c2M by Plasma

plasmacomp.com

Project One™: API Integration Overview

Contents

Introduction

The certification of devices for network access and use can be complex. In order to streamline the device certification process, Plasma and AT&T have teamed up to create Project One™.

In Project One™, AT&T deploys Plasma’s C2M® platform to streamline the device certification process for vendors. In this document, we will go over the detailed interface functional requirements for Project One™, as well as how users can do everything from account creation to OEM data publishing all within one platform

Purpose

This document explains the implementation of APIs to support IMEI integration, where the APIs will publish IMEI data from OEM vendors to the C2M® system.

In addition, APIs will publish data from the OEM self-reported IRS IMEI datasets. This includes information on all manufactured devices of specific model and type.

Assumptions

- OEM has credentials to access the C2M system to publish data
- APIs will be exposed as RESTFUL APIs
- OEM will publish the IMEI data using restful API

Overview

Plasma provides a Business Process Management platform called C2M®. Currently, C2M® is deployed for AT&T, providing several automated business processes. The internal name of the deployment is Project One. Plasma is enabling AT&T’s vendor to publish the OEM data instead of emailing the files.

This process will communicate via Restful API’s by performing the following steps:

1. C2M® will expose one feed to push the data
2. C2M® will provide the interface to create a single developer account per vendor using Project One

REST Web Services Security

Secure Communication (HTTPS)

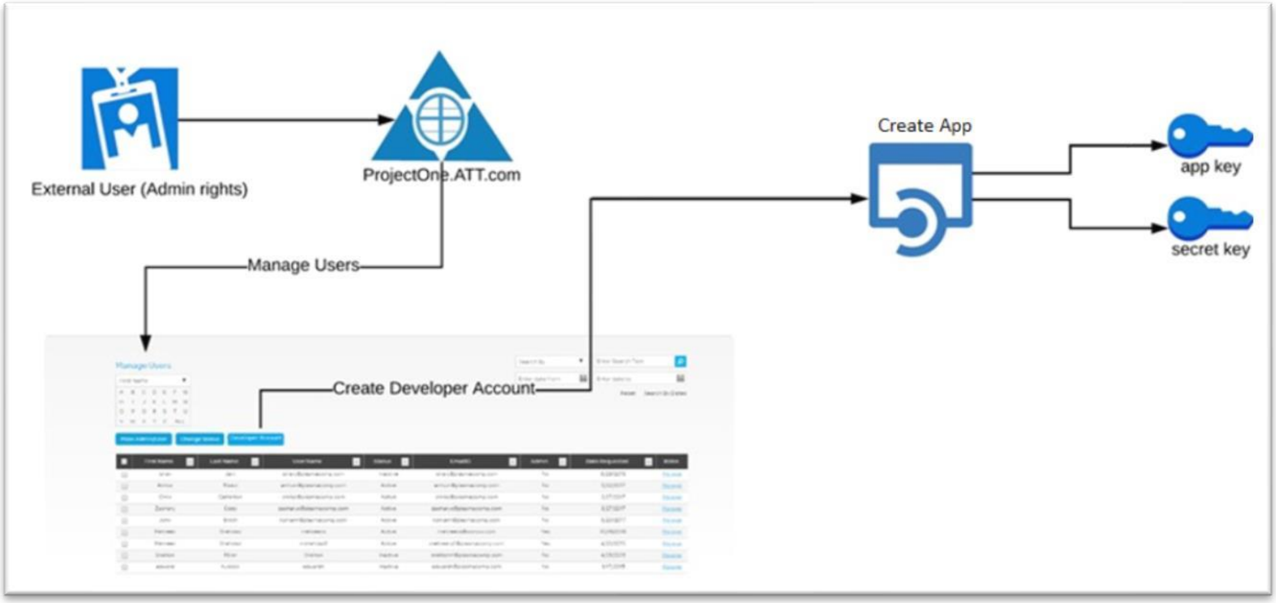
All communication between AT&T and Plasma’s Web Services must be done through a SSL secured connection.

API URLS

Production	https://ice-projectone.att.com/
Account Management (Production)	https://projectone.att.com

Process Flow Diagram

Purpose: To create a user interface allowing OEMs to send IMEI data through an API call.



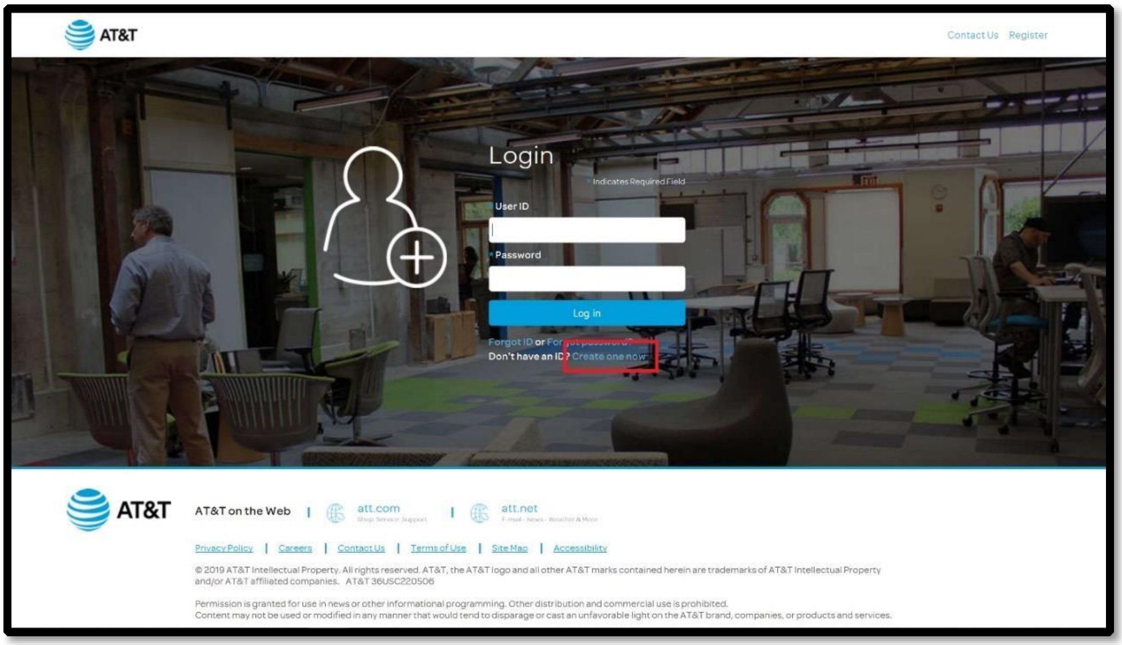
User Account Management

An OEM must have an account to login to create a developer app or view an existing developer app key and secret key.

The following instructions detail how to request a new account, generate keys, and view or modify existing keys for the purpose of generating an app key and secret key for file uploads. Both keys are used to make a post IMEI data call to submit .csv files.

How to request a new account

1. Go to https://projectone.att.com, please login if you already have an account else follow the below steps to create an account.
2. Click Create one now


AT&T
Contact Us
Register
Login
* Indicates Required Field
* User ID
* Password
Log in
Forgot ID or Forgot password?
Don't have an ID? Create one now
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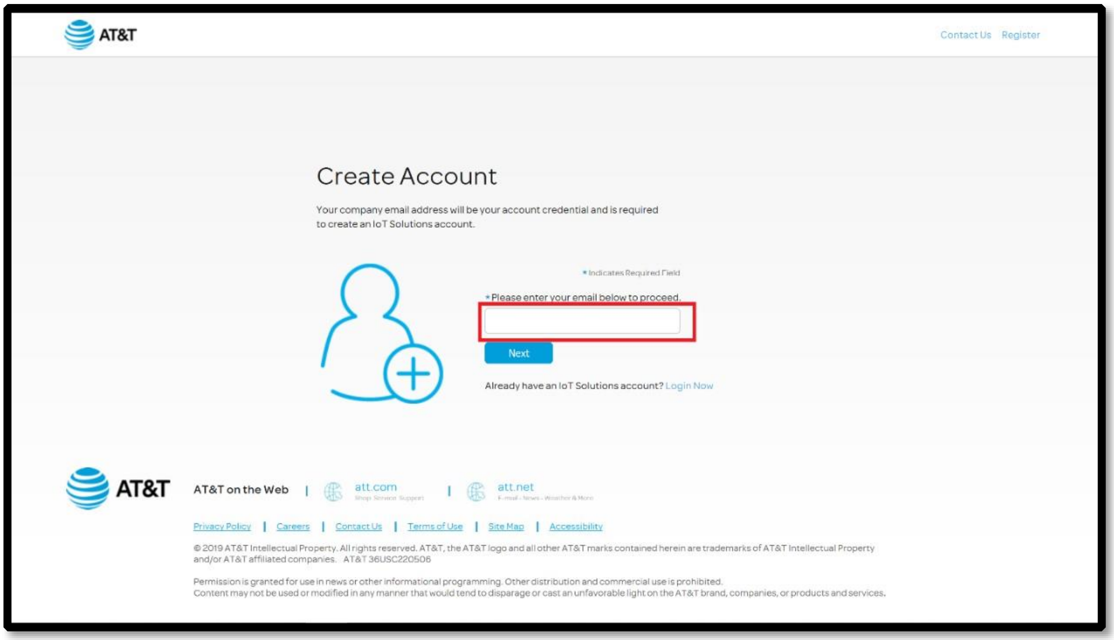
3. Enter your email address in the required field



AT&T

Contact Us Register

Create Account

Your company email address will be your account credential and is required to create an IoT Solutions account.

* Indicates Required Field

* Please enter your email below to proceed.

