

D1.4 CS OTE External Interface

D1.4.4 REST services

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1 Introduction

REST services is used to quickly return data from CS OTE system with minimal data overhead. It is primary used to fetch actual market data. It is the same data like in the appropriate business web forms of CS OTE portal.

It is available through the same communication channel like web services. The SSL/TLS with certificate client authentication is used. Clients who already have automatic communication do not have any other network settings.

Services are available only in client-server mode. Client must always send the request.

1.1 Security

SSL/TLS protocol is used to ensure data confidentiality. The SSL/TLS client authentication is used like for web services. The request is not digitally signed. But client must have appropriate role assigned to be authorized. Every service is secured by a role.

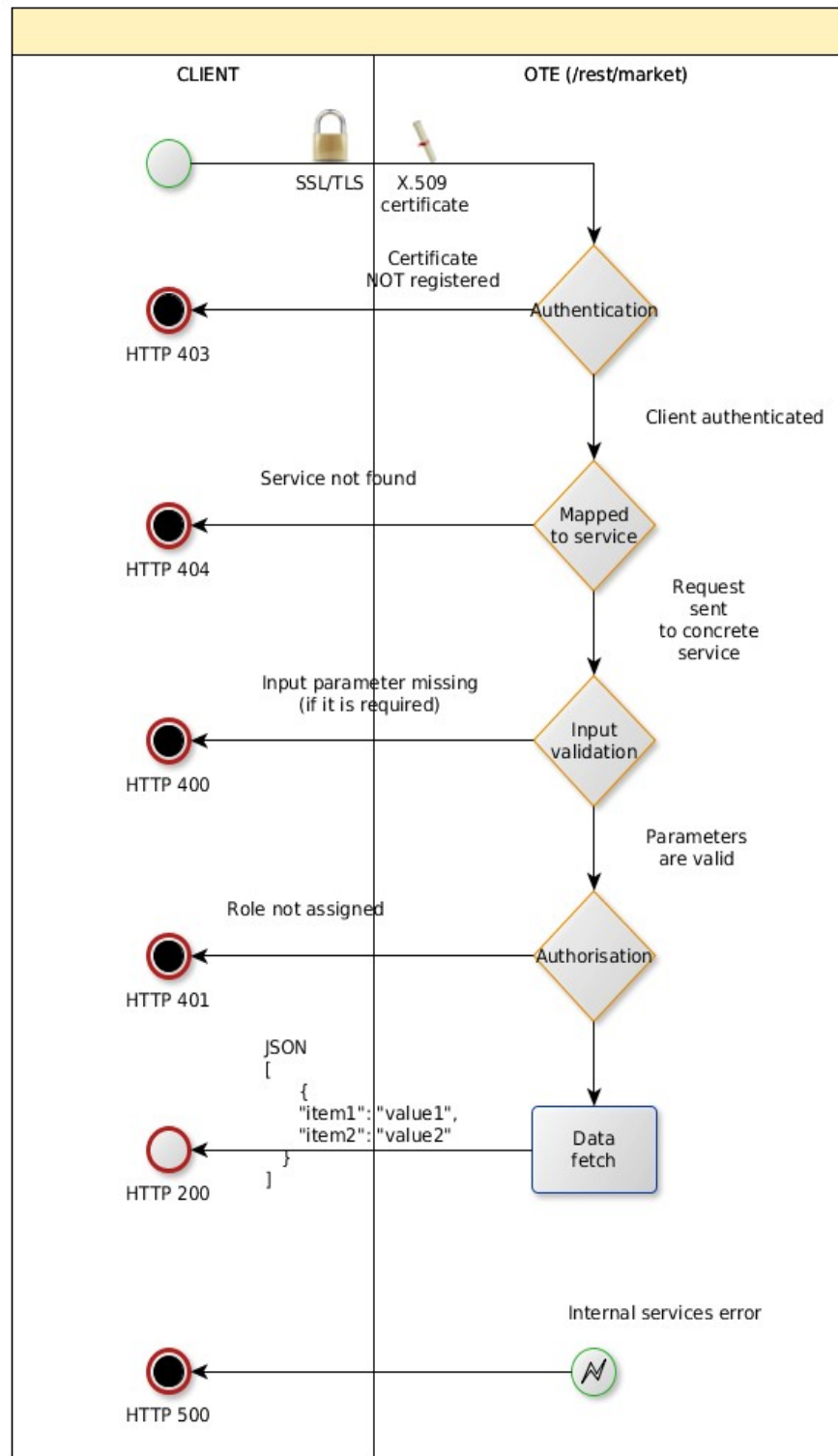
2 Service definition

All services can be called only by GET method. Input parameters are passed to the URL. The JSON format is used to data output. It is defined in the [ECMA-404](#) standard.

```
[
  {
    "item1": "value1",
    "item2": "value2"
  }
]
```

2.1 Communication scenario

Request is always send by REST services client. Output state is returned as HTTP code. There are JSON data in the HTTP response in case of code with value 200.



