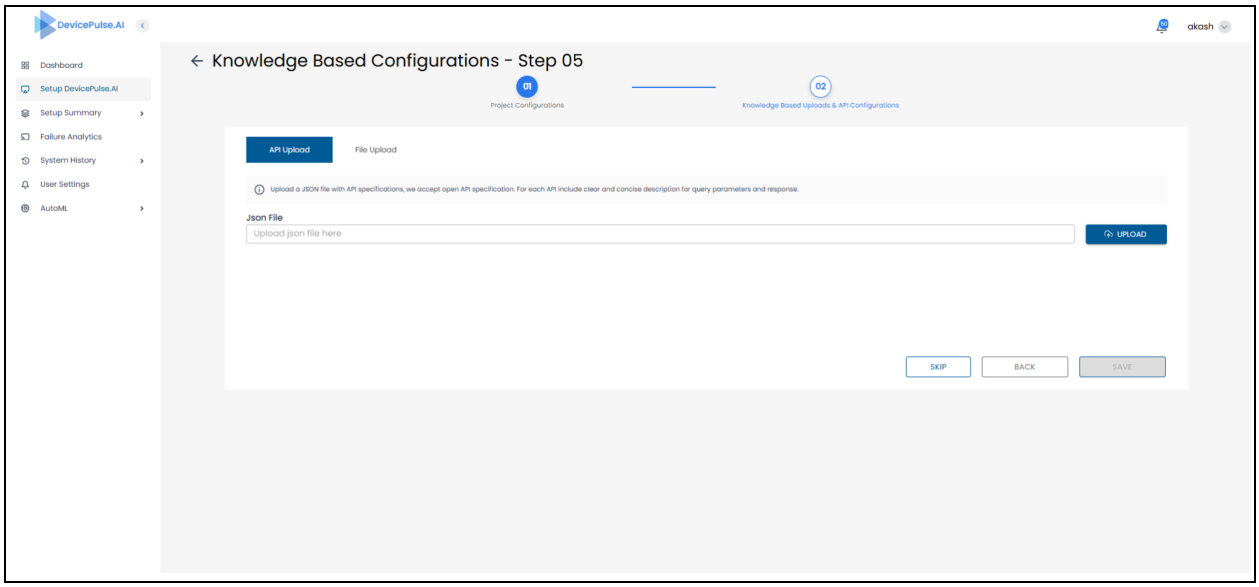


1. After selecting the **Get Started** button, you will navigate to the following screen: Select the test batch that includes the devices for which you want to explore solutions and more about failures, give any name for Project Name under **Project Configuration** section, click **Submit.**



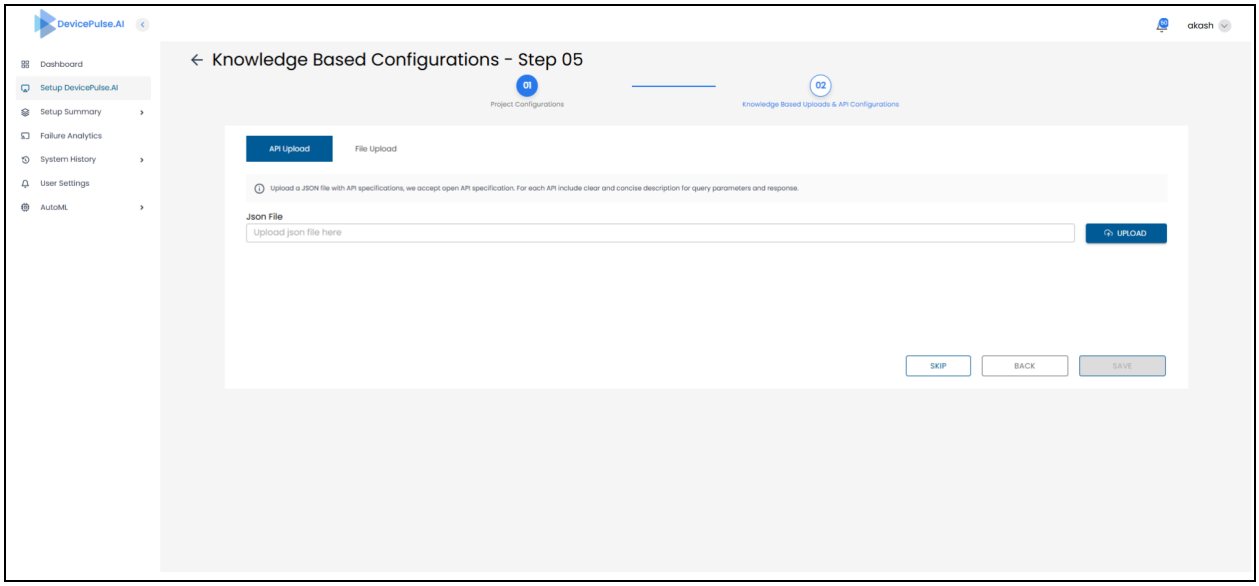
2. It will move on to **Knowledge Base Uploads** section. The knowledge base uploads can be carried out in 2 ways:

- API upload - Knowledge can be uploaded through known and published APIs *(This feature will be available in the future)*
- File upload - Files can be uploaded as PDFs



6.1 API Upload

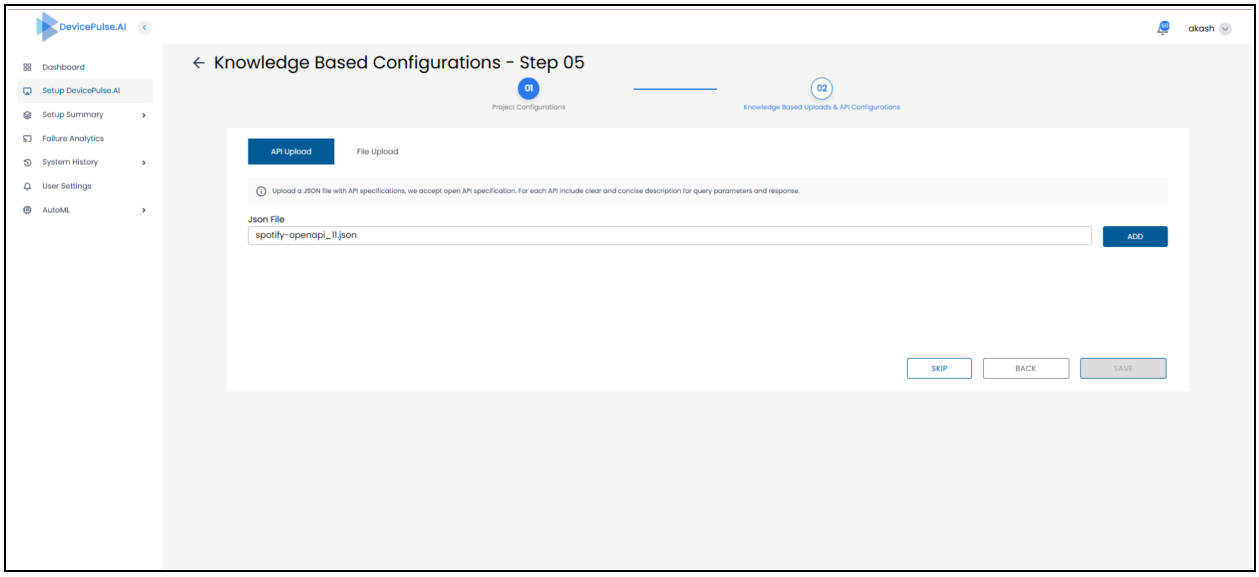
This is where you can upload knowledge for the AI Navigator using APIs. Providing this knowledge is essential for the AI Navigator to effectively answer user queries.



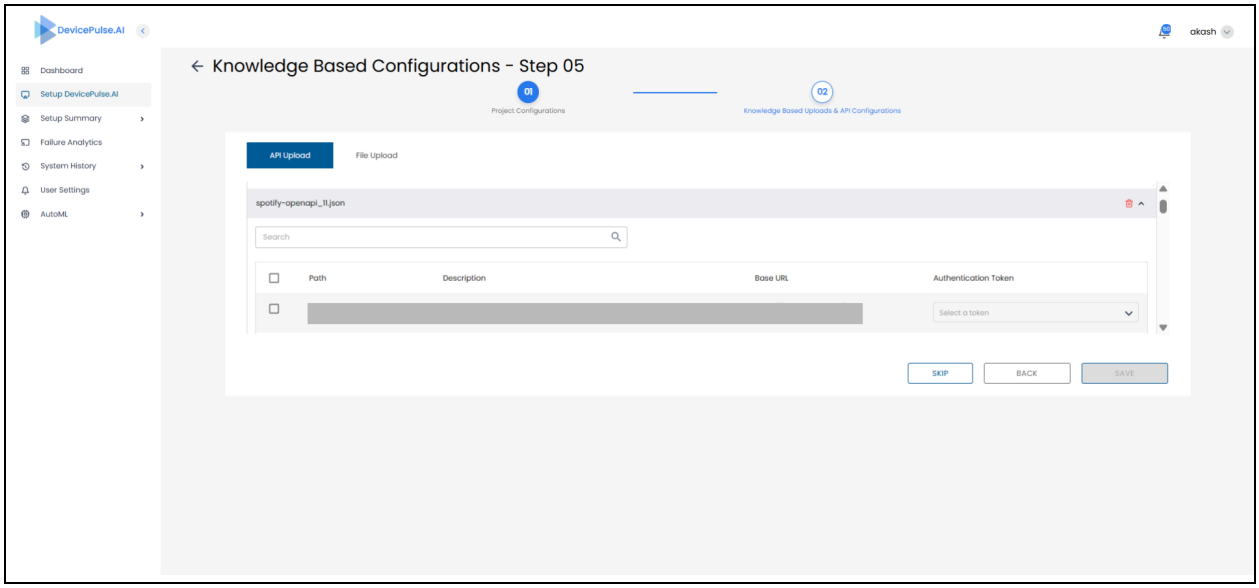
APIs can be uploaded through JSON files.

- Click **Upload** button.
- The file window will appear, and you can navigate to and select the exact JSON file .

