



Validação da API Magma

versão 1

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CONTROLE DE REVISÕES:

Revisão	Data	Atualização	Autor
00	19/02/2024	Criação e definição do documento.	André Santos

Objetivo

Este documento visa servir como apoio na integração com a API do Magma. Nele vamos explorar o acesso à API, assim como as principais operações relacionadas aos assinantes da rede que são:

- Cadastro
- Requisição
- Update
- Deleção

Acesso à interface Swagger API

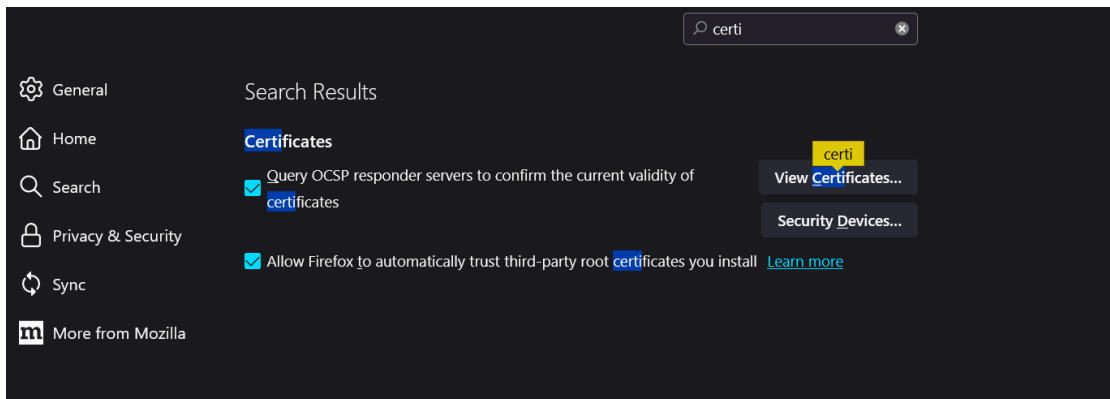
A API vem instalada por padrão junto com o Orchestrator. Os requisitos básicos para o acesso à API são:

- Entrada DNS apontando o domínio api.<DOMAIN NAME> para o IP do Orchestrator
- Exemplo no Windows, editando o arquivo
C:/Windows/System32/etc/drivers/hosts como administrador

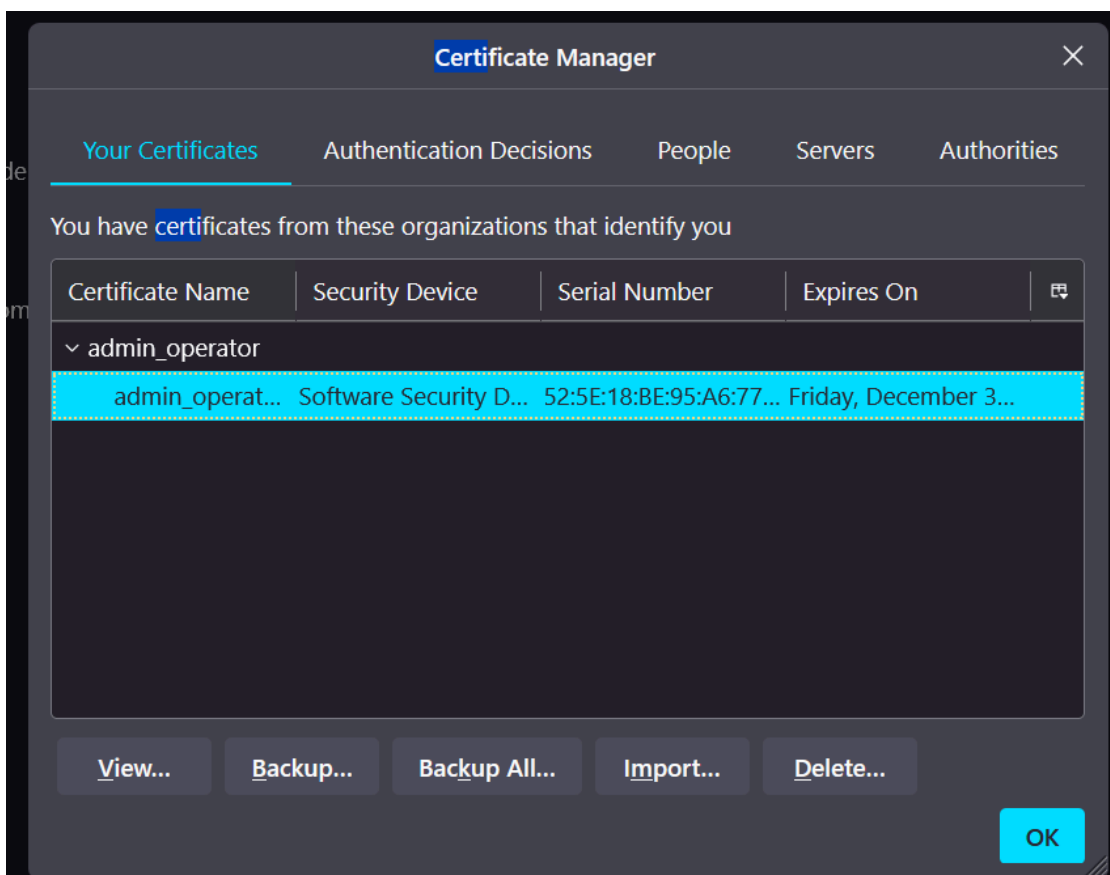
```
8
9 # localhost name resolution is handled within DNS itself.
0 # 127.0.0.1 localhost
1 # ::1 localhost
2 | 172.20.20.198 venko.nms.dominio.com api.dominio.com
```

