



Portal using the oneTRANSPORT API

<http://service.onetransport.io/>

Introduction

The oneTRANSPORT Data Marketplace provides a means for organisations to publish dynamic (ie regularly changing or real-time) data and Static resource files (ie Asset location / Dataset models) for discovery and consumption by others. The primary means for publishing and consuming data through the platform is via open system APIs. The Portal is a web service that enables developers to engage with the oneTRANSPORT service via a web browser, both to interact with data directly and to access detailed documentation about the system APIs.

API Authentication


To utilize any of the oneTRANSPORT API's, you will need to authenticate each call to the API with an **AE-ID** and an **Access Key**. Both of these values are created when an Application is added to the portal. An Application within oneTRANSPORT is both the Application that publishes data, and the Application that consumes data. In this instance we refer to Application as that which is consuming the shared data.

Authentication is set within headers sent to the oneTRANSPORT API:

X-M2M-Origin: *Your-applications-AE-ID*

Authorization: Bearer *Your-applications-access-key*

These credentials can be found by browsing to the **Credentials** page in oneTRANSPORT:

<div>  <div> oneM2M browser Data catalogue Credentials Users Reports Help </div> </div> <div>Birmingham Admin</div>				
Home / Credentials				
<div>Credentials</div> <div>Create new app</div>				
Application	Resource Path	AE-ID	Access Key	Renew Access Key
Default_App_Birmingham_County...	ONETCSE01/Default_App_Birming...	CAE0120180620T08383313971308...	018XXXXXXXXXXDq	Renew
BirminghamCarparks	ONETCSE01/BirminghamCarparks	CAE0120180620T08400213971310...	019XXXXXXXXXXBc	Renew
BirminghamDetectors	ONETCSE01/BirminghamDetectors	CAE0120180621T08165614001092...	01WXXXXXXXXXXDD	Renew
BirminghamAnpr	ONETCSE01/BirminghamAnpr	CAE0120180621T08200314001270...	01LXXXXXXXXXXB8	Renew
BirminghamFault	ONETCSE01/BirminghamFault	CAE0120180621T08444214001137...	01nXXXXXXXXXXGY	Renew

Retrieving Data

Within oneTRANSPORT, data is organized into Containers. A Container can, for example, be a specific sensor, or a specific location such as a car park. Containers are defined by the publisher of the data, therefore you need to be able to discover and understand the data that you wish to consume. Data transactions are stored within oneTRANSPORT as Content Instances. A single Content Instance contains a single piece of data send by the publishing application.

We shall retrieve the latest Car Park data from the BirminghamCarparks Container.

Within the portal, browse to the oneM2M browser, find BirminghamCarparks in the resource tree browser, and click on BirminghamCarparks/EventSource:

The screenshot shows the oneTRANSPORT portal interface. The top navigation bar includes the oneTRANSPORT logo, links to 'oneM2M browser', 'Data catalogue', 'Credentials', 'Users', 'Reports', and 'Help', and a user profile 'Birmingham Admin'. Below the navigation bar, a breadcrumb trail shows 'Home / oneM2M Browser'. A light blue banner contains the text 'Navigate the oneM2M Resource Tree hierarchy to discover what data is available on the oneTRANSPORT platform'. Below this, a blue bar shows 'EventSource' with a plus icon, 'Viewing as: Default_App_Birmingham_County_Council', and a 'Switch App' button. The main content area is divided into two panes. The left pane, titled 'Table of contents', shows a tree of 'Apps' with 'EventSource' selected. The right pane, titled 'Container: EventSource', displays a 'Properties' table with various attributes and their values. Below the table, a section titled 'Latest Content Instance' is partially visible. The footer of the portal includes the oneTRANSPORT logo, copyright information '© Copyright 2018 InterDigital. All rights reserved. Terms and Conditions | Privacy Policy | Contact Us', and a Twitter icon.

Properties	
accessControlPolicyIDs (acpi)	acp20180620T084002139712870217472313039_cse01
currentByteSize (cbs)	2795
currentNrOfInstances (cni)	10
creationTime (ct)	20180620T160623 (June 20th 2018, 4:06:23 pm)
disableRetrieval (disr)	false
expirationTime (et)	20200101T000000 (January 1st 2020, 12:00:00 am)
lastModifiedTime (lt)	20180625T083239 (June 25th 2018, 8:32:39 am)
maxByteSize (mbs)	60000000
maxInstanceAge (mia)	1600
maxNrOfInstances (mni)	10
parentID (pi)	CAE0120180620T084002139713105082112310266_cse01
resourceID (ri)	cnt20180620T160623139713591531264316653_cse01
resourceName (rn)	EventSource
stateTag (st)	211361
resourceType (ty)	3

Latest Content Instance

On the right hand pane, you will see the information for the Container, which in this instance is called EventSource.