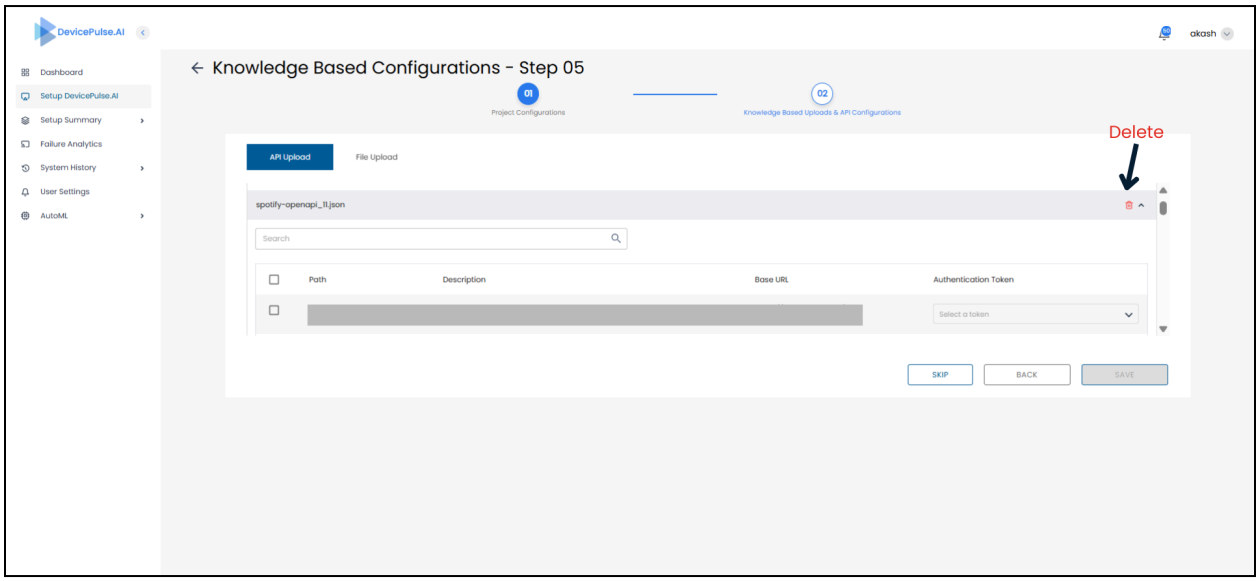
1. After selecting the JSON file, click on **ADD.**



2. The relevant APIs will be displayed as below. You can now select the APIs you want and after API key/token is added, click **SAVE.** This will allow the AI Navigator to search for and find answers for any product questions using those APIs.



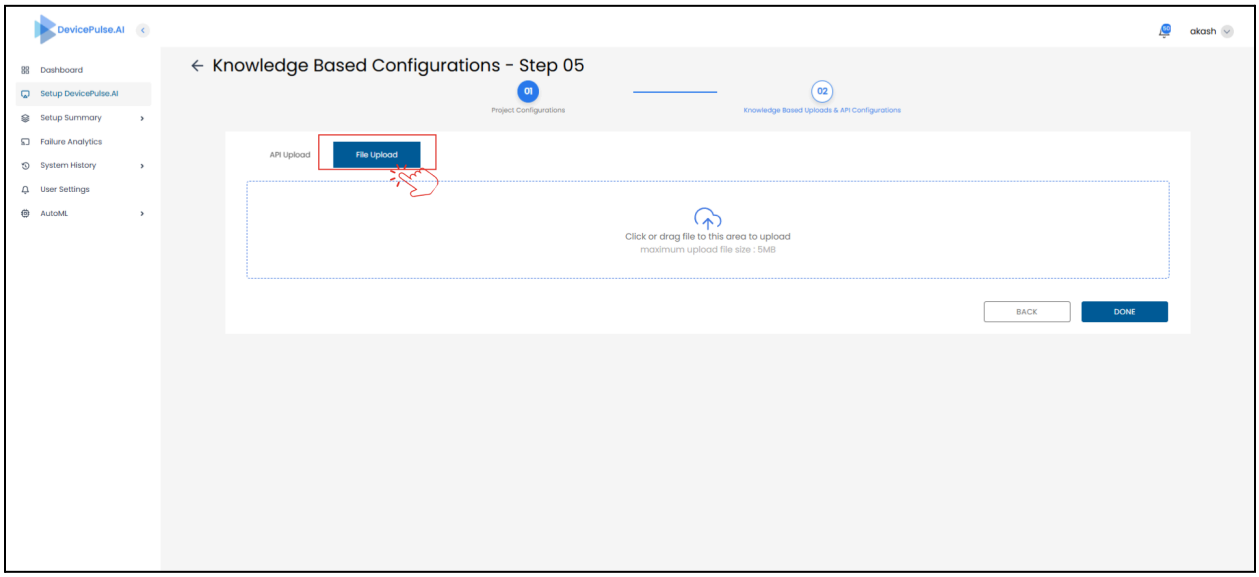
3. To delete any of the uploaded JSON file, click the "**Delete"** icon.



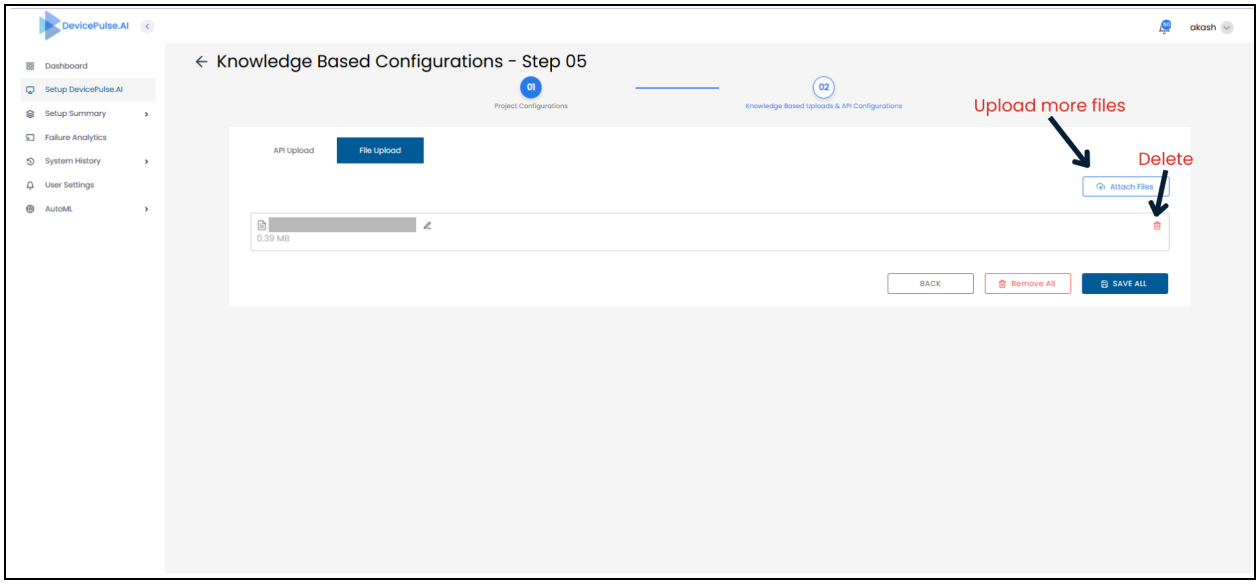
6.2 File Upload

This capability allows you to upload knowledge for the AI Navigator in the form of PDF files. Supplying this information is essential for the AI Navigator to accurately respond to user queries.

1. To upload PDF files, Choose the "**File Upload"** tab. Then you click on or drag the necessary files to the upload area.

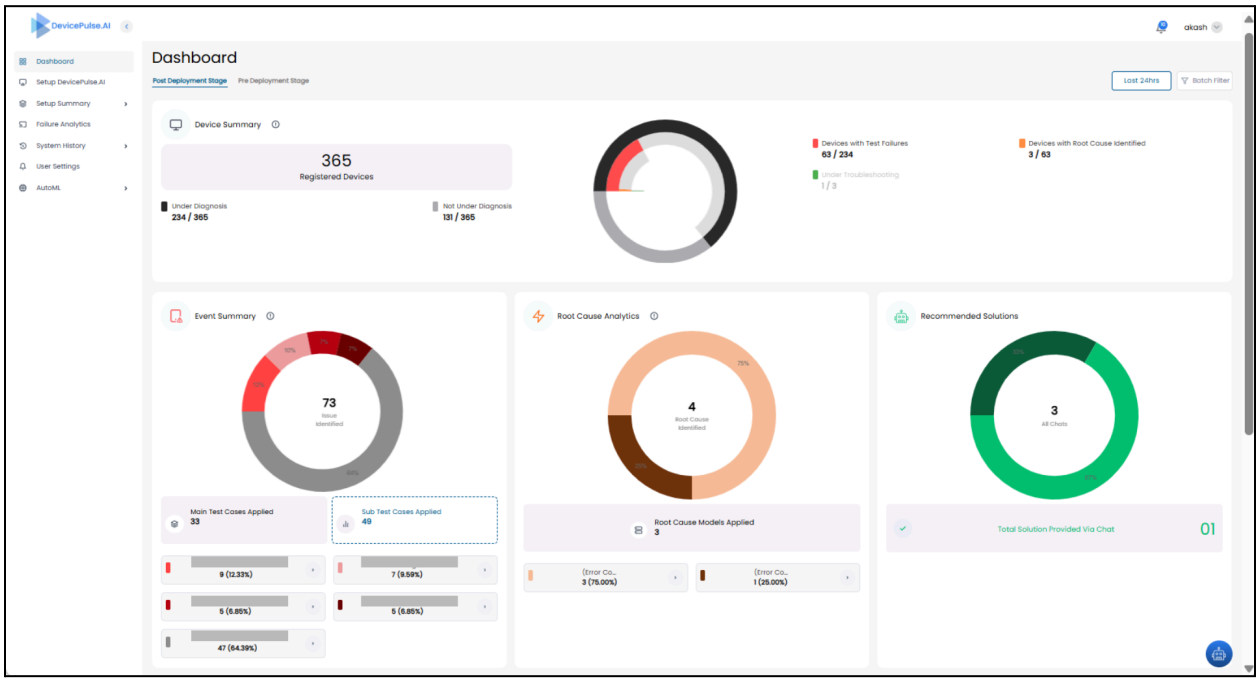


2. Uploaded file/s will be displayed as shown below. To proceed click on the "**SAVE ALL"** button. To rename the file-name click the pen icon to edit. To delete the uploaded file you can click the "**Delete"** icon and if you need to upload more files you can click on "**Attach Files"** button and choose more files from your PC.



