

TITAN

Application Note 59

Scripts - Hello World

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1. Scenario Details

TITAN-based devices have all the typical functionalities of 4G/3G/2G routers, as well as a series of added features that make them one of the most feature-packed routers on the market.

One of the added features is the ability to run user-programmable JAVASCRIPT scripts (ECMAScript 5). <https://www.w3schools.com/jsref/default.asp> The various features of the TITAN-based device can be accessed by scripts to make minor changes (such as reading devices via the serial port, reading digital inputs, changing digital outputs, reading Modbus devices, sending SMS messages, sending EMAILS, sending MQTT messages to a given topic, sending SNMP TRAPS, saving and reading files on the device, etc. Keep in mind that Powered by Titan Scripts are intended to make minor changes to the behaviour of the TITAN-based device and are not intended to be used to program applications, as could be done with other languages such as "Java", "C++", "Python", etc. Basically everything that can be done using Scripts is shown in the examples. Modify them and adjust them to your needs.

A series of very simple and commented preloaded examples can be found in the graphic configuration interface of the TITAN-based device, in the section dedicated to Scripts (Other > Powered by Titan Scripts). A set of simple examples with comments is included in the scripts section of the TITAN-based device's graphic configuration interface (Other > Powered by Titan Scripts). Also refer to para. 4.7.18 of the TITAN-based device's User Manual, which lists the functions related to "mtx" objects that can be called by scripts.

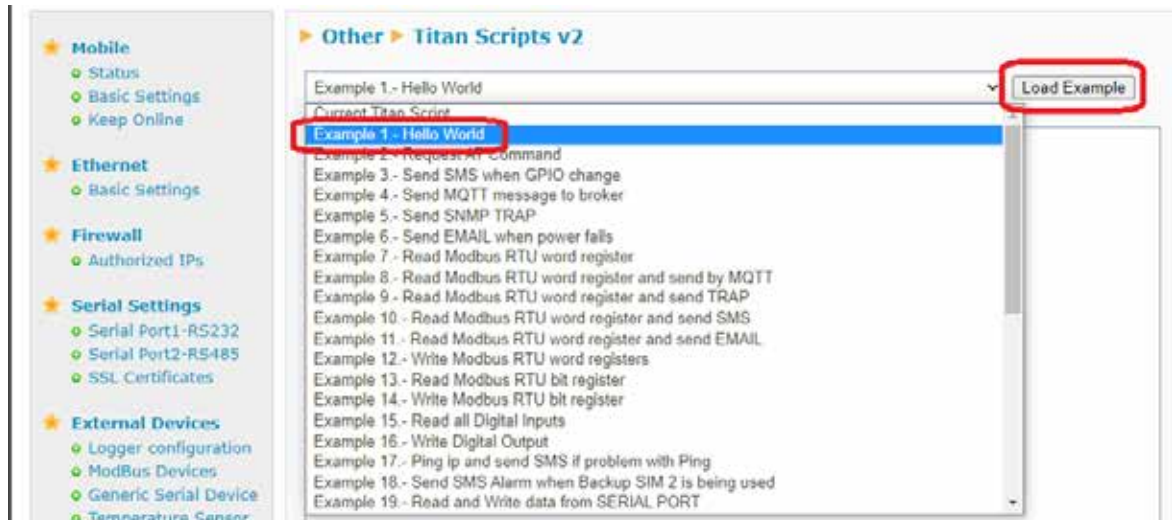
This Application Note will briefly explain how to load an example script and run it.

2. Loading the “Hello World” Example on the TITAN-based Device

Go to the “Powered by Titan Scripts” section in the “Other > Powered by Titan Scripts” menu. You will see a screen similar to the following:



In the top drop-down menu, choose the first example (Example 1.- Hello World) and click on “Load Example”.



