Tigo REST API V3

Introduction

This api is used to work with the Tigo Energy platform to automate the retrieval and creation of elements. It will attempt to adhere to standard REST calls found in most REST implementations. Parties

- Server - The Tigo platform and urls associated with the api
- Client - Third party user with api access to the Tigo platform and/or Tigo api.

Data Transfer

All input and responses will be in JSON format. Additional values may be added at any time but will not affect previous functionality unless stated otherwise.

Base URL

https://api2.tigoenergy.com/api/v3/

Protocols

- GET - Will be used when you want to retrieve information from the server.
- POST - Will be used to create new items
- PATCH/PUT - Will be used to update information
- DELETE - Will be used to delete or remove items

Authorization

The v3 api implements an auth token system. This allows you to use a token to authenticate endpoints on the Tigo platform.

The preferred method of authentication is using a header with a header Authorization tag.

You can gain an access token using Basic Auth with the Login endpoint listed below.

Example:

```
Authorization: Bearer ABCDE
```

Curl Example:

```
curl -H "Authorization: Bearer ABCDE" "https://api2.tigoenergy.com/api/v3/<endpoint>"
```

HTTP Error Codes

Code Description

- 2xx Success

- 3xx Connection changes or issues
- 4xx Client issue
- 5xx Server issue

Error Response

A json error response may be accompanied with HTTP codes

```
{
"name": "Unauthorized",
"message": "You are requesting with an invalid credential.",
"code": 0,
"status": 401
}
```

Return Header & Rate Limiting

It is good practice to pay attention to headers since they may return additional information about your request. Some examples include rate limiting of api calls or additional information about the intended API endpoint.

- **X-Rate-Limit-Limit** Max limit in number of requests
- **X-Rate-Limit-Remaining** Remaining number of requests
- **X-Rate-Limit-Reset** Number of seconds till limit reset
- **X-System-Config-Update** Timestamp of last config update, when system id is specified

Note about document

Copy and pasting from this document may place the improper quotes "" when running commands. If something is not working please check the quotes first.

GET Login

Login and get an authorization token and user_id. This uses basic auth to send the username and password.

Example Call

- GET https://api2.tigoenergy.com/api/v3/users/login

CURL Example

```
curl -v -u "{username}:{password}" "https://api2.tigoenergy.com/api/v3/users/login"
```

Response Parameters

Name	Type	Description
user	Envelope	Container object for user
user.user_id	Integer	id of ther user login
user.auth	String	Auth string for Oauth authentication
user.expires	ISO 8601	Timeout of authorization
user.user_type	String	Type of user "Basic", "Installer", "Partner"

Example Response

200 OK

```
{
  "user": {
    "user_id": 1,
    "auth": "ABCDE",
    "expires": "2016-09-01T00:00:00-08:00",
    "user_type": "Basic",
  }
}
```

GET Logout

Logout the current user auth token. This will make the auth token no longer valid.

Example Call

- GET https://api2.tigoenergy.com/api/v3/users/logout

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/users/logout" -H "Authorization: Bearer ABCDE"
```

Example Response

200 OK


```
{
  "name": "OK",
  "message": "Logged out user",
  "code": 0,
  "status": 200
}
```

GET users/get

List the current user. Will only be able to query currently logged in user.

Example Calls

- GET https://api2.tigoenergy.com/api/v3/users/1
- GET https://api2.tigoenergy.com/api/v3/users/get?id=1

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/users/1" -H "Authorization: Bearer ABCDE"
```

GET Parameters

Name	Type	Description
*id	Integer	ID of the user.

