

SMS FUNCTIONALITY

CUSTOMER PORTAL VS. API

DOCUMENTATION

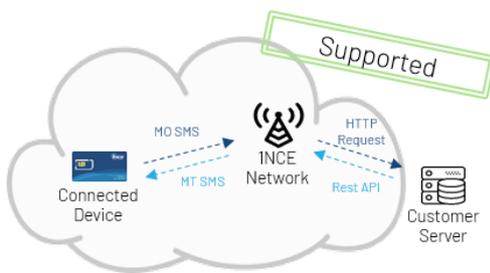
Version 2.0 as of February 2019

Table of Contents

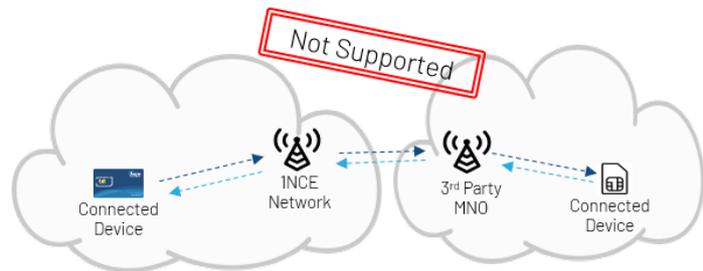
1	General Information.....	2
2	Customer Portal.....	2
2.1	Overview.....	2
2.2	Administration.....	4
2.3	Sending SMS.....	6
2.4	Forwarding.....	7
2.5	Monthly SMS Limit	8
2.6	Top Up.....	9
3	API.....	10
3.1	Customized API usage.....	10
3.2	Authentication.....	14
3.2.1	Request:.....	15
3.2.2	Response:.....	15
4	Sending SMS from an external Environment using API.....	16
4.1	SMS from Application to SIM (aka MT SMS)	16
4.1.1	Request:.....	16
4.1.2	Delivery Report:.....	17
4.2	Sending SMS from SIM to Application (aka MO SMS).....	18
4.2.1	Client (Sender).....	18
4.2.2	Server.....	18

1 GENERAL INFORMATION

The 1NCE Lifetime Fee includes 250 SMS. The SMS can be sent both as so-called Mobile Terminated (MT) or Mobile Originated (MO) SMS. SMS messages sent from one terminal device to another terminal device are not supported. This is also set out in the following illustrations:



- Example shows MO and MT SMS usage which both will be supported.



- Device-to-device SMS is not supported.

However, text messages are relevant for wake-up messages from the IoT application (application-oriented SMS) to the endpoint (mobile terminated). Therefore, sending and receiving text messages between SIM card devices and server is supported.

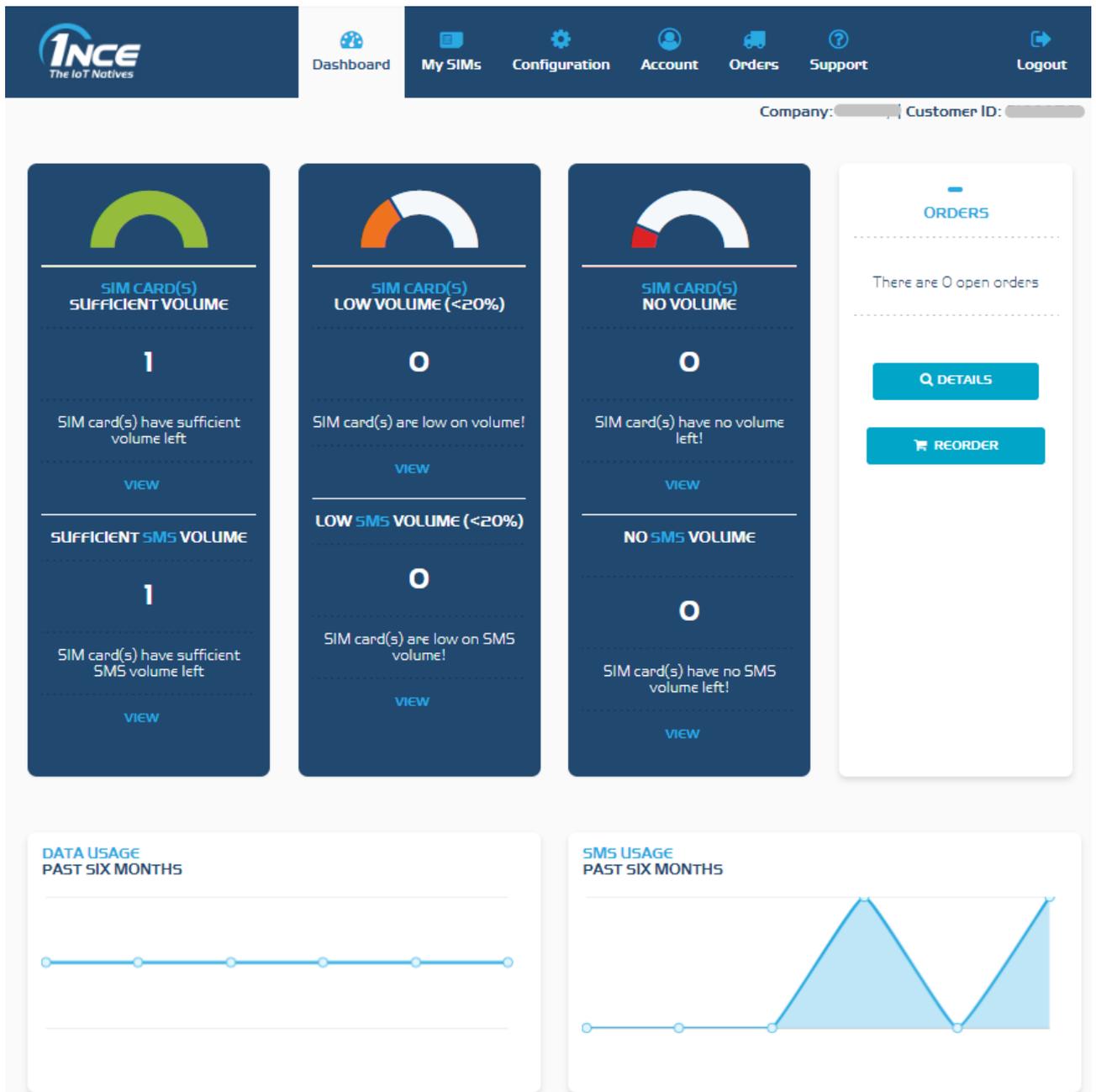
Unused SMS messages expire at the end of the Activation Period, unless the Activation Period has been extended.

