

ENTERPRISE INTEGRATION

Masternaut Connect -Interested Party API Reference

Accessing asset details from Connect

6th November 2018 Version 1.4



Interested Party API

This document details the **Masternaut Connect - Interested Party API** (Application Programming Interface) endpoints to enable integration into a customer's own software application.

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1. Change log

Version	Changes
1.1	Initial version
1.2	Added Interested Party tags
1.3	Corrected URI for requesting an OAuth token
1.4	Updated document template



2. Introduction

This document details the **Masternaut Connect - Interested Party API** (Application Programming Interface) endpoints that will enable you to integrate Masternaut Connect into your own software applications.

This document is divided into the following sections:

- Masternaut Solution this section describes the Masternaut Connect solution and how the solution allows for tracking and tracing drivers, assets and journeys.
- Programming Guide this section describes how to submit a Restful request to the Interested Party API.
- Reference this section contains detailed descriptions for each available REST endpoint, the input parameters and the data returned.

2.1 Target Audience

This document is intended for use by developers who will be calling the **Masternaut Connect - Interested Party API** using a programming language, for example Java, PHP, Perl, C#, C++, Python etc.



3. Interested Party Solution

The Masternaut Connect solution comprises of:

- Masternaut Connect this is the component that receives and processes the tracking events from an On Board Unit (OBU).
- Masternaut Connect Web Application this is the web based application used for managing assets/resources and accessing the track and trace functionality of Masternaut Connect.
- Masternaut OBU is the tracking box installed on the resource and connects via GPRS to
 Masternaut Connect. The OBU transmits vehicle events such as ignition on, ignition off, resource
 movement and resource position to Masternaut Connect.
- Masternaut Connect API this is the Application Programming Interface that allows data to be pulled from Masternaut Connect.

3.1 Asset

Masternaut Connect is used to track and trace an asset. Masternaut Connect receives location and related data from the asset via an OBU. An asset can be a vehicle (car, van, truck etc) or any object (trailer, boat or power generator etc.) which has an OBU installed.

3.2. Tracking and Tracing

Tracking is knowing the location of an asset in real time. In addition to the location, Masternaut Connect captures speed, direction of travel and other information items depending on the asset type (e.g. gritting events).

Tracing is knowing the locations where an asset has been. Historic location information is stored by Masternaut Connect by default for 90 days. This period is configurable for each customer. Please speak to your **Masternaut Customer Representative** for details of the storage period for a customer.

3.3. Journey

A journey is an asset moving between locations. The start of the journey is when the ignition is switched on and the end of the journey is when the ignition is switched off. There can be many journeys for an asset in the same day.

During a journey, the status for the asset will change, for example:

• **Driving** - The asset is moving. Movement events are generated every minute or when certain events occur, e.g. harsh braking/cornering/accelerating.



- Idling The asset has not moved location but the ignition is still on.
- Stopped The asset's ignition has been switched off.

A **private journey** is a journey that the driver has specified as private. A private journey cannot be tracked or traced using the Masternaut Connect Web Application.

3.4. Distance Travelled

The distance that an asset travelled during a journey is captured by the OBU using one of two methods:

Method	Definition
CAN	This is the most accurate method with the OBU extracting the distance travelled from the vehicle's CANbus.
	You can read more about CANbus at http://en.wikipedia.org/wiki/CAN_bus
GPS	During a journey, the OBU calculates the distance between each GPS location and sums these distance values together derive the total distance for the journey.
	This method is not as accurate as the distance obtained from the CANbus.

3.5. Interested Party Tags

A tag is a word that you can use to add information to an asset. For example, you can add a tag to identify the vehicle is a sweeper and then call to the Interested Party API to request details for all sweepers that you have been leased to a number of Masternaut customers. There is no limit on the number of tags you can create.

The tags created for an Interested Party are not shown in the Masternaut Connect Web Application, i.e. the interested party tags are distinct from the tags created by the Connect customer that has leased the asset.

3.6. Asset Types

The asset type is set when the Masternaut OBU is installed by a Masternaut service engineer. An asset can have one of the following types:

- AMBULANCE
- BICYCLE



- BOAT
- BUS
- BUS_DOUBLE_DECK
- CAR
- CAR_ESTATE
- CAR_SPORTS
- CARAVAN
- CARRIAGE
- COACH
- CONTAINER_ASSET
- DIGGER
- DIGGER_2
- GRITTER
- HGV
- HORSEBOX
- MAN
- MINIBUS
- MIXER
- MOTORCYCLE
- MOTORHOME
- PDA111
- RIGID
- SMARTPHONE_PDA
- SWEEPER_LARGE
- SWEEPER_SMALL



- TIPPER
- TIPPER_2
- TRACTOR
- TRACTOR_TRAILER
- TRAILER
- TRAIN
- VAN
- VAN_BOX
- VAN SMALL
- WASTE_VEHICLE

3.7. Driver Behaviour

Masternaut Connect allows analysis of driving behaviour based on a range of driving events that occur during a journey. The driving events that captured include:

- Harsh braking
- Harsh acceleration
- Harsh cornering
- Over revving
- Excessive idling
- Speed over a defined threshold

Excessive idling can occur either inside or outside a set of locations specified by a Connect customer. For example, a customer can specify a number locations to be "Goods Drop Point", and then analyse the number of excessive idling that occurred within and outside these "Goods Drop Point" locations.