2.2 Services description

2.2.1 Intraday market - summary

Data structure equal to business web form “Intraday market – summary”.

Registered system must have the role “Access to the Intraday market screen data from automatic communication”. The Czech localization is „Přístup k obchodovací obrazovce VDT (role je aplikovaná i pro přístup k datům prostřednictvím AK)“

Service has no input parameter.

Output:

Item	Type	Description
deliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-DDThh (e.g. 2015-03-26T17)
gct	String (25 chars)	Gate closure time of delivery hour in the format YYYY-MM-DDThh:mm:ssTZD (e.g. 2015-03-26T15:00:00CET)
buyVolume	Number	Volume of the best buy order with actual highest price
buyPrice	Number	The highest price of the best buy order
sellPrice	Number	The lowest price of the best sell order
sellVolume	Number	Volume of the best sell order with actual lowest price
tradePriceMax	Number	Maximal price of the last closed trade
tradePriceMin	Number	Minimal price of the last closed trade
tradePriceLast	Number	Price of the last closed trade

Service endpoints:

Environment	URL
Test	https://cds.sand.ote-cr.cz:1443/KSX/rest/market/vdt/summary
Production	https://market.ote-cr.cz/KSX/rest/market/vdt/summary

2.2.2 Intraday market –detail

Data structure equal to business web form “Intraday market – detail”.

Registered system must have the role “Access to the Intraday market screen data from automatic communication”. The Czech localization is „Přístup k obchodovací obrazovce VDT (role je aplikovaná i pro přístup k datům prostřednictvím AK)“

Input parameters:

Item	Type	Description
formattedDeliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-DDThh (e.g. 2015-03-26T17)

Output:

Item	Type	Description
deliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-DDThh (e.g. 2015-03-26T17)
type	String (1 chars)	Distinction of the Buy / Sell order (N/P)
volume	Number	Order volume in the particular hour
price	Number	Order price in the particular hour
totalAcc	Number	Flag of the Order total acceptance (0/1)
volumeIndiv	Number	Flag of volume indivisibility (0/1)
validTo	String (25 chars)	Information on time validity of the order in the format YYYY-MM-DDThh:mm:ssTZD (e.g. 2015-03-26T15:00:00CET)
orderId	Number	Unique order identifier
orderVersion	Number	Order Version

Service endpoints:

Environment	URL
Test	https://cds.sand.ote-cr.cz:1443/KSX/rest/market/vdt/detail
Production	https://market.ote-cr.cz/KSX/rest/market/vdt/detail

2.2.3 Balancing market - summary

Data structure equal to business web form „Balancing market - summary“.

Registered system must have the role “Access to the Balancing market screen data from automatic communication”. The Czech localization is „Přístup k obchodovací obrazovce VT (role je aplikovaná i pro přístup k datům prostřednictvím AK)“

Service has no input parameter.

Output:

Item	Type	Description
deliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-DDThh (e.g. 2015-03-26T17)
gct	String (25 chars)	Gate closure time of delivery hour in the format YYYY-MM-DDThh:mm:ssTZD (e.g. 2015-03-26T15:00:00CET)
askRePlusVolume	Number	Volume of the TSO buy order with the maximal price
askRePlusPrice	Number	Maximum price of TSO buy order
bidRePlusVolume	Number	Volume of the sell order with lowest price specified by RE provider
bidRePlusPrice	Number	The lowest price of sell order specified by RE provider
askReMinusVolume	Number	Volume of the TSO sell order with the maximal price
askReMinusPrice	Number	The highest price of TSO sell order
bidReMinusVolume	Number	Volume of the buy order with lowest price specified by RE provider
bidReMinusPrice	Number	The minimal price of RE provider buy order

Service endpoints:

Environment	URL
Test	https://cds.sand.ote-cr.cz:1443/KSX/rest/market/vt/summary
Production	https://market.ote-cr.cz/KSX/rest/market/vt/summary

