ThingsBoard (edición IoT open Tech)

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The Things Network Madrid

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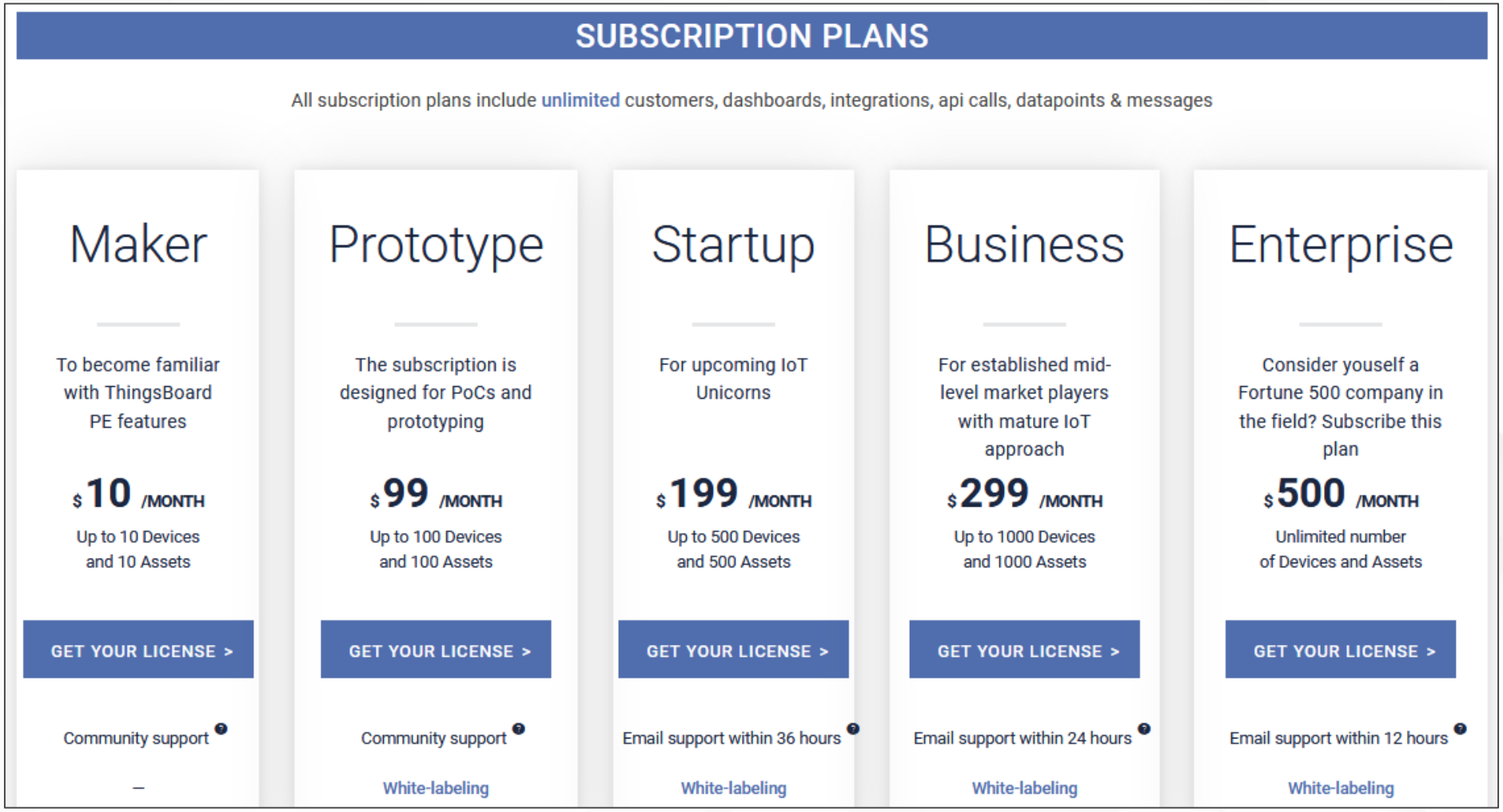
ThingsBoard

Plataforma IoT open source con las siguientes características:

- Funciona en la nube o on-premises (local)
- Community Edition (CE) y Professional Edition (PE)
- Multi-tenant (instancias diferenciadas para cada tenant sobre una misma instalación)
- Aprovisionamiento de dispositivos, activos y clientes con relaciones entre ellos
- Almacenamiento de datos/telemetrías (SQL y NoSQL)
- Visualización mediante dashboards/widgets
- Motor de reglas tipo Node-RED

ThingsBoard PE



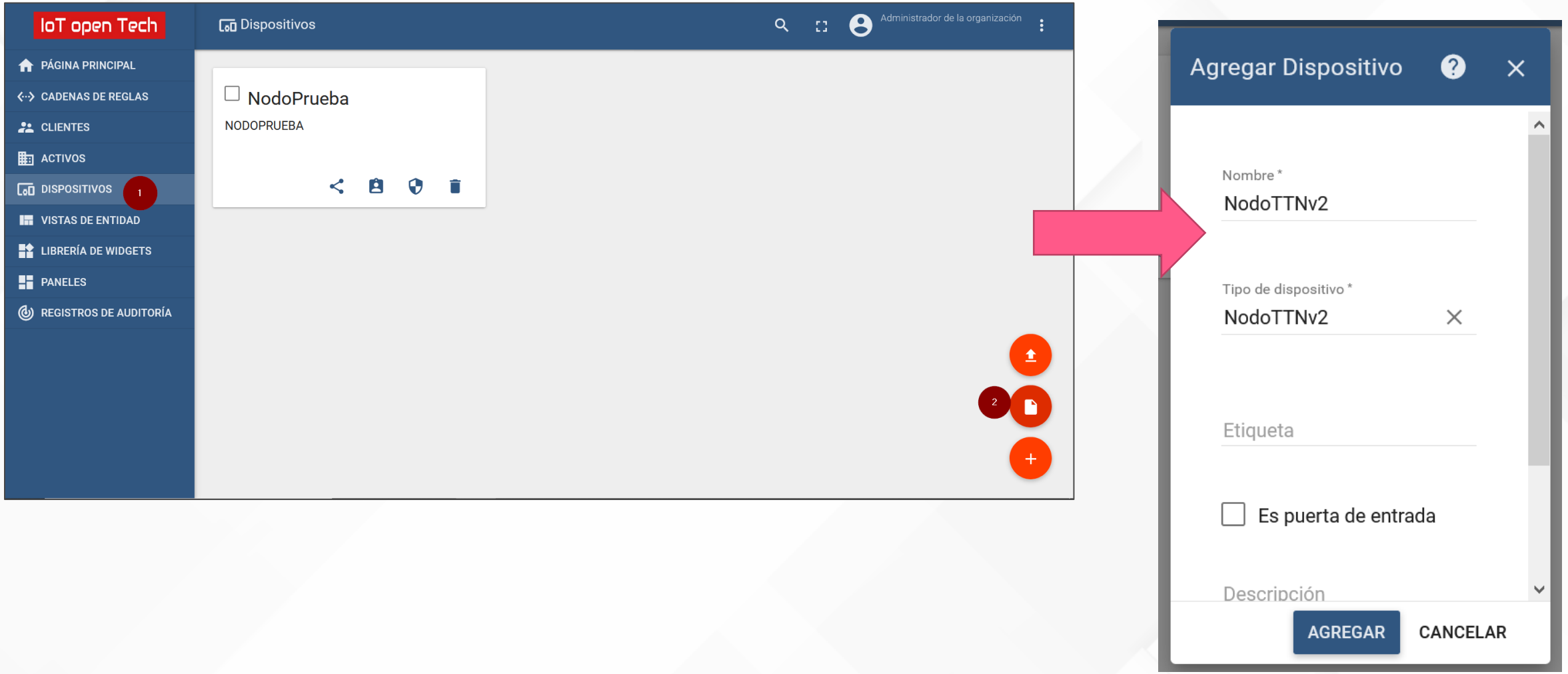
ThingsBoard: Programa de la sesión (1/2)

1. Crear un dispositivo en ThingsBoard
    1. Probar con Postman (o curl) que el dispositivo recibe telemetrías correctamente
    2. Crear una regla en ThingsBoard que permita convertir las telemetrías enviadas por The Things Network al formato de ThingsBoard
2. Crear una aplicación y nodo en The Things Network
    1. Configurar el formato de carga de pago Cayenne LPP
    2. Configurar la integración con ThingsBoard
    3. Simular el envío de telemetrías desde The Things Network

ThingsBoard: Programa de la sesión (2/2)

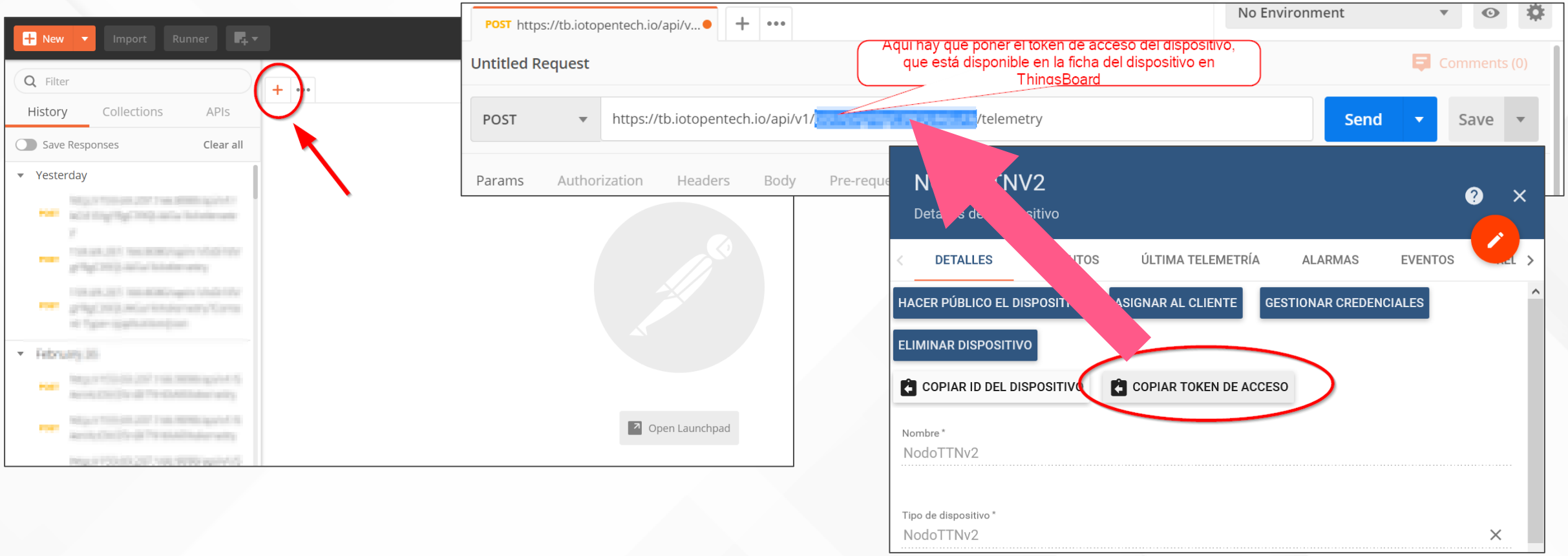
1. Crear en ThingsBoard una integración con IFTTT que nos envíe una notificación al móvil cuando la temperatura supere el umbral de 25º
2. Crear en ThingsBoard una integración con Telegram que nos envíe un mensaje a un chat privado cuando la temperatura supere el umbral de 25º

Crear un dispositivo en ThingsBoard



Probar con Postman que el dispositivo recibe telemetrías (1/3)

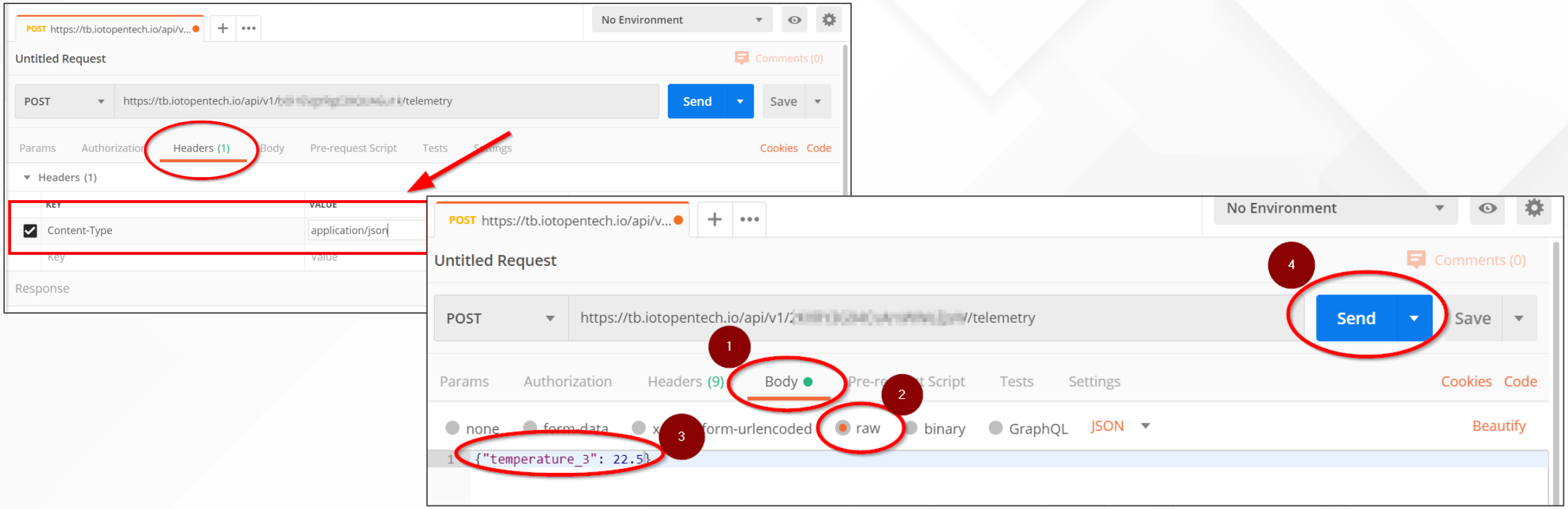
URL: https://tb.iotopentech.io/api/v1/TU_TOKEN/telemetry



Probar con Postman que el dispositivo recibe telemetrías (2/3)

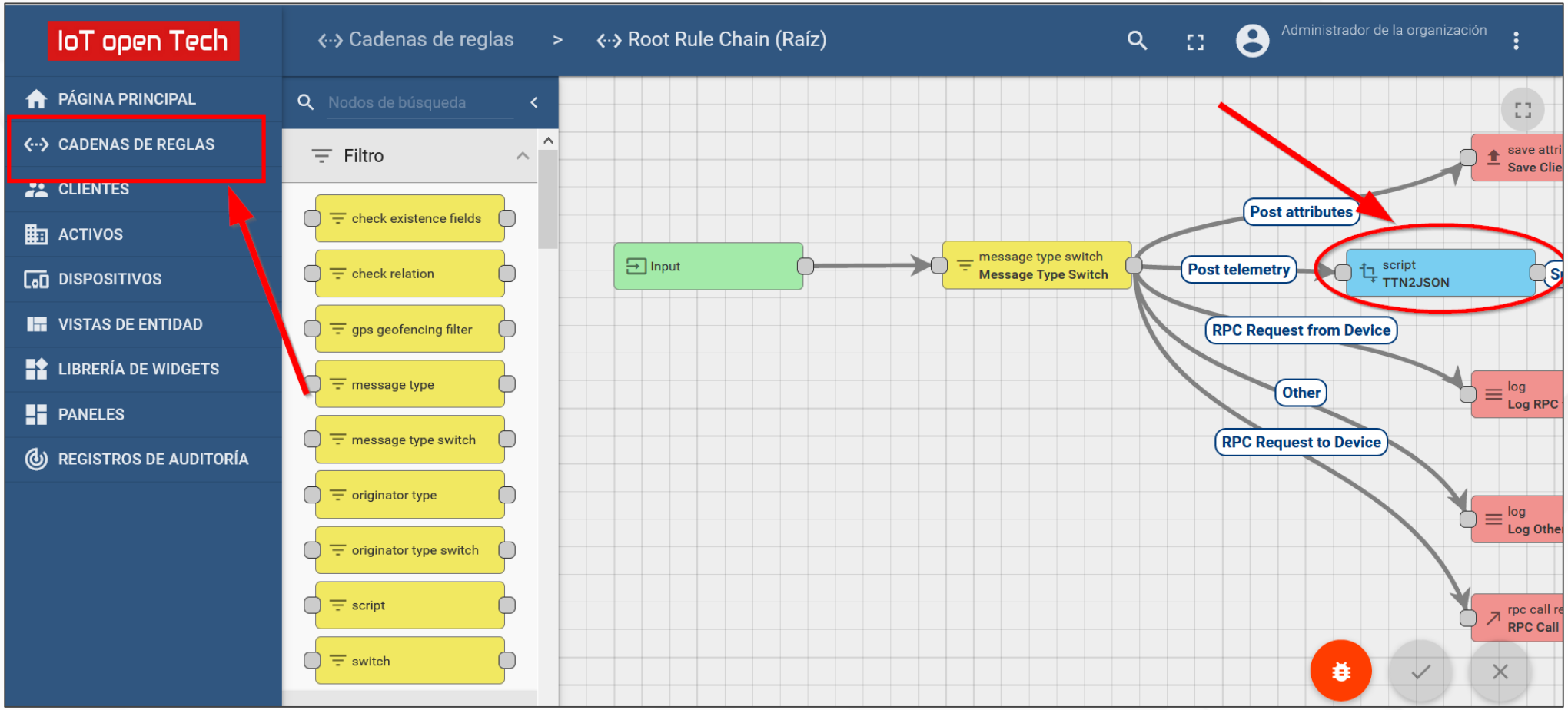
Encabezado: Content-Type: application/json