Next

Already have an IoT Solutions account? Login Now

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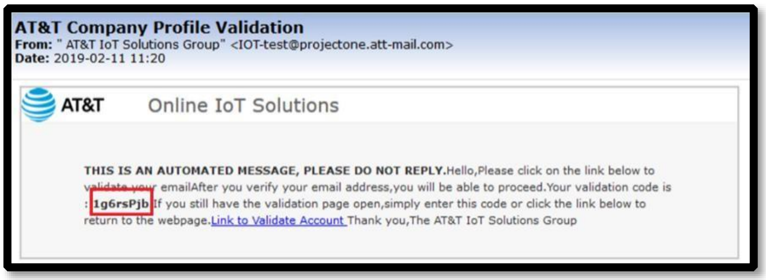
4. An email will be sent to the email address entered and contain the validation code

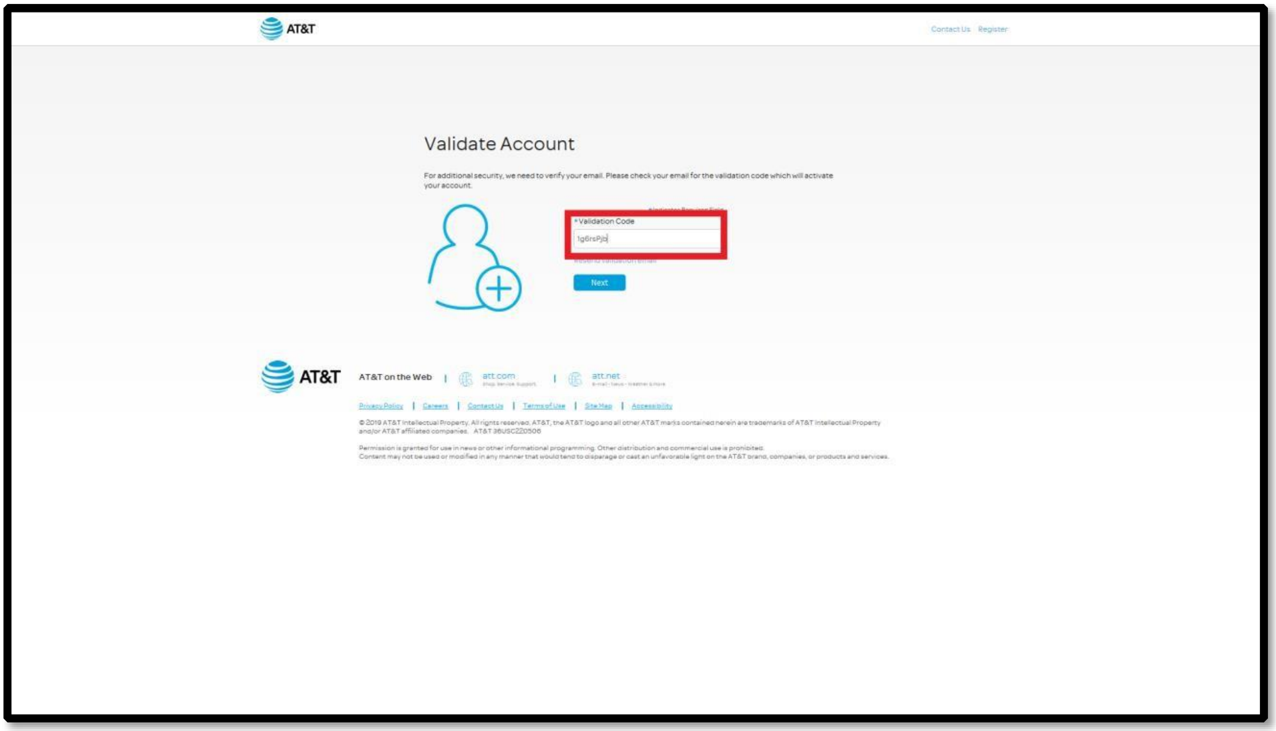


AT&T Company Profile Validation
From: " AT&T IoT Solutions Group" <IOT-test@projectone.att-mail.com>
Date: 2019-02-11 11:20

AT&T Online IoT Solutions

THIS IS AN AUTOMATED MESSAGE, PLEASE DO NOT REPLY. Hello,Please click on the link below to validate your emailAfter you verify your email address,you will be able to proceed.Your validation code is : **1g6rsPjb** If you still have the validation page open,simply enter this code or click the link below to return to the webpage.Link to Validate Account Thank you,The AT&T IoT Solutions Group

5. Enter the validation code received (by email).



Validate Account

For additional security, we need to verify your email. Please check your email for the validation code which will activate your account.

*Indicates Required Field

*Validation Code
1g6rsPjb

Resend validation email

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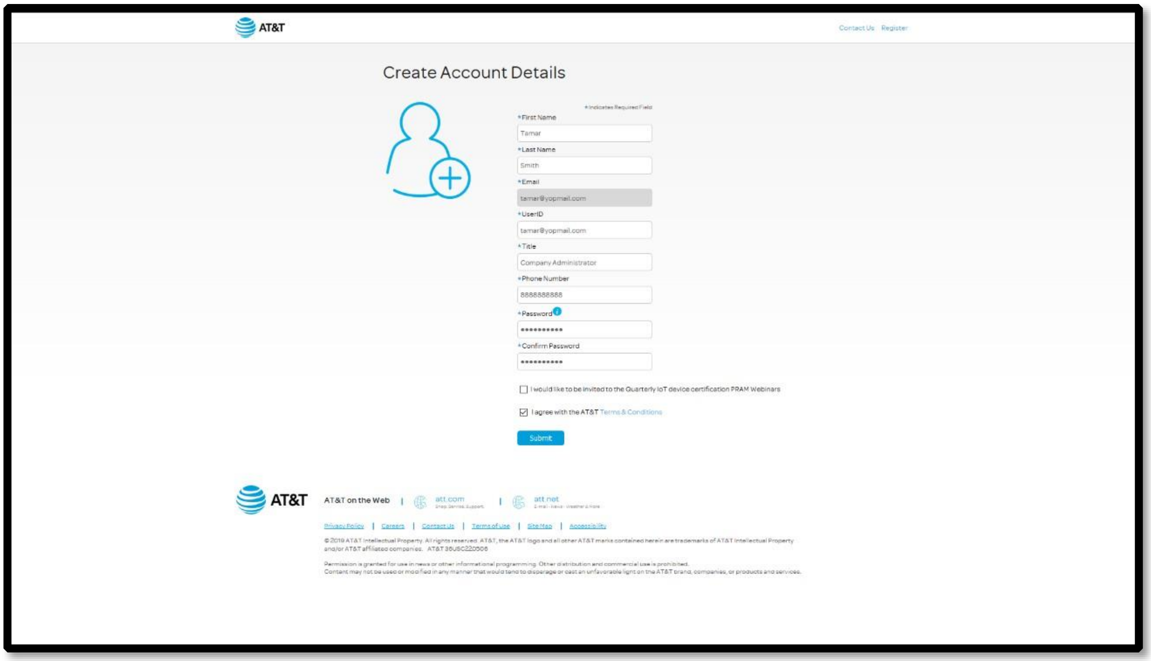
6. Enter the account details in the required fields and select **I agree with AT&T** then **Submit**.

Note: The password entered must be alphanumeric and contain at least one number and special character.



Create Account Details

*Indicates Required Field

*First Name
Tamar

*Last Name
Smith

*Email
tamar@yopmail.com

*UserID
tamar@yopmail.com

*Title
Company Administrator

*Phone Number
8888888888

*Password
••••••••••

*Confirm Password
••••••••••

☐ I would like to be invited to the Quarterly IoT device certification PRAM Webinars

☑ I agree with the AT&T Terms & Conditions

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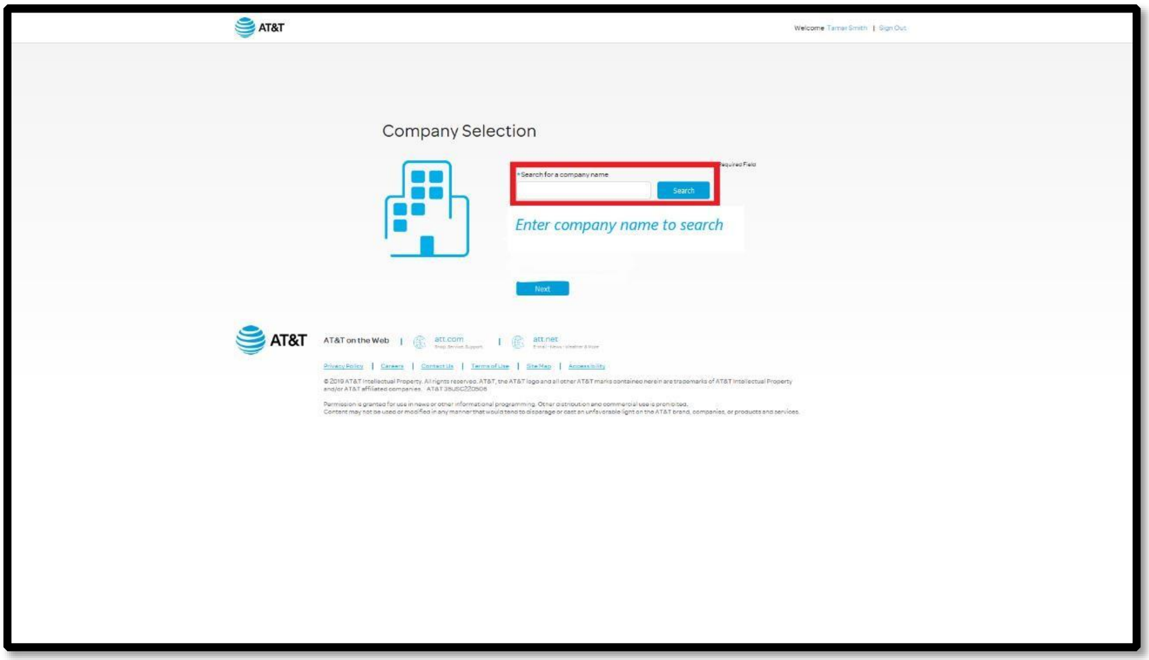
7. Search for the company name


AT&T
Welcome Tamar Smith | Sign Out
Search
Next
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Company Selection

Required Field

*Search for a company name

Enter company name to search

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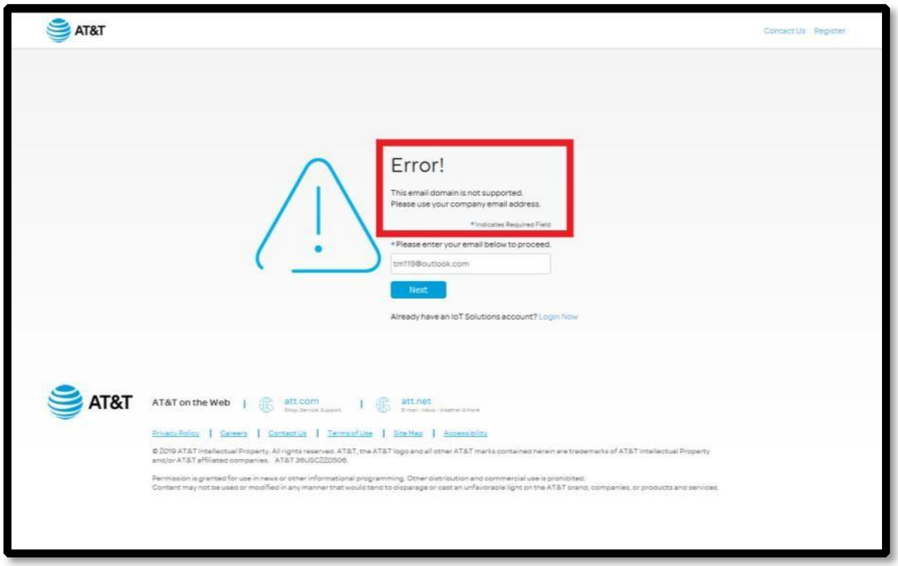
Exceptions

If an email address domain is unsupported or already exists, a different page will be displayed.

