



FlexOffer Agent User Manual

March 2021

Introduction

FlexOffer Agent (FOA) – is an ATP sub-system that is responsible for FlexOffer generation and exchange as well as executing the received schedule on the flexible loads. It allows parties (Prosumers, Distribution System Operators (DSOs)) offering or requesting all kinds of flexible loads in the standard FlexOffer form, for use in demand-response (DR) or trading applications.

The document is divided into two parts. The first part details the initial configuration steps, while the second part describes the important features that are available in FOA.

1. Initial Configuration

1.1. New User Registration

You must be a registered user to access the FOA server. Please note that the registration form asks for TP-Link cloud credentials during registration because TP-Link smart plugs are controllable only through TP-Link cloud. FOA needs to connect to TP-Link cloud to issue On/Off control commands, query status, and gather data from smart plugs. The TP-Link cloud credentials can be changed/updated in the settings once the user is logged in. A new user can register with the FOA using the following steps.

1. Launch FOA server URL in your browser. By default, it takes you to the login page.
2. Click on 'Sign Up' at the bottom and follow the instructions as shown in the screenshots below:

1
LOGIN CREDENTIALS

2
TP-LINK KASA ACCOUNT INFO

3
USER DETAILS

LOGIN CREDENTIALS

Enter your email and choose a password. You will be asked for it on login screen.

Next Step →

1
LOGIN CREDENTIALS

2
TP-LINK KASA ACCOUNT INFO

3
USER DETAILS

TP-LINK KASA ACCOUNT INFO

Provide the TP-Link Kasa account detail. You can also skip now and add it later in profile settings.

← Previous Step

Skip →

Next Step →

1 LOGIN CREDENTIALS 2 TP-LINK KASA ACCOUNT INFO 3 USER DETAILS

USER DETAILS

Choose your demo site and (optionally) provide phone number.

Choose Your Demo Site *

Phone

← Previous Step Confirm and Register

3. After successful registration, you will be automatically redirected to the login page, where you can log in using your username and password.

1.2. Complete User Profile

For proper rendering of devices on the map, a user has to provide his/her geographical location. This can be done by logging in and navigating to the “**Profile**” page In FOA GUI (available in the side navigation panel). The page allows users to update FOA account password, TP-Link username and password, phone number, profile photo, and address. Please add/update address either by typing in the address box or directly choosing on the map. Click on the ‘**Update**’ button at the bottom of the form to complete the process.

Profile

User Name: swissAdmin

Password

Password (leave blank to keep unchanged)

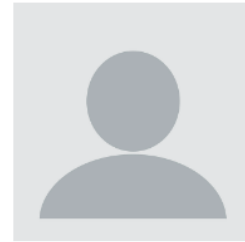
Email

SWISSpleaseSet@email.com

Phone

Phone

Address



Update profile pic (max: 5000KB):

Choose File

No file chosen

Upload Photo



Update

2. Overview of Important Features

2.1. The Dashboard

The dashboard is default page shown once a user successfully signs in. It shows the following information:

1. A summary of the Key Performance Indicators (KPIs).
2. A geographical map showing the locations of the flexible devices belonging to the user. Clicking on a device on the map activates a tooltip showing the device voltage. The map offers a device state view as well as a device voltage view. The view can be toggled using the radio buttons above the map.
3. In the device state view, the color of the device icon on the map indicates the device state (green for Operating/On, red for Idle/Off, red for offline, and gray for inaccessible/not-found).
4. In the device voltage view, the device is shown in green if its voltage is within specified range otherwise it's shown in red. The voltage range can be configured using the min and max boxes (visible next to the voltage plot radio button if the voltage plot is selected).
5. The side panel can be used to access other pages showing various features of the FOA as described below.

Summary / KPIs

2

Number of Active Devices

0% compared to yesterday

3

Total FlexOffers Generated Today

100% compared to yesterday

0.747

Flexibility Ratio

100% compared to yesterday

0.0

Prosumer Rewards

0% compared to last month

Device Location

Select Plot Type: ☒ Device State Plot ☐ Device Voltage Plot

Idle

Operating

Disconnected

Unknown

Map

Satellite

a)- Device List

- The unique device id (only the last 8 characters since it's very long).
- User-defined device alias.