An **ecoDrive** score is calculated based on the number of driving behaviour events that were generated for the vehicle. The ecoDrive score can be used to rank the driver's driving behaviour across a customer fleet.



3.8. Input and PTO

As well as detecting if the vehicle is moving, stopped or idling, the **Masternaut OBU** can be configured to detect other asset activity, for example if a door is opened or closed; the beacon lights are switched on or switched off; the street sweeper brushes are down or up. This vehicle activity is reported in **Masternaut Connect Web Application** as an **input**.

Power Take Off (PTO) is when the vehicle engine is being used to power additional machinery, for example a crane. **PTO** uses additional fuel, therefore, it is important to know if the **PTO** was active when the vehicle was idling or if the **PTO** was inactive and the vehicle was idling.



4. Programming Guide

This section details the Interested Party API endpoints for an Interested Party and the data returned by each endpoint.

4.1. HTTP Authentication

The Interested Party API endpoints are accessed using the HTTP 1.1 transport protocol, as defined by **IETF RFC-2616**.

Access to the **Interested Party API** is based on **OAuth**. In order to call an endpoint in the Interested Party API, you must first get an OAuth token and then use the OAuth token when calling an endpoint. These are the steps to be granted an OAuth token:

To request an OAuth token, use HTTP Basic Authentication and populate the HTTP
 Authorization header field with the username and password of your Interested Party API user encoded in Base64.



• In all subsequent calls to the Interested Party API, use HTTP **Token Authentication** and populate the HTTP Authorization header field with the generated OAuth token.



You will receive an error if

- Incorrect username/password details are used when requesting an OAuth token
- The OAuth token is invalid or has expired.

For improved security HTTPS must be used with the Masternaut Interested Party API.

4.2. Asset Restrictions

The Masternaut Solution has telematics data for many customers. To prevent an Interested Party accessing data for an asset that they are not authorized to access, Masternaut configures which assets and which asset details can be accessed by an Interested Party.

For example

An interested Party has leased 45 vehicles to Customer-A and 10 vehicles Customer-B.



- Customer-A has a fleet of 450 vehicles.
- Customer-B has a fleet of 50.

Masternaut has configured access to the telematics data for Customer-A so that the Interested Party can access:

- 45 vehicles.
- But only the odometer reading for each vehicle.

For Customer-B, Masternaut has configured the same Interested Party to be able to access.

- 10 vehicles.
- Odometer reading, location details and maintenance data for each vehicle.

This will mean that for the Interested Party:

- A call to the **List Odometer** endpoint will return data for 45 vehicles leased to Customer-A and 10 vehicles leased to Customer-B.
- A call to the List Location endpoint will only return data for the 10 vehicles leased to Customer-B.

Please speak to your Masternaut Customer Representative, if you

- Do not have details of your interested party identifier.
- Do not have details of the username and password to request the OAuth token.
- Cannot access the required Interested Party API endpoint.
- Cannot access the required asset.
- Cannot view the required details for an asset, or example odometer, location etc.

4.3. REST Endpoints

The Interested Party API has been implemented using **RESTful** principles. All requests are made to specific URI endpoint. Data to an endpoint and the response from an endpoint are formatted in JSON.

JSON data types, such as String, Number and Boolean are used where applicable. If there is no data to return, an empty JSON list is returned. Additionally, empty data is omitted in the result – i.e. there are no "null" values.



The structure of the URI endpoint is as follows:

/v1/interestedparty/{interestPartyId}/

This is an example of the URI for the **List Asset** endpoint:

https://api.masternautconnect.com/connect-webservices/services/public/v1/interestedparty/43/assets

This is an example of the JSON output after calling the **List Asset** endpoint.

As the Interested Party API has been implemented using **RESTful** principles, the following HTTP request methods are used:

HTTP Request Method	Definition
GET	Used for the retrieval of data items from an endpoint.
POST	 Used in the following circumstances: Request creation of a new data item. Request data from an endpoint to overcome the 8K limit on the length of the request line and header fields sent to an endpoint.
PUT	Used to create a new data item or to update the details for an existing data item.
DELETE	Used to delete an item.

NOTE:

For POST/PUT/DELETE requests, ensure you have set the **content-type** of the HTTP request body to "application/json;charset=UTF-8".

You can read more about the different HTTP requests methods (including GET, POST, PUT and DELETE) at http://en.wikipedia.org/wiki/PUT_(HTTP)#Request_methods.



