

TITAN ROUTER

Application Note 72

Titan Router Configuration Automation via REST API
from a PC

1. Scenario details

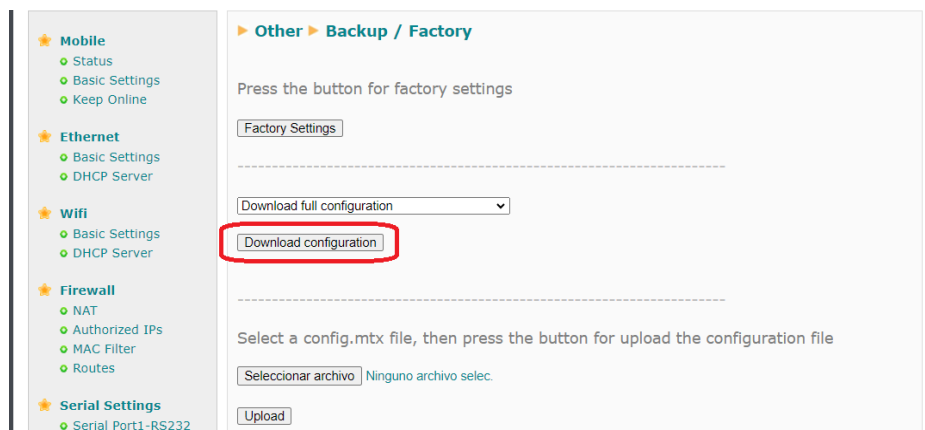
Titan routers offer several configuration options that can be utilised by users. These configurations may be done through the user interface (UI) via a web browser, via SMS, using MODBUS rtu/tcp, SNMP, TELNET or SSH, among other methods. In this application note, an example will be provided on how to configure a Titan router automatically in a production environment, eliminating the need for an operator to perform individual configurations on each device.

2. Description of the example scenario

There is a large number of Webdyn-Easy-Routers that require serial configuration prior to field installation. It is necessary to apply a general configuration to all devices, as well as a specific configuration for each one. This involves the ability to specify custom parameters such as MQTT_CLIENT_ID and LOGGER_PASSWORD, which must be unique for each device. In addition, the ability to upload special MQTT client certificate files to each Webdyn-Easy-Router device is required.

3. Basic general configuration.

The first step involves downloading a basic general configuration. This involves configuring a Webdyn-Easy-Router with the settings that will be common to all devices. Once this process is completed, the configuration must be downloaded via the "Other > Backup / Factory" menu.



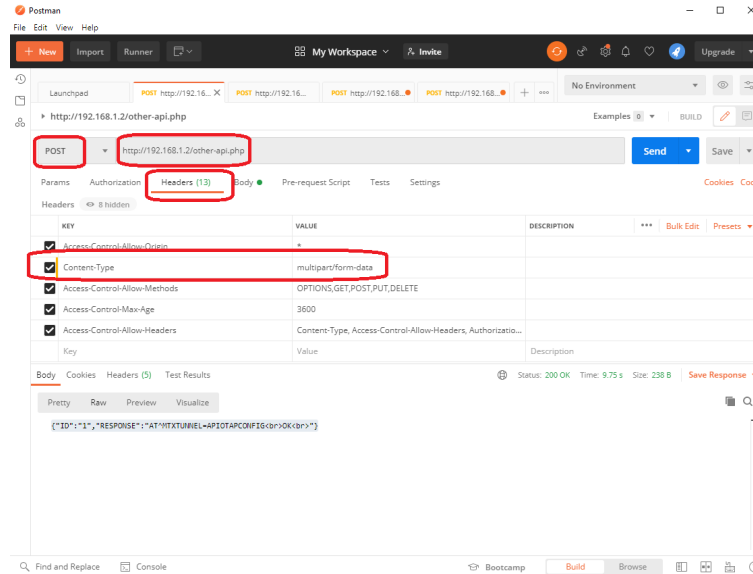
4. Performing the individual configuration for each device.

Once the general configuration is in place, it is possible to proceed with the individual configuration of each Titan router. The Titan router is equipped with a REST API that allows it to receive AT commands and files via HTTP POST requests. To carry out this procedure, it is necessary to develop specific PC software. In this application note, the generic and free POSTMAN software will be used.

HTTP requests must be directed to the "other-api.php" page.

5. Loading the general configuration

Once the general configuration is in place, it is possible to proceed with the specific configuration of each device. To load it, an HTTP POST request to the router is necessary. The HTTP request must use the content type "Content-type: Multipart-form-data".



And in the body field, the following parameters must be included:

FILE: With the global configuration file.