- The device type (dishwasher, freezer, heat pump, etc.).
- Name of the group (can be household, office building, factory) to which the device belongs.
- Live power consumption.
- Live voltage reading.
- Current device state. The status icon serves the purpose of displaying the current status of the load. If a load is inaccessible, then it's greyed out to indicate the load unavailability.
- A flexibility control button. If turned off, then the device will not participate in flexibility.

The list can be sorted by any column by clicking on the column name in the header. The list also supports searching by any column. To search for a device/group/load type, type the search query in the search box at the bottom of the list. If you don't see your devices, please see [SPM2019] on how to install and add smart plugs.

Device Id	Alias	Device Type	Group Name	Power	Voltage	State	Flexibility Control
f46d9193	HotWater_relay1_powerMeter-1	DishWasher	goflex-dc-047	0	234.8		<input checked="" type="checkbox"/>
943acd74	Heating_relay2_powerMeter-2	HeatPump	goflex-dc-021	0	0		<input checked="" type="checkbox"/>
11b1b981	Heating_relay2_powerMeter-2	HeatPump	goflex-dc-047	0	234.6		<input checked="" type="checkbox"/>
26e6bcdf	HotWater_relay1_powerMeter-1	Boiler	goflex-dc-116	0	237.5		<input checked="" type="checkbox"/>
008c83b4	Combined_relay2_powerMeter-1	HeatPump	goflex-dc-030	4035.9	233.2		<input checked="" type="checkbox"/>
8408de03	Heating_relay2_powerMeter-1	HeatPump	goflex-dc-001	0	238.4		<input checked="" type="checkbox"/>
6e043fef	HotWater_relay1_powerMeter-1	Boiler	goflex-dc-001	0	238.4		<input checked="" type="checkbox"/>
8ead64ba	Heating_relay2_powerMeter-1	HeatPump	goflex-dc-116	0	237.5		<input checked="" type="checkbox"/>
8cbd7bf0	HotWater_relay1_powerMeter-1	Boiler	goflex-dc-021	0	235.1		<input checked="" type="checkbox"/>

Search

Devices per page

Search in list

10


b)- Device Detail Page

The device detail page can be navigated to by click on the *device Id* hyperlink in the first column in the device list. The header area contains a 'Back' button, a 'Toggle button' to turn the device On/Off, and a 'Save' and an 'Undo' button. The device details page consists of three tabs which are discussed below. If you make changes in any of the four tabs, then you must click the 'Save' button so that you don't lose the changes. Press the 'Undo' button to discard the changes.

1. Basic Info Tab

By default, the “Basic Info” tab is displayed which provides a tabular view of the device properties, the household/group name to which the device belongs, and the location of the device on the map. You can change the device group/household by selecting an option from the dropdown menu, then clicking on the save button in the header area. Similarly, you can manually set the device location and clicking on the save button.

[< Back](#)



Goflex Dev 2
AirConditioner
Operating

ON

Device Power

Save

Undo

Basic Info

Flexibility Settings

Readings and Schedule

PROPERTIES

Id	80060B5E0FD671D58243CE7162A6054719822955
User	bijay
Alias	Goflex Dev 2
Device Type	AirConditioner
Smart Plug Type	TPLink_HS110
Device Group	test1
Default State	1
Time Zone	+01:00
Location Changed by User	no
Flexible	yes
Registration Date	2019-03-28T21:41:28.000+0000


Device Group

test1

Map

Change Device Location

Enter a location



2. Flexibility Settings Tab

It allows setting/change the device type (i.e., type of the electric load connected to the smart plug) and the flexibility parameters. You can hover the mouse over a parameter name to activate a tooltip showing a further description of that parameter. In fact, most elements on this tab have tooltip descriptions, which can be seen by hovering mouse over the element. **As always, don't forget to click the save button if you make changes.** Please see [DFGCM2019] for more details.