Cuerpo: {"temperature_3": 22.5}

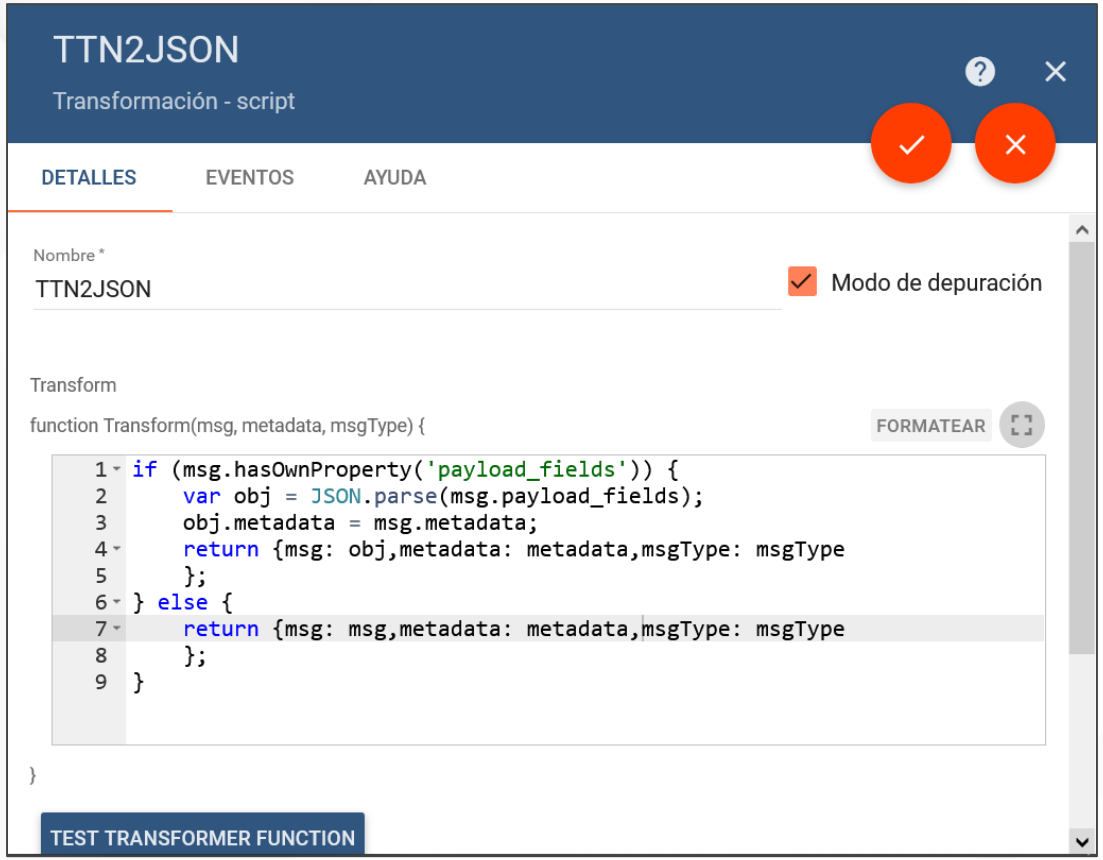


Probar con Postman que el dispositivo recibe telemetrías (3/3)

Crear una regla en ThingsBoard para convertir el formato de TTN al formato de ThingsBoard (1/2)

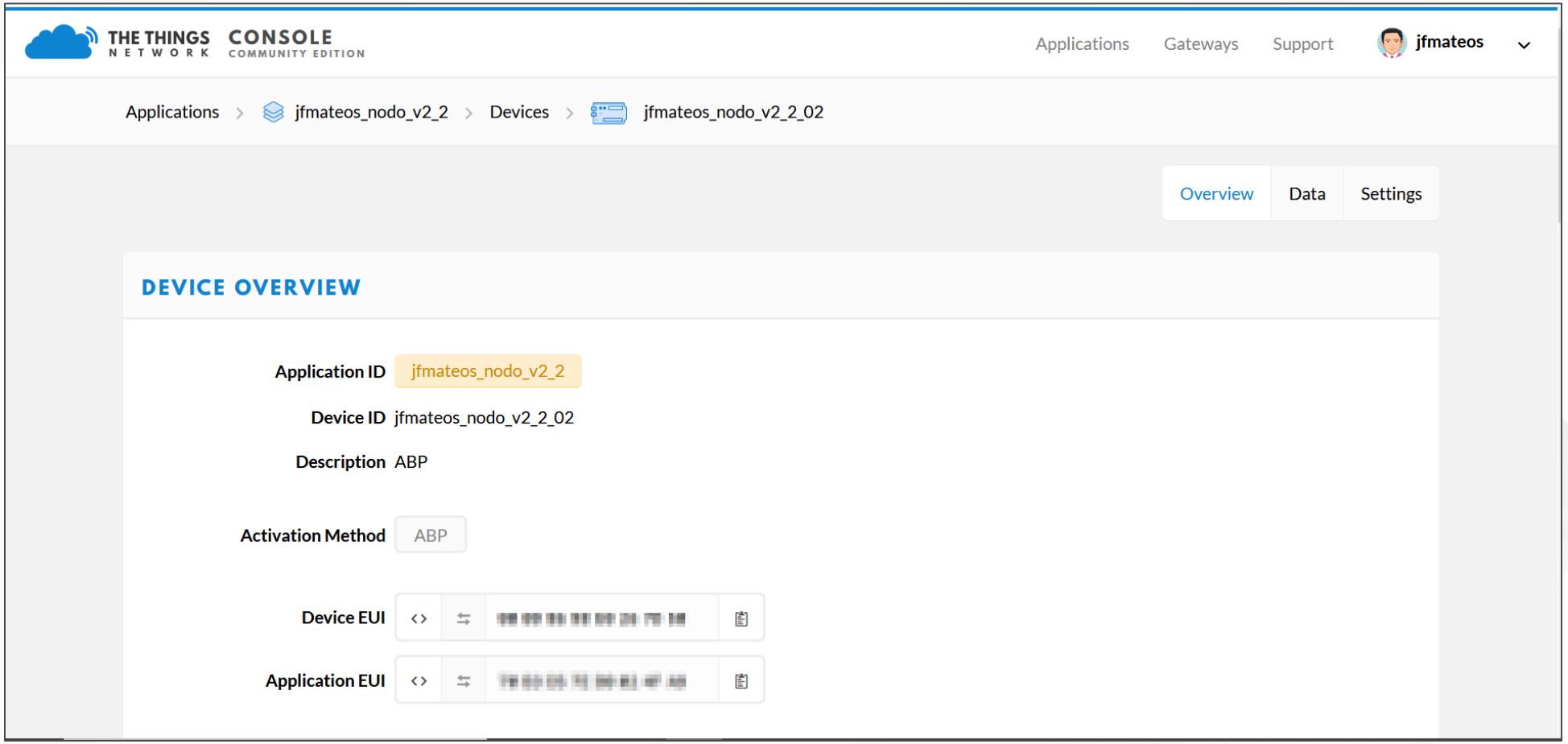


Crear una regla en ThingsBoard para convertir el formato de TTN al formato de ThingsBoard (2/2)

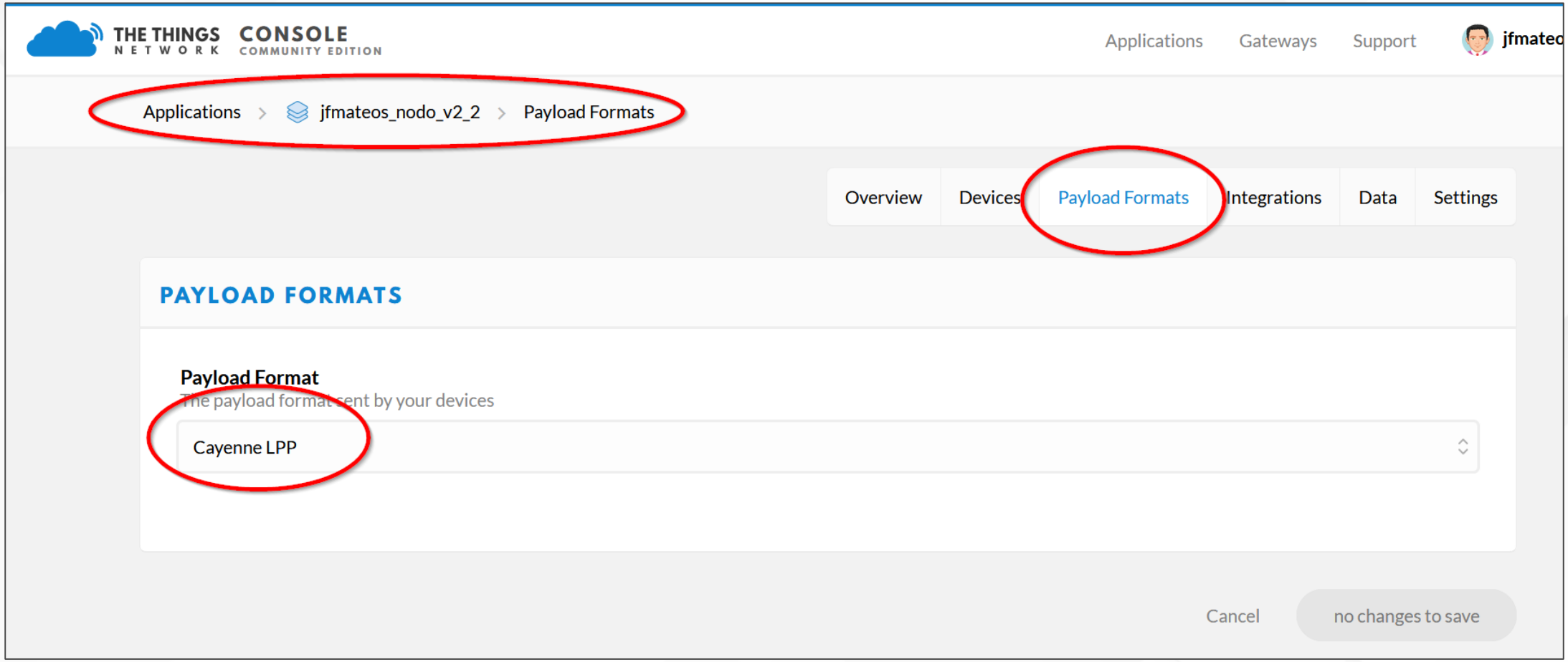



```
if (msg.hasOwnProperty('payload_fields')) {
    var obj = JSON.parse(msg.payload_fields);
    obj.metadata = msg.metadata;
    return {msg: obj,metadata: metadata,msgType: msgType
    };
} else {
    return {msg: msg,metadata: metadata,msgType: msgType
    };
}
```

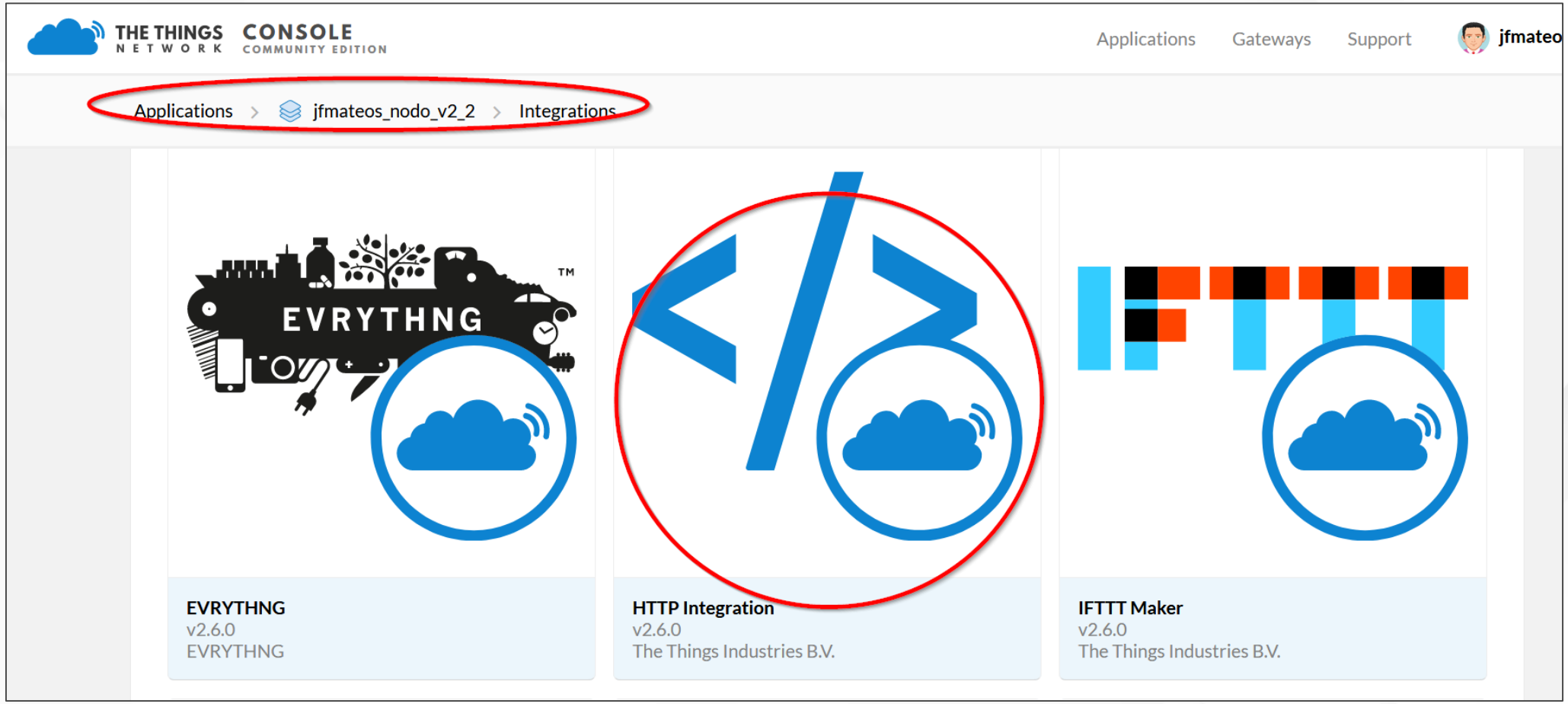
Crear una aplicación y nodo en The Things Network



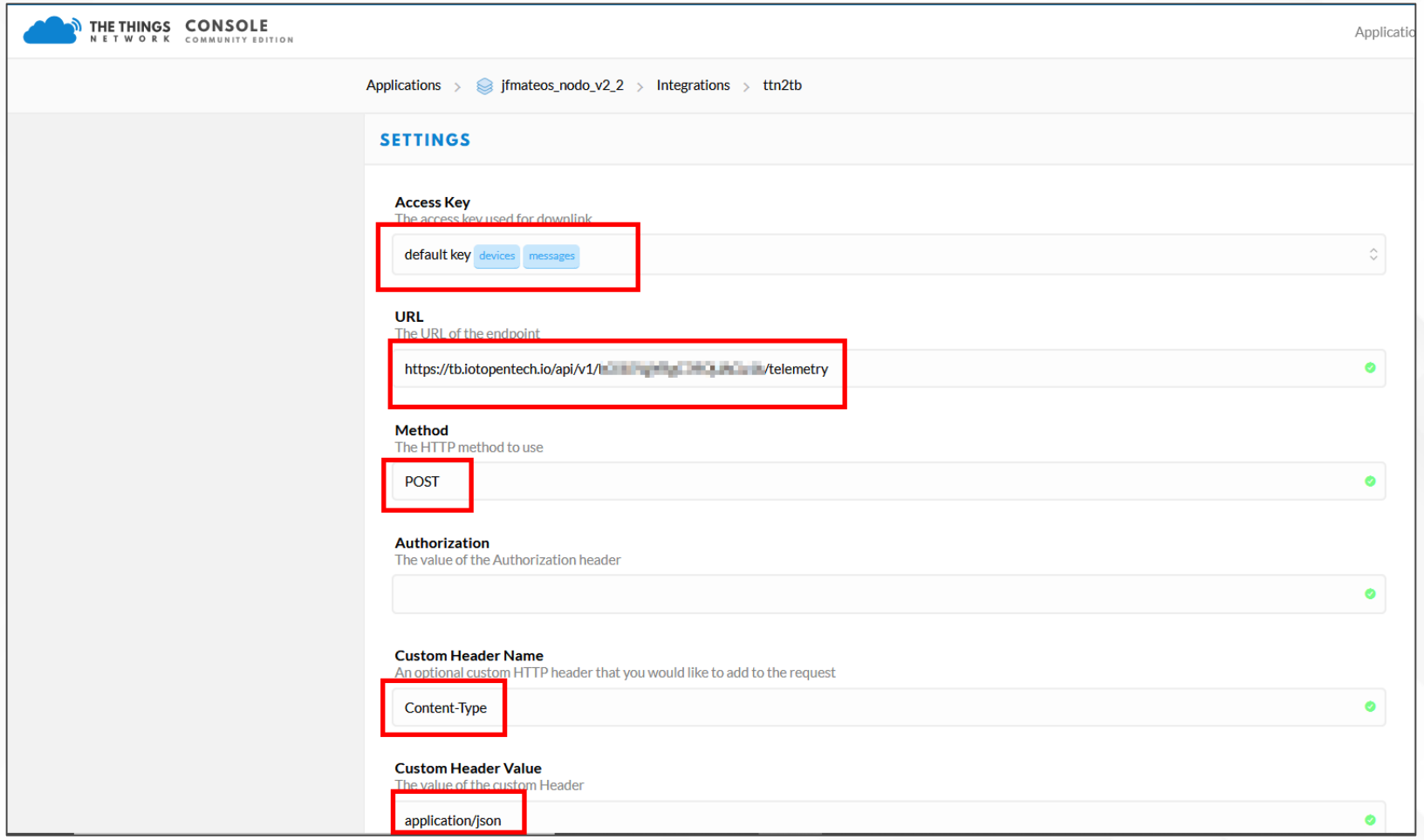
Configurar el formato de carga de pago Cayenne LPP



Configurar la integración con ThingsBoard (1/2)