All requests to the Interested Party API receive an HTTP response code to confirm if the request was successful or not. The following HTTP codes can be returned:

HTTP response code	Definition	When returned
200	Standard response for successful HTTP requests	When the request has been successfully completed. This response is returned for a GET, POST and PUT. Also returned even if an empty set is returned.
201	Created	Not returned
204	No content	The server successfully processed the request and has not returned any content.
400	Bad Request	Invalid input parameters
401	Unauthorised	 Can be returned for two possible reasons: Invalid user credentials have been included in the HTTP header. Valid user credentials have been included in the HTTP Header but access has not been authorised to the endpoint.
403	Forbidden	Valid User credentials in the HTTP Header but the user does not have the required permissions to access the endpoint.
404	Not found	This is returned whenever the required URI cannot be found. This could be because of: URI has been misspelt. The specified item is not found when an item identifier has been included as part of the URI, e.g. customer/123456/location/category/cat12.
406	Not Acceptable	The output from the endpoint is not acceptable by the calling client (as defined by the Accept headers included in the request).
409	Conflict	The request to the endpoint could not be completed as there is a conflict between the JSON data sent and the request to the endpoint.
429	Too many requests	The request to the endpoint could not be completed because the rate restriction limit has been exceeded.



500 Internal serv	There has been internal error within the Interested Party API.
-------------------	--

If there has been an error, the following JSON object is returned:

```
{
   "errorCode": "",
   "errorMsg": "error message and corrective actions to take"
}
```

The errorMsg element includes details of the error and what corrective action to take; for example, if an incorrect icon name has been specified, then the errorMsg includes a list of all the valid icon names.

The Interested Party API has an 8K limit on the length of the request line and header fields sent to an endpoint. If the 8K limit is exceeded, then the request will be rejected and no error code will be returned.

4.4. Date and Time Format

To make entering dates more user-friendly, dates can be sent as strings instead of JSON dates. The accepted string date format is a subset of ISO 8601.

The following two date formats are supported:

YYYY-MM-DDThh:mm:ss

Where:

```
YYYY - four digits for year (2014).
MM - two digits for month (01 to 12, 01 = January).
DD - two digits for day of month (01 to 31).
hh - two digits for hour (00 to 23).
mm - two digits for minutes (00 to 59).
```

YYYY-MM-DDThh:mm:ss.ms

Where:

SS

```
YYYY - four digits for year (2014).

MM - two digits for month (01 to 12, 01 = January).

DD - two digits for day of month (01 to 31).
```

- two digits for seconds (00 to 59).



hh - two digits for hour (00 to 23).

mm - two digits for minutes (00 to 59).

ss - two digits for seconds (00 to 59).

ms – three digits for milliseconds (000 to 999).

4.5. Coordinated Universal Time (UTC)

All times exchanged between the Interested Party API are in Coordinated Universal Time (UTC).

4.6. Quota and Limits

To protect the **Interested Party API**, Masternaut has employed a quota system.

Currently, there are no request limits in place for the **Interested Party API**.

Additional quota limits, restrictions and changes to quota limits may be implemented in future releases of the **Interested Party API**.

4.7. Versioning

The Interested Party API version is shown in the URL endpoint e.g.

https://api.masternautconnect.com/connectwebservices/services/public/v1/

The addition of new endpoints will not result in a new version of the Interested Party API. Also, the addition of new elements to the output JSON structure will not result in a new version of the Interested Party API. If elements are removed, then a new version of the Interested Party API will be released.

With JSON, the order of elements in the output data structure is not guaranteed. The ordering of elements in the JSON object may change following an update to the Interested Party API.



5. Reference

This section describes the endpoints in the Interested Party API, any input parameters, any input JSON structure and the output JSON structure.

5.1. Request OAuth Token

POST request to generate an OAuth token. The generated OAuth token is used in subsequent requests to the Interested Party API endpoints.

Ensure you have set the HTTP **Authorization** header field with the username and password of your Interested Party user encoded in Base64.

Resource URL

POST https://auth.masternautconnect.com/masternauth-oauth/oauth/accessToken

HTTP BODY Input JSON Parameters

grant_type

```
{
    "grant_type":"client_credentials"
}
```

Response

success	Will be TRUE if the specified username and password are valid and an OAuth token has been generated.
accessToken	The OAuth access token. To be used when calling other endpoints in the Interested Party API.
token_type	The OAuth token type. Will be bearer .

```
"success": true
   "accessToken": "B983854936PF1A7B61B141AB69494046",
   "token_type": "bearer"
}
```

Example Request

POST https://auth.masternautconnect.com/masternauth-oauth/oauth/accessToken



5.2. List Tag

GET request to returns tags created by the Interested Party.

Resource URL

GET

 $\underline{https://api.masternautconnect.com/connect-webservices/services/public/v1/interestedparty/\{interestedParty/d\}/tag/list}$

HTTP BODY Input JSON Parameters

There are no parameters.

Response

```
tags List of tags.
```

```
{
  "tags":["sweeper","crane"]
}
```

Example Request

GET

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/tag/list

5.3. Add Tag

POST request to add a tag against a list of assets. The new tag will be added to any existing tags set against the asset. If the specified tag is already set against the asset, then a duplicate is not be created.

Resource URL

POST

 $\underline{https://api.masternautconnect.com/connect-webservices/services/public/v1/interestedparty/\{interestedParty/d\}/tag/add}$

HTTP BODY Input JSON Parameters

tag	A tag, i.e. a single word, to set against each specified asset.
mandatory	



assets	List of system generated asset identifiers.
mandatory	

```
{
   "tag":"sweeper",
   "assets":[248849]
}
```

Response

There is no output response. HTTP status code 204 is returned.