7.0 Dashboard

As soon as you start monitoring your devices, you will see a detailed dashboard as below.



Device Summary - This section provides a 24-hour summary of device diagnostics. It starts with the total onboarded devices, showing how many are under diagnosis and how many are not. It then breaks down diagnosed devices into devices with test failures, highlights diagnosed devices with identified root causes and finally, shows how many devices are under troubleshooting.

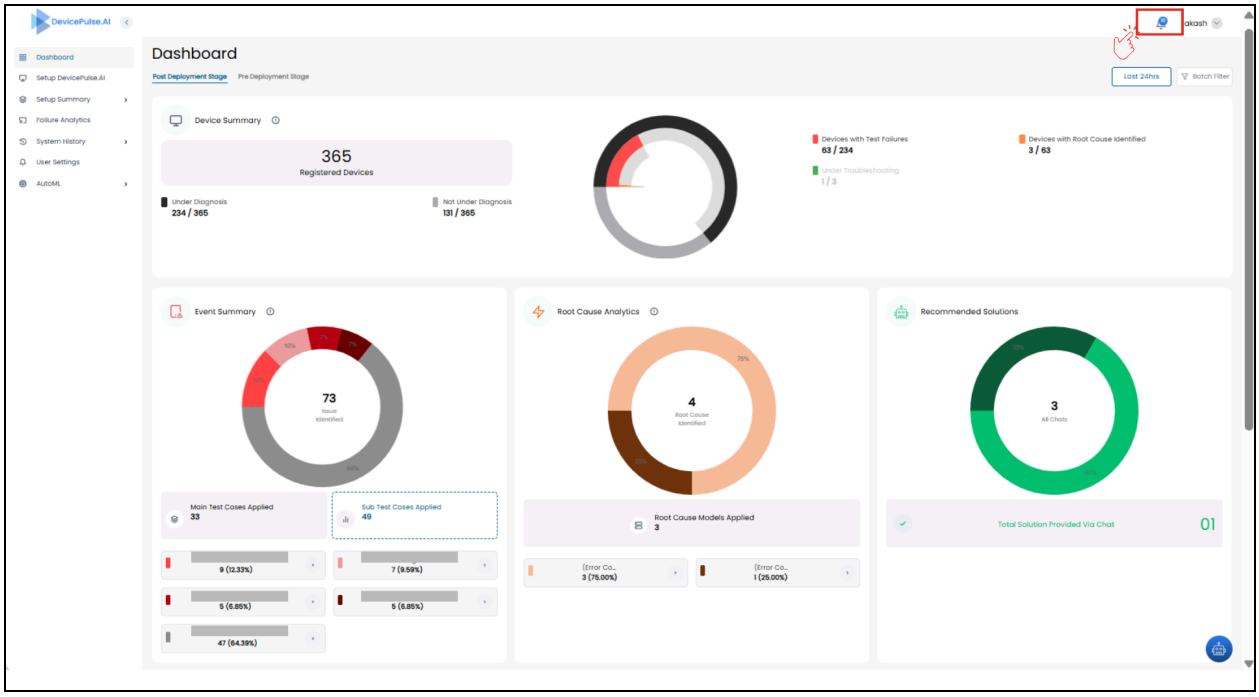
Event Summary - This section provides a 24-hour overview of detected issues, showing the total number of identified issues (each failed test case is counted as a separate issue, even if the same device fails multiple test cases) and the count of applied main and sub test cases. It highlights the top four failed main test cases by percentage, while all others are grouped under 'Others' for clarity. Clicking on a failed test case reveals a list of affected devices.

Root cause analytics - This section provides a 24-hour overview of identified root causes for failures, showing the total number of identified root causes (note: each detected root cause is counted as a separate root cause, even if the same device detect multiple root causes) and the count of root cause models applied. It highlights the top four detected root causes by percentage, while all others are grouped under 'Others' for clarity. Clicking on a detected root cause reveals a list of affected devices.

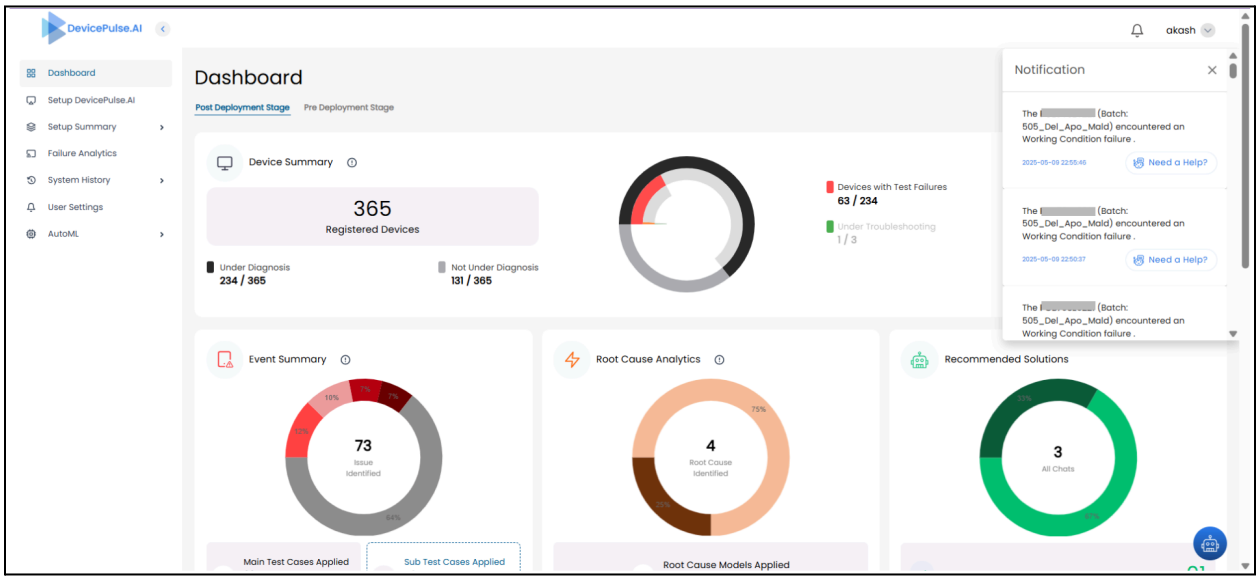
Recommended solutions - This section provides a 24-hour overview of the number of ongoing chats for troubleshooting failures, along with the count of chats that successfully delivered an exact solution.

7.1 Failure Alerts (Notifications)

When any device failure is identified by the system, it will display under the notification section. Click on the Notification icon as shown below.



Then it will display as below.



If the set of devices is assigned for failure monitoring only, it will send the failure alerts as follows.

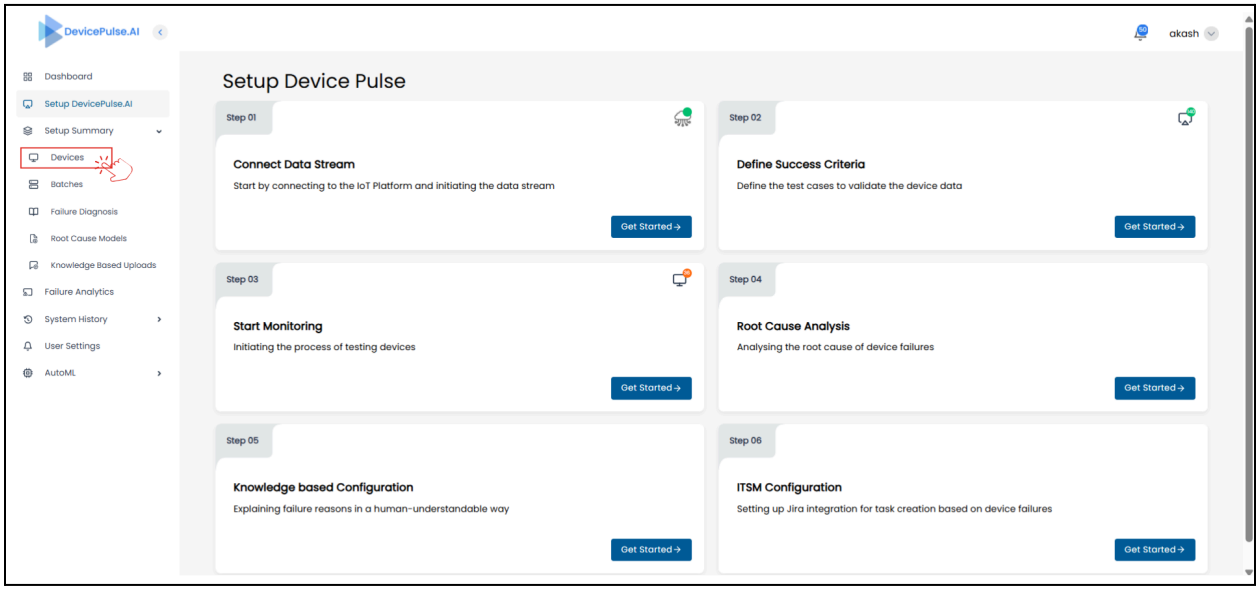
Alert Structure: "This [Device ID] [Batch number] encountered a [Failed main test case name] failure."

But if the set of devices is assigned for failure monitoring as well as root cause analysis, then it will send the failure alerts as follows.