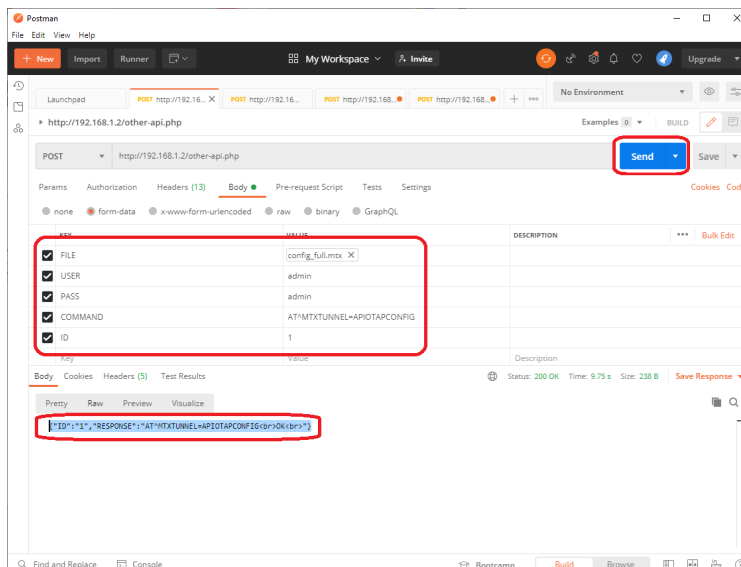
USER: Administrator's user name

PASS: Administrator password.

COMMAND: AT command to execute. In this case it should be `AT^MTXTUNNEL=APIOTAPCONFIG`

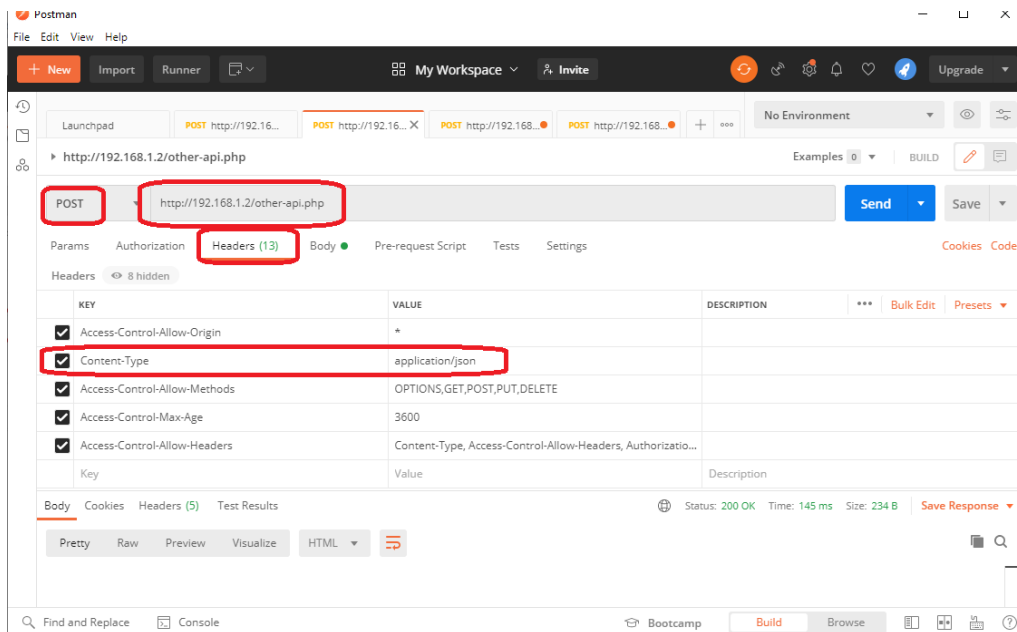
ID: Request identifier.

Next, click on the blue "Send" button, and the response received from the Titan router, in JSON format, should be as follows: `{\"ID\":\"1\", \"RESPONSE\":\"AT^MTXTUNNEL=APIOTAPCONFIG
OK
\"}`

