

TITAN

Application Note 23

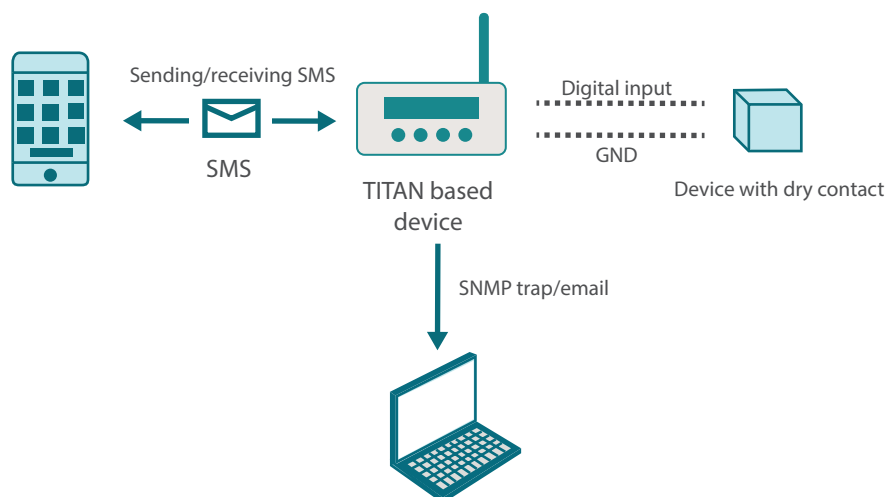
Sending SNMP Traps, SMS Messages And Emails
When a Change is Detected in the State of a Digital
Input

Sending SNMP Traps, SMS Messages And Emails When a Change is Detected in the State of a Digital Input

1. Introduction

Some TITAN-based devices have one or more digital inputs. The digital inputs are dry contact inputs, i.e. they can be activated by GND. To activate the digital input, simply connect an input to GND. To deactivate it, just disconnect it from GND. It's that simple.

It is easy to configure TITAN-based devices to send SMS messages, Emails and SNMP Traps on detection of a digital input (e.g. useful in intrusion detection scenarios, etc...).



2. Example Scenario

This application clearly demonstrates how to configure the TITAN-based device to send an SMS or SNMP TRAP when a digital input is changed. We will look at an example which clearly demonstrates how to configure the TITAN-based device to do this.

While there are a number of ways to configure the TITAN-based device to accomplish this goal, we are going to use the "Titan Scripts V2" menu in the TITAN-based device. The reason for this is that if we need more digital inputs (remember the TITAN mini router only has one) we would need to use additional units, which would be controlled from this menu.

2.1 WAN Configuration

If we need to send the SNMP traps via the 4G/3G/2G network, we must first configure the WAN>Basic Settings section by setting the APN, User and Password for the SIM card we are using. It will be similar to the following screen:

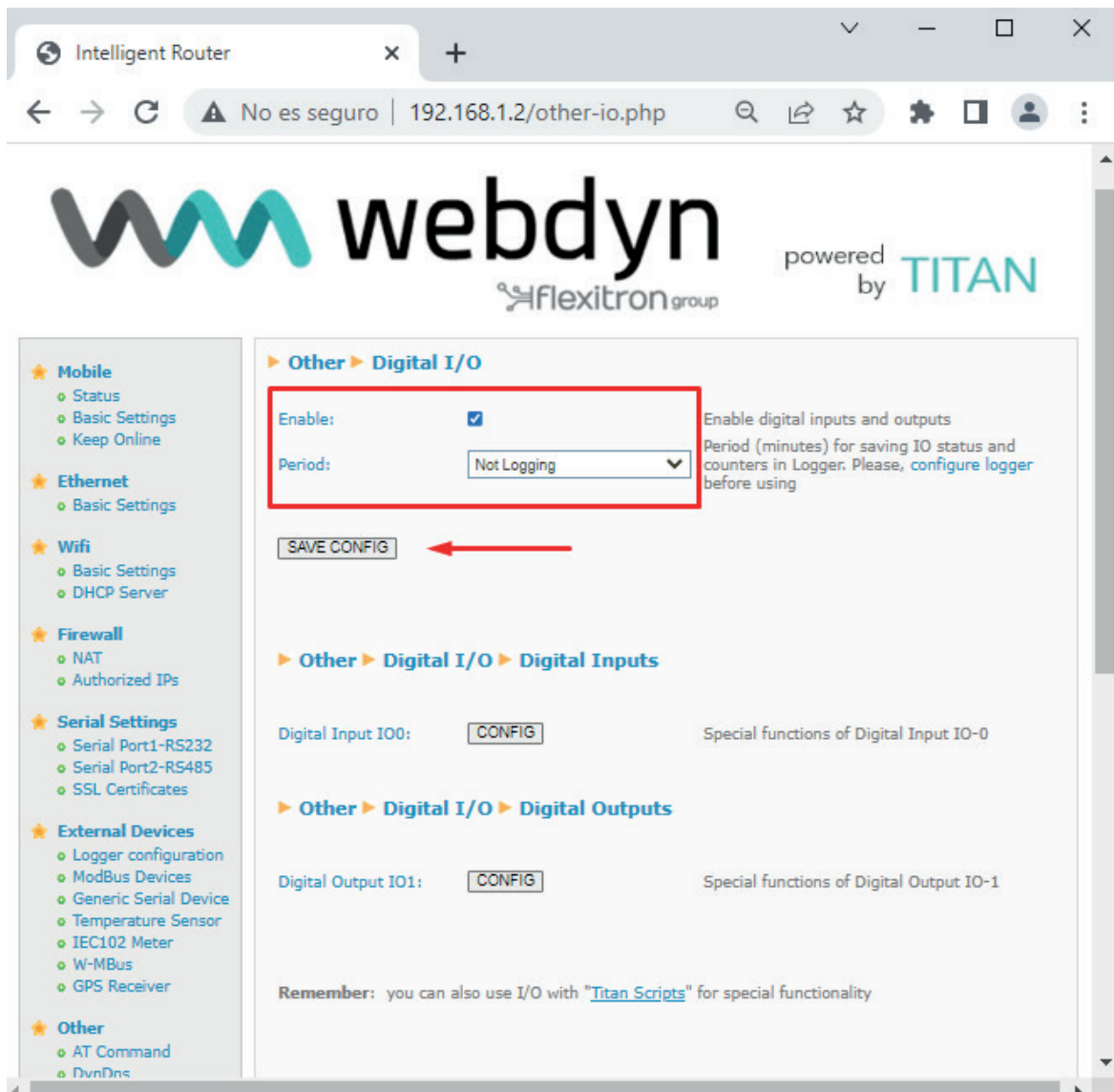
The screenshot shows the webdyn Intelligent Router configuration interface. The browser window title is 'Intelligent Router'. The address bar shows '192.168.1.2/wan-settings.php'. The page header includes the webdyn logo and 'powered by TITAN flexitron group'. The sidebar menu on the left lists various configuration sections: Mobile (Status, Basic Settings, Keep Online), Ethernet (Basic Settings), Wifi (Basic Settings, DHCP Server), Firewall (NAT, Authorized IPs), Serial Settings (Serial Port1-RS232, Serial Port2-RS485, SSL Certificates), External Devices (Logger configuration, ModBus Devices, Generic Serial Device, Temperature Sensor, IEC102 Meter, W-MBus, GPS Receiver), and Other (AT Command, DynDns). The main content area is titled 'Mobile > Basic Settings' and contains the following configuration fields:

Field	Value	Description
Mobile WAN	Enabled (IP active)	Enable Wireless WAN interface
Sim Mode	SIM1 + SIM2 (backup)	Sim selection
SIM1 APN	movistar.es	APN of SIM card 1
SIM1 Username	MOVISTAR	Username of SIM card 1
SIM1 Password	*****	Password of SIM card 1
SIM1 Pin		PIN of SIM card 1
SIM2 APN	movistar.es	APN of SIM card 2
SIM2 Username	MOVISTAR	Username of SIM card 2
SIM2 Password	*****	Password of SIM card 2
SIM2 Pin		PIN of SIM card 2
Authentication	Auto	Authentication method
Network selection	4G	Network selection
DNS selection	Get DNS from Operator	
DNS1	8.8.8.8	Preferred DNS1
DNS2	8.8.4.4	Preferred DNS2

Do not forget to select “Remote Management” if you want to be able to manage the TITAN-based device remotely via 3G/4G.

2.2 Enabling the I/O of TITAN-based device

To be able to use the digital inputs and outputs on TITAN-based devices, the service must first be activated. This is done in the “Other > Digital I/O” menu. Simply check the “Enable” box.



It should be noted that the option to send an SMS message when a digital input is changed can also be activated from this same web page by clicking on the "CONFIG" button for the chosen digital input.

