MANUAL ANSWITCH V6

# Manual anSwitch V6 DataAccessCenter DAML API

# Contents

# 1    Introduction

This help describes the usage of the anSwitch V6 DataAccessCenter DAML API. The anSwitch V6 Administrator, Operator and 3rd party Customer Management System CMS programmer find:

▸    How to access the DataAccessCenter.
▸    The description of the Data Access Markup Language DAML protocol.
▸    Examples of configurations and data retrieving via the DAML API.

| Note | The functions and/or parameters listed in this article may not be available with your telephone provider. |
| --- | --- |

# 2 Overview anSwitch V6 DAML API

The DAML API allows configuring the anSwitch V6 directly from a customer management system CMS. In a multi-tenant setup of an anSwitch V6 every tenant can have its own CMS application that manages just the own resources.
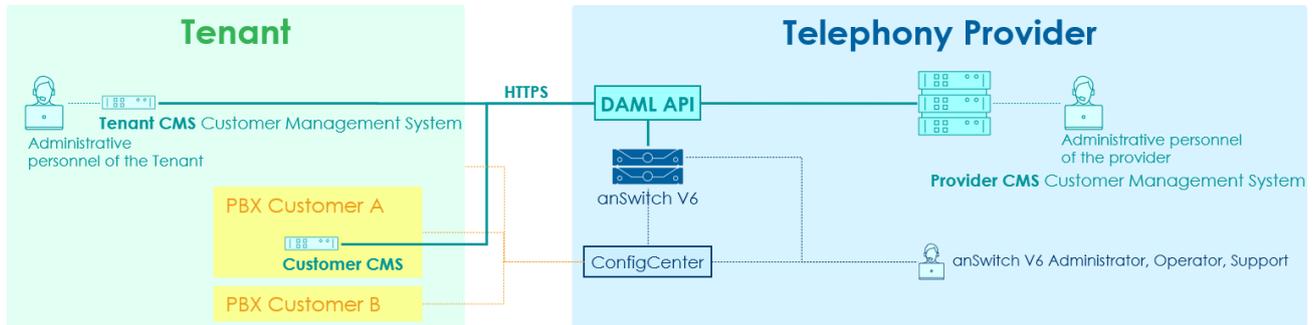


The anSwitch V7 configuration DAML API cover these general features:

▸ Security by:
  ▸ Individual login and authentication for each CMS application.
  ▸ Access only to the assigned resources.
▸ Secure data transfer by HTTPS.

| Warning | **The DAML API has direct access to the anSwitch V6 DB database!** |
|---|---|
| | An external CMS application that manages its assigned resources via the DAML API has full control over its accessible instances in the database of the anSwitch V6! Careless manipulations via the DAML API can destroy beyond repair! |
| | ▸ There is no check of the configured values of a property of an instance. |
| | ▸ There is no built-in "undo". |
| | ▸ Only a DB restore could help eventually with all its other negative side effects. |
| | Code development for an external application and its testing should therefore definitely take place either on a test anSwitch V6 or before the anSwitch V6 is put into operation. |
| | **Great power ➜ Great responsibility!** |

# 3 Access and Authenticate the DataAccessCenter Access

In order that a client can access the DataAccessCenter the following data must be configured on the anSwitch V6:

▸ The client's credentials (username, password).
▸ The client's access scope, e.g. tenant object only.
▸ The client's granted rights for managing DataAccessCenter objects and executing queries, e.g.:
  ▸ Manage accounts.
  ▸ Manage SIP addresses.
  ▸ Query connection data CDR.
  ▸ etc.


The URL for accessing the DataAccessCenter API is:

https://<AS6_DOMAIN>:8447/dataaccesscenter/daml
  ▸ <AS6_DOMAIN>: Defines the access with a domain name or an IP address.

| Note | Aarenet personnel is required to define the requirements and carry out the necessary configu- rations at the anSwitch V6 system level. |
|---|---|

# 4 DAML Commands & Data Formats

DAML commands provide the needed methods for managing instances of objects:

- ▸ A new instance of an object can be created → DAML command: **write**
- ▸ An instance of an object can be modified → DAML command: **write**
- ▸ The configuration values of an instance can be read → DAML command: **read**
- ▸ An instance can be deleted → DAML command: **deleted**

- ▸ Queries for listed data, e.g. list of CDRs, accounts, etc. → DAML command: **query**

The DAML commands "write", "read" and "delete":

- ▸ Must be used with POST request toward the DAML API.
- ▸ The command body must be XML-formatted.

The DAML command "query":

- ▸ Must be used with GET request toward the DAML API.
- ▸ The query parameters are transferred as ULR based parameter lists.

## 4.1 Examples of Basic DAML POST and GET Requests

**Create** a new instance:

| POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml | |
|---|---|
| `<daml command="write">`<br>`  <account>`<br>`    <accountName>an-acc-0021</accountName>`<br>`    <info>Residential Test Account</info>`<br>`    ...`<br>`  </account>`<br>`</daml>` | Response: 200 OK<br>`<daml status="ok"/>` |

**Modify** an instance:

| POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml | |
|---|---|
| `<daml command="write">`<br>`  <account>`<br>`    <accountName>an-acc-0021</accountName>`<br>`    <info>Residential User Account</info>`<br>`  </account>`<br>`</daml>` | Response: 200 OK<br>`<daml status="ok"/>` |

**Read** an instance:

| POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml | |
|---|---|
| ```<br><daml command="read"><br>  <address><br>    <account>an-acc-0021</account><br>    <number>0449980101</number><br>  </address><br></daml><br>``` | ```<br>Response: 200 OK<br><daml status="ok"><br>  <address><br>    <displayName/><br>    <domain>185.150.4.200</domain><br>    <disabled>false</disabled><br>    <uccUser>false</uccUser><br>    <validAfter/><br>    <validUntil/><br>    <language>en</language><br>    <number>0449980101</number><br>    <endpointName/><br>    <showClip>false</showClip><br>    <hideClip>false</hideClip><br>    <mainNumber>false</mainNumber><br>    ...<br>  </address><br></daml><br>``` |

**Delete** an instance:

| POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml | |
|---|---|
| ```<br><daml command="delete"><br>  <address><br>    <account>an-acc-0021</account><br>    <number>0449980101</number><br>  </address><br></daml><br>``` | ```<br>Response: 200 OK<br><daml status="ok"><br>``` |

| Warning | There is **no undo** if a "delete" has been applied incorrectly! |
|---|---|

**Get** the list of all accounts of this anSwitch V6:

| GET http://<AS6_DOMAIN>:8447/dataaccesscenter/daml**?query**=accounts | |
|---|---|
| | ```<br>Response: 200 OK<br><daml status="ok"><br>  <account>an-acc-0020</account><br>  <account>an-acc-0021</account><br>  <account>an-acc-0022</account><br>  <account>an-acc-0023</account><br></daml><br>``` |

## 4.2    Combining DAML Commands in a POST Request

The managing of different instances and objects can be combined within the same DAML command.

For example, create an account with its numbers in one step:

```
POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml
```

```
<daml command="write">

<!-- Create the account -->
  <account>
    <accountName>an-acc-0021</accountName>
    <info>Residential Test Account</info>
    ...
  </account>

<!-- Create the public telephone numbers -->
  <address>
    <account>an-acc-0021</account>
    <number>0449980101</number>
    ...
  </address>

  <address>
    <account>an-acc-0021</account>
    <number>0449980102</number>
    ...
  </address>

  <address>
    <account>an-acc-0021</account>
    <number>0449980103</number>
    ...
  </address>
</daml>
```

```
Response: 200 OK
<daml status="ok"/>
```

# 5 Error Handling & Trouble Shooting

## 5.1 Possible Errors Despite a 200 OK Response

200 OK means that the request could be processed by the DataAccessCenter, but not that the commands could be executed completely and correctly.

For example:

- Unknown properties are ignored and not reported with an error code.
- A "read" request for an account with a misspelled account name will return a "200 OK" with an empty response body.
- A "write" request to an account with a misspelled account name will return a "200 OK" but the expected account was not modified but a new account with the wrong written name was created with just the modified parameter configuration in it.
- A "query" without correct query directive will return a "200 OK" with an empty response body.

How to overcome this situation, see chapter "Validating Created or Modified Instances and Properties".

## 5.2 4xx or 5xx Responses

"4xx <ERROR_DESCRIPTION>":

- Indicate a problem within the DataAccessCenter processing of the request.

"5xx <ERROR_DESCRIPTION>"

- For example, "500 Internal Server Error" indicates that the HTTP service has a problem.

If the cause of the problem is not deductive from the error message, the error situation can be examined from the information in the log file of the component DataAccessCenter.

## 5.3 Troubleshooting Using the DataAccessCenter Log

All received and sent DAML commands and responses are logged in the DataAccessCenter log!

So, the DataAccessCenter log is a good source to evaluate problems like:

- Authentication problems.
- To analyze what the DataAccessCenter received from a CMS Customer Management System.
- To analyze what the DataAccessCenter sent to a CMS Customer Management System.

# 6 Best Practices Regarding Instances, Properties & Values

## 6.1 Validating Created or Modified Instances and Properties

When creating or modifying data via the DAML API there is no reliable response if the command was executed completely and correctly.

How to overcome this situation:

1. "Write" the object and properties data.
   → Cache these data!
2. "Read" back the just written object and properties data.
3. Compare the "read-back" with the initially cached data.
   → Take action if the expected result is not correct.

## 6.2 Get Information About Not Documented Properties and Values

The DAML API development evolves continuously. This documentation may be delayed behind the current development of new objects, their properties and values.

If upon external information or a "read" command new objects, properties or values are "discovered" then try to identify them within the ConfigCenter.
The idea is now:

  ‣ To learn how these data are used in the ConfigCenter.
  ‣ To read the data via DAML for learning their property name
  ‣ To modify a property in the ConfigCenter, read the data via DAML and learn its possible configuration values.

# 7    Manage DataAccessCenter Instances & Properties

## 7.1    Overview of Described DataAccessCenter Objects

The described DataAccessCenter objects and their properties are currently limited to the daily work with accounts and their numbers.

For other DataAccessCenter objects that can be managed, contact the Aarenet Support ↗.

- ▸    Manage ConfigCenter user accounts.
- ▸    Manage audio conferences.
- ▸    Manage SIP devices.
- ▸    Manage emergency address.
- ▸    Manage group and group attribute.
- ▸    Manage legal interception.
- ▸    Manage numbering plan.
- ▸    Manage price list.
- ▸    Manage routing table and route.
- ▸    Manage rule sets and rule.
- ▸    Manage tenant
- ▸    Manage vPBX

## 7.2 Manage: Account

Manage all aspects of a anSwitch V6 customer account. The account instance is defined by following objects:

1. Basic account properties
2. TopStop
3. Call forward
4. Addresses

```
POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml
```

| | |
|---|---|
| `<daml command="create">`<br><br>`<!--- Account general properties -->`<br>`  <account>`<br>`    <accountName>an-acc-0021</accountName>`<br>`    <info>Residential Test Account</info>`<br>`    ...`<br><br>`<!-- RuleSet -->`<br>`    <ruleset>Subscriber</ruleset>`<br>`    <ruleset>Block : All Outgoing 090* Calls</ruleset>`<br><br>`<!-- TopStop on level account -->`<br>`    <accAccountTopStop>`<br>`      <type>ACC</type>`<br>`      <valueMax>20.0</valueMax>`<br>`      ...`<br>`    </accAccountTopStop>`<br><br>`<!-- Call Forward on level account -->`<br>`    <callForward>`<br>`      <type>CFU</type>`<br>`      <name>Home Office</name>`<br>`      <priority>15</priority>`<br>`      ...`<br>`    </callForward>`<br><br>`<!-- Addresses -->`<br>`    <address>`<br>`      <accountName>an-acc-0021</accountName>`<br>`      <number>0123456789</number>`<br>`      ...`<br>`    </address>`<br><br>`    <address>`<br>`      <accountName>an-acc-0021</accountName>`<br>`      <number>0987654321</number>`<br>`      ...`<br>`    </address>`<br><br>`  </account>`<br>`</daml>` | **Account general properties:**<br>Details see "Property Definitions of Object-Key: <account>" ↗<br><br><br><br>**RuleSet:**<br>List of n Rulesets.<br>Details see "Manage: The RuleSets of an Account" ↗<br><br>**TopStop:**<br>List of n TopStop on level account.<br>Details see "Manage: The TopStop of an Account or Address" ↗<br><br><br>**Call Forward:**<br>List of call forwards of this account.<br>Details see "Manage: The Call Forwarding CF of an Account" ↗<br><br><br>**Addresses**<br>List of n telephone numbers (SIP addresses) on level account.<br>Details see "Manage: Addresses of an Account" ↗ |