Example Request

POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/assets

5.4. Remove Tag

POST request to remove a tag against a list of assets.

Resource URL

POST

 $\underline{https://api.masternautconnect.com/connect-webservices/services/public/v1/interestedparty/\{interestedParty/d\}/tag/remove}$

HTTP BODY Input JSON Parameters

tag	A tag.
assets	List of system generated asset identifiers where the tag is to be removed from.

```
{
  "tag":"sweeper",
  "assets":[248849]
}
```

Response

There is no output response. HTTP status code 204 is returned.

Example Request



POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/tag/remove

5.5. List Asset

POST request to return a list of assets you have been authorized to view. If no parameters are specified, then details for all assets you have been authorized for are returned.

If there are more than 50 assets to return, then by default only details for the first 50 assets are returned. To view details of the other assets you will need to specify values for **pageSize** and **pageIndex**.

Resource URL

POST

 $\underline{https://api.masternautconnect.com/connect-webservices/services/public/v1/interestedparty/\{interestedParty/d\}/assets}$

HTTP BODY Input JSON Parameters

tags	Comma separated list of tags. Comma separated list of tags. If specified, then only those assets where the specified tag is set are included in the response.
optional	
	Example
	"tags":["sweeper"]
pageIndex	Specifies the pagination page index. Pages are zero indexed, i.e. the first page has an index value of zero. If not specified, then will default to a pageIndex of 0.
optional	
	Example "pageIndex":1,"pageSize":3
pageSize	Specifies the number of items to include on a page. Must be specified if pageIndex has been specified. Max value is 100. If not specified, then will default
optional	to a pageSize of 50.
	Example "pageIndex":1,"pageSize":3

```
{
  "tags":["sweeper"],
  "pageIndex":0,
  "pageSize":10
}
```



Response

totalPages	Total number of pages based on the pageSize .
totalCount	Total number of assets that matched the search parameters.
items	List of assets.
id	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
name	Asset friendly name. Can be the same as the asset registration.
type	Asset type, for example CAR, VAN etc.
interestedPartyTags	List of tags set against the asset.

Example Request

POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/assets

5.6. List Asset Details

GET request to return details of a single asset.

Resource URL

GET



 $\underline{https://api.masternautconnect.com/connect-webservices/services/public/v1/interestedparty/{interestedParty/d}/assets/asset/{assetId}}$

HTTP BODY Input JSON Parameters

There no input parameters.

Response

id	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
name	Asset friendly name.
type	Asset type, for example CAR, VAN etc.
interestedPartyTags	List of tags set against the asset.

```
"id": "387395",
    "registration": "YA99RGE",
    "name": "YA99RGE",
    "assetType": "SWEEPER_LARGE",
    "interestedPartyTags": ["sweeper"]
}
```

Example Request

GET

 $\underline{\text{https://api.masternautconnect.com/connectwebservices/services/public/v1/interested party/43/assets/asset/387395}$

5.7. List Odometer

POST request to return odometer details for all assets you have been authorized to view. If no parameters are specified, then details for all assets you have been authorized for are returned.

If there are more than 50 assets to return, then by default only details for the first 50 assets are returned. To view details of the other assets you will need to specify values for **pageSize** and **pageIndex**.

Resource URL

POST

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/\{interestedParty/dometer_v1/dometer_v2/d$



HTTP BODY Input JSON Parameters

tags	Comma separated list of tags. If specified, then only those assets where the specified tag is set are included in the response.
optional	
	Example
	"tags":["sweeper"]
customerlds	List of system defined customer account identifiers.
optional	Example
	"customerlds": ["255077"]
odometerType	Can be GPS or CAN . If specified, then only those assets with the specified
	odometer type are included in the response.
optional	
	Example
	"odometerType":"GPS"
pageIndex	Specifies the pagination page index. Pages are zero indexed, i.e. the first page
	has an index value of zero. If not specified, then will default to a pageIndex of 0.
optional	
	Example pageIndex=1&pageSize=3
nagaCina	
pageSize	Specifies the number of items to include on a page. Must be specified if pageIndex has been specified. Max value is 100. If not specified, then will default
optional	to a pageSize of 50.
- Sparonar	
	Example
	pageIndex=2&pageSize=3

```
"tags":["sweeper"],
  "customerIds":["255077"],
  "odometerType":"GPS",
  "pageIndex":0,
  "pageSize":10
}
```

Response

totalPages	Total number of pages based on the pageSize .
totalCount	Total number of items that matched the search parameters.
items	List of assets.



assetId	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
customerId	Unique, unchangeable system generated identifier for the customer.
make	Make of the asset.
model	Model of the asset.
odometerKms	Odometer value in kms.
odometerType	Either GPS or CAN.
odometerReadingDateTime	Date/time of the last odometer reading received by Masternaut. In UTC, in the format of YYYY-MM-DDThh:mm:ss.
interestedPartyTags	List of Interested Party tags set against the asset.

