

# Number ordering

Interface for setting up numbers and configuring call routing

Author:  
Christoph Berger

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# 1 Interface

The customer may use interfaces to transmit data or configure settings and actions on the iMos platform.

## 1.1 General

This document contains descriptions for different interfaces.

Depending on the use case these interfaces are accessed

- automatically with URL encoded HTTPS calls containing UTF-8 post parameters, or
- manually via the GUI.

### 1.1.1 Authentication

To use the interface an active and valid iMosWeb User is necessary. Rights are deployed in the iMosWeb Rights-Configuration.

### 1.1.2 HTTPS requests

Requests to the https web services are submitted as described in the individual sections. Relevant parameters are transmitted directly in the URL as GET parameters, content is transmitted in the POST body.

For successful requests the server returns HTTP OK (Code 200).

If the request cannot be successfully completed the server will return a corresponding HTTP error code, e.g. HTTP 400 Bad Request, or HTTP 401 Unauthorized.

All parameters must be URL-encoded according to RFC2396.

Security mechanism

A security mechanism blocking too large sets of data is implemented to keep performance and speed of the interfaces high:

There is a limit of 3000 data sets per request. A larger number of data sets can lead to failure of part or the entire request. Therefore larger packets of data must be segmented when they need to be submitted to the system.

One request per user and second is valid. Only one parallel request is allowed.

## 1.2 Ordering interface

The ordering interface is used to add, edit and delete customers and setting and updating the routing including time tables.

### Request-Syntax:

<https://<Host>/livewebservice/numberorder?UserName=<username>&Pwd=<Password>>

### Parameters:

- Username: username
- Password: password of the user

### Parameter to transmit in the JSON (Request):

ID type	Parameter	Type	Description
I	orderType	String	<b>Order type:</b> NEW_CUSTOMER Set up new customer CHANGE_CUSTOMER_DATA Edit customer data ACTIVATE_ROUTING Activate the routing DEACTIVATE_ROUTING Deactivate the routing REMOVE_ROUTING_CUSTOMER Delete customer and routing CHANGE_ROUTING_DESTINATION Edit routing GET_AREACODE Request area code for customer address GET_NUMBERS Show all numbers for a service
K	customerNumber	String	external customer or contract number Max. 64 characters
I	serviceId	Integer	Service ID of the service
	customerName	String	Last name
	customerFirstname	String	Optional: first name
	customerCompany	String	Optional: company name
	customerAddress	String	Address (street and street number)
	customerZIP	String	Postal code
	customerCity	String	City
	countryCode	Integer	International calling prefix, e.g. 43 Austria; <b>Exceptions:</b> 1205 USA; 1403 Canada
	destNumber	String	Customer phone number (routing target). „SIP“... routing via the SIP Trunk of the service
	introAgent	String	Optional: audio file name; audio to be played at destination before switch ( <i>destNumber</i> )
	timetables	Object-Array	Time tables for individual routings see 1.2.1

**Legend:** ID type: **I** ... iMos-ID; **K** ... Customer-ID;  
Optional: Optional parameters can be NULL or omitted.

### Validation and Plausibility checks

- *orderType* must contain a valid type, e.g. „GET\_AREACODE“
- *customerZIP* is checked for AT (1000-9999) and DE (00000-99999)
- *customerNumber* only one number can be assigned per *customerNumber*
- *customerAddress* must contain a street name and a house number
- telephone numbers must always be internationally formatted: +[countrycode][number]
- iMos-IDs must be valid

The following table illustrates mandatory (X) and optional (O) parameters for the different order types.

Either *destNumber* or *timetables* must be set (⊗) for the order types NEW\_CUSTOMER, CHANGE\_CUSTOMER\_DATA and CHANGE\_ROUTING\_DESTINATION.