2 CUSTOMER PORTAL

2.1 OVERVIEW

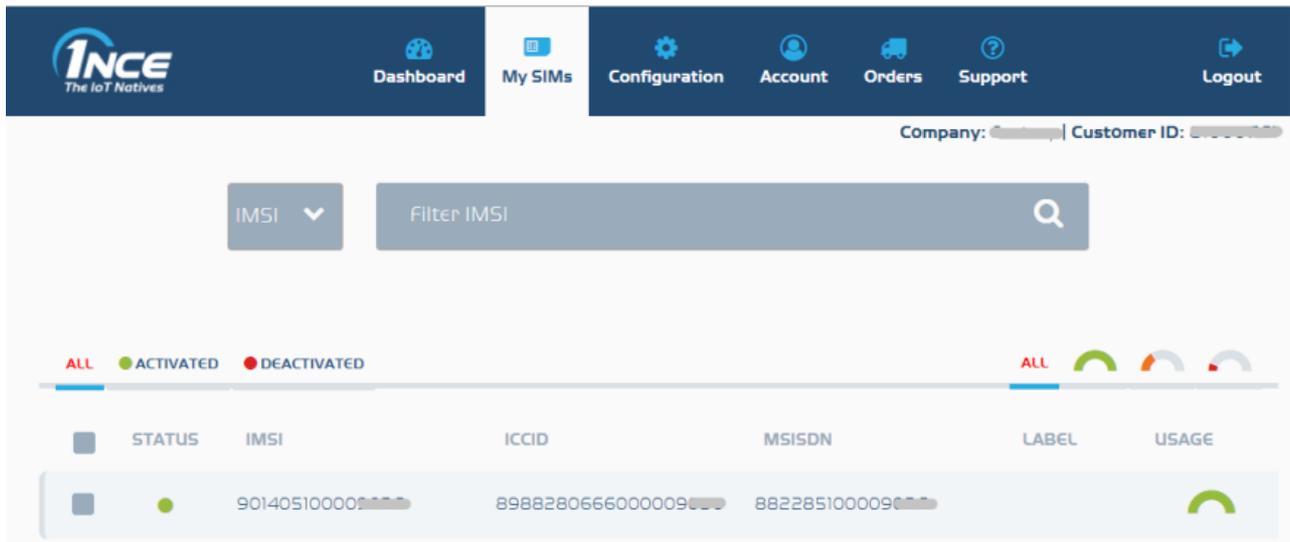
The Customer Portal offers an overview of all ordered SIM Cards in two ways: A general overview of all cards being used via the Dashboard and a dedicated view per SIM card. The Dashboard view displays and allows for:

- The number of SIM Cards with sufficient SMS volume,
- The number of SIM Cards with a SMS volume below 20%
- All SIM Cards with no SMS volume left
- Within the display of low or no SMS volume the customer can directly top up the volume with a new package of 250 SMS.
- The all over SMS usage of the last six month



The “My SIMs” view gives a detailed overview of all SIM Cards. This overview can also be entered with the displayed SIM Cards already filtered according to the volume used by hitting one of the “VIEW”-buttons on the Dashboard.

For each SIM Card, details of activation status, IMSI, ICCID and MSISDN number as well as label and data consumption status can be seen.



STATUS	IMSI	ICCID	MSISDN	LABEL	USAGE
●	90140510000	8988280666000009	882285100009		

2.2 ADMINISTRATION

By clicking on one of the shown SIM cards a detailed view opens with information of

- ICCID / IMSI / MSISDN / Name of the SIM Card (editable)
- Lifetime / Time passed / Time left / End date
- IP-Address / IMEI / Session status / Location / Network

An event list of the SIM Card is shown as well as a chronological view on the events of that specific SIM Card.

From an administrative perspective you can deactivate/activate every single SIM Card. For the purpose of checking the functionality of your SIM Card you can reset the connection to force your device to redial in to the mobile network.

Company: [redacted] | Customer ID: [redacted]

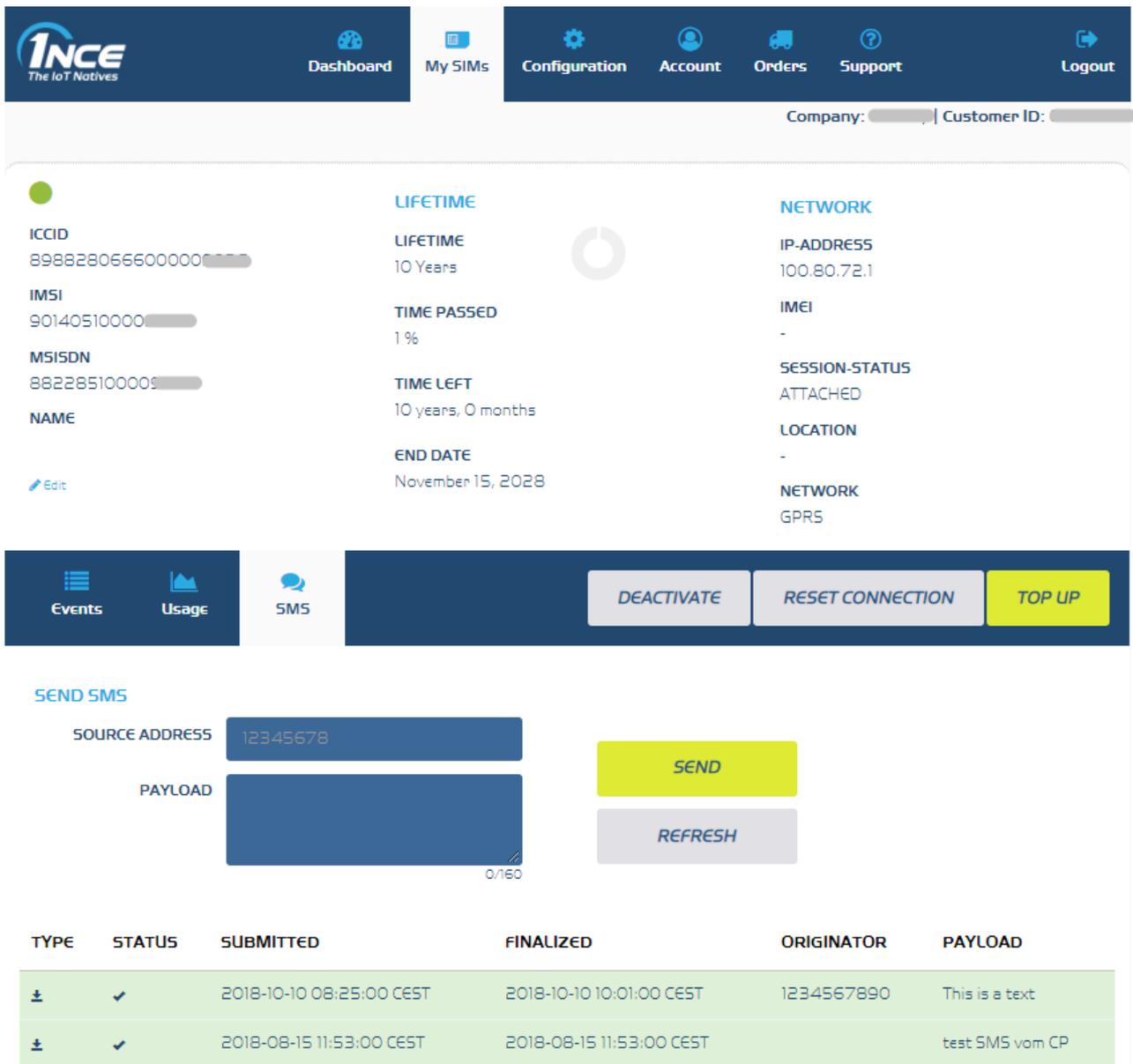
<p>ICCID 89882806660000000000</p> <p>IMSI 90140510000000000000</p> <p>MSISDN 88228510000000000000</p> <p>NAME</p> <p>Edit</p>	<p>LIFETIME</p> <p>LIFETIME 10 Years</p> <p>TIME PASSED 1 %</p> <p>TIME LEFT 10 years, 0 months</p> <p>END DATE November 15, 2028</p>	<p>NETWORK</p> <p>IP-ADDRESS 100.80.72.1</p> <p>IMEI -</p> <p>SESSION-STATUS ATTACHED</p> <p>LOCATION -</p> <p>NETWORK GPRS</p>
---	--	---