Example Request

POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/odometer

5.8. List Asset Odometer

GET request to returns odometer for a single asset.

Resource URL

GET

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedParty/{interestedParty/dometer/asset/{assetId}}$



HTTP BODY Input JSON Parameters

There are no input parameters.

Response

assetId	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
customerId	Unique, unchangeable system generated identifier for the customer.
make	Make of the asset.
model	Model of the asset.
odometerKms	Odometer value in kms.
odometerType	Either GPS or CAN.
odometerReadingDateTime	Date/time of the odometer reading received by Masternaut. In UTC, in the format of YYYY-MM-DDThh:mm:ss.
interestedPartyTags	List of Interested Party tags set against the asset.

```
id": "294190",
    "registration": "YA99RTE",
    "customerId": "255077",
    "make": "Volkswagen",
    "model": "Caddy",
    "odometerKms": 33400,
    "odometerType": "GPS",
    "odometerReadingDateTime": "2016-11-15T13:16:43"
}
```

Example Request

GFT

 $\underline{\text{https://api.masternautconnect.com/connectwebservices/services/public/v1/interested party/43/odometer/asset/401840}$

5.9. List Location

POST request to return the latest location/position for all assets you have been authorized to view. If values for **startDate** and **endDate** are specified, then only those assets where the location was updated within the specified period are included in the response.



If there are more than 50 assets to return, then by default only details for the first 50 assets are returned. To view details of the other assets you will need to specify values for **pageSize** and **pageIndex**.

Resource URL

POST

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/\{interestedParty/dl/locationuples/services/public/v1/interestedparty/\{interestedParty/dl/locationuples/services/services/public/v1/interestedparty/\{interestedParty/dl/locationuples/services/$

HTTP BODY Input JSON Parameters

tags	Comma separated list of tags. If specified, then only those assets where the specified tag is set are included in the response.
optional	
,	Example
	"tags":["sweeper"]
customerIds	List of system defined customer account identifiers.
optional	Example
	"customerlds": ["254875"]
startDate	Period start date, in UTC, in format of YYYY-MM-ddTHH:mm:ss. Must be specified, if a value for endDate has been specified. Cannot be prior to the value
optional	specified for endDate .
	Example
	"startDate":""2017-01-29T04:13:24"
endDate	Period end date, in UTC, in format of YYYY-MM-ddTHH:mm:ss. Must be specified, if a value for startDate has been specified. Cannot be prior to the value
optional	specified for startDate .
	Example
	"endDate":""2017-06-29T12:13:24"
pageIndex	Specifies the pagination page index. Pages are zero indexed, i.e. the first page has an index value of zero. If not specified, then will default to a pageIndex of 0.
optional	
	Example pageIndex=1&pageSize=3
pageSize	Specifies the number of items to include on a page. Must be specified if pageIndex has been specified. Max value is 100. If not specified, then will default
optional	



```
to a pageSize of 50.

Example
pageIndex=2&pageSize=3
```

```
"customerIds":["255077"],
  "startDate": "2016-11-14T00:00:00",
  "endDate": "2016-11-16T00:00:00"
  "pageSize":1,
  "pageIndex":0
}
```

Response

totalPages	Total number of pages based on the pageSize .
totalCount	Total number of items that matched the search parameters
items	List of assets.
customerId	Unique, unchangeable system generated identifier for the customer.
assetId	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
interestedPartyTags	List of Interested Party tags set against the asset.
eventDateTime	Date/Time of the event, in UTC, in format of YYYY-MM-ddTHH:mm:ss.
eventType	Type of the event, for example: driving, idling or stopped.
eventStatus	Status of the event. Can be one of:
coordinate	Location coordinate details.
longitude	Asset longitude position.
latitude	Asset latitude position.
address	



formattedAddress	Country specific formatted address as a comma separated values using road, city, postcode and country. For example, UK addresses: road, city, postcode, country French addresses: road, postcode, city, country
road	The name of the road where the asset is.
city	The name of the city where the asset is.
postCode	The postcode where the asset is.
country	The country where the asset is.

```
"totalPages": 1,
"totalCount": 1,
"items": [
  {
    "assetId": "294190",
    "customerId" : "255077",
    "registration" : "YA99RTE",
    "eventDateTime" : "2016-11-15T13:17:44",
    "eventType" : "stopped",
    "eventStatus" : "endOfJourney",
    "coordinate" : {
           "longitude" : 1.161916,
          "latitude" : 49.229
                },
    "address" : {
          "formattedAddress": "Chemin De Saint-Lubin, 27400, Louviers, France",
          "road" : "Location near Chemin De Saint-Lubin",
          "city" : "Louviers",
           "postCode" : "27400",
           "country" : "France"
                 }
    }
 ]
```

Example Request

POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/location

5.10. List Asset Location

GET request to return the location for a single asset.



Resource URL

GET

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/\{interestedParty/d/location/asset/\{assetId\}\}$

HTTP BODY Input JSON Parameters

There are no input parameters.

