



CMX REST API と Meraki API のご紹介

シスコシステムズ合同会社

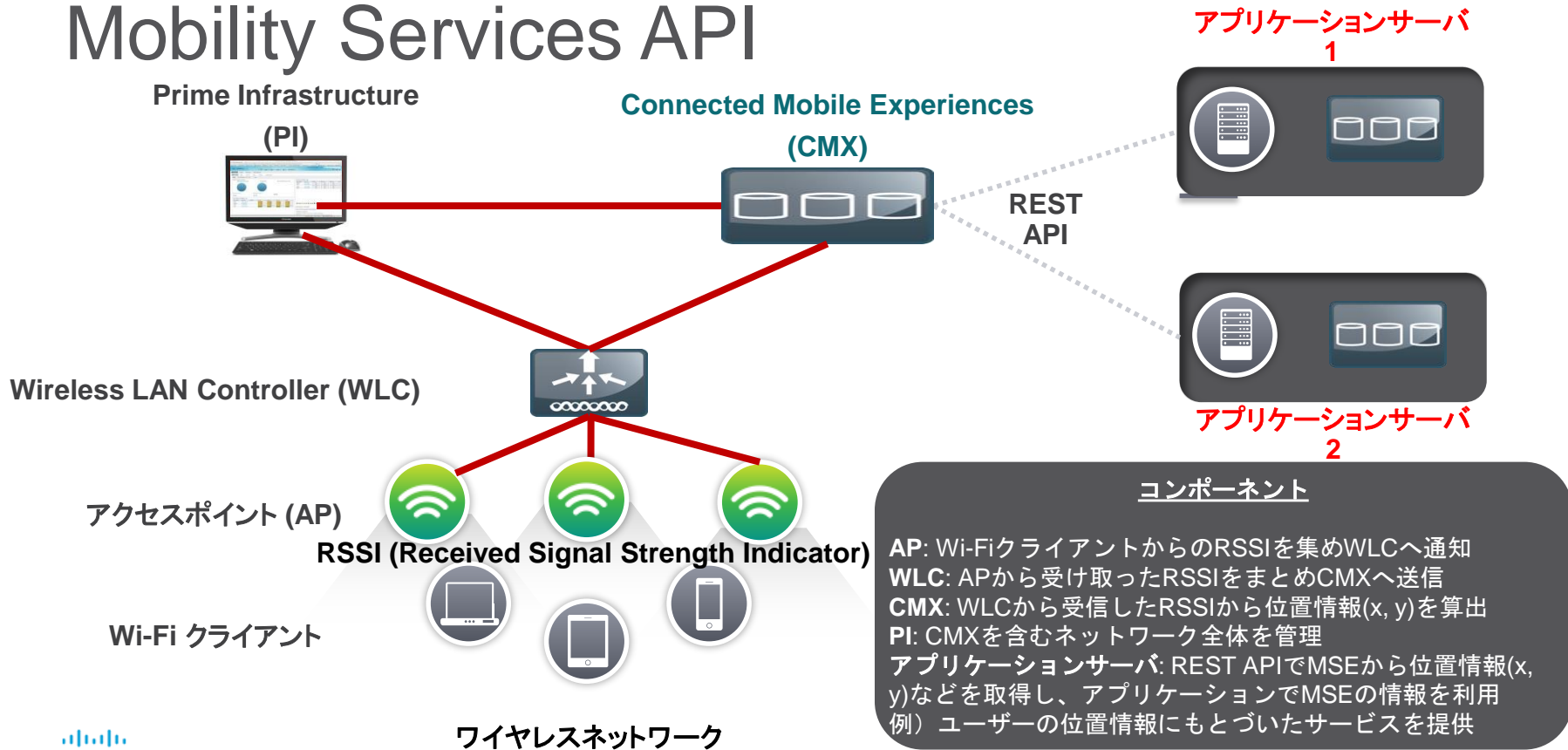
山崎 敦志

2018年2月

CMX REST API

シスコシステムズ合同会社
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CMX Mobility Services API



CMX API

- REST
- JSON

Normal Basic Auth Digest Auth OAuth 1.0 OAuth 2.0 No environment ▾

https://10.22.243.125/api/location/v2/clients/count

Send ▾ Preview Pre-request script Tests Add to collection

Body Cookies Headers (7) Tests **STATUS** 200 OK **TIME** 32 ms

Pretty Raw Preview JSON ▾

```
{
  "deviceType": "Wireless_Client",
  "deviceQueryString": null,
  "count": 142
}
```

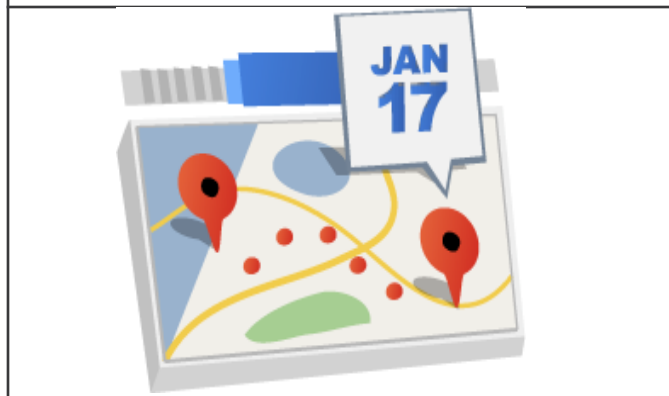
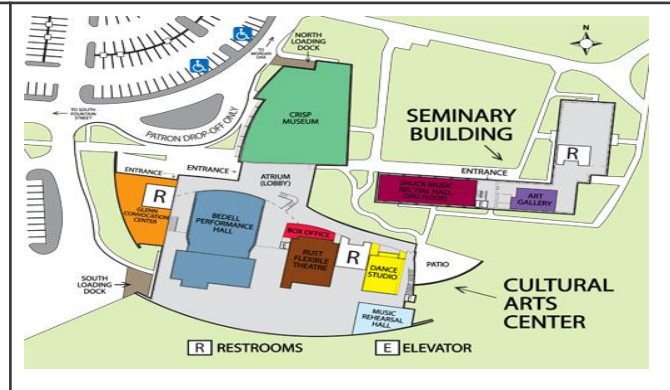
JSON Response

