Wireless Sensor Networks (WSN)
Web Service API

(Version 1.0, January 2016)

Introduction

The Wireless Sensor Networks (WSN) API is used to provide data collected by wireless sensor networks. This document describes the WSN API and its usage. Access to the API requires an account and an API key. In every request the users email address, password and the API key will be sent together with the request. All responses are provided in a standard JSON format.

All the codes of the API are found in the folder wsn-api. If this folder is stored in the root directory of the host, the uri for the API will be: domain-name/wsn-api/v1/{call}.

Connecting to WSN API

Verbs used

Accessing data via the API is a read-only process, therefore the standard HTTP GET request should be used.

Authentication Parameters

All requests sent in to the API require to specify the following values as part of the request, otherwise a 401, Unauthorized will be returned.

1. **User email** - the account email address
2. **Password** - the password used to log into the specified account
3. **API Key** – provided by WSN-API

Response Codes

Below is a list of the standard response codes returned from the WSN API:

200 Ok

The request has succeeded.

400 Bad Request

The request could not be understood by the server due to malformed syntax.

401 Unauthorized

Authorization has been refused for the credentials provided.

404 Not Found

The server has not found anything matching the Request-URI.

The format of error message is as follows (where XXX represents the error code):

```
{
        "status": XXX,
        "status_message": "[massage]",
        "data": null
}
```

API conventions

Throughout this documentation, the following conventions are in use:

- {v}: Indicates that this text should be replaced by correct data.
- [values]: Indicates an output value
- …: Indicates that there might be more response of similar format that has been omitted for brevity and clarity's sake.

WSN API Calls

The following calls can be used to access data using the API.

1. Meshes

1.1 List All Meshes

Gets list of meshes

GET: /wsn-api/v1/meshes.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

Only the authentication parameters are required.

<u>Example</u>:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/meshes.php?email={v}&password={v}&key={v}

Success

```
{
     "status": 200,
     "status_message": "Ok",
     "data":
       [
          {
                  "mesh_name": "[value]"
          },
          {
                  "mesh_name": "[value]"
          },
          ...
       ]
}
```

1.2 Get Specific Mesh

This will get the specified mesh.

GET: /wsn-api/v1/meshes.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

In addition to the authentication parameters the following parameter is required.

Field	Type	Description
mesh_name	String	Name of mesh

<u>Example</u>:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/meshes.php?email={v}&password={v}&key={v}&mesh_name={v}

Success

```
{
        "status": 200,
        "status_message": "Ok",
        "data":
                {
                        "id": "[value]",
                        "mesh_addrss": "[value]",
                        "mesh_name": "[value]",
                        "nodes":
                            [
                                {
                                        "node_name": "[value]"
                                },
                                {
                                        " node _name": "[value]"
                                },
                                ...
                            ]
                }
}
```

2. Nodes

2.1 List All Nodes

Gets list of nodes

GET: /wsn-api/v1/nodes.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

Only the authentication parameters are required.

Example:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/nodes.php?email={v}&password={v}&key={v}

Success

```
{
        "status": 200,
        "status_message": "Ok",
        "data":
          [
                {
                            "node_name": "[value]"
                },
                {
                            "node_name": "[value]"
                },
                ...
          ]
}
```

2.2 Get Specific Node

This will get the specified node.

GET: /wsn-api/v1/nodes.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

In addition to the authentication parameters the following parameter is required.

Field	Type	Description
node_name	String	Name of node

Example:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/nodes.php?email={v}&password={v}&key={v}&node_name={v}

Success

```
{
        "status": 200,
        "status_message": "Ok",
        "data":
            {
                "node_id": "[value]",
                "node_name": "[value]",
                "sensores":
                    [
                        {
                            "sensor_id": "[value]",
                            "ip_address": "[value]",
                            "reading_type": "[value]"
                        },
                        {
                            " sensor _id": "[value]",
                            "ip_address": "[value]",
                            "reading_type": "[value]"
                        },
                        ...
                    ]
            }
}
```

3. Readings

3.1 List All Reading Types

Gets list of reading types available in the api.

GET: /wsn-api/v1/readings.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

Only the authentication parameters are required.

Example:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/readings.php?email={v}&password={v}&key={v}

Success

```
{
    "status": 200,
    "status_message": "Ok",
    "data":
      [
          {
                  "type": "[value]"
          },
          {
                  "type": "[value]"
          },
          ...
      ]
}
```

3.2 Get Readings of Specific Type

This will get readings of a specified type for all locations.

GET: /wsn-api/v1/readings.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

In addition to the authentication parameters the following parameter is required.

Field	Type	Description
type	String	Type of the reading (eg. temperature, humidity)

Example:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/readings.php?email={v}&password={v}&key={v}&type={v}

Success

```
{
        "status": 200,
        "status_message": "Ok",
        "data":
          [
              {
                      "sensore_id": "[value]",
                      "mesh_name": "[value]",
                      "time": "[value]",
                      "reading": "[value]"
              },
              {
                      "sensore_id": "[value]",
                      "mesh_name": "[value]",
                      "time": "[value]",
                      "reading": "[value]"
              },
              ...
          ]
}
```

3.3 Get Readings for a Location

This will get readings of a specified type for a given location.

GET: /wsn-api/v1/readings.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

In addition to the authentication parameters the following parameter is required.

Field	Type	Description
type	String	Type of the reading
location	String	Name of the location

Example:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/readings.php?email={v}&password={v}&key={v}&type={v}& location={v}

Success

```
{
        "status": 200,
        "status_message": "Ok",
        "data":
          [
            {
                "sensore_id": "[value]",
                "mesh_name": "[value]",
                "time": "[value]",
                "reading": "[value]"
            },
            {
                "sensore_id": "[value]",
                "mesh_name": "[value]",
                "time": "[value]",
                "reading": "[value]"
            },
            ...
          ]
}
```

3.4 Get Readings for a Location by Time

This will get readings of a specified type by for a given period of time.

GET: /wsn-api/v1/readings.php
HOST: http://turing.une.edu.au/~jsteph32

Parameter

In addition to the authentication parameters the following parameter is required.

Field	Type	Description
type	String	Type of the reading
from	String	Starting
to	String	End time

Example:

http://turing.une.edu.au/~jsteph32/wsn-api/v1/readings.php?email={v}&password={v}&key={v}&type={v}&from={v}&to={v}

Success

```
{
        "status": 200,
        "status_message": "Ok",
        "data":
        [
                {
                        "sensore_id": "[value]",
                        "mesh_name": "[value]",
                        "time": "[value]",
                        "reading": "[value]"
                },
                {
                        "sensore_id": "[value]",
                        "mesh_name": "[value]",
                        "time": "[value]",
                        "reading": "[value]"
                },
                ...
        ]
}
```