

## Datahub Data Interface

7.6.2023



## Table of Contents

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Change log .....	4
Definitions and abbreviations .....	5
<b>1 Introduction.....</b>	<b>6</b>
1.1 General.....	6
1.1.1 Recommendations for the use of data interface .....	6
1.1.2 Restrictions in the use of datainterface .....	6
1.1.3 Examples how to use the data interface .....	7
<b>2 General interface specifications.....</b>	<b>7</b>
2.1 Communication.....	7
2.2 Endpoint .....	8
2.3 Parameters .....	8
2.3.1 HTTP method and header parameters.....	8
2.3.2 Path parameters .....	8
2.3.3 Query string parameters .....	8
2.4 Response Message .....	8
2.5 Data validity .....	9
2.6 Data Authorisation .....	9
2.7 Technical details .....	9
2.8 Generic Usage pattern.....	10
<b>3 Resource descriptions .....</b>	<b>11</b>
3.1 DH-1000 Get Accounting Point Data.....	11
3.2 DH-1001 Get Contract Data.....	14
3.3 DH-1002 Get Time Series Data .....	18

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3.4	DH-1003 Get Authorisation Data .....	20
3.5	DH-1005 Get Customer Data.....	21
3.6	DH-1006 Get Organisation Data .....	23
4	Code lists .....	25

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## Change log

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Date	Version	Changes
24.02.2020	1.0	First version.
17.02.2021	1.0.1	Fixed small errors in the parameters
16.03.2021	1.0.2	Added known errors section
29.03.2021	1.0.2.1	Fixed typos in <b>og</b> ranisationUser parameter
7.6.6023	2.1	Detailed recommendations and limitations as well as examples. Replaced class diagrams for requests and returned data with tables. Added ReadingType as a query parameter for DH-1002. Removed unnecessary chapters. The changes due to Datahub version 2.0 are taken into account in the information that Datahub returns in the requests.

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## Definitions and abbreviations

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A complete list of definitions and abbreviations can be found from document “Electricity retail marked business processes in Datahub”.

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## 1 Introduction

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This document contains interface descriptions concerning data service called Datahub Data Interface.

### 1.1 General

In addition to the SOAP interface, Datahub offers the market parties a more flexible way to retrieve data belonging to them without the messages related to events. This interface is called the data interface.

This interface makes it possible to retrieve data from Datahub, for example, directly to an online service offered to end customers. It is not possible to report data to Datahub through data interface. Market parties can utilise the data interface also to compare the data in their own data systems to the data in Datahub.

Market parties can choose if they want to use the data interface for the retrieval of information or not. Parties' rights to data are taken into account according to the same rules both for data interface and message interface. A party can only retrieve information they are authorised for based on a contract or an authorisation by customer.

The data interface is implemented as a so-called REST API and this document describes the resources, endpoints and methods of the interface.

#### 1.1.1 Recommendations for the use of data interface

The REST API interface is not intended for mass searches. In the data interface, information is always retrieved by identifying one data set at a time. This means that in the search, e.g., the accounting point identification is reported when retrieving the data. If a party would like to retrieve data from several accounting points at once, the SOAP interface is a more efficient way to retrieve this data.

The advantage of the SOAP interface is also that Datahub automatically forwards the information to the parties entitled to it when changes occur to data. The REST API users must separately know when to retrieve changed information.

#### 1.1.2 Restrictions in the use of datainterface

Information can not be reported to Datahub by using the REST API interface.

There is no such functionality in the REST API interface as the accounting point identification request. The information retrieved through the REST API interface always needs to be identified. E.g., the accounting point identification or customer identification needs to be given in the request.

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REST API does not support delegations between market parties.

When acting as a third party, a market party always needs to have an authorisation from the end-customer before the party can request data. The authorisation is always given per customer and accounting point.

