

ADFI Free Trial Tutorial

August 2022 edition

AI Robotics Ltd.

In this tutorial, you will create an image anomaly detection AI using a sample image dataset and verify the performance of the AI.

The procedure is explained in the following flow.

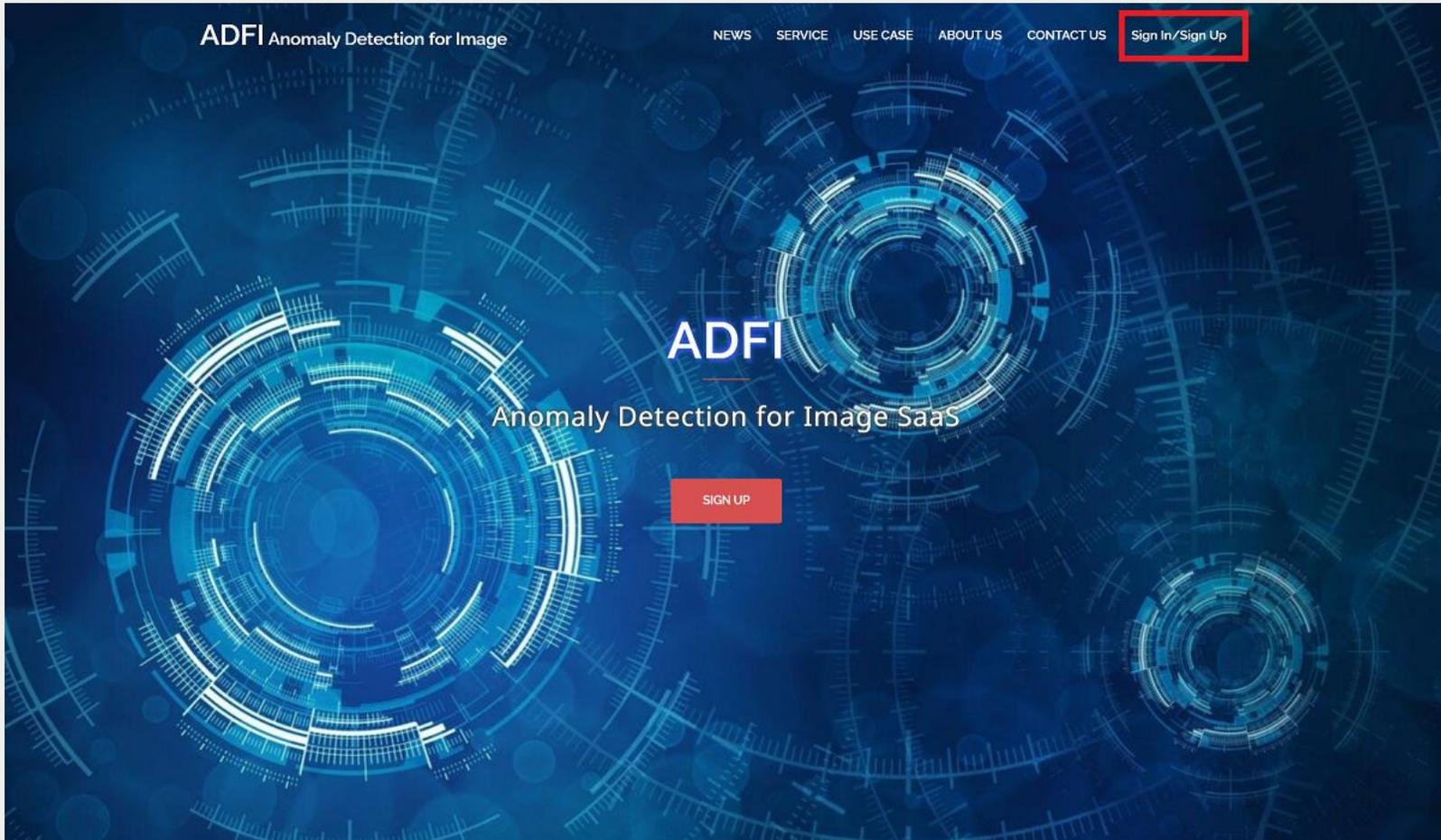
1. Create an account (first time login only)
2. Preparing the dataset
3. Creation of an image anomaly detection AI
4. Performance verification of the AI
5. Supplementary information

1. Create an account (first time login only)

1. Create an account (first time login only)

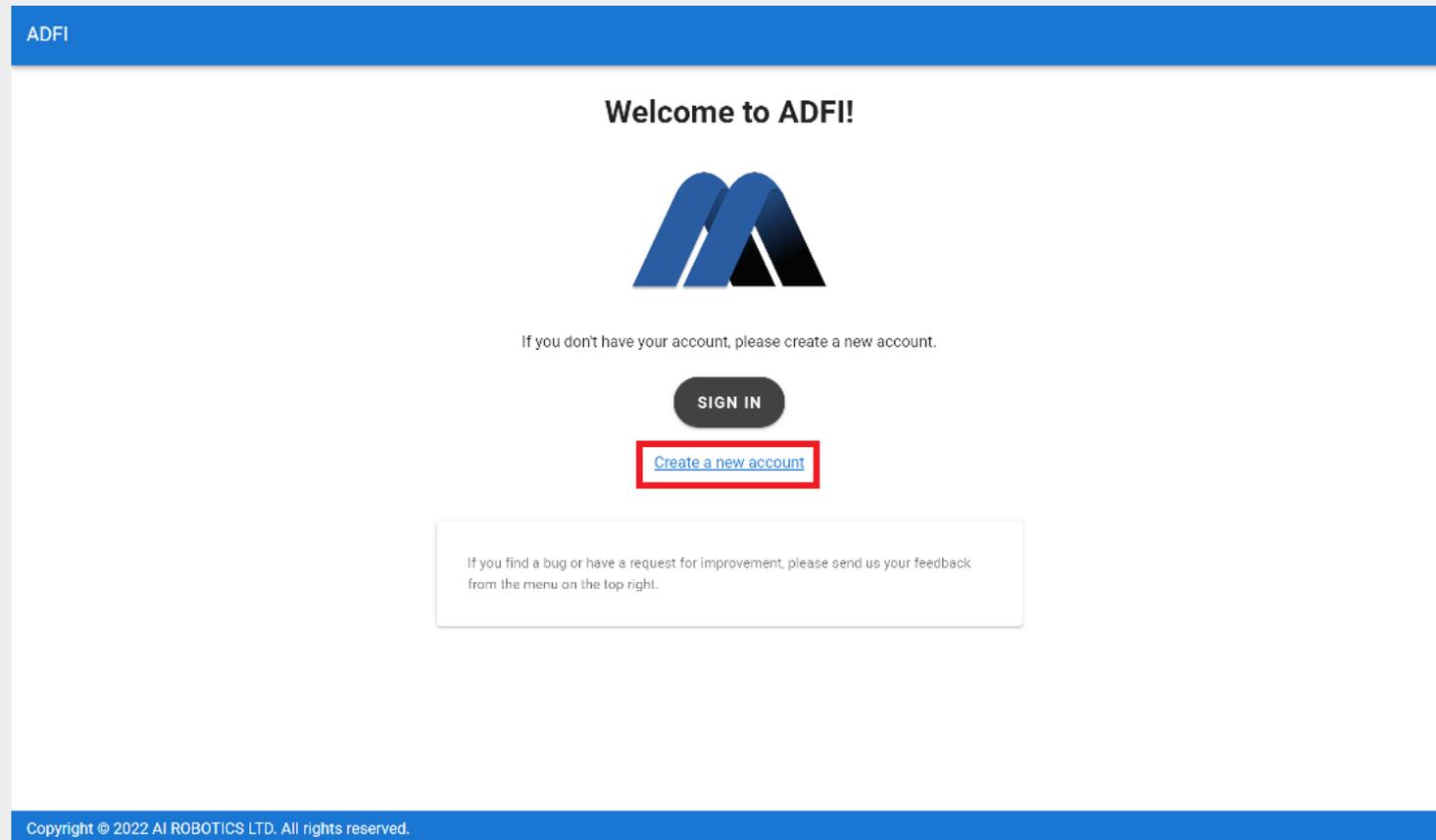


- Access the official website of ADFI (<https://adfi.jp/>).
- Click "Sign In/Sign Up" on the upper right. Go to ADFI app.



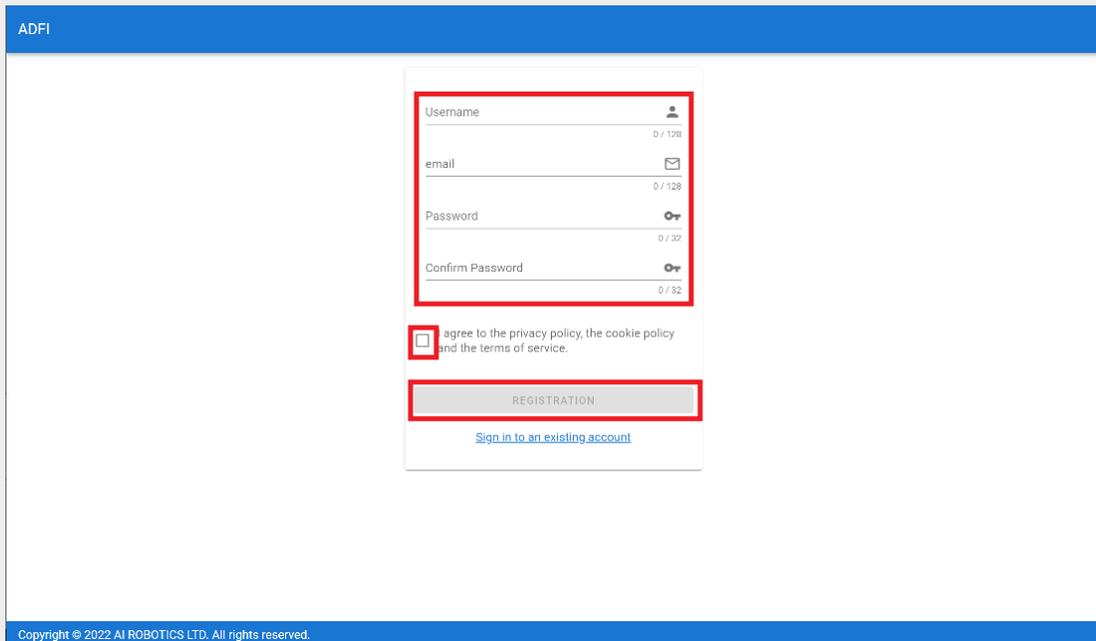
1. Create an account (first time login only)

- This is the top page of the ADFI app (<https://web.us.adfi.karakurai.com/webapp/>).
- Please click "Create a new account" for the first time.
 - From the second time onwards (after creating an account), please press the "SIGN IN" button.

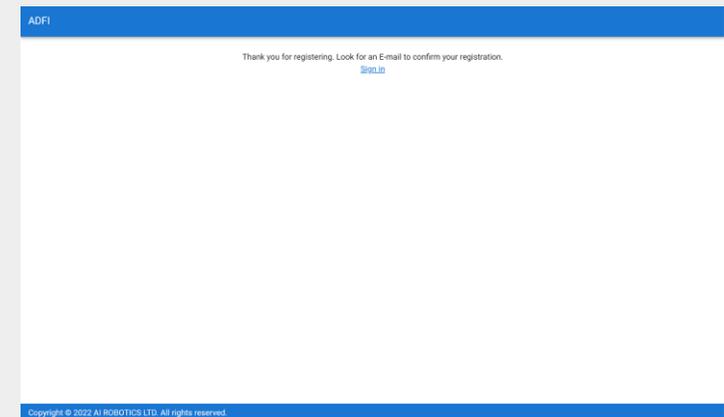


1. Create an account (first time login only)

- Create a new account. Enter the account information to be registered (user name, email address, password, password confirmation).
- After checking the check box at the bottom left, press the "REGISTRATION" button. A confirmation email will be sent to the email address you entered.

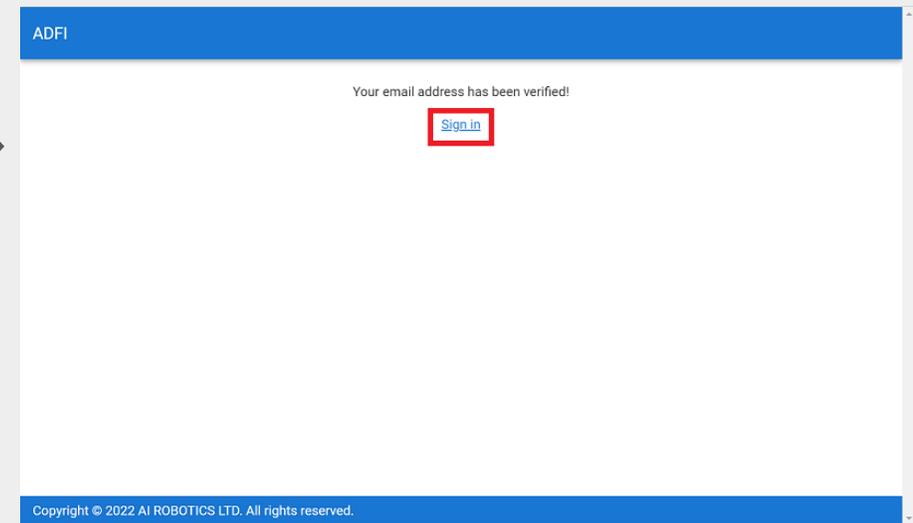
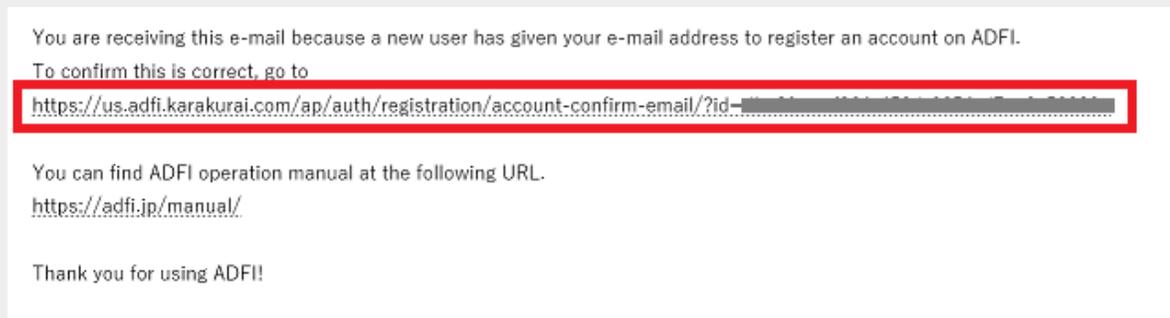


The screenshot shows the ADFI registration form. The form fields are: Username (0 / 128), email (0 / 128), Password (0 / 32), and Confirm Password (0 / 32). Below the fields is a checkbox for agreeing to the privacy policy, the cookie policy, and the terms of service. A "REGISTRATION" button is located below the checkbox, and a link for "Sign in to an existing account" is at the bottom. The ADFI logo is in the top left corner, and the copyright notice "Copyright © 2022 AI ROBOTICS LTD. All rights reserved." is in the bottom left corner.



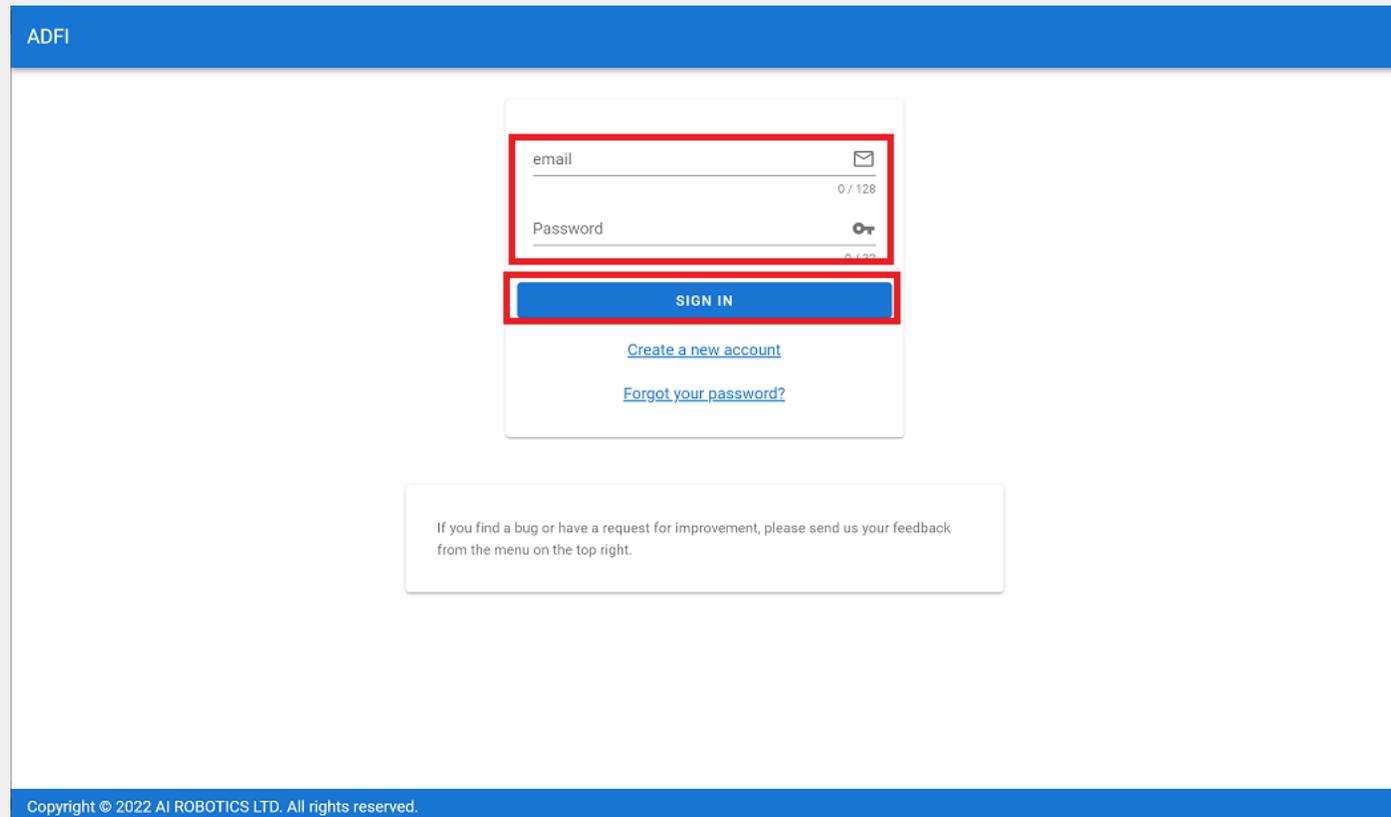
1. Create an account (first time login only)

- You will receive a confirmation email from ADFI (info-web@airobotics.jp) titled "ADFI Please Confirm Your E-mail Address", so please click the URL in the email.
- By clicking the URL, you can log in with the email address and password you entered earlier.
 - If you do not receive the e-mail, it may have been sorted into your spam box or the e-mail address you entered may be incorrect.
- Click "Sign in".



1. Create an account (first time login only)

- Log in to the ADFI app. Enter the account information (email address and password) you registered earlier.
- You can login to the ADFI app by pressing the "SIGN IN" button.