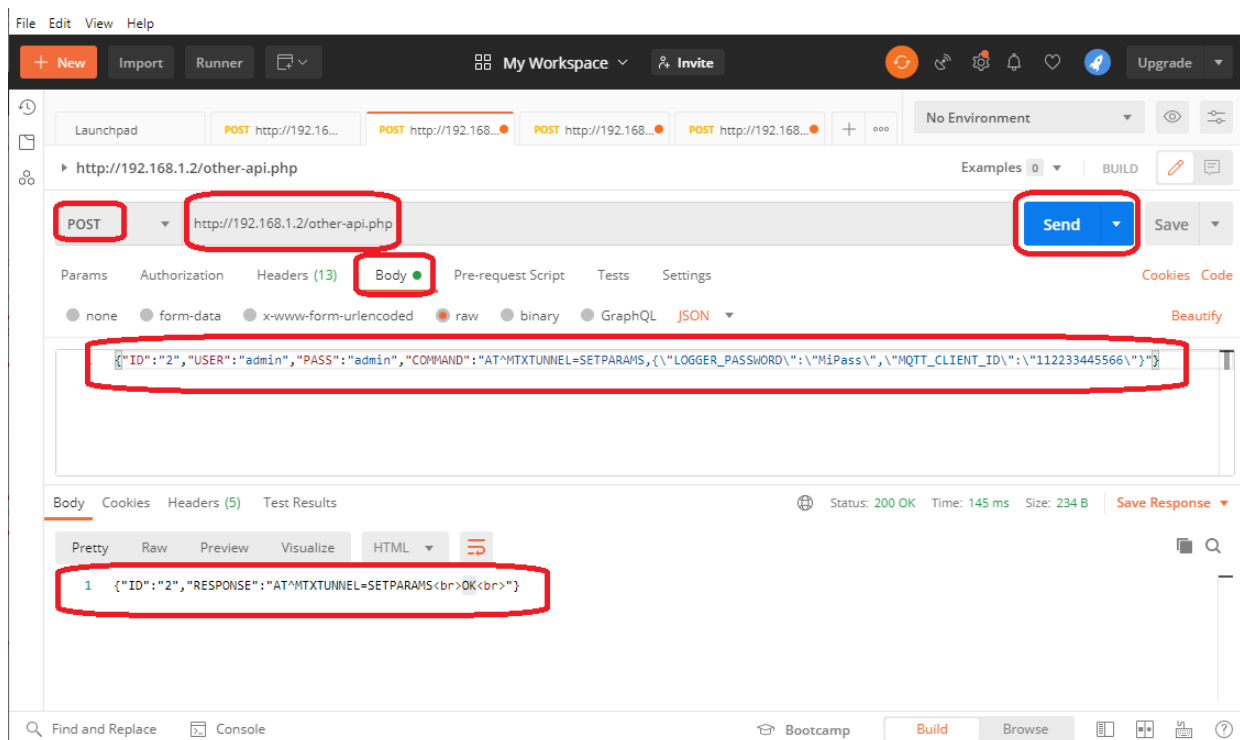


6. Loading specific configuration parameters.

In this example, we want to individually configure the `MQTT_CLIENT_ID` and `LOGGER_PASSWORD` parameters (it is recommended to consult with soporte@matrix.es to obtain the names of the desired configuration parameters). In this case, the "Content-Type" header must have the value "application/json", since a command in the JSON format will be sent in the body of the HTTP POST request.



In the body of the HTTP request, a JSON containing the necessary command to configure the selected parameters will be sent.



The JSON can be broken down into the following parameters:

```
{“ID”:”2”,”USER”:”admin”,”PASS”:”admin”,”COMMAND”:”AT^MTXTUNNEL=SETPARAMS,{”LOGGER_PASSWORD\”:\”MiPass\”,\”MQTT_CLIENT_ID\”:\”112233445566\”}”}
```

FILE: With the global configuration file.

USER: Administrator's user name

PASS: Administrator password.

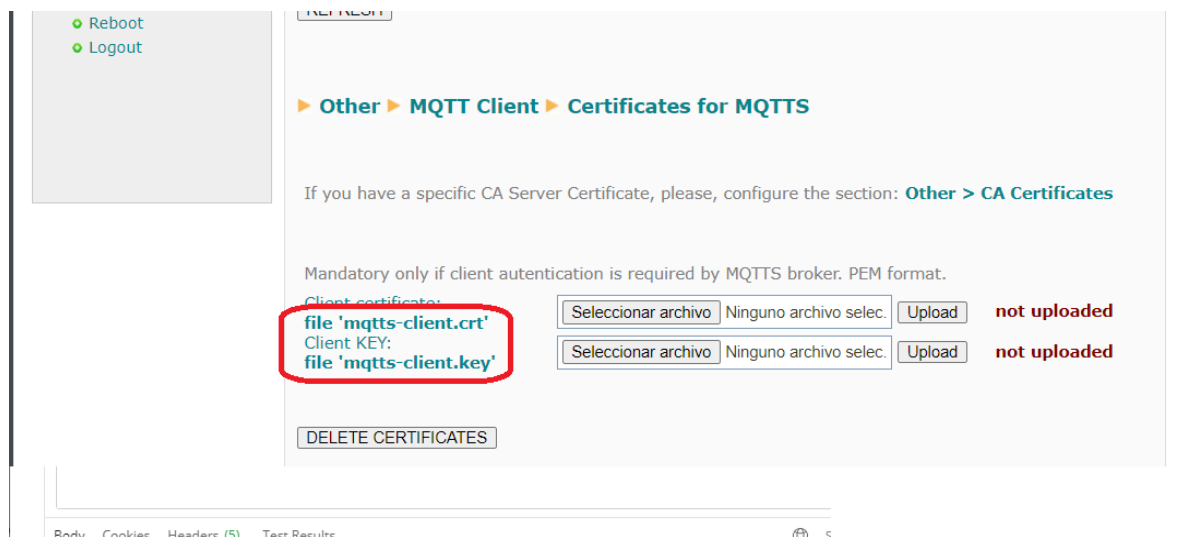
COMMAND: AT command to execute. In this case, it must be AT^MTXTUNNEL=SETPARAMS,...