### 1.1.3 Examples how to use the data interface

The data interface can, for example, be utilised when an external registered party (third party or other market party) develops and creates new services. A third-party service can be, for example, a mobile application that allows the end user to see its information for all accounting points regardless of which grid area they are located in. This always requires an authorisation given by the customer to Datahub. When retrieving customer information, the customer identification of the customer being retrieved must always be reported. Datahub checks whether the requesting party has the right to the customer's data and returns the data only if the right is valid.

Request examples:

Retrieve customer information, GetCustomerData (DH-1005)

- The customer identification (personal ID or company ID) must be known.
- Requesting party needs to have the right to the data (valid authorisation or agreement).
- Request returns accounting points where the customer has agreements.

## 2 General interface specifications

### 2.1 Communication

The data interface is a REST based web service that utilizes HTTP protocol's GET method.

The interface uses Client Certificates for the authentication.

The following table lists the mandatory attributes needed to open a connection to the interface.

Name	Type	Obligation	Value
Connection: Client Certificate	Certificate	Mandatory	The certificate provided by the client.
Connection: Protocol	String	Mandatory	HTTPS (TLS 1.2)
Connection: Port	String	Mandatory	443

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## 2.2 Endpoint

The interface has only one endpoint that is called to invoke the desired function. The endpoint URL has the following structure:

```
https://{hostname}/rest/FGR/{function}?organisationUser={organisation
username}&filter01={filter01}&filter02={filter02}&...
```

## 2.3 Parameters

### 2.3.1 HTTP method and header parameters

Name	Type	Obligation	Value
HTTP: Method	String	Mandatory	GET
HTTP: Accept	String	Mandatory	application/json

### 2.3.2 Path parameters

Name	Type	Obligation	Value
{Function}	String	Mandatory	See Chapter 3 for list of available functions.

### 2.3.3 Query string parameters

Name	Type	Obligation	Value
{organisationUser}	String	Mandatory	Specific per Organisation. Defines the registered b2b user in the Datahub created by Fingrid having specific UserRoles for B2B communication.
{Filters}	{Varies}	{Varies}	Where applicable, functions can have multiple ampersand separated filters. For example: customerIdentification=1234&meteringPointEAN=12345&ViewDate=2019-10-14T21:00:00Z. The proper filter to be applied depends on the function. See chapter 3 for details.  Take care to provide the parameters with correct upper and lowercase letters (meteringPointEAN vs. MeteginrpontEAN). Using wrong case will cause (HTTP) 400 Bad Request – error.

## 2.4 Response Message

Only public data (Organisation details) or data to which the actor has the right based on an agreement (sales/grid/authorisation) is returned. When the user provided parameters together with the data authorisation filters don't result in response data, an 'empty' response is returned instead of validation errors.

For empty attributes, Datahub won't send an empty element, but instead will not send the element.

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An example JSON response message from Datahub:

```
{ "GetAccountinPointDataResponse": {
  "MeteringPoints": [{
    "MeteringPointEAN": "640102010000532598",
    "AccountingPointSubType": "AQ01"
  },
  {
    "MeteringPointEAN": "640102010005902686",
    "AccountingPointSubType": "AQ02"
  }
]
}
```

## 2.5 Data validity

All validations are done against the current status of the data based on the ViewDate. For functions without ViewDate as input field, the current datetime is used.

## 2.6 Data Authorisation

For all data requests, Datahub will check if the actor does have the proper data authorisation for the data requested. The rules are defined per function. Access to data where the actor does not have an active (confirmed) agreement or authorisation is not allowed unless explicitly indicated in the process.

A confirmed agreement or authorisation for a market party can be one of the following agreement or authorisation types:

Code	Description
AP01	Energy reporting
AP02	Invitation to tender
AP03	Competitive bidding for an agreement as a service
AP04	Invitation to tender (no access to metering data)
AP05	Competitive bidding for an agreement as a service (no access to metering data)
11	Grid agreement
12	Sales agreement

## 2.7 Technical details

The data interface does not support wildcard searches.

The data interface is not language aware. It will return the information as it is stored in Datahub.

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For example, domain codes are not translated but communicated as codes like in the B2B interface. For numbers and dates, the default XML/JSON format is used.