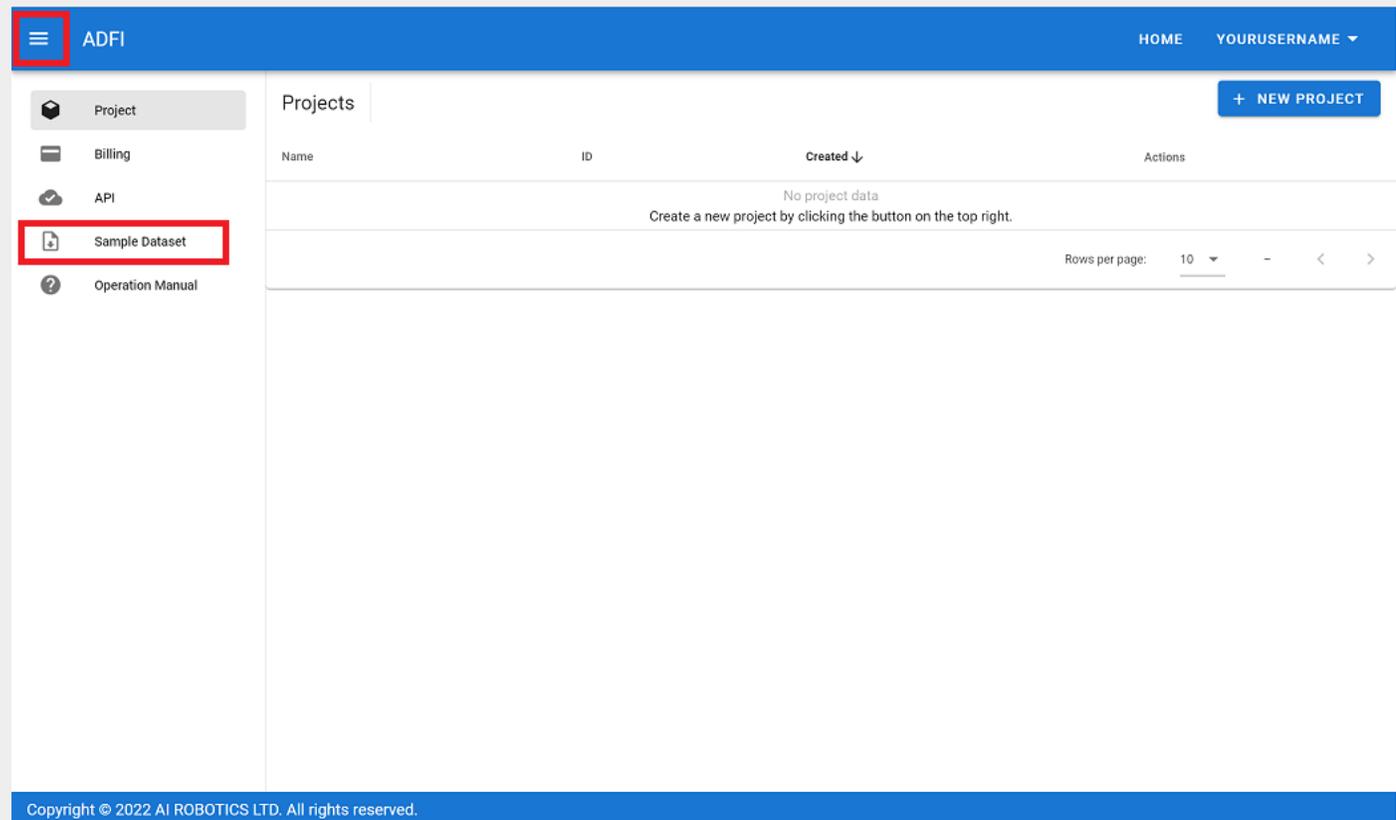


The screenshot shows the ADFI login interface. At the top, there is a blue header with the text "ADFI". Below the header, the main content area is white. In the center, there is a white box containing the login form. The form has two input fields: "email" and "Password". The "email" field has a red border and a small envelope icon on the right. The "Password" field has a red border and a small eye icon on the right. Below the input fields, there is a blue button with the text "SIGN IN" in white, also with a red border. Underneath the button, there are two blue links: "Create a new account" and "Forgot your password?". At the bottom of the form box, there is a small text box with the message: "If you find a bug or have a request for improvement, please send us your feedback from the menu on the top right." At the very bottom of the page, there is a blue footer with the text: "Copyright © 2022 AI ROBOTICS LTD. All rights reserved."

2. Preparing the dataset

2. Preparing the dataset

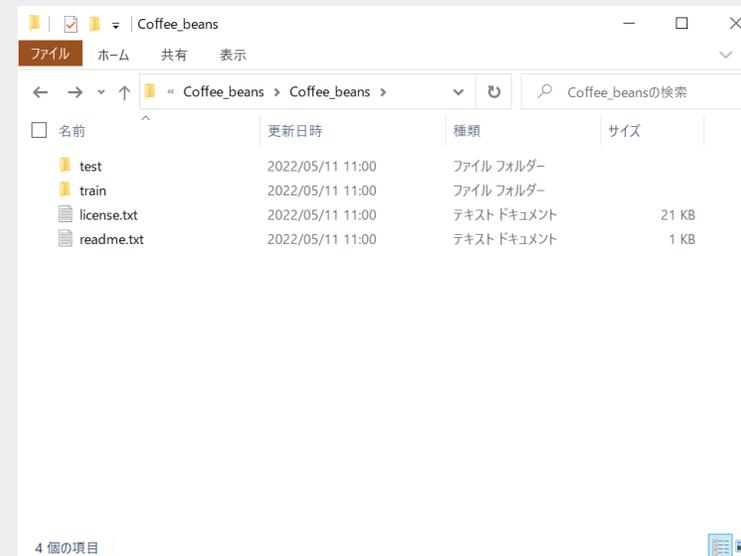
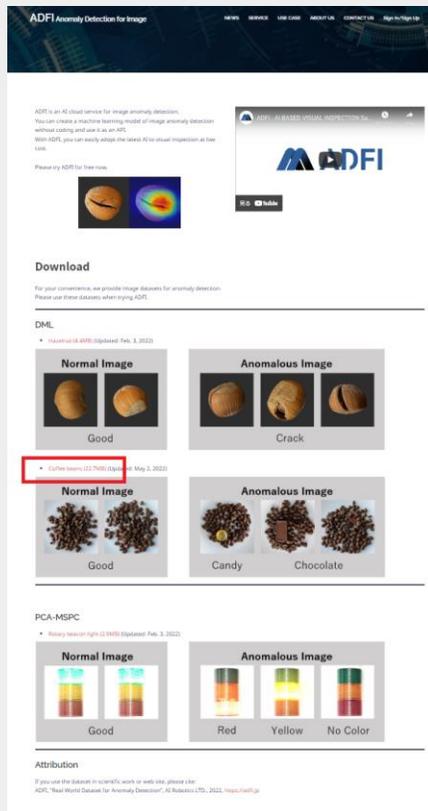
- Prepare the datasets necessary for creating an image anomaly detection AI and verifying its performance. After logging in to the ADFI app, press "Sample Dataset" on the left menu.
 - If the menu is not displayed, press the icon on the upper left.



The screenshot displays the ADFI application interface. The top navigation bar is blue and contains a hamburger menu icon (highlighted with a red box), the text "ADFI", and user information including "HOME" and "YOURUSERNAME". Below the navigation bar is a left sidebar menu with items: "Project", "Billing", "API", "Sample Dataset" (highlighted with a red box), and "Operation Manual". The main content area is titled "Projects" and features a table with columns for "Name", "ID", "Created", and "Actions". The table is currently empty, displaying the message "No project data" and "Create a new project by clicking the button on the top right." A blue "+ NEW PROJECT" button is located in the top right corner of the table area. At the bottom of the page, a footer contains the text "Copyright © 2022 AI ROBOTICS LTD. All rights reserved."

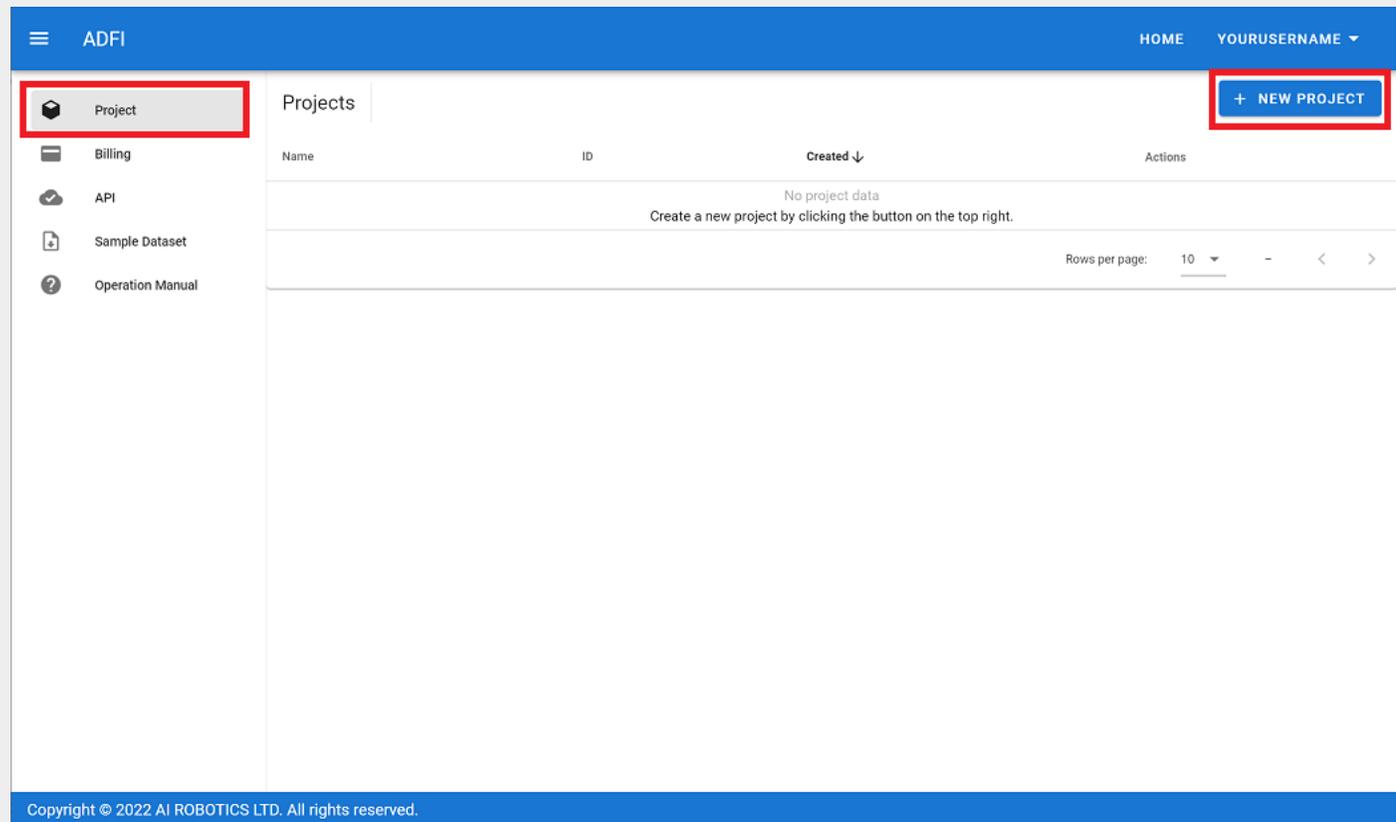
2. Preparing the dataset

- The download page of the ADFI official site is displayed. Click "Coffee beans (22.7MB)" in the middle of the page to download a sample image data set (examination of foreign matter in coffee beans).
 - An image containing only coffee beans is a normal image, and an image containing a foreign object (chocolate or candy) is an anomalous image.
- Expand the downloaded compressed file "Coffee_beans.zip".



2. Preparing the dataset

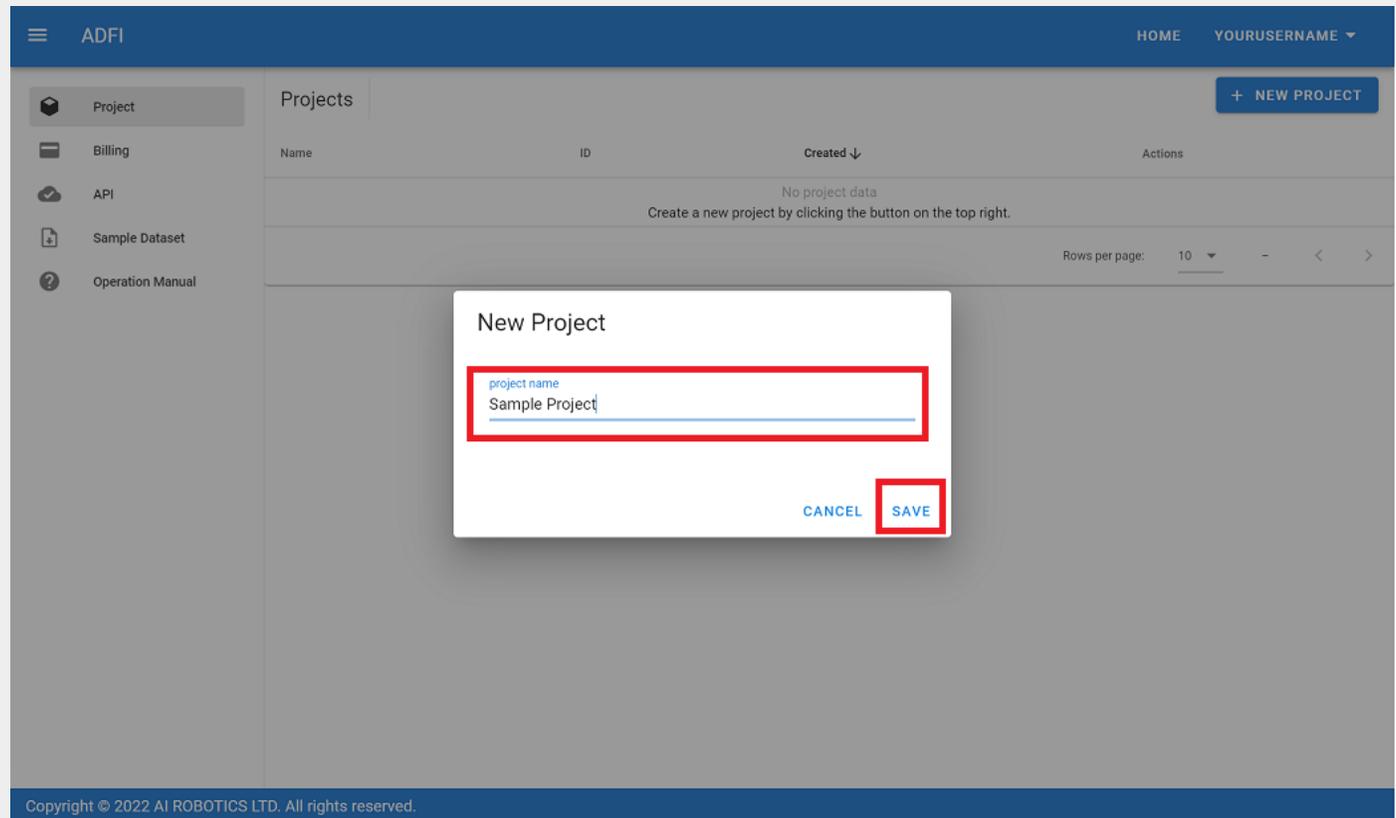
- First, create a project. Go back to the ADFI app and click "Project" on the left menu.
- Please press the "NEW PROJECT" button on the upper right.



The screenshot displays the ADFI application interface. The top navigation bar is blue and contains the ADFI logo, a hamburger menu icon, the text 'ADFI', and user information including 'HOME' and 'YOURUSERNAME'. On the left side, there is a vertical menu with several items: 'Project' (highlighted with a red box), 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area is titled 'Projects' and features a table with columns for 'Name', 'ID', 'Created ↓', and 'Actions'. The table is currently empty, displaying the message 'No project data' and a prompt: 'Create a new project by clicking the button on the top right.' A blue button with a white plus sign and the text '+ NEW PROJECT' is located in the top right corner of the main content area (highlighted with a red box). At the bottom of the page, a blue footer contains the text 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

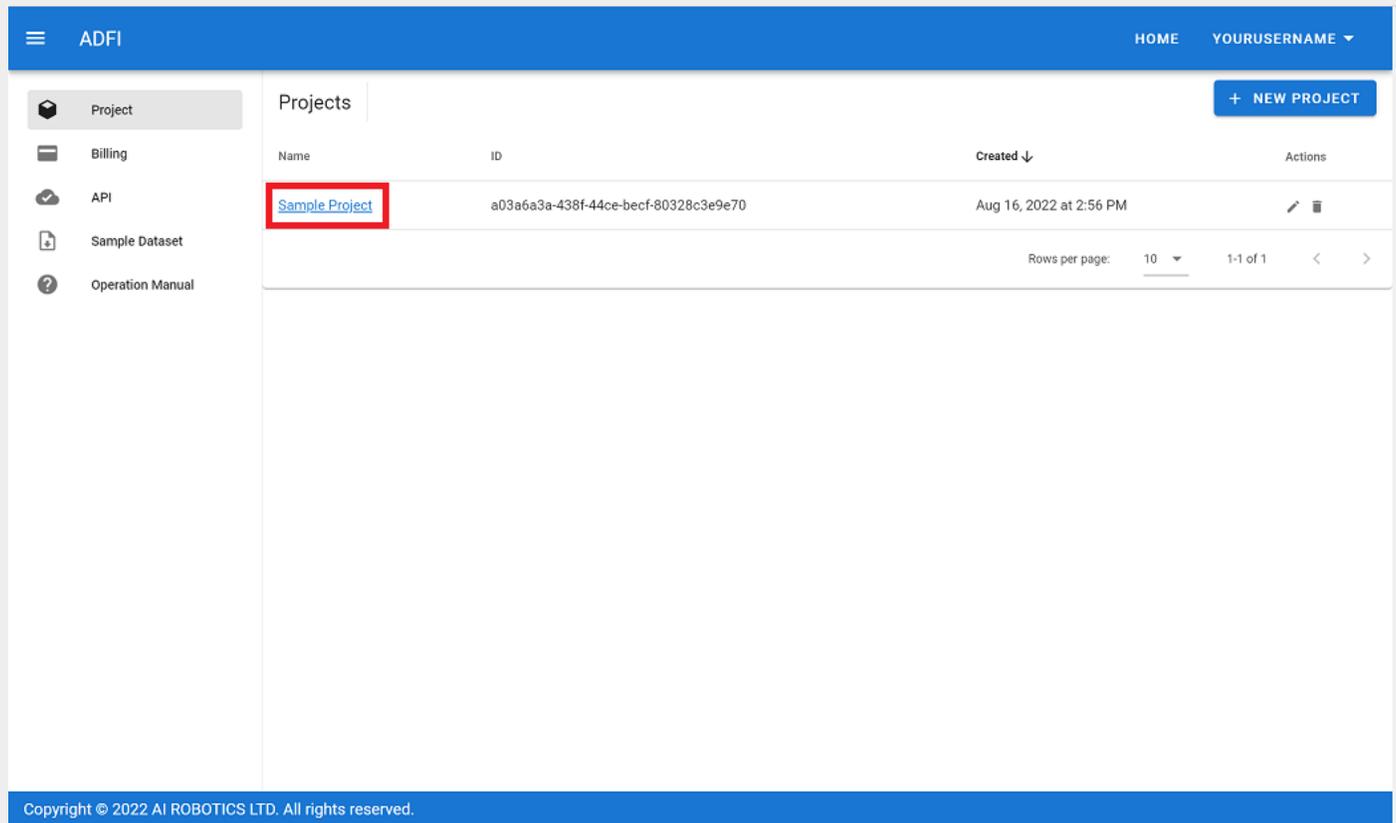
2. Preparing the dataset

- Enter the project name you want to create and click "SAVE".



2. Preparing the dataset

- A new project has been created. Please click the created project name. The project detail is displayed.



The screenshot displays the ADFI web application interface. The top navigation bar is blue and contains the ADFI logo, a home button, and the user's name 'YOURUSERNAME'. A sidebar on the left lists navigation options: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area is titled 'Projects' and features a '+ NEW PROJECT' button. Below this is a table with columns for Name, ID, Created, and Actions. A single row is visible, with 'Sample Project' highlighted by a red box. The table also includes pagination controls for 'Rows per page' (set to 10) and '1-1 of 1'.