Response

customerId	Unique, unchangeable system generated identifier for the customer.
assetId	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
interestedPartyTags	List of Interested Party tags set against the asset.
eventDateTime	Date/Time of the event, in UTC, in format of YYYY-MM-ddTHH:mm:ss.
eventType	Type of the event, for example: driving, idling or stopped.
eventStatus	Status of the event. Can be one of: startOfJourney driving Idling behaviourHarshAcceleration behaviourHarshBraking behaviourHarshCornering behaviourExcessiveIdling endOfJourney
coordinate	Location coordinate details.
longitude	Asset longitude position.
latitude	Asset latitude position.
address	
formattedAddress	Country specific formatted address as a comma separated values using road , city , postcode and country . For example,
	UK addresses: road, city, postcode, country



	French addresses: road, postcode, city, country
road	The name of the road where the asset is.
city	The name of the city where the asset is.
postCode	The postcode where the asset is.
country	The country where the asset is.

```
"assetId": "294190",
"customerId" : "255077",
"registration" : "YA99RTE",
"eventDateTime" : "2016-11-15T13:17:44",
"eventType" : "stopped",
"eventStatus" : "endOfJourney",
"coordinate" : {
       "longitude" : 1.161916,
      "latitude" : 49.229
             },
"address" : {
      "formattedAddress": "Chemin De Saint-Lubin, 27400, Louviers, France",
      "road" : "Location near Chemin De Saint-Lubin",
       "city" : "Louviers",
      "postCode" : "27400",
      "country" : "France"
```

Example Request

GET

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedParty/{interestedParty/docation/asset/{assetId}}$

5.11. List Faults

POST request to return the maintenance faults for all assets you have been authorized to view. If values for **startDate** and **endDate** are specified, then only those assets where a fault was occurred within the specified period are included in the response.

If there are more than 50 assets to return, then by default only details for the first 50 assets are returned. To view details of the other assets you will need to specify values for **pageSize** and **pageIndex**.

Resource URL

POST



 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedPart}/ \underline{finterestedPart}/ \underline{finterested$ yld}/faultMaintenance

HTTP BODY Input JSON Parameters

tags	Comma separated list of tags. If specified, then only those assets where the specified tag is set are included in the response.
optional	
	Example
	"tags":["sweeper"]
assetIds	List of system defined identifiers for an asset.
optional	Example
	"assetIds":["294190"]
customerlds	List of system defined identifiers for the customer account.
optional	Example
	"customerlds": ["254875"]
onlyActiveFaults	Set to TRUE to only receive details of active faults. An active fault has no endDate.
optional	
startDate	Period start date, in UTC, in format of YYYY-MM-DDThh:mm:ss.
optional	Cannot be more than 90 days from today's date unless endDate is also
	specified. Must be specified if endDate has been specified.
	Example
	"startDate":"2014-11-02T00:00:00"
endDate	Period end date, in UTC, in format of YYYY-MM-DDThh:mm:ss.
optional	If specified, then a value for startDate must also be specified. The date range cannot be more than 90 days.
	Example
	"endDate":"2014-12-20T23:23:00"
pageIndex	Specifies the pagination page index. Pages are zero indexed, i.e. the first page has an index value of zero. If not specified, then will default to a
optional	pageIndex of 0.



	Example pageIndex=1&pageSize=3
pageSize optional	Specifies the number of items to include on a page. Must be specified if pageIndex has been specified. Max value is 100. If not specified, then will default to a pageSize of 50.
	Example pageIndex=2&pageSize=3

```
{
  "assetIds": ["401840"],
  "customerIds": ["255077"]
  "onlyActiveFaults": false,
  "startDate": "2016-11-15T00:00:00",
  "endDate": "2016-12-10T00:00:00",
  "pageSize": 1,
  "pageIndex": 0
}
```

Response

totalPages	Total number of pages based on the pageSize.	
totalCount	Total number of items that matched the search parameters	
items	List of assets.	
customerId	Unique, unchangeable system generated identifier for the customer.	
assetid	Unique, unchangeable system generated identifier for the asset.	
registration	Asset registration.	
make	Make of the asset.	
model	Model of the asset.	
interestedPartyTags	List of Interested Party tags set against the asset.	
startDate	The date that the fault was detected, in UTC, in format of YYYY-MM-DDThh:mm:ss.	
endDate	The date that the fault was no longer detected, in UTC, in format of YYYY-MM-DDThh:mm:ss.	
startOdometer	The odometer reading (in km) when the fault was detected.	
endOdometer	The odometer reading (in km) when the fault was no longer detected.	
faultInProgress	Boolean (true / false) to indicate if this is an active fault. Set to true when there is no value for the endDate .	
faultCode	A system defined fault code.	



faultDescription Descriptive text for the fault.

Example Request

POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/faultMaintenance

5.12. List Asset Faults

GET request to return the maintenance faults for a single asset.

Resource URL

GET

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/\{interestedParty/d\}/faultMaintenance/asset/\{assetId\}}$

HTTP BODY Input JSON Parameters

There are no input parameters.