Events
Usage
SMS
DEACTIVATE
RESET CONNECTION
TOP UP

EVENT	TIMESTAMP	SOURCE	IP
New location received from SGSN for IMSI='901405100009036', now attached to SGSN='491600301340', IP='193.254.144.67'.	2018-10-23T07:40:58.000+0000	Network	100.80.72.1
New location received from VLR for IMSI='901405100009036', now attached to VLR='491700970000'.	2018-10-23T07:40:57.000+0000	Network	100.80.72.1
SMS MT	2018-10-10T08:01:05.000+0000	1234567890	
SMS MT	2018-08-15T09:53:22.000+0000		

2.3 SENDING SMS

On the "SMS" view of this administration option you can send a SMS (MT) directly out from the 1NCE Customer Portal to the application device. You also have a detailed overview of all SMS sent from a specific SIM Card directly underneath this function.

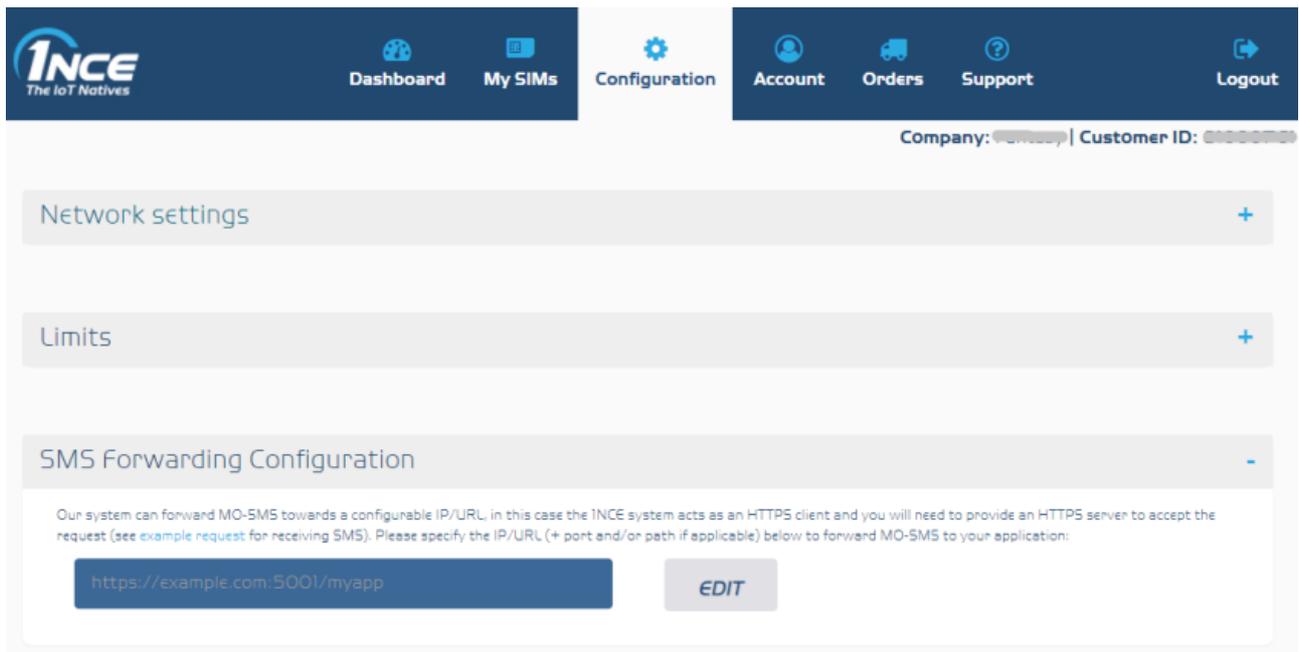


The screenshot displays the 1NCE Customer Portal interface. At the top, there is a navigation bar with the 1NCE logo and menu items: Dashboard, My SIMs, Configuration, Account, Orders, Support, and Logout. Below the navigation bar, the user's Company and Customer ID are displayed. The main content area shows details for a specific SIM card, including ICCID, IMSI, MSISDN, and NAME. It also displays LIFETIME (10 Years), TIME PASSED (1%), TIME LEFT (10 years, 0 months), and END DATE (November 15, 2028). Network information includes IP-ADDRESS (100.80.72.1), IMEI, SESSION-STATUS (ATTACHED), LOCATION, and NETWORK (GPRS). A bottom navigation bar contains Events, Usage, and SMS tabs, along with buttons for DEACTIVATE, RESET CONNECTION, and TOP UP. The SMS section is active, showing a 'SEND SMS' form with a SOURCE ADDRESS field (12345678) and a PAYLOAD field (0/160). A 'SEND' button and a 'REFRESH' button are visible. Below the form is a table of sent SMS messages.

TYPE	STATUS	SUBMITTED	FINALIZED	ORIGINATOR	PAYLOAD
⬇	✓	2018-10-10 08:25:00 CEST	2018-10-10 10:01:00 CEST	1234567890	This is a text
⬇	✓	2018-08-15 11:53:00 CEST	2018-08-15 11:53:00 CEST		test SMS vom CP

2.4 FORWARDING

When clicking on the “Configuration” tab in the 1NCE Customer Portal the function SMS Forwarding Configuration can be found. The SMS Forwarding function allows for sending MO SMS. Therefore, the user needs to insert the URL of the server which shall receive the SMS.



The screenshot shows the 1NCE Customer Portal interface. The top navigation bar includes the 1NCE logo, Dashboard, My SIMs, Configuration (active), Account, Orders, Support, and Logout. Below the navigation bar, the user's Company and Customer ID are displayed. The main content area shows three expandable sections: Network settings, Limits, and SMS Forwarding Configuration. The SMS Forwarding Configuration section is expanded, showing a text input field with the URL `https://example.com:5001/myapp` and an EDIT button. A note above the input field explains that the system can forward MO-SMS to a configurable IP/URL, acting as an HTTPS client, and requires an HTTPS server to accept the request.