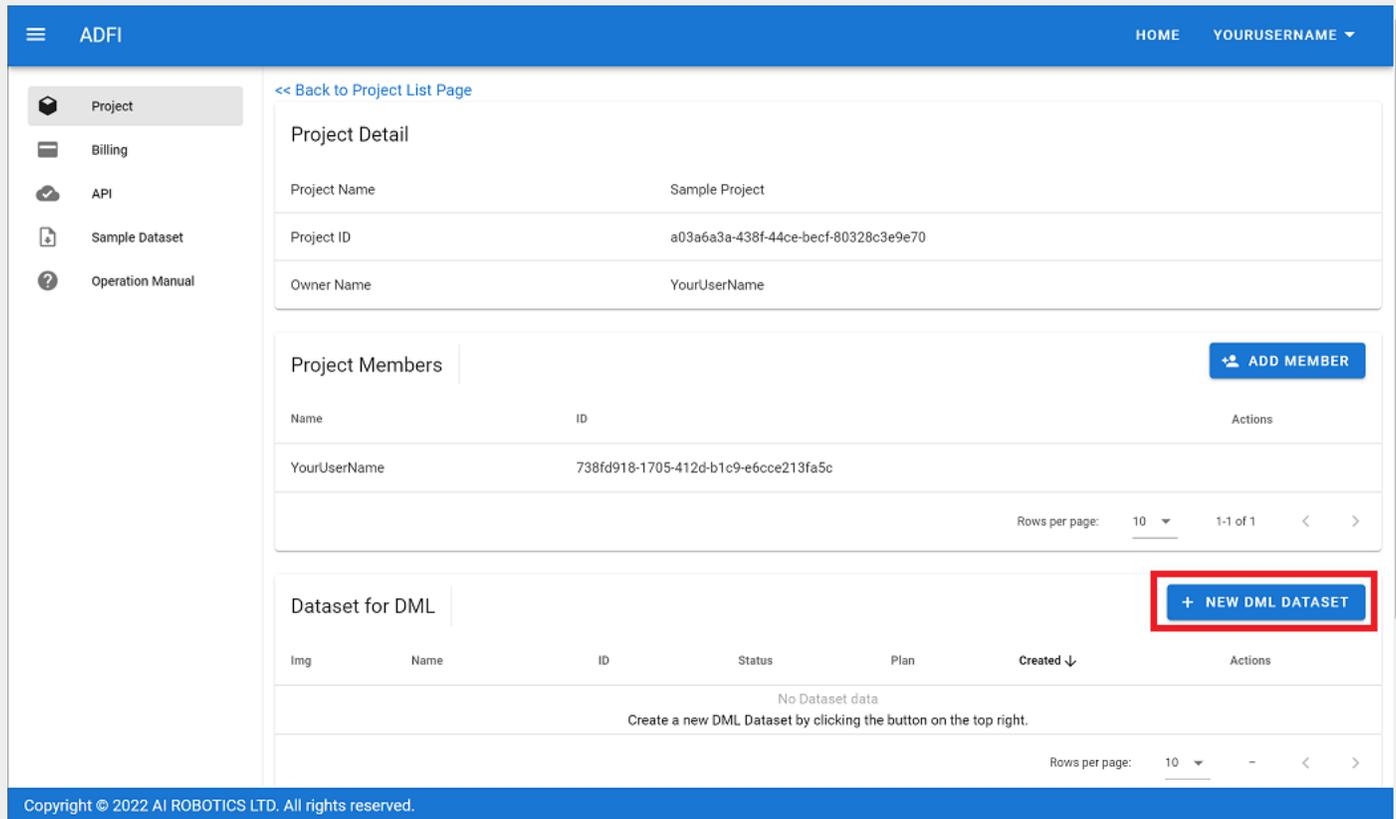
Name	ID	Created ↓	Actions
Sample Project	a03a6a3a-438f-44ce-becf-80328c3e9e70	Aug 16, 2022 at 2:56 PM	 

Rows per page: 10 1-1 of 1

Copyright © 2022 AI ROBOTICS LTD. All rights reserved.

2. Preparing the dataset

- Project details allow you to add project members or create datasets.
- Press the "NEW **DML** DATASET" button on the right.
 - This time, you will use the "**DML**" algorithm for the AI algorithm. If you want to use the "**PCA**" algorithm, press the "NEW **PCA** DATASET" button on the bottom right.



The screenshot displays the ADFI Project Detail page. The top navigation bar includes the ADFI logo, a home link, and the user's name. The left sidebar contains navigation options: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area is titled "Project Detail" and shows the following information:

- Project Name: Sample Project
- Project ID: a03a6a3a-438f-44ce-becf-80328c3e9e70
- Owner Name: YourUserName

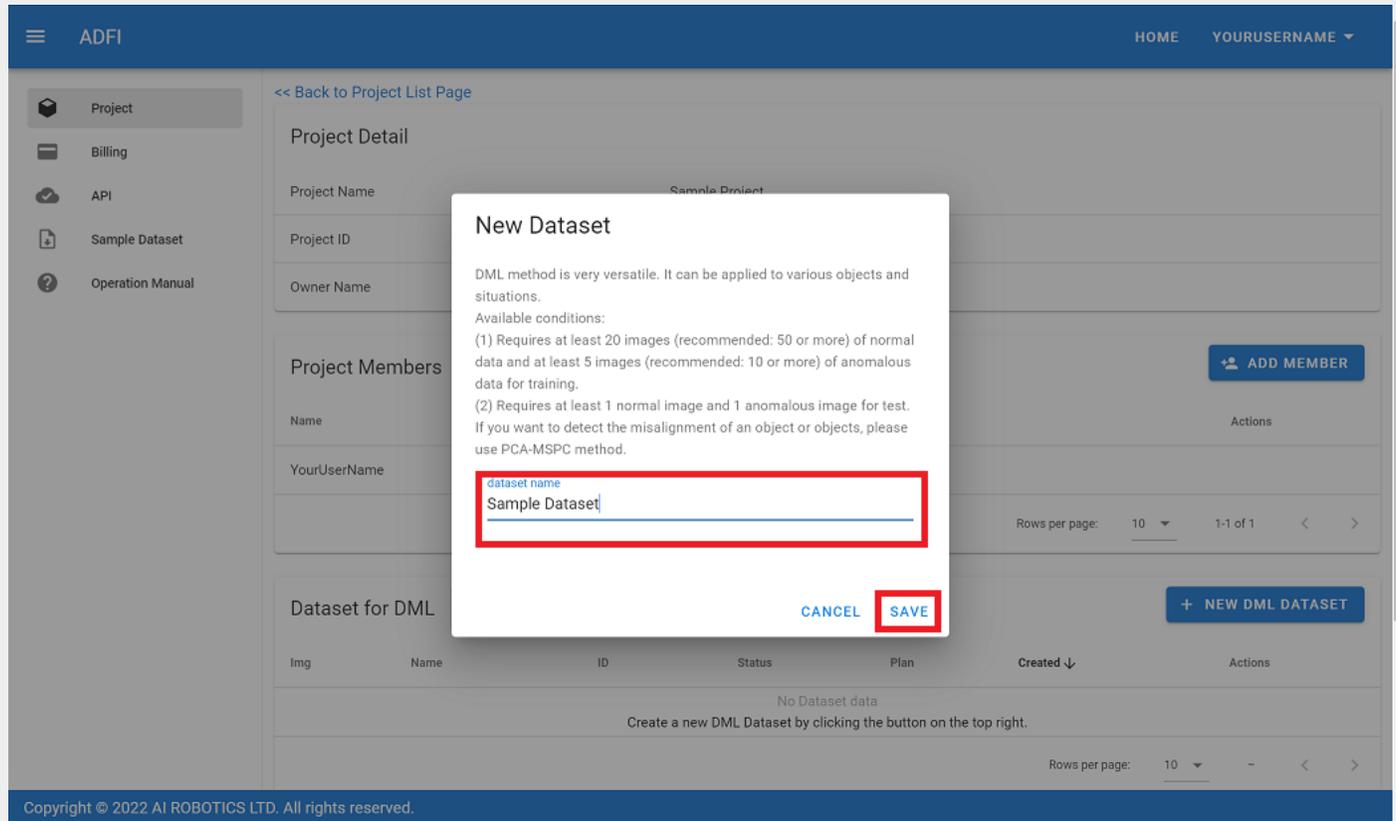
Below this information is a "Project Members" section with an "ADD MEMBER" button. A table lists the current member:

Name	ID	Actions
YourUserName	738fd918-1705-412d-b1c9-e6cce213fa5c	

At the bottom of the page is a "Dataset for DML" section. A red box highlights the "+ NEW DML DATASET" button. Below the button is a table with columns: Img, Name, ID, Status, Plan, Created, and Actions. The table is currently empty, with a message: "No Dataset data. Create a new DML Dataset by clicking the button on the top right."

2. Preparing the dataset

- Enter the dataset name you want to create and click "SAVE".



The screenshot shows the ADFI web interface with a 'New Dataset' modal dialog open. The dialog contains the following text:

New Dataset

DML method is very versatile. It can be applied to various objects and situations.

Available conditions:

(1) Requires at least 20 images (recommended: 50 or more) of normal data and at least 5 images (recommended: 10 or more) of anomalous data for training.

(2) Requires at least 1 normal image and 1 anomalous image for test.

If you want to detect the misalignment of an object or objects, please use PCA-MSPC method.

dataset name
Sample Dataset

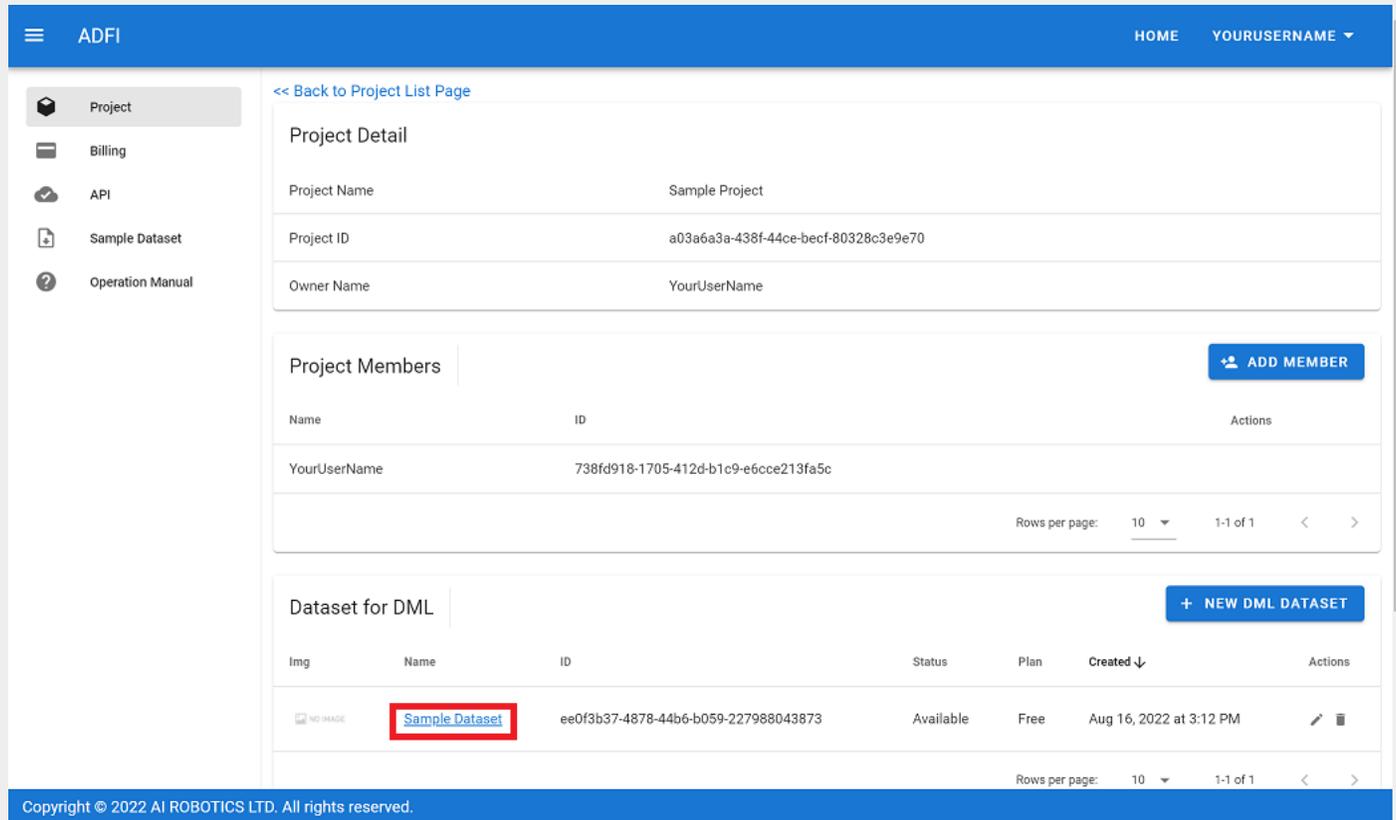
CANCEL SAVE

The background interface shows the 'Project Detail' page for 'Sample Project' with a sidebar menu containing 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The 'Sample Dataset' section is active, showing a table with columns: Img, Name, ID, Status, Plan, Created, and Actions. The table is currently empty, displaying 'No Dataset data' and a message: 'Create a new DML Dataset by clicking the button on the top right.'

Copyright © 2022 AI ROBOTICS LTD. All rights reserved.

2. Preparing the dataset

- A new dataset has been created. Click the created dataset name. Dataset detail is displayed.



The screenshot displays the ADFI web application interface. The top navigation bar includes the ADFI logo, a home link, and the user's name. A sidebar on the left contains navigation options: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area is titled 'Project Detail' and shows information for 'Sample Project', including its ID and owner name. Below this is a 'Project Members' section with a table listing 'YourUserName' and an 'ADD MEMBER' button. The 'Dataset for DML' section features a table with one entry, 'Sample Dataset', which is highlighted with a red box. The footer contains the copyright notice: 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

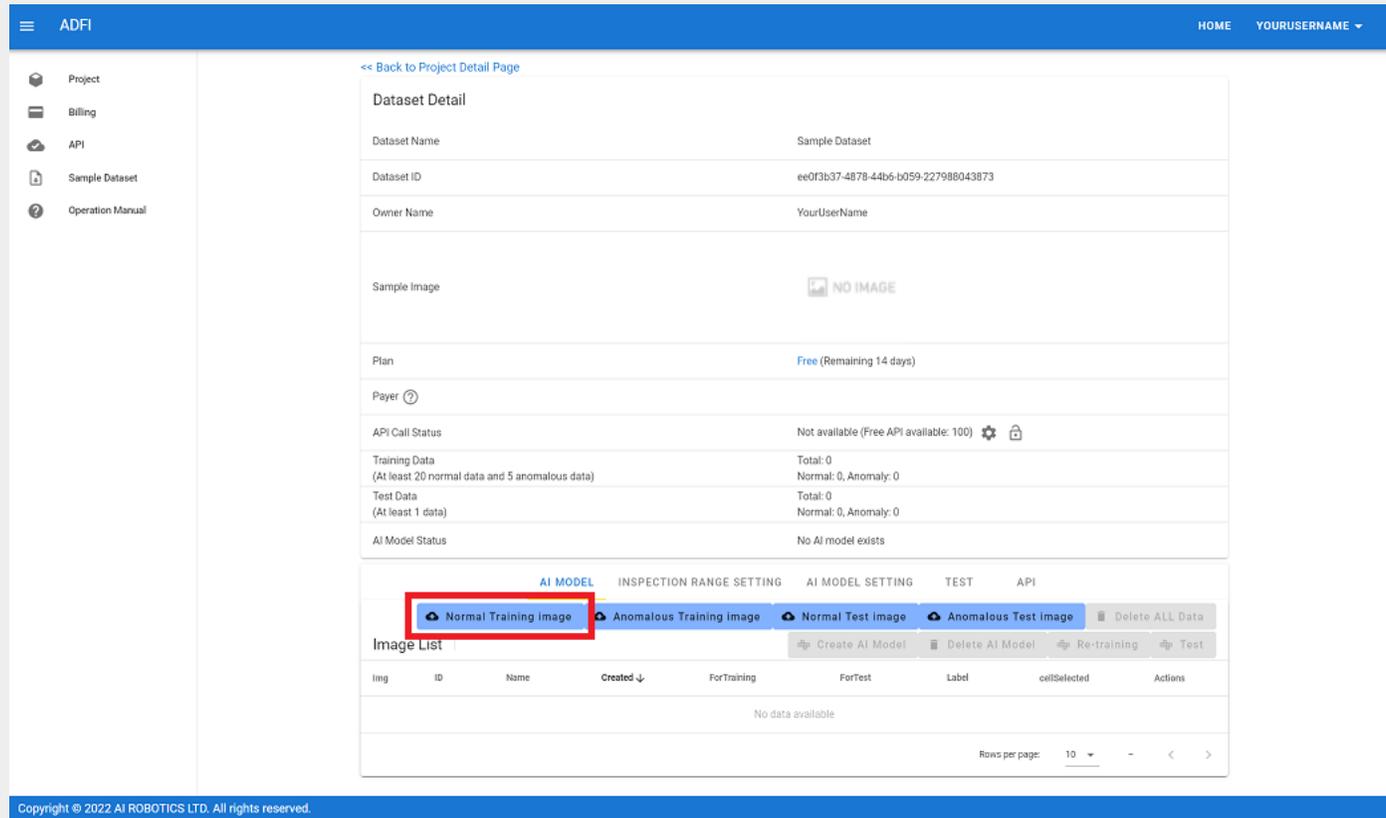
Project Name	Sample Project
Project ID	a03a6a3a-438f-44ce-becf-80328c3e9e70
Owner Name	YourUserName

Name	ID	Actions
YourUserName	738fd918-1705-412d-b1c9-e6cce213fa5c	

Img	Name	ID	Status	Plan	Created ↓	Actions
	Sample Dataset	ee0f3b37-4878-44b6-b059-227988043873	Available	Free	Aug 16, 2022 at 3:12 PM	 

2. Preparing the dataset

- In the dataset detail, you can register images for AI learning and performance verification, and create an AI and verify its performance.
- First, register normal images for learning. Press the "**Normal Training image**" button.



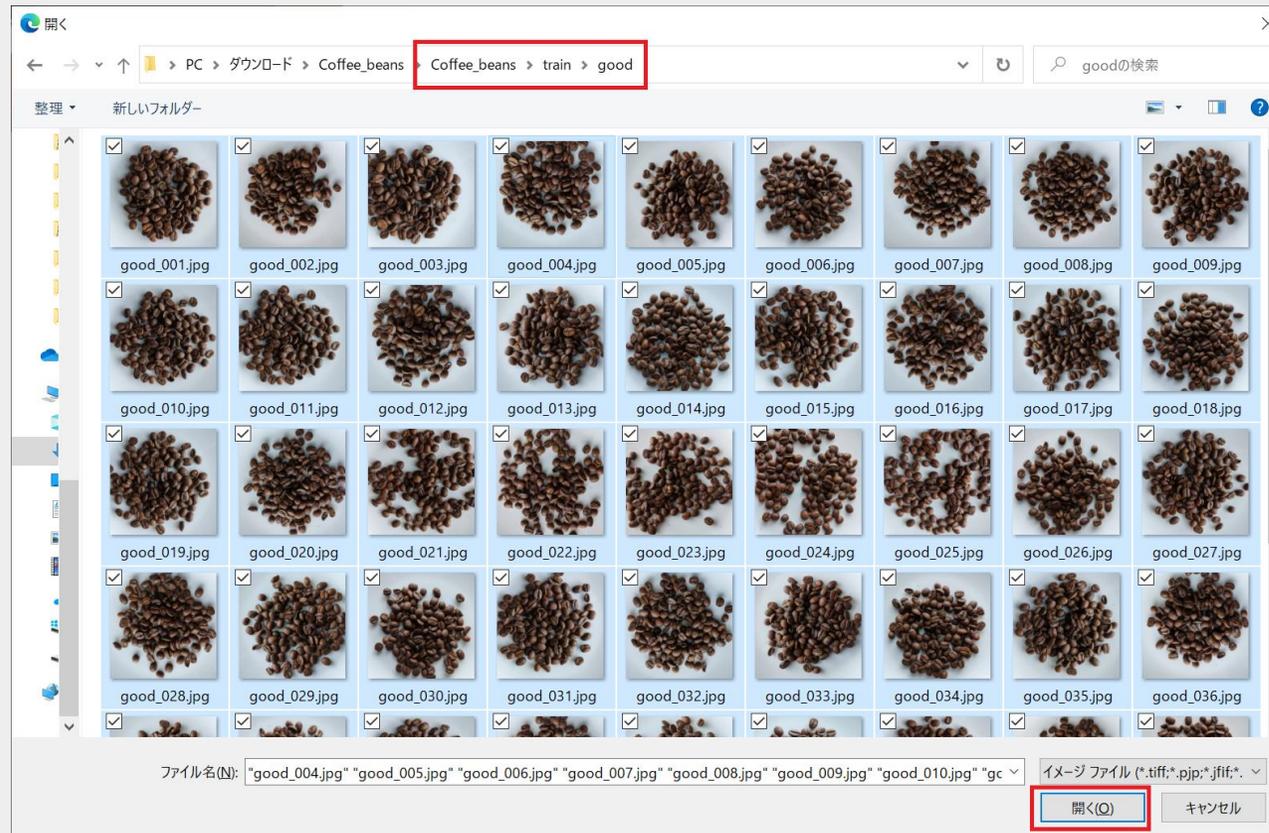
The screenshot displays the 'Dataset Detail' page in the ADFI interface. The page includes a sidebar with navigation options like Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows the following details:

- Dataset Name: Sample Dataset
- Dataset ID: ee0f3b37-4878-44b6-b059-227988043873
- Owner Name: YourUserName
- Sample Image: NO IMAGE
- Plan: Free (Remaining 14 days)
- Payer: ?
- API Call Status: Not available (Free API available: 100)
- Training Data (At least 20 normal data and 5 anomalous data): Total: 0, Normal: 0, Anomaly: 0
- Test Data (At least 1 data): Total: 0, Normal: 0, Anomaly: 0
- AI Model Status: No AI model exists

At the bottom of the page, there are several tabs: AI MODEL, INSPECTION RANGE SETTING, AI MODEL SETTING, TEST, and API. Below these tabs are four buttons: 'Normal Training image' (highlighted with a red box), 'Anomalous Training Image', 'Normal Test image', and 'Anomalous Test image'. There is also a 'Delete ALL Data' button. Below the buttons is an 'Image List' table with columns: Img, ID, Name, Created ↓, ForTraining, ForTest, Label, cellSelected, and Actions. The table currently shows 'No data available'. At the bottom right, there is a 'Rows per page: 10' dropdown menu.