2.2.4 Balancing market – RE+

Data structure equal to business web table “RE+” on the Balancing market form. Registered system must have the role “Access to the Balancing market screen data from automatic communication”. The Czech localization is „Přístup k obchodovací obrazovce VT (role je aplikovaná i pro přístup k datům prostřednictvím AK)“

Input parameters:

Item	Type	Description
formattedDeliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-

Item	Type	Description
		DDThh (e.g. 2015-03-26T17)

Output:

Item	Type	Description
deliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-DDThh (e.g. 2015-03-26T17)
type	String (1 chars)	Type of the order – offered / requested energy (N/P)
volume	Number	Volume of the order for particular hour
price	Number	Price of the order for particular hour
totalAcc	Number	Flag of the Order total acceptance (0/1)
volumeIndiv	Number	Flag of volume indivisibility(0/1)
validTo	String (25 chars)	Information on time validity of the order in the format YYYY-MM-DDThh:mm:ssTZD (e.g. 2015-03-26T15:00:00CET)
orderId	Number	Unique order identifier
orderVersion	Number	Order Version

Service endpoint:

Environment	URL
Test	https://cds.sand.ote-cr.cz:1443/KSX/rest/market/rep/detail
Production	https://market.ote-cr.cz/KSX/rest/market/rep/detail

2.2.5 Balancing market – RE-

Data structure equal to business web table “RE-” on the Balancing market form. Registered system must have the role “Access to the Balancing market screen data from automatic communication”. The Czech localization is „Přístup k obchodovací obrazovce VT (role je aplikovaná i pro přístup k datům prostřednictvím AK)“.

Input parameters:

Item	Type	Description
formattedDeliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-DDThh (e.g. 2015-03-26T17)

Výstupní struktura:

Item	Type	Description
deliveryHour	String (13 chars)	Delivery hour in the format YYYY-MM-DDThh (e.g. 2015-03-26T17)
type	String (1 chars)	Type of the order – offered / requested energy (N/P)
volume	Number	Order volume in the particular hour
price	Number	Order price in the particular hour
totalAcc	Number	Flag of the Order total acceptance (0/1)
volumeIndiv	Number	Flag of volume indivisibility(0/1)
validTo	String (25 chars)	Information on time validity of the order in the format YYYY-MM-DDThh:mm:ssTZD (e.g. 2015-03-26T15:00:00CET)
orderId	Number	Unique order identifier
orderVersion	Number	Order Version

Service endpoint:

Environment	URL
Test	https://cds.sand.ote-cr.cz:1443/KSX/rest/market/rem/detail
Production	https://market.ote-cr.cz/KSX/rest/market/rem/detail

2.3 Output status

- 1) HTTP 200 - success. There is data in the HTTP response. There is empty JSON array ([]) in case of empty result set.
- 2) HTTP 400 – missing input parameters (only for some services)
- 3) HTTP 401 – client is not authorized.
- 4) HTTP 403 – client SSL/TLS certificate is not registered in the system
- 5) HTTP 404 – service not found. There should be mistake in the service endpoint or server name. For example csote.ote-cr.cz instead of market.ote-cr.cz.
- 6) HTTP 500 – internal server error.

3 Apendix A Examples

3.1 Intraday market – summary

3.1.1 Request

GET /KSX/rest/market/vdt/summary

3.1.2 Response

```
[
  {
    "deliveryHour": "2015-03-26T22",
    "gct": "2015-03-26T20:00:00CET",
    "buyVolume": 0,
    "buyPrice": 0,
    "sellPrice": 0,
    "sellVolume": 0,
    "tradePriceMax": 0,
    "tradePriceMin": 0,
    "tradePriceLast": 0
  },
  {
    "deliveryHour": "2015-03-26T23",
    "gct": "2015-03-26T21:00:00CET",
    "buyVolume": 0,
    "buyPrice": 0,
    "sellPrice": 0,
    "sellVolume": 0,
    "tradePriceMax": 0,
    "tradePriceMin": 0,
    "tradePriceLast": 0
  },
  {
    "deliveryHour": "2015-03-26T24",
    "gct": "2015-03-26T22:00:00CET",
    "buyVolume": 0,
    "buyPrice": 0,
    "sellPrice": 0,
    "sellVolume": 0,
    "tradePriceMax": 0,
    "tradePriceMin": 0,
    "tradePriceLast": 0
  }
]
```

]