All times in the data interface are in UTC. For example, "2019-05-14T12:30:00Z" is local Finnish time "2019-05-14T15:30:00".

IDs based on the SI system are used as unit codes for values, e.g., kW, MW, kWh, MWh, kvar, Mvar, kvarh, Mvarh.

UUIDs (Universally Unique Identifiers) are used as message IDs.

Values for filters can be entered into the text-based data fields in upper and lower case. The retrieval does not differentiate between upper and lower case characters.

## 2.8 Generic Usage pattern

Accounting point identification or customer identification can be used to retrieve data:

- Accounting point information, DH-1000
- Agreement information, DH-1001 (DSO or Supplier)
- Timeseries data, DH-1002
- Authorisation data, DH-1002 (Third Party or Supplier)
- Customer information, DH-1005

Sequence	Process #	Description	Remark
1	DH-1005	Customer information	After login get the Customer information and the linked meta data of the Customer Agreements and Accounting Points. 'GetCustomerData'
2	DH-1000	Accounting point data	Get the Details of the Accounting Point, 'GetAccountingPointData'
3a	DH-1001	Contract information	Show list of agreements the customer has/had for the Party whose portal he is using. 'GetContractData'
3b	DH-1003	Authorisation information	Show list of authorisations the customer has/had for the Party whose portal he is using. 'GetAuthorisationData'
3c	DH-1002	Time series data	Show the time series data for the customer. Preferably the Party caches the raw hourly/15minute values to limit the interaction with Datahub and forwards the aggregated data to the client. 'GetTimeSeriesData'

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## 3 Resource descriptions

This chapter describes the data interface resources, input parameters and responses. Each resource (or interface) has its own table that contains information about the required parameters, performed validations and an example of the request path.

After the table describing the resource, there is a table presenting the content of the response. The purpose of the table is only to present the information provided by the resource; it is not meant to exactly match the structure of the response.

### 3.1 DH-1000 Get Accounting Point Data

Resource description			
Definition	Interface for requesting accounting point data		
Path parameters			
{function}	GetAccountingPointData		
Query string parameters			
Name	Type	Obligation	Note
{MeteringPointEAN}	String(18)	Mandatory	
{CustomerIdentification}	String(50)	Mandatory	
{ViewDate}	DateTime	Mandatory	For terminated contracts use the ContractEndDate. For confirmed contracts use CurrentDateTime
Validation rules			
The requesting party must have a valid agreement (sales/grid agreement or authorisation agreement) with the customer on the view date.			
Response			
Account point information			
Request example			
https://{hostname}/rest/FGR/GetAccountingPointData?organisationUser={OrganisationUser}&meteringPointEAN={MeteringPointEAN}&customerIdentification={CustomerIdentification}&ViewDate={ViewDate}			

Returned Accounting Point Data		
<b>DH-1000 – Get Accounting Point Data Return</b>		
Name	Obligation	Note
AccountingPoints	0..1	
AccountingPointType	1..1	
ElectricPower	0..1	
EnergyCommunityIdentifier	0..1	
FuseSize	0..1	

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Returned Accounting Point Data		
IsHeatingDependentOnElectricity	0..1	
IsReactiveEnergyTimeSeriesAvailable	0..1	
IsRemotelyConnectable	1..1	
IsRemotelyReadable	0..1	
Latitude	0..1	
Longitude	0..1	
MeteringGridAreaCode	1..1	
MeteringMethod	0..1	
MeteringPointEAN	1..1	
MeteringPointStatus	1..1	
MeteringTimeDivision	1..1	
MeteringTimeStep	1..1	
MeterNumber	0..1	
UserGroup	0..1	
EstimatedYearlyUsages	0..1	
EstimatedYearlyUsage1	0..1	
EstimatedYearlyUsage2	0..1	
MeteringPointAddresses	1..8	
AddressType	1..1	
Apartment	0..1	
BuildingNumber	0..1	
CountryCode	1..1	
Language	1..1	
PostalCode	1..1	
PostOffice	1..1	
StairwellIdentification	0..1	
StreetName	0..1	
MeteringPointDevices (ControlledLoad)	0..n	
ControlledLoadName	0..1	
ControlLimits	0..1	
Description	0..1	
DeviceType	1..1	
MaximumPower	0..1	
MaximumPowerUnit	0..1	