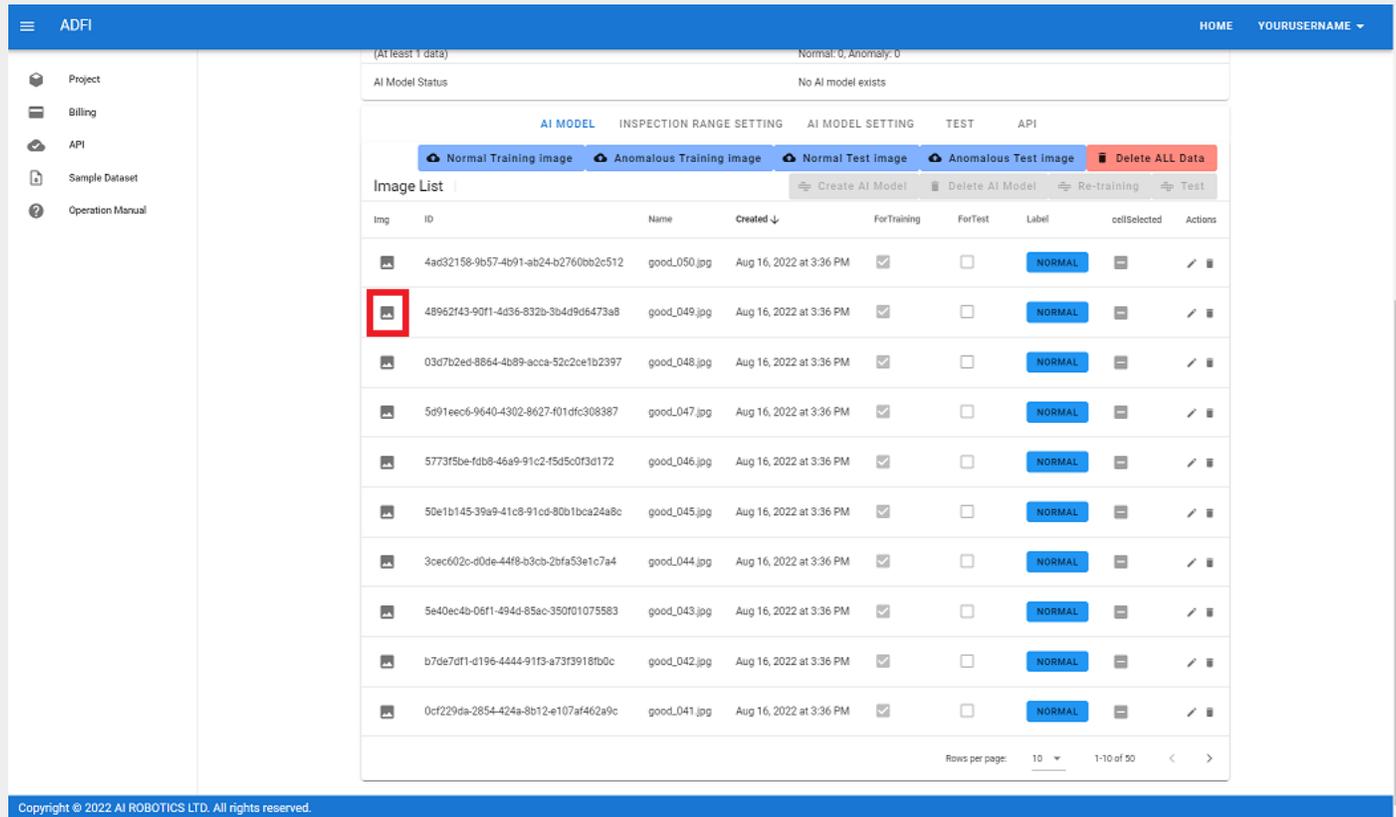
2. Preparing the dataset

- Open the **good** folder (Coffee_beans -> train -> good) in the **train** folder of the sample image dataset that you expanded earlier.
- Select all the images in the good folder and press the "Open" button.
 - In Windows, you can select all at once with the "Ctrl" button + "A" button.



2. Preparing the dataset

- After completing the upload of the image you selected earlier, a list of registered images will be displayed at the bottom of the dataset detail screen.
- Please press the icon on the left of any image information. You can check the registered image.



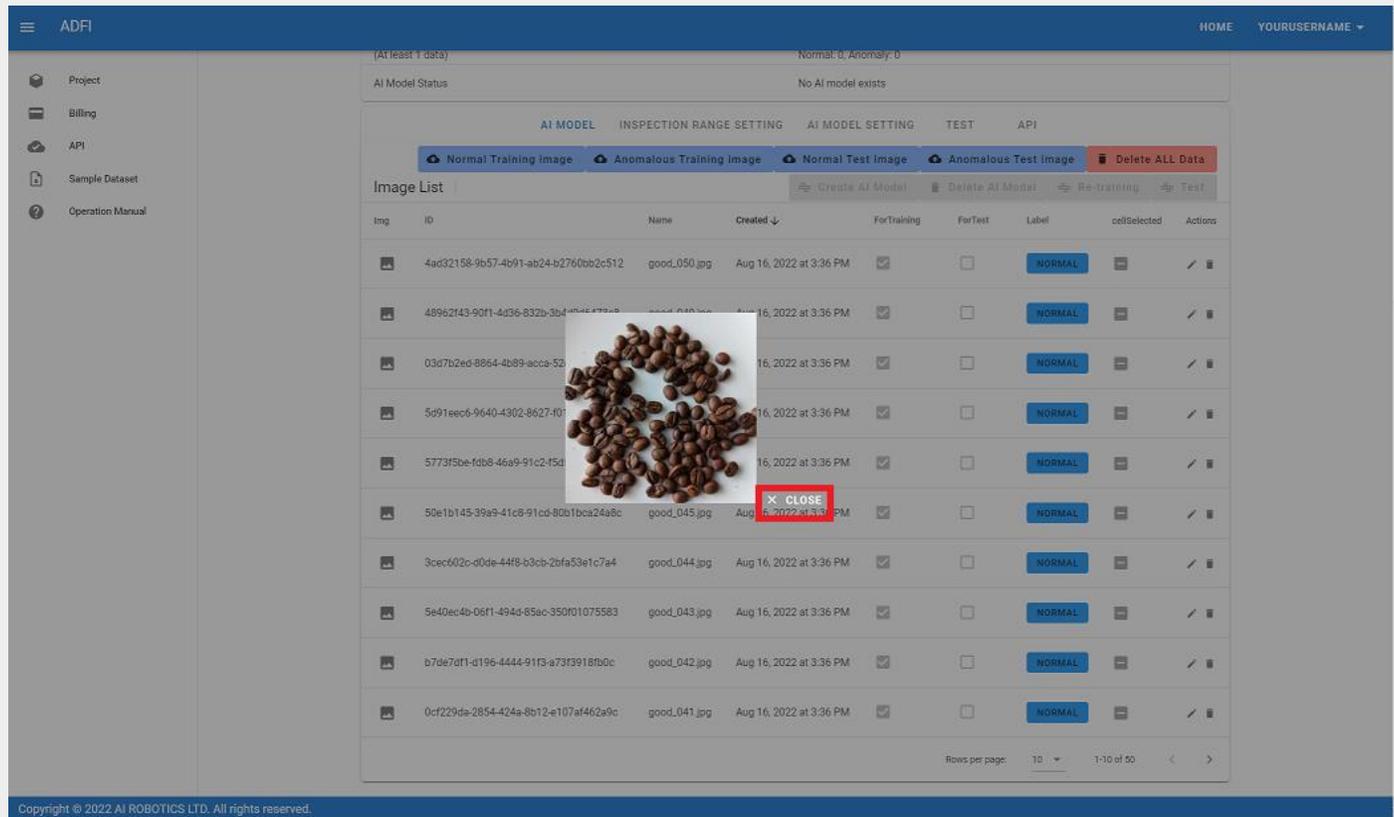
The screenshot displays the ADFI web interface. The top navigation bar includes 'ADFI', 'HOME', and 'YOURUSERNAME'. The left sidebar contains navigation options: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a summary of the dataset: '(At least 1 data)', 'Normal: 0, Anomaly: 0', and 'No AI model exists'. Below this, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. A toolbar contains buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. The 'Image List' table has the following columns: 'img', 'ID', 'Name', 'Created', 'ForTraining', 'ForTest', 'Label', 'cellSelected', and 'Actions'. The table contains 10 rows of image data, all labeled 'NORMAL'. The 'img' icon in the second row is highlighted with a red box.

img	ID	Name	Created	ForTraining	ForTest	Label	cellSelected	Actions
	4ad32158-9b57-4b91-ab24-b2760bb2c512	good_050.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	48962f43-90f1-4d36-832b-3b4d9d6473a8	good_049.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	03d7b2ed-8864-4b89-acc4-52c2ce1b2397	good_048.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5d91eec6-9640-4302-8627-401dfc308387	good_047.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5773f5be-f1b8-46a9-91c2-45d5c0f3d172	good_046.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	50e1b145-39a9-41c8-91cd-80b1bca24a8c	good_045.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	3cec602c-d0de-44f8-b3cb-2bfa53e1c7a4	good_044.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5e40ec4b-06f1-494d-85ac-350f01075583	good_043.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	b7de7d1f-d196-4444-91f3-a73f3918fb0c	good_042.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	0c2229da-2854-424a-8b12-e107af462a9c	good_041.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 

Rows per page: 10 1-10 of 50

2. Preparing the dataset

- The registered image is displayed. Please click "CLOSE" in the lower right.

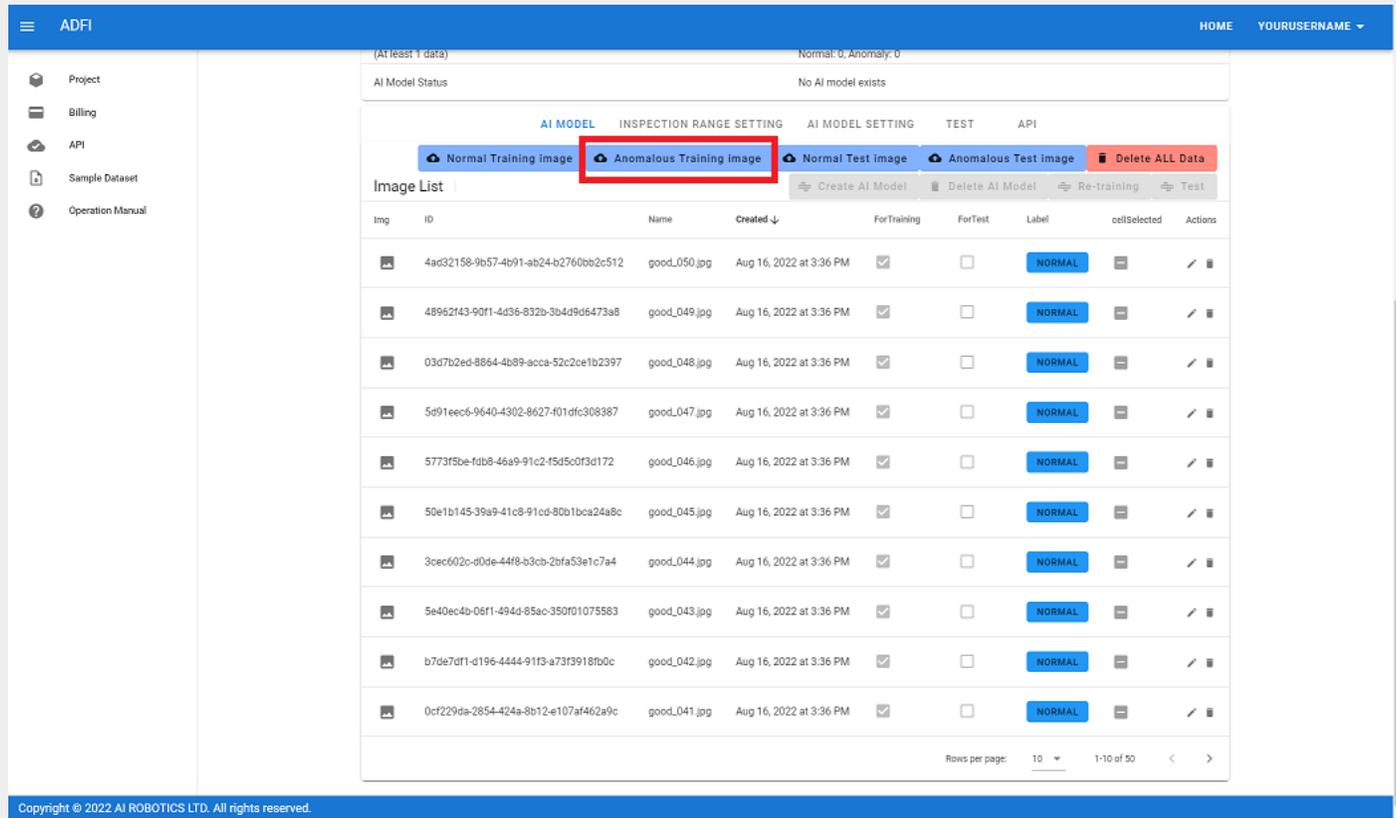


The screenshot displays the ADFI web application interface. On the left is a navigation sidebar with options: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows the 'AI Model Status' section with a message 'No AI model exists'. Below this is the 'Image List' table, which contains columns for 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'cellSelected', and 'Actions'. The table lists several 'good' images. A modal window is open, displaying a close-up image of coffee beans. A red box highlights a 'CLOSE' button in the bottom right corner of the modal. The footer of the page contains the text 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

Img	ID	Name	Created	For Training	For Test	Label	cellSelected	Actions
	4ac32158-9b57-4b91-ab24-b276fbb2c512	good_050.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	48962f43-90f1-4d36-832b-3d4404547788	good_049.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	03d7b2e0-8864-4b89-acc8-52	good_048.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5d91eec6-9640-4302-8627-f0f	good_047.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5773f5be-fdb8-46a9-91c2-45d	good_046.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	50e1b145-39a9-41c8-91cd-80b1bca24a8c	good_045.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	3cec602c-d0de-44f9-b3cb-2fa53e1c7a4	good_044.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5e40ec4b-d6f1-494d-85ac-350f01075583	good_043.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	b7de7af1-d196-4444-91f3-a73f3918fb0c	good_042.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	0cf229da-2854-424a-8b12-e107af462a9c	good_041.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 

2. Preparing the dataset

- Next, register anomalous images for learning. Press the "Anomalous Training image" button.
 - This operation is only required for the "DML" algorithm. In the case of the "PCA" algorithm, registration of anomalous images for training is not required.



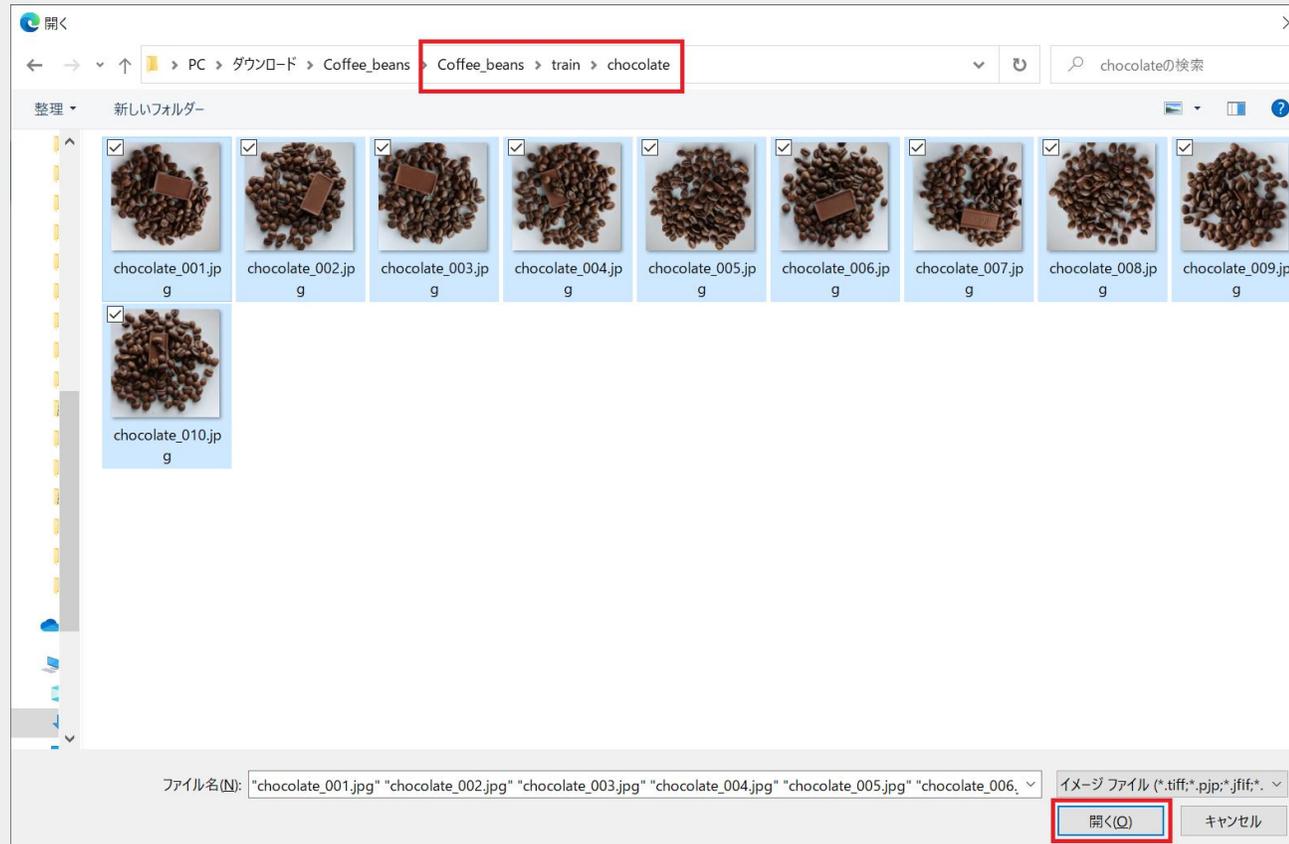
The screenshot displays the ADFI web interface. The top navigation bar includes the ADFI logo, a menu icon, and user information (HOME, YOURUSERNAME). The main content area shows the 'Image List' table, which contains 10 rows of image data. The 'Anomalous Training image' button is highlighted with a red box. The table columns are: Img, ID, Name, Created, For Training, For Test, Label, Cell Selected, and Actions.