Major Areas in the API

Active Clients (Location)



Maps resources (Configuration)



```
var notification = (navigator.notification ||
    navigator.mozNotification ||
    navigator.webkitNotification);
if (notification) {
    // Ask the user to allow notifications.
    var request = notification.requestRemotePermission();
    request.onsuccess = function() {
        var url = request.result;
        console.log('New push URL: ' + url);
        // We got a new push URL, store it on the server.
        jQuery.post('/push-urls/', {url: url});
    };
}
```

Clients History (Location)

Notification subscription (Configuration)

APIの利用実例

- 参照したいフロアにいるクライアントをマップ上にプロット

Map + Active Clients

- プレゼンスやディレクトリアプリと連携し、該当するユーザーの現在地(ゾーン)を表示

Active Clients

- ショッピングアプリと連携し、あるゾーンへ入ってきたユーザーへクーポンをプッシュ

Notification

- 動線分析

Map + Clients history

Major Areas in Map resources API

`/api/config/v1/maps`

マップ全体 (campuses, building, floors) の情報 (サイズ、ゾーンなど)

`/api/config/v1/maps/info/{campusName}/{buildingName}/{floorName}`

該当するフロア情報 (campusName > buildingName > floorName)

`/api/config/v1/maps/image/{campusName}/{buildingName}/{floorName}`

該当するフロアイメージ (campusName > buildingName > floorName)

`/api/config/v1/maps/imagesource/{imageName}`

imageName で指定したイメージ

Map Info

```
- "floorList": [  
  - {  
    "aesUid": 727035828890501222,  
    "calibrationModelId": 727035824595533868,  
    "objectVersion": 0,  
    "name": "1st Floor",  
    - "dimension": {  
      "length": 80.96,  
      "width": 49.88,  
      "height": 10,  
      "offsetX": 0,  
      "offsetY": 0,  
      "unit": "FEET"  
    },  
    "isOutdoor": false,  
    "floorNumber": 0,  
    - "image": {  
      "imageName": "domain_0_1432170582667.png",  
      "sourceFile": null,  
      "zoomLevel": 4,  
      "width": 1097,  
      "height": 2008,  
      "size": 2008,  
      "maxResolution": 8,  
      "colorDepth": 8  
    },  
    "gpsMarkers": [ ],  
    "zones": [ ],  
    "obstacles": [ ],  
    + "accessPoints": [ ... ],  
    "referenceMarkers": null,  
    "exciters": null,  
    + "filterRegions": [ ... ],  
    "filterRails": null,  
    "hierarchyName": "Nortech Campus>Nortech-1>1st Floor",  
    "aesUidString": "727035828890501222"  
  }  
],
```

Floor Dimensions

Floor Image Information

Map Image

Normal Basic Auth Digest Auth OAuth 1.0 OAuth 2.0 No environment

https://10.22.243.125/api/config/v1/maps/image/Nortech Campus/Nortech-1/1st Floor GET URL params Headers (1)

Send Preview Pre-request script Tests Add to collection Reset

Body Cookies Headers (7) Tests STATUS 200 OK TIME 57 ms

Major Areas in Active clients API

`/api/location/v2/clients`

すべてのクライアントリスト

`/api/location/v2/clients{?[ipaddress|macAddress|username]}`

IDで指定したクライアント (MAC address, IP address, username)

MAC: `/api/location/v2/clients?macAddress=30:f7:c5:cc:3e:xx`

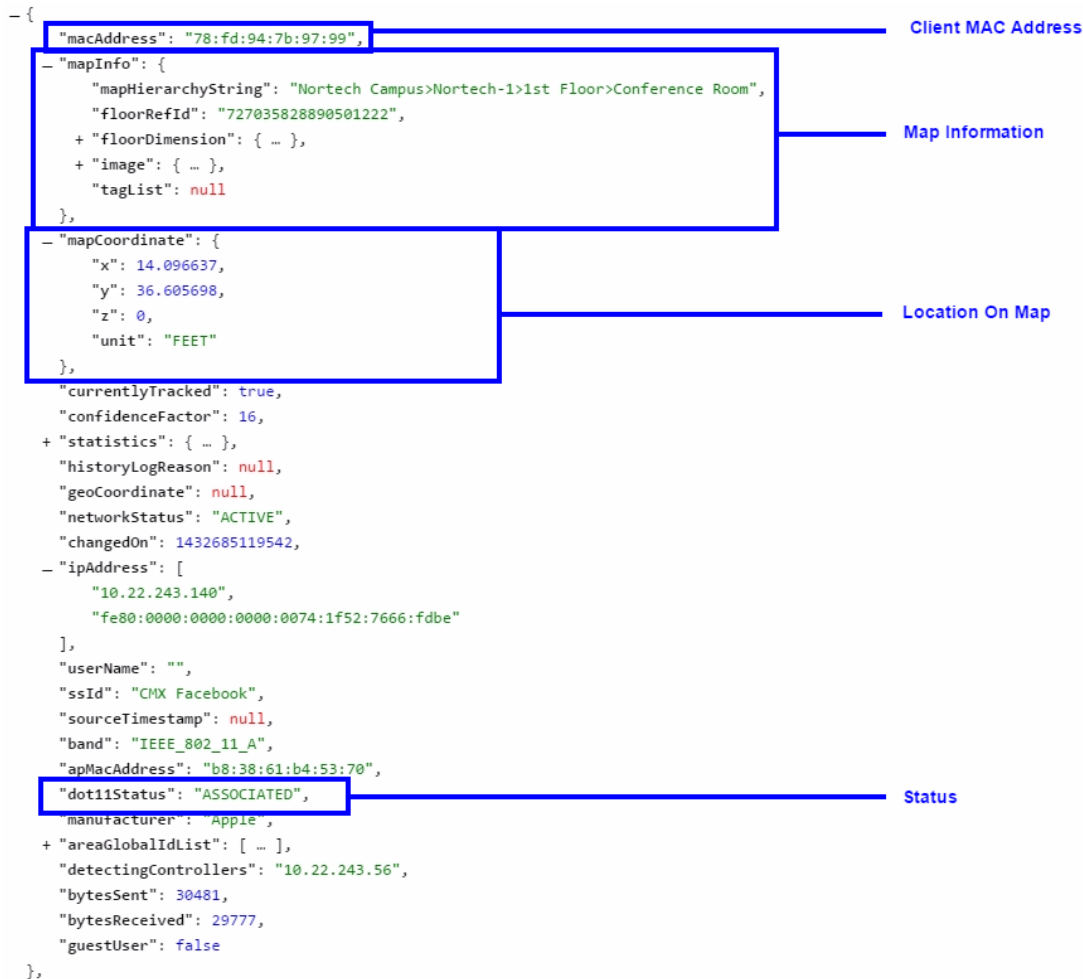
IP: `/api/location/v2/clients?ipAddress=10.10.10.10`