Response

customerId	Unique, unchangeable system generated identifier for the
	customer.



assetid	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
make	Make of the asset.
model	Model of the asset.
interestedPartyTags	List of Interested Party tags set against the asset.
startDate	The date that the fault was detected, in UTC, in format of YYYY-MM-DDThh:mm:ss.
endDate	The date that the fault was no longer detected, in UTC, in format of YYYY-MM-DDThh:mm:ss.
startOdometer	The odometer reading (in km) when the fault was detected.
endOdometer	The odometer reading (in km) when the fault was no longer detected.
faultInProgress	Boolean (true / false) to indicate if this is an active fault. Set to true when there is no value for the endDate.
faultCode	A system defined fault code.
faultDescription	Descriptive text for the fault.

```
"assetId": "294190",
    "customerId": "255077",
    "registration": "YA99RTE",
    "make": "Volkswagen",
    "model": "Caddy",
    "startDate": "2016-11-15T10:56:28",
    "endDate": "2016-11-15T10:56:28",
    "startOdometer": 26432,
    "endOdometer": 26440,
    "faultInProgress": false,
    "faultCode": "200",
    "faultDescription": "MIL",
}
```

Example Request

POST

 $\frac{\text{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/faultMaintenance/asset/294190}{\text{nance/asset/294190}}$

5.13. List Service Date

POST request to return the maintenance service date for all assets you have been authorized to view.



If there are more than 50 assets to return, then by default only details for the first 50 assets are returned. To view details of the other assets you will need to specify values for **pageSize** and **pageIndex**.

Resource URL

POST

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/\{interestedParty/deliversetedparty/deliversete$

HTTP BODY Input JSON Parameters

tags	Comma separated list of tags. If specified, then only those assets where the specified tag is set are included in the response.
optional	Example
	"tags":["sweeper"]
assetIds	List of system defined identifiers for an asset.
optional	Example
	"assetIds":["294190"]
customerlds	List of system defined identifiers for the customer account.
optional	Example
	"customerlds": ["254875"]
pageIndex	Specifies the pagination page index. Pages are zero indexed, i.e. the first
	page has an index value of zero. If not specified, then will default to a
optional	pageIndex of 0.
	Example
	pageIndex=1&pageSize=3
pageSize	Specifies the number of items to include on a page. Must be specified if
pagesize	pageIndex has been specified. Max value is 100. If not specified, then
optional	will default to a pageSize of 50.
,	
	Example
	pageIndex=2&pageSize=3

```
{
    "assetIds": ["294190"],
    "customerIds": ["255077"],
    "tags": ["sweeper"],
```



```
"pageSize": 10,
    "pageIndex": 0
}
```

Response

totalPages	Total number of pages based on the pageSize .
totali ages	Total Hulliber of pages based on the pagesize .
totalCount	Total number of items that matched the search parameters
items	List of assets.
customerId	Unique, unchangeable system generated identifier for the customer.
assetid	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
distanceToServiceKms	Distance to the next service date (in km).
serviceDueDate	Service due date, in UTC, in format YYYY-MM-DD.

```
"totalPages": 1,
"totalCount": 2,
"items": [
   "assetId": "294190",
   "customerId": "255077",
   "registration": "YA99RTE",
   "distanceToServiceKms": 4000,
   "serviceDueDate": "2017-09-07"
 },
   "assetId": "387395",
   "customerId": "255077",
   "registration": "YA99RGE",
   "distanceToServiceKms": 3200,
   "serviceDueDate": "2018-08-23"
 }
]
```

Example Request

POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/service



5.14. List Asset Service Date

GET request to returns the maintenance service date for a single asset.

Resource URL

GET

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedParty/{interestedParty/districe/asset/fassetId}$

HTTP BODY Input JSON Parameters

There are no input parameters.

Response

customerId	Unique, unchangeable system generated identifier for the customer.
assetid	Unique, unchangeable system generated identifier for the asset.
registration	Asset registration.
distanceToServiceKms	Distance to the next service date (in km).
serviceDueDate	Service due date, in UTC, in format YYYY-MM-DD

```
"assetId": "387395",
  "customerId": "255077",
  "registration": "YA99RGE",
  "distanceToServiceKms": 3200,
  "serviceDueDate": "2018-08-23"
}
```

Example Request

GET

 $\underline{\text{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/service/ass}\\ \underline{\text{et/387395}}$



5.15. List Asset Usage

POST request to return asset usage detail within a specified period. Usage details are shown for each week (7 day period) within the specified period. Usage details can include journey distance, idling time, drive behaviour events. The period specified cannot exceed 90 days.

If there are more than 50 assets, then by default only details for the first 50 assets are returned. To view details of the other assets you will need to specify values for **pageSize** and **pageIndex**.

Resource URL

POST

 $\underline{https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedParty/{interestedParty/delayage}} \\$

HTTP BODY Input JSON Parameters

startDate	Period start date, in UTC, in the format YYYY-MM-DDThh:mm:ss
endDate	Period end date, in UTC, in the format YYYY-MM-DDThh:mm:ss
tags	Comma separated list of tags. If specified, then only those assets where the specified tag is set are included in the response.
optional	
	Example
	"tags":["sweeper"]
assetIds	List of system defined identifiers for an asset.
optional	Example
	"assetIds":["294190"]
customerlds	List of system defined identifiers for the customer account.
optional	Example
	"customerlds": ["254875"]
pageIndex	Specifies the pagination page index. Pages are zero indexed, i.e. the first page has an index value of zero. If not specified, then will default to a
optional	pageIndex of 0.



