

Connected Device Studio

Restful API Specification for External App

Tuesday, 14th Dec 2017

Version 1.2

Document Particulars

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| --- | --- | --- | --- |
| Revision | Author | Date | Notes |
| 1.0 | Kevin Kao | 2017/11/01 | Initial Version |
| 1.1 | Kevin Kao | 2017/12/01 | Update |
| 1.2 | Kevin Kao | 2017/12/14 | Add Metadata Features |
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# Environment and Awareness

## Restful API Service URI

<https://msfapiservice.trafficmanager.net/>

The API web site used self-signed SSL certificate. Your application may need to handle by accepted self-signed certificate. You also can replace https with http by in-secure access protocol, but this is not recommended.

## Get Authentication Token before call any other API

Endpoint: /token

HTTP Encrypted: x-www-form-urlencoded

Form input

* grant\_type: password
* password: <Ask your CDS Administrator>
* role: external

***Successful Response:***

|  |  |
| --- | --- |
| HTTP Status Code | 200 OK |
| HTTP Result | {  "access\_token": "xxxxxxx",  "token\_type": "bearer",  "expires\_in": 7199,  ".issued": "Thu, 02 Nov 2017 02:30:55 GMT",  ".expires": "Thu, 02 Nov 2017 04:30:55 GMT"  } |

***Fail Response:***

|  |  |
| --- | --- |
| HTTP Status Code | 400 Bad Request |
| HTTP Result | {  "error": "Authentication Fail",  "error\_description": "Authentication Fail."  } |

Your application shall store *access\_token* at somewhere, and re-use it for all following APIs before it gets expired.

## Use access\_token for all following APIs Call

Endpoint: <Refer to Chapter 2 ~ 5 >

HTTP Encrypted: x-www-form-urlencoded

HTTP Header

* Authorization: bearer <access\_token> # bearer + space + access\_token

***Successful Response:***

|  |  |  |
| --- | --- | --- |
| HTTP Status Code | 200 OK | |
| HTTP Result | {  “Name”:”value”,  “Add”:”value”  } |

# Company Endpoint

## Get Company Object

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Company |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | {  "Name": "xxx",  "ShortName": "xxx",  "Address": "xxx",  "CompanyWebSite": xxx",  "ContactName": "xxx",  "ContactPhone": xxx",  "ContactEmail": "xx",  "LogoURL": "xxx",  "Latitude": xxx,  "Longitude": xxx,  "CultureInfoName": "xxx"  } |

## Get Message by Company

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Message |
| Method | GET |
| QueryString | top: How many records return back # default 10  hours: Time range from now # default 168  order: records sorting # asc or desc, default desc |
| HTTP Response Status | 200 OK |
| Response Content |  |

## Get Alarm Message by Company

|  |  |
| --- | --- |
| Endpoint | /cdstudio/AlarmMessage |
| Method | GET |
| QueryString | top: How many records return back # default 10  hours: Time range from now # default 168  order: records sorting # asc or desc, default desc |
| HTTP Response Status | 200 OK |
| Response Content |  |

# Factory Endpoint

## Get All Factory

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Factory |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | [  {  "Id": xx,  "Name": "xxx",  "Description": "xxx",  "PhotoURL": "xxx",  "Latitude": "xxx",  "Longitude": "xxx",  "TimeZone": x,  "CultureInfoName": "xxx"  }  ] |

## Get Factory by ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Factory/{FactoryId} |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | {  "Id": xx,  "Name": "xxx",  "Description": "xxx",  "PhotoURL": "xxx",  "Latitude": "xxx",  "Longitude": "xxx",  "TimeZone": x,  "CultureInfoName": "xxx"  } |

## Get All Equipment by Factory ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Factory/{FactoryId}/Equipment |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | [  {  "EquipmentId": "xxx",  "Name": "xxx",  "EquipmentClassName": "xxx",  "FactoryName": "xxx",  "IoTHubDeviceId": "xxx",  "IoTDeviceTypeName": "xxx",  "Latitude": "xxx",  "Longitude": "xxx",  "PhotoUrl": xxx  },  {  "EquipmentId": "xxx",  "Name": "xxx",  "EquipmentClassName": "xx",  "FactoryName": "xxx",  "IoTHubDeviceId": "xxx",  "IoTDeviceTypeName": "xxx",  "Latitude": "xxx",  "Longitude": "xxx",  "PhotoUrl": xxx  }  ] |

