rainforestautomation /
Emu-Serial-API

Code Issues 3 Pull requests 1 Actions Projects Wiki Security Insights

This repository allows you to access your Rainforest Automation Emu2 through it's serial interface

32 stars 15 forks 14 watching Branches Activity Custom properties Tags

Public repository

1 Branch 0 Tags Go to file t Go to file + Add file Code ···

J-L Fix readme ··· 41922af · 9 years ago

.gitignore	fixes to isolated branch	10 years ago
Emu-2-Tech-Guide-1.05.pdf	fixes to isolated branch	10 years ago
README.md	Fix readme	9 years ago
api_classes.py	fixes to isolated branch	10 years ago
emu-2_product_summary_1.3...	fixes to isolated branch	10 years ago
emu.py	Changes to read me, relaese 1.0 of ...	10 years ago
emu2_datasheet_6.pdf	fixes to isolated branch	10 years ago
requirements.txt	fixes to isolated branch	10 years ago
sample_xml_commands.txt	fixes to isolated branch	10 years ago

Emu-Serial-API

The Emu - 2 is a Energy Monitoring Unit (EMU) that wirelessly connects to your home smart meter and allows you to monitor your power consumption and costs visually. This API-Library allows you to connect to the EMU-2 through the USB-serial port on the device, issue querying commands and easily readback the emus response like so:

```
> python
> from emu import *
> instance = emu('/tty/usbACM0')
> instance.start_serial()
> instance.get_network_info()
> instance.NetworkInfo
<NetworkInfo>
  <DeviceMacId>0xd8d5b900000041d7</DeviceMacId>
  <CoordMacId>0x000781000081fd17</CoordMacId>
  <Status>Connected</Status>
  <Description>Successfully Joined</Description>
  <ExtPanId>0x000781000081fd17</ExtPanId>
  <Channel>18</Channel>
  <ShortAddr>0x2776</ShortAddr>
  <LinkStrength>0x64</LinkStrength>
</NetworkInfo>
> instance.NetworkInfo.LinkStrength
0x64
```

You can purchase an EMU from here: http://www.amazon.com/Rainforest-EMU-2-Energy-Monitoring-Unit/dp/B00BGDPRAI

Getting Started

Installation

Installation is pretty simple in Linux/OS X. To install the EMU serial api tools, simply type the following commands:

```
git clone https://github.com/rainforestautomation/Emu-Serial-API.git
cd ./Emu-Serial-API
pip install -r ./requirements.txt
```

You can now easily get access to your EMU device through the serial port.

Using the Library

README

result, this API has been designed to be non-blocking and gives you direct control over the serial port. (You have to call start_serial() and stop_serial() whe you want the emu object to listen to commands)

```
emu_instance = emu('/tty/usbACM0')
emu_instance.start_serial()
emu_instance.get_current_summation_delivered()
time.sleep(5)
emu_instance.stop_serial()
```

All commands issed to the EMU2 through this API will return null. This included commands which invoke a response from the EMU. To access the returned data, you are required to wait for the EMU2 to response (up to 4 seconds), then you can read the attribute directly from the API object instance.

```
emu_instance.CurrentSummationDelivered
<CurrentSummationDelivered>
  <DeviceMacId>0xd8d5b900000041d7</DeviceMacId>
  <MeterMacId>0x000781000081fd17</MeterMacId>
  <TimeStamp>0x1c90932b</TimeStamp>
  <SummationDelivered>0x0000000006bc5b7d</SummationDelivered>
  <SummationReceived>0x0000000000000000</SummationReceived>
  <Multiplier>0x00000001</Multiplier>
  <Divisor>0x000003e8</Divisor>
  <DigitsRight>0x01</DigitsRight>
  <DigitsLeft>0x06</DigitsLeft>
  <SuppressLeadingZero>Y</SuppressLeadingZero>
</CurrentSummationDelivered>
```

Or if you want a particular value part of that data:

```
emu_instance.CurrentSummationDelivered.SummationDelivered
0x0000000006bc5bcb
```

As the EMU-2 is constantly producing data, those object instance attributes will be written over as new data comes in. To get around this, we have implemented a history list which records commands from and to the EMU instance. Each item in the history list is composed of a history_obj:

```
history_obj ={
    'origin':origin,(HOST or EMU)
    'type':tag,(Either the EMU's response root tag, or the command issued)
    'obj':obj, (None if origin = HOST, the response Object if origin = EMU)
    'raw': raw (the raw XML)
}
```

You can iterate through the history like so:

```
for history_obj in emu_instance.history:
    print history_obj['origin']
    if type(history_obj['obj'] == 'NetworkInfo'):
        print history_obj['obj'].Status
```

API Commands

List of commands that can be issued:

```
#creating emu object
emu_instance = emu('/tty/usbACM0')
#this will try to detrct environment, so no special care is needed for windows, just type
emu('COMX')



#meta commands
```

```
#start serial, required before any othercommand can be issued
emu.start_serial()
#should be called when you no longer need to listen to emu
emu.stop_serial()
#command for printing to screen
emu.readback()

#Standard Commands
emu.restart()
emu.get_device_info()
emu.get_network_info()
emu.factory_reset()
emu.factory_reset()
emu.get_restart_info()
emu.set_restart_info('TYPE', 'CONFIRM')
emu.set_meter_attributes(multiplier,divisor)
emu.set_fast_poll(frequency, duration)
emu.get_fast_poll_status()
emu.get_current_summation()
emu.get_instantaneous_demand(refresh)
emu.get_time(refresh)
emu.set_current_price(price, trailing_digits)
emu.set_meter_info('nickname','account','auth', 'host','enabled')
emu.get_message()
emu.get_local_attributes()
emu.set_local_attributes(current_day_max_demand)
emu.get_billing_periods()
emu.set_billing_periods_list(number_of_periods)
emu.set_biling_period(period,start)
emu.get_price_blocks()
emu.set_price_block(block,threshold,price)
emu.get_schedule(mode)
emu.get_profile_data(num_of_periods,interval_channel)
emu.set_schedule(self,event,mode=None, frequency=None, enabled =None)
emu.print_network_tables()

#Accessing current emu state:(Provided the emu has sent state through serial to object)
emu_instance.NetworkInfo
emu_instance.MessageCluster
emu_instance.TimeCluster
emu_instance.InstantaneousDemand
emu_instance.NetworkInfo
emu_instance.PriceCluster
emu_instance.DeviceInfo
emu_instance.CurrentSummationDelivered
emu_instance.ScheduleInfo
emu_instance.BlockPriceDetail

You can access attributes like so:
emu_instance.DeviceInfo.DeviceMacId
```

#Comments or suggestions

Releases

No releases published

Packages

No packages published

Contributors 2

rainforestautomation Rainforest Automation, Inc.

J-L John Justin Lee

Languages

- ● **Python** 100.0%