E.g.:

`https://myserver.de/sms`

or

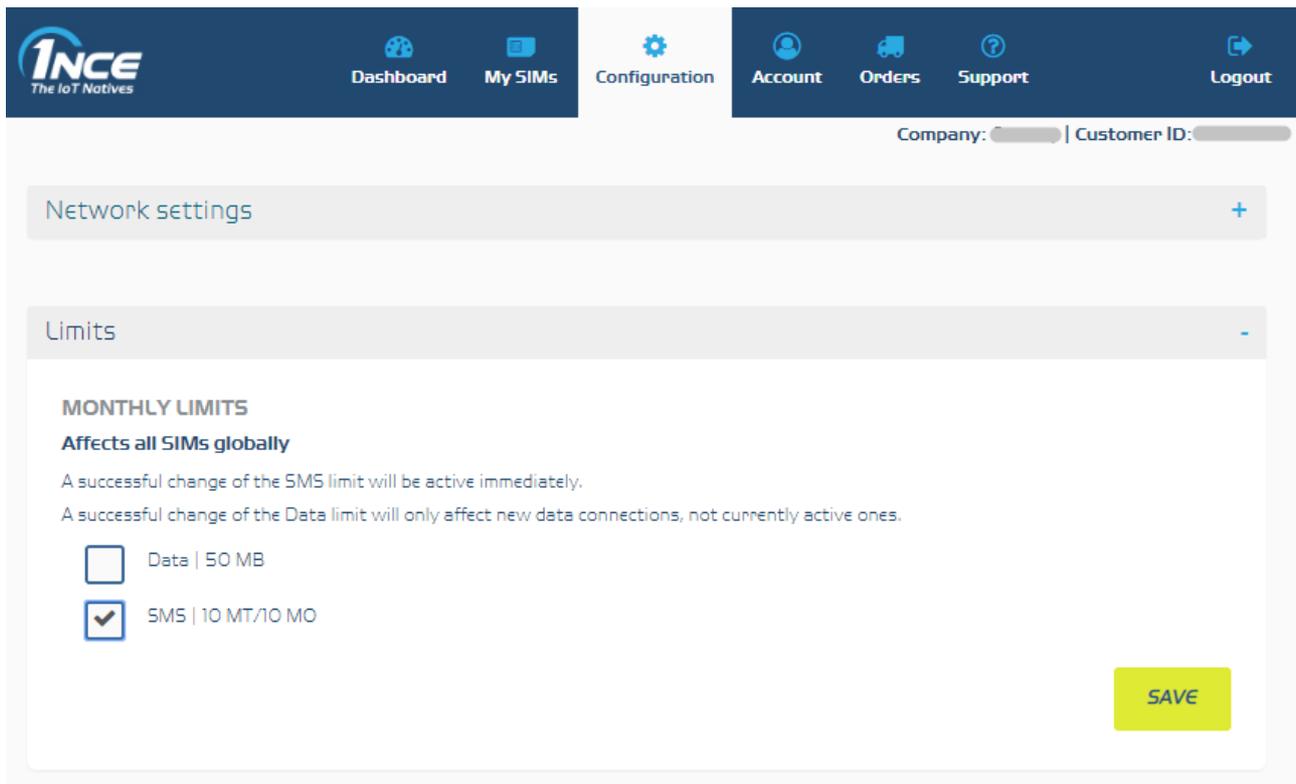
`https://<public_ip>:5000/smsapp`

Note: The above-mentioned URL, IP, port, and path are just examples and depend on your own setup.



2.5 MONTHLY SMS LIMIT

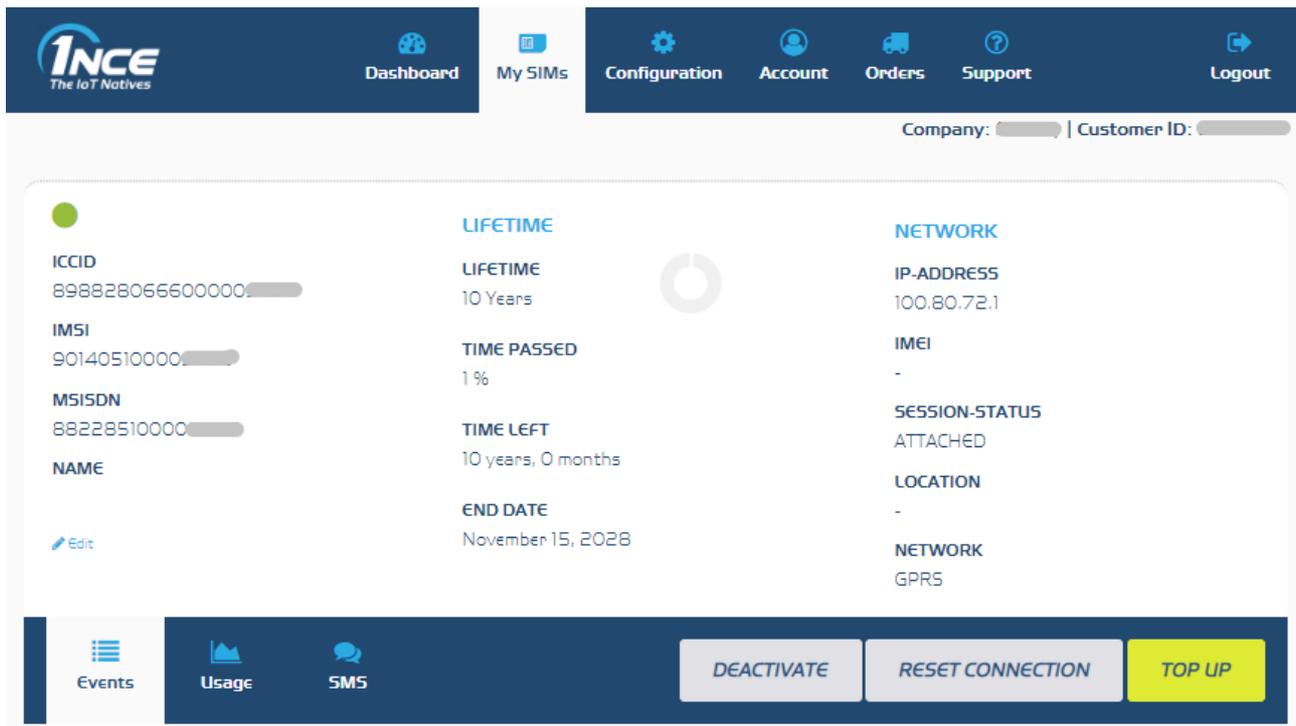
For better control of the SMS volume usage you can set a limit of 10 SMS per month. This limit can be activated and deactivated at any time on the "Configuration" tab in the Customer Portal and will be applied to all SIM Cards.



The screenshot shows the 1NCE Customer Portal interface. The top navigation bar includes the 1NCE logo, 'Dashboard', 'My SIMs', 'Configuration', 'Account', 'Orders', 'Support', and 'Logout'. Below the navigation bar, there are fields for 'Company:' and 'Customer ID:'. The main content area is titled 'Network settings' and contains a 'Limits' section. Under 'LIMITS', it states 'Affects all SIMs globally' and provides instructions: 'A successful change of the SMS limit will be active immediately.' and 'A successful change of the Data limit will only affect new data connections, not currently active ones.' Two options are listed: 'Data | 50 MB' (unchecked) and 'SMS | 10 MT/10 MO' (checked). A yellow 'SAVE' button is located at the bottom right of the configuration area.