- Certificado admin_operator.pfx instalado no browser. Este certificado encontra-se na pasta:
/home/magma/magma-galaxy/secrets/admin_operator.pfx do Orchestrator, e pode ser extraído via scp, ou MobaXTerm.

Para instalar no Firefox, acessar a seção de settings (configurações) e pesquisar por Certificados

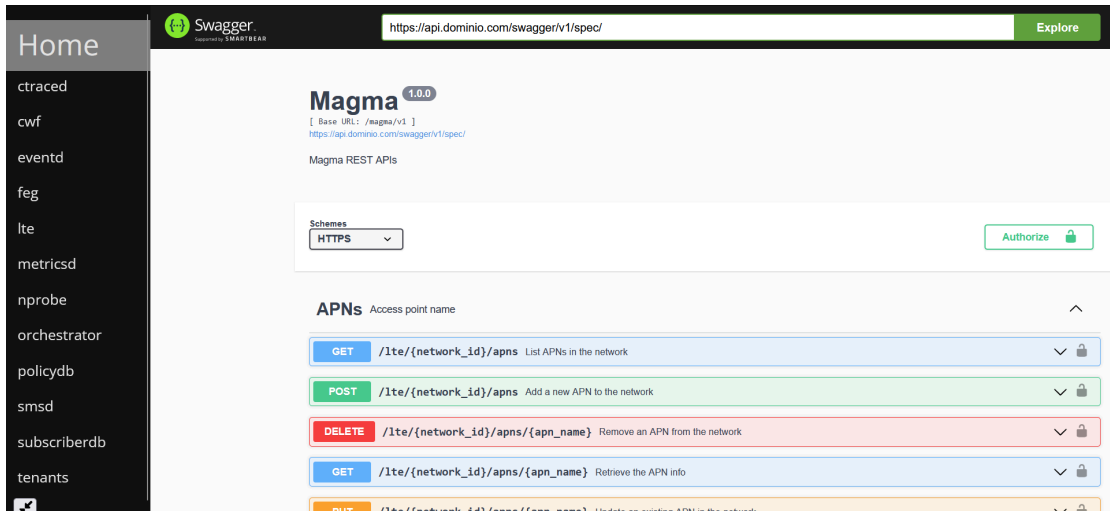


Clicar em View Certificates (verificar certificados) e navegar até a aba Your Certificates (seus certificados). Clicar em importar e então selecionar o arquivo admin_operator.pfx.



Uma vez instalado o certificado no navegador, é possível acessar à página web através da URL <https://api.<DOMAIN NAME>/swagger/v1/ui>

Na primeira vez será solicitada uma senha para o certificado. Usuário é *admin* e a senha é *password*.