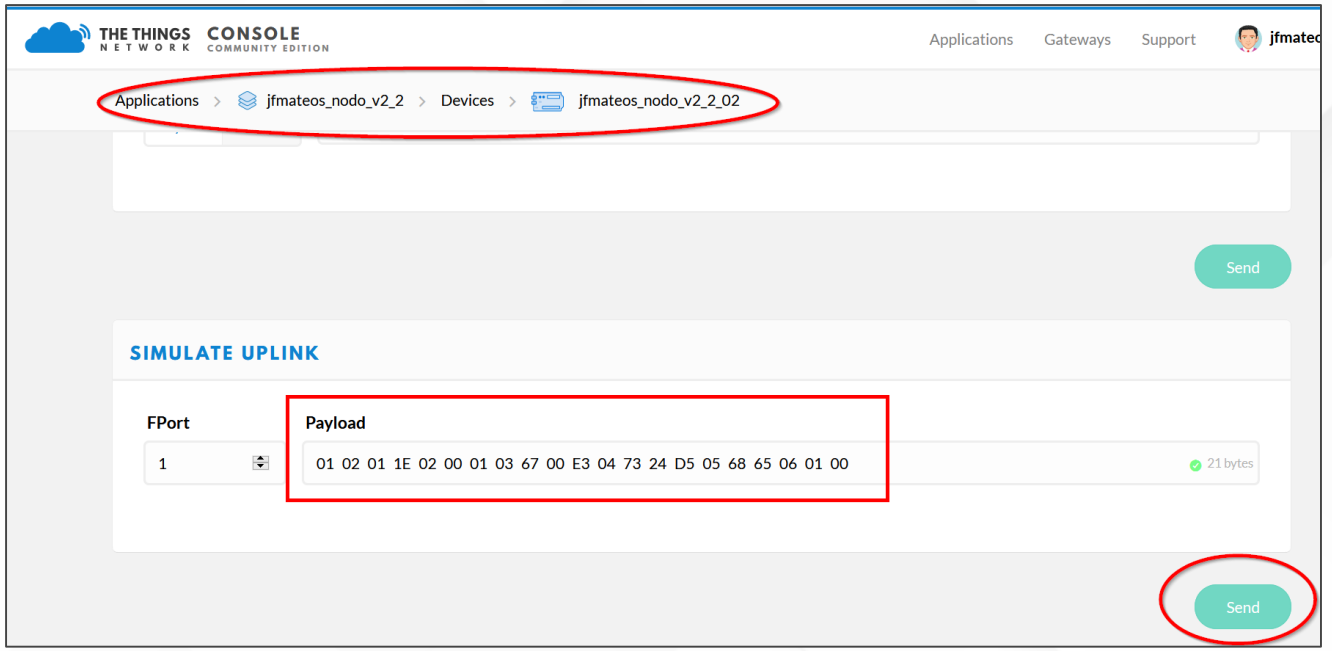
Configurar la integración con ThingsBoard (2/2)



Simular el envío de telemetrías desde The Things Network

0102011E020001036700E3047324D5056865060100

{ "analog_in_1": 2.86,
"barometric_pressure_4": 942.9,
"digital_in_2": 1,
"digital_out_6": 0,
"relative_humidity_5": 50.5,
"temperature_3": 22.7}



Integrar ThingsBoard con IFTTT

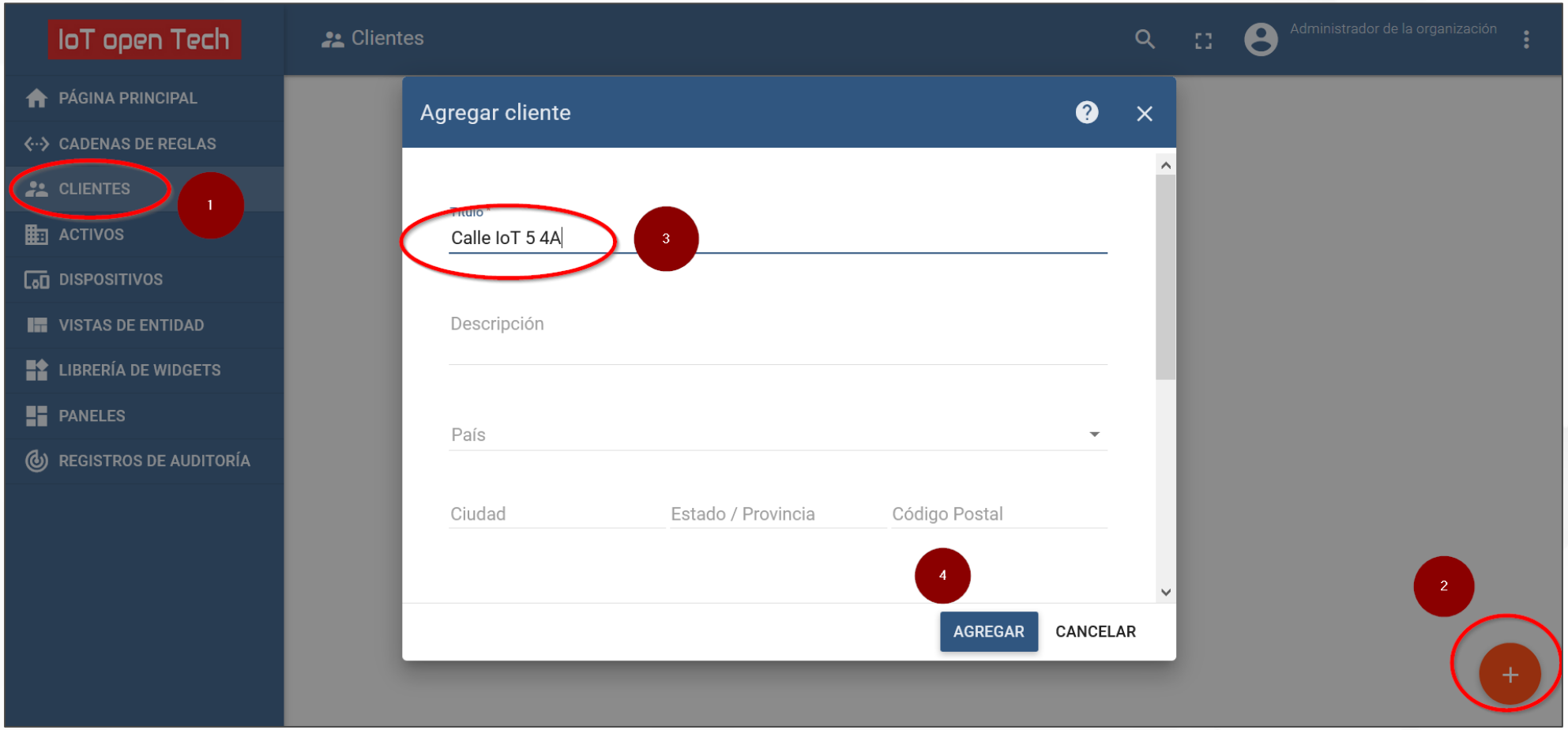
Para integrar ThingsBoard con IFTTT vamos a necesitar el **token del servicio Webhook de IFTTT**.

Este token lo almacenaremos como un **atributo**; todas las entidades de ThingsBoard (dispositivos, activos, clientes…) pueden tener atributos.

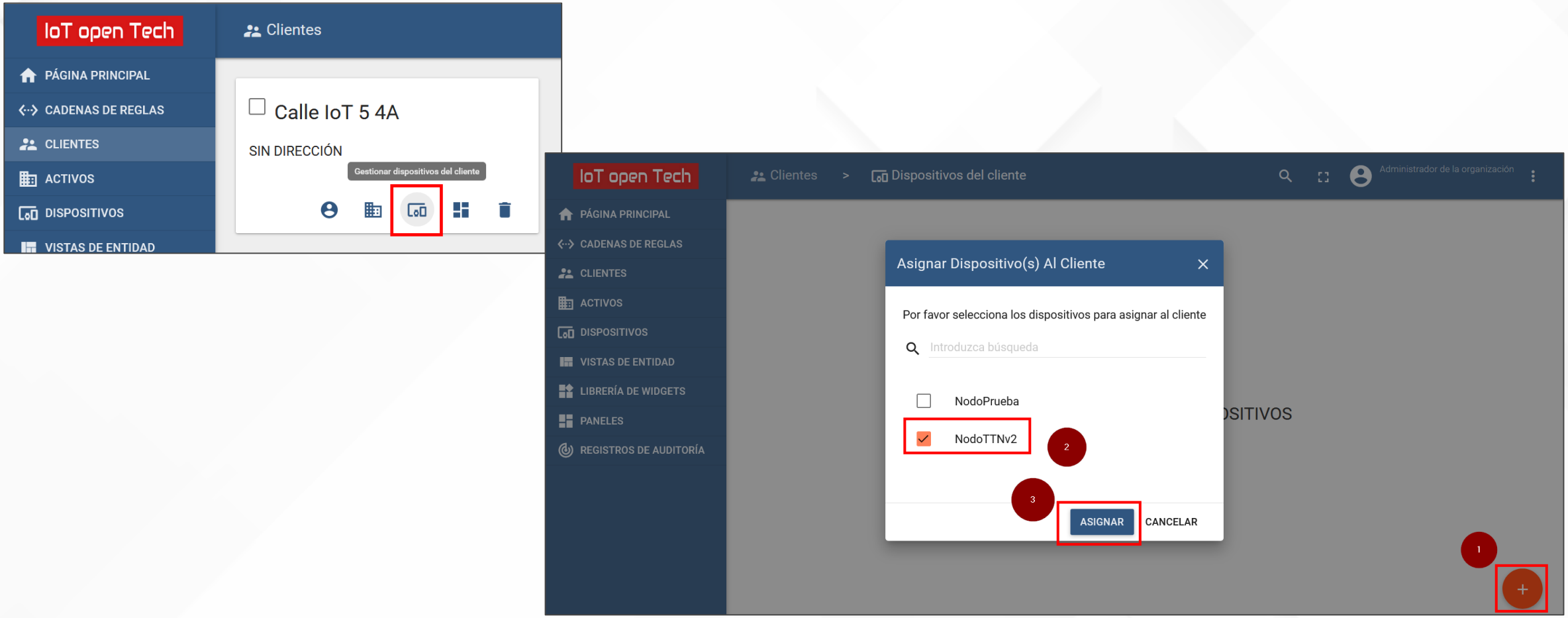
Como es probable que un mismo cliente tenga varios dispositivos y una sola cuenta de IFTTT, en lugar de asignar el atributo al dispositivo:

1. Crearemos un cliente en ThingsBoard
2. Asignaremos el dispositivo al cliente
3. Crearemos el atributo en el cliente

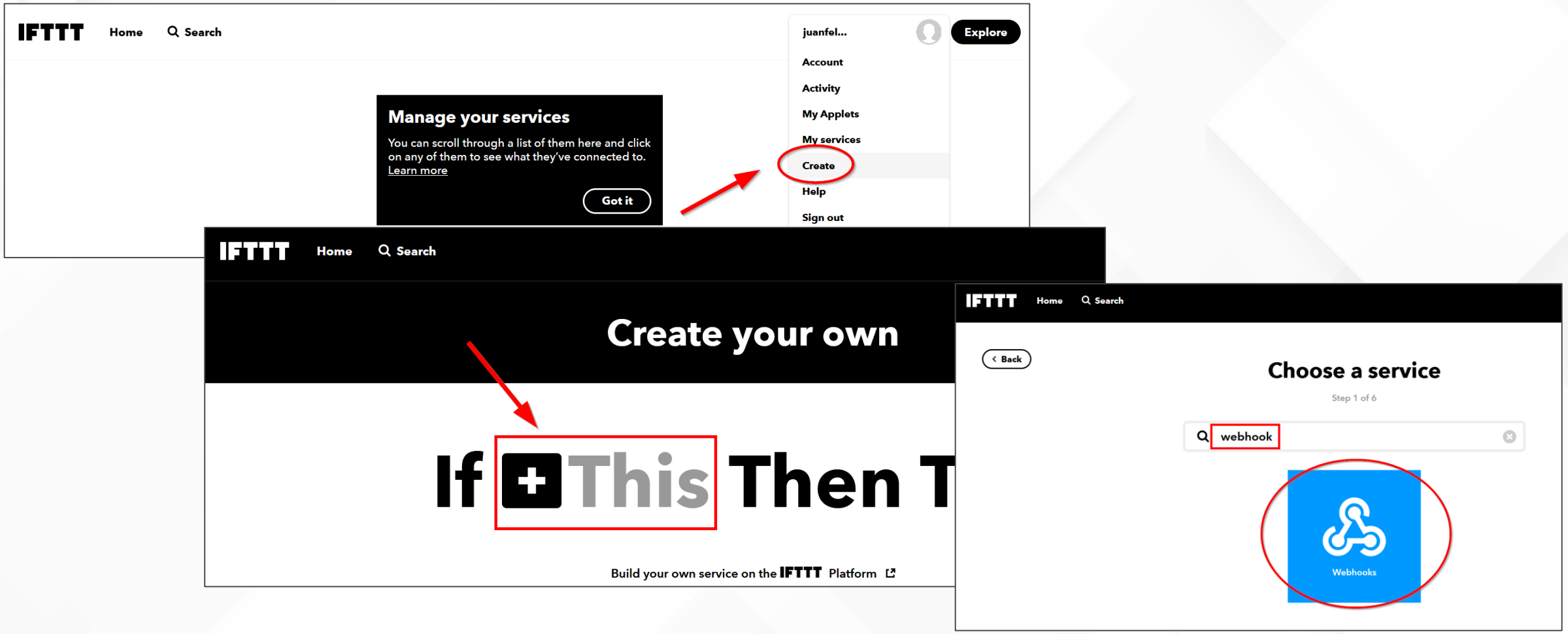
Integrar ThingsBoard con IFTTT
Crear un cliente en ThingsBoard



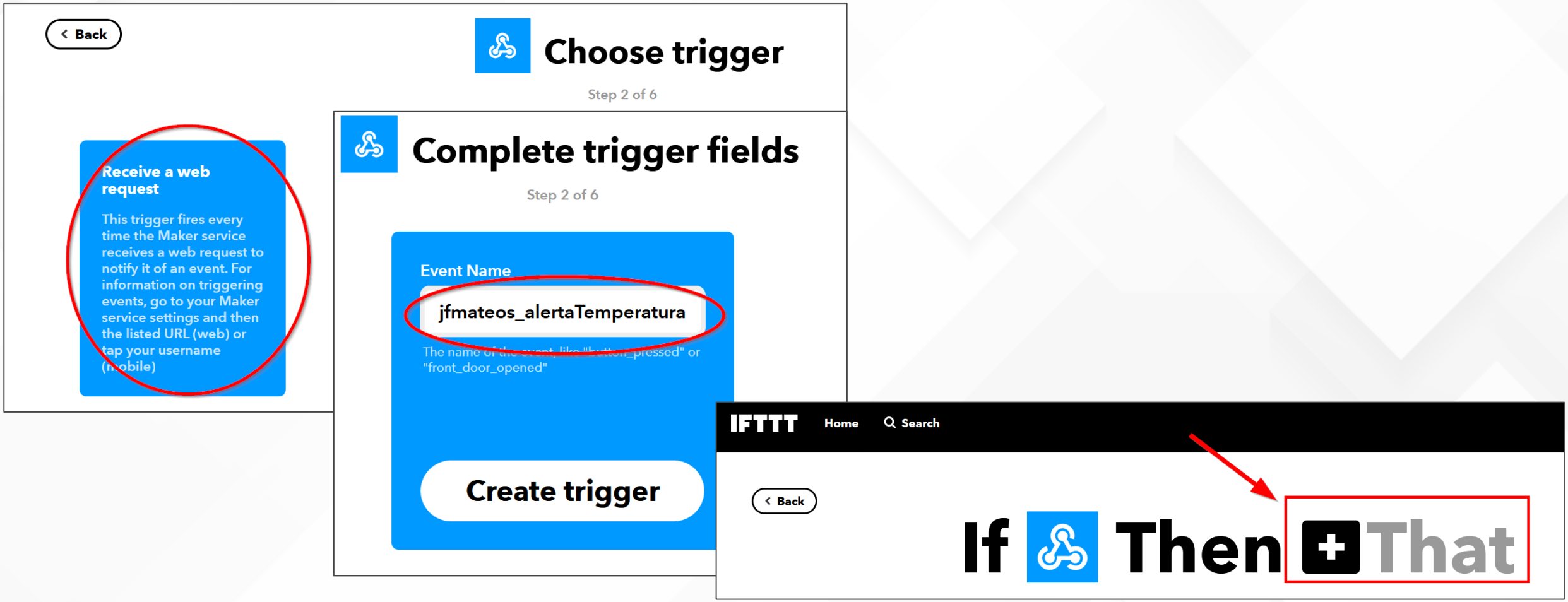
Integrar ThingsBoard con IFTTT
Asignar el dispositivo al cliente