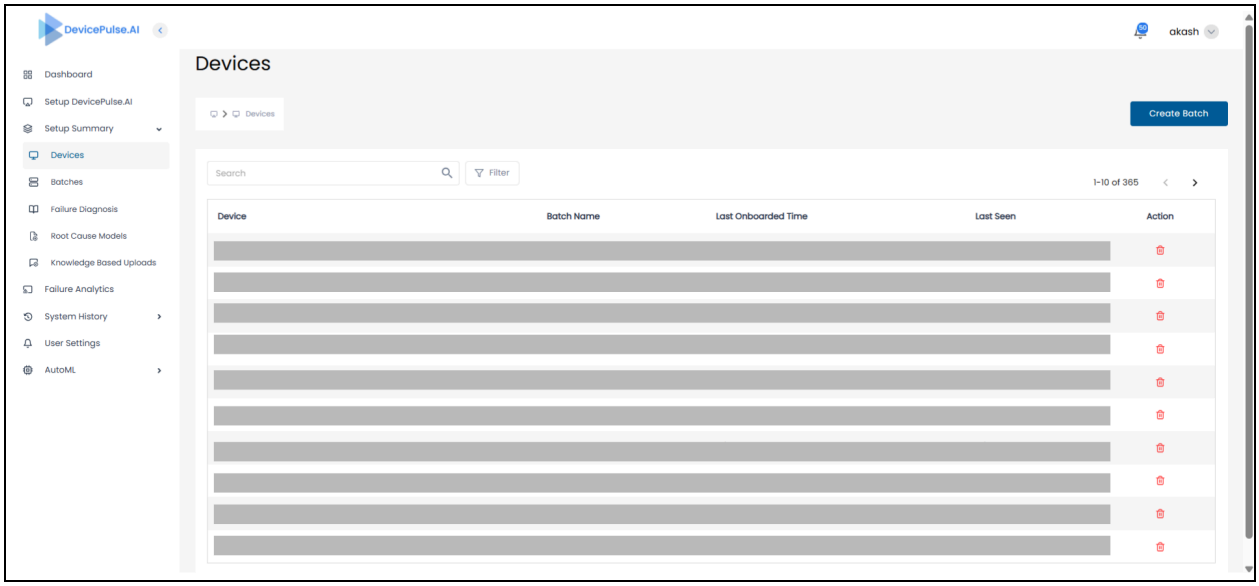
Alert Structure: "This [Device ID] [Batch number] encountered a [Failed main test case name] failure due to this [Root cause for the failure] issue."

8.0 Devices

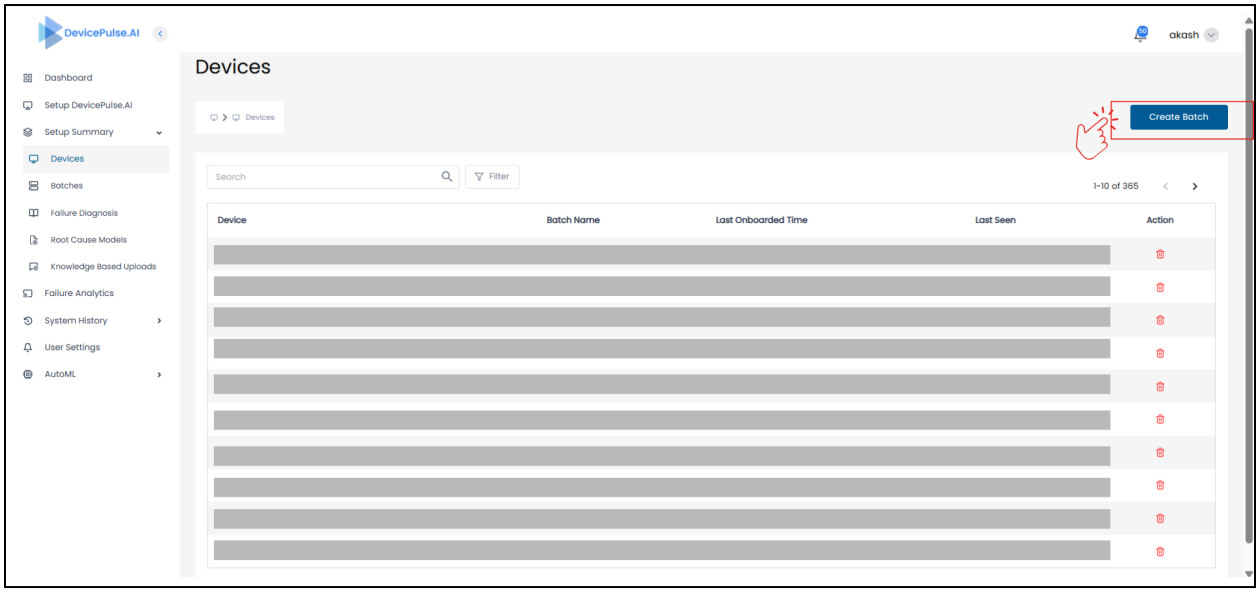
1. To oversee all onboarded devices, navigate to the **Devices** module in the left sidebar under **Setup Summary**.



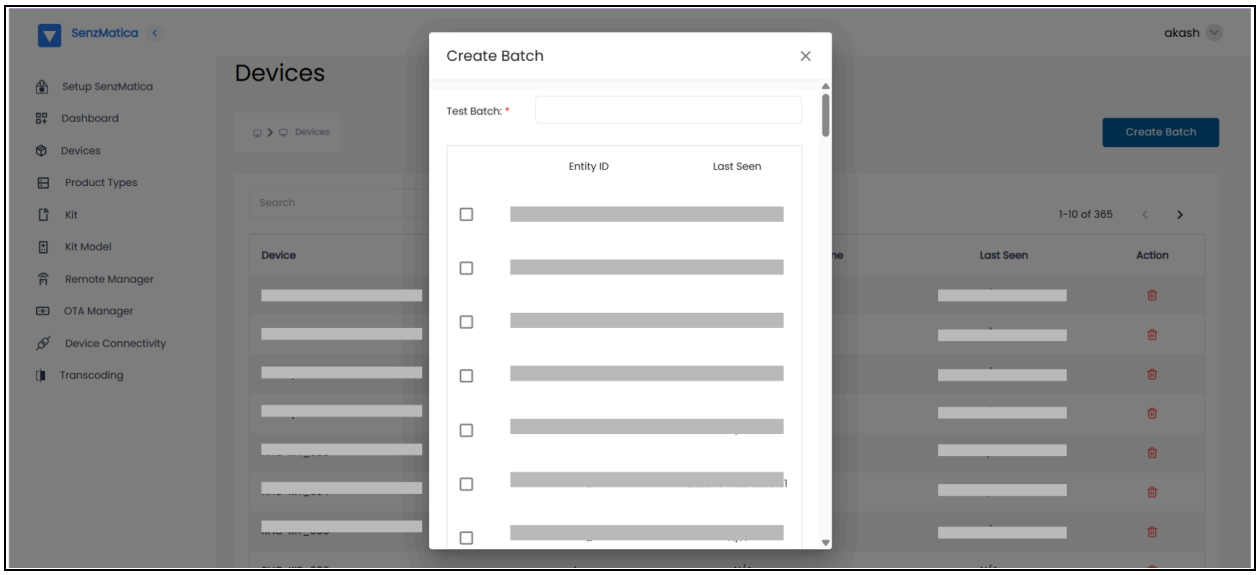
2. There, all the devices that are onboarded to the DevicePulse.AI platform will be listed with the batch name, onboarded time, last seen, and delete option under actions. If you wish to delete any device, you can click the corresponding **Delete** icon.



3. To create a new batch with devices that are not yet assigned to any batch, click the **Create Batch** button.

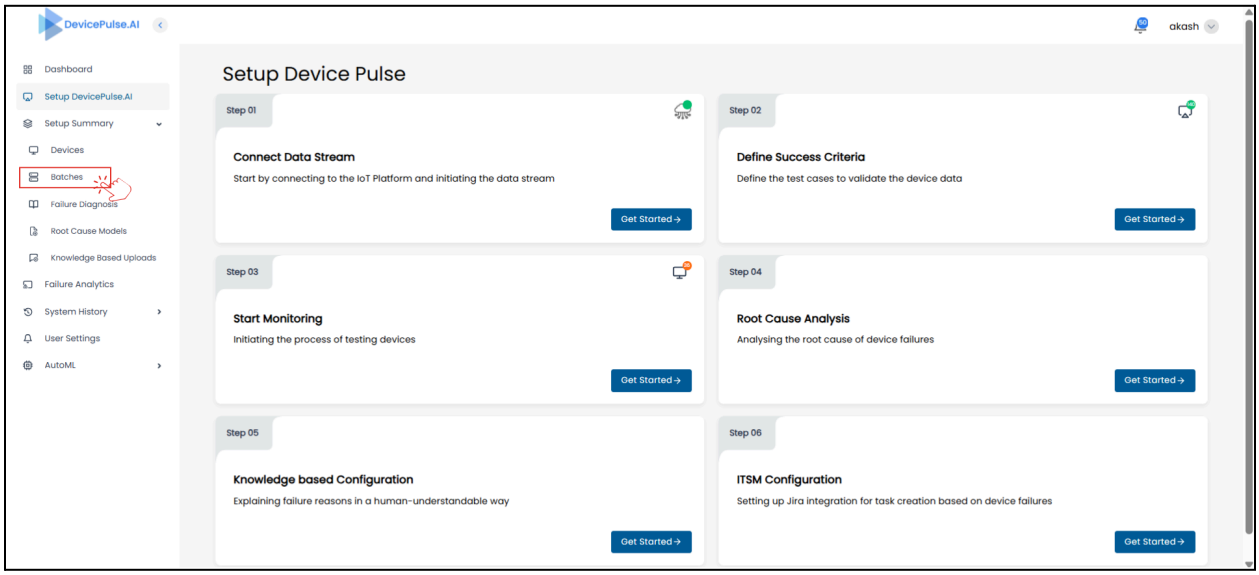


4. Upon clicking, a list of all unassigned devices will be displayed, as shown below. You can then select the desired devices, assign a unique batch ID, and proceed to create the batch.