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Returned Accounting Point Data		
Timings	0..1	
MeteringPointDevices (ProductionDevice)	0..n	
DeviceType	1..1	
MaximumPower	0..1	
MaximumPowerUnit	0..1	
ProductionDeviceName	1..1	
ProductionType	1..1	
MeteringPointDevices (StorageDevice)	0..n	
Capacity	0..1	
CapacityUnit	0..1	
DeviceType	1..1	
MaximumPower	0..1	
MaximumPowerUnit	0..1	
StorageDeviceName	1..1	
StorageDeviceType	1..1	

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## 3.2 DH-1001 Get Contract Data

Resource description			
Definition	Interface for requesting contract data		
Path parameters			
{function}	GetContractData		
Query string parameters			
Name	Type	Obligation	Note
{MeteringPointEAN}	String(18)	Mandatory	
{CustomerIdentification}	String(50)	Mandatory	
Validation rules			
The requesting party must have a valid agreement (sales or grid agreement) with the customer at the time of request. Also, agreements starting in the future and agreements that have ended up to 6 weeks before the time of request are returned.			
Response			
Contract data valid at the time of request.			
Request example			
https://{hostname}/rest/FGR/GetContractData?organisationUser={OrganisationUser}&meteringPointEAN={MeteringPointEAN}&customerIdentification={CustomerIdentification}			

Returned Contract Data for Sales Agreements		
<b>DH-1001 – Get Contract Data Return for Sales Agreement</b>		
Name	Obligation	Note
Agreements	0..n	
AgreementEndDate	0..1	
AgreementIdentification	1..1	
AgreementStartDate	1..1	
AgreementStatus	1..1	
AgreementType	1..1	
ContactMethod	1..1	
CustomerNote	0..1	
FixedTermEndDate	0..1	
FixedTermStartDate	0..1	
InvoicingChannel	1..1	
InvoicingMethod	1..1	
IsDeliveryAgreement	1..1	
IsFixedTermAgreement	1..1	
IsInterruptionCritical	1..1	

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Returned Contract Data for Sales Agreements		
IsSpecialTerminationAgreement	1..1	
MarketRole	1..1	
MeteringPointEAN	1..1	
OrganisationIdentifier	1..1	
ReasonForAgreementEnd	0..1	
ReasonForAgreementStart	1..1	
SpecialTerminationPeriod	0..1	
TerminationPeriodStartDate	0..1	
TerminationPeriodEndDate	0..1	
AgreementContacts	0..n	
ContactPersonType	1..1	
EmailAddress	0..1	
FamilyName	0..1	
GivenName	0..1	
OtherName	0..1	
TelephoneNumber	0..1	
InvoiceAddresses (PostalInvoicingAddress)	1..1	
AddressNote	0..1	
Apartment	0..1	
BuildingNumber	0..1	
CountryCode	1..1	
InvoicingAddressType	1..1	
POBox	0..1	
PostalCode	1..1	
PostOffice	1..1	
StairwellIdentification	0..1	
StreetName	0..1	
InvoiceAddresses (ElectronicInvoicingAddress)	0..1	
BuyerReference	0..1	
ElectronicInvoicingAddress	1..1	
InvoicingAddressType	1..1	
OperatorIdentification	1..1	
InvoiceAddresses (OtherInvoicingAddress)	0..1	
EmailAddress	0..1	

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Returned Contract Data for Sales Agreements		
InvoicingAddressType	1..1	
TelephoneNumber	0..1	
Products	0..n	
ProductCode	1..1	
ProductName	1..1	
ProductNameLanguage	1..1	