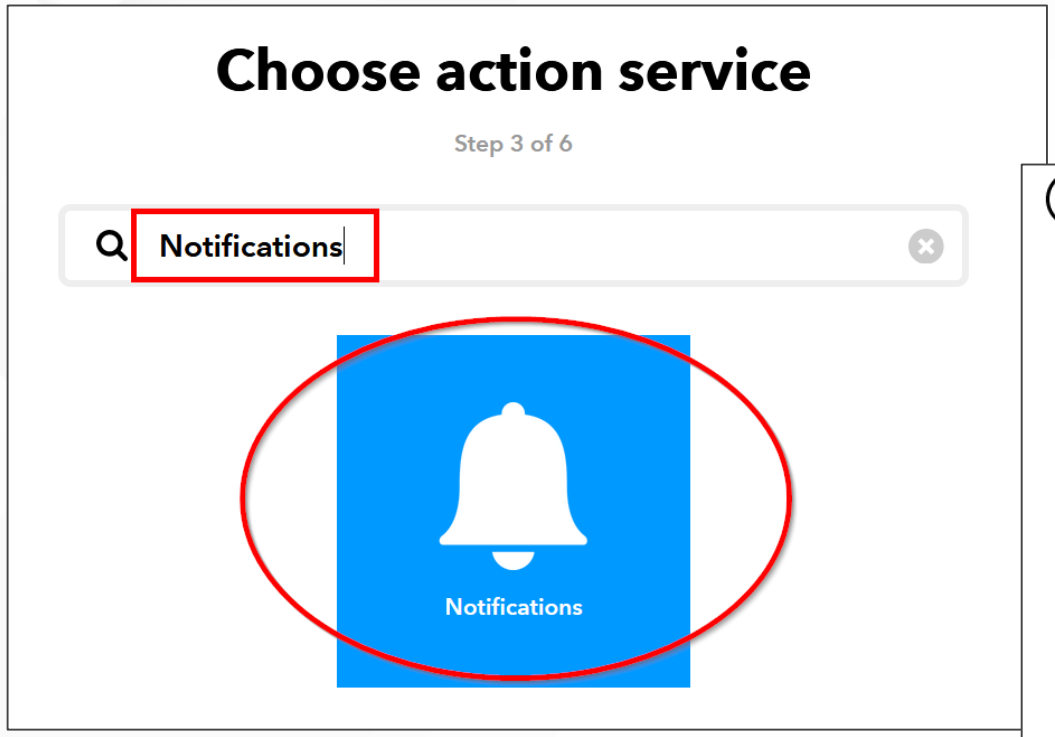
Integrar ThingsBoard con IFTTT
Crear el Applet en IFTTT (1/4)

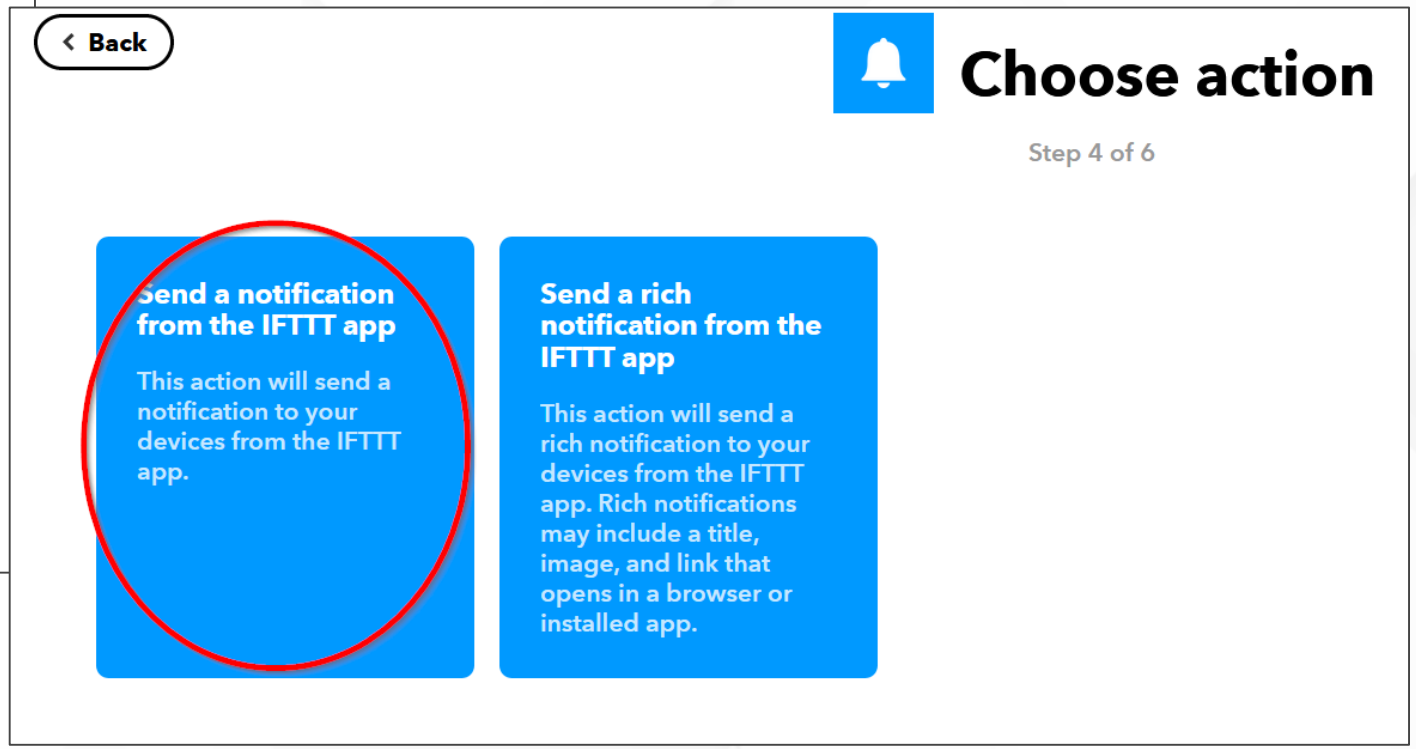


Integrar ThingsBoard con IFTTT
Crear el Applet en IFTTT (2/4)

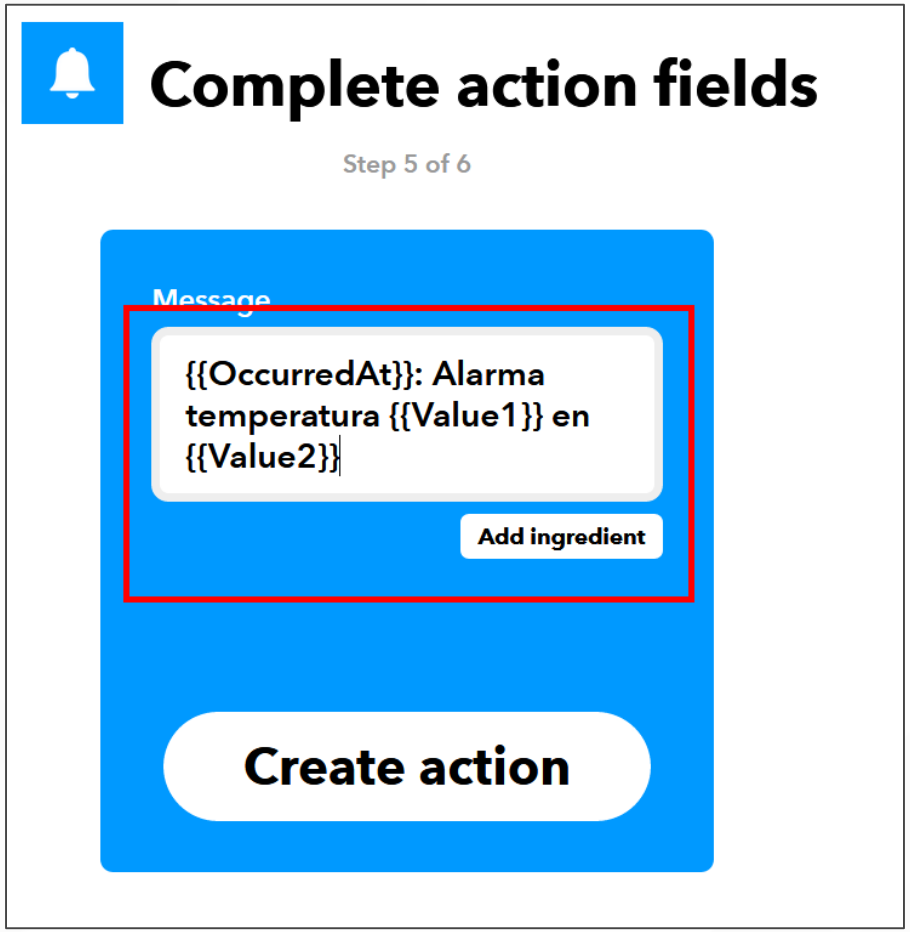


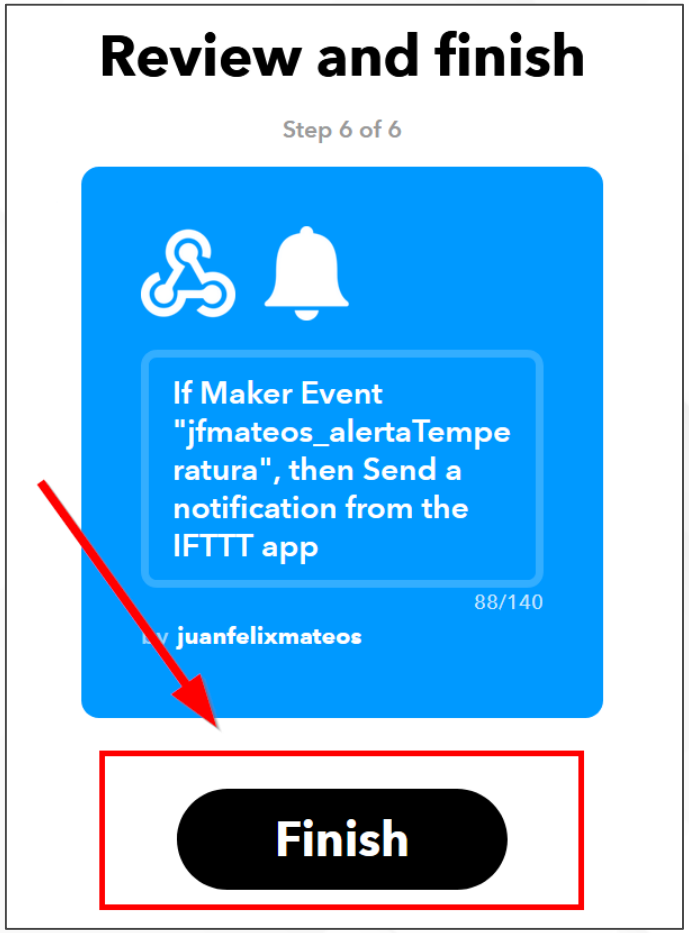
Integrar ThingsBoard con IFTTT
Crear el Applet en IFTTT (3/4)



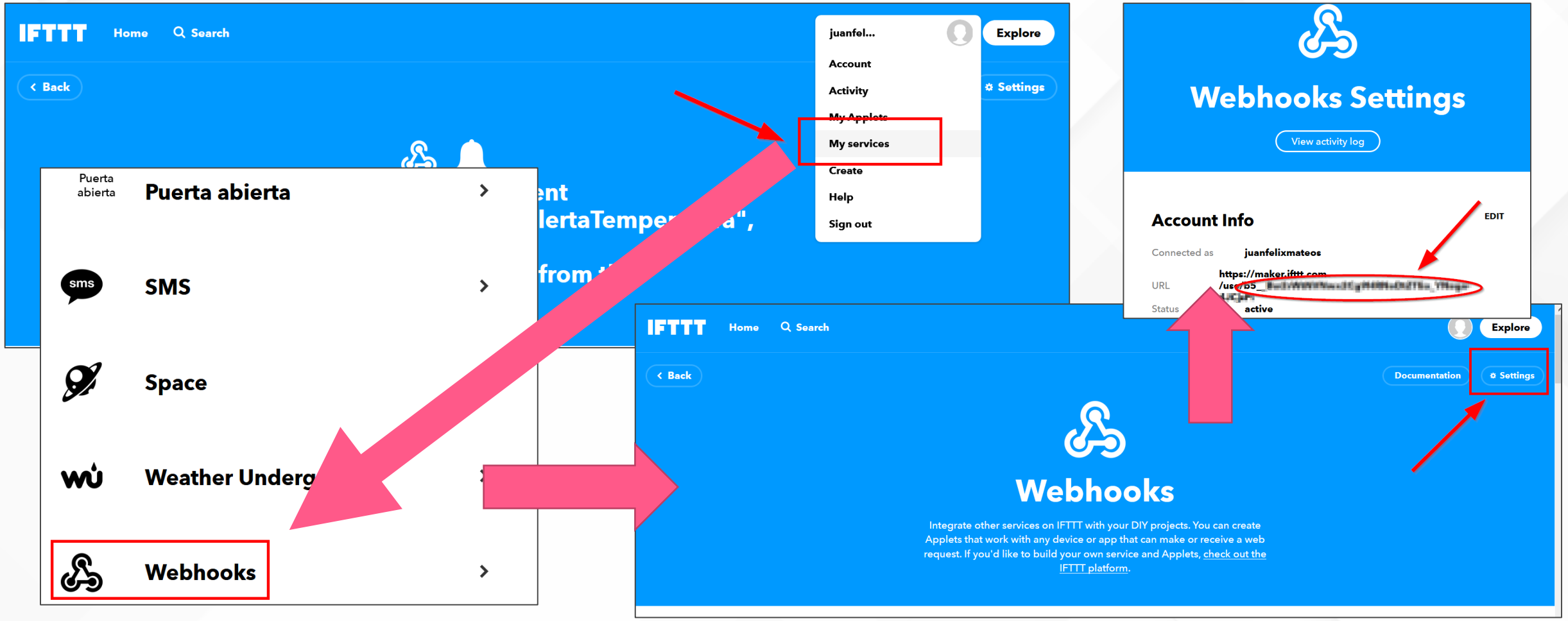


Integrar ThingsBoard con IFTTT
Crear el Applet en IFTTT (4/4)

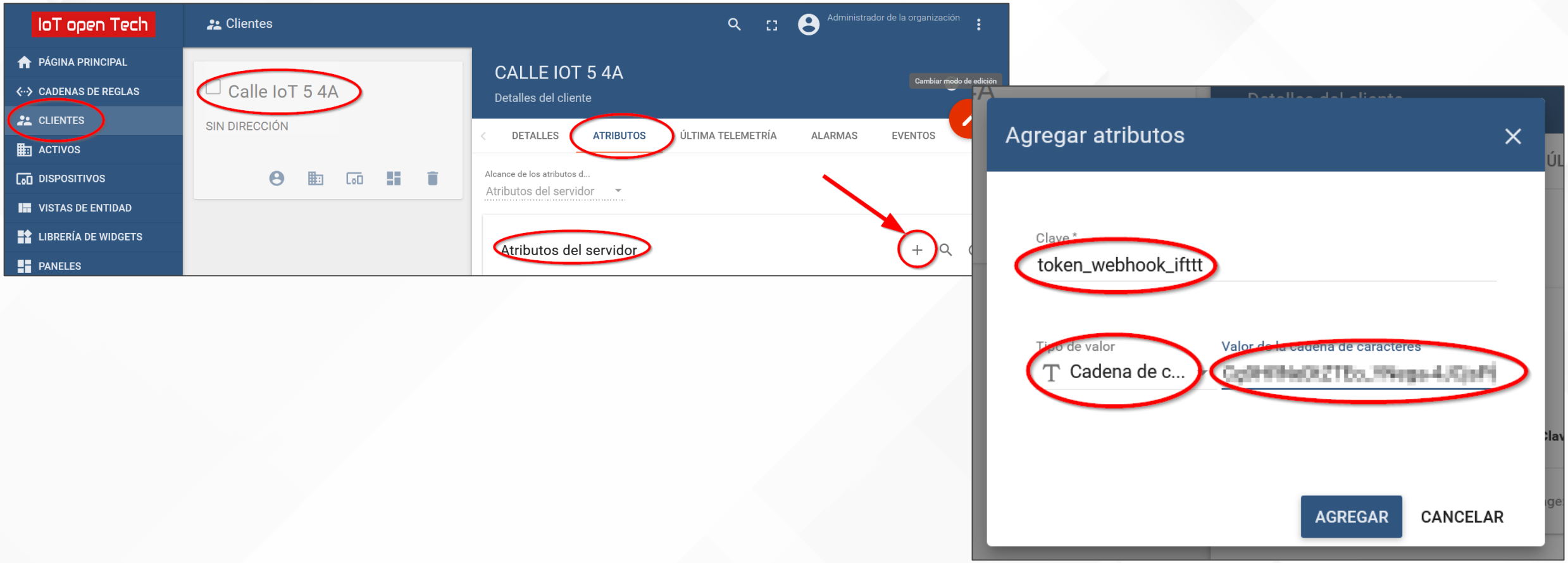




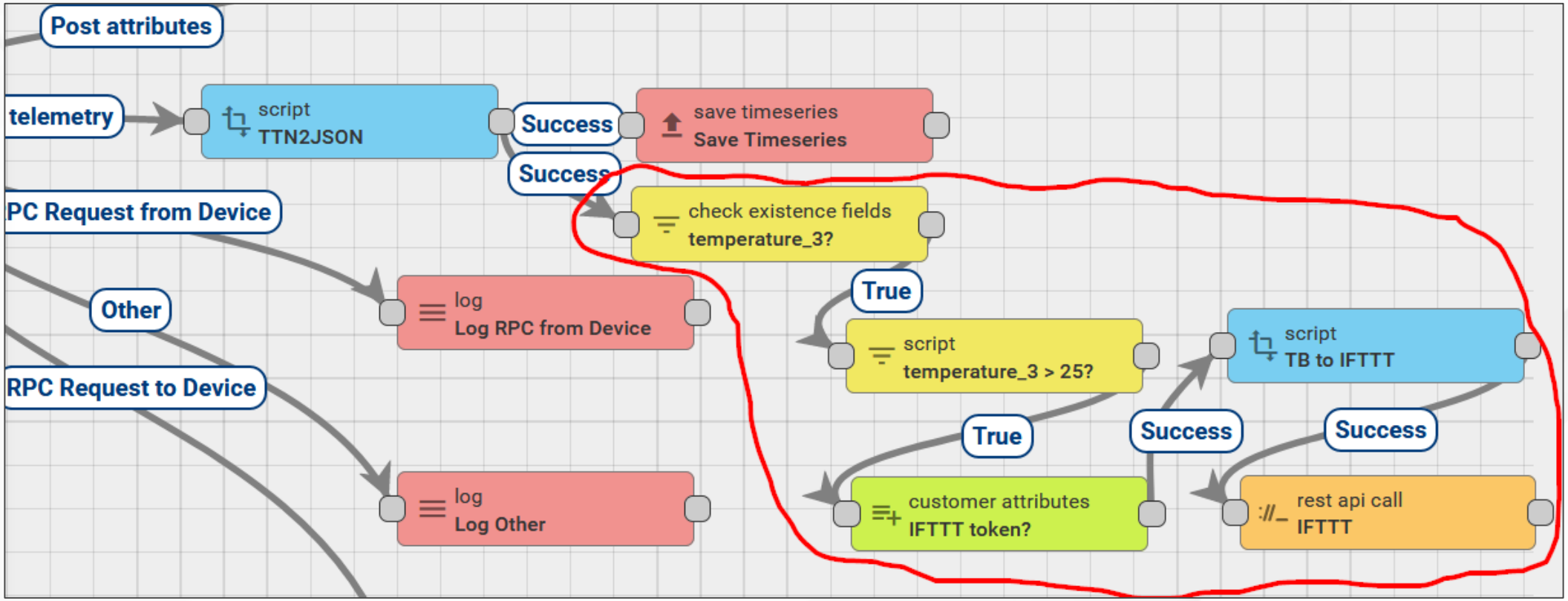
Integrar ThingsBoard con IFTTT
Obtener el token del servicio Webhook