2.6 TOP UP

In case you are in the need of additional SMS volume the 1NCE Customer Portal allows to easily recharge the volume of included SMS for every single SIM Card. This can be done either directly from the Dashboard for all SIM Cards with low volume or via the “My SIMs” tab.



The screenshot displays the 1NCE Customer Portal interface. At the top, there is a navigation bar with the 1NCE logo and several menu items: Dashboard, My SIMs, Configuration, Account, Orders, Support, and Logout. Below the navigation bar, the user's Company and Customer ID are displayed. The main content area shows details for a specific SIM card, organized into three columns:

- Left Column:** ICCID (898828066600000), IMSI (90140510000), MSISDN (88228510000), and NAME. An 'Edit' link is visible below the name.
- Middle Column:** LIFETIME (10 Years), TIME PASSED (1%), TIME LEFT (10 years, 0 months), and END DATE (November 15, 2028).
- Right Column:** NETWORK (GPRS), IP-ADDRESS (100.80.72.1), IMEI (-), SESSION-STATUS (ATTACHED), and LOCATION (-).

At the bottom of the page, there is a dark blue bar containing navigation icons for Events, Usage, and SMS. To the right of these icons are three buttons: DEACTIVATE, RESET CONNECTION, and TOP UP (highlighted in yellow).

3 API

3.1 CUSTOMIZED API USAGE

Using the Application Programming Interface (hereinafter referred to as "API") SIM Cards can also be administered directly via web services. The 1NCE API allows users to automatically receive information about the customer's SIM Cards without using the Customer Portal since it enables the integration of all relevant SMS functions into the customer's own software environment.

You can get started with the 1NCE API with the following GUI.

<https://api.1nce.com>

First you have to „Authorize“ by entering the credentials from the 1NCE Customer Portal (as an "Owner" these are e-mail address and password).



Available authorizations ×

Scopes are used to grant an application different levels of access to data on behalf of the end user. Each API may declare one or more scopes.
API requires the following scopes. Select which ones you want to grant to Swagger UI.

oauth2 (OAuth2, application)

Application: 1NCE Api

Token URL: /management-api/oauth/token
Flow: application

client_id:

client_secret:

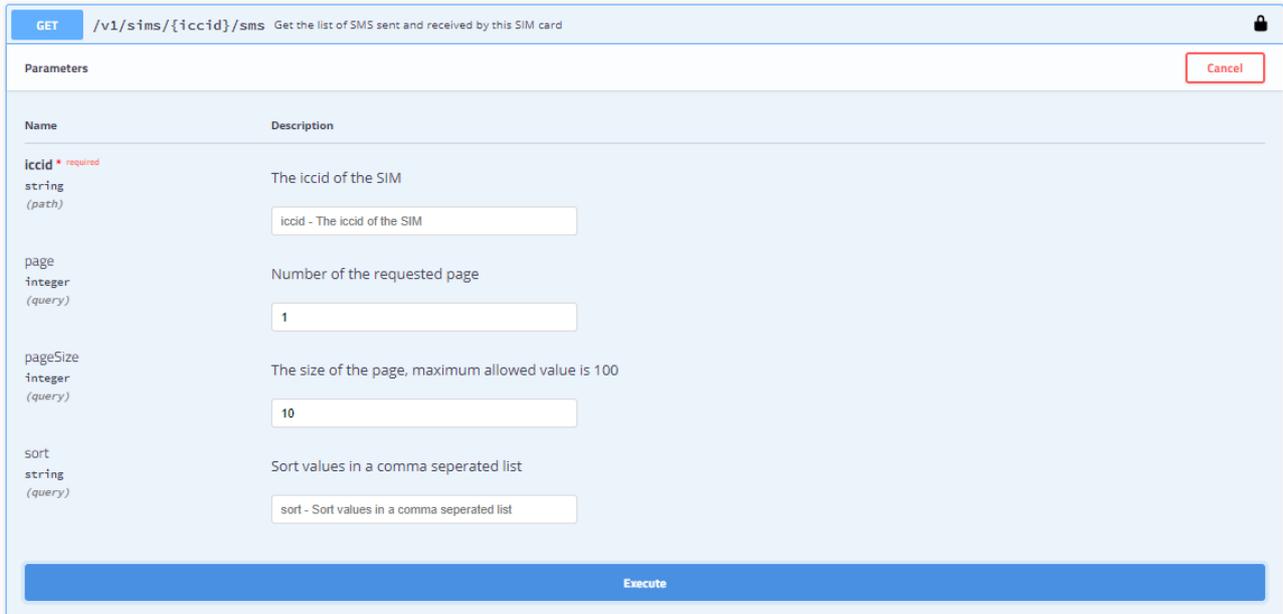
Authorize

Afterwards, you can try the different SMS requests our API offers:

/sims Manage your SIMs

GET /v1/sims/{iccid}/sms

Get the list of SMS sent and received by a dedicated SIM Card



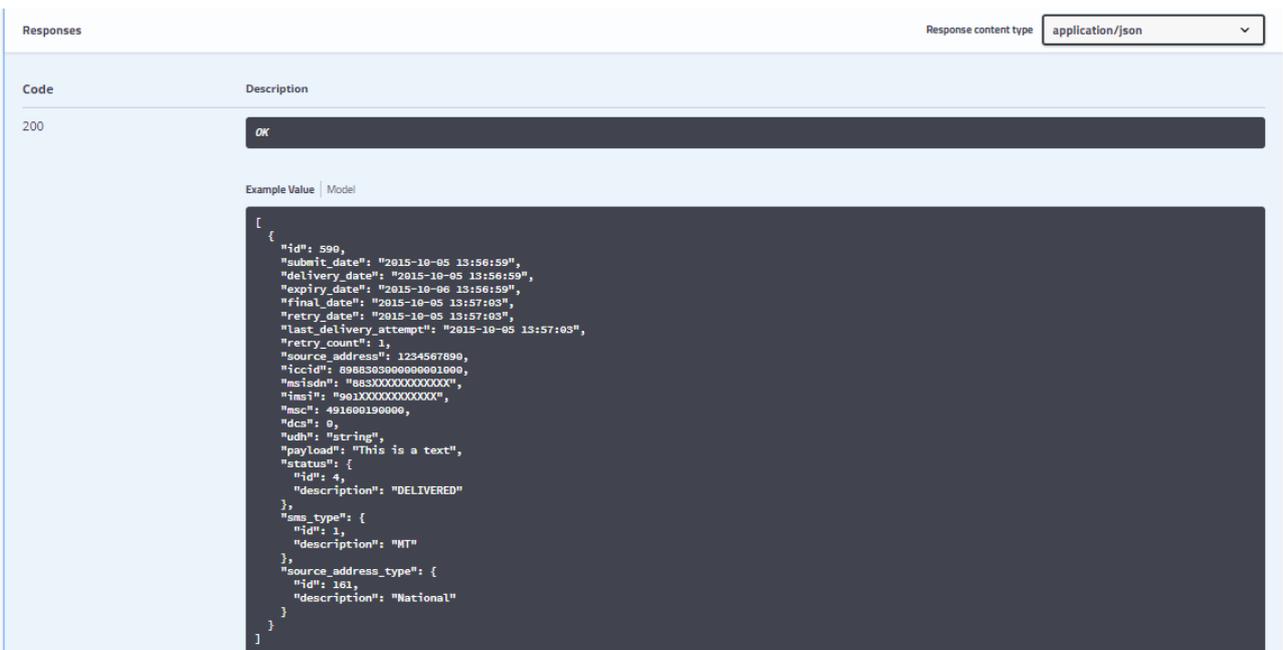
GET /v1/sims/{iccid}/sms Get the list of SMS sent and received by this SIM card