ID: Request identifier.

When clicking the blue "Send" button, the response from the Titan router, in the form of JSON, should be: {“ID”:”2”,”RESPONSE”:”AT^MTXTUNNEL=SETPARAMS
OK
”}

7. Loading a specific configuration file.

In addition to the configuration parameters, Titan routers have additional configuration files. These files may include, for example, the loading of certificate files. In this example, the intention is to configure the client certificate files needed for the connection to the MQTT broker, specifically the files "mqttps-client.crt" and "mqttps-client.key".



```
-----BEGIN RSA PRIVATE KEY-----
```

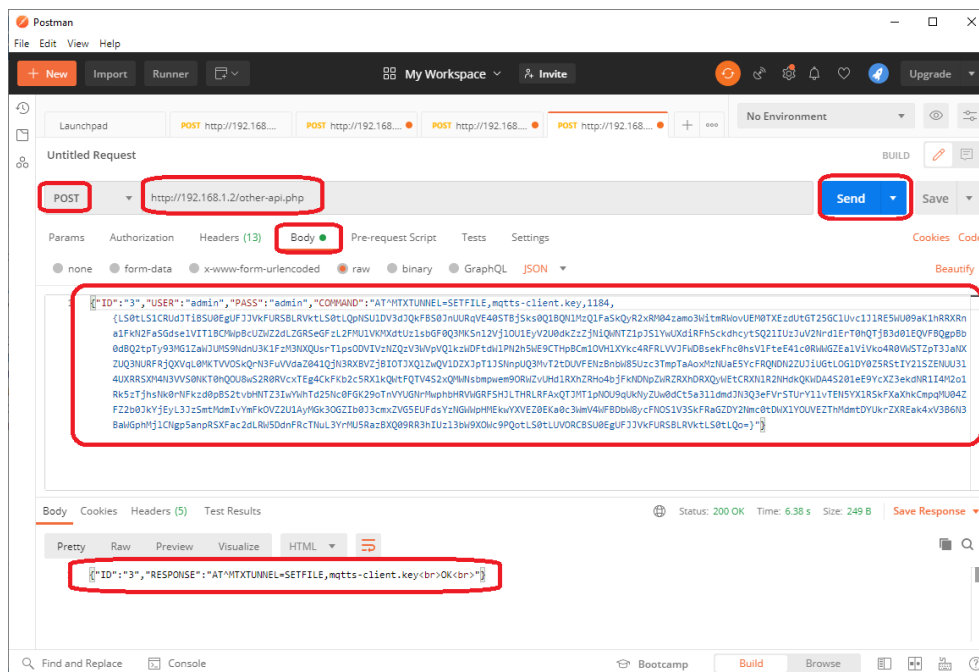
This, in base64, with a length of 1184 characters, would have the following content:

LS0tLS1CRUdJTIBSU0EgUFJJVkJFURSBRLVktLS0tLQpNSUJDV3dJkFBS0JnUURqVE40STBJSkS0Q1BQNIMzQlFASkYqR2xRM04zamo3WitmRW0vUEM0TXEzdUgtT25GCIUvc1JIRE5WU09aK1hRRXRna1FkN2FASgdselVITIBCMWpBcUZWZ2dLZGRSeGFzL2FMUIVKMXdtUzlsbGF0Q3MKSnI2VjI0U1EyV2U0dkZzJnQWNTZ1pSIYwUXdiRFhSckdhcYtSU2IIUzJuV2NrdlErT0hQtJb3d0IEQVFBGqpBb0dBQ2tpT9y3MG1ZaWJUMS9NdnU3K1fZm3NXQUsrTlpsODVlVzNZQzV3WVpVQlklzWDFdWlPWN2h5WE9ECTHpBcm1OVHIXYkc4RFRLLVJFWDBsekFhc0hsVfIE41c0RWWGZEaIViVko4R0VWSTZpT3JaNXZUQ3NURFRjQXVqL0MKTVVOSkQrN3FuVvdaZ041QjN3RXBVZjBIOTJXQlZwQVlDZXJpT1JSNnpUQ3MvT2lDUVFENzBnbW85Uzc3TmPtaAoXmZnUaE5YcFRQNNDN2ZUJiUGlGIDY0Z5RSItY2ISZENUU3I4UXRRSXMAN3VVS0NKT0hQOU8wS2R0RVcxTEg4CkFKbc2c5RXIkQWfQTV4S2xQMWNsbmpwem9ORWZvUHdlRXhZRH04bjFkNDNpZWZRZRXhDRXQyWEtCRXNIR2NHdkQKWDA4S201eE9YcXZ3ekdNR1I4M2o1Rk5zTjhsNk0rNfKzd0pBS2tVbHNTZ3lwYWhT2d5Nc0FGK29oTnVYUGNrMwphbHRVWGRFShJLTHRLRFAXQTJMT1pNOU9qUkNyZUw0dCI5a3lldmdJN3Q3eFvRStURyYlltEN5YXRSkFBXaXhkCmpqM04ZF2Fag20dJKyJyEjL3JzSmtMdmIvYmFkOVZ2U1AyMGk3OGZlB0J3bmx3BAG5EUFdsYzNGWWpHMEkwyXVEZ0EKa0c3WmV4WfBDbW8YcFNOS1V3SkFRaGZDY2Nmc0tdWXIUYOUEVtZHMdtDUYkUXREak4vX3Cm3BaVGhMjCnpg5anpRSXFac2dLRW5DdnFRcTnLU3YrUW5RazBzQ009R3HlUz3bW5XOWc9PqotL0S0tLUVORCBStU0EgUFJJVkJFURSBRLVktLS0tLQo=

To input this file into the Titan router, the following command must be executed:

```
LS0tLS1CRUdJTiBSU0EgUFJJVkFURSBLRVktLS0tLQpNSUdV3dJQkFBS0JnUURqVE40STBjSks0Q1BQNIMzQlFaSkQyR2xRM04zamo3WitmRwo
vUEM0TXEzdUgtGT25GCIUvc1JIRE5WU09aK1hRRXRna1FkN2FaSGdseIVITIBCMWpBcUZWZ2dLZGRSeGFzL2FMUUVKMxdUzlsbGF0Q3MKSnI2VjI
OU1EyV2U0dkZzZjNiQWNTZ1pJSiYwUXdiRFhScldhcytSQ2IIUzJuV2NrdlErT0hQTBjB3d0IEQVFBQgpbB0dBQ2tpTy93MG1ZaWJUMS9NdnU3K1FzM
3NXQUsrTlpsODVlVzNZQzV3WVpVQlIzWDFtdWIPN2h5WE9CTHpBcm1OVHIXYkc4RFRLLVJFWDBsekFhc0hsVlFteE41c0RWWGZEaIVvko4R0V
WSTZpT3JaNXZUQ3NURFRjQXVqL0MKTVVOSkQrN3FuVvdaZ041QjN3RXBVZjBIOTJXQlZwQVlDZXJpT1JSNnpUQ3MvT2lDUVFENzBnbW85Uzc3
TmptAoxMzNuAeSYcFRQNDN2ZUjiUGtLOGIDY0Z5RSiY2ISZENUU3I4UxRRSXM4N3VVS0NKT0hQOU8wS2R0RVcxTEg4CkFKb2c5RXlkQWlF
QTV4S2xQMWNsbmpwem9ORWZvUHdlRXhZRH04bjFkNDNpZWZWRXhDRXQyWEtCRXNIR2NHdkQKWD4S201eE9YcXZ3ekdNR1I4M2o1Rk5zTj
hsNk0rNFkd0pBS2tVbHNTZ3IwYWhTd25Nc0FGK29oTnVYUGNlMwphbHRVWGRFSHJLTHRLRFAXQTJMT1pNOU9qUkNyZUw0dCt5a3lmdmJN3Q
3eFVrSTUryYlVtEN5YXIRskFXaXhkCmpqMU04ZFZ2b0JkYjEYL3JzSmtMdmIvYmFkOVZ2U1AyMGk3OGZlb0J3cmxVZG5EUFdsYzNGWWpHMEkwY
XVEZ0Eka0c3WmV4WFBDbW8ycFNOS1V3SkFRaGZDY2Nm0tDWXIYUVEZThMdmDYUkrZXREak4xV3B6N3BaWgphMjCNgp5anpRSXFac2dL
RW5DdnFRcTnUL3YrMU5RazBXQ09RR3hIUzI3bW9XOWc9PQotLS0tLUVORCBSU0EgUFJJVkFURSBLRVktLS0tLQo=}
```

The execution of this AT command will be carried out in the same way as above:



And the same goes for the "mqtt-client.crt" file:

```
-----BEGIN CERTIFICATE-----
MIIDBDCCAeygAwIBAgIBADANBgkqhkiG9w0BAQsFADCBKDELMAkGA1UEBhMCB0Ix
FzAVBgNVBAGMDIVuaXRIZCBLaW5nZG9tMQ4wDAYDVQQHDAVEZXJieTESMBAGA1UE
CgwJTW9zcXVpdHRvMQswCQYDVQQLDAJDQTEWMBQGA1UEAwwNbW9zcXVpdHRvLm9y
ZzEhMB0GCSpGSlb3DQEEJARYQcm9nZXJAYXRjaG9vLm9yZzAeFw0yMzEwMDQxMDE0
MDVaFw0yNDExMDExMDE0MDVhMGlxGzAJBgNVBAYTAkVMTQwwCgYDVQQIDANFU1Ax
EjAQBGNVBACMCUJBUNFTE9OQTEPMA0GA1UECgwGTUFUUKIYMQ8wDQYDVQQLEDAZN
QVRSSVgxDzANBgNVBAMMBk1BVFFJWDCBnzANBgkqhkiG9w0BAQEFAAOBjQAwgYkC
gYEA40zeCNHCSuAjz+ktwUGSQ9hpUNzd44+2fmxI/zwuDKI7ihTpxVP7EXgzVUjm
f0BLVJEHe2mR4Jc1BzTwdYwKhVYICnXUcWpP2i0VCdcJkvZZWqrCcr1fTUkNln
uLxbH92wHEoGSCVdEMGw10axmrPkQoh0tp1nJL0PjhzzdMMCAwEAAaMaMBGwCQYD
VR0TBAlwADALBgNVHQ8EBAMCBeAwDQYJKoZIhvcNAQELBQADggEBAJ87TvcTkSZ
jEicROcVYzJ34ZcCdMkJeEy1TnCl+VEvai0FCslj19lqHckqVYJGMKAJR/Drlm
3Sro5UAbrYCyttw/L2i1mvsahQLmDcceQip322BFsML6+puPqOjCLTKVH/+Zh4kw
CzJdizfJlkzyE+R2zUwxxGnNSH+qwT30crjCzpdON2nyjpxBx+tYBrHLKiV318K
5qhzngunJ3Giq1+sUmyo5G3M9ETa/dnW15RFUUDY0ASGUhVqIWqVie+J+bSTfHc
DZHN9GnY03kQopEIPI+gqndG4RfCd7EGpISfAT9XtkBbDWtfvF9VuZh2924co4nL
0zU9fOfatoQ=
-----END CERTIFICATE-----
```

This, in base64, with a length of 1476 characters, has the following format:

```
LS0tLS1CRUdJTiBDRVJUSUJQFURSU0tLS0tck1JSURCRENDQWV5Z0F3SUJBZ0lCQURBTklna3Foa2lHOXcwQkFRc0ZBRENCa0RFTTE1Ba0dB
MVVfQmhhNQ1lW5XgKRnpBVklnTIZCQWdNRGxWdWfYUmxQ0JMYVc1b1pHOXRNUTR3REFZRFZRUUUEQVZFwWlKAWVURVNNQkFHQTFVRQ
pDZ3dKVfC5emNYVnBkSFJ2TVFzd0NRWURWUWFMREFKRFFURVdNQIFHQTFVRUF3d05lVzI6Y1hWcGRlUWZmMTI5Clp6RWZWNQjBHQ1NkR1NJY
jNEUUVKQVJZUWNTOW5aWEpBWWVhSamFHOXZMbTI5WnpBUZ3MHNekV3TURReE1ERTAKTURWYU3MHIORF4TURJeE1ERTBNRFZhtUdJ
eEN6QUppCz05WQkFZVEFRIRNUXd3Q2dZRFZRUUIEU5GVTFBeApFakFRQmdOVkhJBjY01DVUppCVWlORIRFOU9RVEVQTUEwR0ExVUVDZ3dH
VFVGvVrbFINUth3RFFZRFZRUUUEQVpOCIFWUINtVmd4RHpBTklnTIZCQUN1NQmsxQlZGSkpXRENCbnpBTklna3Foa2lHOXcwQkFRRUZBQU9
CaIFBd2dZa0MKZ1f1QTFQwemVDTkhDU3VBanora3R3VUdTUTl0cFVOemQ0NCsyZm54SS96d3VES3Q3aWhUcHhWUdDFWGD6VIVqbQpmbDBCTF
IKRUhIMm1SNEpJMUJ6VHdkWXDLafZZSUNuWfVjV3JQMmKwVnKkY0prdlpaV3JRckNjcfFmVfVrTmxuCNVMeGJIOTJ3SEVvR1NDVmrFTUd3MTB
heG1yUGtRb2gwdHAXbkpMMFBqaHp6ZE1NQ0F3RUFBYU1hTUJnd0NRWUQKVlWVEJBSXdBREFMQmdOVkhROEVCQU1DQmVbD0RRWUPLb1p
JaHJZTktFRRUxCUUFEZ2dFQkFKSjg3VHJzVGTWgppRWjUk9jVnIFWmpTNFpjQ2RNa2pIRXkxVG5DbCtWRXZhaTBGQ3NjajE5S5XFIY2bVllsSkdNS
0FqUi9EckxtCjNtcm81VUFicnlDeXR0dy9MMmKxbXZzYUhrTG1EY2NIUWlwMzlyQkZzTUw2K3B1UHFPakNMVGtWSC8rWmg0a3cKQ3pKZG16aUZq
bGt6eUUrUjU6VXd4eEduTINIK3F3VDMwY3JqQ3pwZE9OMm55anhwQngdrFICckhMS2lWmZE4Swo1cWh6bmd1bk0zR2kMStzVW15bzVHM005RVR
hL2RuVzE1UkZvDFVEWw9BU0dVaHZxSVdxVmlIK0orYINUZkhjCkRaSE45R25ZTzNrUW9wRWxQbCtncW5kRzRSZkNkN0VHcEITZkFUOVh0a0JiRF
d0ZnZGOVZ1WmgYOTI0Y280bkWKMHPVOWZPZmF0b1E9Ci0tLS0tRU5EIENFUlRJRkdQVRFSL0tLS0=
```