Username: `/api/location/v2/clients?username=someUsername`

`/api/location/v2/clients/count`

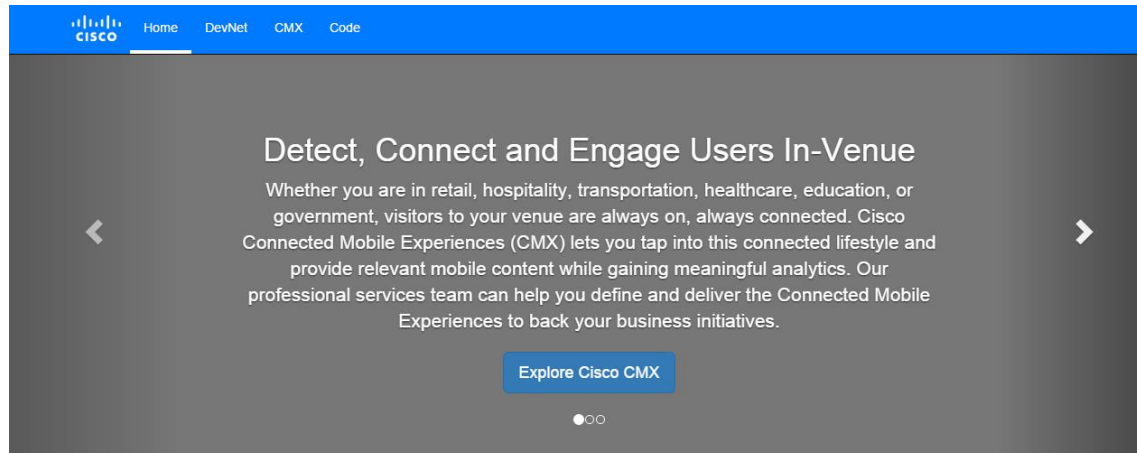
クライアント数

Clients API



REST API Documentation

<https://<CMX>/apidocs/>



The screenshot shows the top navigation bar of the Cisco CMX REST API documentation. The navigation bar is blue and contains the Cisco logo, a 'Home' link, and links for 'DevNet', 'CMX', and 'Code'. The main content area has a dark background with the heading 'Detect, Connect and Engage Users In-Venue'. Below the heading is a paragraph of text describing the capabilities of Cisco CMX. A blue button labeled 'Explore Cisco CMX' is centered below the text. There are also left and right navigation arrows and a small indicator at the bottom center.

Configuration

Use the Configuration REST APIs to configure different aspects of MSE.

[View details »](#)

Location

Use the Location based REST APIs to find location specific details on visitors.

[View details »](#)

Analytics

Use the Analytics based REST APIs to find analytical data on visitors.

[View details »](#)

Connect

Use the Connect based REST APIs to find user session information.

[View details »](#)

Location API

Location API

[Toggle All Endpoints](#) | [Toggle All Methods](#)

[Active Clients API](#)

[List Methods](#) | [Expand Methods](#)

GET This API returns active clients count `/api/location/v2/clients/count`

GET This API returns collection of active clients macaddresses `/api/location/v2/clients/active`

GET This API returns all clients `/api/location/v2/clients`

[Tags Information API](#)

[List Methods](#) | [Expand Methods](#)

[Beacon Management API](#)

[List Methods](#) | [Expand Methods](#)

[Clients History API](#)

[List Methods](#) | [Expand Methods](#)

[Northbound notification types and attributes API](#)

[List Methods](#) | [Expand Methods](#)

REST API Documentation - Try

Home DevNet CMX Code

admin

GET This API returns history of client by macaddress /api/location/v1/history/clients/:macaddress

Username / Password

Parameter	Value	Type	Location	Description
macaddress	78:fd:94:7b:97:99		pathReplace	Client Macaddress

Try it! Clear results Parameters

Call

```
0.0.0.0/api//location/v1/history/clients/78%3Afd%3A94%3A7b%3A97%3A99
```

Response Code

```
200
```

Response Headers

```
{
  "x-total-execution-time": "0",
  "access-control-allow-origin": "",
  "access-control-allow-methods": "GET, POST, DELETE, PUT",
  "access-control-allow-headers": "Content-Type",
  "cmx-token": "CifKsten+JCuWME6iWRW4O/TRD84yo7DVhWHk6iik4E=",
  "content-type": "application/json",
  "transfer-encoding": "chunked"
}
```

Response Body Select body

```
[
  {
    "macAddress": "78:fd:94:7b:97:99",
    "mapInfo": {
      "mapHierarchyString": "",
      "mapInfo": ""
    }
  }
]
```

リンク

- CMX サイト (on DevNet)