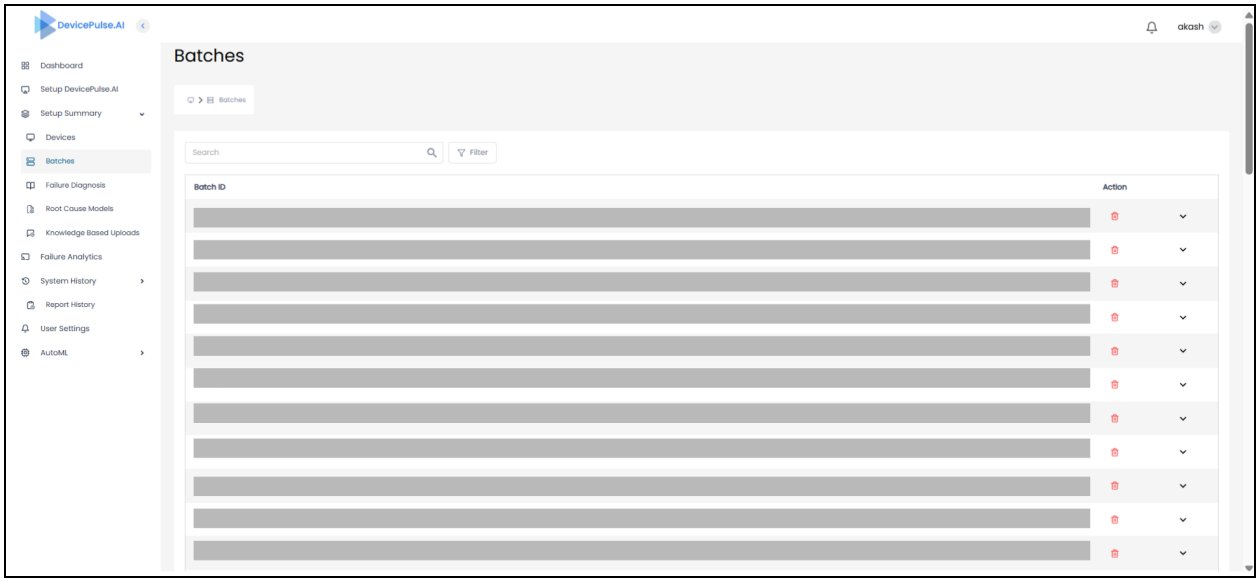


9.0 Batches

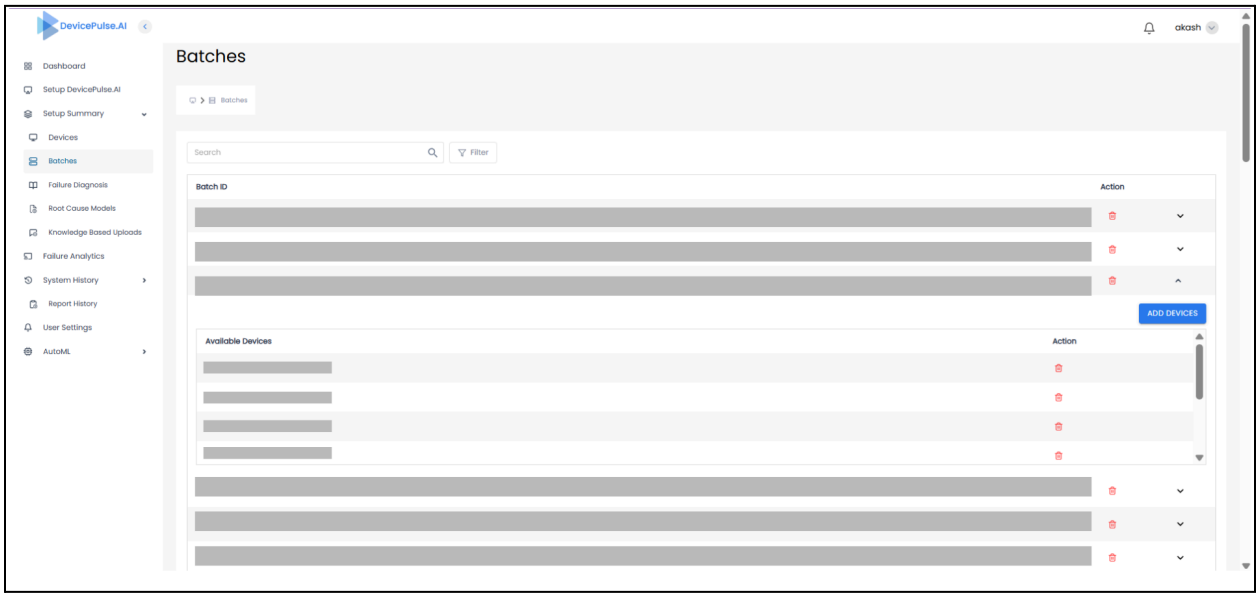
1. To oversee all the batches, click the **Batches** module in the left sidebar under **Setup Summary**.



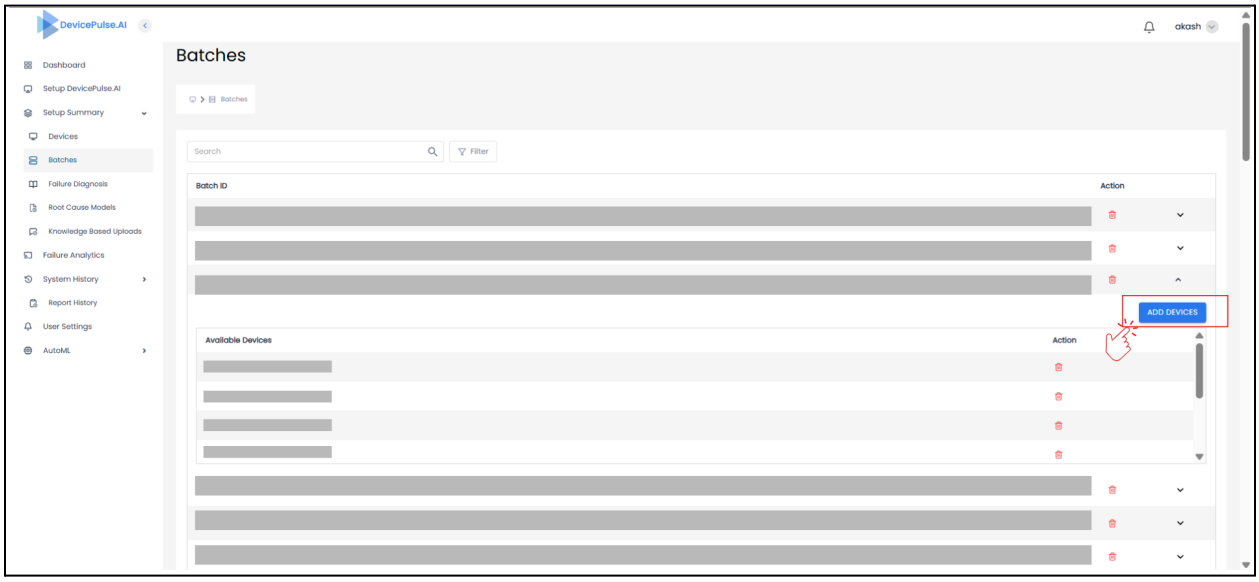
2. All the batches you've created will be displayed as shown below. To delete a specific batch, simply click the corresponding **Delete** button.



3. To view the devices in a batch, click the dropdown icon below the respective batch. All associated devices will then be displayed, as shown below.

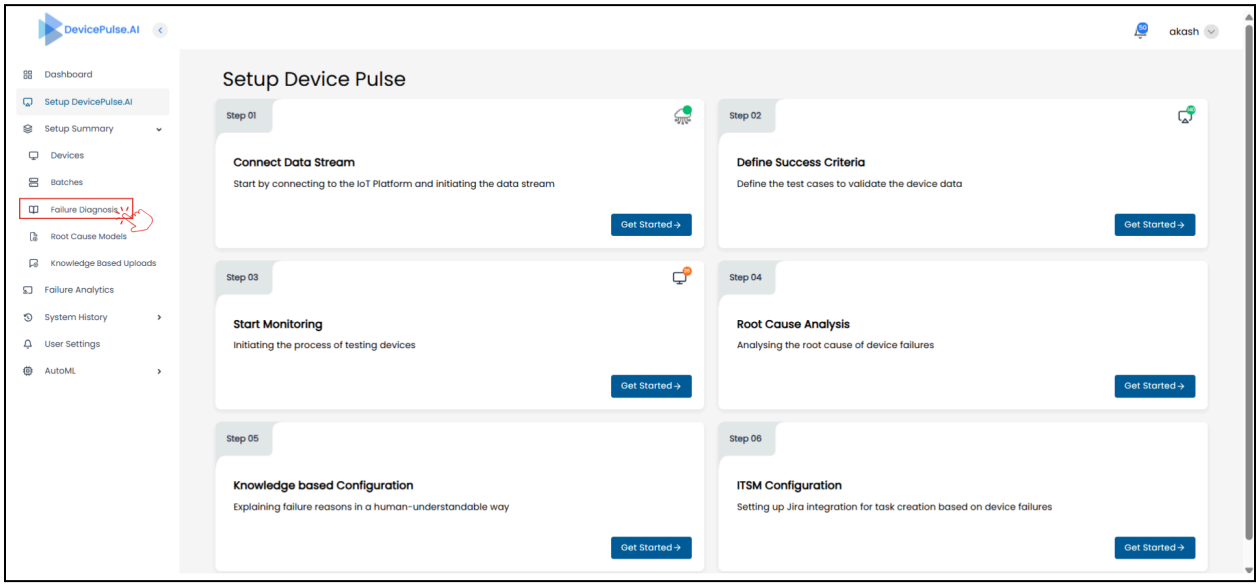


4. To add devices to a specific batch, click the **Add Device** option below it. A list of unassigned devices will appear, allowing you to select one or multiple devices to add to the batch.



10.0 Failure Diagnosis

1. To oversee all the test cases that are defined, click the **Failure Diagnosis** module in the left sidebar under **Setup Summary**.