Unsupported domain

This screen will display if an email address with an unauthorized domain is entered at step 3.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Error!

This email domain is not supported.
Please use your company email address.

*Indicates Required Field

*Please enter your email below to proceed.

tm119@outlook.com

Already have an IoT Solutions account? Login Now

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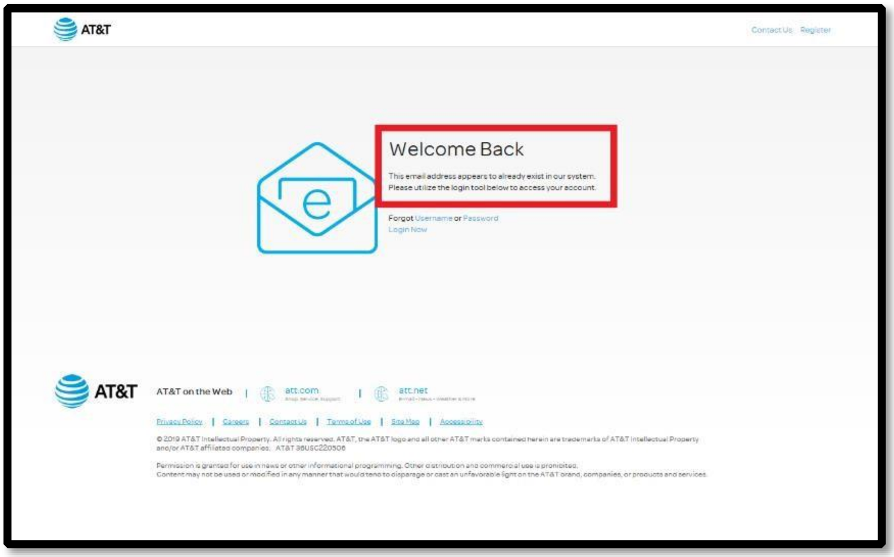
Existing email address

This screen will display if an email address is already associated with an account.



Welcome Back

This email address appears to already exist in our system. Please utilize the login tool below to access your account.

Forgot Username or Password
Login Now

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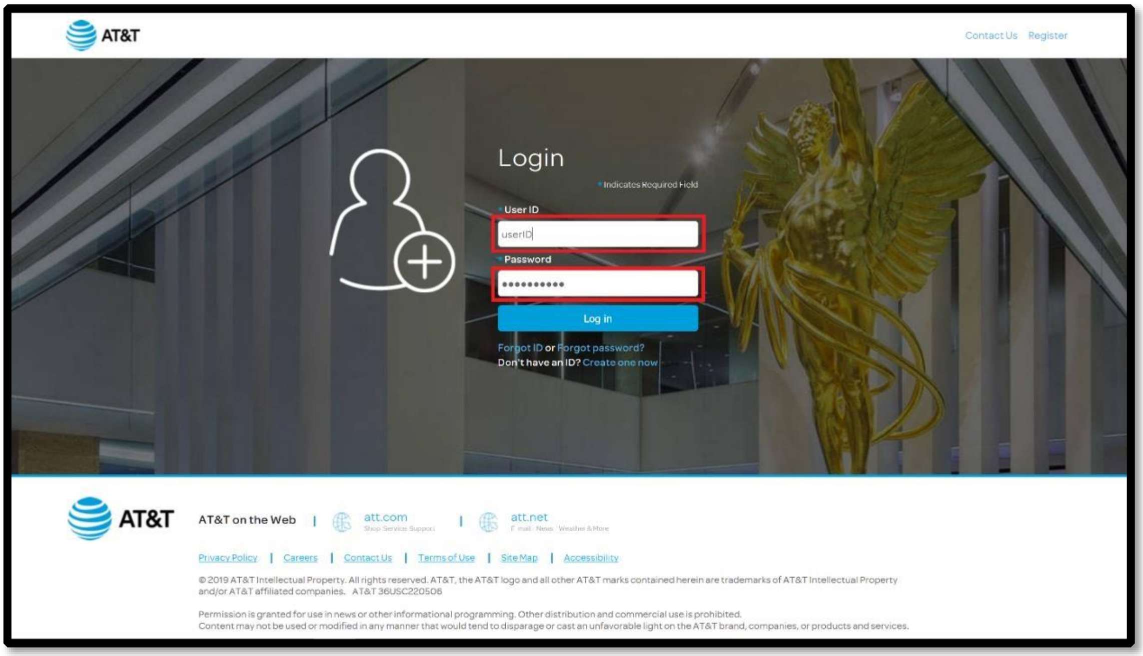
How to Generate Keys – Developer App

1. Go to https://projectone.att.com
2. Enter **UserID** and **Password** to login.


AT&T
Contact Us Register
Login
*Indicates Required Field

*User ID: userID

*Password: ••••••••••

Log in
Forgot ID or Forgot password?
Don't have an ID? Create one now
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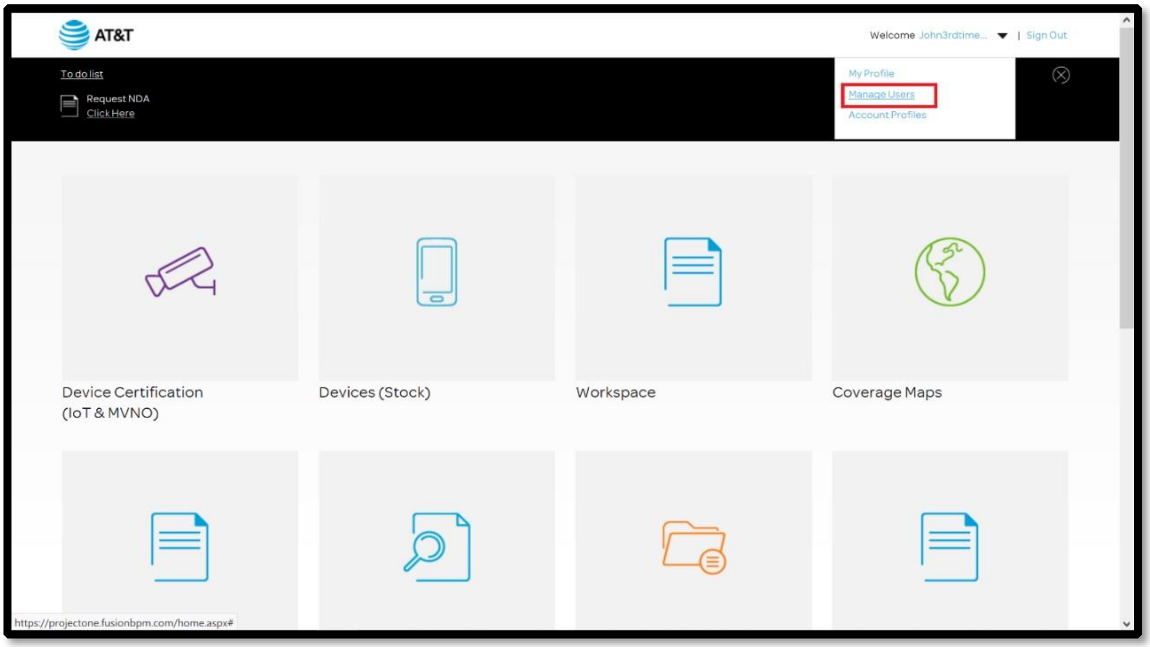
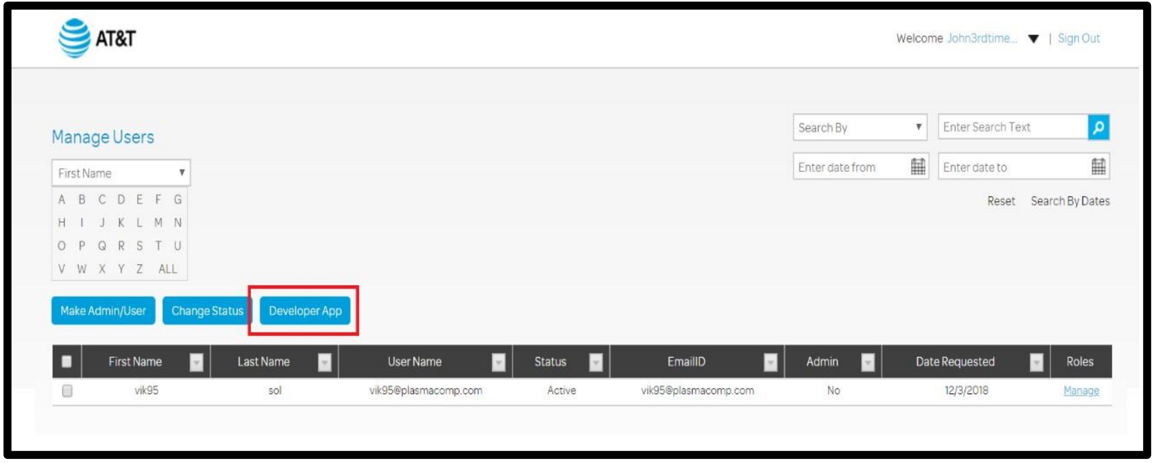
3. Select **Manage Users** from the dropdown menu near **Welcome**. (A new browser tab will open.)