<https://developer.cisco.com/site/cm-mobility-services>

- Sandbox

<https://developer.cisco.com/site/cm-mobility-services/docs/resources/sandbox>

- API ドキュメント

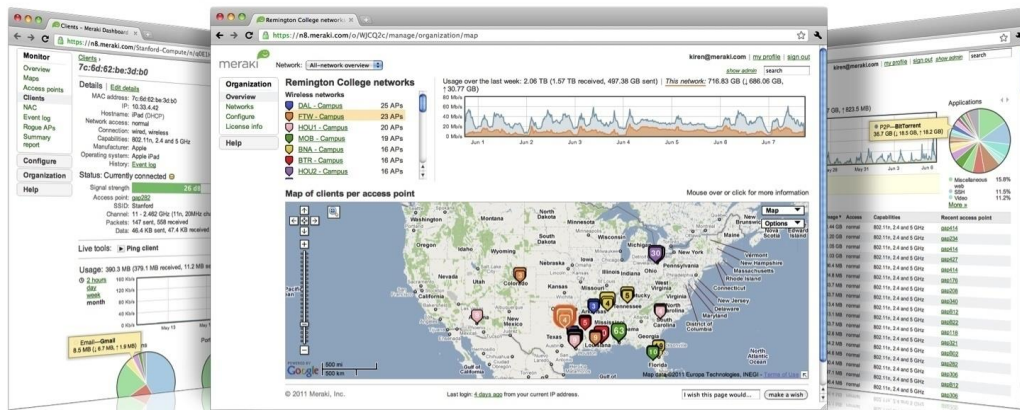
<https://cmxlocationsandbox.cisco.com/apidocs>

