UDCCC OpenAPI Documentation

Introduction

UDCCC (UniSat Data & Control & Communication Center) API is a Restful API based on OpenAPI standards. With the help of which you will be able to communicate with UniSat nano-satellites through the internet using nothing complicated and special but your browser.

All of the programs behind this API are running right inside the UniSat satellite itself. All honor belongs to the tiny yet powerful RPi computer inside the satellite.

You have two options to communicate with our satellite using this API:

First, you can use our pre-integrated website at https://unisat.xlink.kz (inside KZ) or https://unisat.xlink.run (outside KZ) without any technical boundaries.

Secondly, especially recommended for those with technical background, you can use any API tools which supports the OpenAPI standard to explore and communicate the UniSat.

UPDATED: 2021-10-27 BY Azat @azataiot
Note: We also have a third option to communicate with our satellite using Google Colab, with this link: https://go.xlink.run/colab

Technical Documentation

To start your work, please test the endpoints first either with:

- GET `/`

  Request :

  ```
  curl -X 'GET' \
    'URL:8000/' \
    -H 'accept: application/json'
  ```

  Response :

  ```
  {
    "msg": "Hello from UniSat Team"
  }
  ```

- POST `/`

  Request:

```
curl -X 'POST' \
  'URL/?msg=ping' \
  -H 'accept: application/json' \
  -d ''
```

Response:

```
{
  "msg": "pong"
}
```

Then, you can use other endpoints. They are:

- GET `/now`

  Request:

  ```
  curl -X 'GET' \
    'URL/now' \
    -H 'accept: application/json'
  ```

  Response:

  ```
  {
    "now": "2021-10-27T09:37:29.567935"
  }
  ```

- GET `/system/last`

  Request:

  ```
  curl -X 'GET' \
    'URL/system/last' \
    -H 'accept: application/json'
  ```

  Response:

  ```
  {
    "id": 5,
    "updated": "2021-10-27T08:13:04.729070",
    "cam_supported": 2,
    "cam_detected": 2,
    "state": "0x0",
    "temperature": 44,
    "arm_clock": 1200000000,
  ```

```
  "core_clock": 400000000,
  "serial_clock": 47999000,
  "storage_clock": 249960000,
  "voltage": 1.4,
  "otp": {
    "10": "0x00000000",
    "11": "0x00000000",
    "12": "0x00000000",
    "13": "0x00000000",
    "14": "0x00000000",
    "15": "0x00000000",
    "16": "0x00280000",
    "17": "0x1020000a",
    "18": "0x1020000a",
    "19": "0xffffffff",
    "20": "0xffffffff",
    "21": "0xffffffff",
    "22": "0xffffffff",
    "23": "0xffffffff",
    "24": "0xffffffff",
    "25": "0xffffffff",
    "26": "0xffffffff",
    "27": "0x00002727",
    "28": "0xce530176",
    "29": "0x31acfe89",
    "30": "0x00a02100",
    "31": "0x00000000",
    "32": "0x00000000",
    "33": "0x00000000",
    "34": "0x00000000",
    "35": "0x00000000",
    "36": "0x00000000",
    "37": "0x00000000",
    "38": "0x00000000",
    "39": "0x00000000",
    "40": "0x00000000",
    "41": "0x00000000",
    "42": "0x00000000",
    "43": "0x00000000",
    "44": "0x00000000",
    "45": "0x00000000",
    "46": "0x00000000",
    "47": "0x00000000",
    "48": "0x00000000",
    "49": "0x00000000",
    "50": "0x00000000",
    "51": "0x00000000",
    "52": "0x00000000",
    "53": "0x00000000",
```

```
    "54": "0x00000000",
    "55": "0x00000000",
    "56": "0x00000000",
    "57": "0x00000000",
    "58": "0x00000000",
    "59": "0x00000000",
    "60": "0x00000000",
    "61": "0x00000000",
    "62": "0x00000000",
    "63": "0x00000000",
    "64": "0x00000000",
    "65": "0x00000000",
    "66": "0x00000000",
    "08": "0x00000000",
    "09": "0x00000000"
  },
  "cpu_memory": 896,
  "gpu_memory": 128,
  "config": {
    "aphy_params_current": "819",
    "arm_freq": "1200",
    "arm_freq_min": "600",
    "audio_pwm_mode": "514",
    "config_hdmi_boost": "5",
    "core_freq": "400",
    "desired_osc_freq": "0x387520",
    "disable_commandline_tags": "2",
    "disable_l2cache": "1",
    "display_hdmi_rotate": "-1",
    "display_lcd_rotate": "-1",
    "dphy_params_current": "547",
    "dvfs": "3",
    "enable_tvout": "1",
    "enable_uart": "1",
    "force_pwm_open": "1",
    "framebuffer_ignore_alpha": "1",
    "framebuffer_swap": "1",
    "gpu_freq": "300",
    "ignore_lcd": "1",
    "init_uart_clock": "0x2dc6c00",
    "max_framebuffers": "-1",
    "over_voltage_avs": "0x30d40",
    "pause_burst_frames": "1",
    "program_serial_random": "1",
    "sdram_freq": "450",
    "total_mem": "1024",
    "hdmi_force_cec_address:0": "65535",
    "hdmi_force_cec_address:1": "65535",
    "hdmi_pixel_freq_limit:0": "0x9a7ec80"
```

```
  },
  "space": {
    "total": 15379906560,
    "used": 3470659584,
    "free": 11250446336
  },
  "memory": {
    "total": 914010112,
    "available": 781688832,
    "percent": 14,
    "used": 72515584,
    "free": 716390400,
    "active": 66166784,
    "inactive": 85053440,
    "buffers": 22134784,
    "cached": 102969344,
    "shared": 6107136,
    "slab": 29331456
  }
}
```