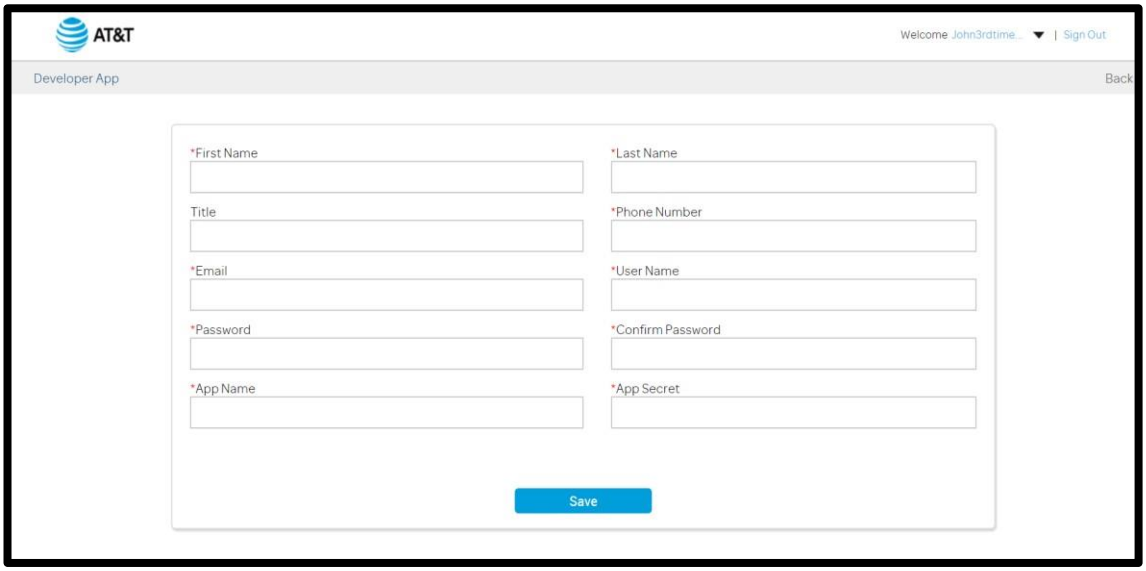


4. Select **Developer App**

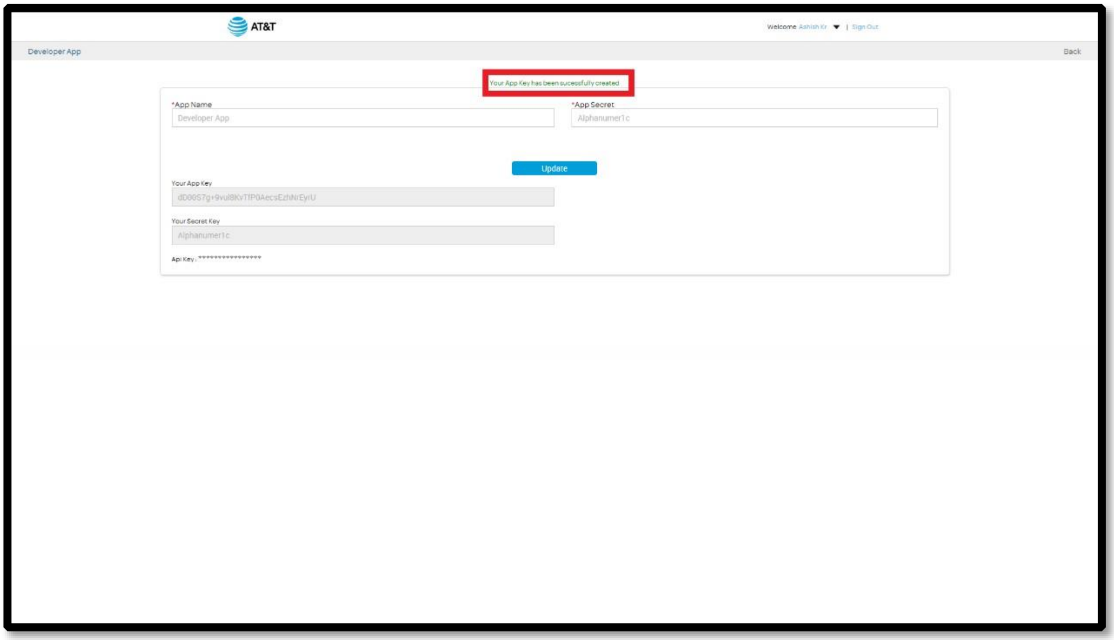


□	First Name	Last Name	User Name	Status	EmailID	Admin	Date Requested	Roles
□	vik95	sol	vik95@plasmacomp.com	Active	vik95@plasmacomp.com	No	12/3/2018	Manage

5. Enter a friendly name in the **App Name** field and enter a key that is alphanumeric with at least one special character in the **App Secret** field.
   Enter First Name, Last Name, Email etc. (to make the user account at the company level).
   NOTE – Please use a new User Name



6. After selecting **Save**, a success message will appear.



Your App Key has been sucessfully created

*App Name
Developer App

*App Secret
Alphanumer1c

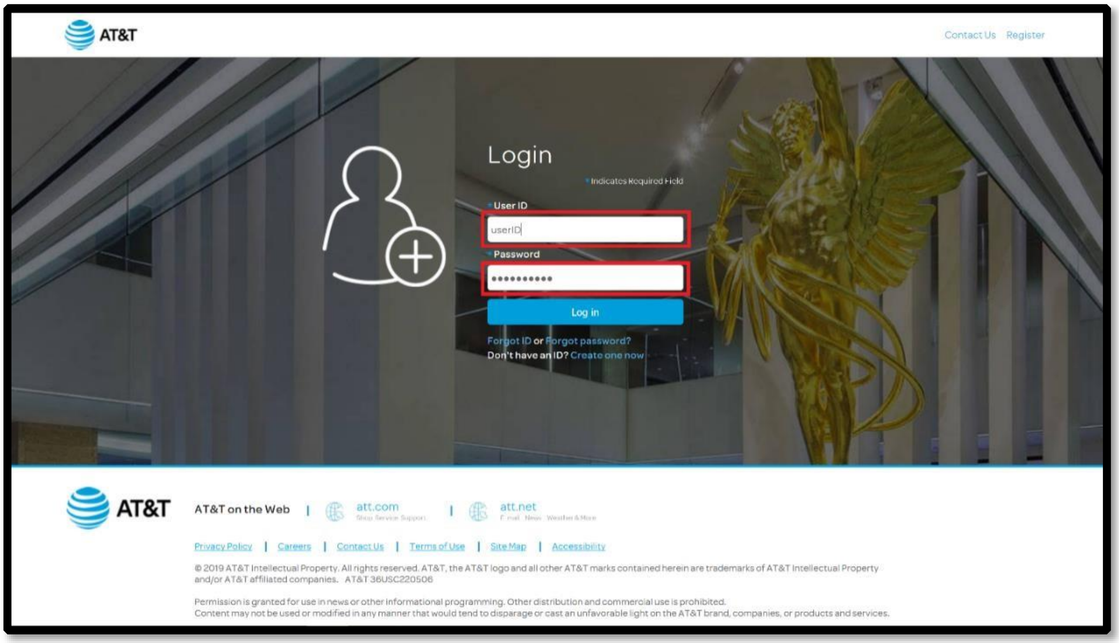
Your App Key
dD00S7g+9vul8KvTfP0AecsEzhNrEyrU

Your Secret Key
Alphanumer1c

Api Key : *****************

How to View /Modify Existing Keys

1. Go to https://projectone.att.com
2. Enter UserID and Password to login


AT&T
Contact Us Register
Log in
Forgot ID or Forgot password?
Don't have an ID? Create one now
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AT&T on the Web | att.com Shop Service Support | att.net E-mail News Weather & More
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Login

* Indicates Required Field

*User ID
userID

*Password
••••••••••

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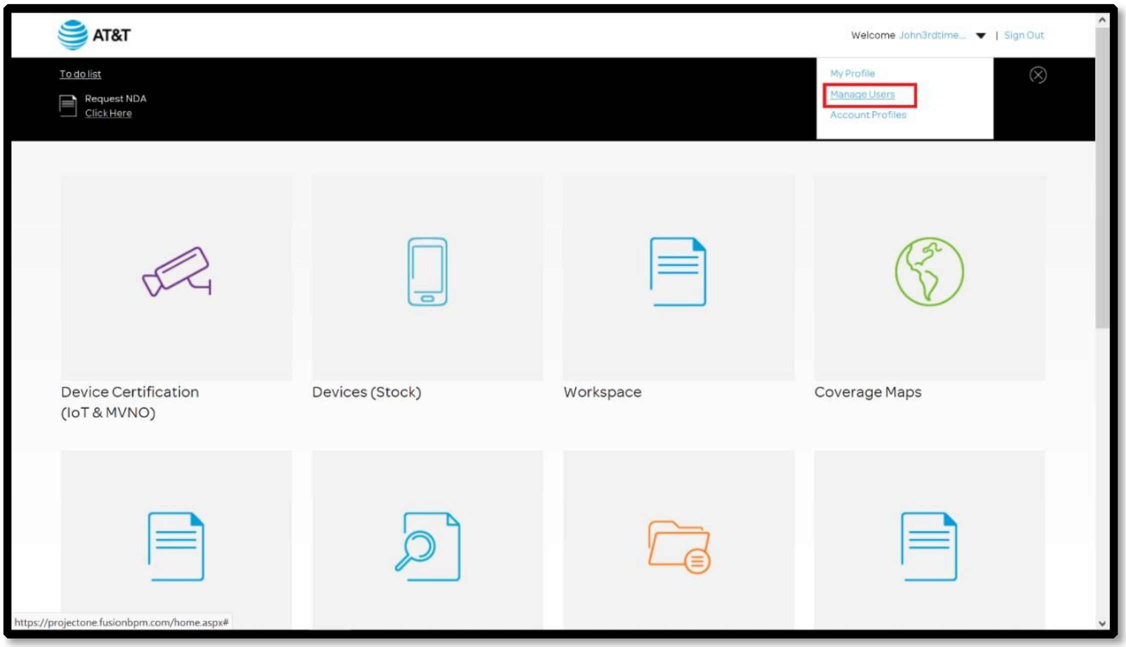
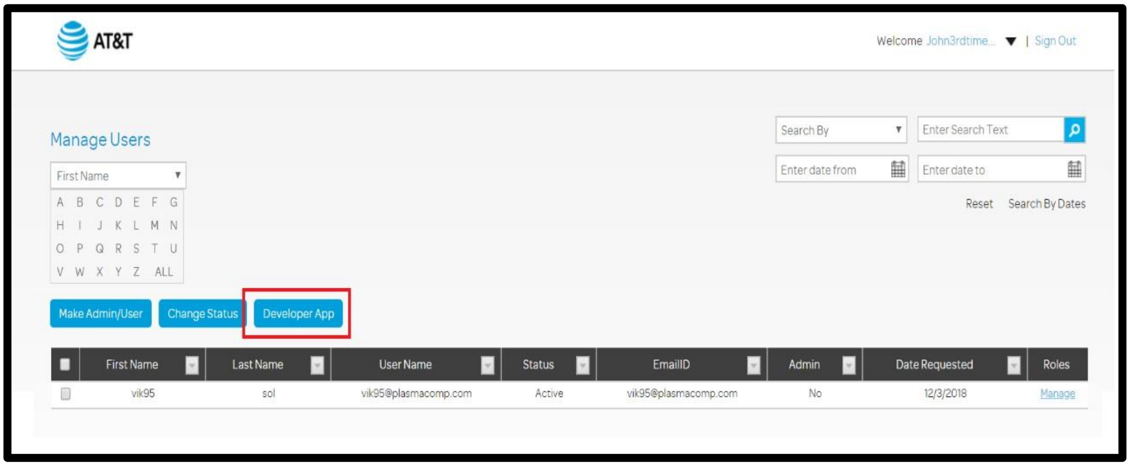
3. Select **Manage Users** from below the **Welcome** dropdown menu. (A new browser tab will open.)