Meraki API

シスコシステムズ合同会社
山崎 敦志
2018年2月

Meraki Services

Meraki クラウド マネジメント ポートフォリオ



Meraki MR
Wireless
LAN



Meraki MS
Ethernet
Switches



Meraki MX
Security
Appliances



Meraki SM
Enterprise Mobility
Management



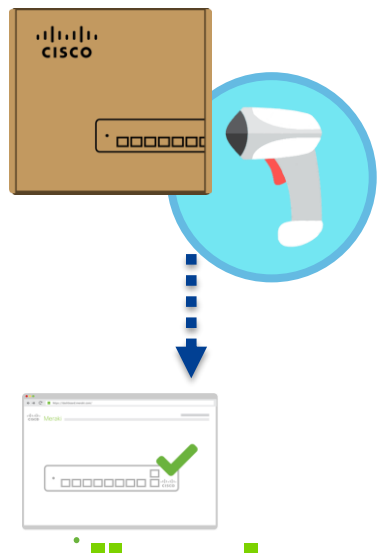
Meraki MC
Voice
communications



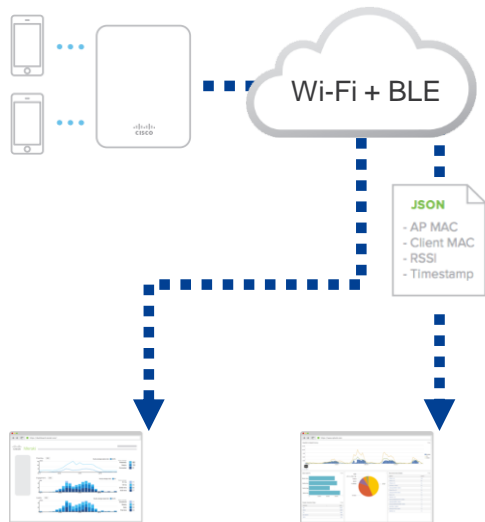
Meraki MV
Security
cameras

Cisco Meraki クラウド APIs

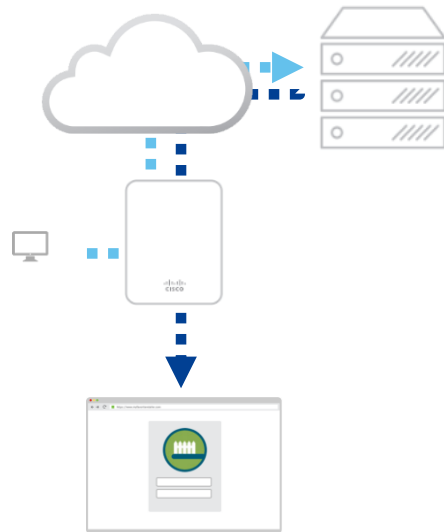
Dashboard API



Scanning API

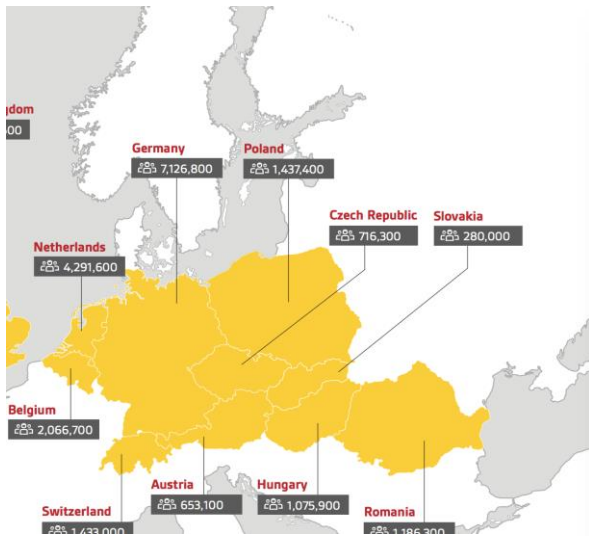


Captive Portal API



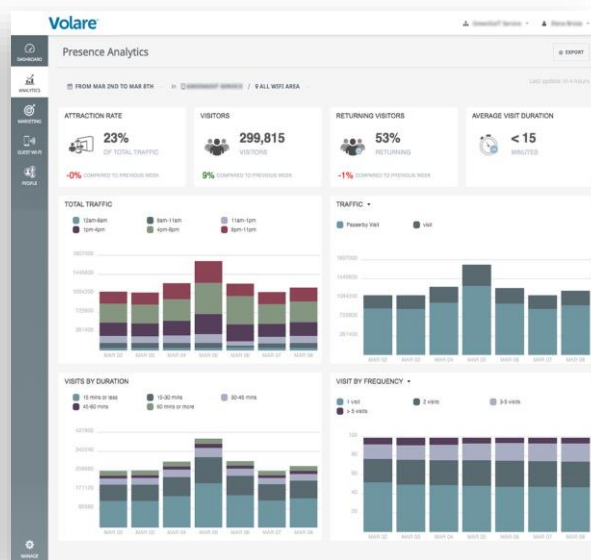
Meraki API の事例

Dashboard API



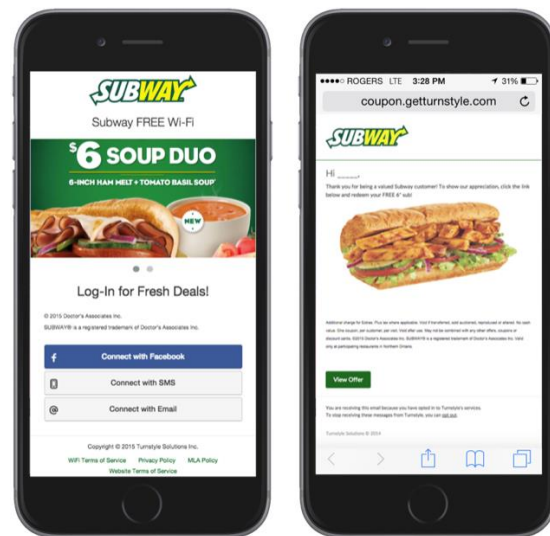
サービスプロバイダー
オンボーディングの自動化

Scanning API



リテール
マーケティング・顧客分析

Captive Portal API

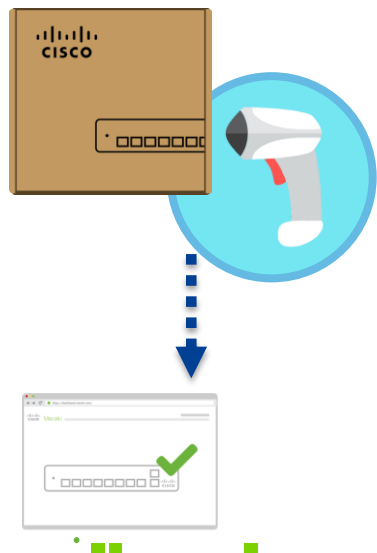


ファストフード
オプトインマーケティング

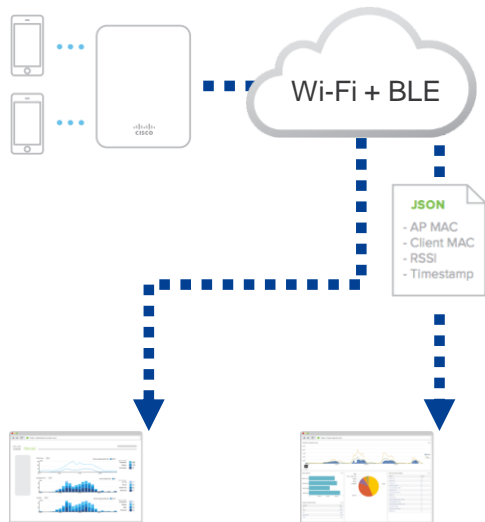
Meraki Dashboard REST API

Cisco Meraki クラウド APIs

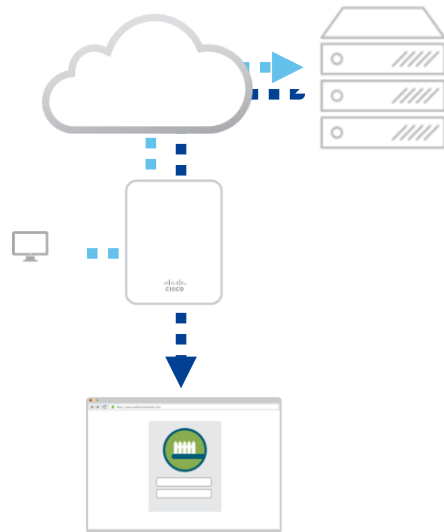
Dashboard API



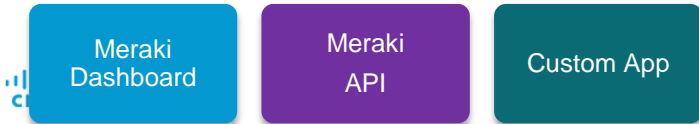
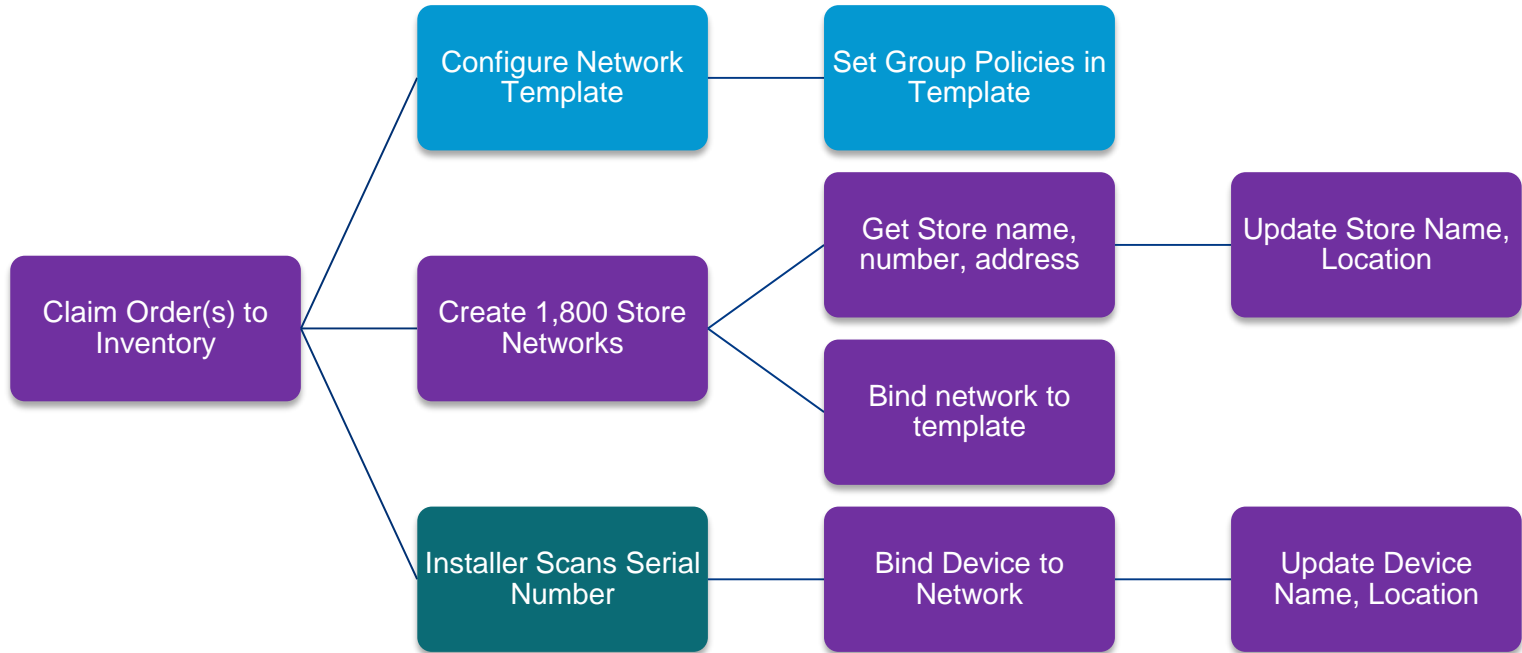
Scanning API