[< Back](#)

Goflex Dev 2
AirConditioner
Operating

ON

Device Power

Save
Undo

Basic Info
Flexibility Settings
Readings and Schedule

1. Select Device Category

Wet Devices
Thermostatically Controlled Devices
Devices with Battery Charging

2. Select Device Type

Unknown Type
Heat Pump
Boiler
Air Conditioner
Room Heater
Refrigerator
Freezer

3. Set Flexibility Parameters

Daily Control Window:

12:00 am
12:00 am

Max Number of Interruptions Per Day:

0
8
24

Max Duration of an Interruption:

01:00 hrs
12:00 hrs

Min Time Distance Between Two Interruptions:

01:30 hrs
12:00 hrs

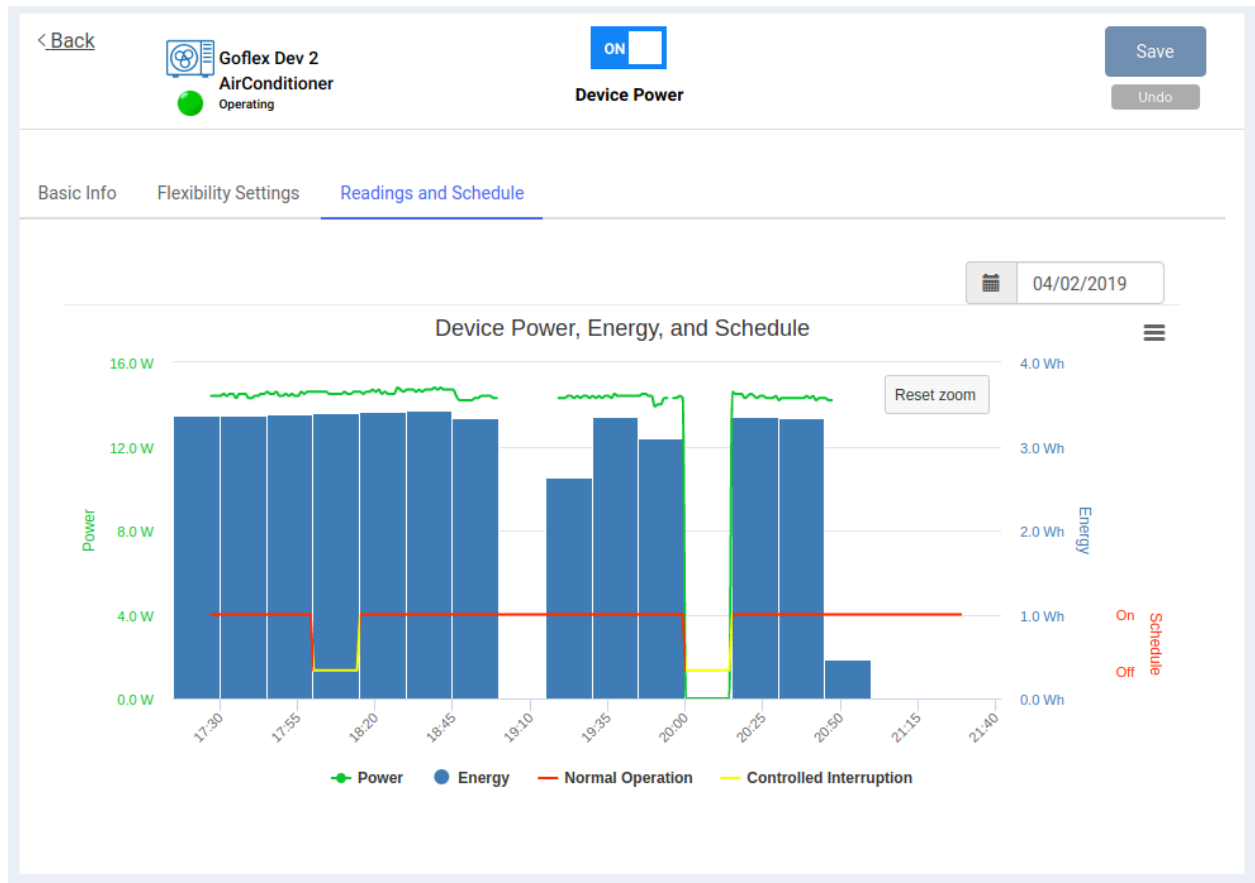
Prognosis:

The device may be interrupted (i.e., taken control of) up to 8 times inside the daily time window (0:00-24:00). Each interruption will not last more than 1 hours 0 minutes. After the end of the current interruption, the device will not be interrupted for the next 1 hours 30 minutes.

Factory Reset Params

3. Readings and Schedule Tab

The readings and schedules tab provides a graphical view showing the power/energy consumption of the electric load as well as its operational schedule. The legend below the figure can be used to show/hide a particular line by clicking on its name. By default, the graph shows the current day's data. The date picker can be used to visualize power/energy/schedule for a particular day. Schedules received from FMAN are indicated by a yellow line. A schedule is successfully executed if the device power consumption (green line) follows the FMAN schedule (yellow line) as is the case in the second schedule shown in the figure. Conversely, schedule execution is not successful if the device power does not follow the FMAN schedule (first schedule in the figure).













2.3. Device Group

This page provides the option to add/remove/edit groups. A device can be assigned to a group. A group may indicate a household, office building, or some other deployment location. The grouping feature can be used in cases where multiple prosumers share the same FOA account. In such a case, a separate group can be created for each prosumer.

Device Group

[Add](#)

Group No.	Group Name	
181117	test1	 
181118	test2	 
364482	a long group name	 
364501	this is an even longer group name	 
404941	test6	 

2.4. Rewards

The page provides dynamic details of the monthly rewards received by the user for the offered flexibility for the selected month (by default it shows rewards for the current month). The reward page shows the prosumer rewards for offering flexibility (both time and energy flexibility), energy flexibility and deviation from the default schedule.

Rewards

Date:

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Item	Value	Price
Number of FlexOffers	0	
Fixed reward for all FlexOffers		EUR0.00
Total Time Flexibility	0 timestamp units (15min)	EUR0.00
Total Energy Flexibility	0	EUR0.00
Number of default schedule deviations	0	EUR0.00
The sum of start time scheduling deviations with respect to the default schedule	0 timestamp units (15min)	EUR0.00
The sum of energy deviations with respect to the default schedule	0 kWh	EUR0.00
Total Reward		EUR0.00

2.5. Contract

Here, the user can see the details of the contract with the aggregator. The page shows the agreed upon rewards for standard units of time and energy flexibilities. This contract is used to calculate the reward for a prosumer's offered flexibility as well as activated flexibility.

The Contract with your Aggregator

Agreed Contract (**Last Modified:** 11/30/18 2:50 PM)

Reward (in Euro) for a single unit (kWh) of energy flexibility

0

Fixed reward (in Euro) for issuing at least 1 flexoffer

0

Reward (in Euro) for a single unit deviation (kWh) in energy amount compared to the default schedule (baseline)

0

Fixed reward paid for deviating a single time (1 flexoffer) from the default schedule (baseline)

0

Reward (in Euro) for a single unit deviation (15min) from the default schedule (baseline)

0

Reward (in Euro) for a single unit of time flexibility

0

2.6. Messages

This page shows alerts, warnings, and errors. Currently, it shows system messages (alerts, warnings, etc., about account credential errors, system stability). In the future, other types of messages can be supported e.g., messages related to flexibility trading.