## Get All Equipment with Metadata by Factory ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Factory/{FactoryId}/EquipmentWithMetaData |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | [  {  "MetaDatas": [  {  "Id": 1,  "ObjectName": "assetID",  "ObjectValue": "001",  "MetaDataDefinationId": 1  },  {  "Id": 2,  "ObjectName": "length",  "ObjectValue": "208",  "MetaDataDefinationId": 2  }  ],  "Id": 61,  "EquipmentId": "FAMT001",  "Name": "FAMT001",  "EquipmentClassId": 12,  "EquipmentClassName": "Machine Tool",  "FactoryId": 17,  "FactoryName": "Factory A",  "IoTHubDeviceId": "ContosoFAMT01",  "IoTDeviceTypeName": "Device",  "Latitude": "-12.5127",  "Longitude": "130.982",  "MaxIdleInSec": 30,  "PhotoUrl": "xxxxxxxx"  }  ] |

## Get Message by Factory ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Factory/{FactoryId}/Message |
| Method | GET |
| QueryString | top: How many records return back # default 10  hours: Time range from now # default 168  order: records sorting # asc or desc, default desc |
| HTTP Response Status | 200 OK |
| Response Content |  |

## Get Alarm Message by Factory ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Factory/{FactoryId}/AlarmMessage |
| Method | GET |
| QueryString | top: How many records return back # default 10  hours: Time range from now # default 168  order: records sorting # asc or desc, default desc |
| HTTP Response Status | 200 OK |
| Response Content |  |

# Equipment Endpoint

## Get All Equipment

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Equipment |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | [  {  "EquipmentId": "xxx",  "Name": "xxx",  "EquipmentClassName": "xxx",  "FactoryName": "xxx",  "IoTHubDeviceId": "xxx",  "IoTDeviceTypeName": "xxx",  "Latitude": "xxx",  "Longitude": "xxx",  "PhotoUrl": xxx  },  {  "EquipmentId": "xxx",  "Name": "xxx",  "EquipmentClassName": "xxx",  "FactoryName": "xxx",  "IoTHubDeviceId": "xxx",  "IoTDeviceTypeName": "xxx",  "Latitude": "xxx",  "Longitude": "xxx",  "PhotoUrl": xxx  }  ] |

## Get All Equipment with Metadata

|  |  |
| --- | --- |
| Endpoint | /cdstudio/EquipmentWithMetaData |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | [  {  "MetaDatas": [  {  "Id": 1,  "ObjectName": "assetID",  "ObjectValue": "001",  "MetaDataDefinationId": 1  },  {  "Id": 2,  "ObjectName": "length",  "ObjectValue": "208",  "MetaDataDefinationId": 2  }  ],  "Id": 61,  "EquipmentId": "FAMT001",  "Name": "FAMT001",  "EquipmentClassId": 12,  "EquipmentClassName": "Machine Tool",  "FactoryId": 17,  "FactoryName": "Factory A",  "IoTHubDeviceId": "ContosoFAMT01",  "IoTDeviceTypeName": "Device",  "Latitude": "-12.5127",  "Longitude": "130.982",  "MaxIdleInSec": 30,  "PhotoUrl": "xxxxxxxx"  }  ] |

## Get Equipment by Equipment ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Equipment/{EquipmentID} |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | {  "EquipmentId": "xxx",  "Name": "xxx",  "EquipmentClassName": "xxx",  "FactoryName": "xxx",  "IoTHubDeviceId": "xxx",  "IoTDeviceTypeName": "xxx",  "Latitude": "xxx",  "Longitude": "xxx",  "PhotoUrl": xxx  } |