The screenshot displays the Swagger UI for the Magma 1.0.0 API. The main content area is titled "Magma 1.0.0" and lists "Magma REST APIs". A "Schemes" dropdown menu is set to "HTTPS", and an "Authorize" button is visible. The "APNs" section, described as "Access point name", lists several endpoints:

- GET** /lte/{network_id}/apns: List APNs in the network
- POST** /lte/{network_id}/apns: Add a new APN to the network
- DELETE** /lte/{network_id}/apns/{apn_name}: Remove an APN from the network
- GET** /lte/{network_id}/apns/{apn_name}: Retrieve the APN info
- PUT** /lte/{network_id}/apns/{apn_name}: Update an existing APN in the network

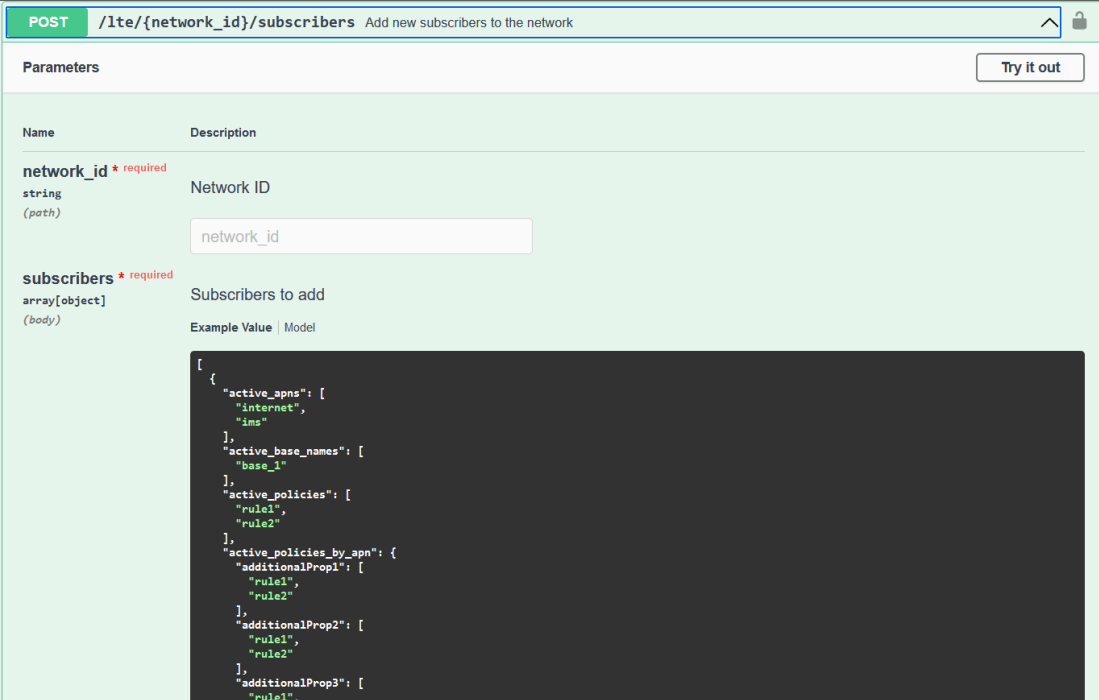
The left sidebar contains a "Home" button and a list of system components: ctraced, cwf, eventd, feg, lte, metricsd, nprobe, orchestrator, policydb, smsd, subscriberdb, and tenants.

Com esta página é possível verificar os parâmetros mínimos para as operações listadas. No menu de navegação à esquerda estão as seções que podem ser manipuladas. Os comandos padrão são baseados em códigos do protocolo HTTP:

- GET -> Requisita as informações
- POST -> Atualiza ou insere algum parâmetro
- DELETE -> Deleta uma informação
- PUT -> Modifica uma informação

Operações CRUD com assinantes

Cadastro de um novo assinante



POST /lte/{network_id}/subscribers Add new subscribers to the network

Parameters [Try it out](#)

Name	Description
network_id * required string (path)	Network ID
subscribers * required array[object] (body)	Subscribers to add