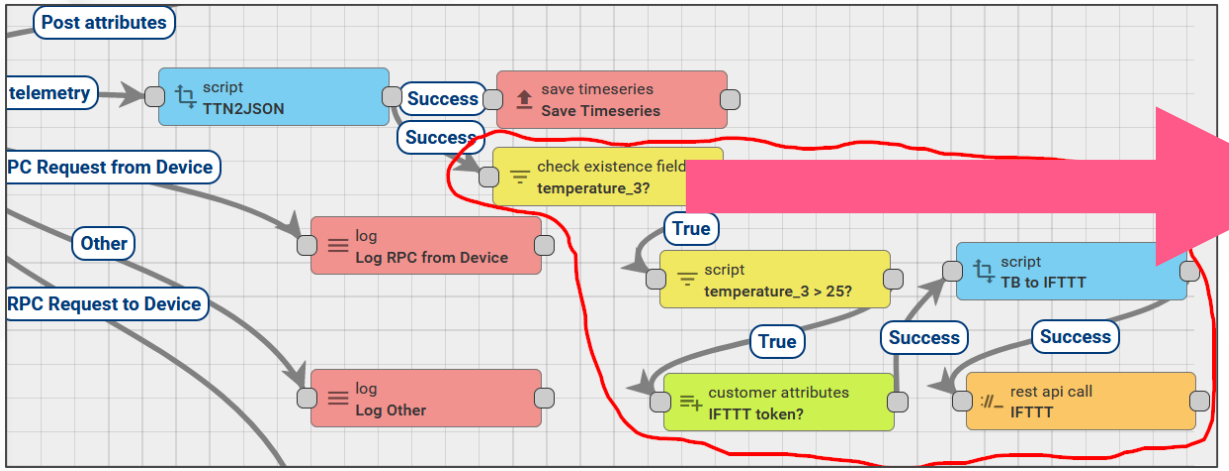
Integrar ThingsBoard con IFTTT
Crear el atributo en el cliente

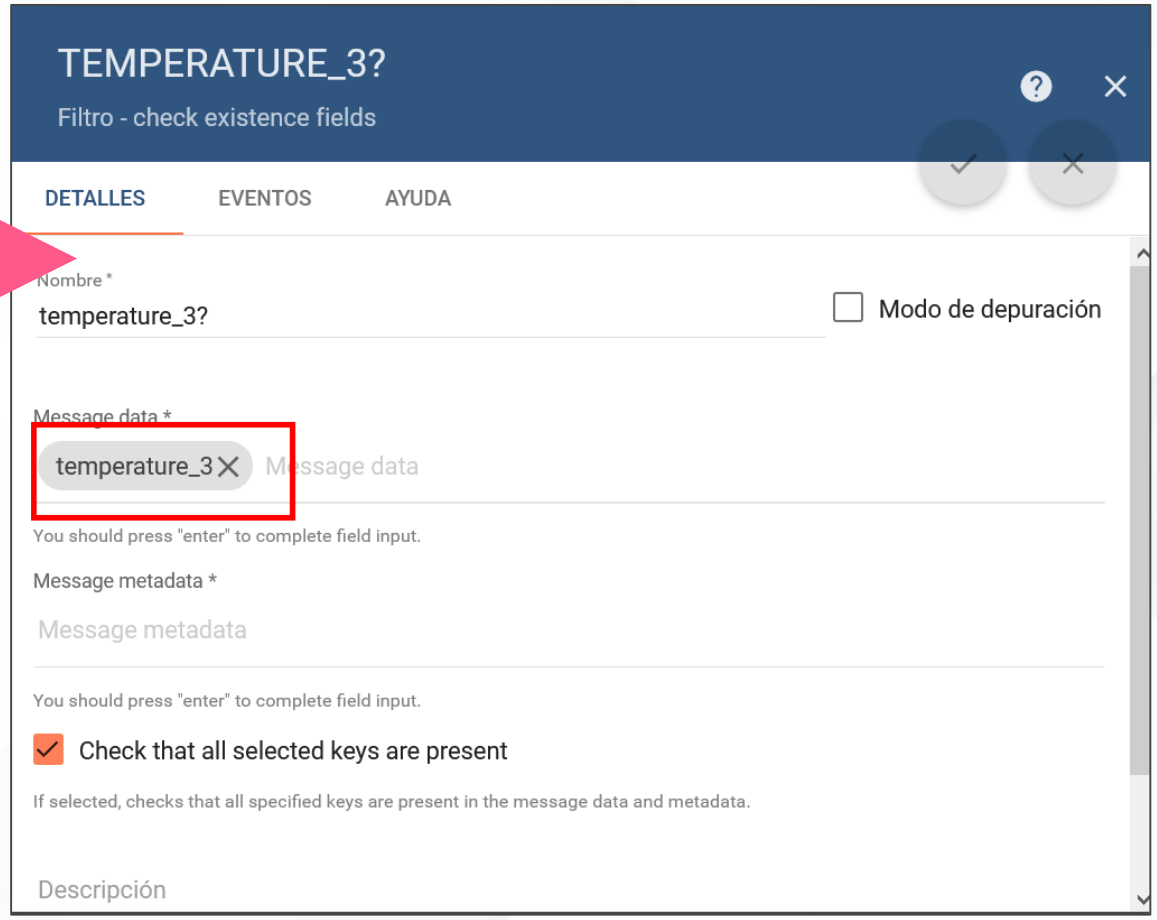


Integrar ThingsBoard con IFTTT
Nodos de la cadena de reglas

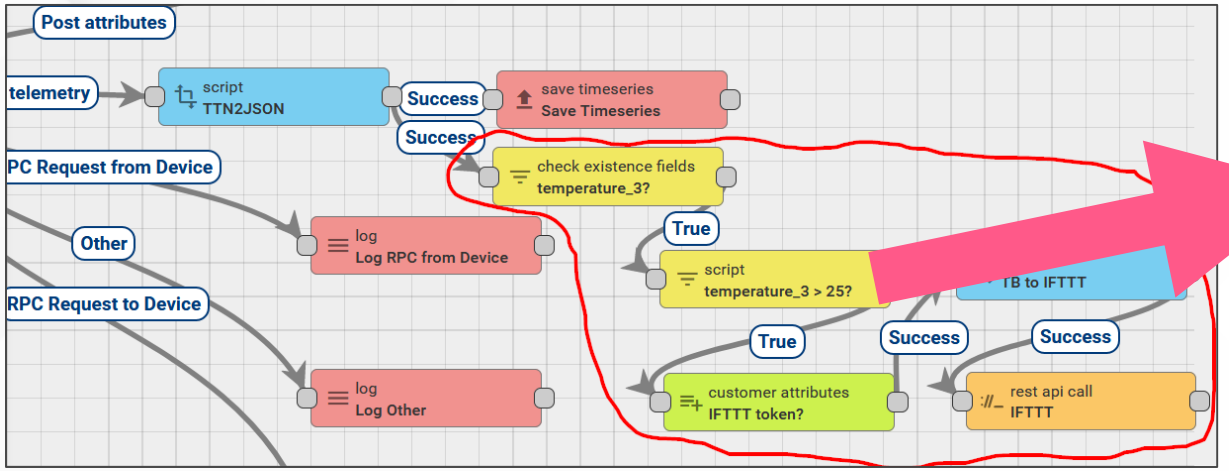


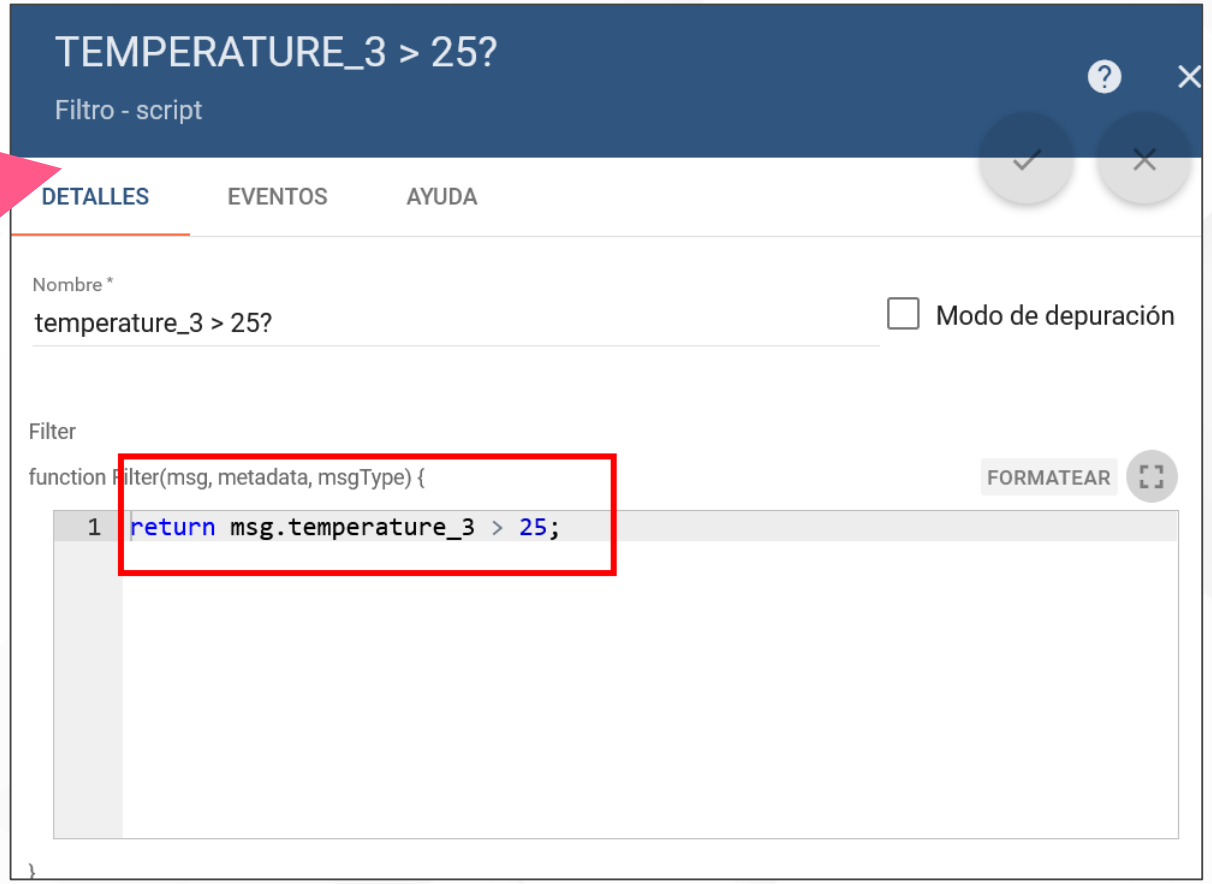
Integrar ThingsBoard con IFTTT
Nodos de la cadena de reglas



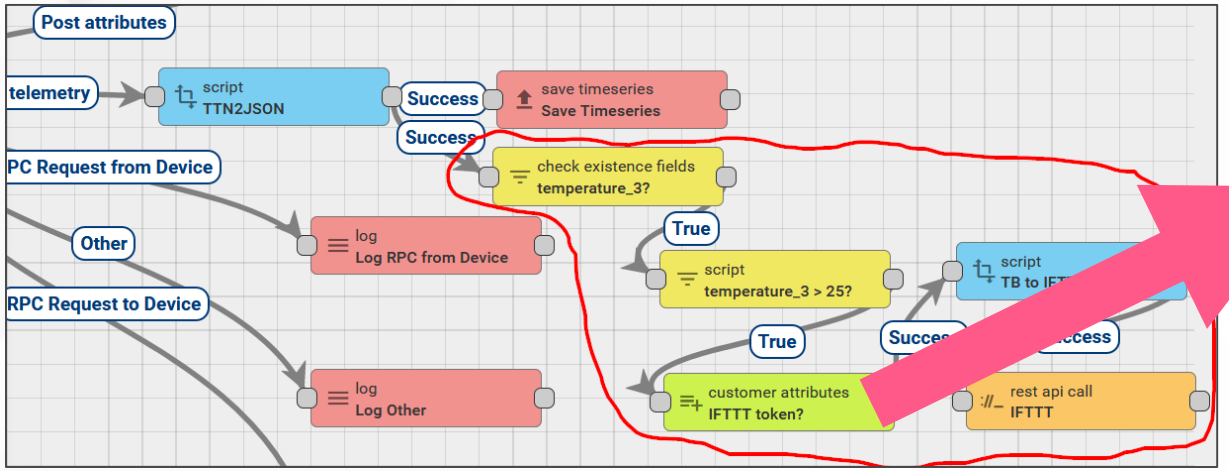


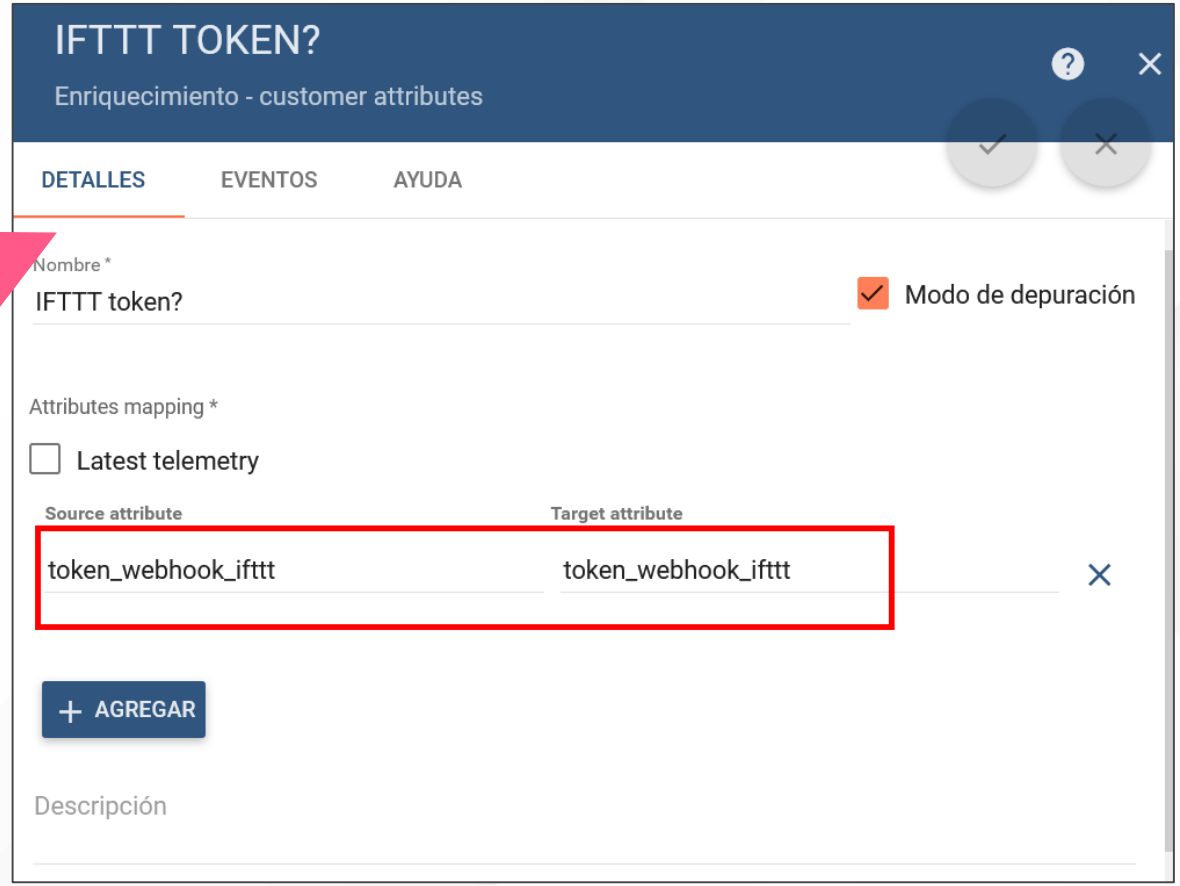
Integrar ThingsBoard con IFTTT
Nodos de la cadena de reglas