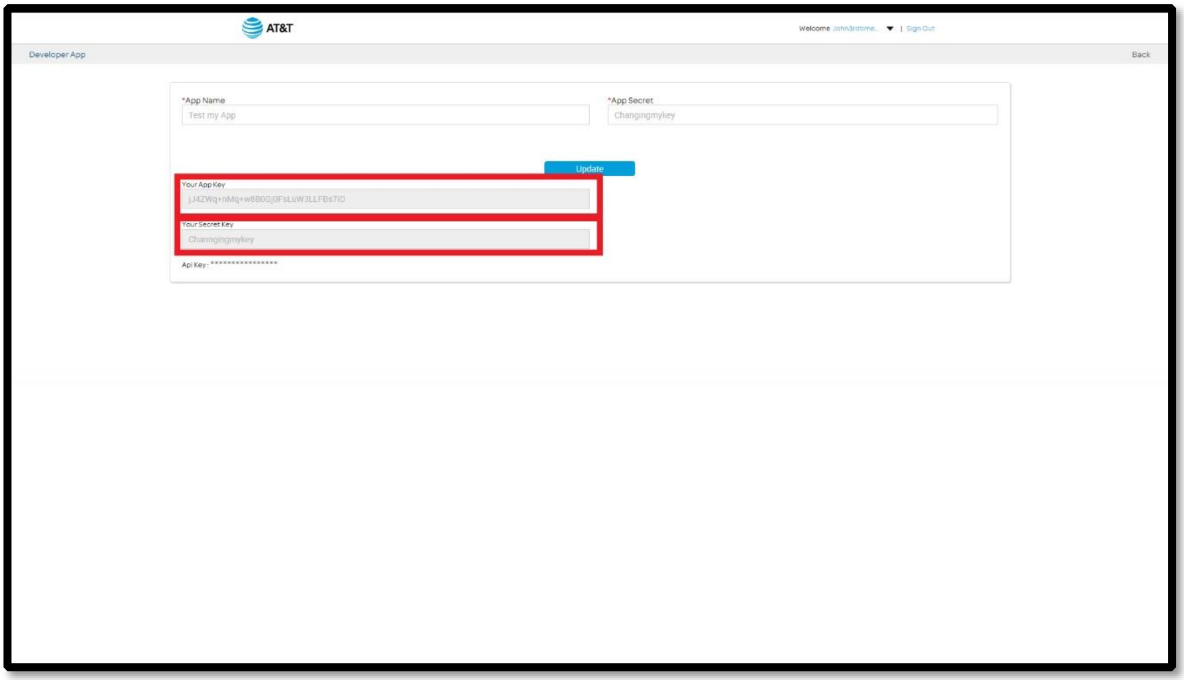

AT&T
Welcome John3rdtime... ▼ | Sign Out
To do list
Request NDA
Click Here
My Profile
Manage Users
Account Profiles
Device Certification (IoT & MVNO)
Devices (Stock)
Workspace
Coverage Maps
https://projectone.fusionbpm.com/home.aspx#

4. Select **Developer App**



☐	First Name	Last Name	User Name	Status	EmailID	Admin	Date Requested	Roles
☐	vik95	sol	vik95@plasmacomp.com	Active	vik95@plasmacomp.com	No	12/3/2018	Manage

5. The App Key and Secret Key will display under **Your App Key** and **Your Secret Key**, respectively.



*App Name: Test my App

*App Secret: Changingmykey

Your App Key: jJ4ZWq+nMq+w8B0Gj0FsLuW3LLFBs7iO

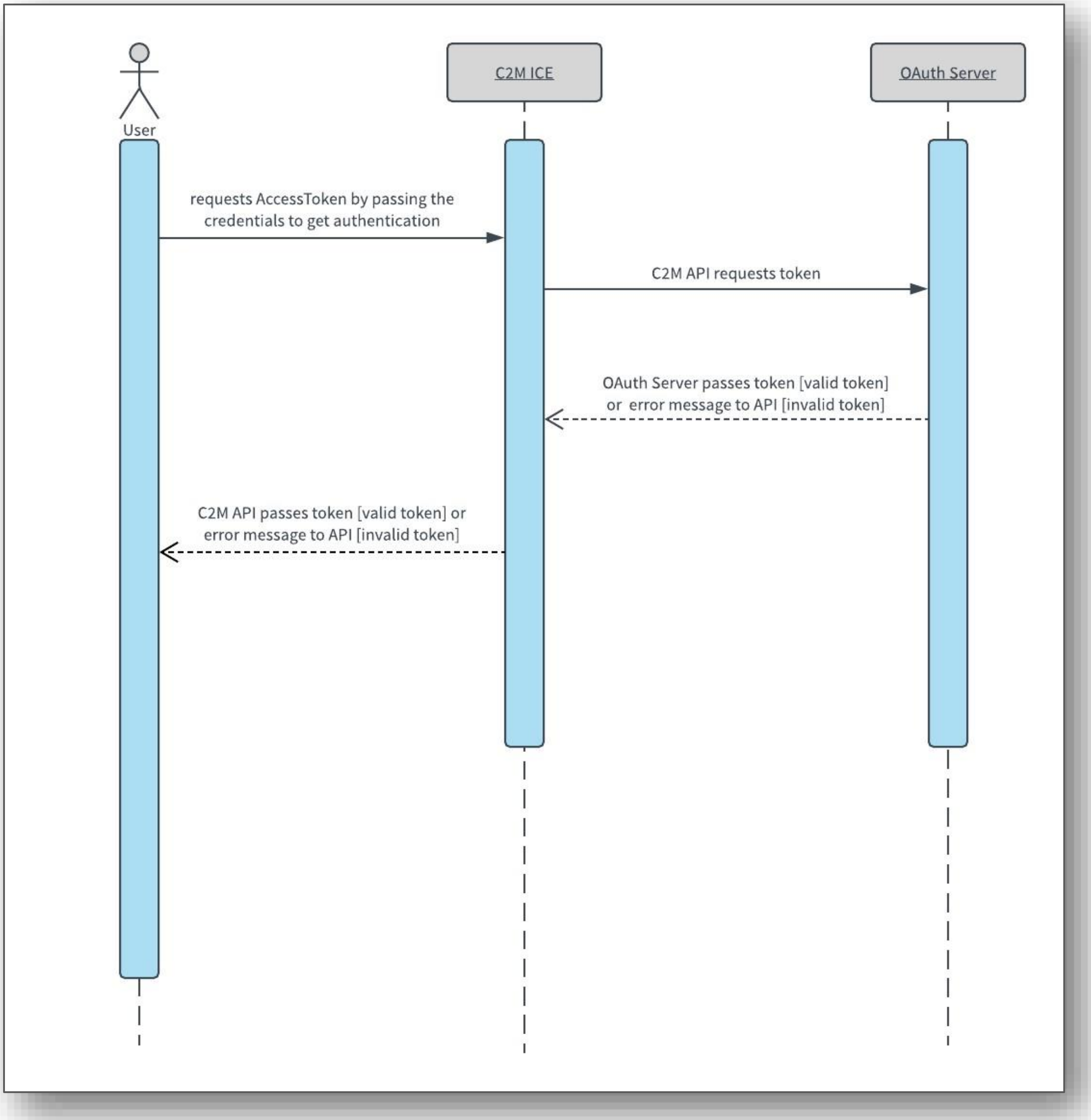
Your Secret Key: Channgingmykey

Api Key : ****************

Call to Authenticate the user

For making any call to C2M user will need to authenticate first via getting the authentication token. This token will be used in every call-in body parameter. If the token is expired, The API will send the error code and user can make another call (Refresh Token) to get the new token.

Sequence Diagram


User
C2M ICE
OAuth Server
requests AccessToken by passing the credentials to get authentication
C2M API requests token
OAuth Server passes token [valid token] or error message to API [invalid token]
C2M API passes token [valid token] or error message to API [invalid token]

Get Access Token

This is a key call for all other calls. This is used to get AccessToken by passing “User Name”, “Password”, “App Key” & “App Secret”. Which is provided by Plasma for authenticity to use API. After getting the AccessToken you can request others API call by providing this AccessToken.

Vendor User Name	***Assumption:*** *Vendor has its own login credentials*
Vendor Password	
App Key	*User will receive the App Key after the developer (Developer App) account is created.*
Secret Key	
API Key	*For the Secret Key, API Key, please refer to the [Process Flow Diagram on page 5]*

Method Details	
HTTP Method :	POST
Method Name	GetAccessToken
Request Parameters	UserName, Password, Appkey, AppSecret
Request Format :	JSON
Response Format :	JSON
URL	https://ice-projectone.att.com/JsonIce.svc/GetAccessToken

Parameters used in the API

Parameter	Required?	Type	Description

	Yes	Body	A string containing Email address and Password
			
			JSON Sample:
			{
			"UserName":"your username",
			"Password":"your password",
			"AppKey":"Your app key",
			"AppSecret": "Your app secret key”
			}

Sample Response Schema

Success

```
{
   "code": "8054",
   "message": "You have successfully logged in. Please find your AccessToken, AuthCode and RefreshToken in IceData.",
   "status": "SUCCESS",
   "icejdata": {
      "authcode": "3a9ff28d-c9e4-11e7-b2e3-00155dde170e",
      "accesstoken":
"IYKod5oM6y9SDQfwLzuxIW+PlLJY65hVOnbrPYP3D2qUkbesa/RMIWK608Rga63ldbspdUj9HUQ=",
      "refreshtoken":
"IYKod5oM6y9SDQfwLzuxIW+PlLJY65hVOnbrPYP3D2qUkbesa/RMId3agMNffcMgmv7u948BIVI="    }
}
```

Fail

```
{
   "code": "8055",
   "message": " Invalid user name or password ",
   "status": "FAIL"
}
```

Refresh Token

This method is used to get a new token from OAuth server if the current token is expired.

Method Details	
HTTP Method :	POST
Method Name	RefreshToken
Request Parameters	AuthCode, RefreshToken & AccessToken in request body
Request Format :	JSON
Response Format :	JSON
URL	https://ice-projectone.att.com/JsonIce.svc/RefreshToken

Parameters used in the API

Parameter	Required?	Type	Description

refreshtoken	Yes	body	A string containing OAuth Code, Access token and Refresh Token.
			
			JSON Sample:
			{
			"AuthCode":"TestAuthCode",
			"RefreshToken":"TestRefreshToken"
			}

Sample Response Schema

Success

```
{
   "code": "8035",
   "message": "Token refresh is success. Please find the new RefreshToken in IceData.",
   "status": "SUCCESS",
   "icejdata": {
      "accesstoken":
"IYKod5oM6y9SDQfwLzuxIW+PlLJY65hVOnbrPYP3D2qUkbesa/RMIWK608Rga63lEaGbWkUgitc=",
      "refreshtoken":
"IYKod5oM6y9SDQfwLzuxIW+PlLJY65hVOnbrPYP3D2qUkbesa/RMId3agMNffcMg9BmsjP05EK8="     }
}
```

Fail

Case 1:

```
{
   "code": "8010",
   "message": "JsonData is missing in body parameter.",
   "status": "Fail"
}
```

Case 2:

```
{
   "code": "8053",
   "message": " You are not authorized to make this call. Please look into description.",
   "status": "Fail"
}
```

Case 3:

```
{
   "code": "8037",
   "message": " AuthCode is missing in parameter.",
   "status": "Fail"
}
```

Case 4:

```
{
   "code": "8034",
   "message": "RefreshToken is missing in header.",
   "status": "Fail"
}
```

Case 5:

```
{
   "code": "8036",
   "message": " Token refresh is fail. Please find the detail in Description.",
   "status": "Fail"
}
```

Sign Out

This method is used to forcefully expire the access token.