Again, to install this file on the Titan router, the following command must be executed:

```
AT+MTXTUNNEL=SETFILE,mqtt-client.crt,1476,{
```

```
LS0tLS1CRUdJTiBDRVJUSUJQFURSU0tLS0tck1JSURCRENDQWV5Z0F3SUJBZ0lCQURBTklna3Foa2lHOXcwQkFRc0ZBRENCa0RFTTE1Ba0dB
MVVfQmhhNQ1lW5XgKRnpBVklnTIZCQWdNRGxWdWfYUmxQ0JMYVc1b1pHOXRNUTR3REFZRFZRUUUEQVZFwWlKAWVURVNNQkFHQTFVRQ
pDZ3dKVfC5emNYVnBkSFJ2TVFzd0NRWURWUWFMREFKRFFURVdNQIFHQTFVRUF3d05lVzI6Y1hWcGRlUWZmMTI5Clp6RWZWNQjBHQ1NkR1NJY
jNEUUVKQVJZUWNTOW5aWEpBWWVhSamFHOXZMbTI5WnpBUZ3MHNekV3TURReE1ERTAKTURWYU3MHIORF4TURJeE1ERTBNRFZhtUdJ
eEN6QUppCz05WQkFZVEFRIRNUXd3Q2dZRFZRUUIEU5GVTFBeApFakFRQmdOVkhJBjY01DVUppCVWlORIRFOU9RVEVQTUEwR0ExVUVDZ3dH
VFVGvVrbFINUth3RFFZRFZRUUUEQVpOCIFWUINtVmd4RHpBTklnTIZCQUN1NQmsxQlZGSkpXRENCbnpBTklna3Foa2lHOXcwQkFRRUZBQU9
CaIFBd2dZa0MKZ1f1QTFQwemVDTkhDU3VBanora3R3VUdTUTl0cFVOemQ0NCsyZm54SS96d3VES3Q3aWhUcHhWUdDFWGD6VIVqbQpmbDBCTF
IKRUhIMm1SNEpJMUJ6VHdkWXDLafZZSUNuWfVjV3JQMmKwVnKkY0prdlpaV3JRckNjcfFmVfVrTmxuCNVMeGJIOTJ3SEVvR1NDVmrFTUd3MTB
heG1yUGtRb2gwdHAXbkpMMFBqaHp6ZE1NQ0F3RUFBYU1hTUJnd0NRWUQKVlWVEJBSXdBREFMQmdOVkhROEVCQU1DQmVbD0RRWUPLb1p
JaHJZTktFRRUxCUUFEZ2dFQkFKSjg3VHJzVGTWgppRWjUk9jVnIFWmpTNFpjQ2RNa2pIRXkxVG5DbCtWRXZhaTBGQ3NjajE5S5XFIY2bVllsSkdNS
0FqUi9EckxtCjNtcm81VUFicnlDeXR0dy9MMmKxbXZzYUhrTG1EY2NIUWlwMzlyQkZzTUw2K3B1UHFPakNMVGtWSC8rWmg0a3cKQ3pKZG16aUZq
bGt6eUUrUjU6VXd4eEduTINIK3F3VDMwY3JqQ3pwZE9OMm55anhwQngdrFICckhMS2lWmZE4Swo1cWh6bmd1bk0zR2kMStzVW15bzVHM005RVR
hL2RuVzE1UkZvDFVEWw9BU0dVaHZxSVdxVmlIK0orYINUZkhjCkRaSE45R25ZTzNrUW9wRWxQbCtncW5kRzRSZkNkN0VHcEITZkFUOVh0a0JiRF
d0ZnZGOVZ1WmgYOTI0Y280bkWKMHPVOWZPZmF0b1E9Ci0tLS0tRU5EIENFUlRJRkdQVRFSL0tLS0=}
```