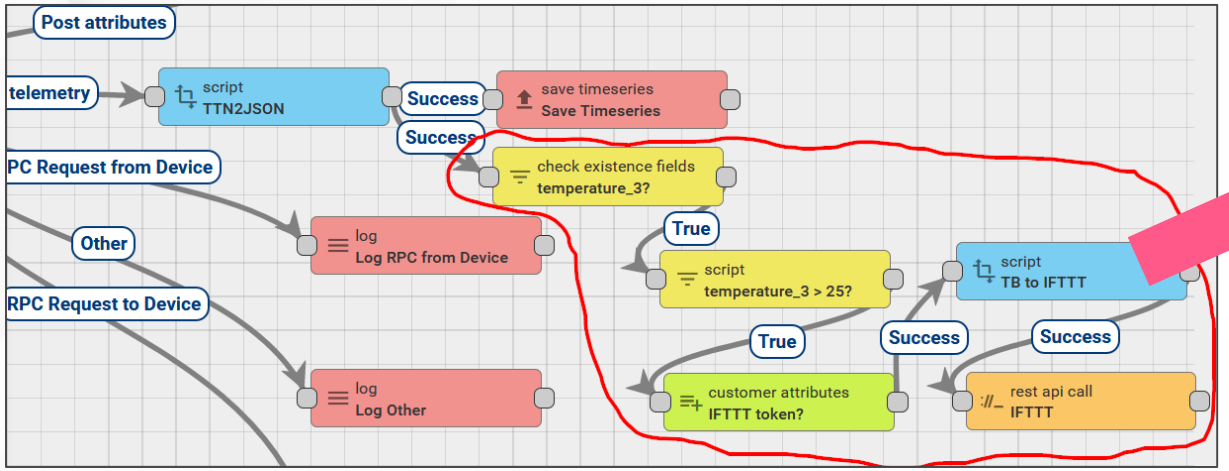


Integrar ThingsBoard con IFTTT
Nodos de la cadena de reglas



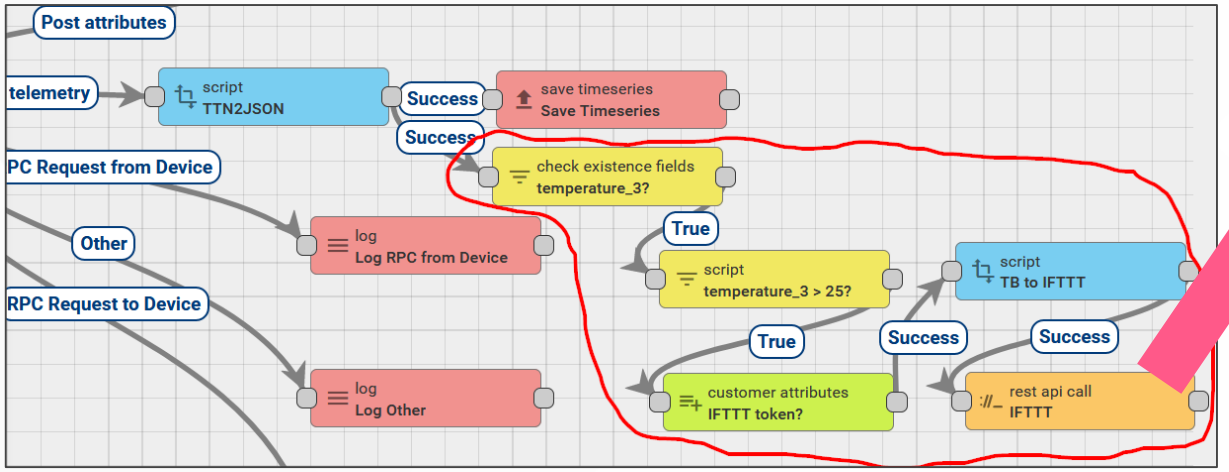


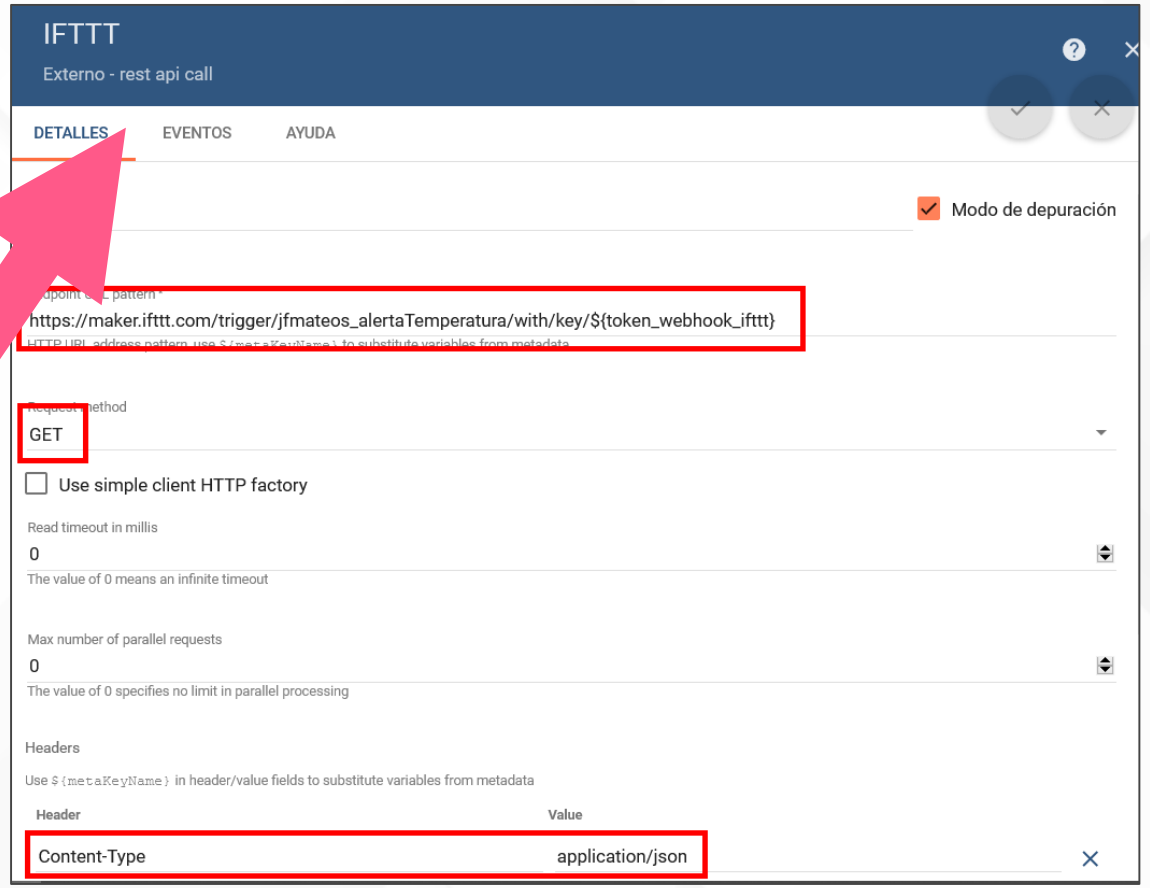
Integrar ThingsBoard con IFTTT
Nodos de la cadena de reglas



Integrar ThingsBoard con IFTTT
Nodos de la cadena de reglas

https://maker.ifttt.com/trigger/jfmateos_alertaTemperatura/with/key/${token_webhook_ifttt}

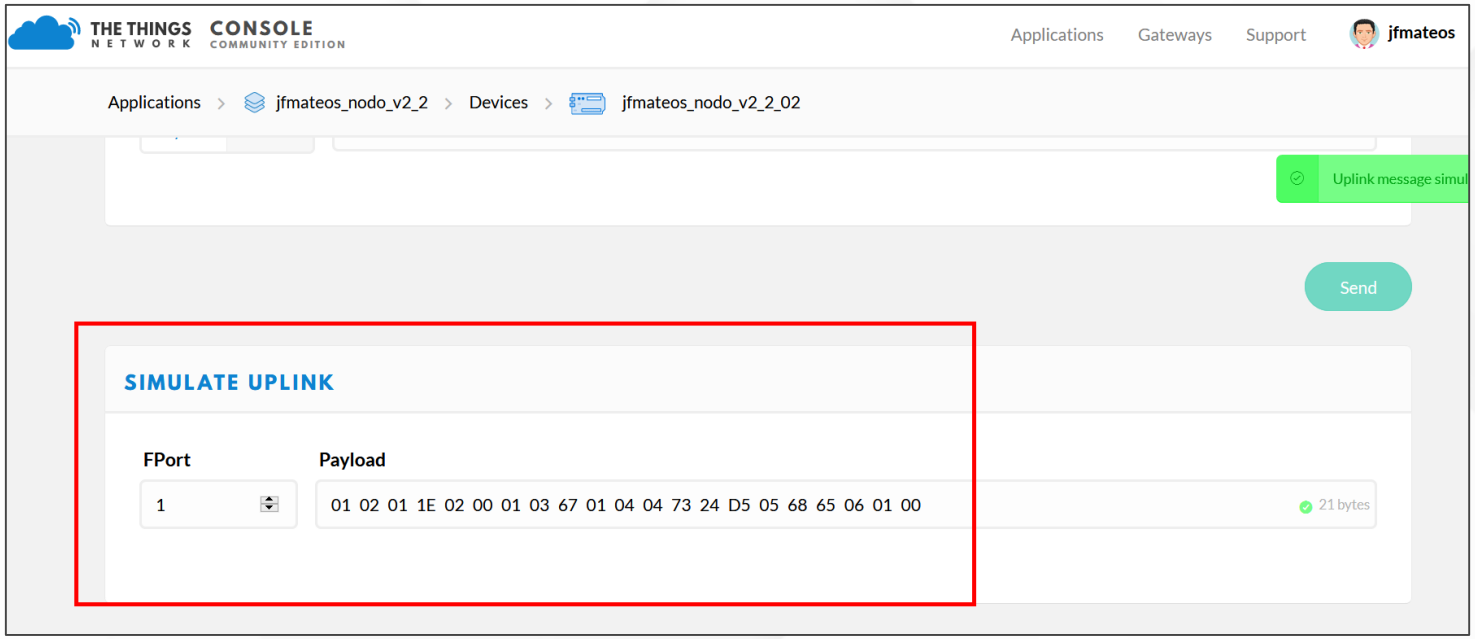




Integrar ThingsBoard con IFTTT
Probar la integración

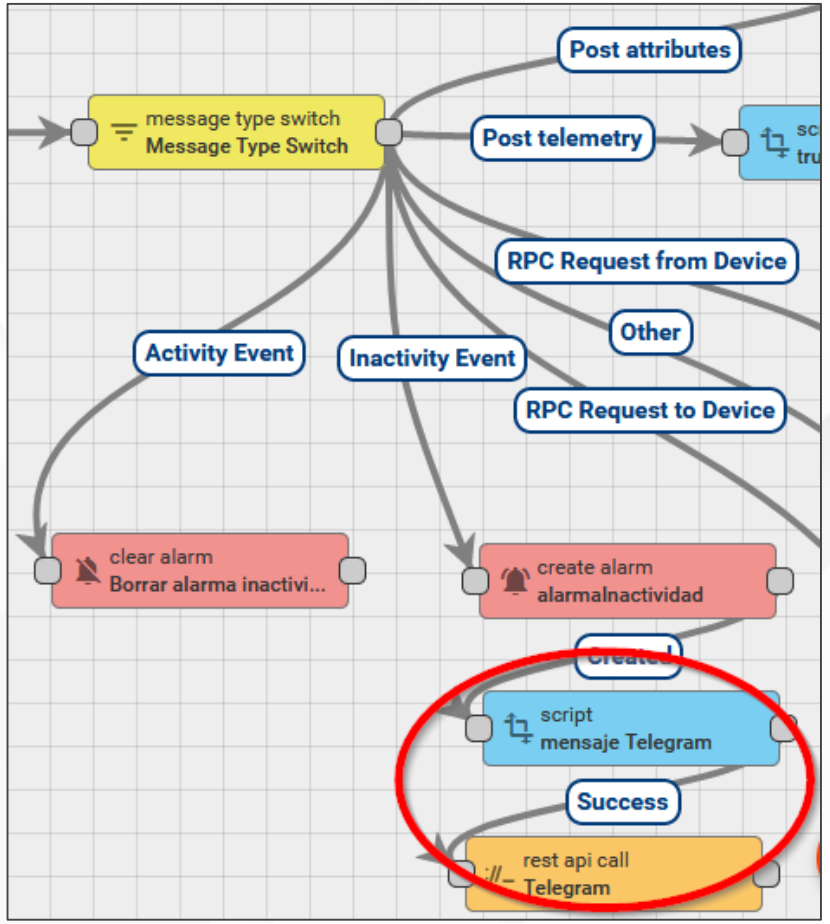
01 02 01 1E 02 00 01 03 67 01 04 04 73 24 D5 05 68 65 06 01 00

{ "analog_in_1": 2.86,
"barometric_pressure_4": 942.9,
"digital_in_2": 1,
"digital_out_6": 0,
"relative_humidity_5": 50.5,
"temperature_3": 26}



Integración con Telegram

1. Crear un bot de Telegram y obtener su token
2. Esciribir un mensaje al bot y obtener el id del Chat mediante la API de Telegram
3. Utilizar nodos de reglas para componer el mensaje que requiere la API de Telegram y enviarlo mediante un nodo Rest API Call.



Integración con Telegram
Crear un bot de Telegram

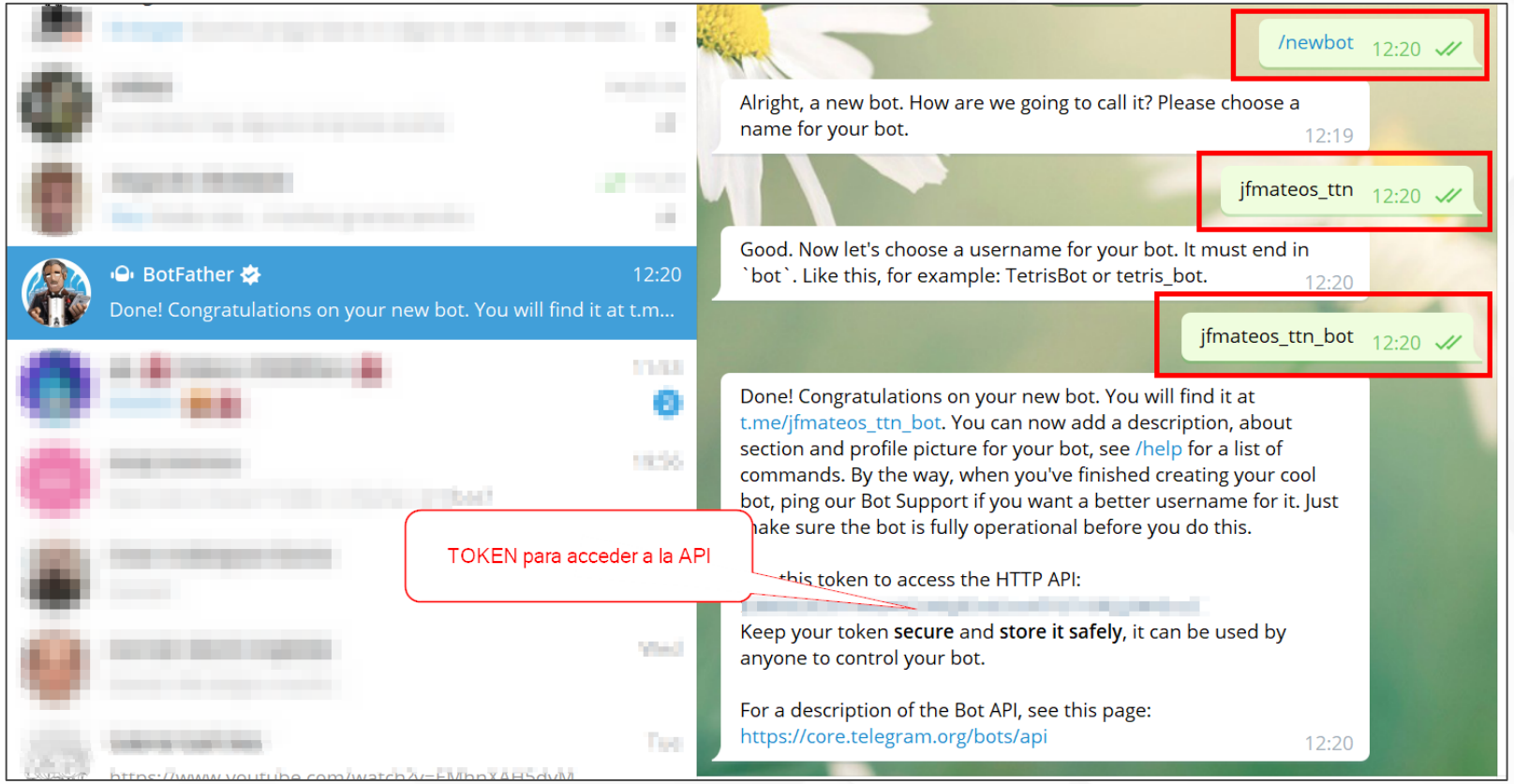
Entablamos la siguiente conversación con BotFather