- *Required field

Response Parameters

Name	Type	Description
user	Envelope	Object container of user
user.user_id	Integer	ID of the user
user.login	String	Login of user
user.first_name	String	First name of user
user.last_name	String	Last name of user
user.email	String	Email of user
user.company	String	Associated company of user
user.street	String	Street address of user
user.street2	String	Street2 address of user
user.city	String	City of user

user.state	String	State of user
user.zip	Integer	Zip of user
user.country	String	Country of user
user.mobile	String	Mobile phone of user
user.user_type	String	User type of user
user.avatar	String	URL of avatar

Example Response

200 OK


```
{
  "user": {
    "user_id": 1,
    "login": "1",
    "first_name": "John",
    "last_name": "Smith",
    "email": "123@123.123",
    "company": "Tigo",
    "street": "123 Fake St.",
    "city": "Faker town",
    "state": "CA",
    "zip": "123456",
    "country": "United States",
    "mobile": "1231231234",
    "user_type": "Basic"
  }
}
```

GET systems/list

List the current set of systems you have access too.

Example Calls

- GET https://api2.tigoenergy.com/api/v3/systems
- GET https://api2.tigoenergy.com/api/v3/systems?limit=50

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/systems" -H "Authorization: Bearer ABCDE"
```

GET Parameters

Name	Type	Description
page	Integer	Page to display of systems
limit	Integer	Number of systems to list
sort	Integer	Field to sort on Default: system_id

Response Parameters

Name	Type	Description
systems	Object	Object container of systems.
systems.system_id	Integer	ID of the system.
systems.created	ISO 8601	Datetime of system creation.
systems.name	String	Name of system.
systems.external_id	String	Use for external use.
systems.street	String	Address.
systems.city	String	City.
systems.state	String	State or Region.

systems.zip	String	Zip.
systems.country	String	Country.
systems.latitude	Float	Latitude coordinates.
systems.longitude	Float	Longitude coordinates.
systems.timezone	String	Unix Timezone.
systems.turn_on_date	ISO 8601 Date	Date planned turn on. Example: YYYY-MM-DD
systems.power_rating	Float	Max DC power rating of system.

Example Response

200 OK


```
{
  "systems":[{
    "created": "2014-05-16T20:50:45+00:00",
    "city": "PO 123",
    "company": "One Cool Dude",
    "contact_name": "John Smith",
    "country": "United States",
    "external_id": "test",
    "system_id": 1,
    "latitude": 12.3456789,
    "longitude": 12.3456789,
    "name": "Test System",
    "power_rating": 12000,
    "state": "Faker City",
    "street": "123 Fake Street",
    "zip": "12345",
    "turn_on_date": "null"
  },
  {
    "created": "2014-05-16T20:50:45+00:00",
    "city": "PO 123",
    "company": "One Cool Dude",
    "contact_name": "John Smith",
    "country": "United States",
    "external_id": "test2",
    "system_id": 2,
    "latitude": 12.3456789,
    "longitude": 12.3456789,
    "name": "Test System",
    "power_rating": 12000,
    "state": "Faker City",
    "street": "123 Fake Street",
    "zip": "12345",
    "turn_on_date": "2017-01-01"
```

```
  }]
}
```

GET systems/view

Get a single system you have access to

Example Call

- GET https://api2.tigoenergy.com/api/v3/systems/1
- GET https://api2.tigoenergy.com/api/v3/systems/view?id=1

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/systems/view?id=1" -H "Authorization: Bearer ABCDE"
```

GET Parameters

Name	Type	Description
*id	Integer	System ID of the system
include	String	Side load associated envelope

- *Required field

Additional Includes

Name	Type	Description
inverters	Envelope[]	Inverters for system
mppts	Envelope[]	Mppts for system
strings	Envelope[]	Strings for system
panels	Envelope[]	Panels for system
meters	Envelope[]	Meters for system
objects	Envelope[]	Objects for system
images	Envelope[]	Images for system
sources	Envelope[]	Sources for system

Response Parameters

Name	Type	Description
system	Object	Object container of system.
system.system_id	Integer	ID of the system.
system.created	ISO 8601	Datetime of system creation.
system.name	String	Name of system.
system.external_id	String	Use for external use.
system.street	String	Address.
system.city	String	City.
system.state	String	State or Region.
system.zip	String	Zip.
system.country	String	Country.
system.latitude	Float	Latitude coordinates.
system.longitude	Float	Longitude coordinates.
system.timezone	String	Unix Timezone.
system.turn_on_date	ISO 8601 Date	Date planned turn on. Example: YYYY-MM-DD
system.power_rating	Float	Max DC power rating of system.