Method Details	
HTTP Method :	POST
Method Name	UserSignOut
Request Parameters	RefreshToken & AccessToken in request body
Request Format :	JSON
Response Format :	JSON
URL	https://ice-projectone.att.com/JsonIce.svc/UserSignOut

Parameters used in the API

Parameter	Required?	Type	Description

	Yes	Body	A string containing OAuth Code, Access token and Refresh Token.
			JSON Sample:
			{
			"AccessToken":"TestAccessToken",
			"RefreshToken":"TestRefreshToken"
			}

Sample Response Schema

Success

```
{
   "code": "8038",
   "message": "Token expired successfully",
   "status": "Success"
}
```

Fail

Case 1:

```
{
   "code": "8010",
   "message": "JsonData is missing in body parameter.",
   "status": "Fail"
}
```

Case 2:

```
{
   "code": "8053",
   "message": " You are not authorized to make this call. Please look into description.",
   "status": "Fail"
}
```

Case 3:

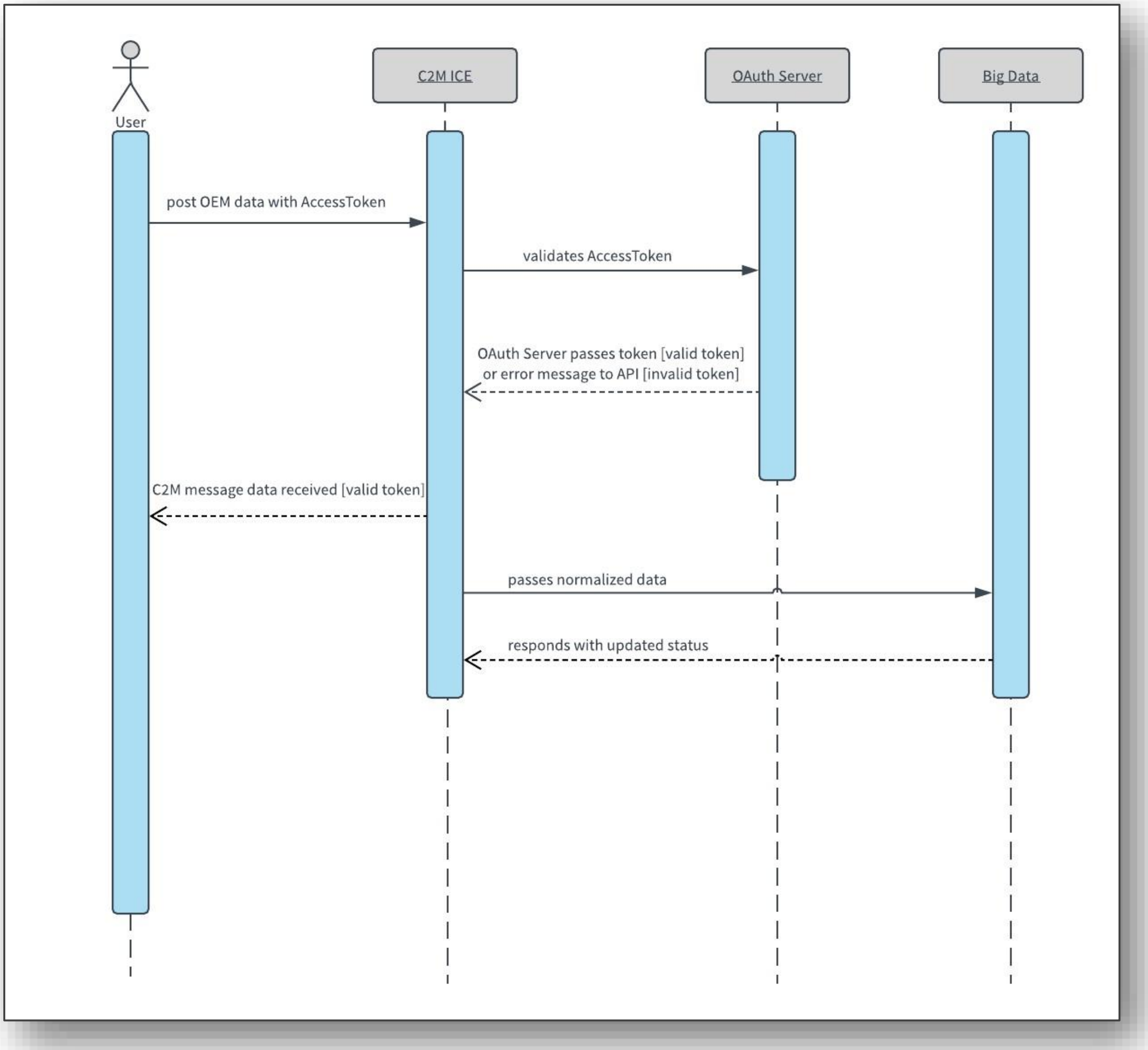
```
{
   "code": "8029",
   "message": "AccessToken is missing in parameter",
   "status": "Fail"
}
```

Case 4:

```
{
   "code": "8034",
   "message": "RefreshToken is missing in header.",
   "status": "Fail"
}
```

Call for Vendor Data

Sequence Diagram


User
C2M ICE
OAuth Server
Big Data
post OEM data with AccessToken
validates AccessToken
OAuth Server passes token [valid token] or error message to API [invalid token]
C2M message data received [valid token]
passes normalized data
responds with updated status

Request Parameters

These are the parameter fields contained in the .csv file columns. (column names need to match exactly as below)

#	Field	Description
1.	HOST_MFR	A string containing the manufacturer name of the host device.
2.	Host_Model	A string containing the model of the host device.
3.	Host_SW_Ver	A string containing the software version of the host device.
4.	Host Device Unique ID	A string containing the 10-digit alphanumeric unique identifier of the host device generated AT&T during certification.
5.	IMEI	A string containing the 15-digit IMEI of the host device

Parameters used in the API

Parameter	Required?	Type	Description
apikey	Yes	Query String	Encrypted User API Key
data	Yes	Body Parameter	
token	Yes	Header	For response of GetAccessToken column, *please refer to the Get Access Token response on page 8* ***Use the access token generated***

Sample Response Schema

URL: https://ice-projectone.att.com/JsonIce.svc/Upload?fileName=IMEI.csv

Header Parameter: token

Response 1

```
{
  "code": "8029",
  "message": "AccessToken is missing in parameter.",
  "status": "FAIL"
}
```

Response 2

```
{
   "code": "8053",
   "message": "Invalid AccessToken",
   "status": "FAIL"
}
```

Response 3

```
{
   "code": "9003",
   "detail": "Please upload .csv file.",
   "status": "Fail"
}
```

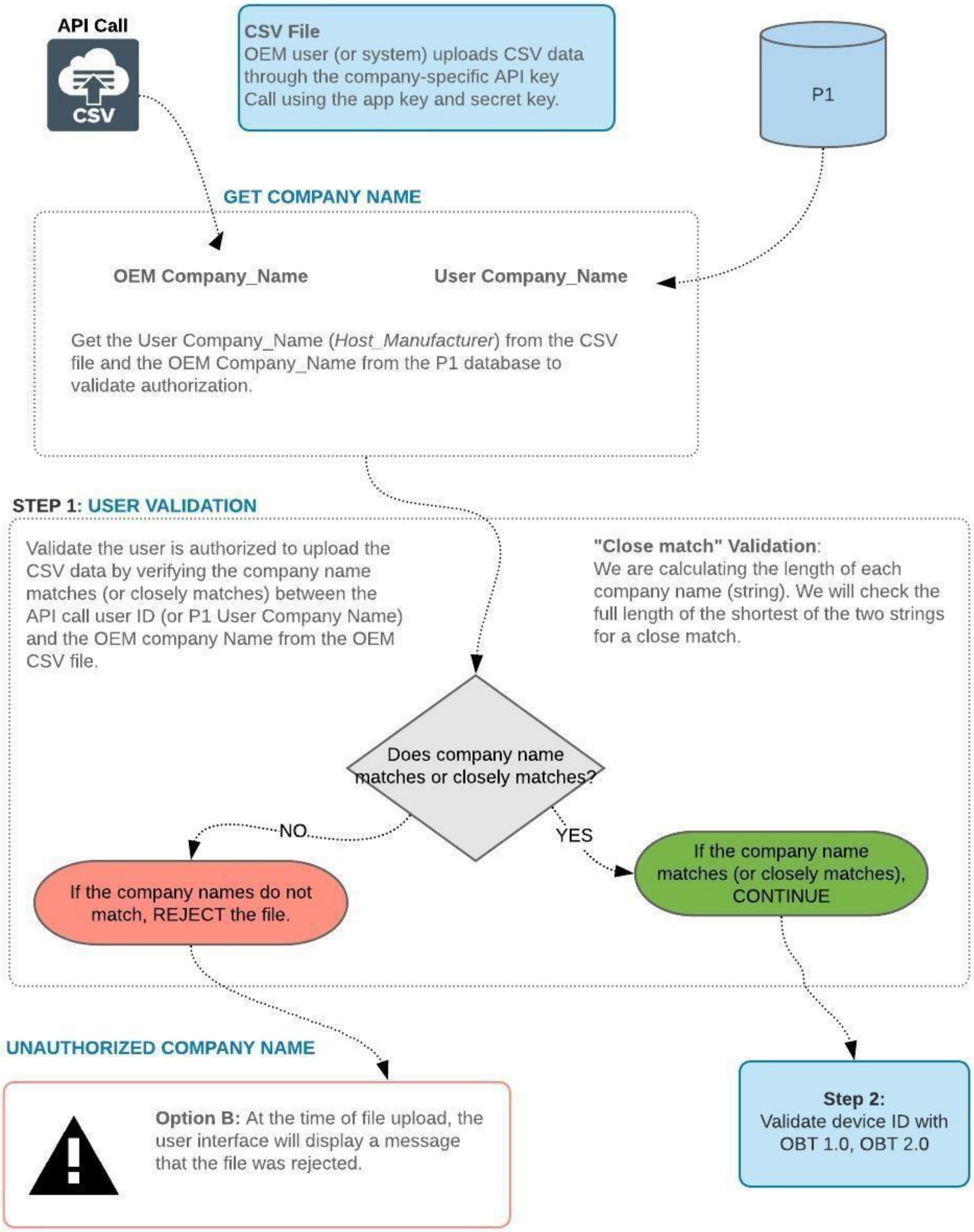
Response 4

```
{
   "code": "9004",
   "detail": "Invalid column name in csv file.",
   "status": "Fail"
}
```

Response 5

```
{
   "code": "200",
   "message": "IMEI.csv file received successfully.",
   "status": "Success"
}
```

CSV Validations:



CSV File
OEM user (or system) uploads CSV data through the company-specific API key Call using the app key and secret key.