Returned Contract Data for Grid Agreements		
DH-1001 – Get Contract Data Return for Grid Agreement		
Name	Obligation	Note
Agreements	0..n	
AgreementEndDate	0..1	
AgreementIdentification	1..1	
AgreementStartDate	1..1	
AgreementStatus	1..1	
AgreementType	1..1	
ContactMethod	1..1	
CustomerNote	0..1	
InvoicingChannel	1..1	
InvoicingMethod	1..1	
IsDeliveryAgreement	1..1	
IsInterruptionCritical	1..1	
MarketRole	1..1	
MeteringPointEAN	1..1	
OrganisationIdentifier	1..1	
ReasonForAgreementEnd	0..1	
ReasonForAgreementStart	1..1	
TaxCategory	1..1	
AgreementContacts	0..n	
ContactPersonType	1..1	
EmailAddress	0..1	
FamilyName	0..1	
GivenName	0..1	

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Returned Contract Data for Grid Agreements		
OtherName	0..1	
TelephoneNumber	0..1	
InvoiceAddresses (PostalInvoicingAddress)	1..1	
AddressNote	0..1	
Apartment	0..1	
BuildingNumber	0..1	
CountryCode	1..1	
InvoicingAddressType	1..1	
POBox	0..1	
PostalCode	1..1	
PostOffice	1..1	
StairwellIdentification	0..1	
StreetName	0..1	
InvoiceAddresses (ElectronicInvoicingAddress)	0..1	
BuyerReference	0..1	
ElectronicInvoicingAddress	1..1	
InvoicingAddressType	1..1	
OperatorIdentification	1..1	
InvoiceAddresses (OtherInvoicingAddress)	0..1	
EmailAddress	0..1	
InvoicingAddressType	1..1	
TelephoneNumber	0..1	
Products	1..n	
ProductCode	1..1	
ProductName	1..1	
ProductNameLanguage	1..1	

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## 3.3 DH-1002 Get Time Series Data

Resource description			
Definition	Interface for requesting meter data of selected accounting point.		
Path parameters			
{function}	GetTimeSeriesData		
Query string parameters			
Name	Type	Obligation	Note
{MeteringPointEAN}	String(18)	Mandatory	
{CustomerIdentification}	String(50)	Mandatory	
{PeriodStartTS}	Timestamp	Mandatory	Start of timeseries
{PeriodEndTS}	Timestamp	Mandatory	End of timeseries
{ResolutionDuration}	String(25)	Optional	<ul style="list-style-type: none"><li>If not provided the data is retuned in the resolution as it is stored.</li><li>If the provided resolution is lower than stored, then no data is returned.</li><li>If the provided resolution is higher than stored, then the Datahub will sum up the data</li></ul>
{ProductType}	Text(25)	Optional	8716867000030=Active energy 8716867000047=Reactive energy (all)
{ReadingType}	String(4)	Optional	BN01 = Normal readings BN02 = Netted readings BN03 = Community readings If not provided, all reading types are returned.
Validation rules			
The requesting party should have a valid agreement (sales, grid or authorisation agreement) with the customer for the full data period (start time -> end time) of the request. Data outside the agreement period is not returned.			
Response			
Meter data of the selected time period for the selected accounting point according to the selected time step. Also, reactive energy is returned if these measurements are available for the accounting point. (Note: Missing meter data values within the requested period will result in gaps in the timeline).			
If Time Series Type is not given in request, then both active and reactive energy time series are returned.			
For the time step input parameter following rules apply:			
<ul style="list-style-type: none"><li>If not provided the data is retuned in the resolution as it is stored.</li><li>If the provided resolution is lower than stored, then no data is returned.</li><li>If the provided resolution is higher than stored, then the Datahub will sum up the data</li></ul>			
Request example			
https://{hostname}/rest/FGR/GetTimeSeriesData?organisationUser={OrganisationUser}&meteringPointEAN={MeteringPointEAN}&customerIdentification={CustomerIdentification}&periodStartTS={PeriodStartTS}&periodEndTS={PeriodEndTS}&resolutionDuration={ResolutionDuration}&productType={ProductType}&readingType={ReadingType}			