Example Response

200 OK


```
{
  "system":{
    "created": "2014-05-16T20:50:45+00:00",
    "city": "PO 123",
    "company": "One Cool Dude",
    "contact_name": "John Smith",
    "country": "United States",
    "external_id": "test",
```

```
    "system_id": 1,
    "latitude": 12.3456789,
    "longitude": 12.3456789,
    "name": "Test System",
    "power_rating": 12000,
    "state": "Faker City",
    "street": "123 Fake Street",
    "zip": "12345",
    "turn_on_date": "2017-01-01",
  }
}
```

GET systems/layout

Returns the electrical configuration of the system.

Example Calls

GET https://api2.tigoenergy.com/api/v3/systems/layout?id=1

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/systems/layout?id=1" -H "Authorization: Bearer ABCDE"
```

GET Parameter

Name	Type	Description
*id	Integer	ID of the system.

- *Required field

Example Response

200 OK


```
{
  "system": {
    "system_id": 1,
    "inverters": [
      {
        "inverter_id": 1,
        "inverter_type_id": 1,
        "label": "Inverter 1",
        "object_id": 1,
        "inverter_serial": "ABC",
        "mppts": [
          {
            "mppt_id": 1,
            "label": "MPPT 1",
            "strings": [
              {
                "string_id": 1,
                "label": "String A",
                "short_label": "A",
                "object_id": 2,
                "panels": [
                  {
                    "panel_id": 1,
                    "label": "A1",
                    "short_label": 1,
                    "serial": "O4C05B8001234",
```

```
                    "type": "TS4-S",
                    "source_id": 1,
                    "object_id": 3,
                    "panel_type_id": 1
                }
            ]
        }
    ]
}
]
}
]
}
```

GET objects/system

List the objects available to query data from. This may be different from system/layout.

Example Call

- GET https://api2.tigoenergy.com/api/v3/objects/system?system_id=1

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/objects/system?system_id=1" -H "Authorization: Bearer ABCDE"
```

GET Parameter

Name	Type	Description
*system_id	Integer	Required, the ID of the system

- *Required field

Response Parameters

Name	Type	Description
objects	Envelope[]	Container object of objects.
objects.id	Integer	ID of the object.
objects.label	String	The name of the object.
objects.object_type_id	Integer	The type of the object.
objects.parent_id	Integer	The parent id of the object. -1 signals the root object.
objects.datasource	String	The key used to reference the data.
objects.children	Array	Array of object ids for all the children objects.
objects.ui	Object	

		Attributes of the ui display; X: x position Y: y position MP: Max Power Rating Label: addition label X1,X2,Y1,Y2: Coordinate for a line segment DR: Minutes to data repeat Z: Zoom level or scale

Example Response

200 OK


```
{
  "objects": [
    {
      "id": 1,
      "label": "System",
      "object_type_id": 1,
      "parent_id": -1,
      "datasource": null,
      "children": [
        2,
        5
      ],
      "ui": {
        "X": 100,
        "Y": 100,
        "MP": 5000
      }
    },
    {
      "id": 2,
      "label": "String A",
      "object_type_id": 3,
      "parent_id": 1,
      "datasource": null,
      "children": [
        3
      ]
    },
    {
      "id": 3,
      "label": "A1",
      "object_type_id": 2,
      "parent_id": 2,
      "datasource": "04C05B800ACE.panels.A1",
      "children": [
        3
      ],
      "ui": {
        "X": 150,
        "Y": 150
      }
    }
```

```
  ]
}
```