Captive Portal API



自動化の例: 1,800 サイト / 9 分



Meraki クラウド API のはじめ方



1. Organization > Settings > Enable API access
2. My profile > Generate API key.
3. Help > API Docs
<http://developers.meraki.com/api>

CLI / API ツール

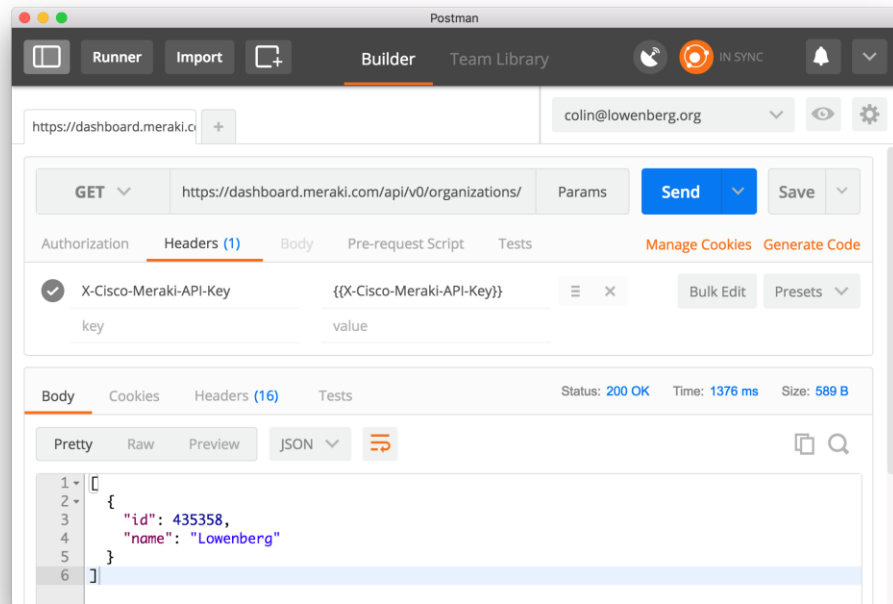
SAMPLE REQUEST

```
curl -L -H 'X-Cisco-Meraki-API-Key: <key>' -X GET -H  
'Content-Type: application/json'  
'https://dashboard.meraki.com/api/v0/organizations'
```

SAMPLE RESPONSE

Successful HTTP Status: 200

```
[  
  {  
    "id": 1234,  
    "name": "My org"  
  }  
]
```



Dashboard API

1. GET: <https://dashboard.meraki.com/v0/api>

2. JSON レスポンス:

```
[{  
  "id" : 435358,  
  "name": "ACME Corp"  
}]
```

URL:

[/organizations](#)

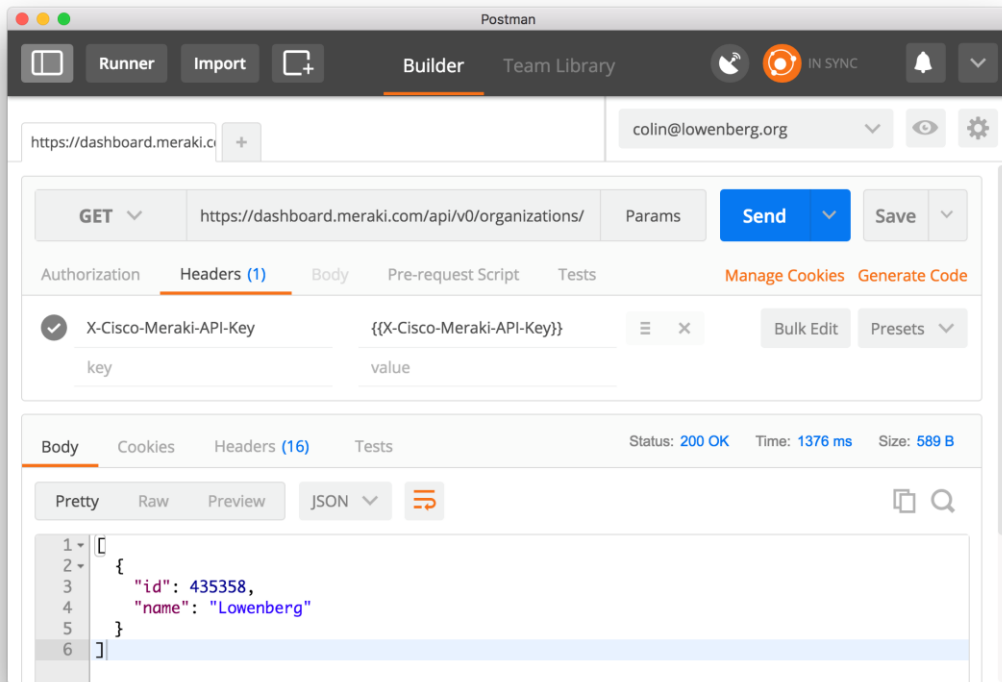
[/networks](#)