Parameter \ Order type	NEW_CUSTOMER	DEACTIVATE_ROUTING	ACTIVATE_ROUTING	REMOVE_ROUTING_CUSTOMER	CHANGE_CUSTOMER_DATA	CHANGE_ROUTING_DESTINATION	GET_AREACODE	GET_NUMBERS
customerNumber	X	X	X	X	X	X		
serviceId	X	X	X	X	X	X		X
customerName	X				X			
customerFirstname	O				O			
customerCompany	O				O			
customerAddress	X				X		X	
customerZIP	X				X		X	
customerCity	X				X		X	
countryCode	X				X			
destNumber	⊗				⊗	⊗		
introAgent	O				O	O		
timetables	⊗				⊗	⊗		

**The following return values are possible:**

ID type	Parameter	Type	Description
I	orderType	String	Order type, see request
K	customerNumber	String	External customer or contract number Max. 64 characters
	destNumber	String	Customer telephone number (routing target)
	timetablesActive	Boolean	Time table status
	serviceNumber	String	Assigned number
	oldServiceNumber	String	Previously assigned number (e.g. new number due to change of address)
	areaCode	String	Area code without leading 0
	errorCode	Integer	Error code
	errorText	String	Error description

## 1.2.1 Routing

The standard routing case is a fixed always-on forwarding and is set with the parameter *destNumber*.

To set up an individual time and day-of-the-week specific routing scenario the parameter *timetables* has to be invoked.

### Attention!

- If both parameters *destNumber* and *timetables* are set, *destNumber* will be ignored.
- Changes to the routing will overwrite current routing settings (CHANGE\_ROUTING\_DESTINATION, CHANGE\_CUSTOMER\_DATA).

### Contents of the Object-Array *timetables*

Parameter	Type	Description
name	String	<b>Optional:</b> name of the time table
days	String-Array	Days of the time table
time	String-Array	Time intervals, e.g. 09:00:00-17:00:00
routing	Object-Array	Routing targets

### Contents of the Object Array *routing*

Parameter	Type	Description
comment	String	<b>Optional:</b> name of the routing case
forwardingNumber	String	Target phone number
ringtime	Integer	<b>Optional:</b> max. ringing time in seconds. Is only used if there is more than one routing target in the <i>routing</i> . (0 = ∞ s).
introAgent	String	<b>Optional:</b> audio file name; audio to be played at destination before switch

### Example of *timetables* - Object

```

"timetables": [
  {"name": "open",
   "days": ["Mon", "Tue", "Wed", "Thu", "Fri"],
   "time": ["09:00:00-18:00:00"],
   "routing": [
     {"comment": "myCompany ", "forwardNumber": "+49123456789",
      "ringtime": 20, "introAgent": "whisper.wav"},
     {"comment": "callcenter", "forwardNumber": "+49777888999"}
   ]},
  {"name": "closed",
   "days": ["Mon", "Tue", "Wed", "Thu", "Fri"],
   "time": ["00:00-08:59:59", "18:00:01-23:59:59"],
   "routing": [
     {"comment": "callcenter", "forwardNumber": "+49777888999",
      "introAgent": "company.wav"}
   ]},
  {"name": "weekend",
   "days": ["Sat", "Sun"],
   "time": ["00:00:00-23:59:59"],
   "routing": [
     {"comment": "callcenter", "forwardNumber": "+49777888999"}
   ]}
]

```

## 1.3 Examples

### 1.3.1 NEW\_CUSTOMER, ACTIVATE\_ROUTING, ...

JSON Request:

```
{
  "orderType":          "NEW_CUSTOMER",
  "customerNumber":     "99992_1",
  "serviceId":          "99999",
  "customerName":       "Mustermann",
  "customerFirstname":  "Max",
  "customerAddress":    "Musterstraße 1",
  "customerZIP":        "1210",
  "customerCity":       "Vienna",
  "countryCode":        43,
  "destNumber":         "SIP"
}
```

JSON Response:

```
{
  "orderType":          "NEW_CUSTOMER",
  "customerNumber":     "99992_1",
  "destNumber":         "SIP",
  "serviceNumber":      "+431234567890",
  "areaCode":           "1234",
  "errorCode":          0,
  "errorText":          "OK"
}
```

### 1.3.2 GET\_NUMBERS

JSON Request:

```
{
  "orderType":          "GET_NUMBERS",
  "serviceId":          "99999"
}
```

JSON Response:

```
[
  {
    "customerNumber": "99991_0", "serviceNumber": "+4312345678",
    "destNumber": "SIP", "endDate": ""
  },
  {
    "customerNumber": "99991_1", "serviceNumber": "+4312345679",
    "destNumber": "SIP", "endDate": "31.10.2017"
  },
  {
    "customerNumber": "99991_2", "serviceNumber": "+4312345688",
    "timetablesActive": true, "endDate": ""
  }
]
```