3.2 Intraday market –detail

3.2.1 Request

GET /KSX/rest/market/vdt/detail?formattedDeliveryHour=2015-03-27T23

3.2.2 Response

```
[  
  {  
    "deliveryHour": "2015-03-27T23",  
    "type": "N",  
    "volume": 20,  
    "price": 15,  
    "totalAcc": 0,  
    "volumeIndiv": 0,  
    "validTo": null,  
    "orderId": 112444,  
    "orderVersion": 0  
  },  
  {  
    "deliveryHour": "2015-03-27T23",  
    "type": "P",  
    "volume": 20,  
    "price": 15,  
    "totalAcc": 0,  
    "volumeIndiv": 0,  
    "validTo": null,  
    "orderId": 112434,  
    "orderVersion": 0  
  },  
  {  
    "deliveryHour": "2015-03-27T23",  
    "type": "P",  
    "volume": 20,  
    "price": 15,  
    "totalAcc": 0,  
    "volumeIndiv": 0,  
    "validTo": null,  
    "orderId": 112454,  
    "orderVersion": 0  
  },  
  {  
    "deliveryHour": "2015-03-27T23",  
    "type": "P",  
    "volume": 20,  
    "price": 15,  
    "totalAcc": 0,  
    "volumeIndiv": 0,  
    "validTo": null,  
    "orderId": 112454,  
    "orderVersion": 0  
  }  
]
```

```
"deliveryHour": "2015-03-27T23",
"type": "P",
"volume": 50,
"price": 20,
"totalAcc": 0,
"volumeIndiv": 0,
"validTo": null,
"orderId": 112433,
"orderVersion": 0
}
]
```

3.3 Balancing market – summary

3.3.1 Request

GET /KSX/rest/market/vt/summary

3.3.2 Response

```
[{
  "deliveryHour": "2015-03-27T11",
  "gct": "2015-03-27T09:30:00CET",
  "askRePlusVolume": 220,
  "askRePlusPrice": 65,
  "bidRePlusVolume": 337,
  "bidRePlusPrice": 35,
  "askReMinusVolume": 170,
  "askReMinusPrice": 55,
  "bidReMinusVolume": 370,
  "bidReMinusPrice": 35
}]
```

3.4 Balancing market – RE+

3.4.1 Request

GET /KSX/rest/market/rep/detail?formattedDeliveryHour=2015-03-27T11

3.4.2 Response

```
[
  {
    "deliveryHour": "2015-03-27T11",
    "type": "N",
    "volume": 30,
  }
]
```

```
"price": 35,
"totalAcc": 0,
"volumeIndiv": 0,
"validTo": null,
"orderId": 112495,
"orderVersion": 0
},
{
"deliveryHour": "2015-03-27T11",
"type": "N",
"volume": 45,
"price": 45,
"totalAcc": 0,
"volumeIndiv": 0,
"validTo": null,
"orderId": 112513,
"orderVersion": 0
},
{
"deliveryHour": "2015-03-27T11",
"type": "P",
"volume": 50,
"price": 53,
"totalAcc": 0,
"volumeIndiv": 0,
"validTo": null,
"orderId": 112506,
"orderVersion": 0
},
{
"deliveryHour": "2015-03-27T11",
"type": "N",
"volume": 20,
"price": 53,
"totalAcc": 0,
"volumeIndiv": 0,
"validTo": null,
"orderId": 112497,
"orderVersion": 0
}
]
```

3.5 Balancing market – RE-

3.5.1 Request

GET /KSX/rest/market/rem/detail?formattedDeliveryHour=2015-03-27T11

3.5.2 Response

```
[
  {
    "deliveryHour": "2015-03-27T11",
    "type": "P",
    "volume": 30,
    "price": 35,
    "totalAcc": 0,
    "volumeIndiv": 0,
    "validTo": null,
    "orderId": 112505,
    "orderVersion": 0
  },
  {
    "deliveryHour": "2015-03-27T11",
    "type": "N",
    "volume": 30,
    "price": 35,
    "totalAcc": 0,
    "volumeIndiv": 0,
    "validTo": null,
    "orderId": 112515,
    "orderVersion": 0
  },
  {
    "deliveryHour": "2015-03-27T11",
    "type": "P",
    "volume": 60,
    "price": 45,
    "totalAcc": 0,
    "volumeIndiv": 0,
    "validTo": null,
    "orderId": 112503,
    "orderVersion": 0
  },
  {
    "deliveryHour": "2015-03-27T11",
    "type": "N",
```

```
"volume": 40,  
"price": 45,  
"totalAcc": 0,  
"volumeIndiv": 0,  
"validTo": null,  
"orderId": 112493,  
"orderVersion": 0  
}  
]
```