Intelligent Router

No es seguro | 192.168.1.2/other-input-dig...

webdyn powered by **TITAN**
flexitron group

- ★ **Mobile**
 - Status
 - Basic Settings
 - Keep Online
- ★ **Ethernet**
 - Basic Settings
- ★ **Wifi**
 - Basic Settings
 - DHCP Server
- ★ **Firewall**
 - NAT
 - Authorized IPs
- ★ **Serial Settings**
 - Serial Port1-RS232
 - Serial Port2-RS485
 - SSL Certificates
- ★ **External Devices**
 - Logger configuration
 - ModBus Devices
 - Generic Serial Device
 - Temperature Sensor
 - IEC102 Meter
 - W-MBus
 - GPS Receiver
- ★ **Other**
 - AT Command

▶ **Other ▶ Digital I/O ▶ Digital Input IO-0**

Digital input mode: **Alarm (Pin 0 -> 1)** Select the mode of digital input IO-0

▶ **Other ▶ Digital I/O ▶ Digital Input IO-0 ▶ Alarm**

SMS: ☒ **enabled** When alarm, send SMS message

Phone numbers: Phone numbers separated with ;

Text SMS Alarm On SMS text when alarm is activated

Text SMS Alarm Off SMS text when alarm is deactivated

Logger: ☐ Check if logger must be used for alarms. Please, [configure logger](#) before using this option

SAVE CONFIG

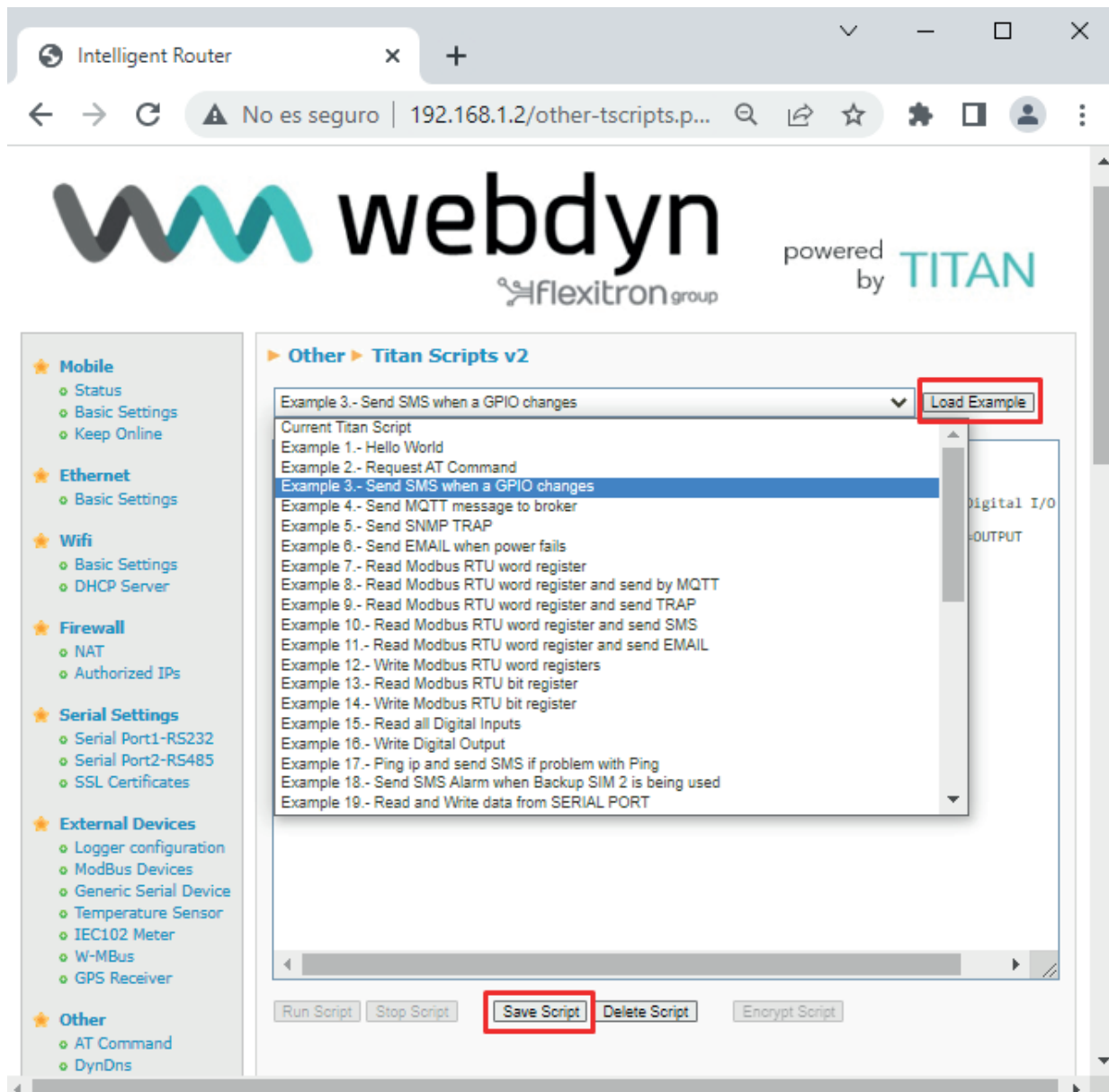
▶ **Other ▶ Digital I/O ▶ Digital Input IO-0 ▶ Status**

READ INPUT Click for read the status of digital input IO-0

However, in this application note it will be done using TITAN Scripts.