/newbot

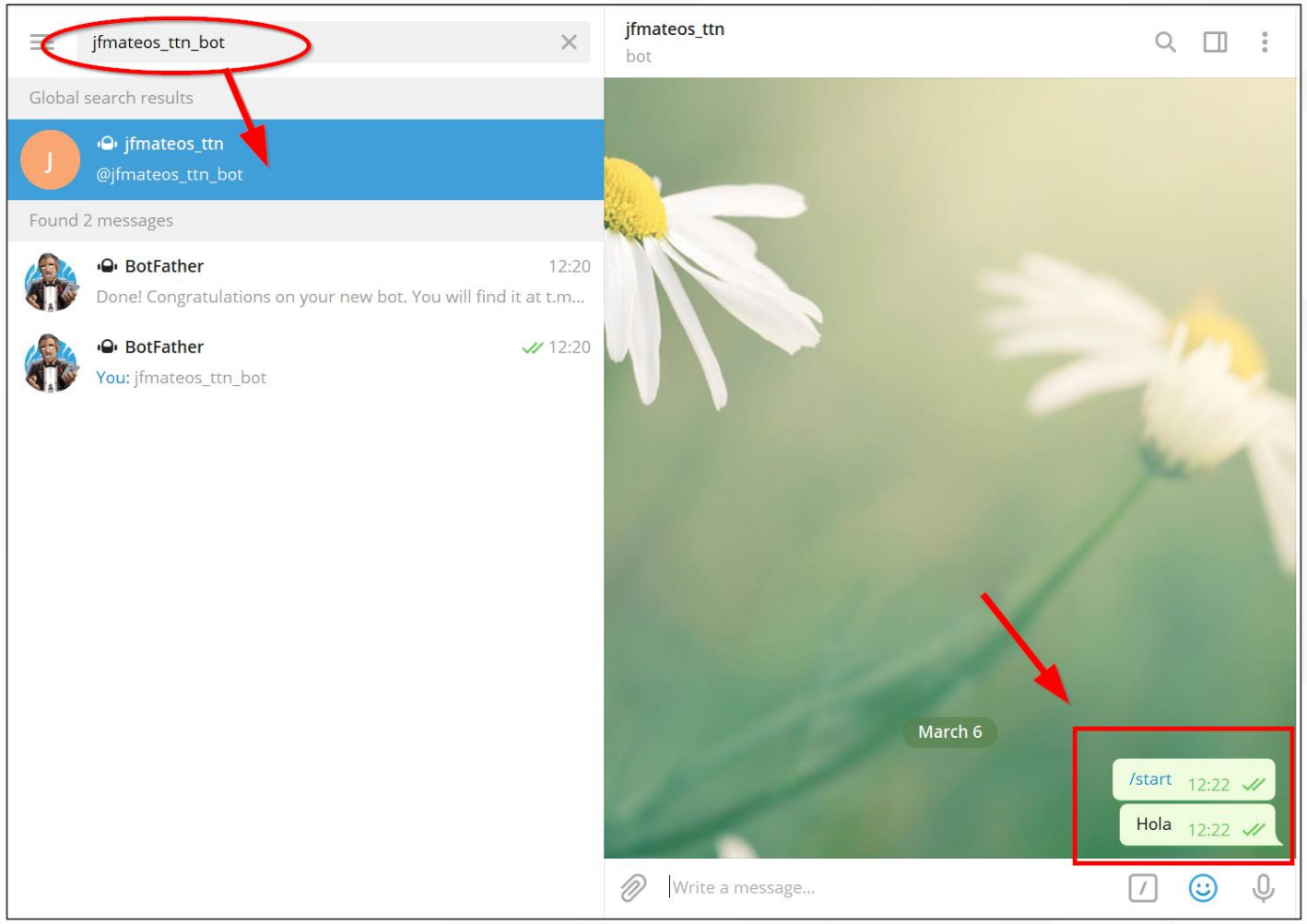
jfmateos_ttn

jfmateos_ttn_bot

Copiar el token



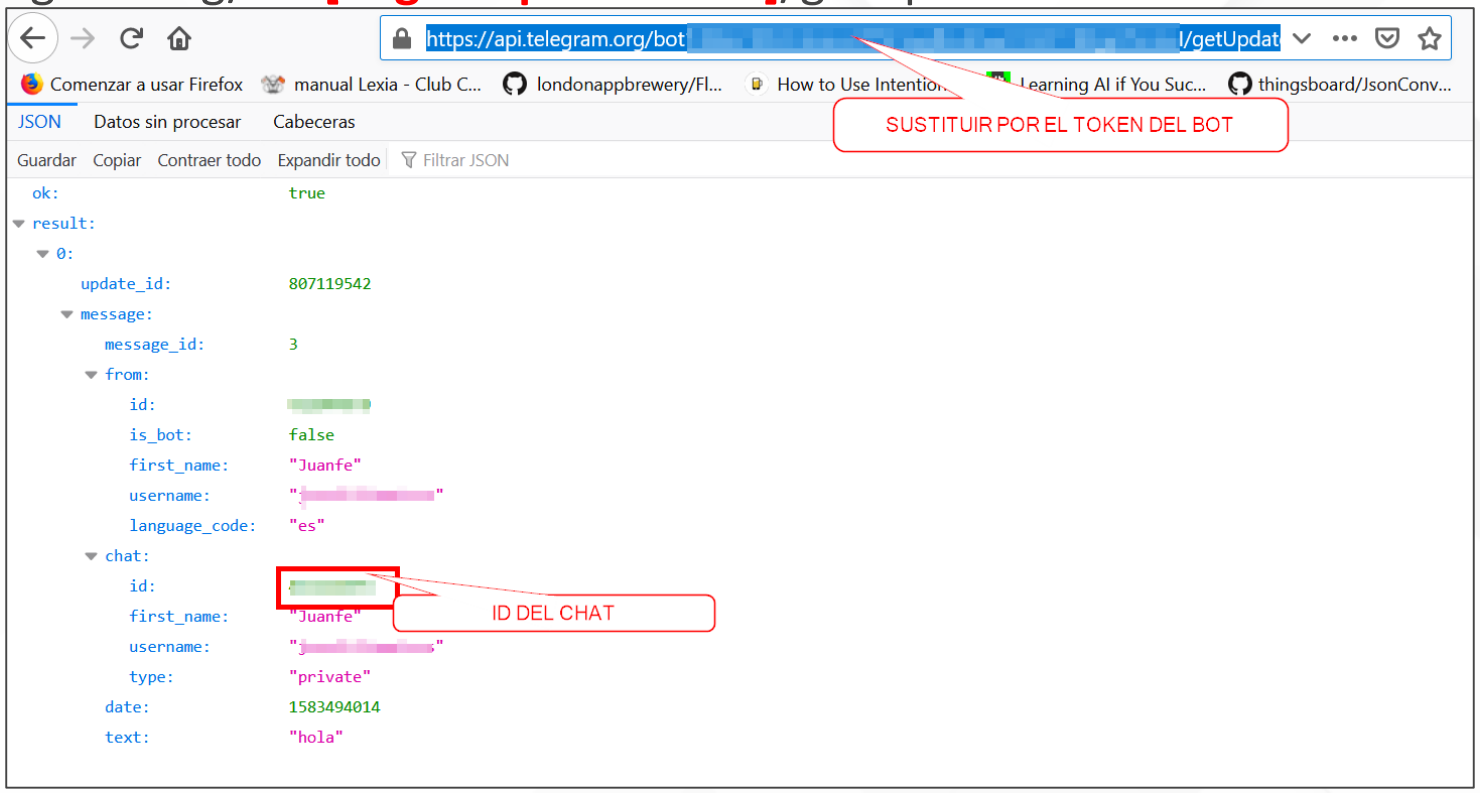
Integración con Telegram
Iniciar un chat privado con el bot



Integración con Telegram
Obtener el ID del chat

Acceder con el navegador web a esta dirección:

- https://api.telegram.org/bot**[Pegar aquí el token]**/getUpdates



Integración con Telegram
La API de Telegram

Para realizar peticiones a la API de Telegram se utiliza el siguiente formato:

- https://api.telegram.org/bot<token>/<método>

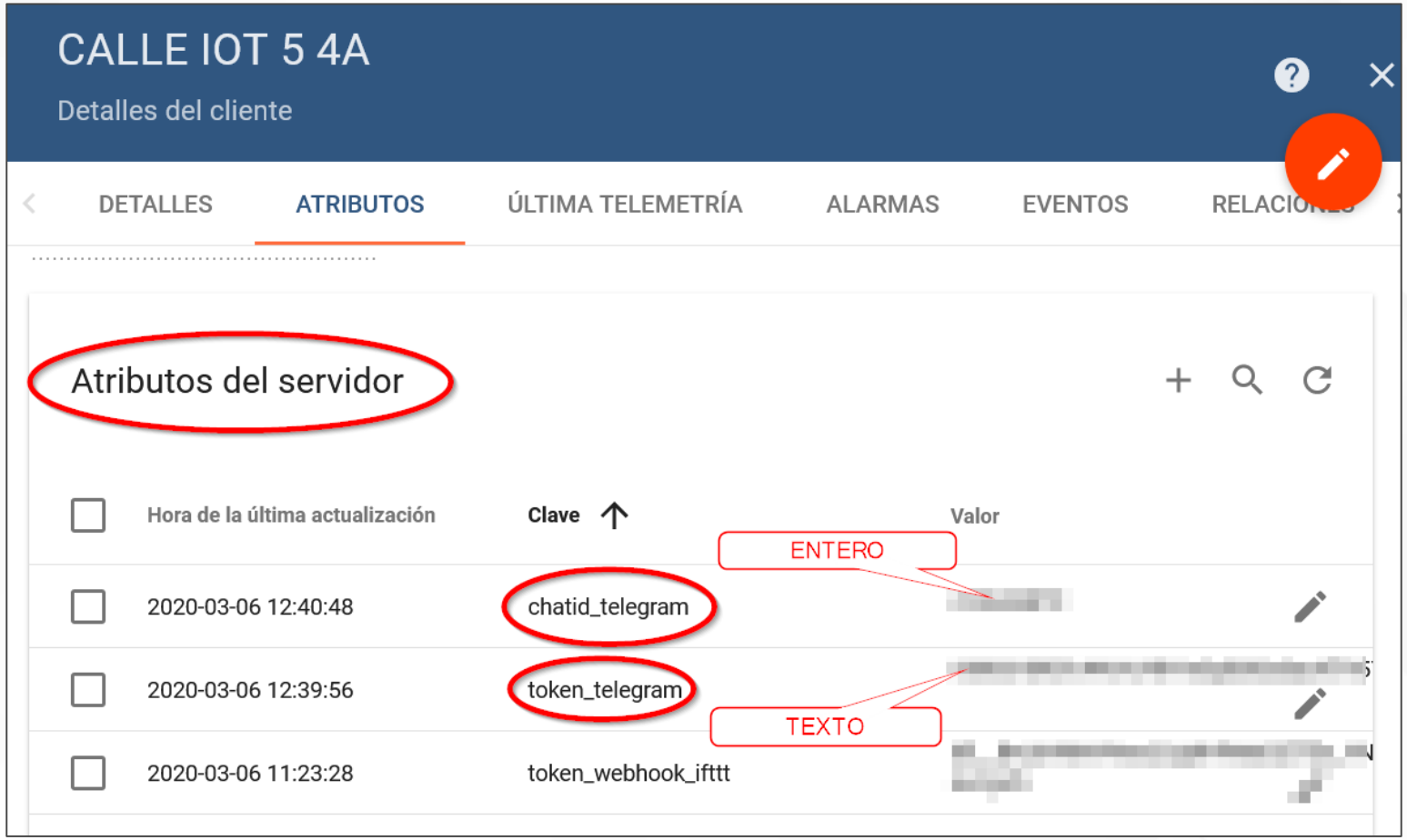
El método para enviar mensajes es **sendMessage**

sendMessage

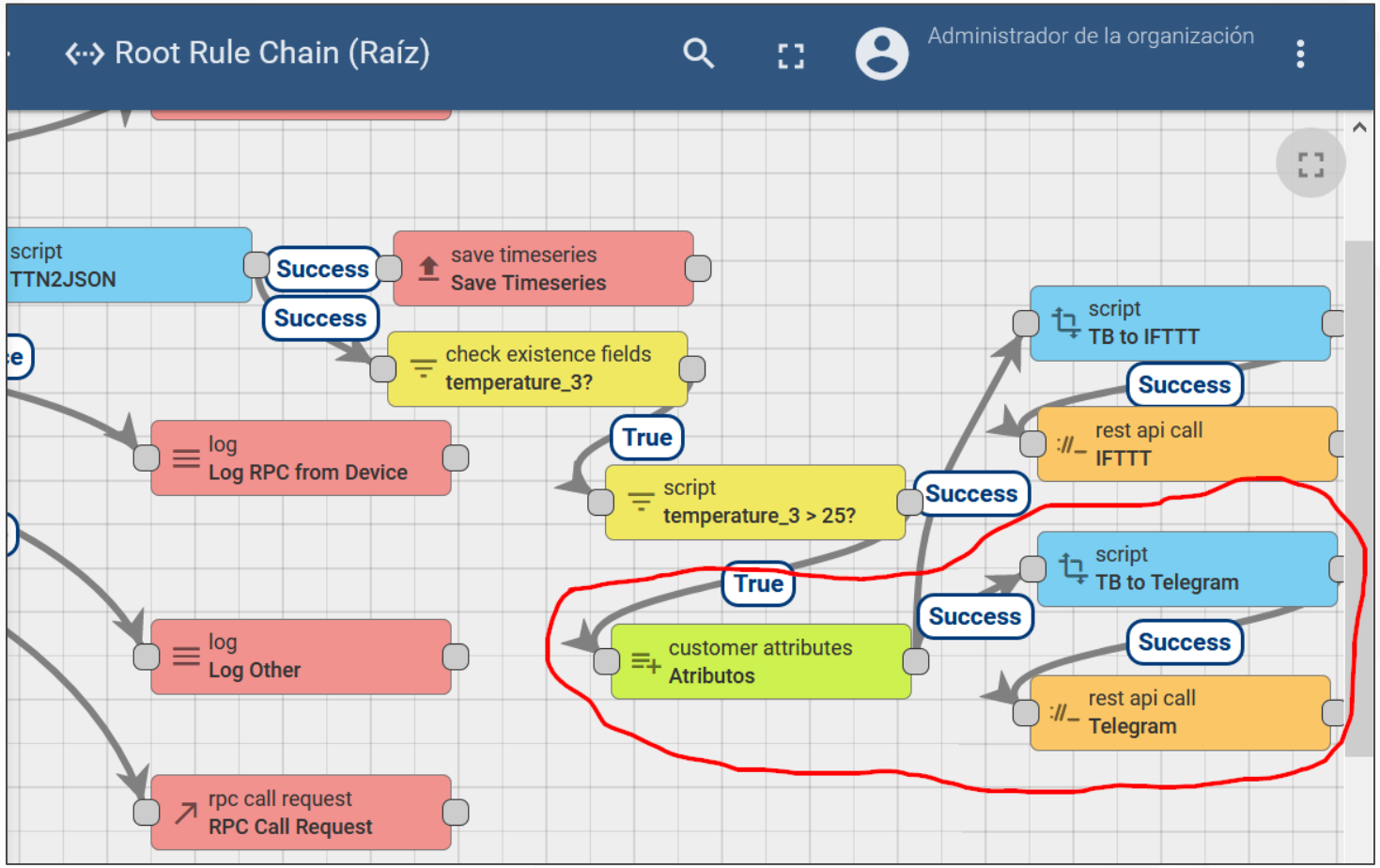
Use this method to send text messages. On success, the sent Message is returned.

Parameter	Type	Required	Description
chat_id	Integer or String	Yes	Unique identifier for the target chat or username of the target channel (in the format `@channelusername`)
text	String	Yes	Text of the message to be sent, 1-4096 characters after entities parsing
parse_mode	String	Optional	Send *Markdown* or *HTML*, if you want Telegram apps to show bold, italic, fixed-width text or inline URLs in your bot's message.
disable_web_page_preview	Boolean	Optional	Disables link previews for links in this message
disable_notification	Boolean	Optional	Sends the message silently. Users will receive a notification with no sound.

Integración con Telegram
Atributos de cliente para el token y chat id

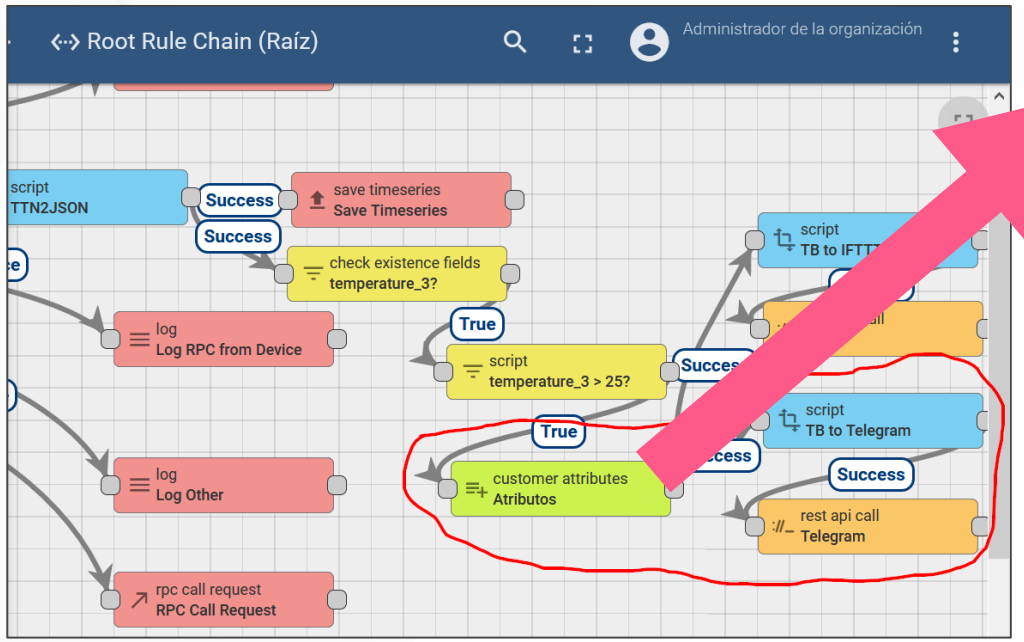


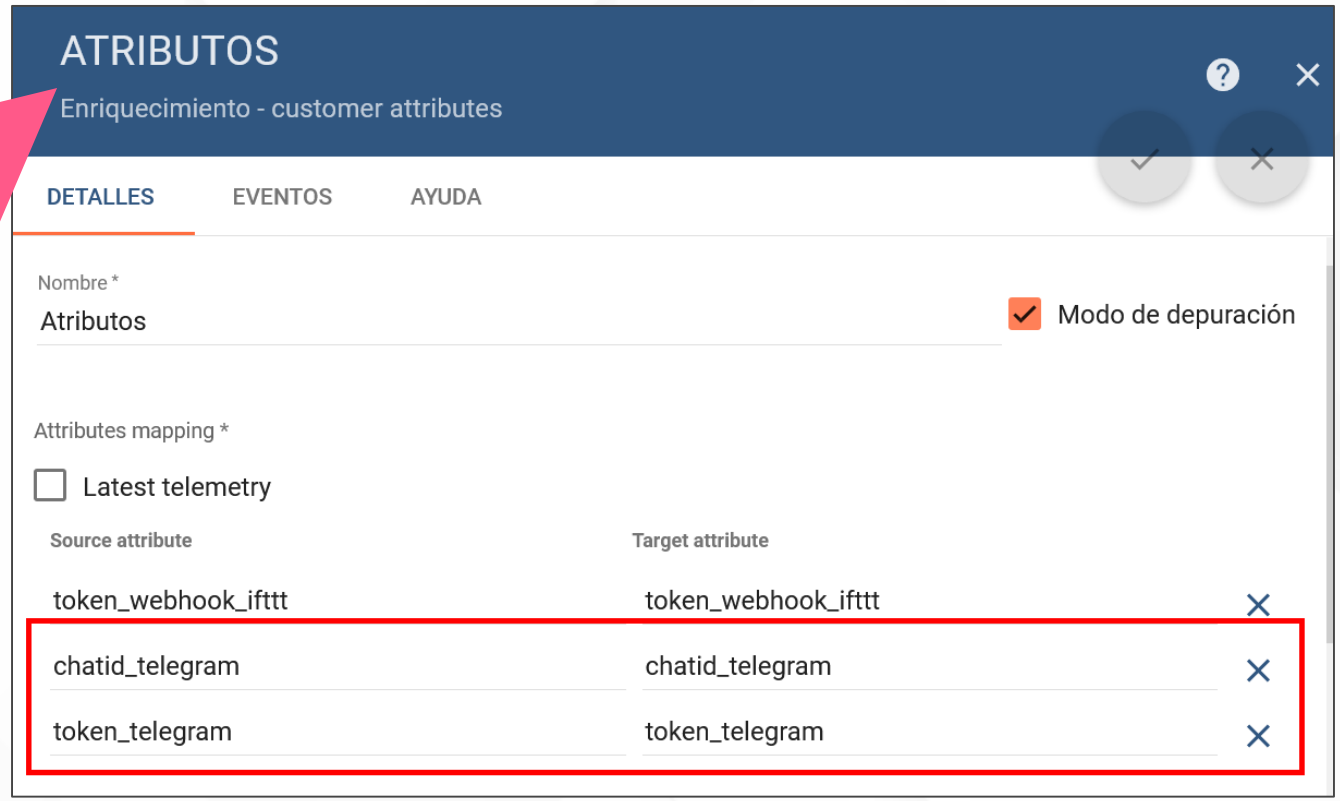
Integración con Telegram
Cadena de reglas