### 7.2.1 Property Definitions of Object-Key: <account>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <account> | | | Defines the managing of the account object. |
| <accountName> | String | Max. 32 char | Mandatory configuration!<br>Defines a unique identification name of the account. |
| <info> | String | Max. 128 char | Any information |
| <tenant> | String | Max. 128 char | Defines the owning tenant of the account. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | Note:<br>The tenant must be configured on system level. |
| <username> | String | Max. 32 char | Mandatory configuration!<br>Defines the SIP username of the account. |
| <password> | String | Max. 32 char | Mandatory configuration!<br>Defines the SIP password of the account. |
| <maxChannels> | Number | [ empty \|<br>≥ 0 | Determines how many concurrent connections are possible for this account.<br>Values:<br>▸ empty:　No limitations<br>▸ 0:　No channels → no incoming and outgoing connections are possible.<br>▸ ≥1:　Exact number of possible channels. |
| <emergencyLocation> | String | [ empty \|<br>Emergency location ]<br>Max. 32 char | Assigns an emergency location to the account.<br>Values:<br>▸ empty:　The system-wide default emergency location is used.<br>▸ Emergency Location: The location name must be already configured in the emergency call configuration of this a anSwitch V6.<br><br>The available emergency locations can be queried with "Query: Emergence Locations Names" |
| <routingTable> | String | [ empty \|<br>RoutingTable name ]<br><br>Max. 32 characters | Assigns a RoutingTable to the account.<br>Values:<br>▸ empty:　For outgoing calls only OnNet connections are possible.<br>▸ RoutingTable: The RoutingTable name must be already configured in the routing configuration of this anSwitch V6. |
| <ruleset> | String | Ruleset name<br><br>Max. 128 characters | Defines a Ruleset that must be applied to this account.<br><br>The property <ruleset> must be applied to each RuleSet that needs to be applied to the account.<br><br>Note:　Modifying the list of RuleSets of an account requires a specific processing, see "Examples Managing "RuleSet" Instances" ↗ |
| <pricelist> | String | [ (none) \|<br>Pricelist name ]<br><br>Max. 32 characters | Assigns a user pricelist to the account.<br>Values:<br>▸ empty:　No call rating.<br>▸ Pricelist: The price list name must be already configured in the price list configuration of this anSwitch V6. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | Note:      No TopStop security is possible if no price list is assigned to the account! |
| <sendAoc> | String | [ true \| false ]<br><br>Default: false | Deprecated!<br>Activate sending advice of charge AOC to all addresses of the account. |
| <accAccountTopStop><br>…<br></accAccountTopStop> | | | For managing TopStop see chapter "Manage: The TopStop of an Account or Address" ↗ |
| <validAfter> | yyyy-MM-dd'T'HH:mm:ss | [ empty \|<br>   Date/Time ]<br><br>Default: empty | Defines the date/time of the activation of the account (and its addresses).<br>Values:<br>▸ empty:     The account is activated.<br>▸ Date/Time: The account is activated beginning at Date/Time. |
| <validUntil> | yyyy-MM-dd'T'HH:mm:ss | [ empty \|<br>   Date/Time ]<br><br>Default: empty | Defines the date/time of the deactivation of the account (and its addresses).<br>Values:<br>▸ empty:     The account is activated.<br>▸ Date/Time: The account is deactivated beginning at Date/Time. |
| <specialArrangement> | String | [ true \| false ]<br><br>Default: false | Activates or deactivates the caller identification check.<br><br>Note:    The caller identification check is usually enforced by law.<br>Check the consequences if activated. |
| <useMediaServer> | String | [ true \| false ]<br><br>Default: false | Activates or deactivates that the media streams of a connection are routed via the MediaServer component of the anSwitch V6. |
| <sendingHoldStream> | String | [ true \| false ]<br><br>Default: true | Activates or deactivates that the music on hold is generated by the MediaServer component of the anSwitch V6. |
| <alarmOnExpiry> | String | [ true \| false ]<br><br>Default: false | Activates or deactivates if an alarm is generated when the SIP-device is not re-registering. |
| <maliciousCallerId> | String | [ true \| false ]<br><br>Default: false | Defines the feature handling of Malicious Caller ID MCID.<br>When activated then the caller id of incoming call is displayed even when the call was anonymous.<br><br>Note:    The application of MCID may be regulated by law.<br>Check the consequences if activated. |

## 7.2.2    Examples Managing "Account" Instances

Create an instance:

```
1   <daml command="create">
2     <account>
3       <accountName>an-acc-0021</accountName>
4       <info>Residential Test Account</info>
5       <password>1gRP9vBe</password>
6       <username>5umWIuce</username>
7       <validAfter>2024-05-01 00:00:00</validAfter>
8       <validUntil/>
9       <tenant>Provider A</tenant>
10      <routingTable>Routing_to_PSTN</routingTable>
11      <pricelist>Price_SUBSCRIBER</pricelist>
12      <emergencyLocation>Default_Location</emergencyLocation>
13      <sysAccountTopStop>
14        <type>ACC</type>
15        <monthlyReset>true</monthlyReset>
16        <valueMax>50.0</valueMax>
17        <alarmEmail>user@home.com</alarmEmail>
18      </sysAccountTopStop>
19      <ruleset>Subscriber</ruleset>
20      <ruleset>Block : All Outgoing 090* Calls</ruleset>
21    </account>
22  </daml>
```

Read an instance:

```
1   <daml command="read">
2     <account>
3       <accountName>an-acc-0021</accountName>
4     </account>
5   </daml>
```

Modify properties of an instance:

```
1   <daml command="write">
2     <account>
3       <accountName>an-acc-0021</accountName>
4       <validUntil>2024-12-31 24:00:00</validUntil>
5     </account>
6   </daml>
```

Delete an instance:

```
1   <daml command="delete">
2     <account>
3       <accountName>an-acc-0021</accountName>
4     </account>
5   </daml>
```

## 7.3    Manage: The RuleSets of an Account

The RuleSet assigning to an account is as usual. But the modifying of the used RuleSet is special, see below.

### 7.3.1    Property Definitions of Object-Key: <RuleSet>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <account> <ruleset> | | | Defines the managing of the RuleSet object of the account. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| <ruleset> | String | Ruleset name<br><br>Max. 128 characters | Defines a Ruleset that must be applied to this account.<br><br>The property <ruleset> must be applied to each RuleSet that needs to be applied to the account. |

## 7.3.2    Examples Managing "RuleSet" Instances

Create an instance:

```
1  <daml command="write">
2    <account>
3        <accountName>an-acc-0021</accountName>
4        <ruleset>Subscriber</ruleset>
5        <ruleset>Block : All Outgoing 090* Calls</ruleset>
6    </account>
7  </daml>
```

Read an instance:

For reading the RuleSet configurations of an account the whole account must red and then filtered for the <ruleset> properties.

```
1  <daml command="read">
2    <account>
3      <accountName>an-acc-0021</accountName>
4    </account>
5  </daml>
```

Modify or delete an instance:
Applicate the following process to modify the list of RuleSets.

1. **All** configured Rulesets of this account must be deleted first,
   e.g:

   ```
   1  <daml command="write">
   2    <account>
   3      <accountName>an-acc-0021</accountName>
   4      <ruleset/>
   5    </account>
   6  </daml>
   ```

2. Then all needed Ruleset have to be rewritten again,
   e.g.:

   ```
   1  <daml command="write">
   2    <account>
   3        <accountName>an-acc-0021</accountName>
   4        <ruleset>Subscriber</ruleset>
   5        <ruleset>Block : All Outgoing 0906* Calls</ruleset>
   6    </account>
   7  </daml>
   ```

## 7.4    Manage: The Call Forwarding CF of an Account

Manage all aspects of a call forwarding of an anSwitch V6 customer account and its addresses.

```
POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml
```

```
<daml command="create">
  <account>
    <accountName>an-acc-0021</accountName>
    ...
<!-- Call Forward on level account -->
    <callForward>
      <type>CFU</type>
      <name>Home Office</name>
      <priority>15</priority>

      <sourcePattern>007.*</sourcePattern>
      <sourcePresentationPattern>HIDE</sourcePresentationPattern>
      <destPattern>08.*</destPattern>
      <destReplace>0876543210</destReplace>

      <delay>0</delay>
      <rejectPattern/>

      <timePattern>12345@0800-1200/1300-1700</timePattern>

      <lastDiversion>false</lastDiversion>

      <propagateBusy>false</propagateBusy>
      <parallelCall>false</parallelCall>
      <alwaysRing>false</alwaysRing>
      <earlyMedia>false</earlyMedia>
      <reroute>false</reroute>
      <suspended>false</suspended>
    </callForward>
    ...
  </account>
</daml>
```

**Call Forward:**
List of call forwards of this account.

Details see:
- "Property Definitions of Object-Key: <callForward>" ↗
- "Manage: The VoiceMail Box of an Address" ↗