## 1.3.3 CHANGE\_ROUTING\_DESTINATION

### 1.3.3.1 Weiterleitung – Standard

JSON Request:

```
{
  "orderType": "CHANGE_ROUTING_DESTINATION",
  "customerNumber": "99992_1",
  "serviceId": "99999",
  "customerName": "Mustermann",
  "customerFirstname": "Max",
  "customerAddress": "Musterstraße 1",
  "customerZIP": "1210",
  "customerCity": "Vienna",
  "countryCode": "43",
  "destNumber": "SIP",
  "introAgent": "ansage1.wav"
}
```

### 1.3.3.2 Forward with time tables

Assumption: During office hours a client wants incoming calls to be directly forwarded first the office, and then to a call center in case nobody receives the call within 20 seconds. Outside of the office hours incoming calls should be forwarded to a call center straight away. Also, the audio file "whisper.wav" should be played to anybody receiving the call at the office, while the audio file "company.wav" should be played to call center agents before the incoming call is connected/switched.

Corresponding JSON-Request for routing change to above scenario:

```
{
  "orderType": "CHANGE_ROUTING_DESTINATION",
  "customerNumber": "99991_1", "serviceId": "99999",
  "timetables": [
    { "name": "open", "days": ["Mon", "Tue", "Wed", "Thu", "Fri"],
      "time": ["10:00:00-18:35:00"],
      "routing": [
        { "comment": "myCompany ", "forwardNumber": "+49123456789",
          "ringtime": 20, "introAgent": "whisper.wav"},
        { "comment": "callcenter", "forwardNumber": "+49999888777",
          "introAgent": "company.wav"}]},
    { "name": "closed", "days": ["Mon", "Tue", "Wed", "Thu", "Fri"],
      "time": ["00:00:00-09:59:59", "18:35:01-23:59:59"],
      "routing": [
        { "comment": "callcenter", "forwardNumber": "+49999888777",
          "introAgent": "company.wav"}]},
    { "name": "weekend", "days": ["Sat", "Sun"], "time": ["00:00:00-23:59:59"],
      "routing": [
        { "comment": "callcenter", "forwardNumber": "+49999888777",
          "introAgent": "company.wav"}]}
  ]
}
```

### 1.3.3.3 Response

JSON Response:

```
{
  "orderType": "CHANGE_ROUTING_DESTINATION",
  "customerNumber": "99992_1",
  "destNumber": "timetablesActive": true,
  "serviceNumber": "+431234567890",
}
```



```

"areaCode": "1234",
"errorCode": 0,
"errorText": "OK"
}

```

## 1.4 Error-Codes

Code	Label	Description
0	OK	No error
10	Request does not contain data	Request does not contain data
20	Data format error	Request does not contain valid JSON
100	Order type wrong	See list of order types
110	customerNumber missing	customer number is missing
130	customerName missing	(last) name of customer is missing
140	customerAddress missing	Address of the customer is missing
141	wrong customerAdress – missing street number	Address is missing a street number
150	Customer doesn't exist	Customer (customerNumber) does not exist (yet)
170	Customer country code missing	Country code was not submitted
180	destNumber missing	The target number is missing
210	City missing	City is missing
211	City not found	City not found in map
220	PLZ missing	Postal code is missing
221	Wrong PLZ	Postal code wasn't found or is invalid
260	destNumer format error	Phone number is not valid or contains errors
261	IntroAgent file not found	No audiofile with the specified name was found
262	Timetables format error	Submitted timetable is invalid
263	Timetables format error days	Days in submitted timetable are invalid
264	Timetables format error time intervals	Timeintervals in submitted timetable are invalid
265	Timetables format error routing	Routing in submitted timetable is invalid
266	Timetables format error routing-Forwardnumber	Target number in submitted timetable is of the wrong format.
267	Timetables Routing - IntroAgent file not found	No audiofile with the specified name was found
270	Customer exists	Customer (customer/contract number) already exists
290	No rights to service	No rights to the requested service
291	Multiple services exist, please choose	ServiceId is missing and is required
300	No number available	No number is available on the system for the requested area code
999	General fault	A general error occurred.