Message ID	Message	User Name	Device ID	Date ^
574962	Please verify your Tp-Link username and password is correct	test2		2019-04-06 11:10:28
574963	Please verify your Tp-Link username and password is correct	test3		2019-04-06 11:10:28
574964	Please verify your Tp-Link username and password is correct	test4		2019-04-06 11:10:28
574965	Password format error	test7		2019-04-06 11:10:28
574953	Please verify your Tp-Link username and password is correct	aaAdmin		2019-04-06 11:10:27
574958	Please verify your Tp-Link username and password is correct	sysadmin		2019-04-06 11:10:27
574959	Please verify your Tp-Link username and password is correct	admin		2019-04-06 11:10:27
574961	Please verify your Tp-Link username and password is correct	test		2019-04-06 11:10:27
567045	Request timeout	bijay	800651AC1E428392ACEEAFE8A5C2BB0019904DB4	2019-04-06 04:11:30
550278	Password format error	test7		2019-04-05 11:08:30
550253	Please verify your Tp-Link username and password is correct	aaAdmin		2019-04-05 11:08:29
550259	Please verify your Tp-Link username and password is correct	sysadmin		2019-04-05 11:08:29
550260	Please verify your Tp-Link username and password is correct	admin		2019-04-05 11:08:29
550273	Please verify your Tp-Link username and password is correct	test		2019-04-05 11:08:29
550275	Please verify your Tp-Link username and password is correct	test2		2019-04-05 11:08:29

«
<
1
2
3
...
8
>
»

Clear All Messages

Search

Messages per page

2.7. Profile

The “profile” page In FOA GUI, allows users to change FOA account password and also update TP-Link username and password. In addition, the user can update his/her phone number, profile photo, and address. User address can be updated either by typing in the address box or directly choosing on the map. Click on the ‘**Update**’ button at the bottom of the form to complete the process.

Profile


User Name: admin

Password

Email


Phone

Address



Update profile pic (max: 5000KB):

No file chosen



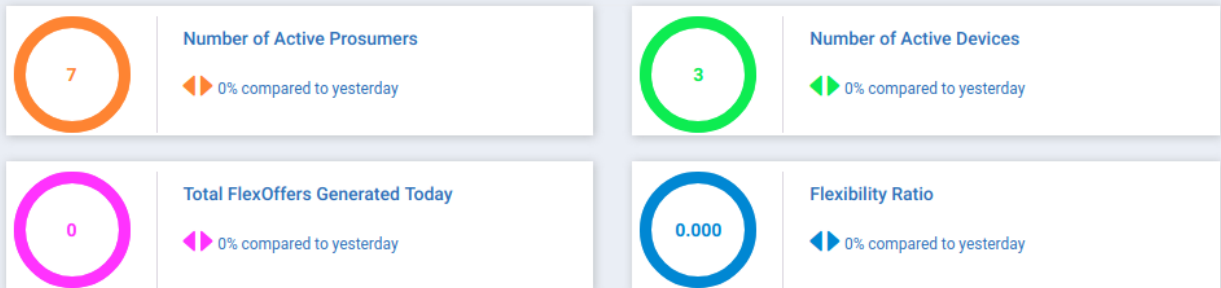
3. Admin Only Features

Certain features of FOA are available to Admin users only as covered next.