Parameters Cancel

Name	Description
iccid * required string (path)	The iccid of the SIM <input type="text" value="iccid - The iccid of the SIM"/>
page integer (query)	Number of the requested page <input type="text" value="1"/>
pageSize integer (query)	The size of the page, maximum allowed value is 100 <input type="text" value="10"/>
sort string (query)	Sort values in a comma seperated list <input type="text" value="sort - Sort values in a comma seperated list"/>

Execute

With executing this request, you get a response with a list of all sent and received SMS of this SIM Card



Responses Response content type application/json

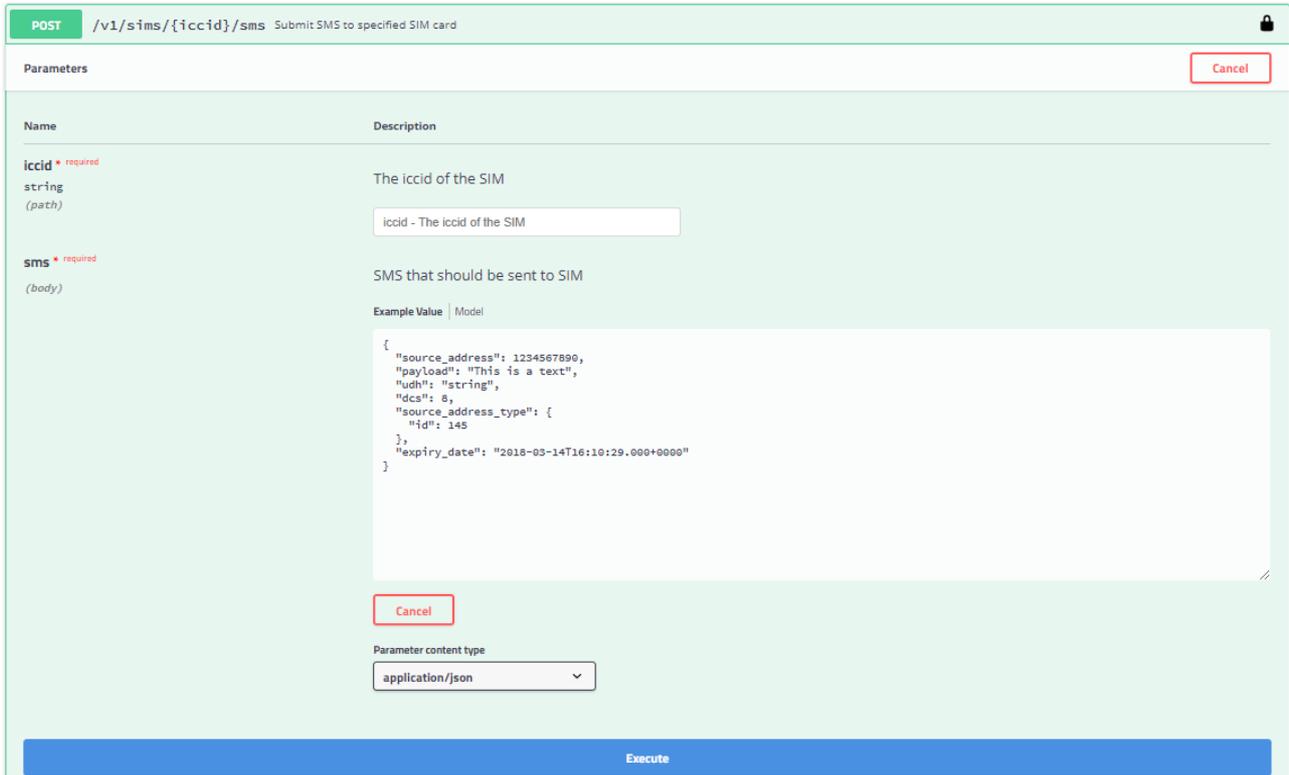
Code	Description
200	OK

Example Value | Model

```
[
  {
    "id": 590,
    "submit_date": "2015-10-05 13:56:59",
    "delivery_date": "2015-10-05 13:56:59",
    "expiry_date": "2015-10-06 13:56:59",
    "final_date": "2015-10-05 13:57:03",
    "retry_date": "2015-10-05 13:57:03",
    "last_delivery_attempt": "2015-10-05 13:57:03",
    "retry_count": 1,
    "source_address": 1234567890,
    "iccid": 698830390090001000,
    "msisdn": "8830000000000000",
    "imei": "9930000000000000",
    "msc": 491600190000,
    "dcs": 0,
    "udh": "string",
    "payload": "This is a text",
    "status": {
      "id": 4,
      "description": "DELIVERED"
    },
    "sms_type": {
      "id": 1,
      "description": "MT"
    },
    "source_address_type": {
      "id": 161,
      "description": "National"
    }
  }
]
```

POST /v1/sims/{iccid}/sms

Submit SMS to specified SIM Card with a message you require



Parameters Cancel

Name	Description
iccid * required string (path)	The iccid of the SIM <input type="text" value="iccid - The iccid of the SIM"/>
sms * required (body)	SMS that should be sent to SIM Example Value Model <pre>{ "source_address": 1234567890, "payload": "This is a text", "udh": "string", "dcs": 0, "source_address_type": { "id": 145 } }, "expiry_date": "2018-03-14T16:10:29.000+0000"</pre>

Cancel

Parameter content type

Execute

Currently only the Payload is a required field and needs to be filled.

All other parameters are not required and should not be needed for sending a basic SMS. In case you want to use the full flexibility, you are able to change the Data Coding Schema and User Data Header encoded as hex-String. The source_address_type type can be used to Specify the type of source address like national or international.

With executing you send the SMS to your device carrying the dedicated SIM Card. The response includes the CURL, the request URL as well as the code of the response header.