2.3 Configuring TITAN Scripts V2

TITAN Scripts V2 makes it easy to perform these actions. Go to the “Other > Titan Scripts” menu. Then we load example 3, which enables an SMS message to be sent when a change in a digital input is detected. After loading it we will record it using the “Save Script” button.



The example is fairly self-explanatory, it will send an SMS message each time the value of the digital input is changed (the input changes from logical 0 to logical 1).

```
var statusOld=0;
while (true)
{
    /***** IF IO-0 CHANGES FROM 0 TO 1
    if ((mtx.ioGet(0)==1) && (statusOld==0))
    {
        mtx.println("Sending SMS...");
        mtx.smsSend("+34666123456","my message");
    }
    statusOld=mtx.ioGet(0);
    mtx.pause(1000);
}
```

In other words, if the “IO-0” input is logical “1” whereas previously it was logical “0”, an SMS message is sent.

It is easy to modify the example to send an SNMP trap. We just need to replace the line:

```
mtx.smsSend("+34666123456","my message");
```

with

```
mtx. trapSend("1.2.3.4.5.6.7.8.9.10","alarm",5);
```

specifying the OID, the trap text and the severity. Do not forget that you must have previously activated and configured the “Other > SNMP” section of the TITAN-based device, specifying the IP address and port where the traps are to be sent.

The screenshot shows the webdyn Intelligent Router configuration interface. The browser address bar indicates the URL is 192.168.1.2/other-snmp.php. The page title is 'webdyn powered by TITAN flexitron group'. The left sidebar contains a navigation menu with categories: Mobile, Ethernet, Wifi, Firewall, Serial Settings, External Devices, and Other. The main content area is titled 'Other > SNMP'. It contains two sections, each highlighted with a red box. The first section, 'Enabled:', has a checked checkbox and a description 'Enable SNMP v2c'. Below it are fields for 'SNMP Version' (set to 'SNMPv2c'), 'UDP Port' (set to '161'), and 'Custom OID' (set to '.45711.1.1'). The second section, 'Traps Enabled:', also has a checked checkbox and a description 'Enable Traps'. Below it are fields for 'Traps - UDP Port' (set to '162'), 'Traps - IP' (set to '192.168.1.20'), and 'Traps - Community' (set to 'public'). Other fields include 'Community' (set to 'public'), 'Username', 'Auth Password', 'Priv. Password', 'Auth Protocol' (set to 'MD5'), 'Priv Protocol' (set to 'DES'), and 'Engine ID' (set to 'AUTO').

We can do the same to send EMAILS. We just need to replace the line:

```
mtx.smsSend("+34666123456","my message");
```

with

```
mtx.emailSend("jgallego@matrix.es","my message");
```


Do not forget that you must have previously activated and configured the “Other > Email Config” section of the TITAN-based device to configure the email service.