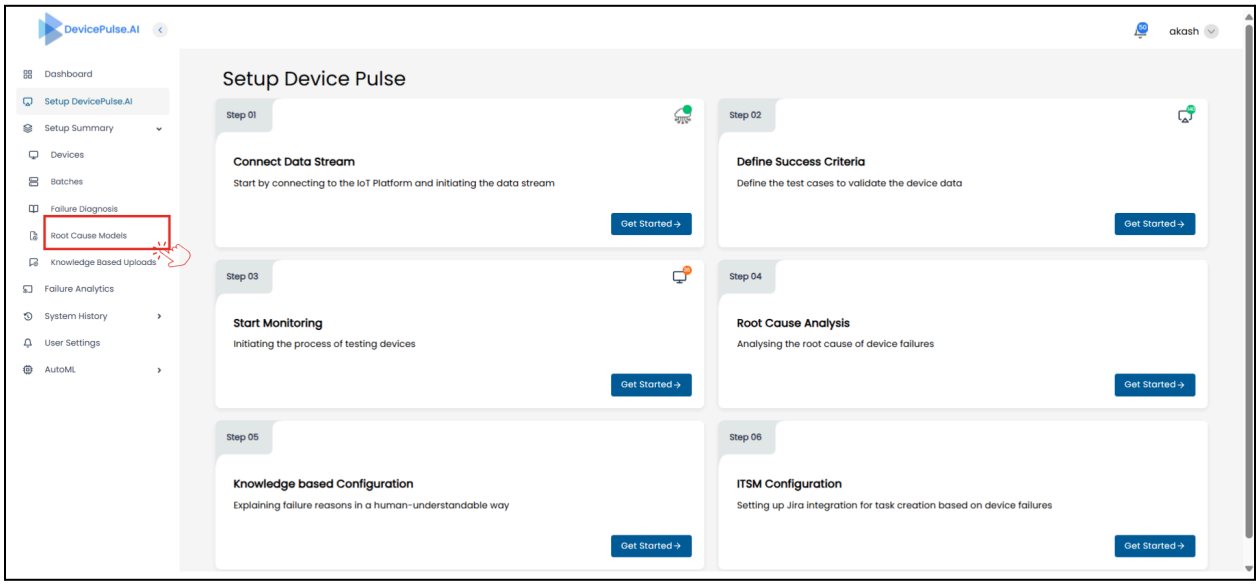
2. All the main test cases already defined for each batch will be displayed as shown below. You can filter the test cases for each batch using the dropdown at the top .(PC: By default, test cases for the most recently created batch will be shown when you click on the **Failure Diagnosis** module.)

3. To view all related subtest cases for each main test case, click the dropdown icon beneath the respective main test case.

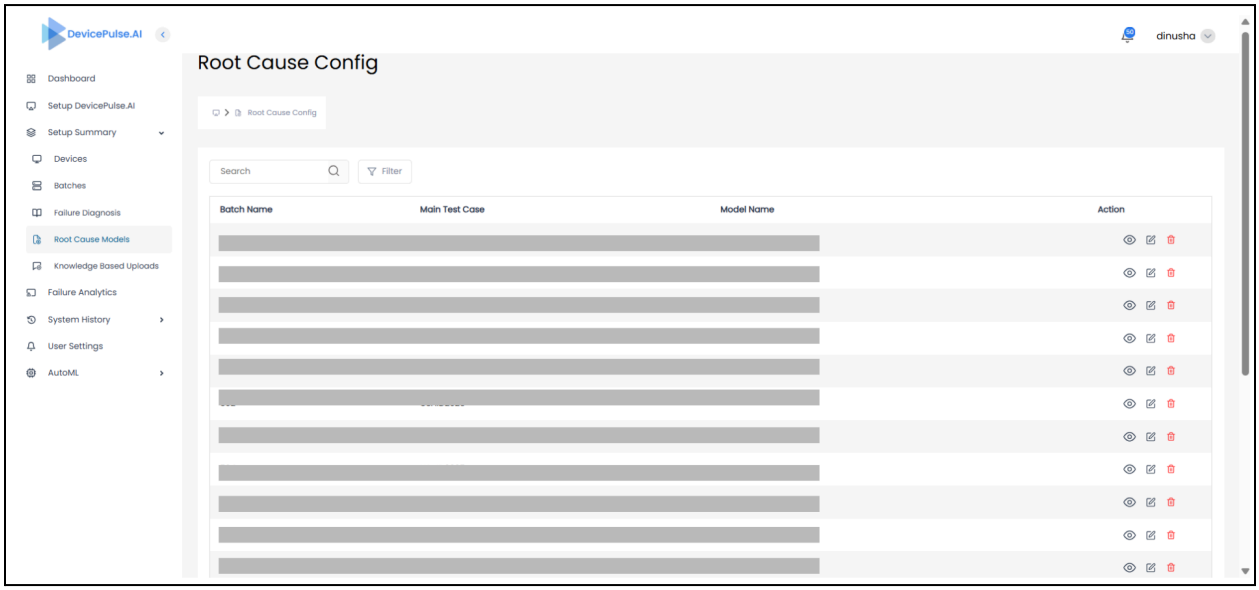
4. For each test case, you can view or edit its details by clicking the respective icons. To add a subtest case under a main test case, click the **Add** icon. To delete a main test case, use the **Delete** icon next to it. Similarly, to view, edit, and delete a subtest case, click the corresponding icons next to that specific subtest case.

11.0 Root Cause Models

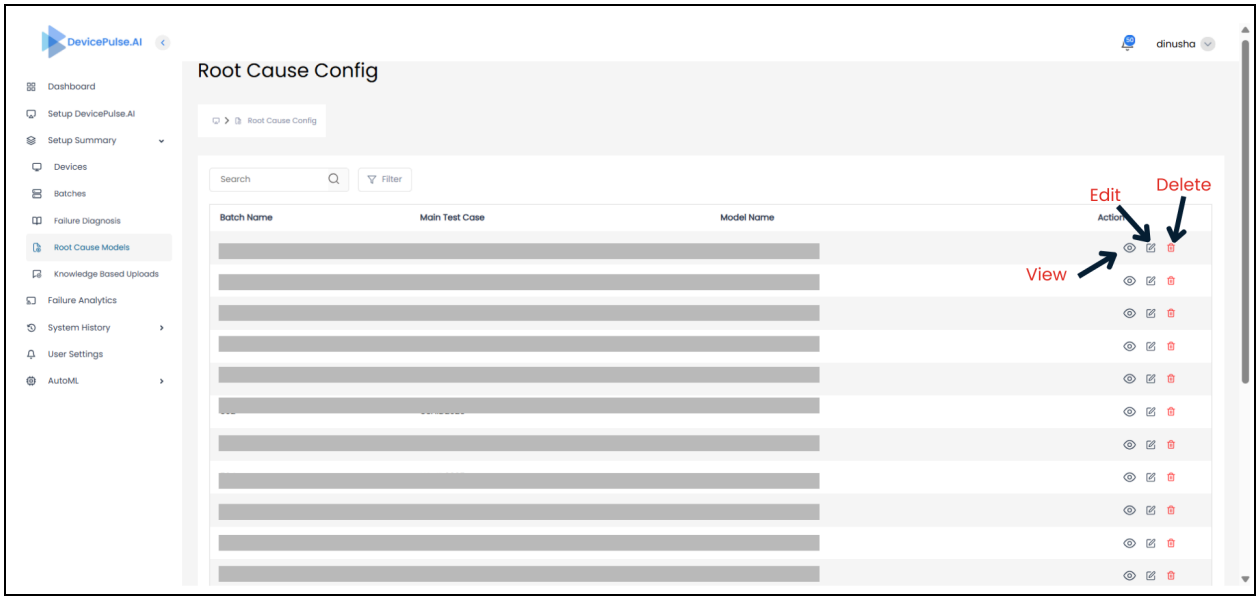
1. To oversee all the root cause models, click the **Root Cause Models** module in the left sidebar under **Setup Summary**.



2. When clicked, it will display all root cause models assigned to batches along with their corresponding main test cases.

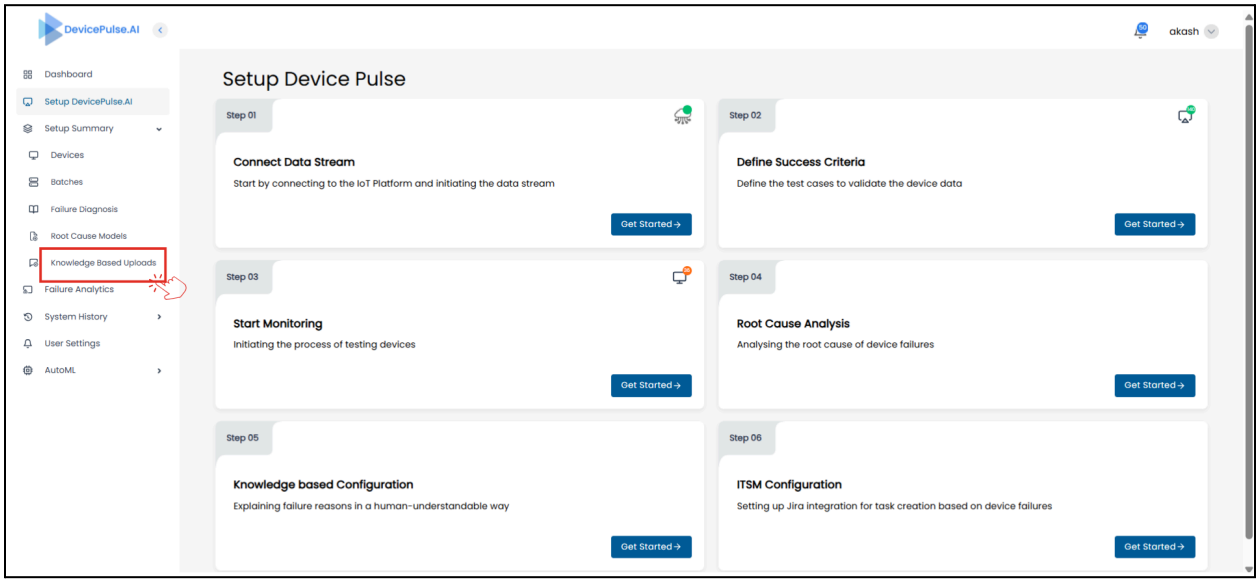


3. Click the **View** icon to see details of each assigned model. To update the main test case or model for a specific batch, use the **Edit** icon. To unassign a model from a batch, click the **Delete** icon.