Responses Response content type

Curl

```
curl -X POST "https://api.1nce.com/management-api/v1/sims/698828066000099036/sms" -H "accept: application/json" -H "authorization: Bearer 74d15af4-0a20-479c-a351-9a71b4254ecb" -H "Content-Type: application/json" -d '{"source_address": 1234567890, "payload": "This is a text", "udh": "string", "dcs": 0, "source_address_type": { "id": 145 }, "expiry_date": "2018-03-14T16:10:29.000+0000"}'
```

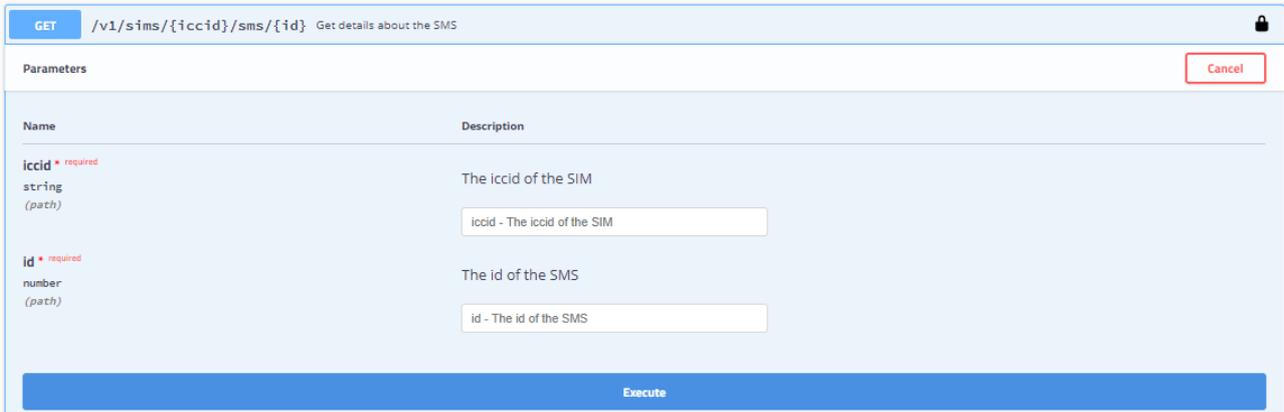
Request URL

```
https://api.1nce.com/management-api/v1/sims/698828066000099036/sms
```

Server response

GET /v1/sims/{iccid}/sms/{id}

Get details about specific SMS like status, message, time of delivery, etc.

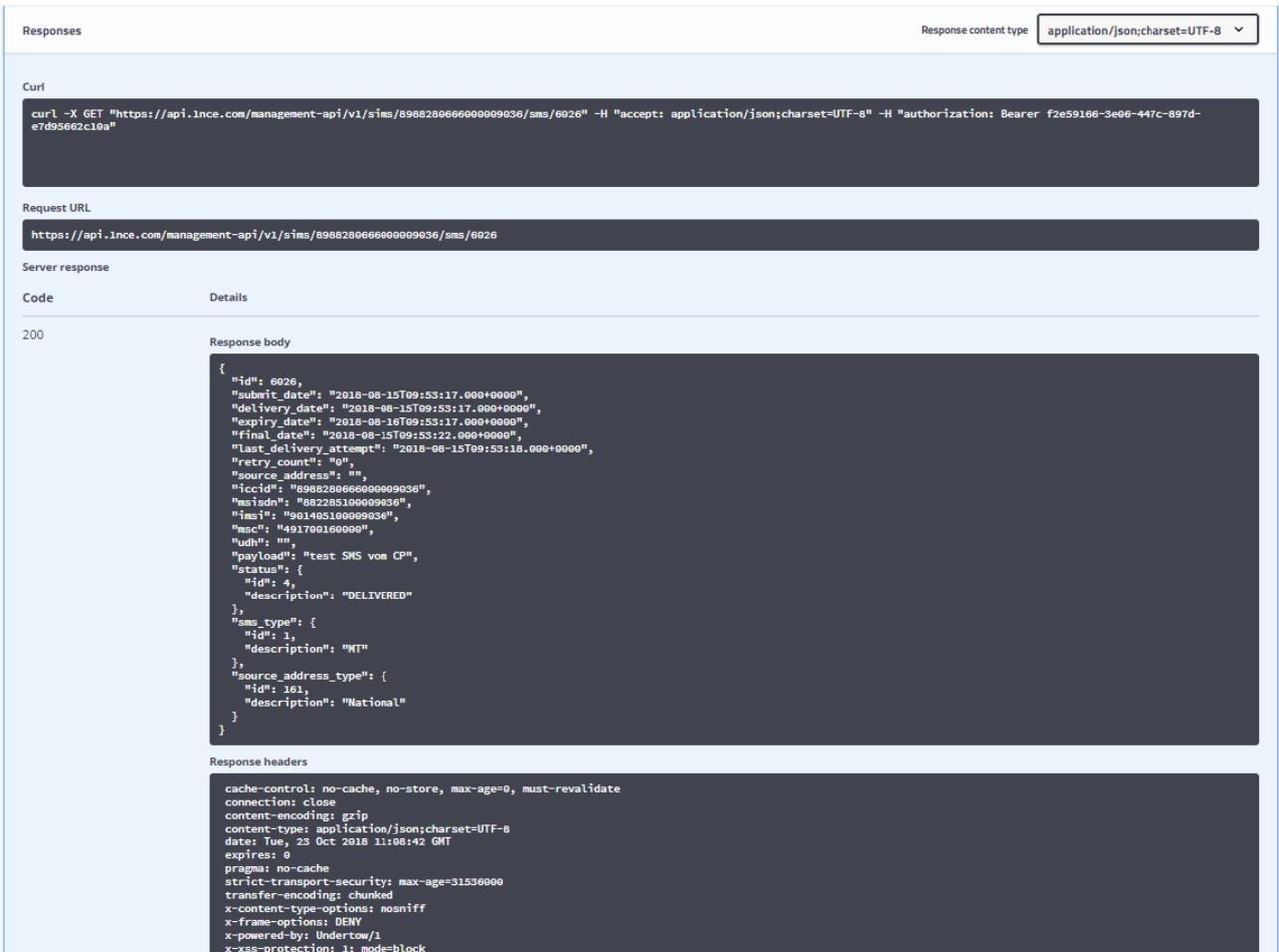


The screenshot shows a REST client interface with the following parameters:

Name	Description
iccid * required string (path)	The iccid of the SIM
id * required number (path)	The id of the SMS

Input fields show: iccid - The iccid of the SIM and id - The id of the SMS. An 'Execute' button is at the bottom.

With executing the request, you get the detailed response with all details of this SMS



The screenshot shows the response details for the GET request. The response content type is set to application/json; charset=UTF-8.