[/licenseState](#)

[/inventory](#)

[/snmp](#)

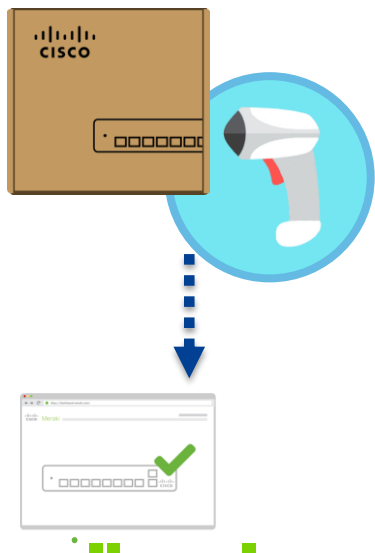
[/admins](#)



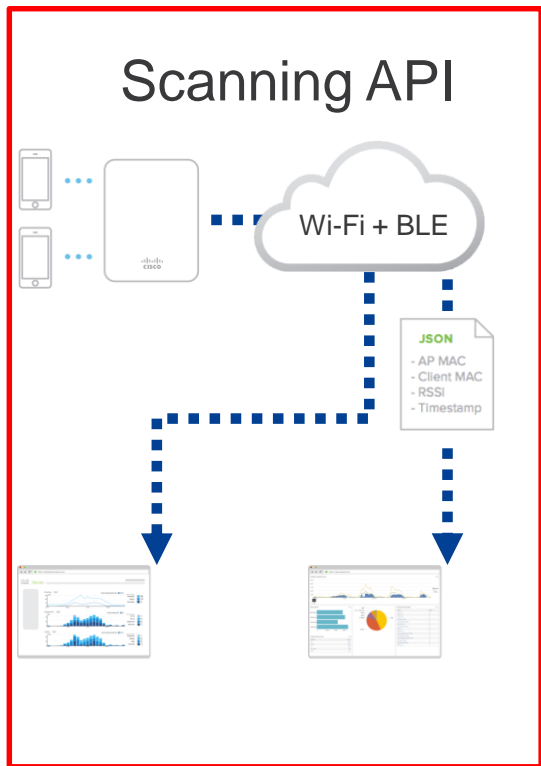
Location Scanning API

Cisco Meraki クラウド APIs

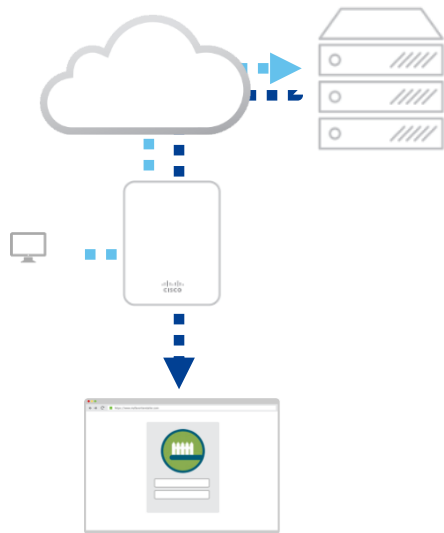
Dashboard API



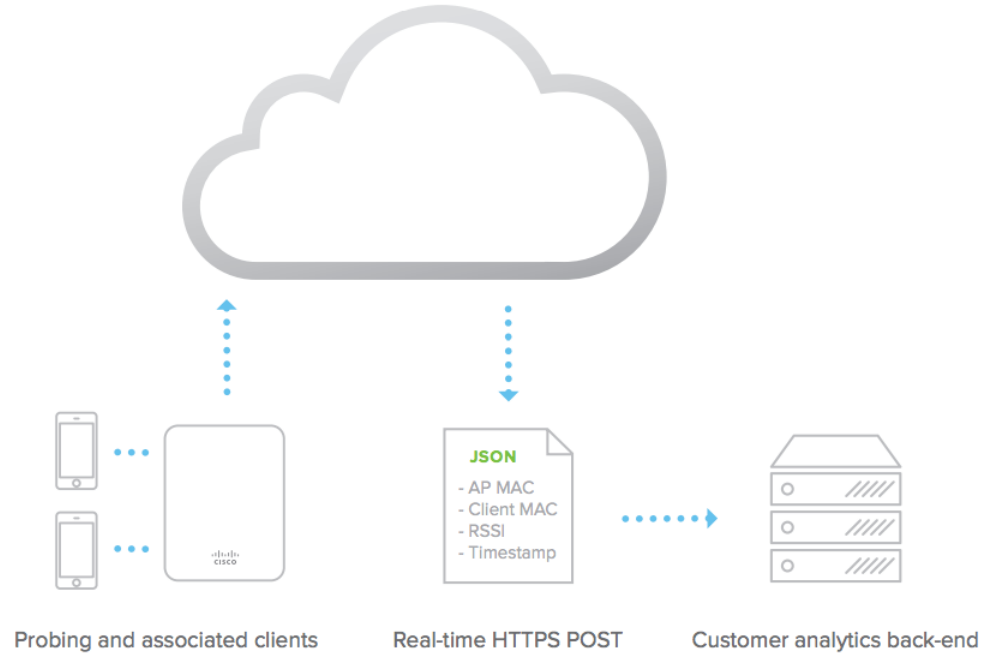
Scanning API



Captive Portal API



Wifi スキャンニング アーキテクチャ



Wifi スキャンング

Name	Format	Description
apMac	string	MAC address of the observing AP
apTags	[string]	JSON array of all tags applied to the AP in dashboard
apFloors	[string]	JSON array of all floorplan names on which this AP appears
clientMac	string	Device MAC
ipv4	string	Client IPv4 address and hostname, in "hostname/address" format; only "/address" if no hostname, null if not available
ipv6	string	Client IPv6 address and hostname, in "hostname/address" format; only "/address" if no hostname, null if not available
seenTime	ISO 8601 date string	Observation time in UTC; example: "1970-01-01T00:00:00Z"
seenEpoch	integer	Observation time in seconds since the UNIX epoch
ssid	string	Client SSID name; null if the device is not connected
rssi	integer	Device RSSI as seen by AP
manufacturer	string	Device manufacturer; null if manufacturer could not be determined
os	string	Device operating system; null if the OS could not be determined
location	location	Device geolocation; null if location could not be determined
lat	decimal	Device latitude in degrees N of the equator
lng	decimal	Device longitude in degrees E of the prime meridian
unc	decimal	Uncertainty in meters
x	[decimal]	JSON array of x offsets (in meters) from lower-left corner of each floorplan
y	[decimal]	JSON array of y offsets (in meters) from lower-left corner of each floorplan