Example Value | Model

```
{
  "active_apns": [
    "internet",
    "ims"
  ],
  "active_base_names": [
    "base_1"
  ],
  "active_policies": [
    "rule1",
    "rule2"
  ],
  "active_policies_by_apn": {
    "additionalProp1": [
      "rule1",
      "rule2"
    ],
    "additionalProp2": [
      "rule1",
      "rule2"
    ],
    "additionalProp3": [
      "rule1",

```

Clicar em Try it out e preencher Network ID e O Subscriber a ser adicionado.

network_id * required
string
(path)
Network ID

subscribers * required
array[object]
(body)
Subscribers to add
Edit Value | Model

```
[
  {
    "active_apns": [
      "internet",
      "ims"
    ],
    "active_base_names": [
      "base_1"
    ],
    "active_policies": [
      "rule1",
      "rule2"
    ],
    "active_policies_by_apn": {
      "additionalProp1": [
        "rule1",
        "rule2"
      ],
      "additionalProp2": [

```

Parameter content type

Neste campo onde está o json, é possível ainda alterar mais alguns parâmetros que serão exibidos posteriormente em um comando curl:

```

Curl
curl -X 'POST' \
'https://api.dominio.com/magma/v1/lte/venko/subscribers' \
-H 'accept: application/json' \
-H 'Content-Type: application/json' \
-d '[
{
  "active_apns": [
    "internet",
    "ims"
  ],
  "active_base_names": [
    "base_1"
  ],
  "active_policies": [
    "rule1",
    "rule2"
  ],
  "active_policies_by_apn": {
    "additionalProp1": [
      "rule1",
      "rule2"
    ],
    "additionalProp2": [
      "rule1",
      "rule2"
    ],
    "additionalProp3": [
      "rule1",
      "rule2"
    ]
  },
  "forbidden_network_types": [
    "EPC"
  ],
  "id": "INS120895000000010",
  "lte": {
    "auth_algo": "MILENAGE",
    "auth_key": "AAAAAAAAAAAAAAAAAAAAA==",
    "auth_opc": "AAECCwQFBgcICQoLDA00w==",
    "state": "INACTIVE",
    "sub_profile": "default"
  },
  "name": "Jane Doe",
  "static_ips": {
    "additionalProp1": "192.168.100.1 or 2020::1",
    "additionalProp2": "192.168.100.1 or 2020::1",
    "additionalProp3": "192.168.100.1 or 2020::1"
  }
}
]'

```

Request URL

https://api.dominio.com/magma/v1/lte/venko/subscribers

O Resultado pode ser verificado após a execução do programa:

Server response

Code	Details
400	<p>Error: Bad Request</p> <p>Response body</p> <pre>{ "message": "1 error occurred:\n\t* static IP assigned to APN additionalProp1 which is not active for the subscriber\n\n" }</pre> <p>Response headers</p> <pre>connection: keep-alive content-length: 122 content-type: application/json; charset=UTF-8 date: Tue, 16 Jan 2024 18:54:23 GMT server: nginx/1.23.4</pre>
201	<p>Success</p>
default	<p>Unexpected Error</p> <p>Example Value Model</p> <pre>{ "message": "Error string" }</pre>

Verificar assinantes cadastrados

GET /lte/{network_id}/subscribers/{subscriber_id} Retrieve the subscriber info

Parameters Try it out

Name	Description
network_id * required string (path)	Network ID
<input type="text" value="network_id"/>	
subscriber_id * required string (path)	Subscriber ID
<input type="text" value="subscriber_id"/>	

Responses Response content type: application/json

Code	Description
200	Subscriber Info
Example Value Model	
<pre>{ "active_apps": ["internet"] }</pre>	

Clicar em Try it out e preencher as informações básicas. Depois executar.