## 7.4.1 Property Definitions of Object-Key: <callForward>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <address> <callForward> | | | Defines the managing of the call forward properties. |
| <type> | String | [ CFU \| CFB \| CFNR \| CFF \| CFO \| DIST \| REDIR ] | Defines the type of the call fording CF: Values:<br>▸ CFU:  Call Forward Unconditional<br>▸ CFF:  Call Forward Fallback<br>▸ CFB:  Call Forward Busy<br>▸ CFR:  Call Forward Rejected<br>▸ CFNR:  Call Forward No Reply<br>▸ CFO:  Call Fork<br>▸ DIST:  Call Distribution<br>▸ REDIR:  Call Redirection |
| <name> | String | Max. 128 characters | Any name of the CF.<br><br>Note:  Use unique names within the account if it is planned to modify call forwards via the DAML API. |
| <priority> | Number | ≥1 | Defines the priority of the CF execution. Values:<br>▸ 1:  Highest priority<br><br>Note:  CFs configured via the AdminCenter or with *#-codes by the user have the |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | following default priorities are auto-matically applied:<br>▸ 10: All other CF<br>▸ 20: CFF |
| <sourcePattern> | String | [ empty \|<br>  SIP address pattern ]<br><br>SIP address definition:<br>"display" number@domain<br><br>Max. 128 characters | The caller ID must be considered for CF if a pattern is defined.<br>▸ If the value is empty, then the no pattern matching is executed.<br>▸ The whole SIP address is evaluated.<br>▸ Java Regex is possible.<br><br>Examles:<br>▸ The caller number must start with 001:<br>  <sourcePattern><br>    001.*<br>  </sourcePattern><br><br>▸ The caller SIP address display, number and domain must match:<br>  <sourcePattern><br>    "John" 08.*@company.com<br>  </sourcePattern> |
| <sourcePresentation↵Pattern> | String | [ UNDEFINED \|<br>  HIDE \|<br>  SHOW ]<br><br>Default: UNDEFINED | Defines if the display of the caller ID must be considered for CF.<br><br>Values:<br>▸ UNDEFINED: The display must not be considered.<br>▸ HIDE: The caller ID is set to anonymous CLIR.<br>▸ SHOW: The caller ID is not set to anonymous CLIP |
| <destPattern> | String | [ empty \|<br>  SIP address pattern ]<br><br>SIP address definition:<br>"display" number@domain<br><br>Max. 128 characters | The called destination must be considered for CF if a pattern is defined.<br>▸ If the value is empty, then the no pattern matching is executed.<br>▸ The whole SIP address is evaluated.<br>▸ Java Regex is possible.<br><br>Examles:<br>▸ The called destination number must match 0987654321:<br>  <destPattern><br>    0987654321<br>  </destPattern><br><br>▸ The called destination SIP address display, number and domain are checked:<br>  <destPattern><br>    "Sue" 08.*@company-a.com<br>  </destPattern> |
| <destReplace> | String | SIP address definition:<br>"display" number@domain<br><br>Max. 128 characters | Defines the number or SIP address which replaces the originating destination.<br><br>Parts of the SIP address can be deleted with "-". |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | Note:   If defined the conditions of <sourcePattern> and <sourcePresentationPattern> and <destPattern> must match.<br><br>Examles:<br>▸ The called destination number is replaced with 07766554433. The display and domain part of the SIP address are not touched:<br><destPattern><br>    07766554433<br></destPattern><br><br>▸ The called destination number is replaced with 07766554433. The display part of the SIP address is deleted. The domain part is not touched:<br><destPattern><br>    "-" 07766554433<br></destPattern> |
| <delay> | Number | ≥ 0<br><br>Default: 0 | Mandatory for CF type Call Forward No Reply CFNR.<br><br>Defines the delay in seconds until the destination is signaled. |
| <rejectPattern> | String | Any string<br><br>Max. 128 characters | Used only with CF type<br>    Call Forward Rejected CFR!<br><br>Defines the reject information, e.g. SIP cause ↗. |
| <timePattern> | String | [ empty \|<br>  Schedule pattern ]<br><br>Max. 30 characters | Defines the schedule this CF is active.<br><br>The schedule pattern has 2 parts:<br>▸ Weekdays:<br>  List of day number 1-7, where Monday starts with 1.<br>  When no day numbers are listed then it is valid for the whole week.<br>▸ Daily periods:<br>  Defines the period during a day in a 24-hour format, e.g. 0800-1200.<br>  Two daily periods can be defined separated with "/".<br>  When no daily period is defined then the CF is valid for the day.<br>▸ Schedule pattern separators:<br>  ▸ @ :      Between weekday number and daily periods<br>  ▸ / :        Between the two daily              periods.<br><br>Examples:<br>▸ The CF must be active from Monday until Friday and from 8:00 – 12:00 and 13:30 – 17:45.<br><timePattern><br>    12345@0800-1200/1330-1745 |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | </timePattern><br><br>▸ The CF must be active on Saturday and Sunday for 24 hours.<br>&lt;timePattern&gt;<br>    67@<br>&lt;/timePattern&gt;<br><br>▸ The CF must be active every weekday from 13:00 – 17:00.<br>&lt;timePattern&gt;<br>    1300-1700<br>&lt;/timePattern&gt; |
| &lt;lastDiversion&gt; | String | [ true \| false ]<br><br>Default: false | Used only with CF type:<br>    Call Redirection REDIR<br><br>Usage check with the Aarenet Support⤴. |
| &lt;propagateBusy&gt;<br>&lt;parallelCall&gt;<br>&lt;alwaysRing&gt;<br>&lt;earlyMedia&gt;<br>&lt;reroute&gt;<br>&lt;suspended&gt; | String | [ true \| false ]<br><br>Default: false | Used only with CF type:<br>    Call Distribution DIST<br><br>Usage check with the Aarenet Support⤴. |

### 7.4.2 Examples Managing "Call Forward" Instances

Create an instance:

```
1   <daml command="write">
2     <account>
3       <accountName>an-acc-0021</accountName>
4       <callForward>
5         <name>Call Duty Mobile</name>
6         <type>CFU</type>
7         <priority>90</priority>
8         <destReplace>0876543210</destReplace>
9       </callForward>
10    </account>
11  </daml>
```

Read an instance:

> For reading the call forward configurations of an account the whole account must red and then filtered for the &lt;callForward&gt; properties.

```
1   <daml command="read">
2     <account>
3       <accountName>an-acc-0021</accountName>
4     </account>
5   </daml>
```

Modify an instance:

A call forward instance can be modified individually by referencing their name.

> Note: If the CF name is not unique then the result is not predictable. If in doubt, modify a CF via the ConfigCenter.

```
 1  <daml command="write">
 2    <account>
 3      <accountName>an-acc-0021</accountName>
 4      <callForward>
 5        <name>Call Duty Mobile</name>
 6        <priority>5</priority>
 7        <timePattern>67@</timePattern>
 8      </callForward>
 9    </account>
10  </daml>
```

Delete an instance:

> There is no unique identification of a CF that would allow deletion via the DAML API. Call forwarding can therefore only be deleted via the ConfigCenter!

## 7.5 Manage: The TopStop of an Account or Address

TopStop can be assigned to the account and to its addresses.

POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml

| | |
|---|---|
| <pre><daml command="create"><br>  <account><br>    <accountName>an-acc-0021</accountName><br>    <info>Residential Test Account</info><br>    ...<br><!-- TopStop on level account --><br>    <accAccountTopStop><br>      <type>ACC</type><br>      <valueMax>20.0</valueMax><br>      ...<br>    </accAccountTopStop><br><br><br>    <address><br>      <accountName>an-acc-0021</accountName><br>      <number>0123456789</number><br>      ...<br><!-- TopStop on level address --><br>      <addAddressTopStop><br>        <valueMax>10.0</valueMax><br>        ...<br>      </addAddressTopStop ><br>      ...<br>    </address><br><br>  </account><br></daml></pre> | TopStop for the account:<br>3 types of TopStops can be assigned to an account:<br>    ‣ <sysAccountTopStop><br>    ‣ <accAccountTopStop><br>    ‣ <addAccountTopStop><br>Details see "Property Definitions of Object-Key: <xxxAccountTopStop>".<br><br><br>TopStop for an address:<br>3 types of TopStops can be assigned to an address:<br>    ‣ <sysAddressTopStop><br>    ‣ <accAddressTopStop><br>    ‣ <addAddressTopStop><br>Details see "Property Definitions of Object-Key: <xxxAccountTopStop>". |

### 7.5.1 Property Definitions of Object-Key: <xxxAccountTopStop>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key:   <account><sysAccountTopStop><br>              <account><accAccountTopStop><br>              <account><addAccountTopStop> | | | Defines the managing of the TopStop objects of an account. |
| <sysAccountTopStop><br>   monthly properties<br>   daily properties<br>   alarm properties<br></sysAccountTopStop> | | | Defines the 3 types of TopStop objects that can be assigned to an account.<br><br>TopStop types: |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| `<accAccountTopStop>`<br>   monthly properties<br>   daily properties<br>   alarm properties<br>`</accAccountTopStop>`<br><br>`<addAccountTopStop>`<br>   monthly properties<br>   daily properties<br>   alarm properties<br>`</addAccountTopStop>` | | | sysAccountTopStop: This TopStop is usually defined by a system administrator/operator or tenant operator.<br>➔ Use this type of TopStop for "hidden" TopStops that cannot be changed by a customer.<br>➔ In the ConfigCenter it is visible for administrators and operators.<br>➔ In the AdminCenter this TopStop is not visible.<br><br>accAccountTopStop: This TopStop is usually defined by a tenant operator.<br>➔ A customer may see this configuration in the ConfigCenter and may modify it.<br>➔ In the ConfigCenter it is visible for system administrators/operators and tenant administrators/operators.<br>➔ In the AdminCenter this TopStop is not visible.<br><br>addAccountTopStop: This TopStop is usually defined by a tenant operator. It will be applied to individual addresses of the account.<br>➔ Use this type of TopStop for "hidden" address TopStops that cannot be changed by a customer.<br>➔ In the ConfigCenter it is visible for system administrators/operators and tenant administrators/operators.<br>➔ In the AdminCenter this TopStop is not visible. |
| Monthly limit properties: | | | |
| `<monthlyReset>` | String | [ true \| false ]<br><br>Default: true | If true, activates the TopStop and defines that the monthly maximum limit is reset at the starting of a new month.<br>If set false, the maximum limit `<valueMax>` can be interpreted as prepaid charge. |
| `<valueMax>` | Float | [ empty \|<br>  value ≥0.0 ]<br><br>Default: empty | Defines the blocking limit per month for the account. It may not be exceeded by the charging sum of all connections of this account.<br>If set to "empty" then no blocking limit is supervised. |
| `<valueCurrent>` | Float | value ≥0.0 | Read only!<br>Current total charges since the last resetting of the charging limit. |
| `<valueCurrent MODE_ATTRIBUTE>` | String | [ mode="force" \|<br>  mode="update" ] | Defines how to modify the value of property `<valueCurrent>`.<br>➔ This update is needed after the modification or deletion process of TopStops. Details see "Examples Managing <xxxAccountTopStop> Instances". |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | Values:<br>▸ mode="force": This forces the counter to be set to the given value.<br>▸ mode="update": The value is recalculated from the CDR data base.<br>→ This might slow down the provisioning!<br><br>Examples:<br><valueCurrent mode="force">10.00 </valueCurrent><br><br><valueCurrent mode="update"> </valueCurrent> |
| | | | |
| Daily limit properties: | | | |
| <dailyReset> | String | [ true \| false ]<br><br>Default: true | If true, activates the TopStop and defines that the daily maximum limit is reset at the starting of a new day. |
| <dailyMax> | Float | [ empty \|<br>  value ≥0.0 ]<br><br>Default: empty | Defines the blocking limit per day for the account. It may not be exceeded by the charging sum of all connections of this account.<br>If set to "empty" then no blocking limit is supervised. |
| <dailyCurrent> | Float | value ≥0.0 | Read only!<br>Current total charges since the last resetting of the charging limit. |
| <dailyCurrent MODE_ATTRIBUTE> | String | [ mode="force" \|<br>  mode="update" ] | Defines how to modify the value of property <dailyCurrent>.<br>➔  This update is needed after the modification or deletion process of TopStops. Details see "Examples Managing <xxxAccountTopStop> Instances".<br><br>Values:<br>▸ mode="force": This forces the counter to be set to the given value.<br>▸ mode="update": The value is recalculated from the CDR data base.<br>→ This might slow down the provisioning!<br><br>Examples:<br><dailyCurrent mode="force" >10.00 </dailyCurrent><br><br><dailyCurrent mode="update"> </dailyCurrent> |
| | | | |
| Properties applied for monthly and daily limits | | | |
| <alarmLevel> | Float | [ empty \|<br>  value range 0.0 – 1.0 ]<br><br>Default: empty | Defines the alarming limit in percent of the monthly max. blocking limit. The value must be configured in tenths.<br>For example:<br>▸ 0.9 → 90%<br>▸ 0.7 → 70% |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| <alarmEmail> | String | [ empty \| email ]<br><br>Default: empty<br><br>Max. 64 characters | Defines the email address where an email is sent when a limit is reached:<br>▸ Alarm limit.<br>▸ Block limit |
| <blockAlarmSent> | String | [ true \| false ] | Read Only!<br>Indicates that an email was sent when the daily or monthly blocking limit was reached. |

## 7.5.2    Examples Managing <xxxAccountTopStop> Instances

Create an instance:

```
 1  <daml command="write">
 2    <account>
 3      <accountName>an-acc-0021</accountName>
 4      <accAccountTopStop>
 5        <monthlyReset>true</monthlyReset>
 6        <valueMax>50.00</valueMax>
 7        <alarmLevel>0.8</alarmLevel>
 8        <alarmEmail>noc@company.com</alarmEmail>
 9      </accAccountTopStop>
10    </account>
11  </daml>
```

Read an instance:

> For reading the TopStop configurations of an account the whole account must be read and then filtered for the <xxxAccountTopStop> properties.

```
 1  <daml command="read">
 2    <account>
 3      <accountName>an-acc-0021</accountName>
 4    </account>
 5  </daml>
```

Modify an instance:

> Applicate the following process to modify an account TopStop.