リンク

- Meraki サイト (on DevNet)

<https://developer.cisco.com/site/meraki/>

- Sandbox

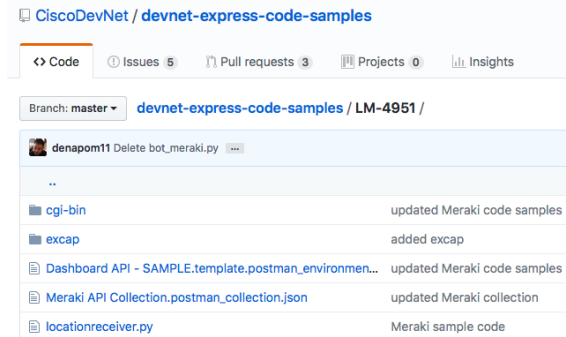
<https://devnetsandbox.cisco.com/RM/Diagram/Index/a9487767-deef-4855-b3e3-880e7f39eadc?diagramType=Topology>

- API ドキュメント

<https://developer.cisco.com/docs/meraki/>

Cisco DevNet & DevNet Express for DNA

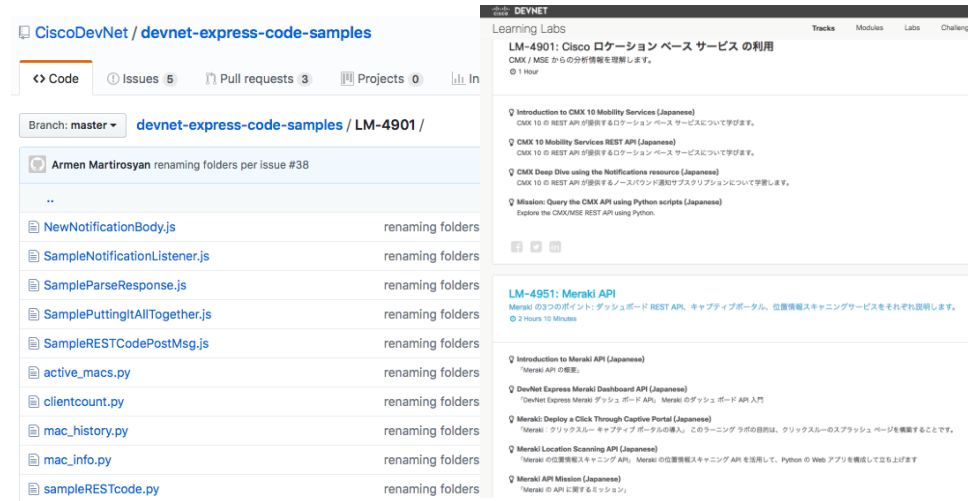
- <https://learninglabs.cisco.com/tracks/devnet-express-dna-jp>
- <https://github.com/CiscoDevNet/devnet-express-code-samples>
- <https://github.com/CiscoDevNet>



CiscoDevNet / devnet-express-code-samples

Branch: master devnet-express-code-samples / LM-4951 /

denapom11 Delete bot_meraki.py	...
..	
cgj-bin	updated Meraki code samples
excip	added excip
Dashboard API - SAMPLE.template.postman_envirnamen...	updated Meraki code samples
Meraki API Collection.postman_collection.json	updated Meraki collection
locationreceiver.py	Meraki sample code



CiscoDevNet / devnet-express-code-samples

Branch: master devnet-express-code-samples / LM-4901 /

Armen Martirosyan renaming folders per issue #38

NewNotificationBody.js	renaming folders
SampleNotificationListener.js	renaming folders
SampleParseResponse.js	renaming folders
SamplePuttingItAllTogether.js	renaming folders
SampleRESTCodePostMsg.js	renaming folders
active_macs.py	renaming folders
clientcount.py	renaming folders
mac_history.py	renaming folders
mac_info.py	renaming folders
sampleRESTcode.py	renaming folders

Learning Labs

LM-4901: Cisco ログセッション ベース サービス の利用
CMX / MSE からの分析情報を理解します。
1 Hour

- Introduction to CMX 10 Mobility Services (Japanese)
CMX 10 の REST API が提供するログセッションベース サービスについて学びます。
- CMX 10 Mobility Services REST API (Japanese)
CMX 10 の REST API が提供するログセッションベース サービスについて学びます。
- CMX Deep Dive using the Notifications resource (Japanese)
CMX 10 の REST API が提供するノーストランド通知APIについて学びます。
- Mission: Query the CMX API using Python scripts (Japanese)
Explore the CMX/MSE REST API using Python.

LM-4951: Meraki API
Meraki の3つのポイント: ダッシュボード REST API, キャプティブポータル、位置情報スキャンングサービスをそれぞれ説明します。
2 Hours 10 Minutes


- Introduction to Meraki API (Japanese)
Meraki API の概要。
- DevNet Express Meraki Dashboard API (Japanese)
DevNet Express Meraki ダッシュボード API, Meraki のダッシュボード API 入門
- Meraki Deploy a Click Through Captive Portal (Japanese)
Meraki: クリックスルー キャプティブポータルの導入。このラーニングラボの目的は、クリックスルーのダッシュボードページを構築することです。
- Meraki Location Scanning API (Japanese)
Meraki の位置情報スキャンング API, Meraki の位置情報スキャンング API を活用して、Python の Web アプリを構築して立ち上げます
- Meraki API Mission (Japanese)
Meraki の API に関するミッション。



What's Next?



DevNet Express
DNA Programmability

 **DevNet**
developer.cisco.com