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Returned Time Series Data		
DH-1002 – Get Time Series Data Return		
Name	Obligation	Note
TimeSeries	0..n	
MeteringPointEAN	1..1	
PeriodEndTS	1..1	
PeriodStartTS	1..1	
ProductType	1..1	
ReadingType	1..1	
ResolutionDuration	1..1	
UnitType	1..1	
Observations	1..n	
PeriodStartTime	1..1	
Quality	1..1	
Quantity	1..1	

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## 3.4 DH-1003 Get Authorisation Data

Resource description			
Definition	Interface for requesting auhtorisation data.		
Path parameters			
{function}	GetAuthorisationData		
Query string parameters			
Name	Type	Obligation	Note
{MeteringPointEAN}	String(18)	Mandatory	
{CustomerIdentification}	String(50)	Mandatory	
Validation rules			
The requesting party must have a valid authorisation with the customer at the time of request.			
Response			
Authorisation data valid at the time of request.			
Request example			
https://{hostname}/rest/FGR/GetAuthorisationData?organisationUser={OrganisationUser}&meteringPointEAN={MeteringPointEAN}&customerIdentification={CustomerIdentification}			

Returned Authorisation Data		
<b>DH-1003 – Get Authorisation Data Return</b>		
Name	Obligation	Note
Agreements	0..n	
AgreementEndDate	1..1	
AgreementStartDate	1..1	
AgreementStatus	1..1	
AgreementType	1..1	
AuthorisationDescription	0..1	
AuthorisationReason	1..1	
MarketRole	1..1	
MeteringPointEAN	1..1	
OrganisationIdentifier	1..1	

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## 3.5 DH-1005 Get Customer Data

Resource description			
Definition	Interface for requesting customer data.		
Path parameters			
{function}	GetCustomerData		
Query string parameters			
Name	Type	Obligation	Note
{CustomerIdentification}	String(50)	Mandatory	
Validation rules			
The requesting party must have a valid agreement or authorisation with the customer at the time of request. Also, agreements starting in the future and agreements that have ended up to 6 weeks before the time of request are returned.			
Response			
Customer data, list of customer's agreements and metering point identification and address which are valid at the time of request.			
Request example			
https://{hostname}/rest/FGR/GetCustomerData?organisationUser={OrganisationUser}&customerIdentification={CustomerIdentification}			

Returned Customer Data		
<b>DH-1005 – Get Customer Data Return</b>		
Name	Obligation	Note
Customers	0..1	
AdditionalIdentification	0..1	
CompanyName	0..1	
CustomerIdentification	1..1	
CustomerIdentificationType	1..1	
CustomerSubtype	1..1	
CustomerType	1..1	
DateOfBirth	0..1	
EmailAddress	0..1	
FamilyName	0..1	
GivenName	0..1	
IsInformationRestricted	1..1	
Language	1..1	
MiddleNames	0..1	
TelephoneNumber	0..1	
CustomerPostalAddress	1..1	

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Returned Customer Data		
AddressNote	0..1	
Apartment	0..1	
BuildingNumber	0..1	
CountryCode	1..1	
POBox	0..1	
PostalCode	1..1	
PostOffice	1..1	
StairwellIdentification	0..1	
StreetName	0..1	
Agreements	1..n	
AgreementEndDate	0..1	
AgreementStartDate	1..1	
AgreementStatus	1..1	
AgreementType	1..1	
MeteringPoint	1..1	Accounting point of the agreement
MeteringPointEAN	1..1	
MeteringPointAddress	1..1	Main address of the accounting point
AddressNote	0..1	
Apartment	0..1	
BuildingNumber	0..1	
CountryCode	1..1	
Language	1..1	
PostalCode	1..1	
PostOffice	1..1	
StairwellIdentification	0..1	
StreetName	0..1	

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## 3.6 DH-1006 Get Organisation Data