1.    **All** configured TopStop of an affected type of this account must be deleted first,
     e.g. modify a <sysAccountTopStop/>:

```
 1  <daml command="write">
 2    <account>
 3      <accountName>an-acc-0021</accountName>
 4      <sysAccountTopStop/>
 5    </account>
 6  </daml>
```

2.    Then all TopStops of an affected type must be rewritten again with the modified property values, e.g.:

```
 1  <daml command="write">
 2    <account>
 3      <accountName>an-acc-0021</accountName>
 4      <accAccountTopStop>
 5        <monthlyReset>true</monthlyReset>
 6        <valueMax>50.00</valueMax>
 7        <alarmLevel>0.8</alarmLevel>
 8        <alarmEmail>noc@company.com</alarmEmail>
 9        <valueCurrent mode="update"></valueCurrent>
10      </accAccountTopStop>
11    </account>
12  </daml>
```

Delete an instance:

Applicate the following process to delete an account TopStop.

1. **All** configured TopStop of an affected type of this account must be deleted first,
   e.g. modify a <sysAccountTopStop/>:

```
 1  <daml command="write">
 2    <account>
 3      <accountName>an-acc-0021</accountName>
 4      <sysAccountTopStop/>
 5    </account>
 6  </daml>
```

2. Then the remaining TopStops of an affected type must be rewritten again with their property values.

### 7.5.3 Property Definitions of Object-Key: <xxxAddressTopStop>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key:  <account><address><sysAddressTopStop>  <account><address><accAddresstTopStop>  <account><address><addAddressTopStop> | | | Defines the managing of the TopStop objects of an address. |
| <sysAddressTopStop>   monthly properties   daily properties   alarm properties </sysAddressTopStop>  <accAddressTopStop>   monthly properties   daily properties   alarm properties </accAddressTopStop>  <addAddressTopStop>   monthly properties   daily properties   alarm properties </addAddressTopStop> | | | Defines the 3 types of TopStop objects that can be assigned to an address.  TopStop types: sysAddressTopStop: This TopStop is usually defined by a system administrator/operator or tenant operator.  ➔ Use this type of TopStop for "hidden" TopStops that cannot be changed by a customer.  ➔ In the ConfigCenter it is visible for administrators and operators.  ➔ In the AdminCenter this TopStop is not visible.  accAddressTopStop: This TopStop is usually defined by a tenant operator.  ➔ A customer may see this configuration in the ConfigCenter and may modify it.  ➔ In the ConfigCenter it is visible for system administrators/operators and tenant administrators/operators. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | → In the AdminCenter this TopStop is not visible.<br><br>addAddressTopStop: This TopStop is usually defined by a customer. It will be applied to individual addresses of the account.<br>→ In the ConfigCenter it is visible for system administrators/operators and tenant administrators/operators.<br>→ In the AdminCenter this TopStop is visible to the user of this address. |

&lt;xxxAddressTopStop&gt; properties are equal to the &lt;xxxAccountTopStop&gt; ones, details see "Property Definitions of Object-Key: &lt;xxxAccountTopStop&gt;".

## 7.5.4    Examples Managing &lt;xxxAddressesTopStop&gt; Instances

Create an instance concurrently with the account creation:

```
1   <daml command="write">
2     <account>
3       <accountName>an-acc-0021</accountName>
4       ...
5       <address>
6         <number>0987654321</number>
7         <account>wstrainer-0000</account>
8         <addAddressTopStop>
9           <monthlyReset>true</monthlyReset>
10          <valueMax>50.00</valueMax>
11          <alarmLevel>0.8</alarmLevel>
12          <alarmEmail>noc@company.com</alarmEmail>
13        </addAddressTopStop>
14        ...
15      </address>
16      ...
17    </account>
    </daml>
```

Add an instance to an existing address:

```
1   <daml command="write">
2     <address>
3       <number>0987654321</number>
4       <account>wstrainer-0000</account>
5       <accAccountTopStop>
6         <monthlyReset>true</monthlyReset>
7         <valueMax>50.00</valueMax>
8         <alarmLevel>0.8</alarmLevel>
9         <alarmEmail>noc@company.com</alarmEmail>
10      </accAccountTopStop>
11    </address>
12  </daml>
```

Read an instance:

For reading the TopStop configurations of an address the whole address must be read and then filtered for the &lt;xxxAddressTopStop&gt; properties.

```
1  <daml command="read">
2    <address>
3      <number>0987654321</number>
4      <account>wstrainer-0000</account>
5    </address>
6  </daml>
```

Modify an instance:

Applicate the following process to modify an address TopStop.

1.  **All** configured TopStop of an affected type of this address must be deleted first,
    e.g. modify a <addAddressTopStop/>:

```
1  <daml command="write">
2    <address>
3      <number>0987654321</number>
4      <account>wstrainer-0000</account>
5      <addAddressTopStop/>
6    </address>
7  </daml>
```

2.  Then all TopStops of an affected type must be rewritten again with the modified property values,
    e.g.:

```
1   <daml command="write">
2     <address>
3       <number>0987654321</number>
4       <account>wstrainer-0000</account>
5       <addAddressTopStop>
6         <monthlyReset>true</monthlyReset>
7         <valueMax>50.00</valueMax>
8         <alarmLevel>0.8</alarmLevel>
9         <alarmEmail>noc@company.com</alarmEmail>
10        <valueCurrent mode="update"></valueCurrent>
11      </addAddressTopStop>
12    </address>
13  </daml>
```

Delete an instance:

Applicate the following process to delete an address TopStop.

1.  **All** configured TopStop of an affected type of this address must be deleted first,
    e.g. modify a <addAddressTopStop/>:

```
1  <daml command="write">
2    <address>
3      <number>0987654321</number>
4      <account>wstrainer-0000</account>
5      <addAddressTopStop/>
6    </address>
7  </daml>
```

2.  Then the remaining TopStops of an affected type must be rewritten again with their property values.

## 7.6    Manage: Addresses of an Account

Manage all aspects of a telephone number (SIP address) of an anSwitch V6 customer account.
The address object itself contains the following objects:

1.  Basic address properties
2.  TopStop security specifically for the address.
3.  VoiceMail Box of the address

4. Call forwards, call reject and other user features which are bound to the address.
5. AdminCenter account for accessing the address.

```
POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml
```

| | |
|---|---|
| ```<daml command="create">```<br>  ```<address>```<br><br>```<!-- Address Basic Properties -->```<br>    ```<account>an-acc-0021</account>```<br>    ```<number>0123456789</number>```<br>    ```...```<br><br>```<!-- TopStop on level address -->```<br>    ```<addAddressTopStop>```<br>      ```<valueMax>50.00</valueMax>```<br>      ```...```<br>    ```</addAddressTopStop>```<br><br>```<!-- VoiceMail Box -->```<br>    ```<messageBox>```<br>      ```<email>user@home.com</email>```<br>      ```...```<br>    ```</messageBox>```<br><br>```<!-- Various User Features -->```<br>    ```<showClip>false</showClip>```<br>    ```<hideClip>false</hideClip>```<br>    ```<dnd>false</dnd>```<br>    ```<rrn>false</rrn>```<br>    ```<noOfferOnBusy>false</noOfferOnBusy>```<br>    ```<busyIfAllDevicesAreBusy>false</busyIfAllDevicesAreBusy>```<br>    ```<msisdn>+41456789</msisdn>```<br>    ```<autoRecord>false</autoRecord>```<br>    ```<recordingEmail/>```<br><br>```<!-- AdminCenter Access -->```<br>    ```<addressAdmin>```<br>      ```<username>test-user</username>```<br>      ```...```<br>    ```</addressAdmin>```<br><br>  ```</address>```<br>```</daml>``` | List of n telephone numbers (SIP addresses) on level account.<br><br>**Address Basic Properties:**<br>Details see "Property Definitions of Object-Key: <address>". ↗<br><br>**TopStop of Address:**<br>Details see "Property Definitions of Object-Key: <xxxAddressTopStop>". ↗<br><br>**User VoiceMail Box:**<br>Details see "Manage: The VoiceMail Box of an Address". ↗<br><br>**Various User Features**<br>▸ Caller Id display CLIP/CLIR.<br>▸ Do not disturb DND.<br>▸ Reject anonymous calls RRN.<br>▸ User busy handling<br>▸ MS Teams number binding<br>▸ Call recording<br>Details see "Property Definitions of User Features of Object-Key: <address>Manage: The VoiceMail Box of an Address". ↗<br><br>**User AdminCenter Access:**<br>Details see:<br>▸ "Property Definitions of Object-Key: <messageBox> ↗<br>▸ Manage: The VoiceMail Box of an Address" ↗ |

### 7.6.1 Property Definitions of Object-Key: <address>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <address> | | | Defines the managing of the address object of an account. |
| <name> | String | Max. 32 characters | Mandatory configuration!<br>Defines the account of this number. |
| <number> | Number | Max. 50 digits | Mandatory configuration!<br>Defines a number of the account. |
| <domain> | String | [ empty \| domain ]<br><br>Default: empty<br>Max. 128 characters | Defines the domain part of the SIP address. Values:<br>▸ empty:<br>  No domain defined. The domain part of the peering SIP-equipment is passed.<br>▸ - :<br>  Deletes the name part.<br>▸ domain: |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | Domain name or IP address. It overwrites what is from the peering SIP-equipment. |
| \<displayName\> | String | [ empty \| <br> - \| <br> name ] <br><br> Default: empty <br> Max. 128 characters | Defines the domain part of the SIP address. <br> Values: <br> ▸ empty: <br> No name defined. The name part of the peering SIP-equipment is passed. <br> ▸ - : <br> Deletes the name part. <br> ▸ name: <br> Any string, overwrites what is from the peering SIP-equipment. |
| \<validAfter\> | yyyy-MM-dd'T'HH:mm:ss | [ empty \| <br> Date/Time ] <br><br> Default: empty | Defines the date/time of the activation of the address. <br> Values: <br> ▸ empty: The address is activated. <br> ▸ Date/Time: The address is activated beginning at Date/Time. |
| \<validUntil\> | yyyy-MM-dd'T'HH:mm:ss | [ empty \| <br> Date/Time ] <br><br> Default: empty | Defines the date/time of the deactivation of the address. <br> Values: <br> ▸ empty: The address is activated. <br> ▸ Date/Time: The address is deactivated beginning at Date/Time. |
| \<language\> | String | | |
| \<portoutNumber\> | String | [ empty \| <br> NPRN ] <br><br> Default: empty <br> Max. 50 characters | Used for number porting in Switzerland! <br><br> Defines the prefix that is added to the called number. The date/time of \<validUntil\> of the number must have expired for the prefix to be added. <br> Values: <br> ▸ empty: No out porting active. <br> ▸ NPRN: NPRN that is attached a prefix to the called number. |
| \<emergencyLocation\> | String | [ empty \| <br> Emergency location ] <br><br> Max. 32 characters | Defines the emergency location to the address. <br> If not defined, then the emergency location of the account is used. <br> Values: <br> ▸ empty: <br> The system-wide default emergency location is used. <br> ▸ Emergency Location: <br> The location name must be already configured in the emergency call configuration of this an Switch V6. <br><br> The available emergency locations can be queried with "Query: Emergence Locations Names" |
| \<mainNumber\> | String | [ true \| false ] <br><br> Default: false | If true defines this number as the main number of this account. <br><br> Note: Only 1 address of the account can be defined as the main number! |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| <registersViaMainNumber> | String | [ true \| false ]<br><br>Default: false | If true defines that this telephone number is registered via the main number of this account. |
| <baseNumber> | String | [ true \| false ]<br><br>Default: false | Used for base number routing in Germany!<br><br>If true defines this number as the base number of this account.<br><br>Note: Only 1 address of the account can be defined as the base number! |
| <signalingOnly> | String | [ true \| false ]<br><br>Default: false | If true, then only outgoing calls are possible for this number. |
| <blocked> | String | [ true \| false ]<br><br>Default: false | If true, then only incoming calls are possible to this number. |
| <disabled> | String | [ true \| false ]<br><br>Default: false | If true, then this number is assigned to this account but is blocked for incoming and outgoing calls.<br><br>Note: This number is reserved for this account and cannot be assigned to any other account of this anSwitch V6! |
| <singleLocation> | String | [ true \| false ]<br><br>Default: false | If true defines that only one SIP-device can register to this telephone number. |
| <balancedRouting> | String | [ true \| false ]<br><br>Default: false | If true defines that registering SIP CPEs can provide a balancing Q value directive.<br>The anSwitch V6 will routing incoming calls according to the balancing directive toward the SIP-device. |
| <priorityCall> | String | [ true \| false ]<br><br>Default: false | If true, then this defines that that outgoing calls from this number are handled with priority by the call control.<br>In extreme cases the call control terminates existing connections for routing a priority call toward the PSTN. |

## 7.6.2   Examples Managing "Address" Instances

Create an instance:

```
1  <daml command="create">
2    <address>
3      <account>an-acc-0021</account>
4      <number>0987654321</number>
5      <validAfter>2024-05-01 15:00:00</validAfter>
6      <validUntil/>
7    </address>
8  </daml>
```

Read an instance:

```
1  <daml command="read">
2    <address>
3      <account>an-acc-0021</account>
4      <number>0987654321</number>
5    </address>
6  </daml>
```

Modify properties of an instance:

```
1  <daml command="write">
2    <address>
3      <account>an-acc-0021</account>
4      <number>0987654321</number>
5      <validUntil>2024-09-09 13:15:00<validUntil>
6    </address>
7  </daml>
```

Delete an instance:

```
1  <daml command="delete">
2    <address>
3      <account>an-acc-0021</account>
4      <number>0987654321</number>
5    </address>
6  </daml>
```

## 7.7    Manage: The VoiceMail Box of an Address

Manage all aspects of a VoiceMail Box for an anSwitch V6 address.

POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml

| | |
|---|---|
| `<daml command="create">`<br>`  <address>`<br>`    <accountName>an-acc-0021</accountName>`<br>`    <number>0123456789</number>`<br>`    ...`<br>`<!-- VoiceMail Box Properties -->`<br>`    <messageBox>`<br>`      <autoAuthentication>false</autoAuthentication>`<br>`      <skipMessageMenu>false</skipMessageMenu>`<br>`      <language>de</language>`<br>`      <signalNewMessage>true</signalNewMessage>`<br>`      <subscribedMwiOnly>true</subscribedMwiOnly>`<br>`      <email>user@home.com</email>`<br>`      <formatMp3>false</formatMp3>`<br>`      <blocked>no</blocked>`<br>`      <faxOnly>false</faxOnly>`<br>`      <faxAutoDetect>true</faxAutoDetect>`<br>`      <deleteAfterSend>false</deleteAfterSend>`<br>`      <mailWithoutMessage>false</mailWithoutMessage>`<br>`    </messageBox>`<br>`    ...`<br>`  </address>`<br>`</daml>` | VoiceMail Box Properties:<br>Details see:<br>▸ "Property Definitions of Object-Key: <messageBox> ↗<br>▸ Manage: The VoiceMail Box of an Address" ↗ |

## 7.7.1 Property Definitions of Object-Key: <messageBox>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <address> <messageBox> | | | Defines the managing of the VoiceMail Box object of an address. |
| <pin> | Number | [ empty \| PIN ]<br><br>Default: empty<br><br>Max. 32 digits | Write only!<br><br>Defines the PIN to be used for the VoiceMail Box access from any telephone whether it is from a phone registered to this address or from a public number.<br><br>Values:<br>▸ empty: No PIN defined, so no PIN is needed for the VoiceMail Box access.<br>▸ PIN: Number<br><br>Note: The PIN is not show in the result of a read request! |
| <autoAuthentication> | String | [ true \| false ]<br><br>Default: false | If true, defines whether the PIN is needed when the VoiceMail Box is accessed from any phone registered to this address.<br><br>Note: The PIN is always requested from any access other than the "own" phones. |
| <skipMessageMenu> | String | [ true \| false ]<br><br>Default: false | If true, defines that the main menu of the VoiceMail Box is skipped upon accessing the VoiceMail Box. |
| <language> | String | [ en \| de \| fr \| it \| vi ]<br><br>Default: en | Defines the language of the announcement texts of the VoiceMail Box.<br><br>Values:<br>▸ en: English<br>▸ de: German<br>▸ fr: French<br>▸ it: Italian<br>▸ vi: Vietnamese<br><br>Note: Other languages may be available in the anSwitch V6! |
| <signalNewMessage> | String | [ true \| false ]<br><br>Default: true | If true, defines that a new recorded message is signaled by the message server of the anSwitch V6 to the registered phones of this number. |
| <subscribedMwiOnly> | String | [ true \| false ]<br><br>Default: true | Defines whether and how the phone is informed about a new message in its VoiceMail Box. The format is „Message Waiting Information MWI".<br><br>Values:<br>▸ true: Explicit MWI Subscription only! MWI messages are sent to the phone when it prior subscribed for the WMI service. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | ▸ false: Implicitly, all registered phones! A MWI message is automatically sent to all phones registered to this address. The phone must not subscribe to the WMI service. |
| <email> | String | [ empty \| email ]  Default: empty  Max. 64 characters | Defines the email address where a new recorded message or received FAX is sent. |
| <formatMp3> | String | [ true \| false ]  Default: false | If true, a recorded message is sent MP3 formatted audio file else it is WAV (PCM) |
| <blocked> | String | [ no \| number ] | Read only! States, if the VoiceMail Box is blocked and how long it is blocked.  Values: ▸ no: The VoiceMail Box is not blocked. ▸ number: Number of minutes the access to the VoiceMail Box is blocked. |
| <deleteAfterSend> | String | [ true \| false ]  Default: false | If true, defines that the VoiceMail Box deletes a message when it is sent to the defined email address.  Note: Do not set to true if no email address is assigned! |
| <mailWithoutMessage> | String | [ true \| false ]  Default: false | If true, defines that an email is sent with the caller number even when no message was recorded. |
| <faxAutoDetect> | String | [ true \| false ]  Default: false | If true, defines that the VoiceMail Box is enabled to recording messages and receiving FAX. |
| <faxOnly> | String | [ true \| false ]  Default: false | If true, defines that the VoiceMail Box is enabled to receiving FAX only. |

## 7.7.2 Examples Managing "VoiceMail Box" Instances

Create an instance:

```
1   <daml command="create">
2     <address>
3       <account>an-acc-0021</account>
4       <number>0987654321</number>
5       ...
6       <messageBox>
7         <autoAuthentication>false</autoAuthentication>
8         <skipMessageMenu>false</skipMessageMenu>
9         <language>de</language>
10        <signalNewMessage>true</signalNewMessage>
11        <subscribedMwiOnly>true</subscribedMwiOnly>
12        <email>user@home.com</email>
13        <formatMp3>false</formatMp3>
14        <blocked>no</blocked>
15        <faxOnly>false</faxOnly>
16        <faxAutoDetect>true</faxAutoDetect>
17        <deleteAfterSend>false</deleteAfterSend>
18        <mailWithoutMessage>false</mailWithoutMessage>
19      </messageBox>
20      ...
21    </address>
22  </daml>
```

Read an instance:

For reading the VoiceMail Box configurations of an address the whole address must red and then filtered for the <messageBox> properties.

```
1   <daml command="read">
2     <address>
3       <account>an-acc-0021</account>
4       <number>0987654321</number>
5     </address>
6   </daml>
```

Modify properties of an instance:

```
1   <daml command="write">
2     <address>
3       <account>an-acc-0021</account>
4       <number>0987654321</number>
5       <messageBox>
6         <deleteAfterSend>true</deleteAfterSend>
7         <mailWithoutMessage>true</mailWithoutMessage>
8       </messageBox>
9     </address>
10  </daml>
```

Delete an instance:

```
1   <daml command="delete">
2     <address>
3       <account>an-acc-0021</account>
4       <number>0987654321</number>
5       <messageBox/>
6     </address>
7   </daml>
```

## 7.8    Manage: Various User features that are Bound to an Address

Manage diverse user features of an anSwitch V6 address.

```
POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml
```

```
<daml command="create">
  <address>
    <account>an-acc-0021</account>
    <number>0123456789</number>
    ...
<!-- Various User Features -->
    <showClip>false</showClip>
    <hideClip>false</hideClip>
    <dnd>false</dnd>
    <rrn>false</rrn>
    <noOfferOnBusy>false</noOfferOnBusy>
    <busyIfAllDevicesAreBusy>false</busyIfAllDevicesAreBusy>
    <msisdn>+41456789</msisdn>
    <autoRecord>false</autoRecord>
    <recordingEmail/>
    <cfu/>
    <cff/>
    <cfb/>
    <cfnr/>
    <cfo/>
    ...
  </address>
</daml>
```

Various User Features:
- Caller Id display CLIP/CLIR.
- Do not disturb DND.
- Reject anonymous calls RRN.
- User busy handling
- MS Teams number binding
- Call recording

Details see:
- "Property Definitions of User Features of Object-Key: <address>" ↗

### 7.8.1    Property Definitions of User Features of Object-Key: <address>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <address> | | | Defines the managing of the address. |
| <showClip> | String | [ true \| false ]<br><br>Default: false | These two properties <showClip> and <hideClip> determine whether and how the CLIP of the calling side is modified by the anSwitch V6 and sent toward the destination.<br><br><showClip>    : false<br><hideClip>     : false<br>        The CLIP will not be modified by the anSwitch V6.<br><br><showClip>    : true<br><hideClip>     : false<br>        The CLIP will be forced displayed by the anSwitch V6.<br><br><showClip>    : false<br><hideClip>     : true<br>        The CLIP will be hidden by the anSwitch V6.<br>        → forces anonymous call CLIR.<br><br><showClip>    : true<br><hideClip>     : true<br>        Invalid combination, the result is undefined. |
| <hideClip> | String | [ true \| false ]<br><br>Default: false | |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| <dnd> | String | [ true \| false ]<br><br>Default: false | If true, defines that "Do not Disturb DND" for this number is active.<br>Incoming calls are connected to a corresponding announcement. |
| <rrn> | String | [ true \| false ]<br><br>Default: false | If true, defines that "Reject anonymous calls RRN" for this number is active.<br>Incoming calls are connected to a corresponding announcement. |
| <noOfferOnBusy> | String | [ true \| false ]<br><br>Default: false | These two properties <noOfferOnBusy> and <busyIfAllDevicesAreBusy> determine how a caller is signaled that the called side is busy. |
| <busyIfAllDevicesAreBusy> | String | [ true \| false ]<br><br>Default: false | <noOfferOnBusy>: true<br><busyIfAllDevicesAreBusy>: false<br> If one phone of the address is in a connection:<br>  Called: No call waiting is signaled, and the free phones are not ringing.<br>  Caller: Busy is signaled.<br><br><noOfferOnBusy>: false<br><busyIfAllDevicesAreBusy>: false<br> If at least one phone of the address is in a connection:<br>  Called: Call waiting is signaled, and the free phones are ringing. Any called can reject.<br>  Caller: Alerting signaled until **one** called reject.<br><br><noOfferOnBusy>: false<br><busyIfAllDevicesAreBusy>: true<br> All phones of the address are in a connection:<br>  Called: Call waiting is signaled. All called reject.<br>  Caller: Alerting signaled until **all** called reject. |
| <msisdn> | String | International phone number<br><br>Max. 16 characters | Defines public phone number that associate this address with the MS Teams member of the associated MS Teams domain.<br><br>The format must be with the international number prefix, e.g.:<br> +41567891234 |
| <autoRecord> | String | [ true \| false ]<br><br>Default: false | If true, defines that the audio streams of connections of this address are automatically recorded. |
| <recordingEmail> | String | [ empty \|<br> email ]<br><br>Default: empty<br><br>Max. 64 characters | Defines the email address where a new recorded audio file of a connection must be sent. |
| <cfu> | String | Number | Read only! |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| <cff><br><cfb><br><cfnr><br><cfo> | | | Display of call forward types and their destination number of the address.<br><br>Note: The configuration of a call forward is done on account level, see "Manage: The Call Forwarding CF of an Account" ↗ |

## 7.8.2 Examples of "User Features " Entries

It the same procedure as with the standard properties of an address instance, see "Examples Managing "Address" Instances".