GET objects/types

Lists the available object types

Example Call

- GET https://api2.tigoenergy.com/api/v3/objects/types

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/objects/types" -H "Authorization: Bearer ABCDE"
```

Response Parameters

Name	Type	Description
object_types	Envelope[]	Container object of object types.
object_types.object_type_id	Integer	ID of the object type.
object_types.label	String	Description of the object type.

Example Response

200 OK


```
{
  "object_types": [
    {
      "object_type_id": 1,
      "label": "System"
    },
    {
      "object_type_id": 2,
      "label": "Panel"
    },
    {
      "object_type_id": 3,
      "label": "String"
    }
  ]
}
```

GET sources/system

Display all of a system's sources

Example Call

- GET https://api2.tigoenergy.com/api/v3/sources/system?system_id=1

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/sources/system?system_id=1" -H "Authorization: Bearer ABCDE"
```

GET Parameter

Name	Type	Description
*system_id	Integer	Required, the ID of the system

- *Required field

Response Parameters

Name	Type	Description
sources	Envelope[]	Container object of sources.
sources.source_id	Integer	ID of the source.
sources.name	String	The name of the source.
sources.serial	String	The MAC address of the source.
sources.gateway_count	Integer	The Number of gateways reporting to this source.
sources.control_state	Integer	The current state of PVOff on the system.
sources.last_checkin	ISO 8601	The date of the last time the source reported in to the server.
sources.timezone	String	The timezone in which the source is located.
sources.sw_version	String	The software version running on the source.
sources.created_on	ISO 8601 Date	The date the source was created.

sources.sets	Envelope[]	Container object for sets
sources.sets.set_name	String	The name of the data set.
sources.sets.last_min	ISO 8601 Date	The latest minute of data for the data set.
sources.sets.last_day	ISO 8601 Date	The latest day of data for the data set.
sources.system_id	Integer	ID of the system.

Example Response

200 OK


```
{
  "sources": [
    {
      "source_id": 9999,
      "name": "My Cloud Connect",
      "serial": "04C05B8FFFFF",
      "gateway_count": 1,
      "created_on": "2014-07-29T16:19:26-07:00",
      "control_state": "on",
      "last_checkin": "2017-02-16T23:19:06-08:00",
      "timezone": "America/Los_Angeles",
      "sw_version": "ffs-2.4.0-image.img",
      "sets": [
        {
          "set_name": "panels_avg",
          "last_min": "2016-09-07T18:32:00-07:00",
          "last_day": "2014-11-18T00:00:00-08:00"
        },{
          "set_name": "Wattnode",
          "last_min": "2014-09-09T14:06:00-07:00",
          "last_day": "2014-09-08T00:00:00-07:00"
        }
      ],
      "system_id": 11
    },{
      "source_id": 1010,
      "name": "My Cloud Connect 2",
      "serial": "04C05B8EFFFF",
      "gateway_count": 1,
      "created_on": "2014-07-29T16:19:26-07:00",
      "control_state": "on",
      "last_checkin": "2017-02-16T23:19:06-08:00",
      "timezone": "America/Los_Angeles",
      "sw_version": "ffs-2.4.0-image.img",
      "sets": [
        {
          "set_name": "panels_avg",
          "last_min": "2016-09-07T18:32:00-07:00",
          "last_day": "2014-11-18T00:00:00-08:00"
```

```
        }
      ],
      "system_id": 11
    }
  ]
}
```