	Example pageIndex=1&pageSize=3
pageSize optional	Specifies the number of items to include on a page. Must be specified if pageIndex has been specified. Max value is 100. If not specified, then will default to a pageSize of 50.
	Example pageIndex=2&pageSize=3

```
{
    "customerIds":["255077"],
    "assetIds":["294190"],
    "startDate":"2016-12-10",
    "endDate":"2017-01-25",
    "pageSize":3,
    "pageIndex":0
}
```

Response

totalPages	Total number of pages based on the pageSize .
totalCount	Total number of items that matched the search parameters
items	List of assets.
assetId	Unique, unchangeable system generated identifier for the asset.
assetRegistration	Asset registration.
customerId	Unique, unchangeable system generated identifier for the customer.
weeks	List of weekly usage information.
startDate	Week start date in UTC, in the format YYYY-MM-DD.
endDate	Week end date in UTC, in the format YYYY-MM-DD.
activeDays	Number of days when the asset used, i.e. at least one journey was completed.
inactiveDays	Number of days when the asset not used, i.e. no journey was completed.
distanceKm	Distance (in km) for all completed journeys.
journeysCount	Number of journeys.
movingDurationSec	Duration (in seconds) when the asset was moving.
movingDurationPercentage	Weekly utilization in percentage, based on a 24 hour day, e.g. 50% 12hrs.



movingWithoutPtoDurationSec	Duration (in seconds) when the asset was moving and PTO was not active.
movingWithPtoDurationSec	Duration (in seconds) when the asset was moving and PTO was active.
idlingWithoutPtoDurationSec	Duration (in seconds) when the asset was idling and PTO was not active.
idlingWithPtoDurationSec	Duration (in seconds) when the asset was idling and PTO was active.
engineOverRevvingCount	Count of the number of engine over revving events.
harshAccelerationCount	Count of the number of harsh acceleration events.
harshBrakingCount	Count of the number of harsh braking events.
harshCorneringCount	Count of the number of harsh cornering events.
speedingEventCount	Count of the number of speed over defined threshold events.
excessiveIdlingInsideBaseCount	Number of driver behaviour events of the asset in the current week - excessive idling inside base.
excessiveIdlingOutsideBaseCount	Number of driver behaviour events of the asset in the current week - excessive idling outside base.
score	Driver behaviour score.
averageSpeedKmsPerHour	Average Speed per hour.
fuelUsed	Actual Fuel used, in litres.
fuelConsumptionLitresPerKms	Fuel consumption in litres per kilometres.
co2Kg	Total CO2 (in Kg per KM).
co2GrmPerKm	Total CO2 (in GM per KM).



```
"distanceKm": 36,
        "journeysCount": 9,
        "fuelUsed": 0,
        "movingWithoutPtoDurationSec": 168696,
        "movingWithPtoDurationSec": 0,
        "movingDurationSec": 168696,
        "movingDurationPercentage": 0.2789285714285714,
        "idlingWithoutPtoDurationSec": 0,
        "idlingWithPtoDurationSec": 0,
        "engineOverRevvingCount": 0,
        "harshAccelerationCount": 0,
        "harshBrakingCount": 0,
        "harshCorneringCount": 0,
        "speedingEventCount": 0,
        "excessiveIdlingInsideBaseCount": 0,
        "excessiveIdlingOutsideBaseCount": 0,
        "score": 0,
        "averageSpeedKmsPerHour": 0.7682458386683739,
        "fuelConsumptionLitresPerKms": 0,
        "co2Kg": 0,
        "co2GrmPerKm": 0.7682458386683739
      },
        "startDate": "2016-12-19",
        "endDate": "2016-12-25",
        "activeDays": 2,
        "inactiveDays": 3,
        "distanceKm": 15,
        "journeysCount": 3,
        "fuelUsed": 0,
        "movingWithoutPtoDurationSec": 62607,
        "movingWithPtoDurationSec": 0,
        "movingDurationSec": 62607,
        "movingDurationPercentage": 0.10351686507936508,
        "idlingWithoutPtoDurationSec": 0,
        "idlingWithPtoDurationSec": 0,
        "engineOverRevvingCount": 0,
        "harshAccelerationCount": 2,
        "harshBrakingCount": 2,
        "harshCorneringCount": 0,
        "speedingEventCount": 0,
        "excessiveIdlingInsideBaseCount": 0,
        "excessiveIdlingOutsideBaseCount": 0,
        "score": 0.23529411764705882,
        "averageSpeedKmsPerHour": 0.8625233600076668,
        "fuelConsumptionLitresPerKms": 0,
        "co2Kg": 0,
        "co2GrmPerKm": 0.8625233600076668
   ]
]
```



}

Example Request

POST

https://api.masternautconnect.com/connectwebservices/services/public/v1/interestedparty/43/usage