## 7.9 Manage: The AdminCenter Access of an Address

Manage access to the user account for configuring the address properties via the AdminCenter.

```
POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml
```

```
<daml command="create">
  <address>
    <account>an-acc-0021</account>
    <number>0123456789</number>
    ...
<!-- AdminCenter Access -->
    <addressAdmin>
      <username>test-user</username>
      <password>password</password>
      <email>user@home.com</email>
      <language>de</language>
      <authenticateLdap>false</authenticateLdap>
    </addressAdmin>
  </address>
</daml>
```

User AdminCenter Access:
▸ AdminCenter login credentials "of the user.
▸ Email address for login recovery.
▸ Used language for the AdminCenter web pages.
▸ LDAP authorization activation.

## 7.9.1 Property Definitions of Object-Key: <addressAdmin>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <address> <addressAdmin> | | | Defines the managing of the AdminCenter account object of an address. |
| <username> | String | Max. 128 characters | Username of the login credentials. |
| <password> | String | Max. 128 characters | Password of the login credentials.<br><br>The password is stored encrypted in the anSwitch V6 database. When reading out the encrypted value is returned. |
| <email> | String | [ empty \|<br>    email ]<br><br>Default: empty<br><br>Max. 64 characters | Defines the email address where an email is sent when a limit is reached:<br>▸ Alarm limit.<br>▸ Block limit |
| <language> | String | [ en \| de \| fr \| it \| vi ]<br><br>Default: en | Defines the language used by the AdminCenter GUI. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | Values:<br>‣ en: English<br>‣ de: German<br>‣ fr: French<br>‣ it: Italian<br>‣ vi: Vietnamese<br><br>Note: Other languages may be available in the anSwitch V6! |
| \<authenticateLdap\> | String | [ true \| false ]<br><br>Default: false | If true, defines if the login credentials are validated by the LDAP service defined on anSwitch V6 system level configuration. |

## 7.9.2 Examples Managing "addressAdmin" Instances

Create an instance:

```
1  <daml command="create">
2    <address>
3      ...
4      <accountName>an-acc-0021</accountName>
5      <number>0123456789</number>
6      <addressAdmin>
7        <username>test-user</username>
8        <password>password</password>
9        <email>user@home.com</email>
10       <language>de</language>
11       <authenticateLdap>false</authenticateLdap>
12     </addressAdmin>
13     ...
14   </address>
15 </daml>
```

Read an instance:

For reading the AdminCenter account configurations of an address the whole address must red and then filtered for the \<addressAdmin\> properties.

```
1  <daml command="read">
2    <address>
3      <account>an-acc-0021</account>
4      <number>0987654321</number>
5    </address>
6  </daml>
```

Modify properties of an instance:

```
1  <daml command="write">
2    <address>
3      <accountName>an-acc-0021</accountName>
4      <number>0123456789</number>
5    <addressAdmin>
6    <language>en</language>
7    </addressAdmin>
8    </address>
9  </daml>
```

Delete an instance:

```
1  <daml command="delete">
2    <address>
3      <accountName>an-acc-0021</accountName>
4      <number>0123456789</number>
5      <addressAdmin/>
6    </address>
7  </daml>
```

## 7.10      Manage: The SIP-Trunk Profile

Manage the configuration of a SIP-Trunk Profile.

| POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml | |
|---|---|
| <pre><daml command="create"><br>  <sipTrunk><br>    <name>SIP-Trunk-B</name><br>    <info>SIP-Trunk for Account: Acc-B</info><br>    <group>TNT Provider 1</group><br><br>    <auth>Challenge</auth><br>    <sipContact>sip:11.11.11.11:5560</sipContact><br>    <route1>sip:33.33.33.33:5062</route1><br>    <route2>sip:22.22.22.22:5065</route2><br>    <natConfig>NoNat</natConfig><br><br>    <userAgent>IP-PBX ABC, 11.22.33</userAgent><br>    <endpoint>Public_5060</endpoint><br>    <q>1000</q><br><br>    <matchNumber>Preferred</matchNumber><br>    <onNoMatch>Reject</onNoMatch><br>  </sipTrunk><br></daml></pre> | SIP-Trunk Profile:<br>▸ Naming & ownership<br>▸ Authentication directives<br>▸ Peering SIP device information<br>▸ Mode of caller ID evaluation |

## 7.10.1      Property Definitions of Object-Key: <addressAdmin>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <sipTrunk > | | | Defines the managing of the AdminCenter account object of an address. |
| <name> | String | Max. 32 characters | Defines a unique name of the SIP-Trunk Profile. |
| <info> | String | Max. 128 characters | Any information about the SIP-Trunk Profile. |
| <group> | String | [ - empty \|  Name of Group ]  Default: empty | Defines to which group (and its accounts) this SIP-Trunk Profile is selectable.  Values: ▸ empty:  No Group assigned.  ▸ Name of Group:  Configure the name of the Group. |
| <auth> | Selection | [ Challenge \|  Ip \|  IpAndPort \|  IpAndContactPort \|  RemoteAddress \|  RemoteIp ]  Default: Challenge | Defines how the peer SIP equipment hast to authenticate in order that outgoing calls by the peering SIP equipment are processed.  Values: ▸ Challenge:  The peering SIP equipment is challenged  by the anSwitch V6 call control. The |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | peering SIP equipment must authenticate with the SIP username and password defined in the associated Account.<br><br>▸ Ip:<br>IpAndPort:<br>The anSwitch V6 call control checks the IP address/port of the received IP packet against the IP address/port defined in parameter "CPE-Contact".<br><br>▸ IpAndContactPort:<br>The anSwitch V6 call control checks the IP address against the IP address defined in parameter "CPE-Contact" and additionally the contact IP port within the SIP-message against the IP port defined in parameter "CPE-Contact".<br><br>▸ RemoteAddress:<br>RemoteIp:<br>The anSwitch V6 call control checks of the received IP packet either the complete-address data or just the IP-address against the address data defined in parameter "Route 1"CPE-Contact". |
| \<sipContact\> | SIP-Address | [ empty \|<br>SIP-Address,<br>max. 128 char ]<br><br>Default: empty | Defines the IP address or domain name and port where the anSwitch V6 must send its SIP-messages toward the peering SIP equipment.<br><br>Depending on the IP environment of the customer side the CPE-Contact may be:<br>▸ A fixed public IP address of the:<br>  ▸ SIP equipment.<br>  ▸ Firewall or Session Border Controller SBC proxying the SIP-messages to the SIP equipment.<br>▸ Volatile public IP address of a NATing IP device, e.g. access router.<br><br>Values:<br>▸ empty:<br>No SIP-messages can be sent.<br><br>▸ SIP-Address: Defines the IP address.<br>For example:<br>sip:33.33.33.33:5560<br>sip:sbc.customer-company.com:5560 |
| \<route1\> | SIP-Address | [ empty \|<br>SIP-Address,<br>max. 128 char ]<br><br>Default: empty | If an intermediate SIP-manipulating device, e.g. a Session Border Controller SBC, is used, "Route 1" defines the IP address or the domain name and the port of this SIP-manipulating device, which points to the anSwitch V6.<br><br>Values:<br>▸ empty:<br>No intermediate SIP-manipulating device. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | ▸ SIP-Address: Defines the IP address. For example: sip:33.33.33.33:5062 sip:sbc.customer-company.com:5062 |
| \<route2\> | SIP-Address | [ empty \| SIP-Address, max. 128 char ]  Default: empty | If an intermediate SIP-manipulating device, e.g. a Session Border Controller SBC, is used, "Route 2" defines the IP address or the domain name and the port of this SIP-manipulating device, which points to the customer's peering SIP equipment.  Values: ▸ empty: No intermediate SIP-manipulating device.  ▸ SIP-Address: Defines the IP address.For example: sip:22.22.22.22:5065 sip:sbc.customer-company.com:5065 |
| \<natConfig\> | Selection | [ Automatic \| BehindNat \| NoNat]  Default: Automatic | Defines if the peering SIP equipment is located behind a NATing IT-device, e.g. a customer's access router.  If a NATing IT-device is involved, then it must be made sure that the NAT port for the SIP-messages remains open all the time. If the NAT port closes unexpectedly, then no incoming calls to the peering SIP equipment can be sig-naled by the anSwitch V6.  Values: ▸ Automatic: The anSwitch V6 tries to find out if the peer-ing SIP equipment is behind a NATing IT-de-vice. If yes, then the anSwitch V6 makes sure that the NAT port remains open.  ▸ BehindNat: Defines that the peering SIP equipment is behind a NATing IT-device. The anSwitch V6 makes sure that the NAT port remains open.  ▸ NoNat: Defines that the peering SIP equipment is not behind a NATing IT-device.  Note:  Select "Automatic" only if the situation is unknown. |
| \<userAgent\> | String | [ empty \| User Agent Name, max. 256 char ]  Default: empty | Defines the application a specifically devel-oped anSwitch V6 Capability-Set that solves interoperability problems between the cus-tomer SIP equipment and the anSwitch V6.  Values: ▸ empty: |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | Standard SIP and audio stream processing is applied.<br><br>▸ User Agent Name:<br>Defines the anSwitch V6 Capability-Set to be used.<br><br>Note: For developing, creating and activating a Capability-Set an Aarenet system engineer is required. Contact your Aarenet account manager for an interoperability project! |
| \<endpoint\> | • Selection | [ empty \|<br>List of configured SIP-Endpoint Name ]<br><br>Default: empty | Defines the SIP Endpoint where the SIP-messages from the peering customer SIP equipment are received.<br><br>Values:<br>▸ empty:<br>No incoming SIP-messages are processed by the anSwitch V6 call control.<br><br>▸ SIP-Endpoint Name:<br>Configure the SIP-Endpoint name where the anSwitch V6 accepts incoming SIP-messages from the peering SIP equipment.<br><br>Note: The IP address and port of this SIP-Endpoint must be configured in the customer SIP equipment. |
| \<q\> | Number | 0 - 1000<br><br>Default: 1000 | The SIP-Trunk profile can be weighted for managing the outgoing SIP-message workload toward the peering SIP equipment.<br><br>Examples:<br>▸ Trk-A = 500, Trk-B = 500 :<br>The anSwitch V6 load balances outgoing calls 50% on Trk-A and 50% on Trk-B<br>▸ Trk-A = 1000, Trk-B = 0 :<br>All outgoing calls are routed via Trk-A. If the connectivity via A fails all outgoing calls are routed via Trk-B.<br><br>Values:<br>▸ 0 - 1000:<br>Balanced outgoing SIP-message load via this SIP-Trunk.<br><br>Note: Incoming calls are accepted in any case from both SIP-trunks. |
| \<matchNumber\> | Selection | [ Preferred \|<br>Asserted]<br><br>Default:  Preferred | Defines which SIP-header must be used by the anSwitch V6 call control for the caller-ID evaluation.<br><br>Values:<br>▸ Preferred:<br>Defines the number of the SIP Header P-Preferred must be used. |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| | | | ▸ Asserted:<br>Defines the number of the SIP Header P-Asserted must be used. |
| \<onNoMatch\> | Selection | [ Reject \|<br>  Continue ]<br><br>Default: Reject | Defines what has to be done when no valid caller-ID can be identified by the anSwitch V6.<br><br>Values:<br>▸ Reject:<br>The call shall be rejected (SIP cause 401).<br><br>▸ Continue:<br>The anSwitch V6 challenges for the SIP-credentials and will route the call if successful. |

## 7.10.2    Examples Managing "sipTrunk" Instances

Create an instance:

```
1   <daml command="create">
2     <sipTrunk>
3       <name>SIP-Trunk-B</name>
4       <info>SIP-Trunk for Account: Acc-B</info>
5       <userAgent/>
6       <sipContact>sip:11.11.11.11:5560</sipContact>
7       <route1>sip:33.33.33.33:5062</route1>
8       <route2>sip:22.22.22.22:5065</route2>
9       <q>1000</q>
10      <endpoint>Public_5060</endpoint>
11      <group>TNT Provider 1</group>
12      <auth>Challenge</auth>
13      <matchNumber>Preferred</matchNumber>
14      <natConfig>NoNat</natConfig>
15      <onNoMatch>Reject</onNoMatch>
16    </sipTrunk>
17  </daml>
```

Read an instance:

```
1   <daml command="read">
2     <sipTrunk name="SIP-Trunk-B"/>
3   </daml></daml>
```

Modify properties of an instance:

```
1   <daml command="write">
2     <sipTrunk name="SIP-Trunk-B">
3       <group>TNT Provider 2</group>
4     </sipTrunk>
5   </daml>
```

Delete an instance:

```
1   <daml command="delete">
2     <sipTrunk name="SIP-Trunk-B"/>
3   </daml>
```

## 7.10.3    Assign & Manage SIP-Trunk Profiles of an Account

### 7.10.3.1    Assing a SIP-Trunk Profile to an Account

Assing a SIP-Trunk Profile to an Account:

```
1  <daml command="create">
2    <accountSipTrunkMap account="ACC_provider-a-0000" sipTrunk="SIP-Trunk-A"/>
3  </daml></daml>
```

Example result:

```
1  <daml status="ok">
2    <accountSipTrunkMap id="12">
3      <account>ACC_provider-a-0000</account>
4      <sipTrunk>SIP-Trunk-A</sipTrunk>
5    </accountSipTrunkMap>
6  </daml>
```

### 7.10.3.2    Remove a SIP-Trunk Profile from an Account

Remove a SIP-Trunk Profile from an Account:

```
1  <daml command="delete">
2    <accountSipTrunkMap account="ACC_provider-a-0000" sipTrunk="SIP-Trunk-A"/>
3  </daml></daml>
```

Check the result by executing the "**Error! Not a valid bookmark self-reference.**" ↗.