The execution of this AT command will be carried out in the same way as above:

AT^MTXTUNNEL=SETFILE,mqtts-client.crt,1476,{

```
LS0tLS1CRUdJTIbDRVJUSUZJQ0FURSB0tCk1JSURCRENDQWV5Z0F3SUJBZ0lCQURBTkNa3Foa2lHOXcwQkFRc0ZBRENCa0RFTE1Ba0dB
MVVfQmhhNQ01lwSXgKRnpBVkNjTIZCQWdNRGxWdWYUmxQ0JMYVc1blpHOXRNUTR3REFZRFZRUUUhEQVZFVWlhKaWVURVNNQkFHQTFVRQ
pDZ3dKVFc5emNYVnBkSFJ2TVFzd0NRWURWUWFMREFKRFFURVdNQIFHQTFVRUF3d05iVzI6Y1hWcGRlUnZMbTI5Clp6RWZNRjBHQ1Nxr1NjY
jNEUUVKQVJZUWNIOW5aWEpBWVhSamFH0XZMbTI5WnpBZUZ3MHINekV3TURReE1ERTAKTURWYUZ3MHIOREF4TURJeE1ERTBNRFZtUdJ
eEN6QUpCZ05WQkFZVEFrVIRNUXd3Q2dZRFZRUUIEU5GVTFBeApFakFRQmdOVkJBY01DVUpCVWtORIRFOU9RVEVQTUEwR0ExVUVDZ3dH
VFVGVVVrbFINUth3RFFZRFZRUUxEQVpOCIFWUINTVmd4RHpBTkNjTIZCQWdNRGxWdWYUmxQ0JMYVc1blpHOXRNUTR3REFZRFZRUUUhEQVZFVWlhKaWVURVNNQkFHQTFVRQ
CaIFBd2dZa0MKZ1lFQTQwemVDTkhDU3VBanora3R3VUdTUTllocFVOemQ0NCsyZm54SS96d3VES3Q3aWhUcHhWUDdFWGd6VlVqbQpmbDBCTF
IKRUhIMm1SNEpjMUJ6VHdkWXdlAFZZSUNuWVJv3JQMmkwVvNkY0prdlpaV3JRckNjcjFmVVFvTmxuCNVMeGJIOTJ3SEVvR1NDVmRFTUd3MTB
heG1yUGtRb2gwdHAxbkpMMFBqaHp6ZE1NQ0F3RUFBU1hTUJnd0NRWUQKVIllwVEJBSXdBREFMQmdOVkhROEVCQU1DQmVBd0RRWUpLb1p
JaHZJTkFRRUxUCUUEFEZ2dFQkFKSjg3VHZjVGtTWgpgRWIjUk9jVnlFWmpTNFpjQ2RNa2plRXkxVG5DbCtWRXZhaTBGQ3NjajE5SXFY2bVllsSkdNS
0FqUi9EckxtCjNTcm81VUFicnlDeXR0dy9MMmkxbXZzYUhhRTG1EY2NlUWlwMzlyQkZzTUw2K3B1UHFPakNMVGtWSC8rWmg0a3cKQ3pKZGI6aUZq
bGt6eUUrUjJ6VXd4eEduTINIK3F3VDMwY3JqQ3pwZE9OMm55anhwQngrdFICckhMS2lWMzE4Swo1cVh6bmd1bk0zR2lxMStzVW15bzVHM005RVR
hL2RuVzE1UkZVdFEVW9BU0dVaHZxSVdxVmllK0rYINUZkhjCkRaSE45R25ZTzNrUW9wRWxQbCtncW5kRzRSZkNkN0VHcEITZkFUOVh0a0JiRF
d0ZnZGOVZ1WmgYOTI0Y280bkwKMHPVOWZPZmF0b1E9Ci0tLS0tRU5EIENFUlRJRkdDQVRFLS0tLS0=}
```

At this point, the Titan router will be fully configured. After a reboot, the router will start using the new configuration.

Do you have any more questions?

Send us your questions at: support@matrix.es