Resource description			
Definition		Interface for requesting organization (market party) data.	
Path parameters			
{function}		GetOrganisationData	
Query string parameters			
Name	Type	Obligation	Note
{OrganisationID}	String	Optional	
{MarketRole}	String	Optional	
Validation rules			
No validation			
Response			
Organisation data valid at the time of request. If no input parameters are given, data if all organisations are returned.			
Request example			
https://{hostname}/rest/FGR/GetOrganisationData?organisationUser={OrganisationUser}&organisationID={OrganisationID}&marketRole={MarketRole}			

Returned Organisation Data		
<b>DH-1006 – Get Organisation Data Return</b>		
Name	Obligation	Note
Organisations	0..n	
CountryCode	1..1	
MarketRole	1..1	
Name	1..1	
OrganisationIdentifier	1..1	
RegistrationCOC	1..1	
OrganisationAddresses	1..n	
AddressSpecification	0..1	
AddressType	1..1	
BuildingNumber	0..1	
CityName	1..1	
CountryCode	1..1	
FloorID	0..1	
Postcode	1..1	
PostOfficeBox	0..1	
RoomID	0..1	

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Returned Organisation Data		
StreetName	0..1	
OrganisationContacts	1..n	
EmailAddress	1..1	
FirstName	0..1	
FullName	0..1	
LastName	0..1	
PhoneNumber1	1..1	

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## 4 Code lists

Customer identification type	AA01=Business ID AA03=Personal identity number AA04=Party's own identification
Customer type	AB01=Company AB02=Consumer
Contact method	AC01=Electronic AC02=Other
Contact information, type	AD01=Telephone AD02=E-mail
Accounting Point Status	AE01=Connected AE02=Disconnected AE03=Under construction AE04=Removed from use AE05=Deleted
Accounting point address type	AF01=Main address AF02=Additional address
Accounting point type	AG01=Consumption AG02=Production
Invoicing method	AH01=Separate invoicing AH02=Grid invoices both AH03=Supplier invoices both
Invoicing channel	AI01=Paper invoice AI02=Electronic invoicing AI03=E-Invoice AI04=E-mail AI05=OmaPosti AI06=Direct debit AI07=Mobile invoice AI08=Other invoicing channel
Supply agreement with the customer	AJ01=Agreement with the customer AJ02=Agreement partially with the customer AJ03=No agreement with the customer
Grid agreement with the customer	AK01=Agreement with the customer AK02=Agreement partially with the customer AK03=No agreement with the customer
Type of contact person	AL01=Trustee AL02=Responsible for agreements AL03=Responsible for invoicing AL04=Responsible for connections AL05=Fault communication
Other invoicing address, type	AM01=E-mail invoice address AM02=Mobile invoice address

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Reason for ending agreement	AN01=Moving out AN02=Termination AN03=Dissolving AN04=Meter removal
Language	Subset of ISO 639-1 standard containing only Finnish, English and Swedish.
Country	See ISO 3166-1 alpha-2
Connection status	AO01=Connection request or connection AO02=Disconnection request or disconnection
Authorisation reason/purpose	AP01=Energy reporting (customer agreement at the accounting point) AP02=Invitation to tender (customer agreement at the accounting point) AP03=Competitive bidding for an agreement as a service (customer agreement at the accounting point) AP04=Invitation to Tender (no customer agreement at the accounting point) AP05=Competitive bidding for an agreement as a service (no customer agreement at the accounting point)
Accounting point sub-type	AQ01=Normal AQ02=Building accounting point AQ03=Production unit's own consumption AQ04=Virtual
Reason for cancelling agreement	AR01=Agreement cancelled by customer AR02=Agreement cancelled by supplier AR03=Agreement cancelled by DSO AR04 = Agreement (but not the move in) cancelled by customer AR05=Customer dispute by market operator AR06=Agreement cancelled by market operator
Party type	AS01=Supplier AS02=DSO AS03=Third party
Reason for starting agreement	AT01=Switching agreements AT02=Switching suppliers AT03=Moving in
Balance deviation type	AU01=Accounting point AU02=Loss
Production type	AV01=Water power AV02=Wind power AV03=Nuclear power AV04=Gas turbine AV05=Diesel power AV06=Solar power AV07=Wave power AV08=Combined production AV09=Biopower AV10=Other production
Organization status	AW01=New AW02=Active AW03=Inactive