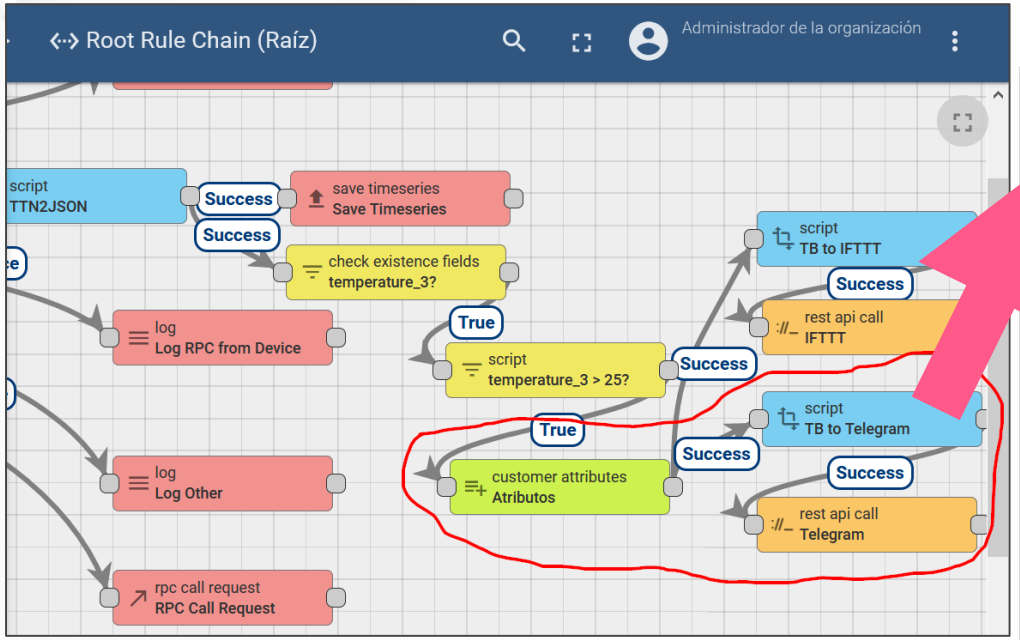
Integración con Telegram
Cadena de reglas: Añadir los atributos

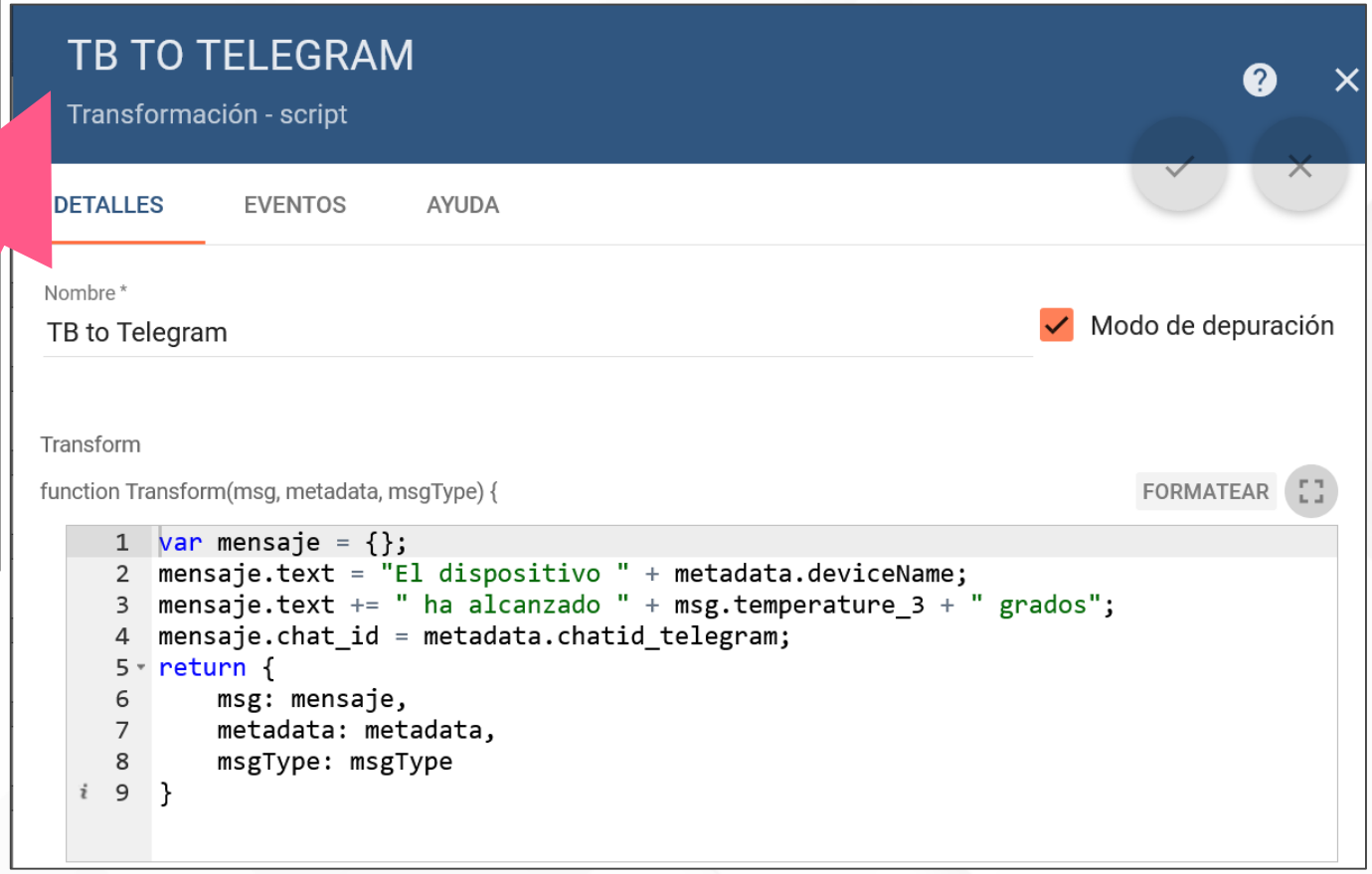
Ampliamos el nodo de enriquecimiento que teníamos anteriormente



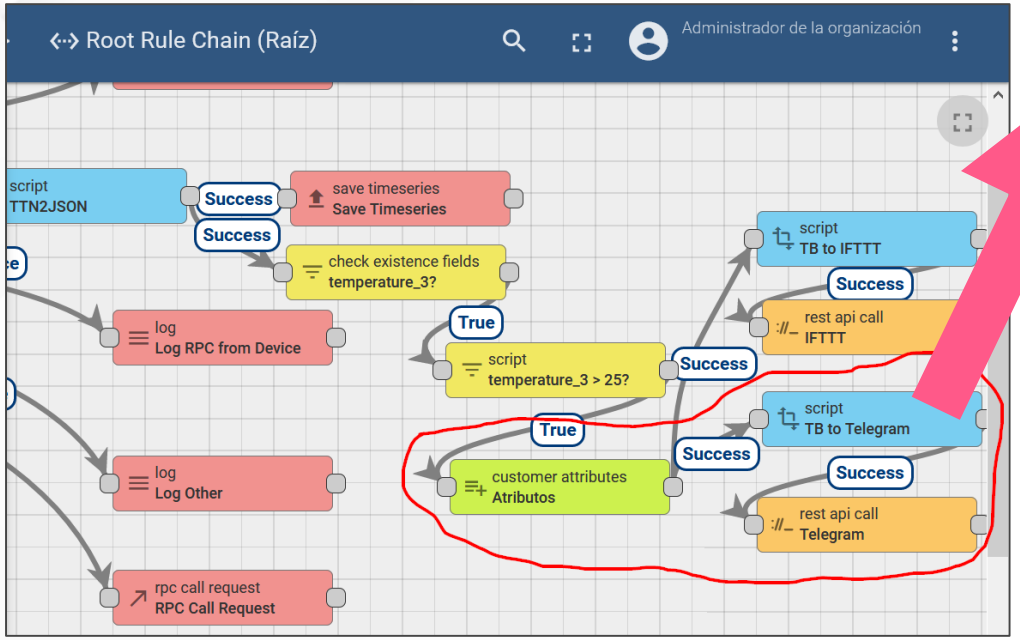


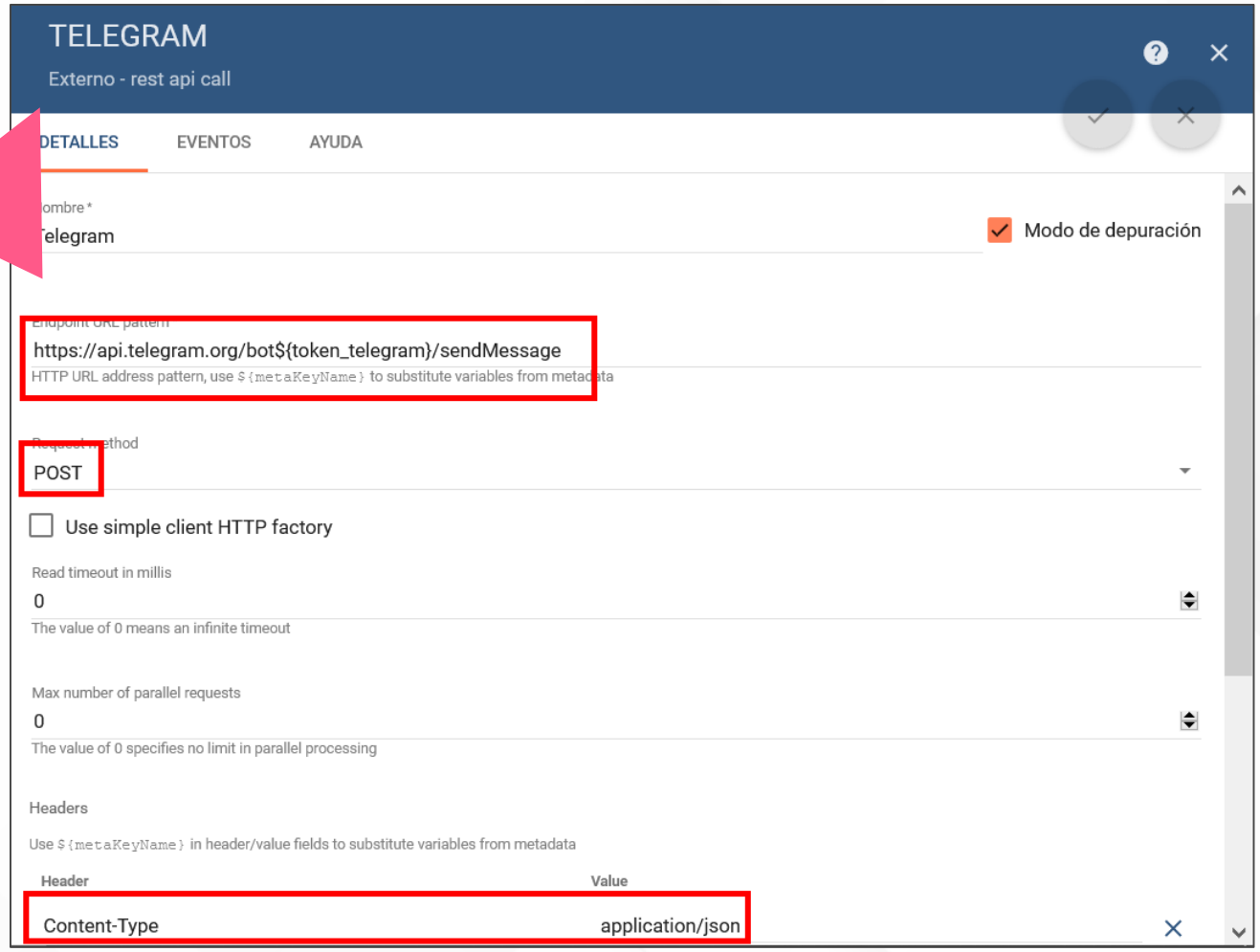
Integración con Telegram
Cadena de reglas: Construir el cuerpo





Integración con Telegram
Cadena de reglas: Realizar la petición





Integración con Telegram
Probar la integración

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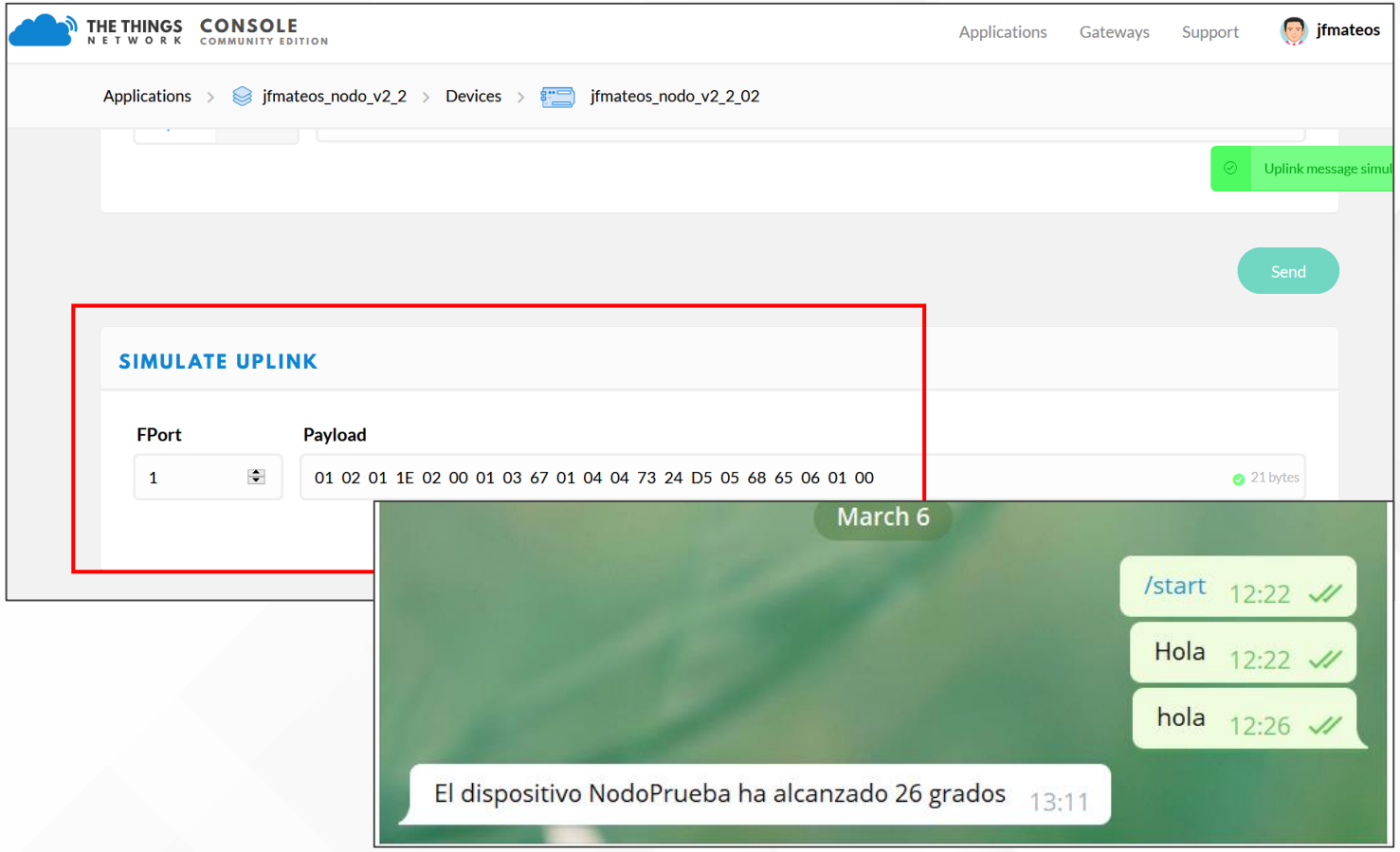

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GRACIAS