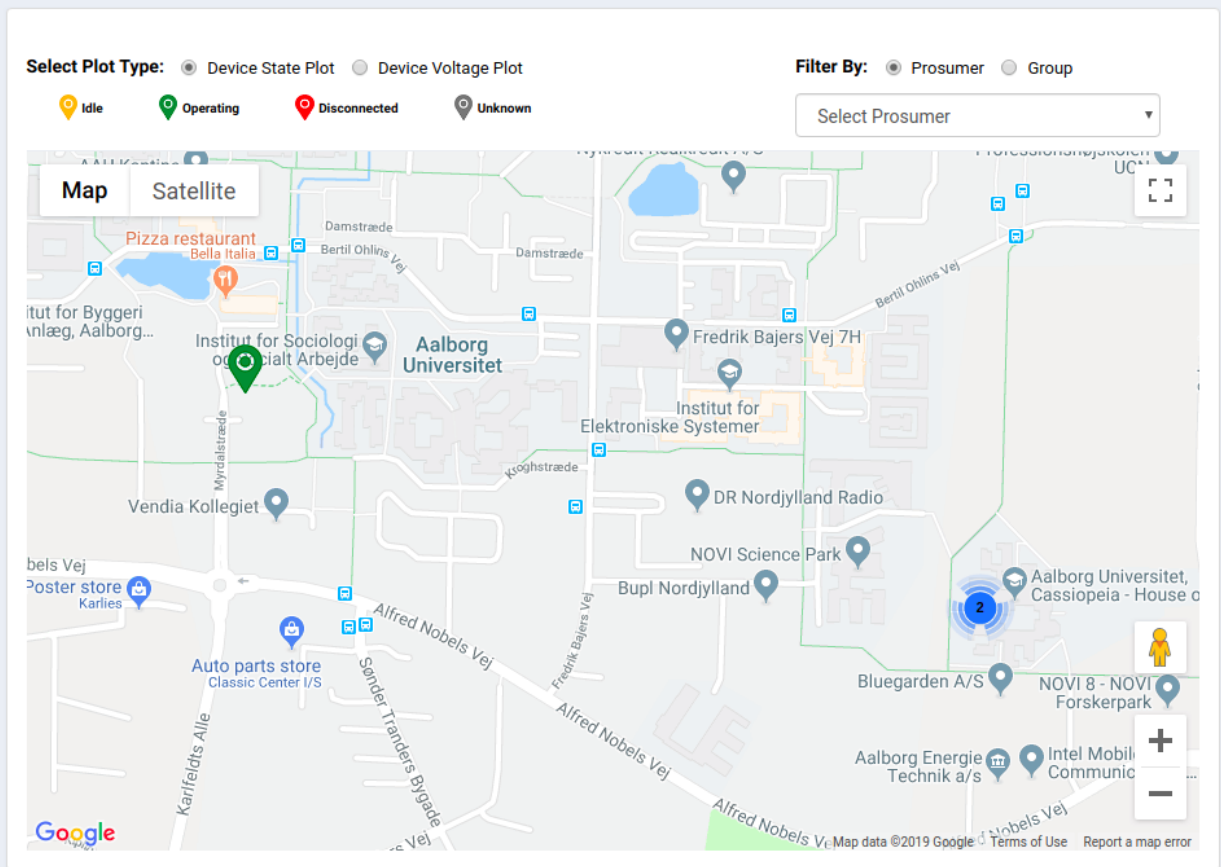
3.1. The Dashboard

The dashboard page for Admins shows different KPIs which are calculated for the entire demo site as opposed to a single prosumer. In addition, the map includes an additional “filter by” options which allows filtering prosumer devices by prosumers and groups.

Summary / KPIs



Device Location



3.2. Devices

The devices list shows an additional “Prosumer” column in Admin view which helps Admins to quickly find all devices for a Prosumer.

Device Id	Prosumer	Alias	Device Type	Group Name	Power	Voltage	State	Flexibility Control
19822955	bijay	Goflex Dev 2	AirConditioner	test1	14.2	224.8		<input checked="" type="checkbox"/>
19904DB4	bijay	Gofkex Dev 1	Boiler	test1	0	224		<input checked="" type="checkbox"/>
198141B8	muhaftab	Table Lamp	Unknown	test2	0	227.9		<input checked="" type="checkbox"/>

Search

Devices per page

Search in list

10

3.3. User Management

The user management page provides information about all the registered users. The page shows Admin users separately from Prosumers. Admins can use the “+” symbol at the top to register a new user. The “**actions**” column contains links to the user’s **profile**, **contract**, **bill**, and delete actions.

User List +

Admin Users

Id	User Name	Email	Action
99624	aaAdmin	AAUpleaseSet@email.com	
99636	admin		

Prosumers

Id	User Name	TP-Link Kasa Account Email	Is Enabled?	Action
99638	bijay	goflexdevuser@gmail.com	true	
402721	muhaftab	goflexproduser@gmail.com	true	
381166	test		true	
419011	test2		true	
419014	test3		true	

« < 1 2 > »

Search/Filter

Prosumers per page

Search in prosumer list

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