### 7.10.3.3    Check the Active SIP-Trunks Profiles of an Account

Check for assigned SIP-Trunk Profiles:

```
1  <daml command="read">
2    <accountSipTrunkMap account="ACC_provider-a-0000"/>
3  </daml></daml>
```

Example result:

```
1  <daml status="ok">
2    <accountSipTrunkMap id="8">
3      <account>ACC_provider-a-0000</account>
4      <sipTrunk>SIP-Trunk-B</sipTrunk>
5    </accountSipTrunkMap>
6  </daml>
```

Example result with 2 assigned SIP-Trunk Profiles:

```
1  <daml status="ok">
2    <accountSipTrunkMap id="8">
3      <account>ACC_provider-a-0000</account>
4      <sipTrunk>SIP-Trunk-B</sipTrunk>
5    </accountSipTrunkMap>
6    <accountSipTrunkMap id="10">
7      <account>ACC_provider-a-0000</account>
8      <sipTrunk>SIP-Trunk-A</sipTrunk>
9    </accountSipTrunkMap>
10
11  </daml>
```

## 7.10.3.4    Check for the Accounts Linked to a SIP-Trunks Profile

Check for linked Accounts to a SIP-Trunk Profile:

```
1  <daml command="read">
2    <accountSipTrunkMap sipTrunk="SIP-Trunk-B"/>
3  </daml></daml>
```

Example result:

```
1  <daml status="ok">
2    <accountSipTrunkMap id="8">
3      <account>ACC_provider-a-0000</account>
4      <sipTrunk>SIP-Trunk-B</sipTrunk>
5      </accountSipTrunkMap>
6    </daml>
```

Example result with 2 linked Accounts:

```
1   <daml status="ok">
2     <accountSipTrunkMap id="6">
3       <account>ACC_Mickey_Mouse</account>
4       <sipTrunk>SIP-Trunk-A</sipTrunk>
5     </accountSipTrunkMap>
6     <accountSipTrunkMap id="10">
7       <account>ACC_provider-a-0000</account>
8       <sipTrunk>SIP-Trunk-A</sipTrunk>
9     </accountSipTrunkMap>
10  </daml>
```

# 7.11    Manage: The Spamming Blacklist

Manage the configuration of a SIP-Trunk Profile.

| POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml |
|---|

| <daml command="create"><br>  <spamBlacklist><br>    <origNumber>99999999</origNumber><br>    <destNumber1>11111111</destNumber1><br></spamBlacklist><br></daml> | **Spamming Blacklist Entry:**<br>‣  Blocks a call when the origin and destination number match. |
|---|---|

## 7.11.1    Property Definitions of Object-Key: <spamBlacklist>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <spamBlacklist> | | | Defines the managing of the AdminCenter account object of an address. |
| <origNumber> | Number | Max. 50 characters | Number of the call origin. |
| <origAccount> | String | Max. 32 characters | Account of the call origin. |
| <destNumber1><br><destNumber2> | Number | Max. 50 characters | Two called number are allowed. |

## 7.11.2    Examples Managing "Blacklist Entry" Instances

Note:    Alternative values (as XML-comments, colored grey) show other combinations.

Create an instance:

```
1   <daml command="create">
2     <spamBlacklist>
3       <origNumber>99999999</origNumber>
4       <destNumber1>11111111</destNumber1>
5     </spamBlacklist>
6   </daml>
```

Read an instance:

```
1   <daml command="read">
2     <spamBlacklist>
3       <origNumber>99999999</origNumber>
4       <!-- <origAccount>myAccount</origAccount> -->
5       <!-- <destNumber1>11111111</destNumber> -->
6       <!-- <destNumber2>22222222</destNumber2> -->
7     </spamBlacklist>
8   </daml>
```

Modify properties of an instance:

```
1   <daml command="write">
2     <spamBlacklist>
3       <origAccount>myAccount</origAccount>
4       <!-- <origNumber>99999999</origNumber> -->
5       <destNumber1>11111111</destNumber1>
6     </spamBlacklist>
7   </daml>
```

Delete an instance:

```
1   <daml command="delete">
2     <spamBlacklist>
3       <origNumber>99999999</origNumber>
4       <destNumber1>11111111</destNumber1>
5       <!-- <origAccount>myAccount</origAccount> -->
6       <!-- <destNumber1>11111111</destNumber> -->
7       <!-- <destNumber2>22222222</destNumber2> -->
8     </spamBlacklist>
9   </daml>
```

## 7.12 Manage: The Emergency Address (NG112)

Manage the configuration of an Emergency Address according standard NG112 with some Swiss extensions.

`POST http://<AS6_DOMAIN>:8447/dataaccesscenter/daml`

```
<daml command="create">
  <emergencyAddress>
    <account>an-acc-0021</account>
    <number>0123456789</number>

    <name>Company ABC</name>
    <streetName>Alpenstrasse</streetName>
    <houseNumber>2b</houseNumber>
    <building/>
    <postalCode>3072</postalCode>
    <city>Bern</city>
    <state>CH</state>
    <additionalCode>EGID:1289317</additionalCode>
    <circlePos>46.9469359 7.4352436</circlePos>
    <circleRadius>30.0</circleRadius>
    <method>DHCP</method>
  </emergencyAddress>
</daml>
```

Emergency Address Entry:
‣ Emergency Address NG112 compliant.

### 7.12.1 Property Definitions of Object-Key: <emergencyAddress>

| Property Name | Data Type | Allowed Values | Remark | |
|---|---|---|---|---|
| Object-Key: <emergencyAddress> | | | Defines the managing of the AdminCenter account object of an address. | |
| <account> | String | Select an existing Account name. Max. 32 char | Defines the account name this emergency address belongs to. This account name must be exactly written as a configured in an Account of this anSwitch V6. | The emergency address must contain either an account name or telephone number. |
| <number> | Number | Select an existing number. Max. 32 char | Defines the caller telephone number this emergency address belongs to. This number must be assigned to an Account of this anSwitch V6. | |
| <name> | String | Max. 60 char | Defines the name of the addressee. | |
| <streetName> | String | Max. 60 char | Defines the street name of the city. | |
| <houseNumber> | String | Max. 20 char | Defines the house number in the street. Swiss specific: Contrary to the standard, numbers and text are possible, so that e.g. 12a can be transmitted. | |
| <building> | String | Max. 60 char | Defines any information for identifying the building. The building information can occur in addition of the street name and hose number. | |
| <postalCode> | String | Max. 20 char | Defines the postal code of the city or street. | |
| <city> | String | Max. 60 char | Defines the name of the city. | |
| <state> | String | Max. 60 char Default: CH | Defines the country 2-letter ISO code, for example: CH. If the property is not provided during the creation, then the default value CH is used. | |

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| <additionalCode> | String | Max. 50 char | Defines an additional information that can or must be provided.<br>Swiss specific: The use of the Federal Building Identifier EGID:1234567 or VoIP Location Identifier VLI:12345678. |
| <circlePos> | String | Max. 60 char | Defines the geographic location position, for example: 46.9469359 7.4352436 |
| <circleRadius> | Float | Max. 60 char | Defines the measure of the uncertainty in determining the location position.<br>The measure is in meter, for example: 30.0 |
| <method> | Selection | [ DHCP \|<br>802.11 \|<br>CELL \|<br>GNSS \|<br>Manual ] | Swiss specific:<br>The following values are used for the delivery of VSP and ECSP in Switzerland:<br>Value:<br>▸ DHCP<br>   IP localization from WireLine and private networks.<br>▸ 802.11<br>   IP localization from Wifi Calling.<br>▸ CELL<br>   Cell localizations incl. TA/RTT for WireLess and Wifi Calling (LastCell).<br>▸ GNSS<br>   Satellite-based localization (GPS, A-GPS, etc.).<br>▸ Manual<br>   Are manually provisioned addresses and replace "Nomadic use" |

## 7.12.2    Examples Managing "Emergency Address" Instances

Note:    Alternative values (as XML-comments, colored grey) show other combinations.

Create an instance:

```
1   <daml command="create">
2     <emergencyAddress>
3       <!-- <account>an-acc-0021</account> -->
4       <number>0123456789</number>
5       <state>CH</state>
6       <city>City 1</city>
7       <streetName>Street 1</streetName>
8       <houseNumber>House 1</houseNumber>
9       <name>Name 1</name>
10      <postalCode>Postal Code 1</postalCode>
11      <building>Building 1</building>
12      <additionalCode>Additional Code 1C</additionalCode>
13    </emergencyAddress>
14  </daml>
```

Read an instance:

```
1   <daml command="read">
2     <emergencyAddress>
3       <account>an-acc-0021</account>
4       <!-- <number>0123456789</number> --> </emergencyAddress>
5     </emergencyAddress>
    </daml>
```

Modify properties of an instance:

```
1  <daml command="write">
2    <emergencyAddress>
3      <account>an-acc-0021</account>
4      <postalCode>Postal Code 9999</postalCode>
5    </emergencyAddress>
6  </daml>
```

Delete an instance:

```
1  <daml command="delete">
2    <emergencyAddress>
3      <account>an-acc-0021</account>
4      <!-- <number>0123456789</number> --> </emergencyAddress>
5    </emergencyAddress>
6  </daml>
```

# 8 Query DataAccessCenter Instances & Properties

## 8.1 Query: Account Names

This query requests the names of all accounts which are configured in this anSwitch V6.

```
GET http://<AS6_DOMAIN>:8447/dataaccesscenter/daml?query=accounts
```

| |
|---|
| Response: 200 OK<br><daml status="ok"><br>        <account>an-acc-0020</account><br>        <account>an-acc-0021</account><br>...<br></daml> |

### 8.1.1 URL Parameter Definitions of "accounts"

| Parameter Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Query: /daml?query=accounts | | | |
| none | | | |

## 8.2 Query: Announcements of a Telephone Number

This query requests a list of all names of all IVR announcement names of a telephone number.

```
../daml?query=announcements&account=NAME&number=NUMBER&entries=Number
```

| |
|---|
| Response: 200 OK<br><daml status="ok"><br>        <message><br>                <id>179</id><br>                <name>Office Time</name><br>                <duration>16325</duration><br>        </message><br></daml> |

### 8.2.1 URL Parameter Definitions of "announcements"

| Parameter Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Query: /daml?query=announcements | | | |
| account | String | | Exact name of the account |
| number | Number | | Telephone number assigned to this account. |

### 8.2.2 Property Definitions of Object-Key: <message>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <message> | | | Identifies the object type |
| <id> | Number | >0 | Unique identification number of the message. |
| <name> | String | | Name of the announcement |
| <duration> | Number | >=0 | Duration of the announcement in milliseconds. |

### 8.2.3    Example of "announcements" Query

Query the last 10 announcements of number 01234567890 of account an-acc-0021:

```
../daml?query=announcements&account=an-acc-0021&number=01234567890&entries=10
```