Img	ID	Name	Created	For Training	For Test	Label	Cell Selected	Actions
	4ad32158-9b57-4b91-ab24-b2760bb2c512	good_050.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	48962f43-90f1-4d36-832b-3b4d9d6473a8	good_049.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	03d7b2ed-8654-4b89-acc4-52c2ce1b2397	good_048.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5d91eec6-9640-4302-8627-f01dfc308387	good_047.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5773f5be-fdb8-46a9-91c2-45d5c0f3d172	good_046.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	50e1b145-39a9-41c8-91cd-80b1bca24a8c	good_045.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	3cec602c-00de-44f8-b3cb-2bfa53e1c7a4	good_044.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	5e40ec4b-06f1-494d-85ac-350f01075583	good_043.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	b7de7df1-d196-4444-9113-a73f3918fb0c	good_042.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	0cf229da-2854-424a-8b12-e107af462a9c	good_041.jpg	Aug 16, 2022 at 3:36 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NORMAL	<input type="checkbox"/>	 

Rows per page: 10 1-10 of 50

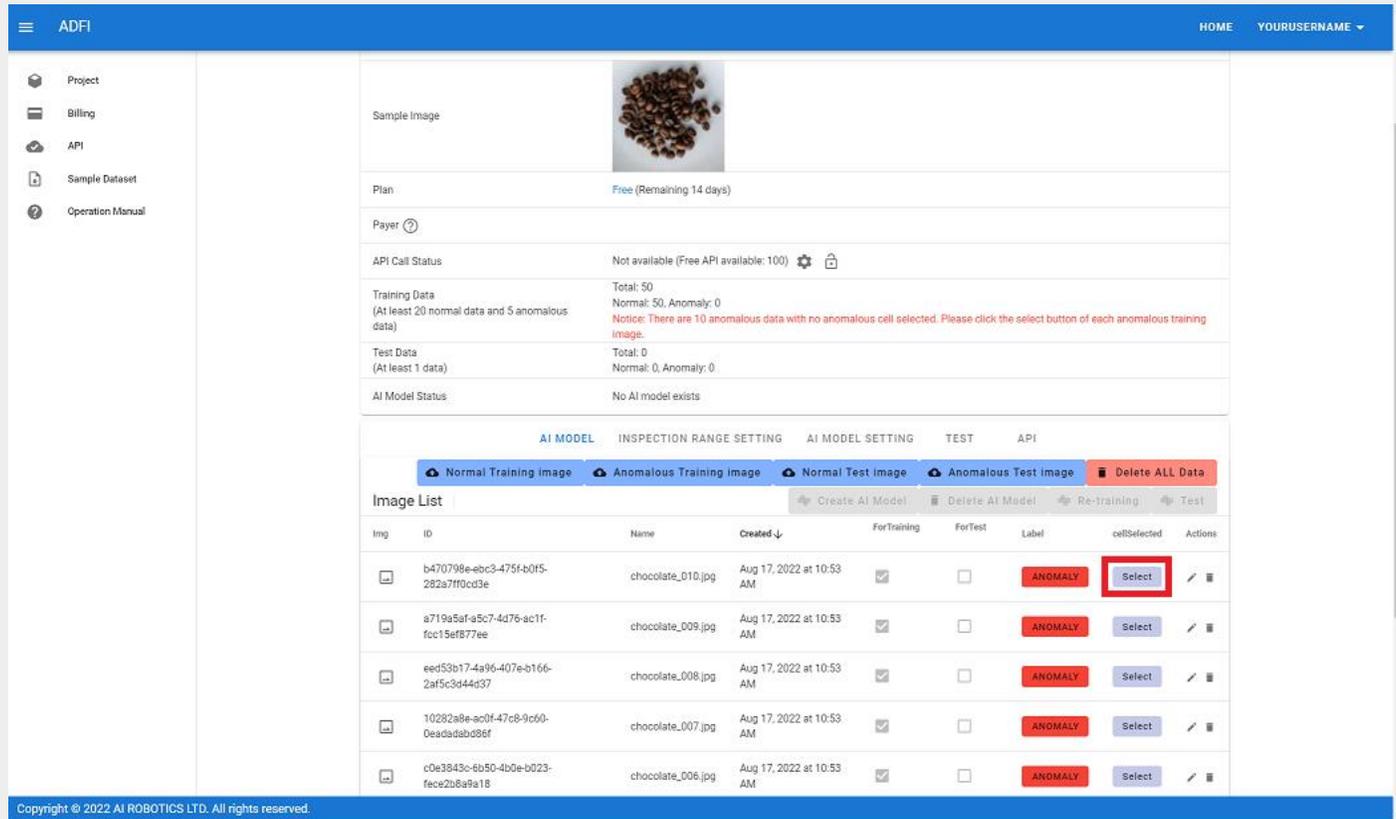
2. Preparing the dataset

- Open the **chocolate** folder (Coffee_beans -> train -> chocolate) in the **train** folder of the sample image dataset.
- Select all the images in the chocolate folder and press the "Open" button.
 - In Windows, you can select all at once with the "Ctrl" button + "A" button.



2. Preparing the dataset

- After completing the upload of the anomaly image, the anomaly image is added to the image list.
- Anomaly images for training should specify anomalous regions in the image. Press the "Select" button to the right of the image information.
 - Anomaly images that do not specify an anomaly region are not used for AI training.

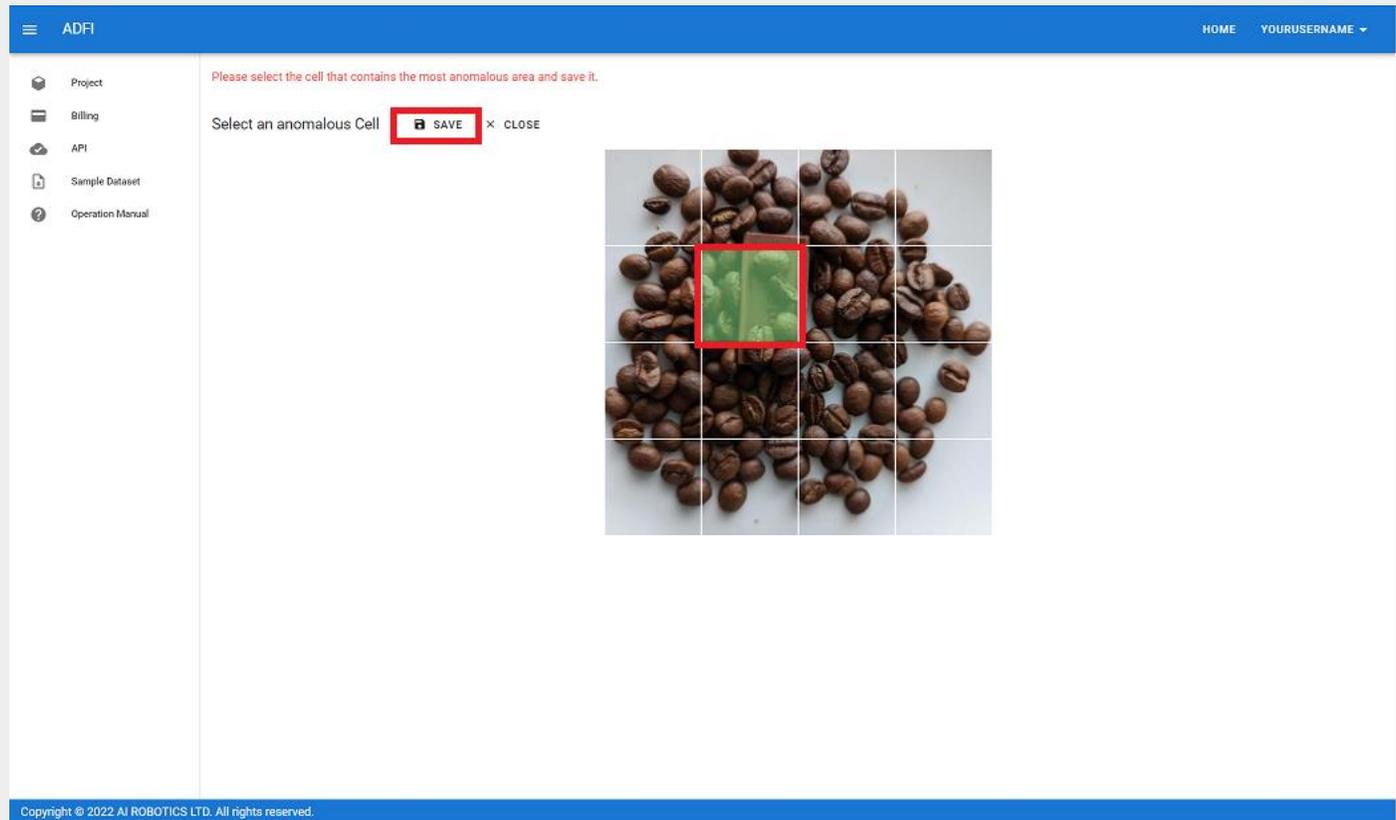


The screenshot displays the ADFI web interface. At the top, there is a navigation bar with 'ADFI' on the left and 'HOME YOURUSERNAME' on the right. A sidebar on the left contains menu items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a 'Sample Image' of chocolate beans. Below it, there are several status indicators: Plan (Free, Remaining 14 days), Payer, API Call Status (Not available), Training Data (Total: 50, Normal: 50, Anomaly: 0), Test Data (Total: 0, Normal: 0, Anomaly: 0), and AI Model Status (No AI model exists). A navigation bar below these indicators includes 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. Under 'AI MODEL', there are buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. Below this is an 'Image List' table with columns: Img, ID, Name, Created, For Training, For Test, Label, Selected, and Actions. The table contains five rows of chocolate images, all labeled 'ANOMALY'. The 'Selected' column for each row has a 'Select' button, which is highlighted with a red box in the first row.

Img	ID	Name	Created	For Training	For Test	Label	Selected	Actions
	b470798e-ebc3-475f-b0f5-282a7f0c03e	chocolate_010.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	
	a719a5af-a5c7-4d76-ac1f-fcc15ef877ee	chocolate_009.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	
	eed53b17-4a96-407e-b166-2af5c3d44d37	chocolate_008.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	
	10282a8e-ac0f-47c8-9c60-0eadadab086f	chocolate_007.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	
	c0e3843c-6b50-4b0e-b023-fec2b8a9a18	chocolate_006.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	

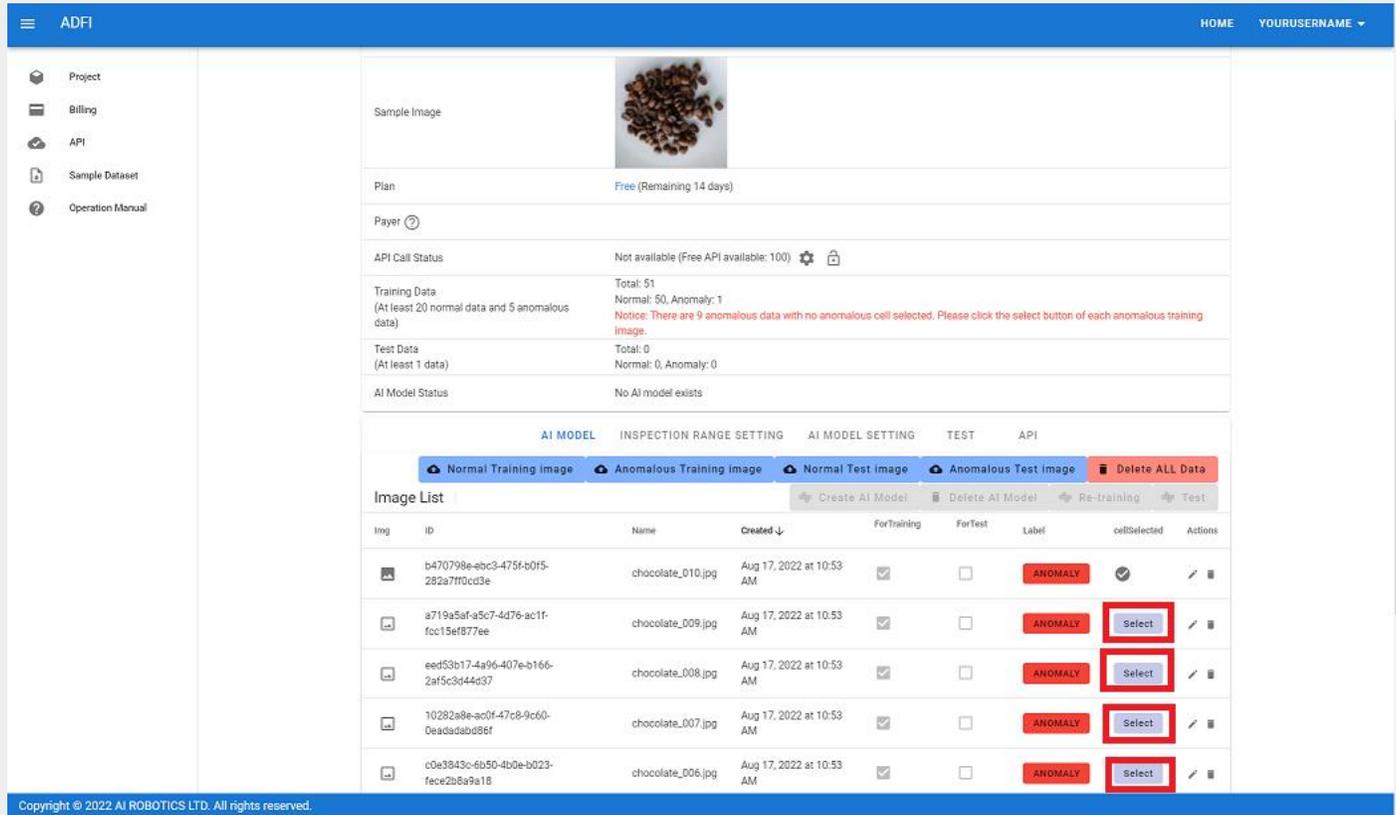
2. Preparing the dataset

- Specifies the abnormal region in the image. From the 16 divisions of the image, select and click on one area that contains an anomaly. Selected areas are displayed in green.
 - If the anomaly exists in multiple areas, select the one that is the most characteristic.
- After selecting, press the "SAVE" button on the upper left.



2. Preparing the dataset

- A check mark is displayed to the right of the image information that selected the anomaly area.
- Repeat the same operation for each image information, and change all "Select" buttons to display check marks.

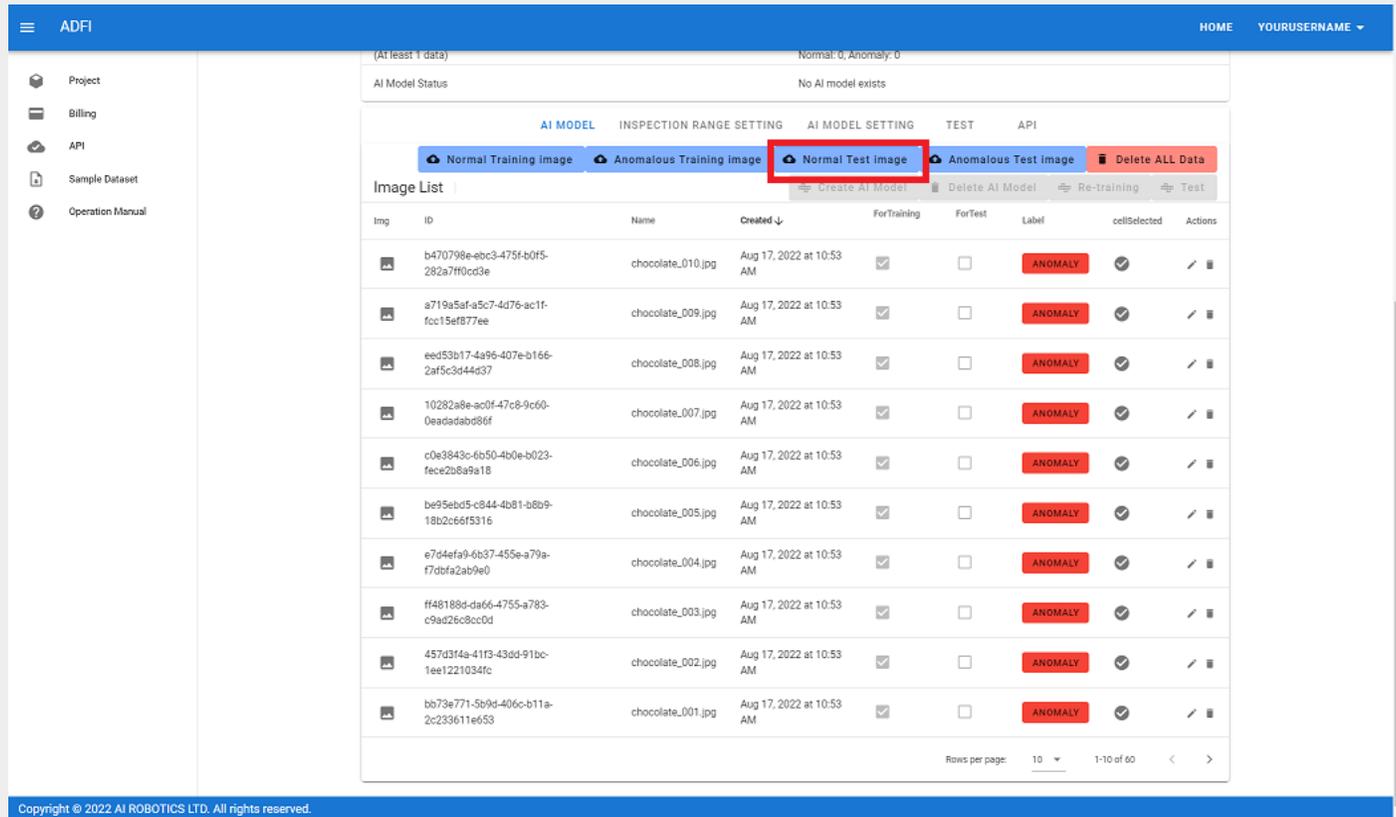


The screenshot displays the ADFI web interface. At the top, there is a blue navigation bar with the ADFI logo on the left and 'HOME YOURUSERNAME' on the right. A sidebar on the left contains navigation links for Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a 'Sample Image' of chocolate pieces. Below the image, there are several informational rows: Plan (Free, Remaining 14 days), Payer, API Call Status (Not available), Training Data (Total: 51, Normal: 50, Anomaly: 1), Test Data (Total: 0, Normal: 0, Anomaly: 0), and AI Model Status (No AI model exists). A red notice states: 'Notice: There are 9 anomalous data with no anomalous cell selected. Please click the select button of each anomalous training image.' Below this, there are tabs for AI MODEL, INSPECTION RANGE SETTING, AI MODEL SETTING, TEST, and API. Under the AI MODEL tab, there are buttons for Normal Training image, Anomalous Training image, Normal Test image, Anomalous Test image, and Delete ALL Data. An 'Image List' table is shown with columns for Img, ID, Name, Created, For Training, For Test, Label, cellSelected, and Actions. The table contains five rows of chocolate images, all labeled 'ANOMALY'. The 'cellSelected' column shows a checkmark for the first row and 'Select' buttons for the others. The 'Actions' column contains edit and delete icons for each row.

Img	ID	Name	Created	For Training	For Test	Label	cellSelected	Actions
	b470798e-ebc3-475f-b0f5-282a77f0cd3e	chocolate_010.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	a719a5af-a5c7-4d76-ac1f-fcc15ef877ee	chocolate_009.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	
	eed53b17-4a96-407e-b166-2af5c3d44c37	chocolate_008.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	
	10282a8e-ac0f-47c8-9cc0-Deadaab086f	chocolate_007.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	
	c0e3843c-6b50-4b0e-b023-fece2b8a9a18	chocolate_006.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	Select	

2. Preparing the dataset

- Make sure all training anomaly images are marked with a check mark.
- Next, register test images to be used for AI performance verification. Press the "Normal Test image" button.