Scroll down to see the Latest Content Instance. Here we can see specific information about the data, with the actual data being located within **content**:

Latest Content Instance	
contentInfo (cnf)	application/json
contentSize (cs)	279
creationTime (ct)	20180625T083239 (June 25th 2018, 8:32:39 am)
expirationTime (et)	20200101T000000 (January 1st 2020, 12:00:00 am)
lastModifiedTime (lt)	20180625T083239 (June 25th 2018, 8:32:39 am)
parentID (pi)	cnt20180620T160623139713591531264316653_cse01
resourceID (ri)	cin20180625T08323914001286169574472753_cse01
resourceName (rn)	AGoiyYbzBZnLcdeuoLFP1529915559749
stateTag (st)	211361
resourceType (ty)	4
content (con)	Event=UTMC:Carpark,EventCategory=UTMC,EventVariant=Carpark,ExitRate=0.0,FillRate=0.0,LastUpdate=-25 09:30:58,Occupancy=1268,OccupancyPercentage=28.0,OccupancyTrend_TypeID=0,QueueTime=0,Re2806134,State_TypeID=999,System=Birmingham,SystemCodeNumber=Others-CCCP5133

Scroll down further and you will see a **Getting Started** section that explains how to access data:

Read

How to retrieve the latest content from this container

Subscribe

How to receive push notifications when new content is added

Unsubscribe

Stop receiving notifications for new content

How to read data from this application

This application is sharing its data. To use this data your application will need to make a **GET** request to the URL of the Application Entity's containers and retrieve Content Instances

Your application can retrieve individual content instances from the container using the content instance name. It can also retrieve the latest and oldest content instance added to the container by using the **la** (latest) or **ol** (oldest) virtual resources.

Request headers

- X-M2M-RI: MyRequestIdentifier**
A request identifier
- X-M2M-Origin: CAE0120180620T083833139713088296704313350_cse01**
Your App's AE-ID
- Authorization: Bearer 01t85DUS5nmtYIOq**
Your App's access token - it must match the AE-ID

Your Application is able to Subscribe to data. Subscribing to data means that you will receive a notification including the content (data) of the Content Instance. To do this, you would need to provide a HTTP End Point that oneTRANSPORT would be able to send data to.

In this tutorial, we shall be reading data from oneTRANSPORT, by sending a web service call asking for the latest Content Instance. To do this you will need to make a **GET** request to the URL of the Application and its Container, in this instance BirminghamCarparks/EventSource.

```
https://onem2m.onetransport.io/ONETCSE01/BirminghamCarparks/EventSource/la
```

You will notice the end of this request contains a virtual resource named **la**. This states “return me the **latest** Content Instance”. You are also able to return the **oldest** Content Instance by specifying **ol**.

Request headers

X-M2M-RI: A-identifier-for-this-transaction

X-M2M-Origin: Your-applications-AE-ID

Authorization: Bearer Your-applications-access-key

HTTP Response

The request will return a response indicating the status of the request. Successful requests will contain a **X-M2M-RSC: 2000** header. The body of the response shall contain the oneM2M output. The “con” attribute will contain the data for this Content Instance.

```
HTTP/1.1 200 Content
Server: nginx/1.9.10
Date: Fri, 1 January 2018 10:11:35 GMT
Content-Type: application/vnd.onem2m-res+json
Content-Length: 235
Connection: keep-alive
X-M2M-RI: cin-retrieve
X-M2M-RSC: 2000
{
  "m2m:cin":{
    "cnf":"application/json",
    "con":"Event=UTMC:Carpark,EventCategory=UTMC,EventVariant=Carpark
,ExitRate=0.0,FillRate=2.0,LastUpdated=2018-06-25 09:50:16,Occupancy=18
4,OccupancyPercentage=50.0,OccupancyTrend_TypeID=3,QueueTime=0,Referenc
e=62807093,State_TypeID=2,System=Birmingham,SystemCodeNumber=BHMBCCTHL0
1",
    "cs":272,
    "ct":"20180625T085228",
    "et":"20200101T000000",
    "lt":"20180625T085228",
    "pi":"cnt20180620T160623139713591531264316653_cse01",
    "ri":"cin20180625T08522814001089225702473356_cse01",
    "rn":"zcHPzRgNtHbpUxkmuusW1529916748673",
    "st":212749,
    "ty":4
  }
}
```