## 1.5 JSON Scheme

JSON Request (<http://json-schema.org/>):

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Schema for a numberorder request.",
  "type": "object", "minProperties": 2,
  "required": ["orderType"],
  "properties": {
    "orderType": {
      "type": "string",
      "enum": [
        "NEW_CUSTOMER", "REMOVE_ROUTING_CUSTOMER", "GET_AREACODE",
        "ACTIVATE_ROUTING", "DEACTIVATE_ROUTING", "GET_NUMBERS",
        "CHANGE_CUSTOMER_DATA", "CHANGE_ROUTING_DESTINATION"
      ]
    },
    "customerNumber": {"type": "string", "pattern": "^.{1,64}$"},
    "serviceId": {"type": "integer"},
    "customerName": {"type": "string"},
    "customerFirstname": {"type": "string"},
    "customerCompany": {"type": "string"},
    "customerAddress": {"type": "string"},
    "customerZIP": {"type": "string", "pattern": "^.{1,8}$"},
    "customerCity": {"type": "string"},
    "countryCode": {"type": "integer", "minimum": 1},
    "destNumber": {"type": "string", "pattern": "^(SIP|[+][0-9]{8,}){1}$"},
    "introAgent": {"type": "string"},
    "timetables": {
      "type": "array",
      "items": {
        "required": ["days", "time", "routing"], "type": "object",
        "properties": {
          "name": {"type": "string"},
          "days": {
            "type": "array",
            "items": {
              "type": "string",
              "enum": ["Mon", "Tue", "Wed", "Thu", "Fri", "Sat", "Sun"]
            }
          },
          "time": {
            "type": "array",
            "items": {
              "type": "string",
              "pattern":
                "^[([01]?[0-9]|2[0-3]):[0-5][0-9]-([01]?[0-9]|2[0-3]):[0-5][0-9]$"
            }
          },
          "routing": {
            "type": "array",
            "items": {
              "required": ["forwardNumber"], "type": "object",
              "properties": {
                "comment": {"type": "string"},
                "forwardNumber": {"type": "string",
                  "pattern": "^(SIP|[+][0-9]{5,}){1}$"},
                "ringtime": {"type": "integer", "minimum": 0},
                "introAgent": {"type": "string"}
              }
            }
          }
        }
      }
    }
  }
}
```

```

    },
    "additionalProperties": false
  }

```

JSON Response:

```

{
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Schema for a numberorder response.",
  "type": "object",
  "required": ["orderType", "customerNumber", "errorCode", "errorText"],
  "properties": {
    "orderType": {
      "enum": ["NEW_CUSTOMER", "ACTIVATE_ROUTING", "DEACTIVATE_ROUTING",
        "REMOVE_ROUTING_CUSTOMER", "CHANGE_CUSTOMER_DATA", "GET_AREACODE",
        "CHANGE_ROUTING_DESTINATION", "GET_NUMBERS"]
    },
    "customerNumber": { "type": "string", "pattern": "^[1,64]$" },
    "serviceNumber": { "type": "string" },
    "oldServiceNumber": { "type": "string" },
    "areaCode": { "type": "string" },
    "destNumber": { "type": "string" },
    "timetablesActive": { "type": "boolean" },
    "errorCode": { "type": "integer" },
    "errorText": { "type": "string" }
  }
}

```

## 2 History

Version	Datum	Name	Bemerkung
1.0	11.09.2015	CBE	Erstellt
1.1	14.09.2015	CBE	Ordertyps zusammengefasst
1.2	17.09.2015	CBE	Fehlercodes erweitert
1.3	18.09.2015	CBE	Auftragsschnittstelle auf JSON umgestellt
1.4	28.10.2015	CBE	Vorwahl wird zurückgegeben.
1.5	09.12.2015	CBE	Neue Parameter bei der Auftragsschnittstelle (AreaCodeRequest, ServiceId, CountryCode)
1.6	14.06.2017	BergC	Neuer OrderType "GET_ AREACODE"
1.7	22.09.2017	HlawC	Dokument überarbeitet; neuer OrderType "GET_NUMBERS"
2.0	16.11.2017	HlawC	Zeitpläne hinzugefügt, Schema abgeändert
2.1	01.02.2018	HlawC	Fünf veraltete Error-Codes entfernt
2.1b	03.04.2018	AntoC	Translation to English