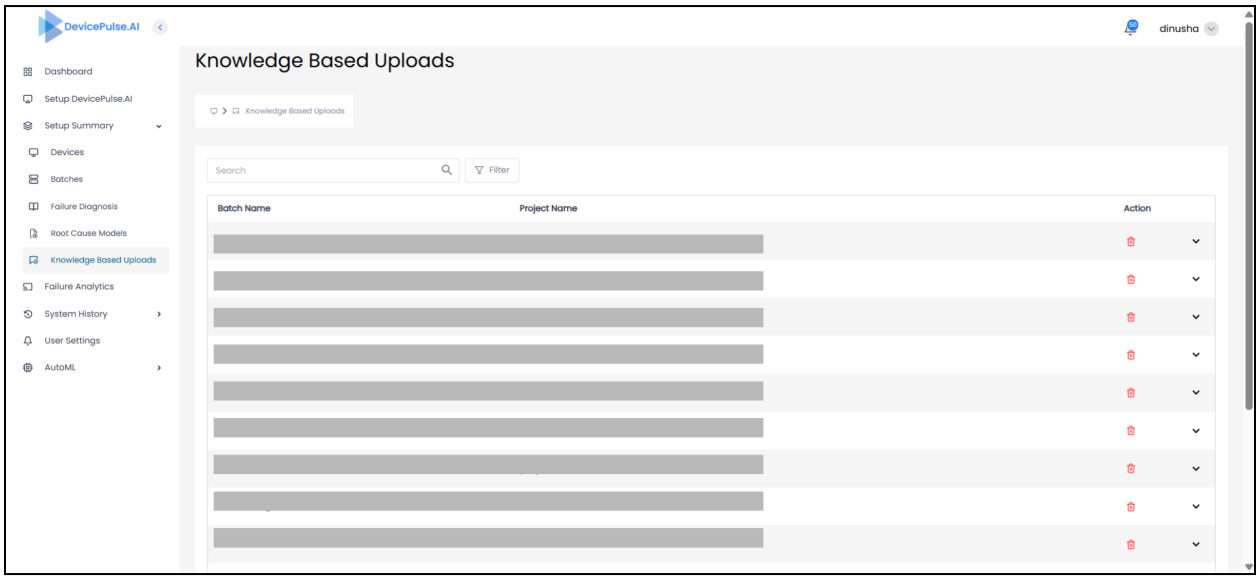


12.0 Knowledge-Based Uploads

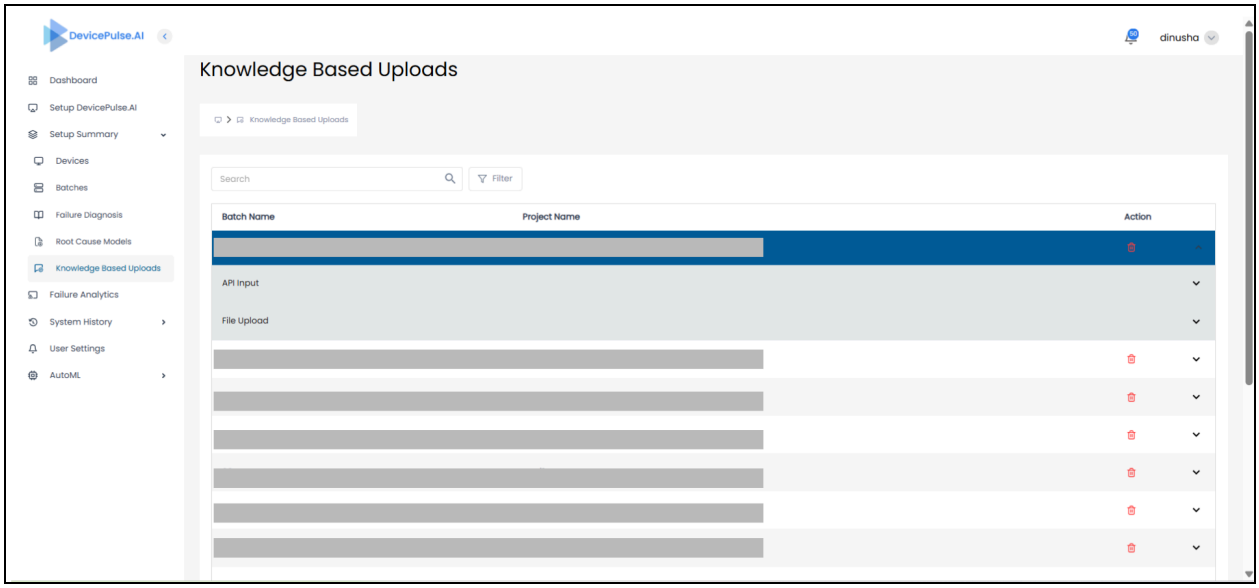
1. To oversee all the knowledge uploads(Uploaded files or APIs), click the **Knowledge-Based Uploads** module in the left sidebar under **Setup Summary**.



2. When clicked, it will display all knowledge-based uploads (files and APIs) for each batch, along with the associated project name.

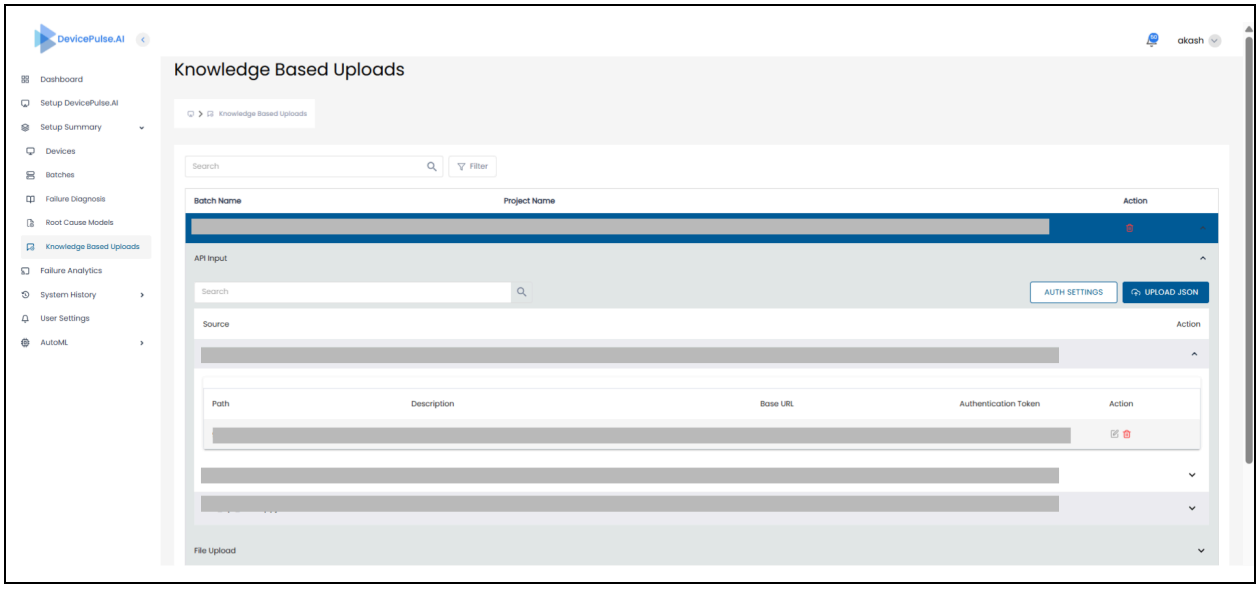


3. Expand the main dropdown corresponding to each batch to view the uploaded files and APIs separately..

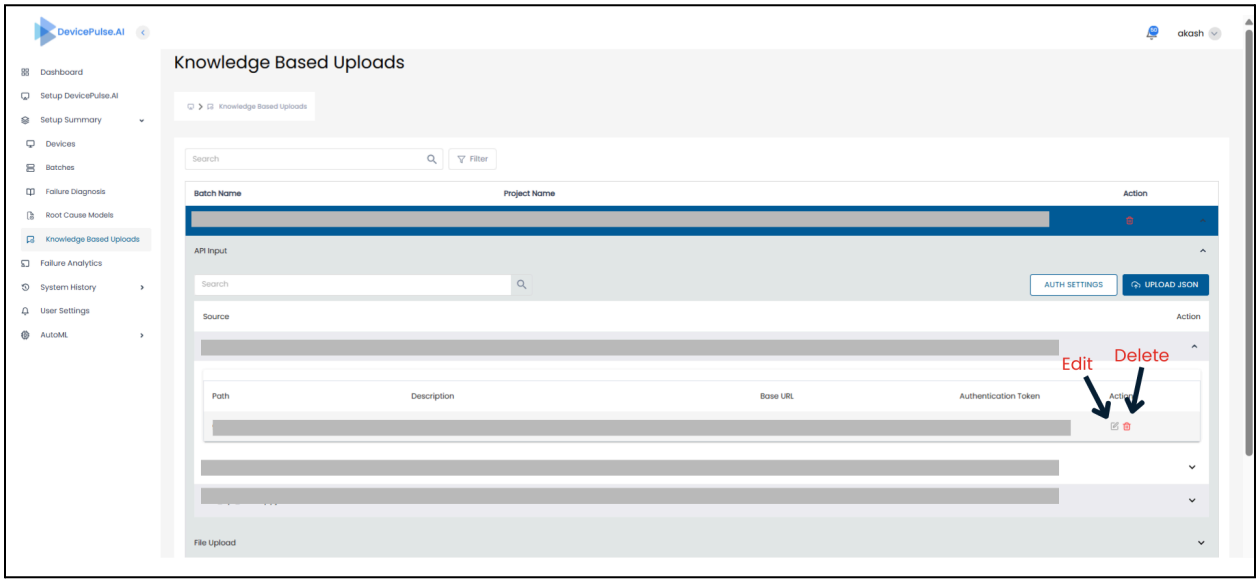


12.1.0 Uploaded APIs for each batch

1. To view all uploaded APIs, expand the API input dropdown. This will display the source files containing the APIs. Then, click the dropdown next to each source to see all the selected APIs associated with it.