GET /lte/{network_id}/subscribers/{subscriber_id} Retrieve the subscriber info Cancel

Name	Description
network_id * required string (path)	Network ID
<input type="text" value="venko"/>	
subscriber_id * required string (path)	Subscriber ID
<input type="text" value="IMSI724900000000001"/>	

Execute Clear

Responses Response content type: application/json

Curl

```
curl -X 'GET' \
  'https://api.dominio.com/magma/v1/lte/venko/subscribers/IMSI724900000000001' \
  -H 'accept: application/json'
```

Request URL

```
https://api.venko.tk/magma/v1/lte/venko/subscribers/IMSI724900000000001
```

Server response

Atualizar a configuração de um assinante

Após a execução do comando GET, você terá como resposta algo deste tipo:

Server response

Code	Details
200	<p>Response body</p> <pre>{ "active_apns": ["venko"], "active_base_names": ["basename100M"], "active_policies": ["policy100M"], "config": { "lte": { "auth_algo": "MILENAGE", "auth_key": "WEjEPZDsa/0uJAAyRVWpUa==", "auth_opc": "2GZXq3kPRk1EYOxhXKM4Tw==", "state": "ACTIVE", "sub_profile": "dataplan100M" } }, "id": "IMS172490000000001", "lte": { "auth_algo": "MILENAGE", "auth_key": "WEjEPZDsa/0uJAAyRVWpUa==", "auth_opc": "2GZXq3kPRk1EYOxhXKM4Tw==", "state": "ACTIVE", "sub_profile": "dataplan100M" } }</pre> <p>Response headers</p> <pre>connection: keep-alive content-type: application/json; charset=UTF-8 date: Tue, 16 Jan 2024 21:19:41 GMT server: nginx/1.23.4 transfer-encoding: chunked</pre>