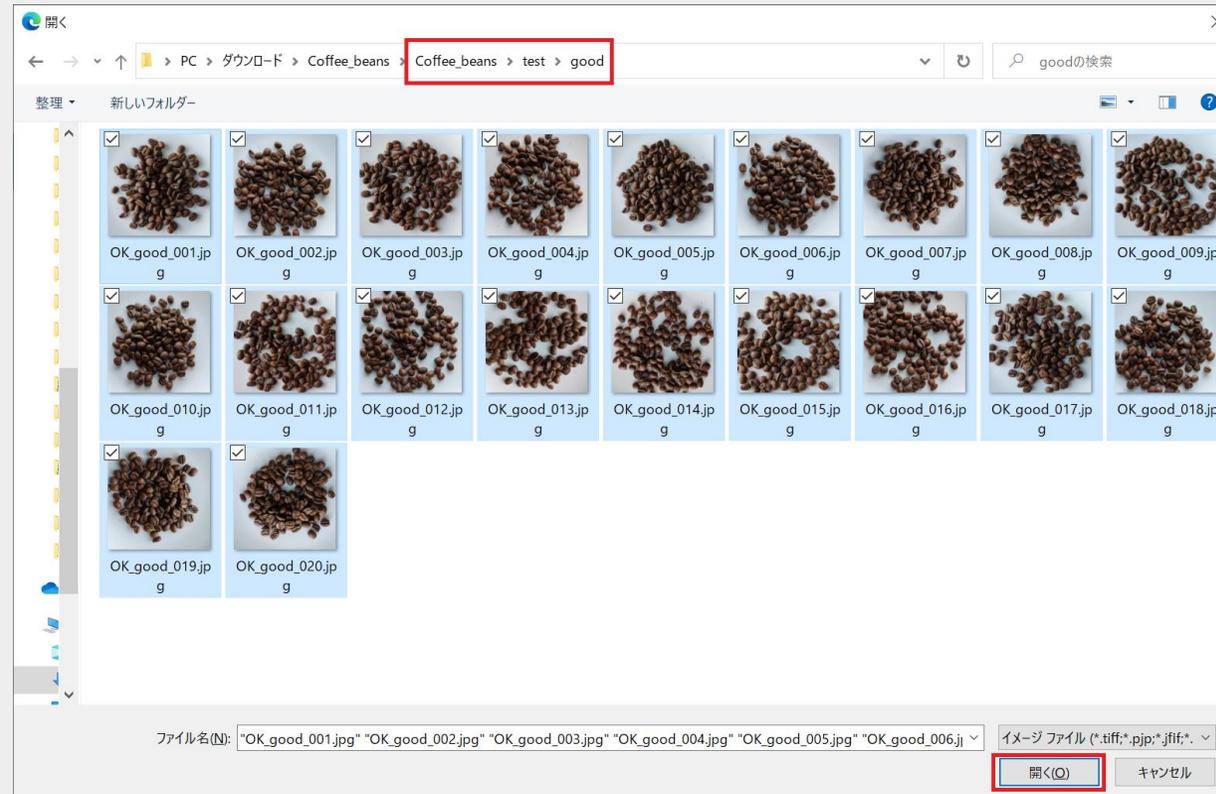


The screenshot displays the ADFI web interface. The top navigation bar includes 'ADFI', 'HOME', and 'YOURUSERNAME'. The left sidebar contains navigation options: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows the 'Image List' table, which is currently empty of data. Above the table, there are several buttons: 'Normal Training image', 'Anomalous Training image', 'Normal Test image' (highlighted with a red box), 'Anomalous Test image', and 'Delete ALL Data'. The table has columns for 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'cellSelected', and 'Actions'. The 'For Training' column contains checked boxes, and the 'Label' column contains 'ANOMALY' in red text. The 'Created' column shows dates from Aug 17, 2022 at 10:53 AM. The 'Actions' column contains edit and delete icons. At the bottom of the table, there is a pagination control showing 'Rows per page: 10' and '1-10 of 60'.

Img	ID	Name	Created	For Training	For Test	Label	cellSelected	Actions
	b470798e-ebc3-475f-b0f5-282a7f0cd3e	chocolate_010.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	a719a5af-e5c7-4d76-ac1f-fcc15ef877ee	chocolate_009.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	eed53b17-4a96-407e-b166-2af5c3d44d37	chocolate_008.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	10282a8e-ac0f-47c6-9c60-0eadadab86f	chocolate_007.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	c0e3843c-6b50-4b0e-b023-fece2b8a9a18	chocolate_006.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	be95ebd5-c844-4b81-b8b9-18b2c66f5316	chocolate_005.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	e7d4afa9-6b37-455e-a79a-f7dbfa2ab9e0	chocolate_004.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	ff48188d-da66-4755-a783-c9ad26c9cc0d	chocolate_003.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	457d314e-41f3-43dd-91bc-1ee1221034fc	chocolate_002.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	
	bb73e771-5b9d-406c-b11a-2c233611e653	chocolate_001.jpg	Aug 17, 2022 at 10:53 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ANOMALY	<input checked="" type="checkbox"/>	

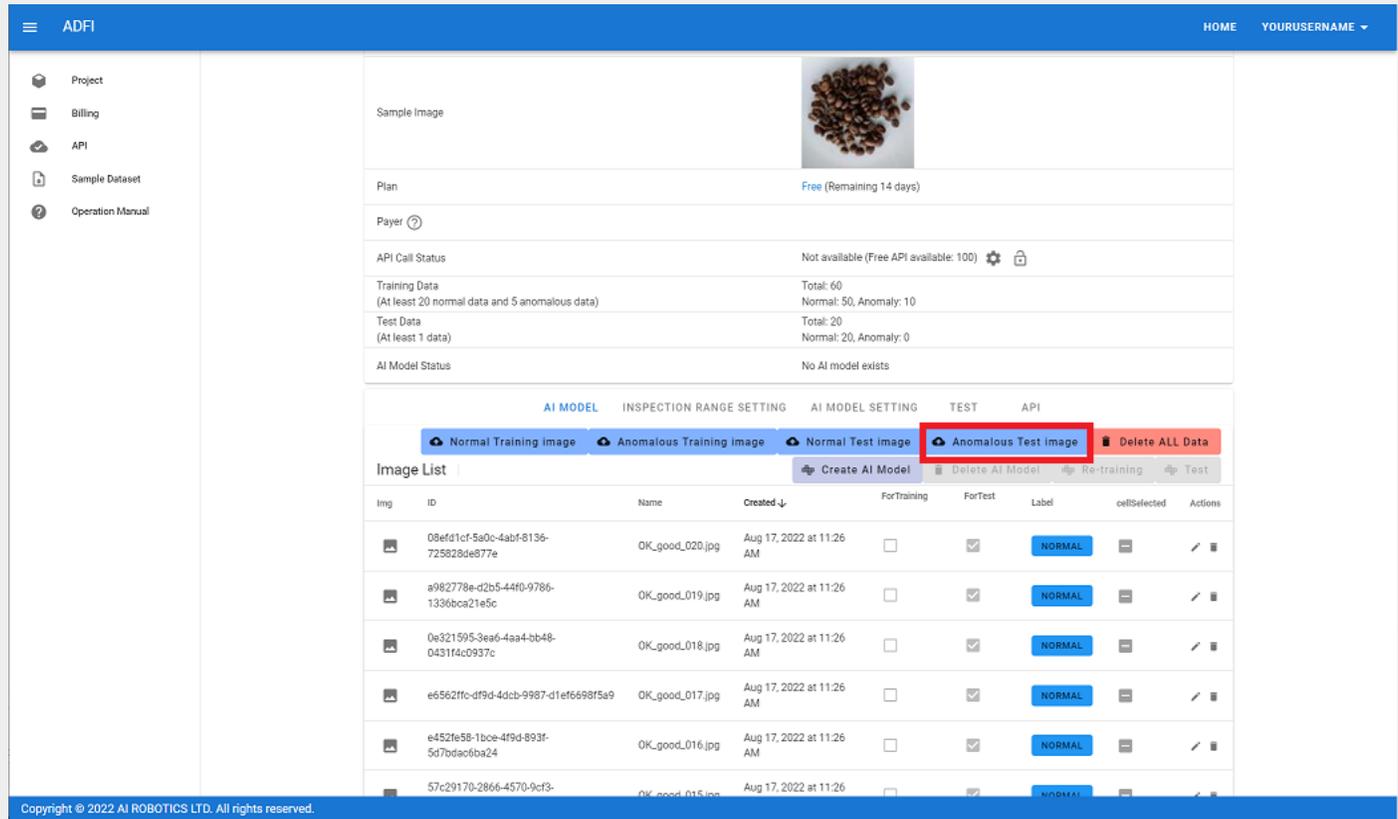
2. Preparing the dataset

- Open the **good** folder (Coffee_beans -> test -> good) inside the **test** folder of the sample image dataset.
- Select all the images in the good folder and press the "Open" button.
 - In Windows, you can select all at once with the "Ctrl" button + "A" button.



2. Preparing the dataset

- After the upload of the normal image is completed, the normal image for performance verification is added to the image list.
- Finally, register anomalous test images to be used for AI performance verification. Press the "Anomalous Test image" button.

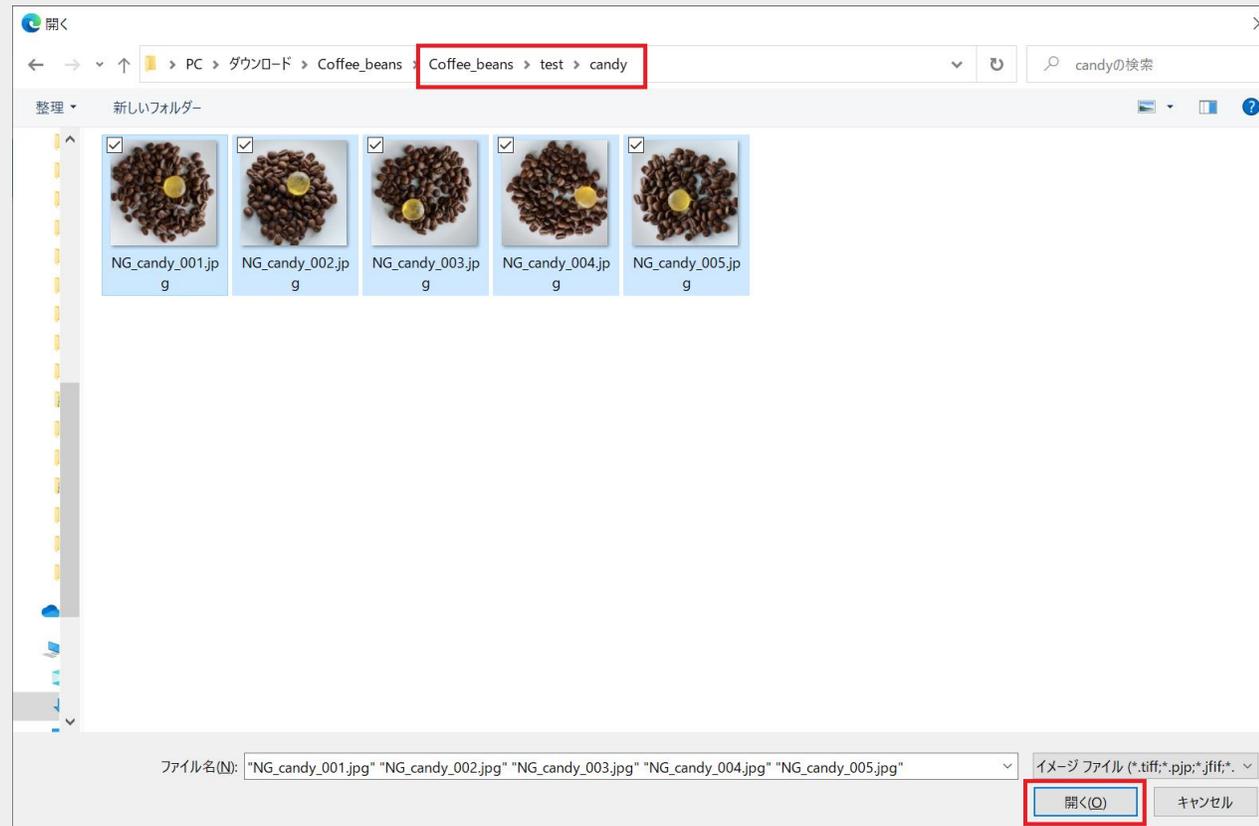


The screenshot displays the ADFI web interface. The top navigation bar includes a menu icon, the text 'ADFI', and a user profile section with 'HOME' and 'YOURUSERNAME'. A left sidebar contains navigation links for Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a 'Sample Image' of coffee beans, a 'Plan' status of 'Free (Remaining 14 days)', and various system status indicators. Below this, a navigation bar contains buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. The 'Anomalous Test image' button is highlighted with a red box. Below the navigation bar is the 'Image List' table, which has columns for 'Img', 'ID', 'Name', 'Created', 'ForTraining', 'ForTest', 'Label', 'cellSelected', and 'Actions'. The table contains five rows of data, all labeled as 'NORMAL'.

Img	ID	Name	Created	ForTraining	ForTest	Label	cellSelected	Actions
	08efd1cf-5a0c-4abf-8136-725823de877e	OK_good_020.jpg	Aug 17, 2022 at 11:26 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	a982778e-d2b5-44f0-9786-1336bca21e5c	OK_good_019.jpg	Aug 17, 2022 at 11:26 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	0a321595-3ea6-4aa4-bb48-0431f4c0937c	OK_good_018.jpg	Aug 17, 2022 at 11:26 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	e6562ffc-df9d-4dcb-9987-d1ef6698f5a9	OK_good_017.jpg	Aug 17, 2022 at 11:26 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	e452fe58-1bce-4f9d-893f-5d7bdac6ba24	OK_good_016.jpg	Aug 17, 2022 at 11:26 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NORMAL	<input type="checkbox"/>	 
	57c29170-2866-4570-9cf3-	OK_good_015.jpg	Aug 17, 2022 at 11:26 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NORMAL	<input type="checkbox"/>	 

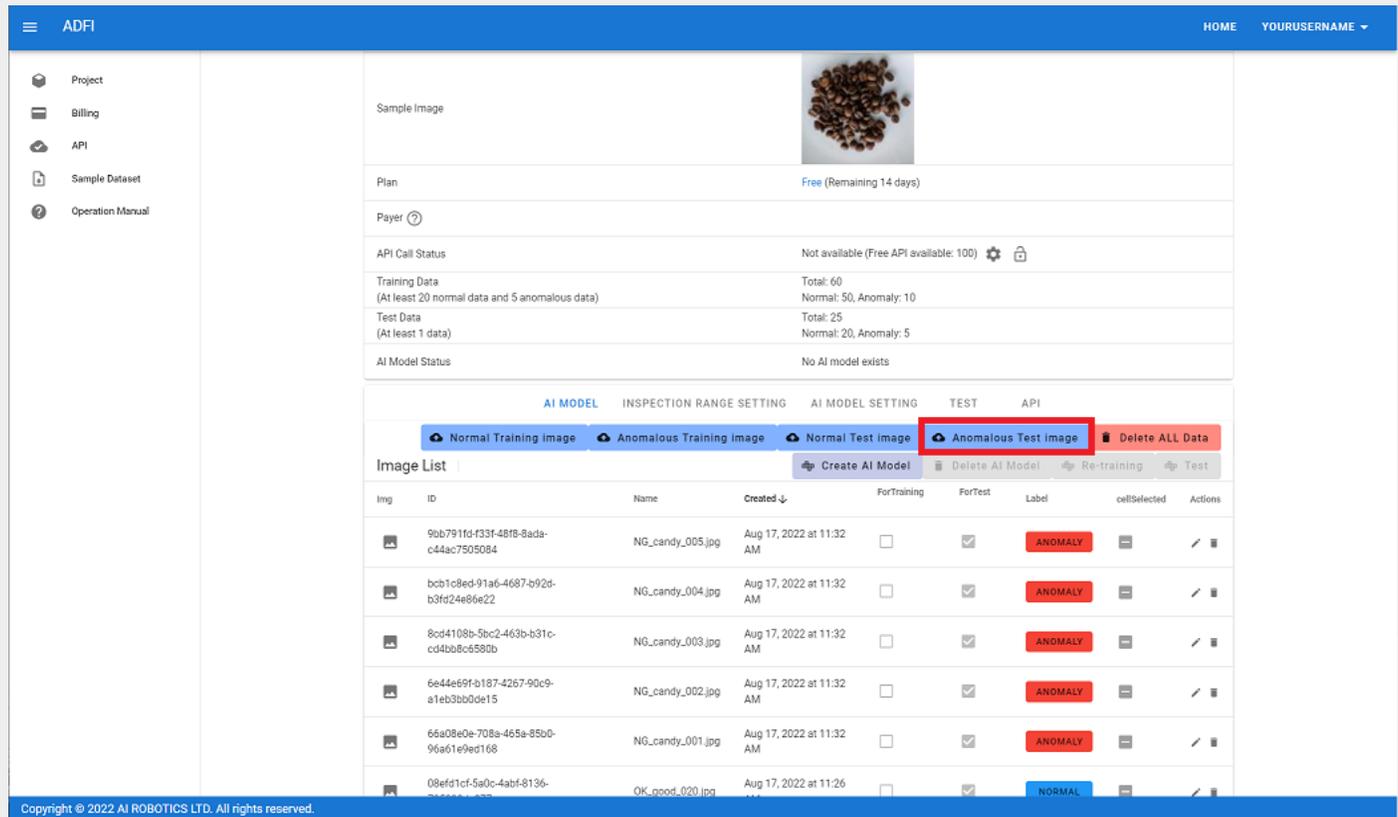
2. Preparing the dataset

- Open the **candy** folder (Coffee_beans -> test -> candy) in the **test** folder of the sample image dataset.
 - This time, candy is not included in the training anomalous images, but ADFI can detect anomalies that have not been trained.
- Select all the images in the candy folder and press the "Open" button.



2. Preparing the dataset

- By uploading the anomalous images of candy, the anomalous images for performance verification were added to the image list.
- In addition, add an anomalous images (chocolate) for performance verification. Press the "Anomalous Test image" button.

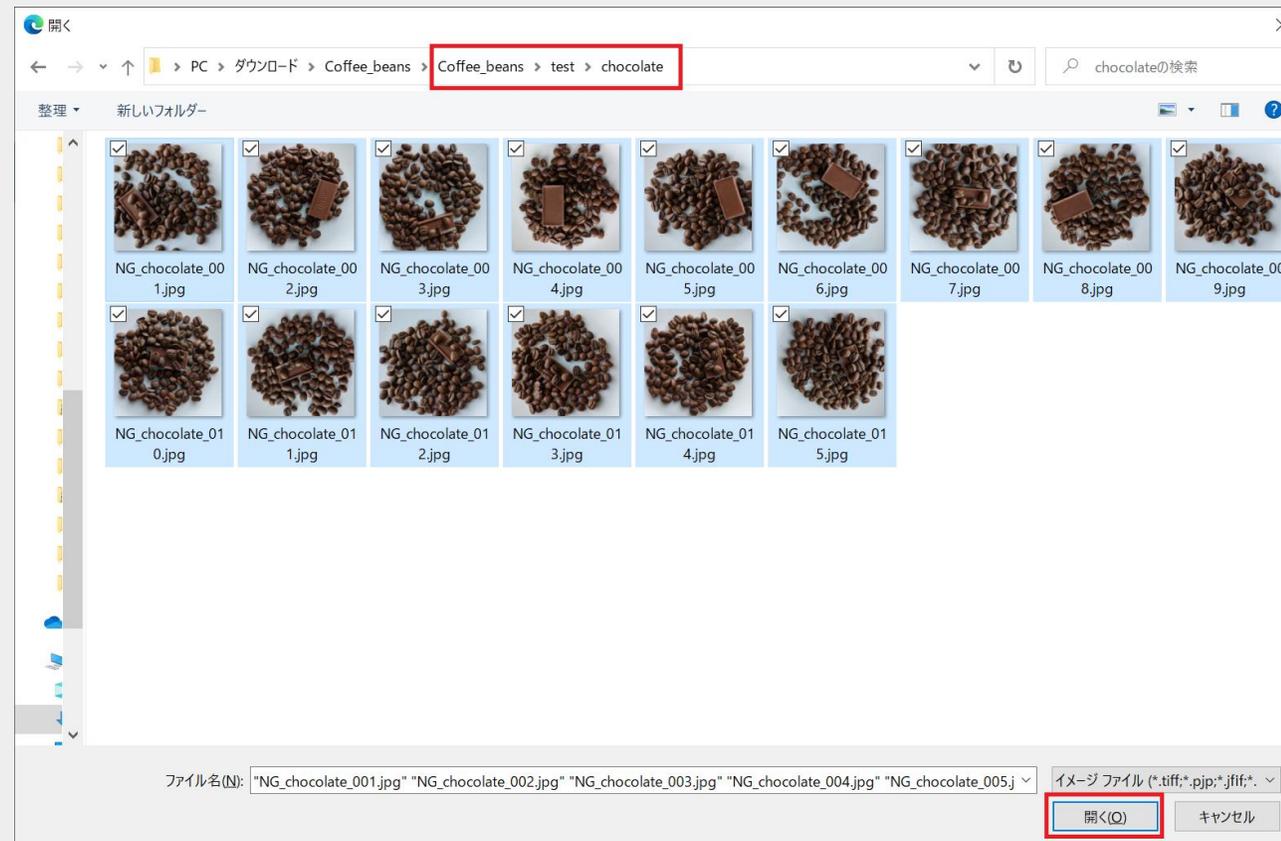


The screenshot displays the ADFI web interface. The top navigation bar includes 'ADFI', 'HOME', and 'YOURUSERNAME'. A sidebar on the left contains menu items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a 'Sample Image' of a pile of brown candies. Below this, a summary table provides details about the plan, API call status, training and test data counts, and AI model status. The 'TEST' tab is active, showing a toolbar with buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image' (highlighted in red), and 'Delete ALL Data'. Below the toolbar is an 'Image List' table with the following data:

Img	ID	Name	Created	ForTraining	ForTest	Label	cellSelected	Actions
	9bb791fd-f33f-48f8-8ada-c44ac7505084	NG_candy_005.jpg	Aug 17, 2022 at 11:32 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	 
	bcb1c8ed-91a6-4687-b92d-b3fd24e86e22	NG_candy_004.jpg	Aug 17, 2022 at 11:32 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	 
	8cd4108b-5bc2-463b-b31c-cd4bb8c6580b	NG_candy_003.jpg	Aug 17, 2022 at 11:32 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	 
	6e44e69f-b187-4267-90c9-a1eb3bb0de15	NG_candy_002.jpg	Aug 17, 2022 at 11:32 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	 
	f6a08e0e-708a-465a-85b0-96a61e9ed168	NG_candy_001.jpg	Aug 17, 2022 at 11:32 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	 
	08ef1cf-5a0c-4abf-8136-...	OK_good_020.jpg	Aug 17, 2022 at 11:26 AM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NORMAL	<input type="checkbox"/>	 

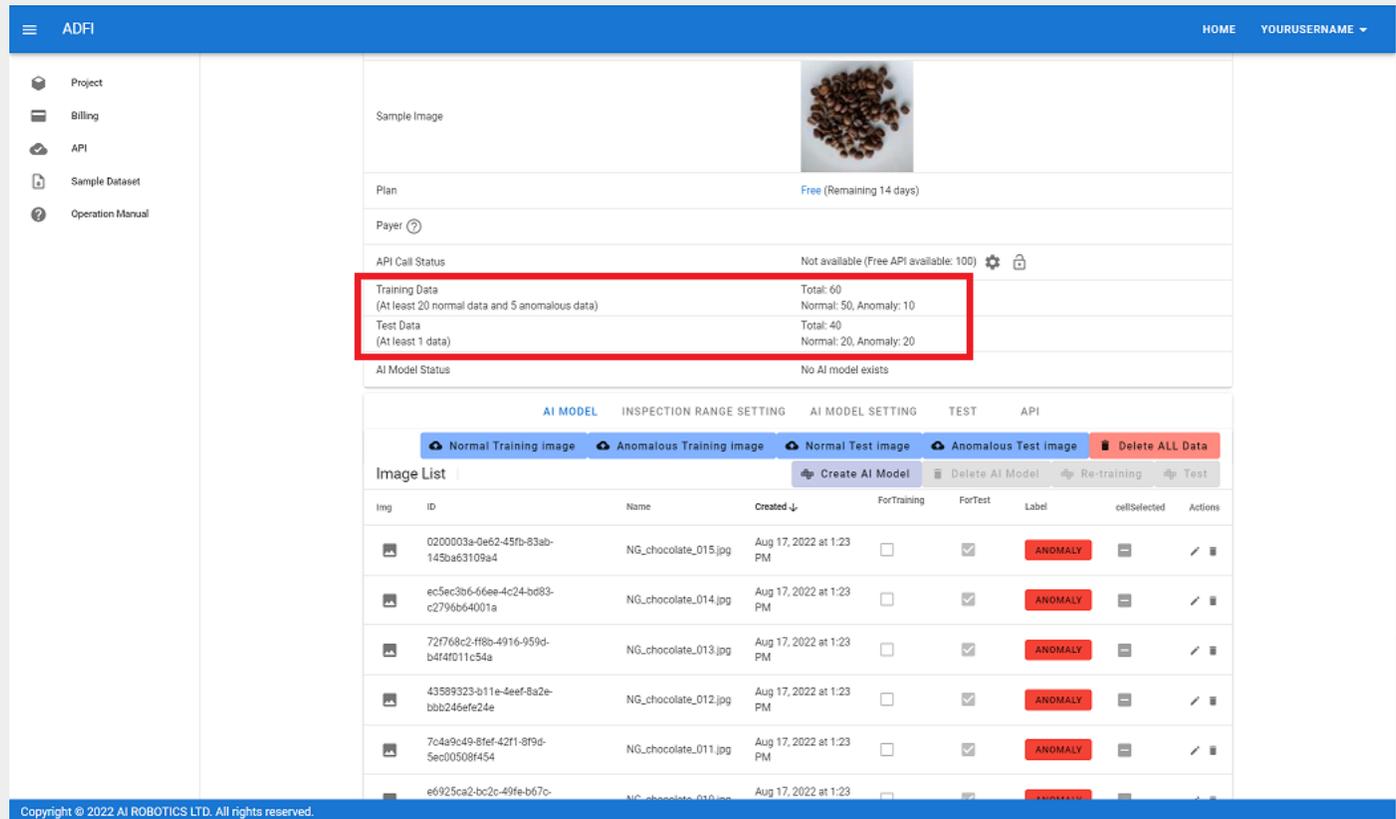
2. Preparing the dataset

- Open the **chocolate** folder (Coffee_beans -> test -> chocolate) in the **test** folder of the sample image dataset.
- Select all the images in the chocolate folder and press the "Open" button.



2. Preparing the dataset

- By uploading the anomalous images of chocolate, the anomalous images for performance verification were added to the image list.
- Check the number of "Training Data" and "Test Data". These indicate the number of images registered for AI training and performance verification. The dataset is now ready.



The screenshot displays the ADFI web interface. The top navigation bar includes a menu icon, the text "ADFI", and user information "HOME YOURUSERNAME". A sidebar on the left contains navigation links for Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a "Sample Image" of chocolate, a "Plan" of "Free (Remaining 14 days)", and "API Call Status" of "Not available (Free API available: 100)". A red box highlights the dataset statistics:

Training Data (At least 20 normal data and 5 anomalous data)	Total: 60 Normal: 50, Anomaly: 10
Test Data (At least 1 data)	Total: 40 Normal: 20, Anomaly: 20

Below the statistics, the "AI Model Status" is "No AI model exists". A navigation bar includes tabs for "AI MODEL", "INSPECTION RANGE SETTING", "AI MODEL SETTING", "TEST", and "API". Under "AI MODEL", there are sub-tabs for "Normal Training image", "Anomalous Training image", "Normal Test image", "Anomalous Test image", and "Delete ALL Data". The "Image List" table is visible with the following data:

img	ID	Name	Created ↓	ForTraining	ForTest	Label	cellSelected	Actions
	0200003a-0e62-45fb-83ab-145ba63109a4	NG_chocolate_015.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	ec5ec3b6-66ee-4c24-bd83-c279bb64001a	NG_chocolate_014.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	72f769c2-f88b-4916-959d-b474f011c54a	NG_chocolate_013.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	43589323-b11e-4eef-8a2e-bbb246efe24e	NG_chocolate_012.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	7c4a9c49-81ef-42f1-8f9d-5ec00508f454	NG_chocolate_011.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	e6925ca2-bc2c-49fe-b67c-	NG_chocolate_010.jpg	Aug 17, 2022 at 1:23	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	

3. Creation of an image anomaly detection AI

3. Creation of an image anomaly detection AI

- Once the dataset is ready, create an image anomaly detection AI.
- Press "Create AI Model" in the center. Training begins.

The screenshot shows the ADFI web interface. At the top, there is a blue navigation bar with 'ADFI' on the left and 'HOME YOURUSERNAME' on the right. A sidebar on the left contains menu items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area displays a 'Sample Image' of coffee beans. Below the image, there are several status fields: Plan (Free (Remaining 14 days)), Payer, API Call Status (Not available (Free API available: 100)), Training Data (Total: 60, Normal: 50, Anomaly: 10), Test Data (Total: 40, Normal: 20, Anomaly: 20), and AI Model Status (No AI model exists). A tabbed interface below shows 'AI MODEL' selected, with sub-tabs for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. The 'Normal Test image' sub-tab is active, and a 'Create AI Model' button is highlighted with a red box. Below this is an 'Image List' table with columns for 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'cellSelected', and 'Actions'. The table contains five rows of data, all labeled as 'ANOMALY'.

Img	ID	Name	Created	For Training	For Test	Label	cellSelected	Actions
	0200003a-0e62-45fb-83ab-145ba63109a4	NG_chocolate_015.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	ec5ec3b6-66ee-4c24-bd83-c2796b64001a	NG_chocolate_014.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	72f768c2-f88b-4916-959d-b4f4011c54a	NG_chocolate_013.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	43589323-b11e-4eef-8a2e-bbb246efe24e	NG_chocolate_012.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	7c4e9c49-8fef-42f1-8f9d-5ec00508f454	NG_chocolate_011.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	e6925ca2-bc2c-49fe-b67c-	NG_chocolate_010.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	

3. Creation of an image anomaly detection AI



- When AI learning starts, AI Model Status will show "Learning in progress (Preparing to train)".
- After a while, the learning progress will be displayed like "Learning in progress (6. 6%)".
- Wait for the AI to finish training.
 - AI learning time varies depending on the number of training images. Learning is usually completed in about 15 to 60 minutes.
 - If by any chance the progress has stopped after a few hours, please press "Delete AI Model" and then "Create AI Model" again.

Dataset Detail

Dataset Name: Sample Dataset

Dataset ID: ee0f3b37-4878-44b6-b059-227988043873

Owner Name: YourUserName

Sample Image:

Plan: Free (Remaining 14 days)

Payer: ?

API Call Status: Not available (Free API available: 100)

Training Data (At least 20 normal data and 5 anomalous data): Total: 60, Normal: 50, Anomaly: 10

Test Data (At least 1 data): Total: 40, Normal: 20, Anomaly: 20

AI Model Status: Learning in progress (Preparing to train)

AI MODEL | INSPECTION RANGE SETTING | AI MODEL SETTING | TEST | API

Normal Training image | Anomalous Training image | Normal Test image | Anomalous Test image | Delete ALL Data

Img ID	Name	Created	ForTraining	ForTest	Label	cellSelected	Actions
0200003a-0e62-45fb-83ab-145ba63109a4	NG_chocolate_015.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
ee9c3b6d-d0ee-4c24-b083-c2798804091a	NG_chocolate_014.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	



Sample Image:

Plan: Free (Remaining 14 days)

Payer: ?

API Call Status: Not available (Free API available: 100)

Training Data (At least 20 normal data and 5 anomalous data): Total: 60, Normal: 50, Anomaly: 10

Test Data (At least 1 data): Total: 40, Normal: 20, Anomaly: 20

AI Model Status: Learning in progress (6.6%)

AI MODEL | INSPECTION RANGE SETTING | AI MODEL SETTING | TEST | API

Normal Training image | Anomalous Training image | Normal Test image | Anomalous Test image | Delete ALL Data

Img ID	Name	Created	ForTraining	ForTest	Label	cellSelected	Actions
0200003a-0e62-45fb-83ab-145ba63109a4	NG_chocolate_015.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	

3. Creation of an image anomaly detection AI

- When AI learning is completed, "AI model creation complete" is displayed in "AI Model Status".
- The image anomaly detection AI is now created.

The screenshot displays the ADFI web interface. The top navigation bar includes a menu icon, the text "ADFI", and user information "HOME YOURUSERNAME". A left sidebar contains navigation items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a "Sample Image" of coffee beans. Below it, a "Plan" section indicates "Free (Remaining 13 days)". The "API Call Status" is "Available (Free API available: 100)". Training and Test Data counts are shown: Training Data (Total: 60, Normal: 50, Anomaly: 10) and Test Data (Total: 40, Normal: 20, Anomaly: 20). The "AI Model Status" is highlighted with a red box and reads "AI model creation complete". Below this, there are tabs for "AI MODEL", "INSPECTION RANGE SETTING", "AI MODEL SETTING", "TEST", and "API". The "AI MODEL" tab is active, showing buttons for "Normal Training image", "Anomalous Training image", "Normal Test image", "Anomalous Test image", and "Delete ALL Data". Below these are buttons for "Create AI Model", "Delete AI Model", "Re-training", and "Test". An "Image List" table is visible with columns: Img, ID, Name, Created, ForTraining, ForTest, Label, cellSelected, and Actions. The first row shows an image labeled "ANOMALY" with ID "0200003a-0e62-45fb-83ab-145ba63109a4" and name "NG_chocolate_015.jpg".

4. Performance verification of the AI

4. Performance verification of the AI

- After AI creation is complete (when "AI Model Status" is "AI model creation complete"), you can use the image you just registered for test to verify the AI's performance.
- First, press the "AI MODEL SETTING" tab. Here you can change the thresholds of anomaly score or check the histogram of anomaly score for the test images.

ADFI HOME YOURUSERNAME

Project
Billing
API
Sample Dataset
Operation Manual

Sample Image

Plan Free (Remaining 13 days)

Payer ?

API Call Status Available (Free API available: 100) ⚙️ 🔒

Training Data Total: 60
(At least 20 normal data and 5 anomalous data) Normal: 50, Anomaly: 10

Test Data Total: 40
(At least 1 data) Normal: 20, Anomaly: 20

AI Model Status AI model creation complete

AI MODEL INSPECTION RANGE SETTING **AI MODEL SETTING** TEST API

Threshold Save Threshold Set Auto Threshold

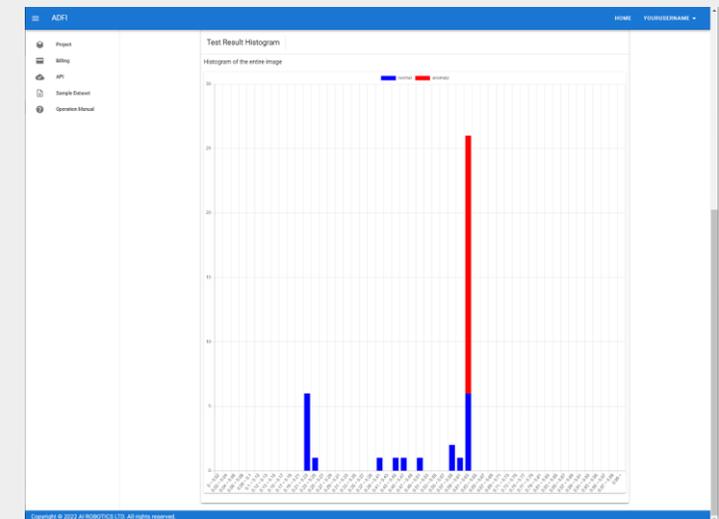
Threshold (main) 0.5

Threshold (sub) 0.4

Test Result Histogram

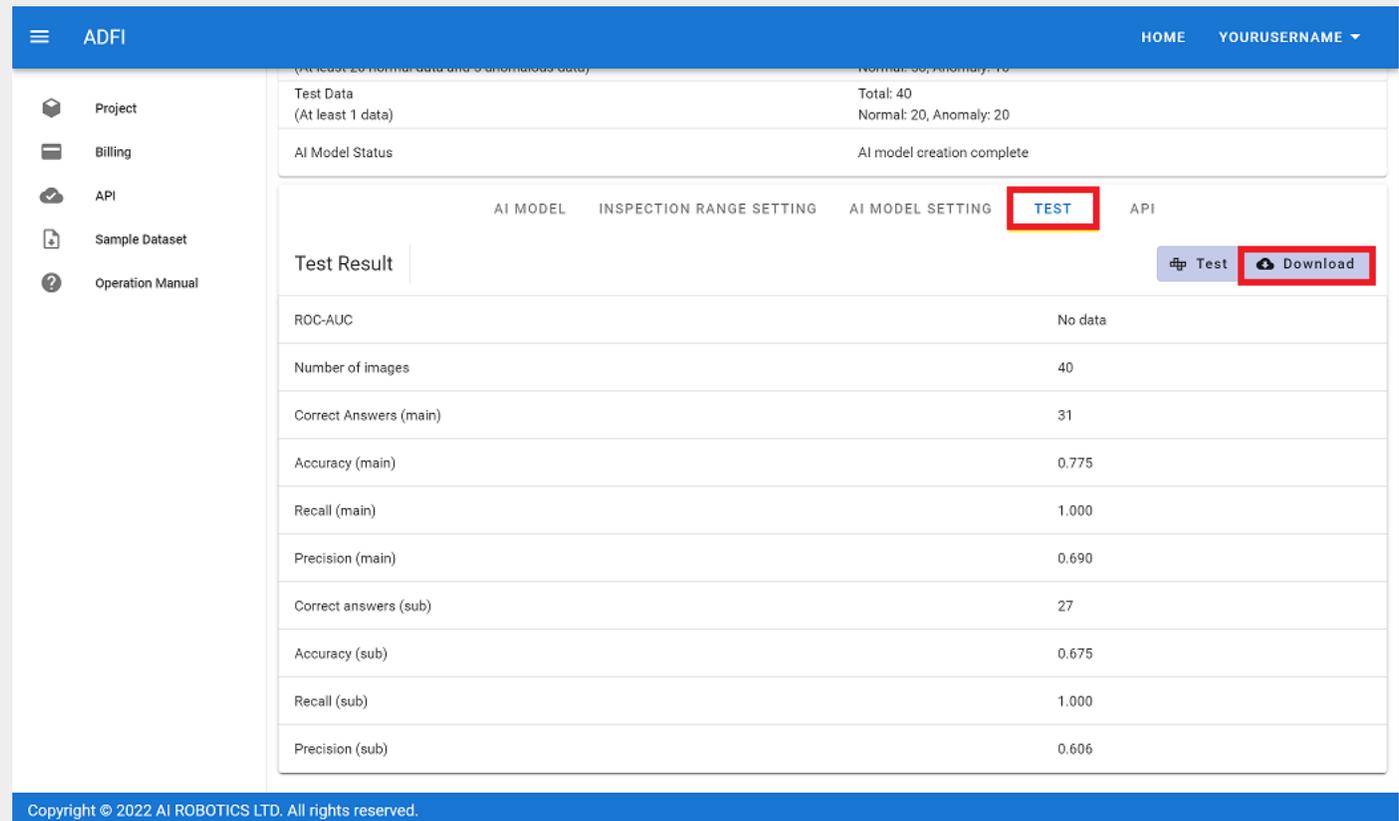
Copyright © 2022 AI ROBOTICS LTD. All rights reserved.

Histogram



4. Performance verification of the AI

- Click the "TEST" tab. A summary of test results at the current threshold (default threshold) is displayed.
- By pressing the "Download" button, you can download a CSV file of detailed information (a list of detection results by the AI for each image).



The screenshot shows the ADFI web interface. The top navigation bar includes a menu icon, the text 'ADFI', and 'HOME YOURUSERNAME'. A sidebar on the left contains navigation items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area has a breadcrumb trail: AI MODEL > INSPECTION RANGE SETTING > AI MODEL SETTING > **TEST** > API. Below the breadcrumb, there are 'Test' and 'Download' buttons. The 'Test' button is highlighted with a red box. Below the buttons is a table of test results.

Metric	Value
ROC-AUC	No data
Number of images	40
Correct Answers (main)	31
Accuracy (main)	0.775
Recall (main)	1.000
Precision (main)	0.690
Correct answers (sub)	27
Accuracy (sub)	0.675
Recall (sub)	1.000
Precision (sub)	0.606

Copyright © 2022 AI ROBOTICS LTD. All rights reserved.

4. Performance verification of the AI

- Click the "AI MODEL SETTING" tab again. Change the thresholds to any value by referring to the CSV file downloaded earlier and the histogram at the bottom. Two thresholds ("main" and "sub") can be set.
- After entering the values, press the "Save Threshold" button, and the entered values will be reflected in the thresholds.

ADFI HOME YOURUSERNAME

Project
Billing
API
Sample Dataset
Operation Manual

AI MODEL INSPECTION RANGE SETTING **AI MODEL SETTING** TEST API

Threshold

Save Threshold Set Auto Threshold

Threshold (main) 0.4

Threshold (sub) 0.5

Test Result Histogram

Histogram of the entire image

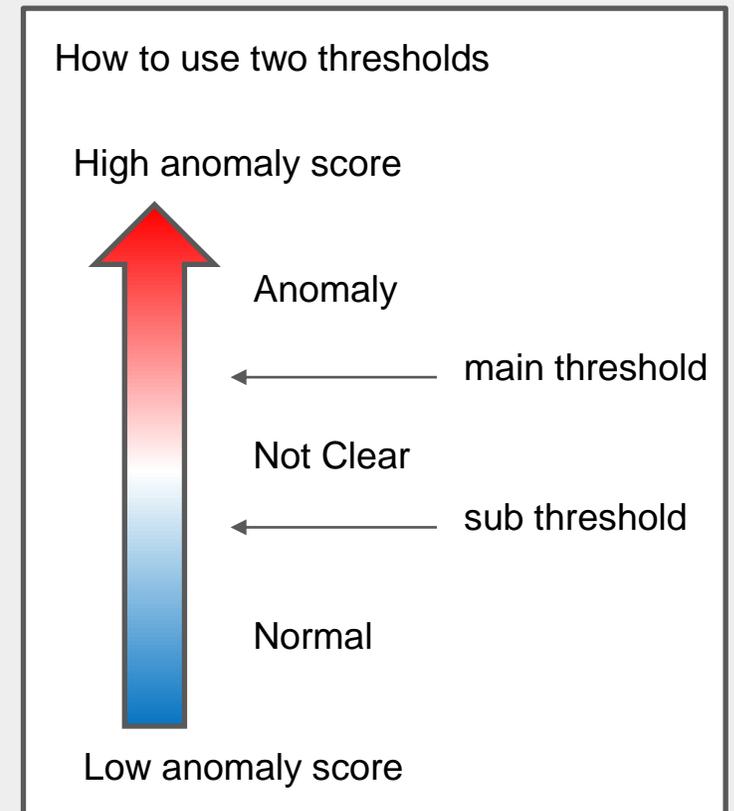
normal anomaly

30

25

20

Copyright © 2022 AI ROBOTICS LTD. All rights reserved.