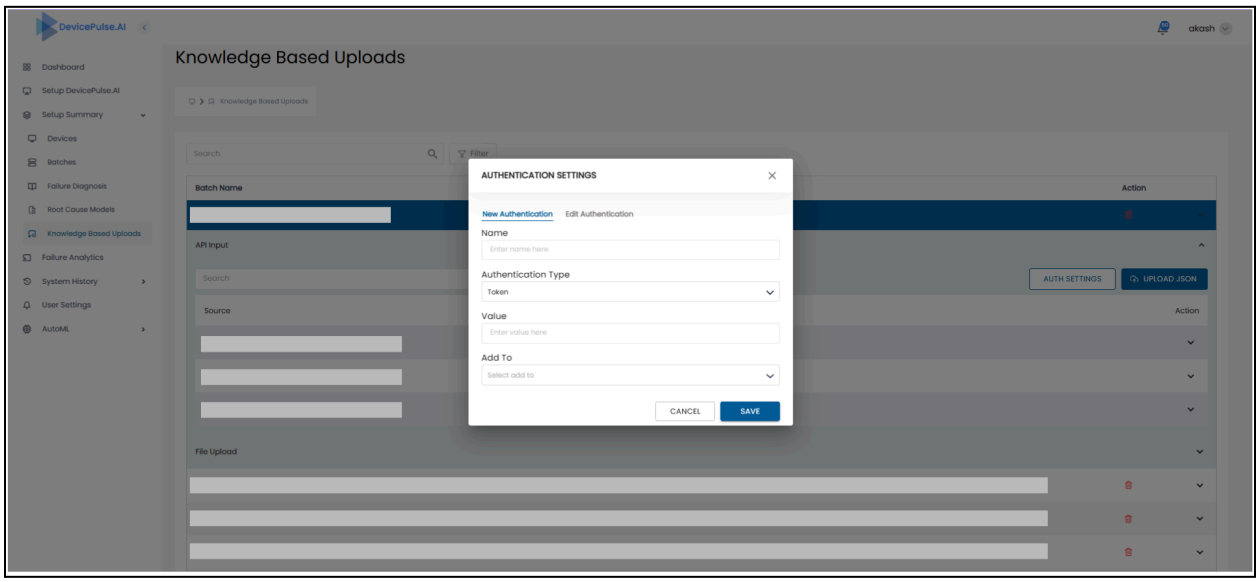


2. For each API, you can edit the authentication key/token or delete the API by clicking the respective **Edit** or **Delete** icon, as shown below.



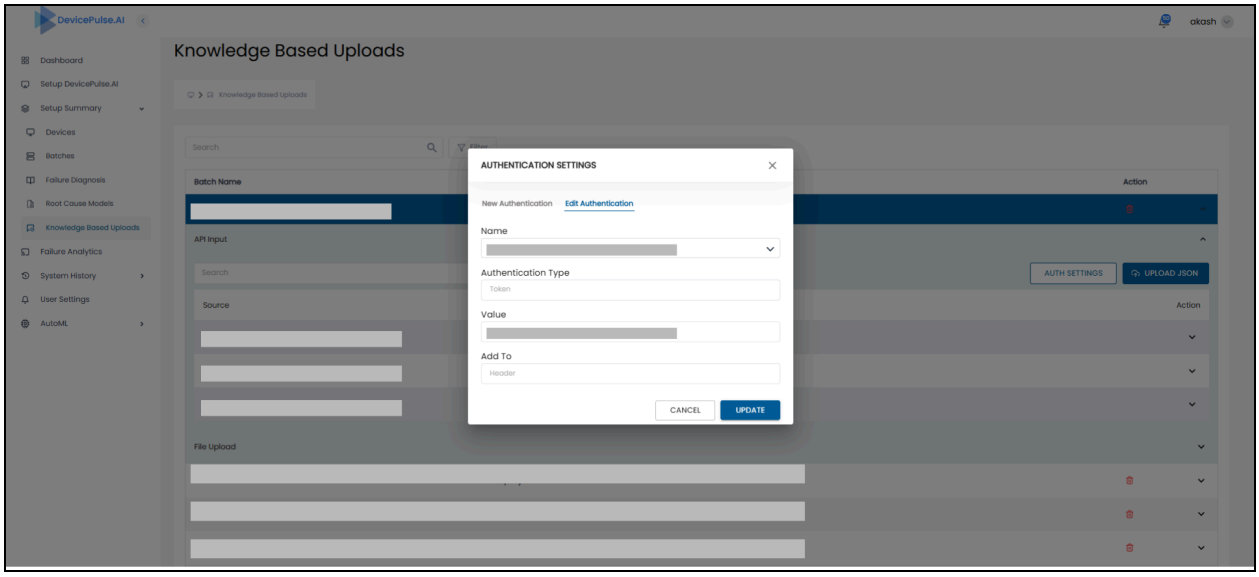
12.1.1 Add new authentication type

1. To add a new authentication type, click the **Auth Settings** button. You can then enter a name, select the type, provide the value, and specify where to apply the authentication key or token under the **New Authentication** tab and click the **Update** button.



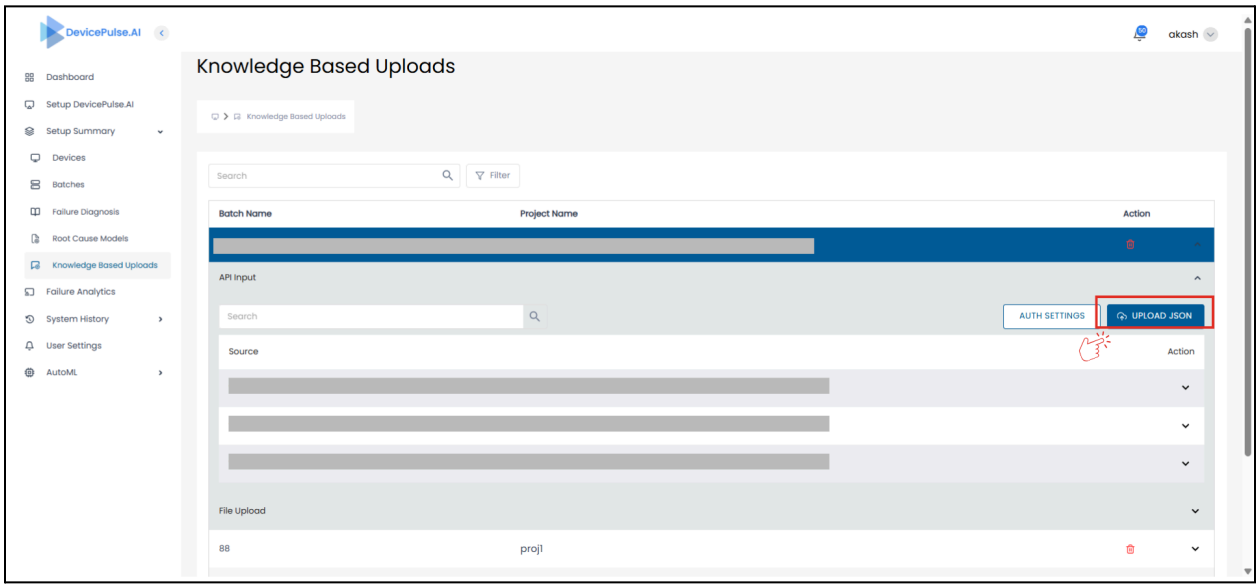
12.1.2 Edit the value of the authentication type

1. To edit the value of an added authentication key or token, click the **Edit Authentication** tab. From there, you can select the name of the earlier added key/token and then update the value as needed and click the **Update** button.



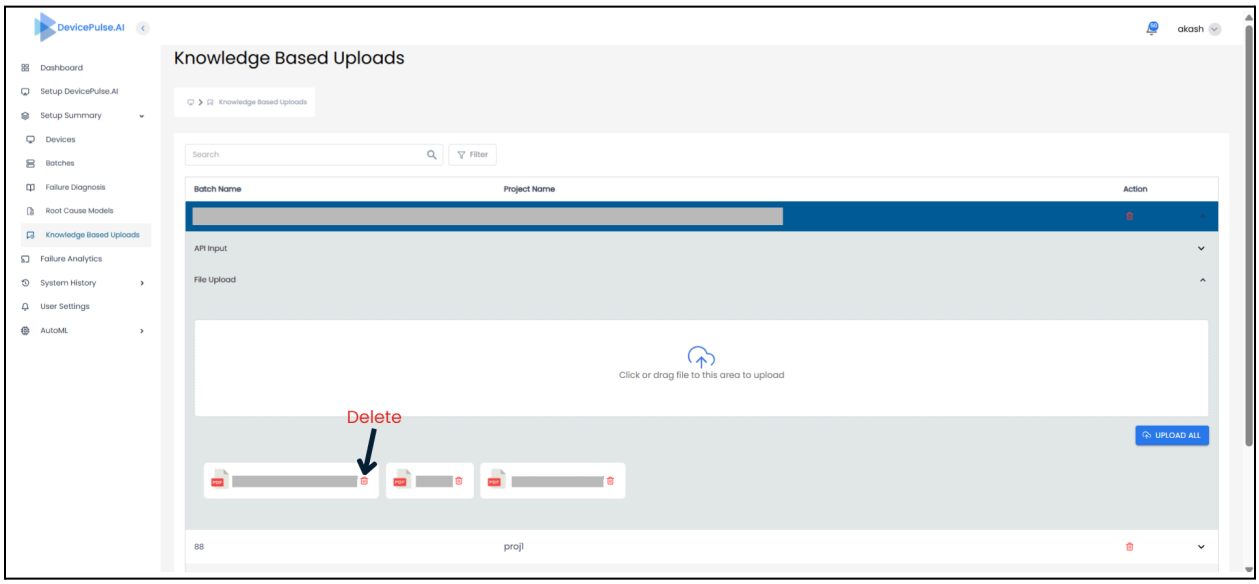
12.1.3 Upload new APIs

1. To upload new APIs for a batch that has already uploaded APIs through a JSON file. First, expand the main dropdown for the batch to view the two options: API Input and File Upload. Then, expand the API Input dropdown. Then click **Upload JSON** to upload the new APIs for that batch, as shown below.



12.2.0 Uploaded files for each batch

1. To view all uploaded files for a batch, expand the main dropdown to access the two options: API Input and File Upload. Then, expand the **File Upload** section to see the list of uploaded files, as shown below. You can also drag and drop new files here. To delete any uploaded file, click the **Delete** button next to it. (PC: When uploading new files, make sure to have them in PDF format)



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