Request URL: https://api.ince.com/management-api/v1/sims/898828066600009036/sms/6026

Server response: 200

Response body:

```
{
  "id": 6026,
  "submit_date": "2018-08-15T09:53:17.000+0000",
  "delivery_date": "2018-08-15T09:53:17.000+0000",
  "expiry_date": "2018-08-16T09:53:17.000+0000",
  "final_date": "2018-08-15T09:53:22.000+0000",
  "last_delivery_attempt": "2018-08-15T09:53:18.000+0000",
  "retry_count": "0",
  "source_address": "",
  "iccid": "898828066600009036",
  "msisdn": "882285100009036",
  "imsi": "901405100009036",
  "msc": "491700160000",
  "ludh": "",
  "payload": "test SMS vom CP",
  "status": {
    "id": 4,
    "description": "DELIVERED"
  },
  "sms_type": {
    "id": 1,
    "description": "MT"
  },
  "source_address_type": {
    "id": 161,
    "description": "National"
  }
}
```

Response headers:

```
cache-control: no-cache, no-store, max-age=0, must-revalidate
connection: close
content-encoding: gzip
content-type: application/json; charset=UTF-8
date: Tue, 23 Oct 2018 11:08:42 GMT
expires: 0
pragma: no-cache
strict-transport-security: max-age=31536000
transfer-encoding: chunked
x-content-type-options: nosniff
x-frame-options: DENY
x-powered-by: Undertow/1
x-xss-protection: 1; mode=block
```

DELETE /v1/sims/{iccid}/sms/{id}

Cancel SMS that is buffered for Chip Card and not yet delivered

DELETE /v1/sims/{iccid}/sms/{id} Cancel SMS that is buffered for SIM card and not yet delivered

Parameters Cancel

Name	Description
iccid * required string <small>(path)</small>	The iccid of the SIM <input style="width: 80%;" type="text" value="iccid - The iccid of the SIM"/>
id * required number <small>(path)</small>	The id of the SMS <input style="width: 80%;" type="text" value="id - The id of the SMS"/>

Execute

With executing you will delete a SMS which is buffered and not delivered yet with a detailed response code

Responses Response content type */*

Curl

```
curl -X DELETE "https://api.1nce.com/management-api/v1/sims/89882806600009036/sms/6026" -H "accept: */*" -H "authorization: Bearer f2e59166-3e06-447c-897d-e7d95662c10a"
```

Request URL

```
https://api.1nce.com/management-api/v1/sims/89882806600009036/sms/6026
```

Server response

Code	Details
200	Response headers <pre style="background-color: #333; color: #eee; padding: 5px;">cache-control: no-cache, no-store, max-age=0, must-revalidate connection: close content-length: 0 date: Tue, 23 Oct 2018 11:16:47 GMT expires: 0 pragma: no-cache strict-transport-security: max-age=31536000 x-content-type-options: nosniff x-frame-options: DENY x-powered-by: Undertow/1 x-xss-protection: 1; mode=block</pre>

3.2 AUTHENTICATION

The usage of 1NCE REST API via the customer's external system demands for an authentication first. Therefore, the authentication via OAuth2 with the same credentials being used as for the 1NCE Customer Portal (e-mail address and password) is required. As an "API User" the authentication method with client_id and client_secret is required.

The OAuth2 authentication is necessary to get a token with credentials of the 1NCE Customer Portal with the following workflow:

- Send your credentials base64 encoded to the authentication server.
- Get a response including an UUID for authentication.
- Use the UUID to authenticate REST requests.

The UUID for authentication has a validity period of 240 minutes.

Send the authentication request via POST to

...

<https://api.1nce.com/management-api/oauth/token>

...

3.2.1 REQUEST:

****Header****

```json

```
{
'Content-Type': 'application/x-www-form-urlencoded',
'authorization': 'Basic <base64 encoded username:password>'
}
```

...

**\*\*Body\*\***

```json

```
{  
'grant_type': 'client_credentials'  
}
```

...

3.2.2 RESPONSE:

```json

```
{
"access_token": "6ba7b810-9dad-11d1-80b4-00c04fd43XXX", // this is the
UUID token you want to use for authentication
"token_type": "bearer",
"expires_in": 3599,
}
```

```
"scope": "all",
"appToken": "<application_token>", // not relevant in this context
"userId": <id>,
"orgId": 4321 // example
}
...
```

Once you are authenticated you can send requests and evaluate the responses.

## 4 SENDING SMS FROM AN EXTERNAL ENVIRONMENT USING API

### 4.1 SMS FROM APPLICATION TO SIM (AKA MT SMS)

To send a SMS out of your environment using the API, create a SMS in JSON format including a possible source address (ICCID of your SIM Card) and the message text itself.

Send the SMS via POST to the 1NCE API with the ICCID of the destination device as a parameter

```
...
```

```
https://api.1nce.com/management-api/v1/sims/<destination ICCID>/sms
```

```
...
```

Use the authentication UUID to authenticate the application.

#### 4.1.1 REQUEST:

```
Header
```json
{
'Content-Type': 'application/json',
'authorization': 'Bearer 6ba7b810-9dad-11d1-80b4-00c04fd43XXX', // example; the
UUID token gotten from authorization via OAuth2
'accept': 'application/json'
}
```

```
...  
  
**Body**  
``json  
{  
  "payload": "message text",  
  "source_address": "882285100000xxx" // your ICCID  
}  
...  

```

If successful, the server responds with "201 CREATED".

4.1.2 DELIVERY REPORT:

The SMS gateway server sends an unsolicited delivery report message after forwarding the SMS to the device.

Provide a REST interface in your application enabling PATCH requests.

```
**Request**  
``json  
{  
  'status': {  
    'status': 'DELIVERED',  
    'id': '4'  
  },  
  'endpoint': {  
    'id': '8765432',  
    'name': '8988280666000000xxx'  
  },  
  'submit_date': '2018-08-17 16:46:48',  
  'organisation': {  
    'id': '4321'  
  },  
  'final_date': '2018-08-17 16:46:52',  
  'id': '6206'  
}  
...  

```

4.2 SENDING SMS FROM SIM TO APPLICATION (AKA MO SMS)

MO SMS can be forwarded by an SMS gateway via HTTP to the customer's application server. SMS to another mobile device is not supported.

4.2.1 CLIENT (SENDER)

Write a script to send SMS with a device (e.g. Quectel BG96) employing the SIM Card.

The SMSC address is 882 285 00001 6868.

You can find it also in the 1NCE Customer Portal (Configuration -> Network settings) but it is also written on the SIM Card and can be read by an AT-command.

The number to send (destination address) is not relevant since the SMS is forwarded to an application. You can choose e.g. 12345 as the b-party address, but other numbers are also allowed.

4.2.2 SERVER

Provide a REST interface in your application enabling POST requests.

The SMS is forwarded as a JSON via POST

```
**Headers**
...
Content-Type: application/json
...
**Body**
```json
{
 'multi_part_info': {
 'partno': 1,
 'total': 1,
 'identifier': '6202'
 },
 'payload': 'message text',
 'submit_date': '2018-08-17 16:31:51', // GMT+0
 'dest_address': '12345', // example
 'organisation': {
```

```
'id': '4567'
,
'pid': '0',
'id': '6202',
'endpoint': {
'id': '8765432',
'name': '8988280666000000xxx' // from the sending SIM
,
'source_address': '882285100000xxx', // from the sending SIM
'dcs': '0'
}
...
...
```

With the dcs (data coding scheme) parameters you can change the encoding of the SMS. The value '0' represents the default GSM 7 bit encoding, the value '4' enables an 8 bit data encoding.

The forwarding server expects a 2xx response after a successful forwarding. Otherwise the SMS will be buffered and re-transmitted.