GET COMPANY NAME

OEM Company_Name **User Company_Name**

Get the User Company_Name (*Host_Manufacturer*) from the CSV file and the OEM Company_Name from the P1 database to validate authorization.

STEP 1: USER VALIDATION

Validate the user is authorized to upload the CSV data by verifying the company name matches (or closely matches) between the API call user ID (or P1 User Company Name) and the OEM company Name from the OEM CSV file.

"Close match" Validation:
We are calculating the length of each company name (string). We will check the full length of the shortest of the two strings for a close match.

Does company name matches or closely matches?

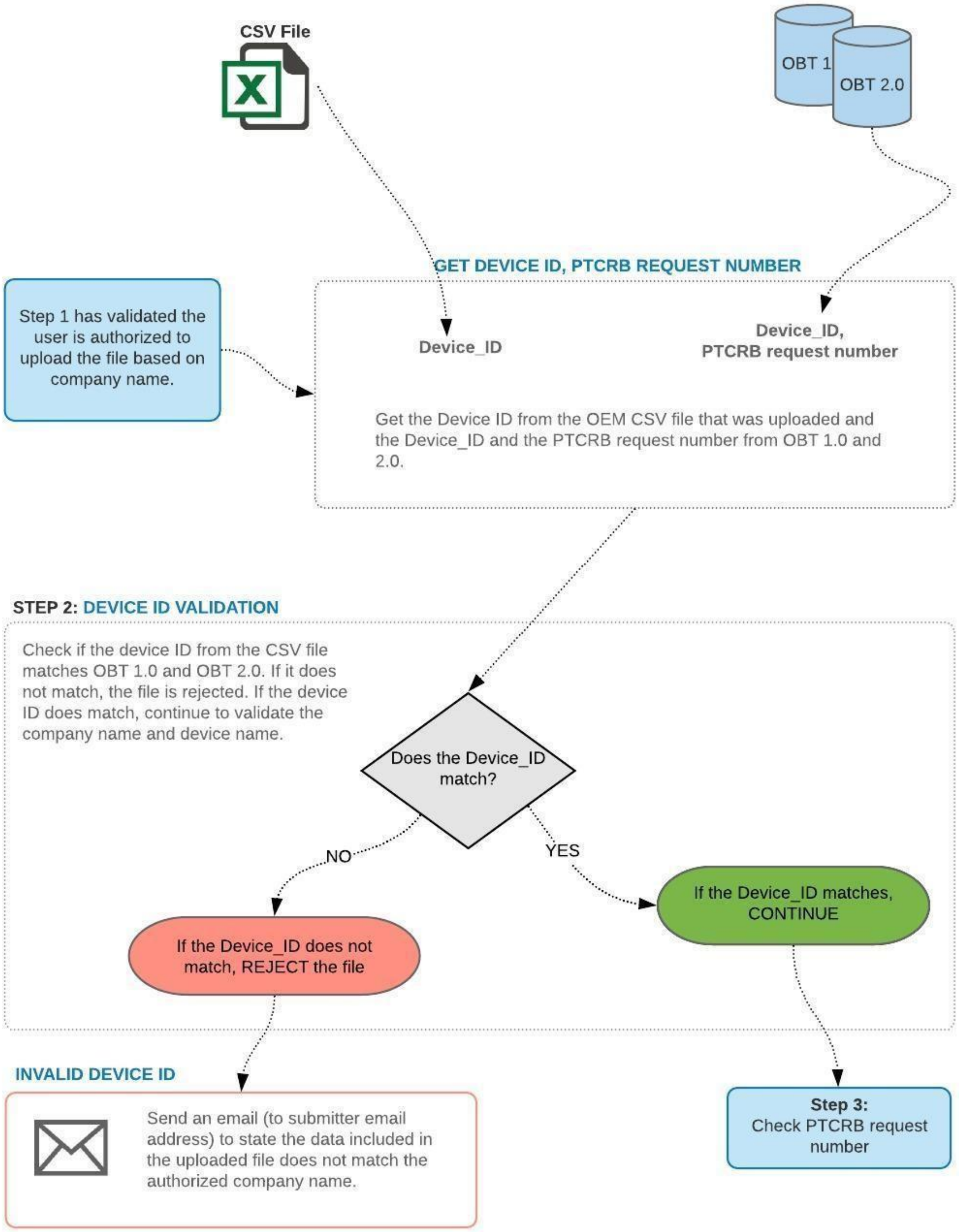
If the company names do not match, REJECT the file.

If the company name matches (or closely matches), CONTINUE

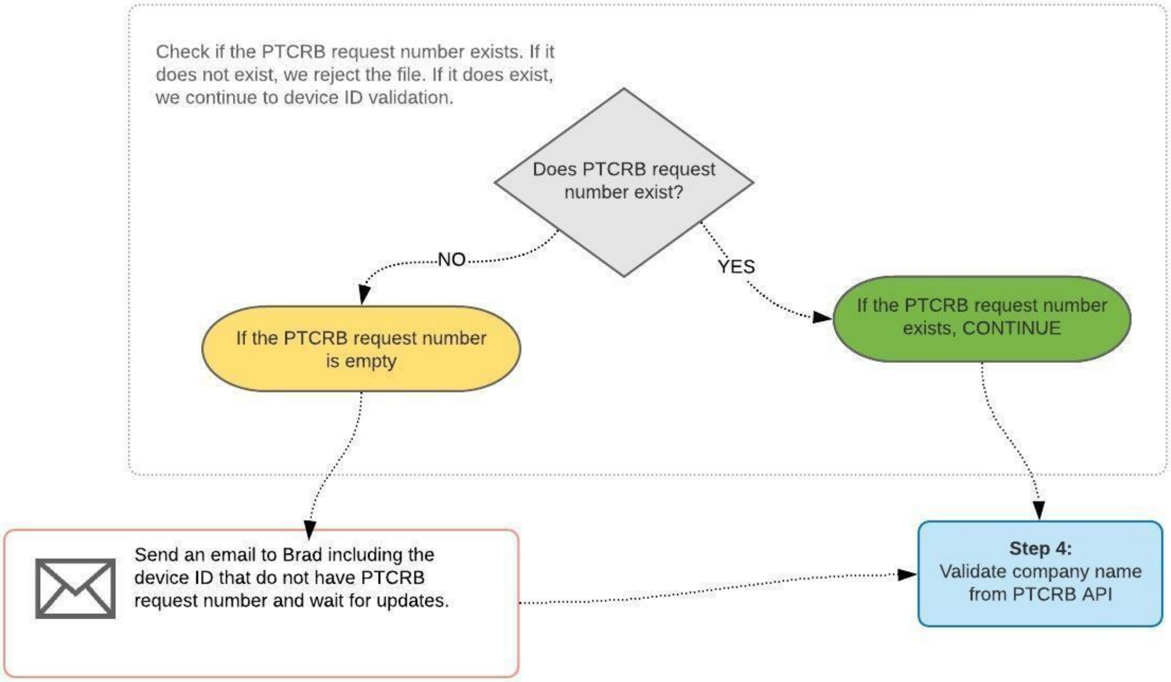
UNAUTHORIZED COMPANY NAME

Option B: At the time of file upload, the user interface will display a message that the file was rejected.

Step 2:
Validate device ID with OBT 1.0, OBT 2.0


CSV File
OBT 1
OBT 2.0
GET DEVICE ID, PTCRB REQUEST NUMBER
Step 1 has validated the user is authorized to upload the file based on company name.
Device_ID
Device_ID,
PTCRB request number
Get the Device ID from the OEM CSV file that was uploaded and the Device_ID and the PTCRB request number from OBT 1.0 and 2.0.
STEP 2: DEVICE ID VALIDATION
Check if the device ID from the CSV file matches OBT 1.0 and OBT 2.0. If it does not match, the file is rejected. If the device ID does match, continue to validate the company name and device name.
Does the Device_ID match?
NO
YES
If the Device_ID does not match, REJECT the file
If the Device_ID matches, CONTINUE
INVALID DEVICE ID
Send an email (to submitter email address) to state the data included in the uploaded file does not match the authorized company name.
Step 3:
Check PTCRB request number