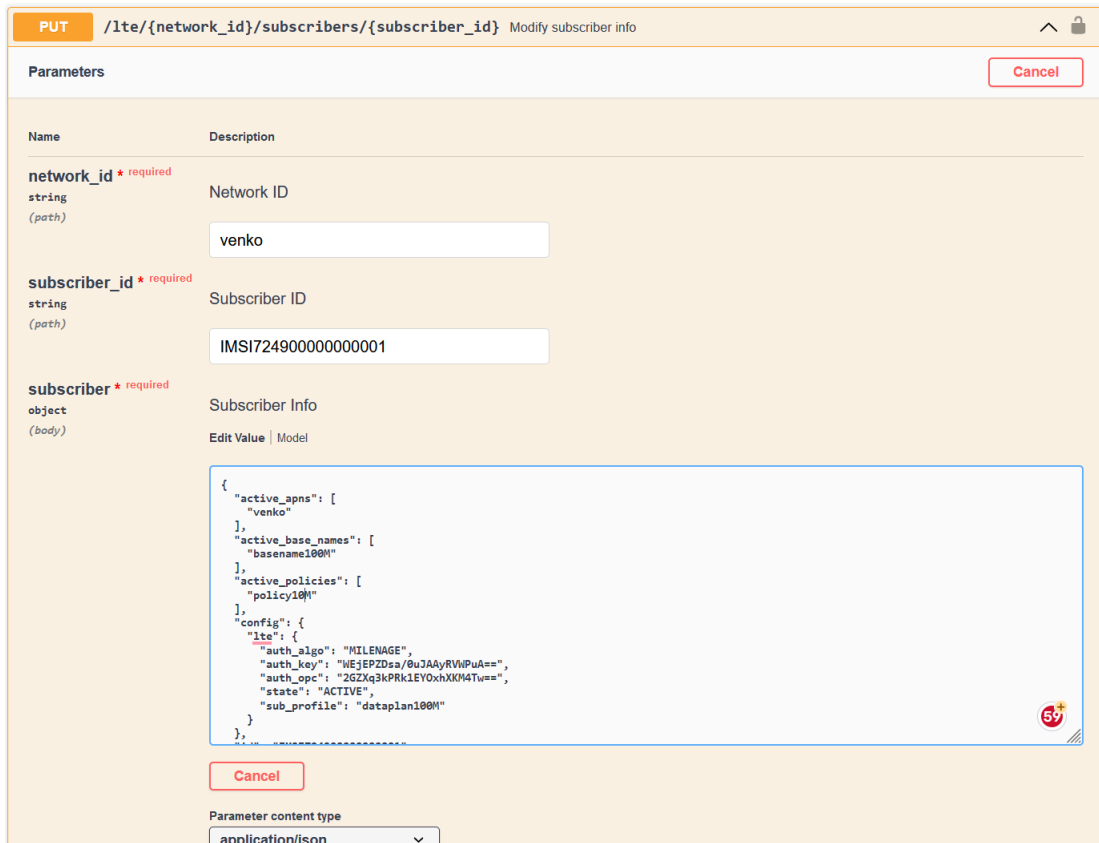
Responses

Com este json, é possível editar as informações para atualizar a configuração de um assinante, como por exemplo, trocar a policy ativa de policy100M para policy10M alterando o campo active_policies e active_base_names:

```
{
  "active_apns": [
    "venko"
  ],
  "active_base_names": [
    "basename100M"
  ],
  "active_policies": [
    "policy100M"
  ],
  "config": {
    "lte": {
      "auth_algo": "MILENAGE",
      "auth_key": "WEjEPZDsa/0uJAAyRVWpUa==",
      "auth_opc": "2GZXq3kPRk1EYOxhXKM4Tw==",
      "state": "ACTIVE",
```

```
"sub_profile": "dataplan100M"  
}
```

Com o json atualizado, preencher o corpo de parâmetros na operação PUT para modificar:



The screenshot shows a REST client interface for a PUT request to the endpoint `/lte/{network_id}/subscribers/{subscriber_id}` with the purpose of "Modify subscriber info". The interface includes a "Parameters" section with a "Cancel" button. Below this, there are three parameter fields:

- network_id** (string, path): Network ID, with the value `venko` entered.
- subscriber_id** (string, path): Subscriber ID, with the value `IMSI72490000000001` entered.
- subscriber** (object, body): Subscriber Info. This field is expanded to show a JSON body with the following content:

```
{  
  "active_apps": [  
    "venko"  
  ],  
  "active_base_names": [  
    "basename100M"  
  ],  
  "active_policies": [  
    "policy10M"  
  ],  
  "config": {  
    "lte": {  
      "auth_algo": "MILENAGE",  
      "auth_key": "HEjEPZDsa/8uJAyRVNIPuA==",  
      "auth_opc": "2GZXq3kPRk1EYOxhXK04Tw==",  
      "state": "ACTIVE",  
      "sub_profile": "dataplan100M"  
    }  
  }  
}
```

At the bottom of the interface, there is a "Parameter content type" dropdown menu set to `application/json` and another "Cancel" button.

O resultado será executado através de um comando curl com os parâmetros passados, conforme abaixo:

```

-H 'accept: application/json' \
-H 'Content-Type: application/json' \
-d '{
  "active_apns": [
    "venko"
  ],
  "active_base_names": [
    "basename100M"
  ],
  "active_policies": [
    "policy10M"
  ],
  "config": {
    "lte": {
      "auth_algo": "MILENAGE",
      "auth_key": "WEjEPZDsa/0uJAAyRVWuPuA==",
      "auth_opc": "2GZXq3kPRk1EYOxhXKM4Tw==",
      "state": "ACTIVE",
      "sub_profile": "dataplan100M"
    }
  },
  "id": "IMSI72490000000001",
  "lte": {
    "auth_algo": "MILENAGE",
    "auth_key": "WEjEPZDsa/0uJAAyRVWuPuA==",
    "auth_opc": "2GZXq3kPRk1EYOxhXKM4Tw==",
    "state": "ACTIVE",
    "sub_profile": "dataplan100M"
  },
  "monitoring": {},
  "name": "IMSI72490000000001",
  "state": {
    "mme": {
      "accessRestrictionData": 32,
      "apnConfig": {
        "apnConfigs": [
          {
            "ambr": {
              "brD1": "10000000",
              "brU1": "10000000"
            },
            "serviceSelection": "dmVua20=",
            "subscriberQos": {
              "priorityLevel": 15,
              "qci": 9
            }
          }
        ]
      }
    }
  }
}

```

Deletar um assinante

Para deletar um assinante, localizar a operação Delete dentro da seção subscriberdb. Após clicar em Try it out, preencher o Network ID e o Subscriber ID a ser deletado:

DELETE /lte/{network_id}/subscribers/{subscriber_id} Remove a subscriber from the network

Cancel

Name	Description
network_id * required string <small>(path)</small>	Network ID <input style="width: 100%;" type="text" value="venko"/>
subscriber_id * required string <small>(path)</small>	Subscriber ID <input style="width: 100%;" type="text" value="IMSI72490000000001"/>

Execute
Clear

Responses
Response content type application/json