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Acknowledgement type	BA01=Message accepted BA02=Message rejected BA03=Partially accepted
Message package	BB01=Structural data BB02=Metering data (DH-211 and DH-212) BB03=Invoicing information BB04=Settlement Data (DH-500) BB05=Balance Deviation Data (DH-600) BB06=Metering Data (DH-22x)
User group	BE01=Apartments, apartment block BE02=Apartments, small building (terraced, semi-detached and detached house), electrically heated BE03=Apartments, small building (terraced, semi-detached and detached house), not electrically heated BE04=Apartments, holiday home BE05=Residential properties BE06=Agricultural production (NACE A) BE07=Industry (NACE B and C) BE08=Infrastructure or energy and water supply (NACE D, E) BE09=Construction (temporary electricity supply) (NACE F) BE10=Services BE11=Outdoor lighting BE12=Charging points for electric vehicles BE13=Traffic BE14=Other
Customer sub-type	BF01=Normal BF02=Estate of a deceased person BF03=Company estate
Storage device type	BH01=Electric battery (stationary) BH02=Electric car battery BH03=Power 2 gas BH04=Pumped hydroelectric energy storage BH05=Compressed air storage BH06=Hydrogen storage BH07=Flywheel BH08=Other storage device

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Balance settlement type	BI01=Supplier consumption profiled BI02=Supplier consumption non-profiled BI03=Supplier PU Own Consumption profiled BI04=Supplier PU Own Consumption non-profiled BI05=Supplier small Scale Production by production type BI06=Production Unit production BI07=MGA Losses BI08=MGA Negative Losses BI09=MGA Imbalance (from eSett) BI10=MGA Consumption profiled BI11=MGA Consumption non-profiled BI12=MGA PU Own Consumption profiled BI13=MGA PU Own Consumption non-profiled BI14=MGA Small Scale Production by production type BI15=MGA Small Scale Production total BI16=MGA Production Unit by production type BI17=MGA Production Unit total BI18=MGA Exchange Sum BI19=MGA Exchange Sum total BI20=MGA Exchange confirmation (from eSett) BI21=Supplier small scale production total
Invoicing address type	BJ01=Balance information corrections BJ02=Combined invoices BJ03=Connection and disconnection invoices
Party contact person type	BK01=Contract contact person BK02=Invoicing contact person BK03=Meter data contact person BK04=Balance deviation contact person BK05=Debt collection contact person
Reason for deviation	BL01 = Metered data correction BL02 = Supplier change BL03 = Both
Update reason	BM02=Estimated annual consumption update
Reading type	BN01=Metered BN02=Netted BN03=Energy Community
Time division	E10=Estimated annual consumption 2 E11=Estimated annual consumption 1
Metering method	E13=Continuous metering E14=Reading metering E16=Unmetered
Metering grid area type	Z01=Regional Z03=Industrial Z04=Distribution Z05=Non-concessional Z06=Production Z07=Transmission (main/central grid)

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Price Unit identification	MON=eur/month ANN=eur/year KWH=eur/kWh MWH=eur/MWh GWH=eur/GWh D32=eur/TWh KWT=eur/kW MAW=eur/MW KVR=eur/kvar MAR=eur/Mvar EA=eur/pcs HUR=eur/hour NM3=eur/m <sup>3</sup> MQH=eur/m <sup>3</sup> /hour KWT=eur/kW MAW=eur/MW NM3=eur/m <sup>3</sup> ZZ=no code
Production unit type	Z06=Hydro power B14=Nuclear power B16=Solar power Z04=Thermal power Z05=Wind power B20=Other production
Metering value status	Z02=Uncertain 99=Estimated Z01=Corrected OK Z04=Partially missing 21=Temporary 56=Estimated, approved for billing

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