GET data/aggregate

Return minute and day level aggregates

Example Calls

- GET https://api2.tigoenergy.com/api/v3/data/aggregate

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/data/aggregate?system_id=1&start=2017-01-01T00:00:00&end=2017-01-01T23:59:59&level=min&param=Vin" -H "Authorization: Bearer ABCDE"
```

GET Parameters

Name	Type	Description
*system_id	Integer	ID of the system
*start	ISO 8601	Start time of data Example: "2018-01-01T00:00:00"
*end	ISO 8601	End time of data Example: "2018-01-01T23:59:59"
level	String	Type of aggregation Default: "min" "day"
sensors	String	Whether to include sensor data Default: "true" "false"
param	String	Type of data to return Default: "Pin", "Vin", "Iin", "RSSI"
object_ids	String	Comma list of ids Default: all "1,2,3"
header	String	Type of header to return Default: "id" "key"

- *Required fields

Notes

- P = power, V = voltage; in as Pin defined power from the panel
- Minute level data will be shown as Watts for Pin

- Day level data will be shown as Energy for Pin
- Note header can change in this format unless object_ids specified

Example Response

200 OK

With id header

```
Datetime,1,2,3
2014/09/23 00:06:23,23,23,23
2014/09/23 00:06:24,23,23,23
2014/09/23 00:06:25,23,23,23
2014/09/23 00:06:26,23,23,23
2014/09/23 00:06:27,23,23,23
2014/09/23 00:06:28,23,23,23
Datetime,1,2
2014/09/23 00:06:28,23,23
```

With key header

```
Datetime,04C05B800ACE.panels.A1_Vin,04C05B800ACE.panels.A2_Vin
2014/09/23 00:06:23,23,23
2014/09/23 00:06:24,23,23
2014/09/23 00:06:25,23,23
2014/09/23 00:06:26,23,23
2014/09/23 00:06:27,23,23
2014/09/23 00:06:28,23,23
Datetime,04C05B800ACE.panels.A1_Vin
2014/09/23 00:06:28,23
```

GET data/combined

We typically have data coming in as panel level data. We then combine the data to present at different levels of the system. An example would be the entire system or a particular string. This endpoint will automatically combine the data into a single number for each object id.

Example Calls

- GET https://api2.tigoenergy.com/api/v3/data/combined?system_id=1&agg=hour&start=2016-09-07&end=2017-09-07

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/data/combined?system_id=1&agg=hour&start=2016-08-16T08:00:00&end=2017-08-16T08:03:00&objects_ids=1,2" -H "Authorization: Bearer ABCDE"
```

GET Parameters

Name	Type	Description
*system_id	Integer	ID of the system
level	String	Level of data to combine Long name: "minute", "hour", "day", "month", "year" Short name: "mi", "h", "h", "m", "y"
start	ISO 8601	Start time of data Example: "2018-01-01T00:00:00"
end	ISO 8601	End time of data Example: "2018-01-01T23:59:59"
object_ids	String	Each id will be the combination of child ids. Default is system level "1,2,3"

- *Required field

Notes

- Minute level data will be shown as Watts
- Greater than minute level data will be shown as Watt Hours
- Aggregation above hour will set time for start 00:00:00 and end 23:59:59
- Soft limits on data ranges are enforced, an error will return if it is too large of a range.

Example Response

200 OK

```
DATETIME,1,2
2016/08/16 08:00:00.000,1170,35
2016/08/16 08:01:00.000,1175,36
2016/08/16 08:02:00.000,1195,38
2016/08/16 08:03:00.000,1216,50
```

GET data/summary

Get some basic information from a system.

Example Calls

- GET https://api2.tigoenergy.com/api/v3/data/summary?system_id=1

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/data/summary?system_id=1" -H "Authorization: Bearer ABCDE"
```

GET Parameter

Name	Type	Description
*system_id	Integer	ID of the system

- *Required field

Response Parameters

Name	Type	Description
summary	Envelope	Container object for summary.
summary.lifetime_energy_dc	Float	Lifetime DC energy in WattHours.
summary.ytd_energy_dc	Float	Year-to-date DC energy in WattHours.
summary.daily_energy_dc	Float	Daily DC energy in WattHours.
summary.last_power_dc	Float	Last power output in Watts.
summary.updated_on	ISO 8601	Date time of last update.

Example Response

200 OK