STEP 3: PTCRB REQUEST CHECK

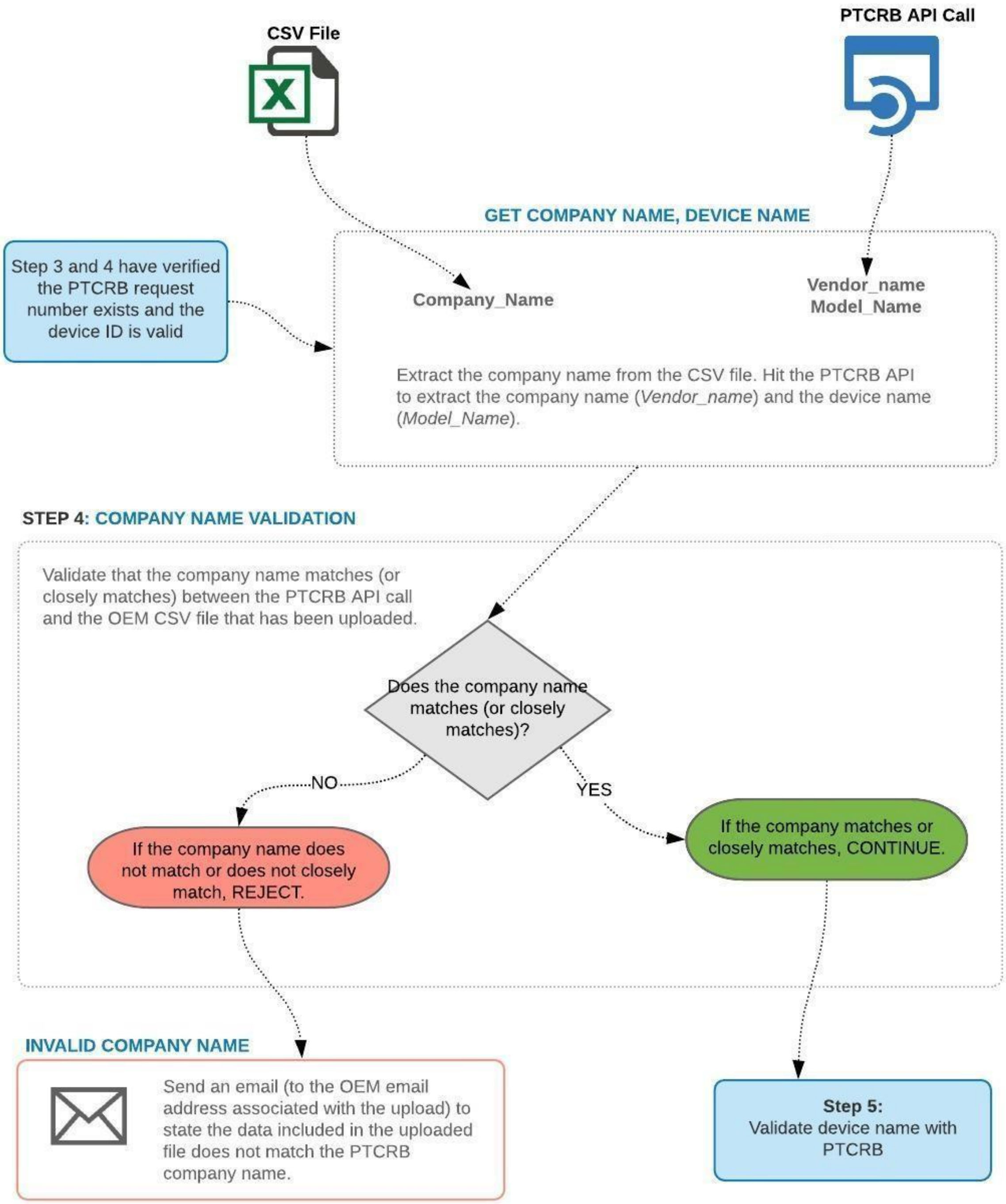


Check if the PTCRB request number exists. If it does not exist, we reject the file. If it does exist, we continue to device ID validation.

Does PTCRB request number exist?
NO
YES
If the PTCRB request number is empty
If the PTCRB request number exists, CONTINUE

Send an email to Brad including the device ID that do not have PTCRB request number and wait for updates.

Step 4:
Validate company name from PTCRB API



GET COMPANY NAME, DEVICE NAME

Step 3 and 4 have verified the PTCRB request number exists and the device ID is valid

Extract the company name from the CSV file. Hit the PTCRB API to extract the company name (*Vendor_name*) and the device name (*Model_Name*).

STEP 4: COMPANY NAME VALIDATION

Validate that the company name matches (or closely matches) between the PTCRB API call and the OEM CSV file that has been uploaded.

Does the company name matches (or closely matches)?

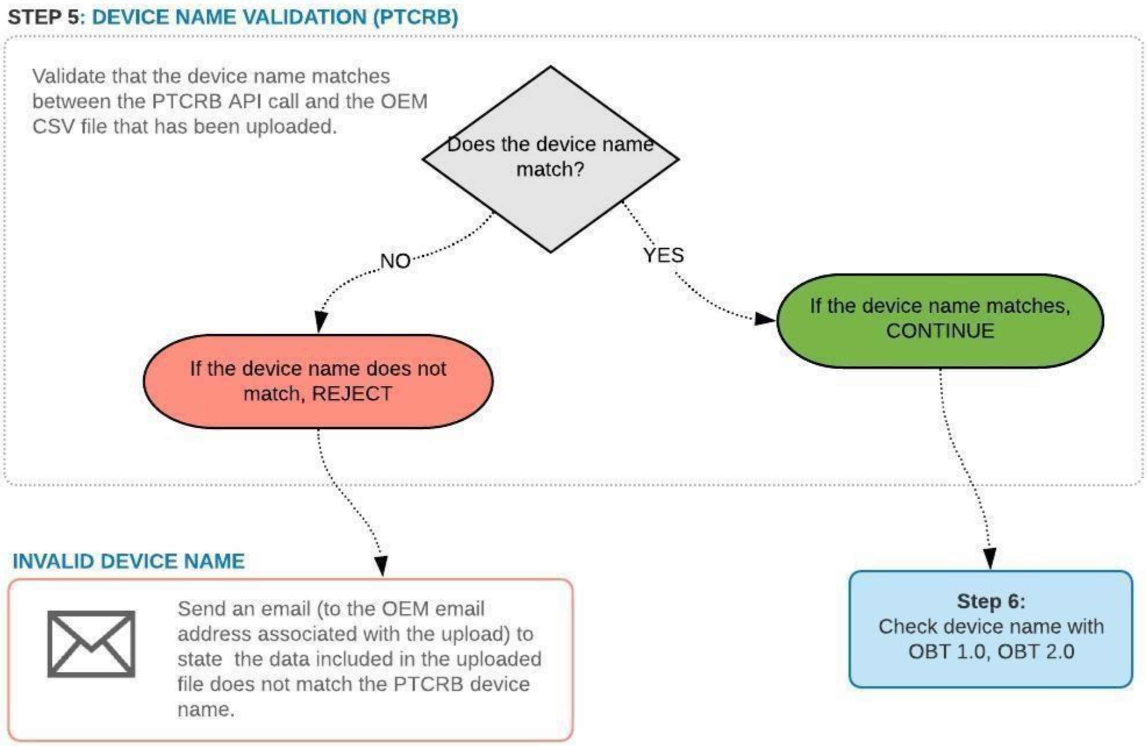
If the company name does not match or does not closely match, REJECT.

If the company matches or closely matches, CONTINUE.

INVALID COMPANY NAME

Send an email (to the OEM email address associated with the upload) to state the data included in the uploaded file does not match the PTCRB company name.

Step 5:
Validate device name with PTCRB



STEP 5: DEVICE NAME VALIDATION (PTCRB)

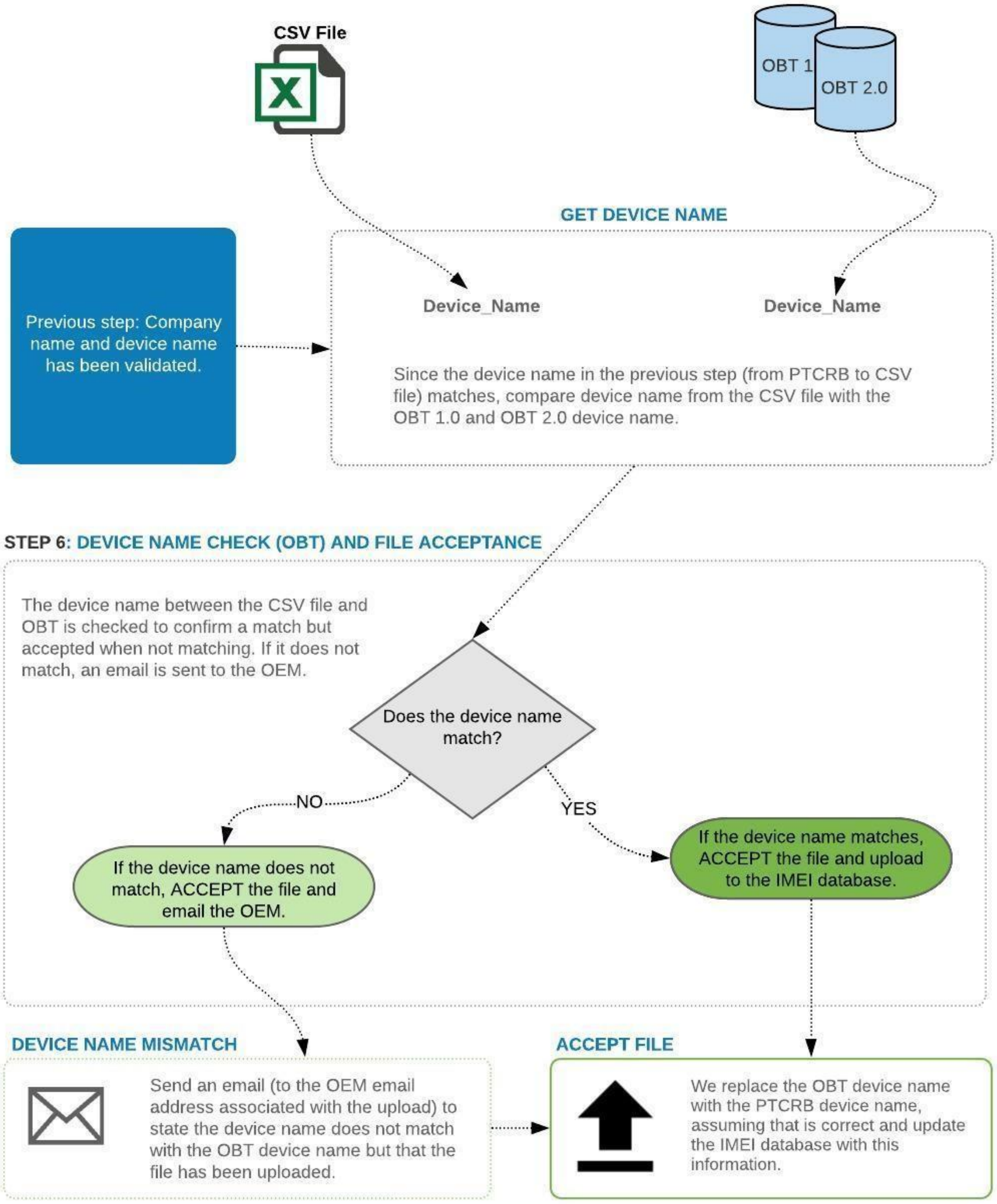
Validate that the device name matches between the PTCRB API call and the OEM CSV file that has been uploaded.

Does the device name match?
NO
YES
If the device name does not match, REJECT
If the device name matches, CONTINUE

INVALID DEVICE NAME

Send an email (to the OEM email address associated with the upload) to state the data included in the uploaded file does not match the PTCRB device name.

Step 6:
Check device name with OBT 1.0, OBT 2.0



Previous step: Company name and device name has been validated.

GET DEVICE NAME

Since the device name in the previous step (from PTCRB to CSV file) matches, compare device name from the CSV file with the OBT 1.0 and OBT 2.0 device name.

STEP 6: DEVICE NAME CHECK (OBT) AND FILE ACCEPTANCE

The device name between the CSV file and OBT is checked to confirm a match but accepted when not matching. If it does not match, an email is sent to the OEM.

If the device name does not match, ACCEPT the file and email the OEM.

If the device name matches, ACCEPT the file and upload to the IMEI database.

DEVICE NAME MISMATCH

Send an email (to the OEM email address associated with the upload) to state the device name does not match with the OBT device name but that the file has been uploaded.

ACCEPT FILE

We replace the OBT device name with the PTCRB device name, assuming that is correct and update the IMEI database with this information.