## Get Equipment with Metadata by Equipment ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Equipment/{EquipmentID}/WithMetaData |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | {  "MetaDatas": [  {  "Id": 1,  "ObjectName": "assetID",  "ObjectValue": "001",  "MetaDataDefinationId": 1  },  {  "Id": 2,  "ObjectName": "length",  "ObjectValue": "208",  "MetaDataDefinationId": 2  }  ],  "Id": 61,  "EquipmentId": "FAMT001",  "Name": "FAMT001",  "EquipmentClassId": 12,  "EquipmentClassName": "Machine Tool",  "FactoryId": 17,  "FactoryName": "Factory A",  "IoTHubDeviceId": "ContosoFAMT01",  "IoTDeviceTypeName": "Device",  "Latitude": "-12.5127",  "Longitude": "130.982",  "MaxIdleInSec": 30,  "PhotoUrl": "xxxxx"  } |

## Get Message by Equipment ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Equipment/{EquipmentId}/Message |
| Method | GET |
| QueryString | top: How many records return back # default 10  hours: Time range from now # default 168  order: records sorting # asc or desc, default desc |
| HTTP Response Status | 200 OK |
| Response Content |  |

## Get Alarm Message by Equipment ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Equipment/{EquipmentId}/AlarmMessage |
| Method | GET |
| QueryString | top: How many records return back # default 10  hours: Time range from now # default 168  order: records sorting # asc or desc, default desc |
| HTTP Response Status | 200 OK |
| Response Content |  |

# IoTDevice Endpoint

## Get All IoTDevice

|  |  |
| --- | --- |
| Endpoint | /cdstudio/IoTDevice |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | [  {  "IoTHubDeviceId": "FADevice01",  "IoTHubProtocol": "MQTT",  "FactoryId": "32",  "FactoryName": "Factory A",  "DeviceTypeId": "1",  "DeviceTypeName": "Device",  "DeviceVendor": null,  "DeviceModel": null  },  {  "IoTHubDeviceId": "FADevice03",  "IoTHubProtocol": "AMQP",  "FactoryId": "32",  "FactoryName": "Factory A",  "DeviceTypeId": "1",  "DeviceTypeName": "Device",  "DeviceVendor": null,  "DeviceModel": null  }  ] |

## Get All IoTDevice by Factory ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/Factory/{FactoryId}/IoTDevice |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | [  {  "IoTHubDeviceId": "FADevice01",  "IoTHubProtocol": "MQTT",  "FactoryId": "32",  "FactoryName": "Factory A",  "DeviceTypeId": "1",  "DeviceTypeName": "Device",  "DeviceVendor": null,  "DeviceModel": null  },  {  "IoTHubDeviceId": "FADevice03",  "IoTHubProtocol": "AMQP",  "FactoryId": "32",  "FactoryName": "Factory A",  "DeviceTypeId": "1",  "DeviceTypeName": "Device",  "DeviceVendor": null,  "DeviceModel": null  }  ] |

## Get IoTDevice by ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/IoTDevice/{IoTDeviceId} |
| Method | GET |
| QueryString |  |
| HTTP Response Status | 200 OK |
| Response Content | {  "IoTHubDeviceId": "FADevice01",  "IoTHubProtocol": "MQTT",  "FactoryId": "32",  "FactoryName": "Factory A",  "DeviceTypeId": "1",  "DeviceTypeName": "Device",  "DeviceVendor": null,  "DeviceModel": null  } |

## Send Cloud 2 Device Message by IoTDevice ID

|  |  |
| --- | --- |
| Endpoint | /cdstudio/IoTDevice/{IoTDeviceId}/C2DMessage |
| Method | PUT |
| QueryString |  |
| Allow Encrypted | * form-data * x-www-form-urlencoded * raw |
| PUT Content | [Whatever you send] |
| HTTP Response Status | 200 OK |
| Response Content | [Empty] |

# Appendix 1: Fail Responses

|  |  |
| --- | --- |
| HTTP Status | 404 Not Found |
| HTTP Content |  |
| Reason | No Such Object or API Endpoint |

|  |  |
| --- | --- |
| HTTP Status | 401 Unauthorized |
| HTTP Content | {  "Message": "Authorization has been denied for this request."  } |
| Reason | Invalid access token or access token expired |