```
{
    "summary": {
        "lifetime_energy_dc": 18607879.27,
        "ytd_energy_dc" : 500.32,
```

```
        "daily_energy_dc": 0,
        "updated_on": "2014-11-18T00:00:00-08:00",
        "last_power_dc": 0
    }
}
```

GET alerts/system

Get all the alerts for the given system

Example Call

- GET https://api2.tigoenergy.com/api/v3/alerts/system?system_id=1

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/alerts/system?system_id=1" -H "Authorization: Bearer ABCDE"
```

GET Parameters

Name	Type	Description
*system_id	Integer	System id to access alerts.
language	String	Language of the alert to display.
start_added	ISO 8601	Start time to filter alerts.
end_added	ISO 8601	End time to filter alerts.
page	Integer	Page of alerts to filter.
limit	Integer	Number of items to filter.

- *Required field

Response Parameters

Name	Type	Description
alerts	Envelope[]	Object container of alerts.
alerts.alert_id	Integer	Unique alert id.
alerts.added	ISO 8601	When the alert was added.
alerts.generated	ISO 8601	When the alert was added.
alerts.system_id	Integer	ID of the system.

alerts.unique_id	Integer	Unique alert code.
alerts.title	String	Title of the alert.
alerts.message	String	Details of the message.
alerts.description	String	Detailed description of the alert.

Example Response

200 OK


```
{
  "alerts": [
    {
      "alert_id": 1,
      "added": "2018-08-01T09:09:05-07:00",
      "generated": "2018-08-01T09:08:20-07:00",
      "system_id": 1,
      "unique_id": 106,
      "title": "Tigo Alert: String Shutdown",
      "message": "String ID: \n- String F (2018-07-31 14:22, 2018-07-31 14:42, 2018-07-31 14:57)\n- String G (2018-07-31 14:22, 2018-07-31 14:42, 2018-07-31 14:57)\n- String H (2018-07-31 14:22, 2018-07-31 15:08)",
      "description": "<p>Your Tigo system has detected a string of PV modules that has shutdown.</p><p><b>Troubleshooting Steps:</b></p><ol><li>Verify that your inverter is on.</li><li>Check for any error codes on the inverter. (For more information about your inverter error codes, please contact your installer or inverter company.)</li></ol><p><b>What does this Alert mean:</b></p><p>This could be due to a system hardware issue. Contact your installer or inverter company about an inverter error codes.</p><p>If you have any additional questions, please <a href=\"https://www.tigoenergy.com/contacts/\">contact</a> Tigo's Support Team.</p>"
    },
  ]
}
```

GET alerts/types

List all the alert types

Example Call

- GET https://api2.tigoenergy.com/api/v3/alerts/types

CURL Example

```
curl -v "https://api2.tigoenergy.com/api/v3/alerts/types" -H "Authorization: Bearer ABCDE"
```

GET Parameter

Name	Type	Description
language	String	Language Code String. Default: EN DE, EL, EN, ES, FR, IT, JP, KO

Response Parameters

Name	Type	Description
alert_types	Envelope[]	Container object of alert types.
alert_types.alert_type_id	Integer	ID of the alert types.
alert_types.title	String	Short description of the alert.
alert_types.description	String	Information and Resolution of alert.
alert_types.unique_id	Integer	Unique id used to reference codes.

Example Response

200 OK


```
{
  "alert_types": [
    {
      "alert_type_id": 24,
      "description": "<p>Your Tigo system has detected a PV module with low energy
production.</p><p><b>Troubleshooting Steps:</b></p>",
      "title": "Tigo Alert: Low Power Production on PV Module",
      "unique_id": 300
```

```
    },
    {
      "alert_type_id": 25,
      "description": "<p>Your Tigo system has detected a stringof PV modules with low
energy production.</p><p><b>Troubleshooting Steps:</b></p>",
      "title": "Tigo Alert: Low Power Production on PV String",
      "unique_id": 301
    }
  ]
}
```