## 8.3    Query: Calls of a Telephone Number

This query requests a list of the last n connections and connection attempts of a phone number. This DAML query delivers the raw data of a connection. It is the job of the CMS application to transform these data into the desired form and representation.

```
../daml?query=calls&account=NAME&number=NUMBER&entries=Number
```

```
Response: 200 OK
<daml status="ok">
        <call>
                <time>2013-05-24T14:55:13</time>
                <duration>12527</duration>
                <direction>out</direction>
                <number>0987654321</number>
                <charge>0.16</charge>
        </call>
</daml>
```

### 8.3.1    URL Parameter Definitions of "calls"

| Parameter Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Query: /daml?query=calls | | | |
| account | String | | Exact name of the account |
| number | Number | | Telephone number assigned to this account. |
| entries | Number | | Max. number of the requested connections and connection attempts. |

### 8.3.2    Property Definitions of Object-Key: <call>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <call> | | | Identifies the object type |
| <time> | yyyy-MM-dd'T'HH:mm:ss | | Date/time of the call's start. |
| <duration> | Number | >=0 | Duration of the connection in milliseconds. If the duration is 0 then it was a call attempt. |
| <direction> | String | [ in \| out ] | Indicates whether it is an incoming or outgoing connection. |
| <number> | Number | Telephone number | Shows the telephone number of the other participant of the connection. The meaning depends on the <direction>: <br> ‣ in:  For an incoming connection this is the number of the calling side (CLIP). <br> ‣ out:  For an outgoing connection this is the dialed number. |
| <charge> | Float | >= 0.00 | Charge of an outgoing connection. |

### 8.3.3 Examples "calls" Query

Query the last 10 calls of number 01234567890 of account an-acc-0021:

```
../daml?query=calls&account=an-acc-0021&number=01234567890&entries=10
```

## 8.4 Query: Emergence Locations Names

This query requests the names of all emergency locations which are configured on this anSwitch V6.

```
GET http://<AS6_DOMAIN>:8447/dataaccesscenter/daml?query=emergencyLocations
```

|  | Response: 200 OK<br><daml status="ok"><br>        <emergencyLocation>GN0001 Bern</emergencyLocation><br>        <emergencyLocation>GN0002 Zurich</emergencyLocation><br>        <emergencyLocation>GN0003 Geneva</emergencyLocation><br></daml> |
|---|---|

### 8.4.1 URL Parameter Definitions of " emergencyLocations"

| Parameter Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Query: ../daml?query= emergencyLocations | | | |
| none | | | |

### 8.4.2 Property Definitions of Object-Key: <ruleset>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: < emergencyLocation> | | | Identifies the object type |
| <emergencyLocation> | String | Name of the emergency location. | |

## 8.5 Query: RuleSet Names

This query requests the names of all RuleSets which are configured on this anSwitch V6.

```
GET http://<AS6_DOMAIN>:8447/dataaccesscenter/daml?query=rulesets
```

|  | Response: 200 OK<br><daml status="ok"><br>        <ruleset>Route: Subscriber</ruleset><br>        <ruleset>Block: International Calls</ruleset><br>        <ruleset>Block: Satellite Calls</ruleset><br>        <ruleset>Block: Block All Except Emergency Calls</ruleset><br></daml> |
|---|---|

### 8.5.1 URL Parameter Definitions of "rulesets"

| Parameter Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Query: ../daml?query=rulesets | | | |
| none | | | |

### 8.5.2 Property Definitions of Object-Key: <ruleset>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <ruleset> | | | Identifies the object type |
| <ruleset> | String | Name of RuleSet | |

## 8.6 Query: VoiceMail Messages of a Telephone Number

This query requests the identifications of all messages of a telephone number's VoiceMail box.

```
../daml?query=voiceMessages&account=NAME&number=NUMBER
```

```
Response: 200 OK
<daml status="ok">
        <message>
                <id>167</id>
                <name>John</name>
                <number>0987654321</number>
                <timeStart>2016-01-14T10:29:00</timeStart>
                <timePlayed>never</timePlayed>
                <duration>35563</duration>
                <saved>false</saved>
        </message>
</daml>
```

### 8.6.1 URL Parameter Definitions of "voiceMessages"

| Parameter Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Query: ../daml?query=voiceMessages | | | |
| account | String | | Exact name of the account |
| number | Number | | Telephone number assigned to this account. |

### 8.6.2 Property Definitions of Object-Key: <message>

| Property Name | Data Type | Allowed Values | Remark |
|---|---|---|---|
| Object-Key: <message> | | | Identifies the object type |
| <id> | Number | >0 | Unique identification number of the message. |
| <name> | String | | Name in the in the display part of the SIP-Header "From:". |
| <timeStart> | yyyy-MM-dd'T'HH:mm:ss | | Date/time of the recording of the message. |
| <timePlayed> | String | [ never \| yyyy-MM-dd'T'HH:mm:ss ] | Date/time, when the message was played the last time. <br> ▸ never: The message was never played. |
| <duration> | | >=0 in milliseconds | Duration of the message |
| <saved> | | [ true \| false ] | Indicates whether the message was marked by the user for a longer retention. |

### 8.6.3 Examples of "voiceMessages"

Query the messages of number 01234567890 of account an-acc-0021:

```
../daml?query=voiceMessages&account=an-acc-0021&number=01234567890
```

## 8.7 Customized DAML Query

Besides the available standard DAML queries there is the possibility of customized DAML queries.
The feasibility of a DAML query must be carefully investigated. Any realization will be carried out in a project.
Contact Aarenet Support⬀ or your Aarenet Account Manager for an appropriate project.

# 9    DAML Examples

## 9.1    Create a "Residential" Account with 1 Public Number

ZIP    Download DAML examples as Linux scripts using the "curl library".

The example depicts the managing of a "residential" customer:

- ▸ Manage a "residential" account.
- ▸ Manage a public number.
- ▸ Assign an "an IP-Phone" mobile application.
- ▸ Manage a user account for the customers AdminCenter access.
- ▸ Blacklist a number for incoming calls.

| Best Practice | It is recommended to create the first the account and add then the numbers. |
|---|---|

1.    Create the residential account "Family Deer":

- ▸ Provider A ID:          prova-res-0099
- ▸ Valid from:            1.3.2024, 12:00
- ▸ Emergency location:    Bern
- ▸ Block destinations:    090x
- ▸ Hidden TopStop:        max. 20CHF/month
- ▸ SIP credentials:        mEaT3U391hk456dfghdf4r5W8B0cE, supersecret

```
 1   <daml command="write">
 2        <account>
 3              <accountName>prova-res-0099</accountName>
 4              <info>Family Deer: 0314567899</info>
 5              <tenant>Provider A</tenant>
 6
 7              <username>mEaT3U391hk456dfghdf4r5W8B0cE</username>
 8              <password>supersecret</password>
 9              <emergencyLocation>Bern</emergencyLocation>
10              <maxChannels>5</maxChannels>
11              <validAfter>2024-03-01 12:00:00</validAfter>
12
13              <routingTable>RT_to_PSTN</routingTable>
14              <pricelist>PL Customer CHF</pricelist>
15              <ruleset>Route: Subscriber</ruleset>
16              <ruleset>Block: All outgoing 090x Calls</ruleset>
17
18              <sysAccountTopStop>
19                    <monthlyReset>true</monthlyReset>
20                    <valueMax>20.0</valueMax>
21                    <alarmEmail>noc@provider-a.com</alarmEmail>
22              </sysAccountTopStop>
23
24        </account>
25   </daml>
```

2.    Add the phone number:

- ▸ Number:      0314567899
- ▸ Activate the VoiceMail Box.
  - ▸ PIN: 3857

▸    Activate access to the AdminCenter for self-care.
 ▸    ULR: https://self-care.provider-a.com/
 ▸    Authentication: deer-0314567899, verysecret
▸    Emails to:     deer@home.ch

```
1   <daml command="write">
2        <address>
3             <account>prova-res-0099</account>
4             <number>0314567899</number>
5             <language>de</language>
6
7             <messageBox>
8                  <pin>3857</pin>
9                  <autoAuthentication>false</autoAuthentication>
10                 <skipMessageMenu>false</skipMessageMenu>
11                 <language>de</language>
12                 <signalNewMessage>true</signalNewMessage>
13                 <email>deer@home.ch</email>
14                 <faxAutoDetect>true</faxAutoDetect>
15                 <deleteAfterSend>false</deleteAfterSend>
16                 <mailWithoutMessage>true</mailWithoutMessage>
17            </messageBox>
18
19            <addressAdmin>
20                 <username>deer-0314567899</username>
21                 <password>verysecret</password>
22                 <email>deer@home.ch</email>
23                 <language>en</language>
24            </addressAdmin>
25
26       </address
27  </daml>
```

## 9.2     Create a "SIP-Trunk Account" with 100 Public Numbers

Requirements of the SIP-Trunk account of "Company Big" with an own IP-PBX:

- ▸     Provider A ID:              prova-trk-0374
- ▸     Valid from:                 1.5.2024, 00:00
- ▸     Emergency location:   Zürich
- ▸     Number of channels:   20
- ▸     Block destinations:     090x
- ▸     TopStop:                    max. 150CHF/month
  - ▸     Warning:         70%
  - ▸     Email to:         info@company-big.com
- ▸     SIP credentials:          z8IMHGEhDEbvqqrsaOjn, aFSdWznqykyW2MqtN60R$
- ▸     Number range:          0555555550 – 99
- ▸     Main number:            0555555550
- ▸     CFF to number:         03333333

1.     Create the SIP-Trunk account "Company Big" with own IP-PBX:

```
 1   <daml command="write">
 2       <account>
 3           <accountName> prova-trk-0374</accountName>
 4           <info> Company Big: 0555555550 – 99</info>
 5           <tenant>Provider A</tenant>
 6
 7           <username>z8IMHGEhDEbvqqrsaOjn</username>
 8           <password>aFSdWznqykyW2MqtN60R$</password>
 9           <emergencyLocation>Zürich</emergencyLocation>
10           <maxChannels>20</maxChannels>
11           <validAfter>2024-05-01 00:00:00</validAfter>
12
13           <routingTable>RT_to_PSTN</routingTable>
14           <pricelist>PL Customer CHF</pricelist>
15           <ruleset>Route: Subscriber</ruleset>
16           <ruleset>Block: All outgoing 090x Calls</ruleset>
17
18           <aacAccountTopStop>
19               <monthlyReset>true</monthlyReset>
20               <valueMax>150.0</valueMax>
21               <alarmLevel>0.7</alarmLevel>
22               <alarmEmail>info@company-big.com</alarmEmail>
23           </accAccountTopStop>
24
25           <callForward>
26               <name>Fall back if no PBX registers</name>
27               <type>CFF</type>
28               <priority>5</priority>
29               <destReplace>03333333</destReplace>
30           </callForward>
31
32       </account>
33   </daml>
```

2.    Add the phone numbers:

```
 1  <daml command="write">
 2
 3  <!-- Define the main number: 0555555550  -->
 4        <address>
 5              <account>prova-trk-0374</account>
 6              <number>0555555550 </number>
 7              <language>de</language>
 8              <mainNumber>true</mainNumber>
 9              <registersViaMainNumber>false</registersViaMainNumber>
10        </address
11
12  <!-- Define the remaining numbers: 0555555551 – 99 -->
13        <address>
14              <account>prova-trk-0374</account>
15              <number>0555555551</number>
16              <language>de</language>
17              <mainNumber>false</mainNumber>
18              <registersViaMainNumber>true</registersViaMainNumber>
19        </address>
20
21        <address>
22              <account>prova-trk-0374</account>
23              <number>0555555552</number>
24              <language>de</language>
25              <mainNumber>false</mainNumber>
26              <registersViaMainNumber>true</registersViaMainNumber>
27        </address>
28
29  <!-- ==> Execute the address sequence for every number -->
30        ...
31
32  </daml>
```

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# Last Page

| Date | Doc-ID | Description | Changes |
|------|--------|-------------|---------|
| 28.5.2024 | manual_as6_9_daml_api_e08 | Document as preliminary published | |