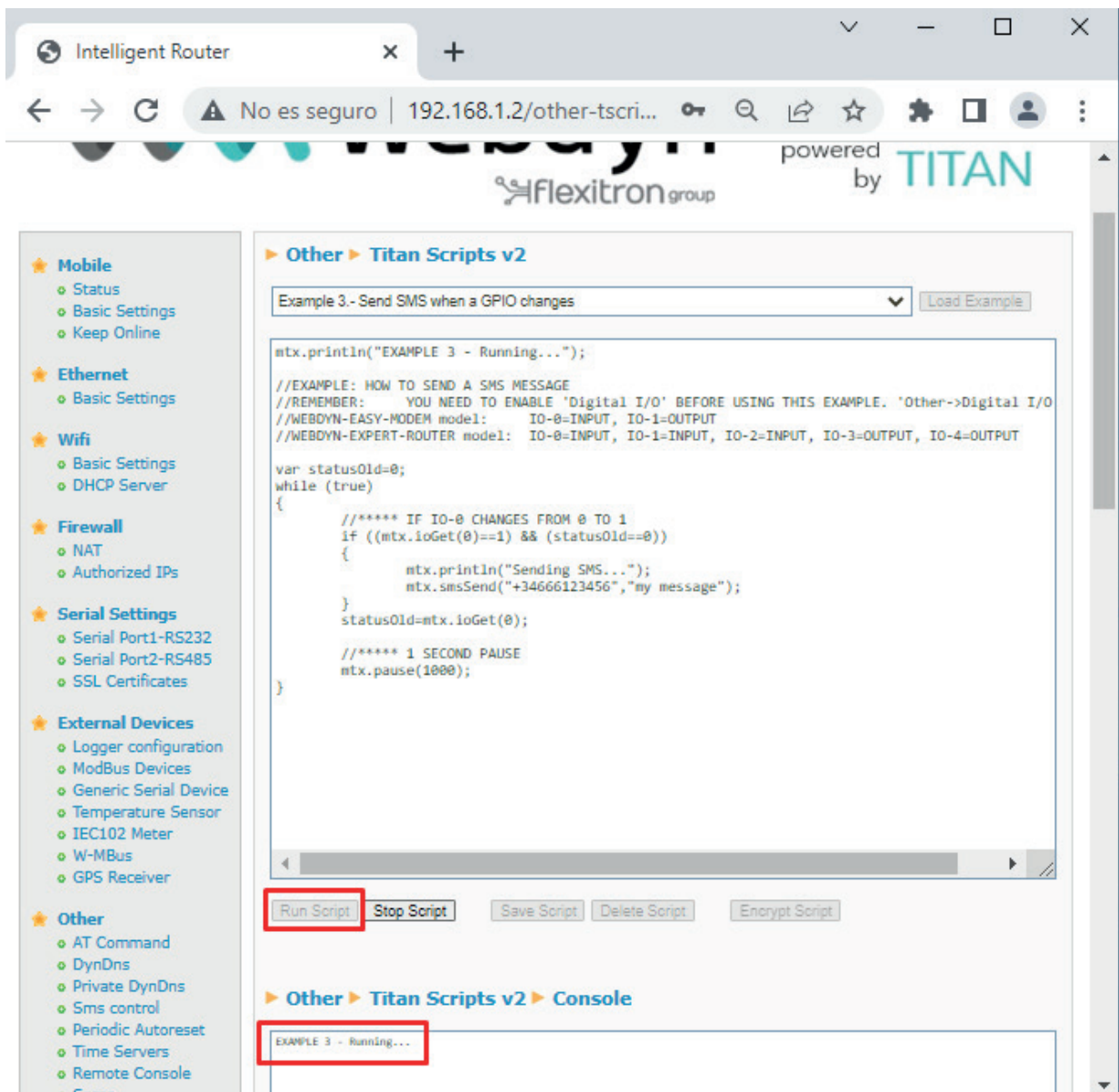
The screenshot shows a web browser window with the address bar displaying "Intelligent Router" and the URL "192.168.1.2/other-email-config.php". The page features the webdyn logo (powered by TITAN flexitron group) at the top. On the left is a sidebar menu with categories: Mobile (Status, Basic Settings, Keep Online), Ethernet (Basic Settings), Wifi (Basic Settings, DHCP Server), Firewall (NAT, Authorized IPs), Serial Settings (Serial Port1-RS232, Serial Port2-RS485, SSL Certificates), and External Devices (Logger configuration, ModBus Devices, Generic Serial Device, Temperature Sensor). The main content area is titled "Other > Email configuration" and contains the following settings:

Enabled:	<input checked="" type="checkbox"/>	Enable Email
SmtP Server:	<input type="text" value="smtp.gmail.com"/>	Ex: smtp.gmail.com, smtpout.se, cureserver.net , ...
SmtP Port:	<input type="text" value="25"/>	TCP port for SMTP Server (25, 465, 587, ...)
Authentication:	<input checked="" type="checkbox"/>	Check if authentication is required
TLS:	<input checked="" type="checkbox"/>	Check if TLS is required
User:	<input type="text" value="webdyn@gmail.com"/>	User of email account
Password:	<input type="password" value="*****"/>	Password of email account
Email address:	<input type="text" value="webdyn@gmail.com"/>	Email address for sending emails (Ex: myemail@gmail.com)

At the bottom of the configuration area is a "SAVE CONFIG" button.

2.4 Running the Script

We can test our script by clicking on the “Run script” button. A few seconds later, it will run and a number of tracking logs will appear in the console window.



Once we are sure that the script works as desired, we can enable “Autostart”, located at the bottom of the screen. Now, each time the TITAN-based device is rebooted it will run the script automatically.