- GET `/system`

  Request:

```
curl -X 'GET' \
  'URL/system?skip=0&limit=100' \
  -H 'accept: application/json'
```

- GET `/bme/last`

  Request:

```
curl -X 'GET' \
  'URL/bme/last' \
  -H 'accept: application/json'
```

  Response:


```
{
  "id": 10,
  "updated": "2021-10-27T05:32:57.648263",
  "temperature": 33.6,
  "pressure": 920.87,
  "humidity": 15.497
}
```


- GET `/bme`

Request:

```
curl -X 'GET' \
  'URL/bme?skip=0&limit=100' \
  -H 'accept: application/json'
```

- GET `/bno/last`

  Request:

```
curl -X 'GET' \
  'URL/bno/last' \
  -H 'accept: application/json'
```

  Response:


```
{
  "id": 3,
  "updated": "2021-10-27T05:33:04.518696",
  "temperature": 33,
  "acceleration": {
    "id": 3,
    "bno_id": 3,
    "x": 1.45,
    "y": 0.65,
    "z": 9.68
  },
  "magnetic": {
    "id": 3,
    "bno_id": 3,
    "x": -24.5625,
    "y": -8.5625,
    "z": -43.5625
  },
  "gyro": {
    "id": 3,
    "bno_id": 3,
    "x": -0.002181661564992912,
    "y": -0.004363323129985824,
    "z": 0
  },
  "euler": {
    "id": 3,
    "bno_id": 3,
    "x": 0,
    "y": 0,
    "z": 0
  },
  "quaternion": {
```

```
    "id": 3,
    "bno_id": 3,
    "w": 0,
    "x": 0,
    "y": 0,
    "z": 0
  },
  "linear_acceleration": {
    "id": 3,
    "bno_id": 3,
    "x": 0,
    "y": 0,
    "z": 0
  },
  "gravity": {
    "id": 3,
    "bno_id": 3,
    "x": 0,
    "y": 0,
    "z": 0
  }
}
```


- GET `/bno`

  Request:

```
curl -X 'GET' \
  'URL/bno?skip=0&limit=100' \
  -H 'accept: application/json'
```

- GET `/si/last`

  Request:

```
curl -X 'GET' \
  'URL/si/last' \
  -H 'accept: application/json'
```

  Response:


```
{
  "id": 1,
  "updated": "2021-10-27T04:41:07.276279",
  "vis": 0,
  "ir": 253,
  "uv": 2
}
```

- GET `/si`

  Request:

  ```
  curl -X 'GET' \
    'URL/si?skip=0&limit=100' \
    -H 'accept: application/json'
  ```

- GET `/geiger/last` **DEPRICATED**