4. Performance verification of the AI



- Click the "TEST" tab. The Test results are "No data" because the threshold has been changed.
- If you press the "TEST" button on the right side, AI verification will be executed again with the changed thresholds.

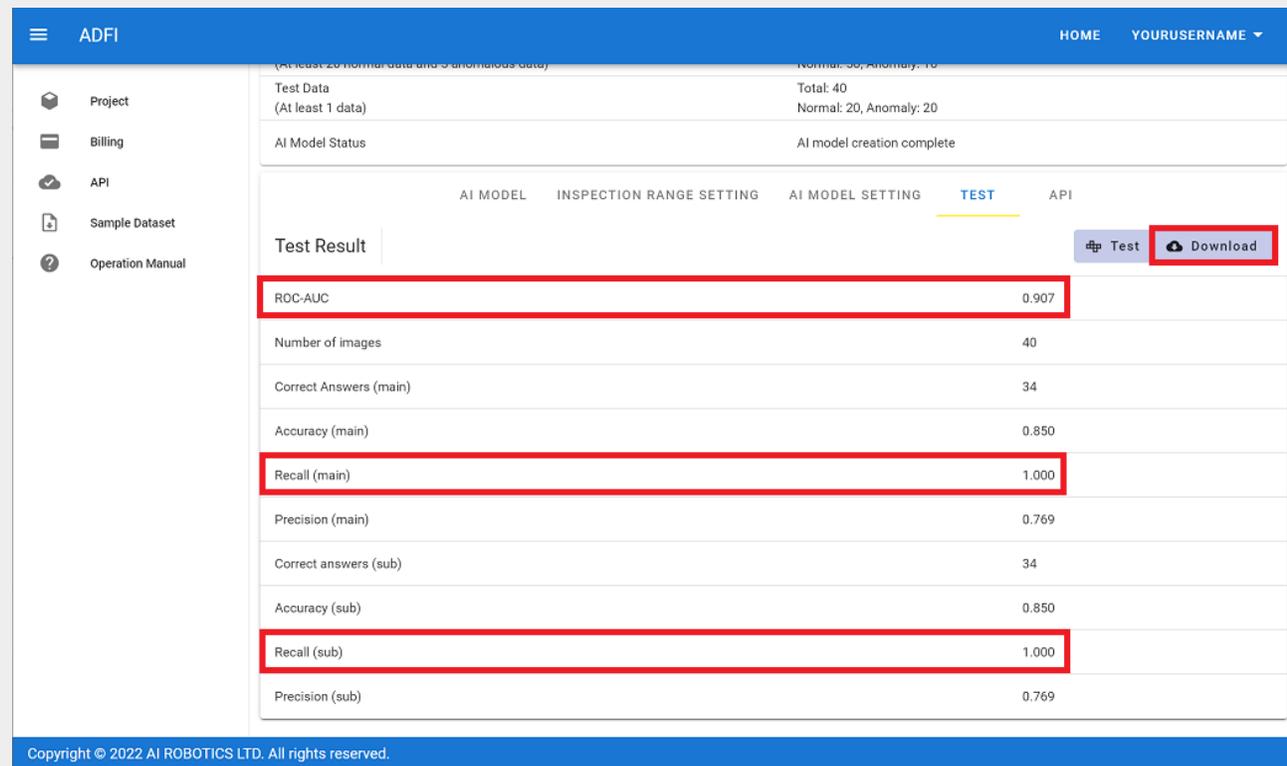
The screenshot shows the ADFI web interface. The top navigation bar includes a menu icon, the text "ADFI", and links for "HOME" and "YOURUSERNAME". A left sidebar contains navigation items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area has tabs for "AI MODEL", "INSPECTION RANGE SETTING", "AI MODEL SETTING", "TEST", and "API". The "TEST" tab is highlighted with a red box. Below the tabs, there is a "Test Result" section with a "Test" button (also highlighted with a red box) and a "Download" button. The test results table shows the following data:

Metric	Value
ROC-AUC	No data
Number of images	No data
Correct Answers (main)	No data
Accuracy (main)	No data
Recall (main)	No data
Precision (main)	No data
Correct answers (sub)	No data
Accuracy (sub)	No data
Recall (sub)	No data
Precision (sub)	No data

At the bottom of the page, there is a copyright notice: "Copyright © 2022 AI ROBOTICS LTD. All rights reserved."

4. Performance verification of the AI

- The test results after changing the thresholds are displayed. Especially ROC-AUC and Recall are important.
 - ROC-AUC: AI discrimination performance value (1.0 is the highest value)
 - Recall: Recall rate (1.0 means zero oversight of anomalies)
- By pressing the "Download" button on the right, you can download the CSV file of the changed thresholds.



The screenshot shows the ADFI web interface with the 'TEST' tab selected. The 'Test Result' section contains a table with the following data:

Metric	Value
ROC-AUC	0.907
Number of images	40
Correct Answers (main)	34
Accuracy (main)	0.850
Recall (main)	1.000
Precision (main)	0.769
Correct answers (sub)	34
Accuracy (sub)	0.850
Recall (sub)	1.000
Precision (sub)	0.769

Additional information from the interface: Test Data (At least 1 data), Total: 40 (Normal: 20, Anomaly: 20), AI Model Status: AI model creation complete. Buttons for 'Test' and 'Download' are visible.

4. Performance verification of the AI

- Show a heatmap for each image.
- In the "AI MODEL" tab, press the icon on the left side of an anomalous test image ("ForTest" is a checkmark and "Label" is "ANOMALY").

The screenshot shows the ADFI web interface. At the top, there's a navigation bar with 'ADFI', 'HOME', and 'YOURUSERNAME'. Below that, a sidebar on the left contains menu items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area is titled 'AI Model Status' and 'AI model creation complete'. It features several tabs: 'AI MODEL' (highlighted with a red box), 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. Below the tabs are buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. A secondary row of buttons includes 'Create AI Model', 'Delete AI Model', 'Re-training', and 'Test'. The central part of the interface is an 'Image List' table with the following columns: 'Img', 'ID', 'Name', 'Created', 'ForTraining', 'ForTest', 'Label', 'cellSelected', and 'Actions'. The first row of the table is highlighted with a red box around the image icon in the 'Img' column. The 'ForTest' column for all rows contains a checkmark, and the 'Label' column contains the word 'ANOMALY' in a red box. The footer of the page reads 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

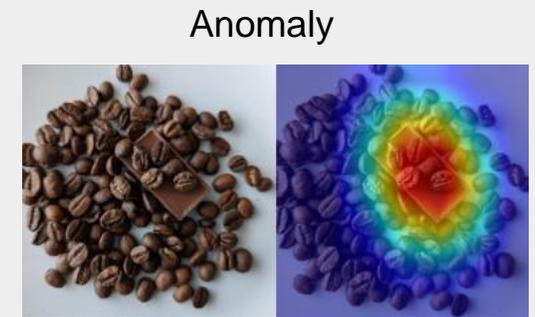
Img	ID	Name	Created	ForTraining	ForTest	Label	cellSelected	Actions
	0200003a-0e62-45fb-83ab-145ba63109a4	NG_chocolate_015.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	ec5ec3b6-66ee-4c24-bd83-c2796b64001a	NG_chocolate_014.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	72f768c2-ff8b-4916-959d-b4f4f011c54a	NG_chocolate_013.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	43589323-b11e-4eef-8a2e-bbb246efe24e	NG_chocolate_012.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	7c4a9c49-8fef-42f1-8f9d-5ec00508f454	NG_chocolate_011.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	e6925ca2-bc2c-49fe-b67c-b020c38e8a91	NG_chocolate_010.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	08577b64-b88d-44e1-b027-be96bc328713	NG_chocolate_009.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	2ccbd815-abe8-4b74-ba62-		Aug 17, 2022 at					

4. Performance verification of the AI

- A heat map inspected by the created AI is displayed.
 - The red area is the attention region. Represents the area that AI focused on when detecting it as an anomaly.
 - In the case of a normal image, there are no anomalous areas, so the attention area spreads thinly over the entire image without being concentrated.
- After confirming, click "CLOSE" at the bottom right.

The screenshot shows the ADFI web interface. The main content area displays 'AI Model Status' with a message 'AI model creation complete'. Below this, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. A toolbar contains buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. Below the toolbar is an 'Image List' table with columns: 'Img', 'ID', 'Name', 'Created', 'ForTraining', 'ForTest', 'Label', 'cellSelected', and 'Actions'. The table contains several rows of data, including 'NG_chocolate_011.jpg' and 'NG_chocolate_010.jpg'. A modal window is open over the table, showing a pair of images: a normal coffee bean image and its corresponding heat map. A 'CLOSE' button is visible in the bottom right corner of the modal, highlighted with a red box.

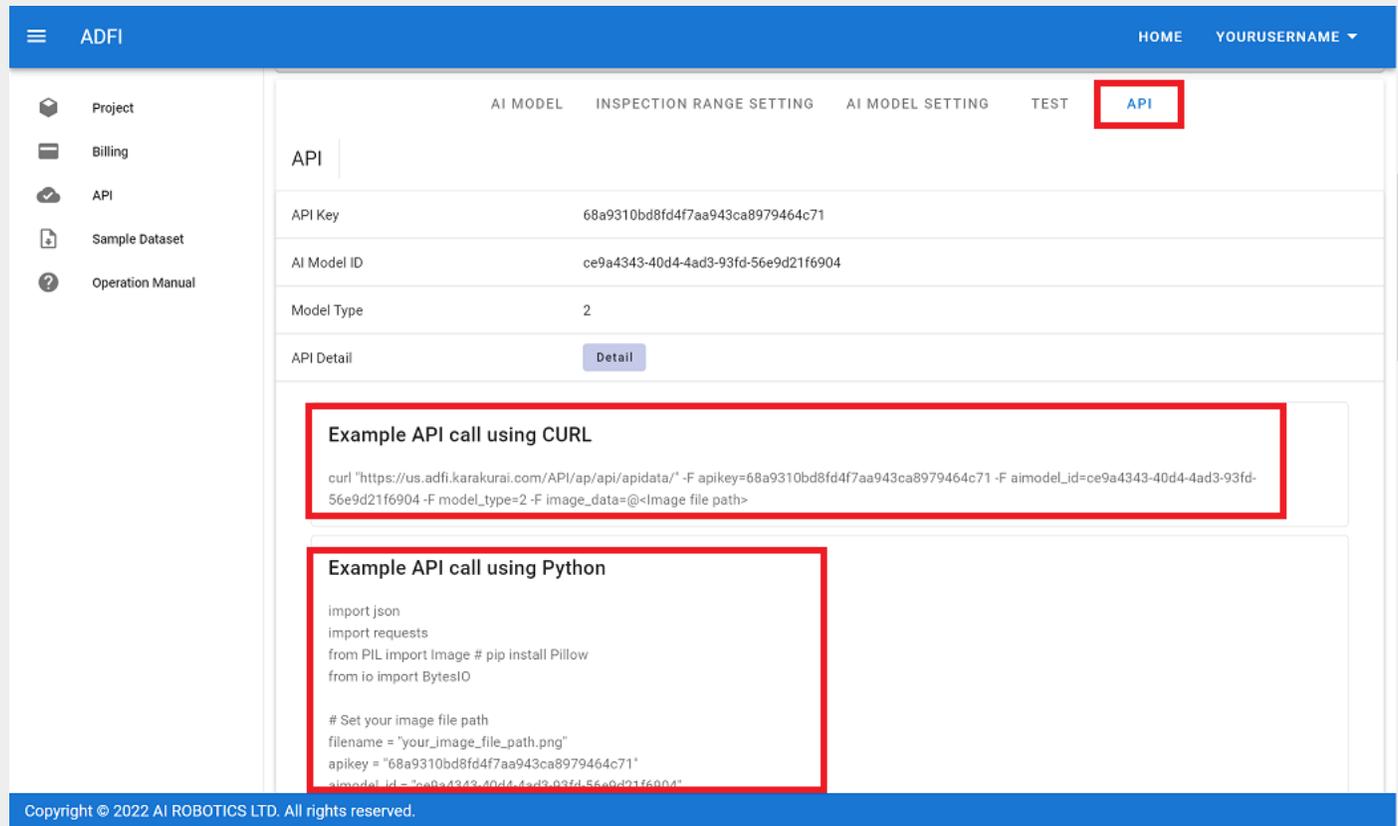
Img	ID	Name	Created	ForTraining	ForTest	Label	cellSelected	Actions
	02000145ba			<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	ec5ec2796			<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	72f76b44f			<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	43589bbb24	betezae	1:23 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	7c4a9c49-8fef-42f1-8f9d-5ec00508f454	NG_chocolate_011.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	e6925ca2-bc2c-49fe-b67c-b020c38e8a91	NG_chocolate_010.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	08577b64-b88d-44e1-b027-be96bc328713	NG_chocolate_009.jpg	Aug 17, 2022 at 1:23 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	
	2ccb815-abe8-4b74-ba62-		Aug 17, 2022 at	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ANOMALY	<input type="checkbox"/>	



5. Supplementary information

Use of the AI from your systems

- ADFI provides APIs so that created AI can be used from your systems.
- Click the "API" tab. Sample codes for API calls are displayed at the bottom.
 - In the case of the free plan, there is an upper limit on the number of times API can be used.



The screenshot displays the ADFI web interface. The top navigation bar includes a menu icon, the text "ADFI", and links for "HOME" and "YOURUSERNAME". The left sidebar contains navigation items: "Project", "Billing", "API", "Sample Dataset", and "Operation Manual". The main content area has a tabbed interface with "API" selected and highlighted by a red box. Below the tabs, the "API" section shows a table with the following data:

API Key	68a9310bd8fd4f7aa943ca8979464c71
AI Model ID	ce9a4343-40d4-4ad3-93fd-56e9d21f6904
Model Type	2

Below the table, there is an "API Detail" section with a "Detail" button. Two code blocks are shown, each enclosed in a red box:

Example API call using CURL

```
curl "https://us.adfi.karakurai.com/API/ap/api/apidata/" -F apikey=68a9310bd8fd4f7aa943ca8979464c71 -F aimodel_id=ce9a4343-40d4-4ad3-93fd-56e9d21f6904 -F model_type=2 -F image_data=@<Image file path>
```

Example API call using Python

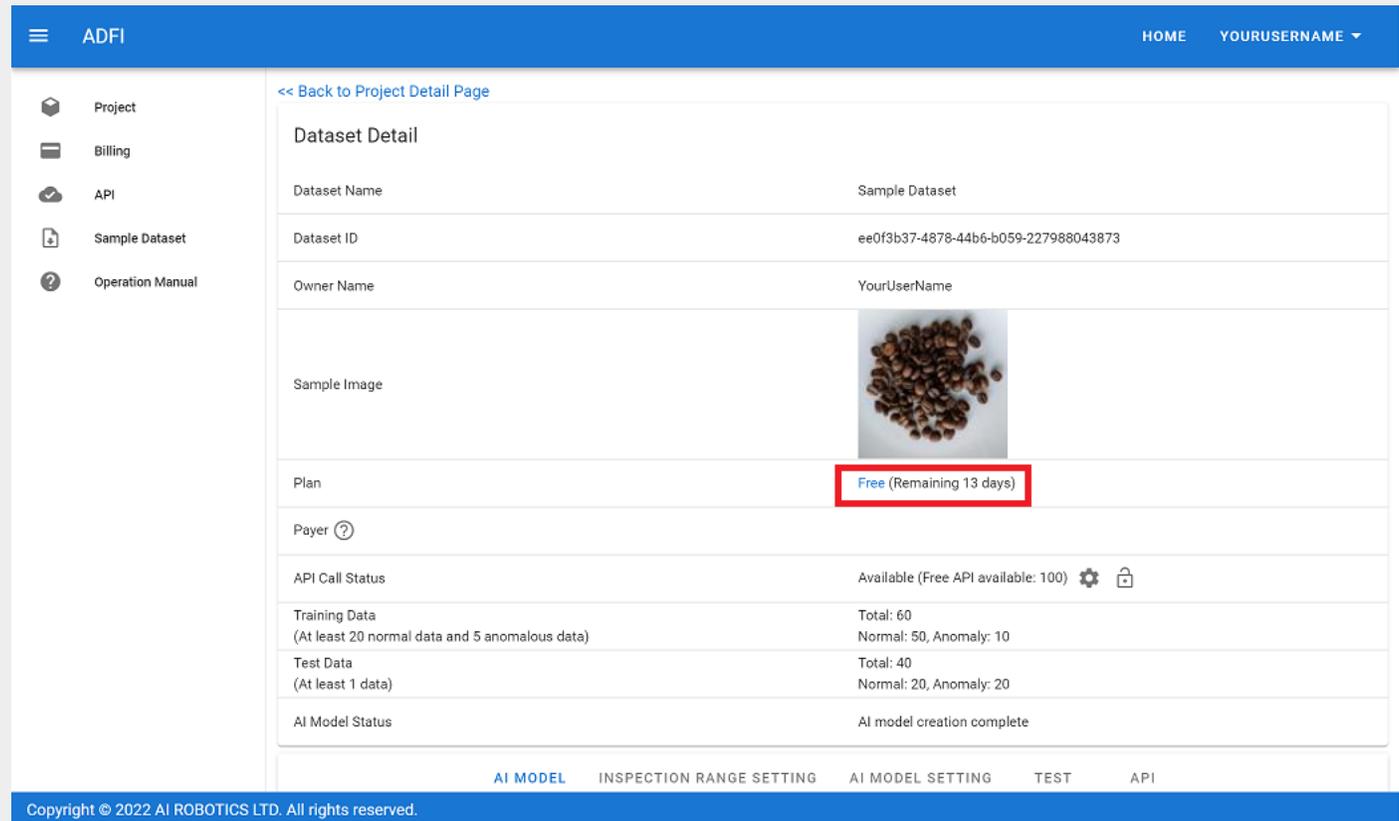
```
import json
import requests
from PIL import Image # pip install Pillow
from io import BytesIO

# Set your image file path
filename = "your_image_file_path.png"
apikey = "68a9310bd8fd4f7aa943ca8979464c71"
aimodel_id = "ce9a4343-40d4-4ad3-93fd-56e9d21f6904"
```

At the bottom of the interface, a blue footer contains the text: "Copyright © 2022 AI ROBOTICS LTD. All rights reserved."

Change to paid plan

- In free plan, a dataset is automatically deleted at the end of the free trial period.
 - "Remaining ● days" is the remaining number of days for free trial. The number of days is set for each dataset.
- When using the created AI from your system, press "Free" in the "Plan" to move to the plan change page. Please change the dataset to a paid plan there. (Credit card registration is required.)



ADFI HOME YOURUSERNAME

<< Back to Project Detail Page

Dataset Detail

Dataset Name	Sample Dataset
Dataset ID	ee0f3b37-4878-44b6-b059-227988043873
Owner Name	YourUserName
Sample Image	
Plan	Free (Remaining 13 days)
Payer ?	
API Call Status	Available (Free API available: 100) ⚙️ 🔒
Training Data (At least 20 normal data and 5 anomalous data)	Total: 60 Normal: 50, Anomaly: 10
Test Data (At least 1 data)	Total: 40 Normal: 20, Anomaly: 20
AI Model Status	AI model creation complete

AI MODEL INSPECTION RANGE SETTING AI MODEL SETTING TEST API

Copyright © 2022 AI ROBOTICS LTD. All rights reserved.

- For details on ADFI operation and how to use the created AI from your systems, please refer to the operation manual.
- Operation manual URL: <https://adfi.jp/ja/manual/>