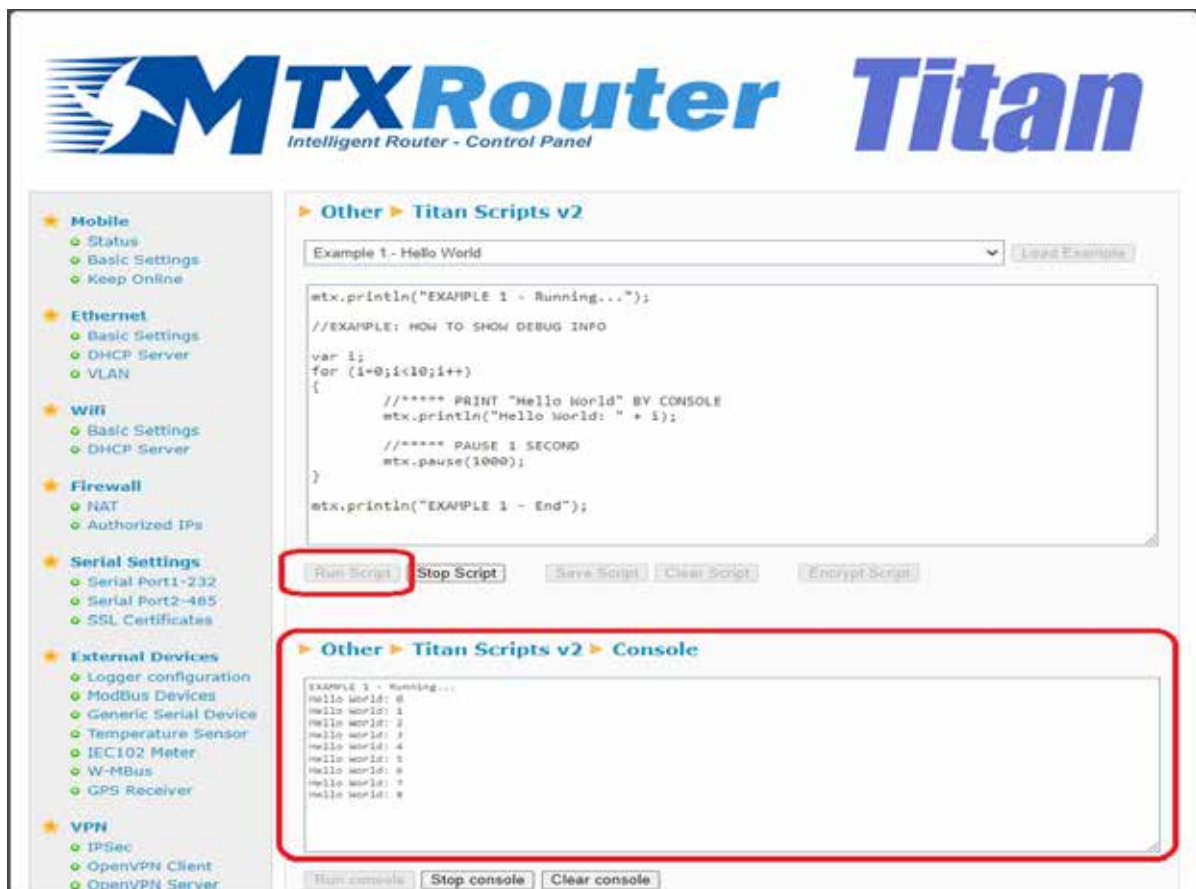
Then click on the “Save Script” button. This save the example code and make it runnable.



You can see that the example is very simple. It basically displays the text “Hello Word: X” 10 times. The debug console is the window immediately below the code window. This window very useful for debugging scripts. All Strings passed to the “mtx.println()” function will be displayed on that screen.



To run the script manually, just click on the “Run Script” button. The script will then be executed and the result displayed in the Console window, i.e. the “Hello World” messages sent using the “mtx.println()” function in the script.



3. Running Powered by Titan Scripts

Up to now we have run the example script by clicking the “Run Script” button. This is useful when programming the script and checking it, but it is not appropriate during normal operation of the device in the field, we cannot connect to the device to click the "Run Script" button every time the device restarts. We want the device to run the script automatically whenever the device starts (after a reset, power on, etc.). We can do this using the execution options below the console window:



The screenshot shows the configuration interface for Titan Scripts v2. On the left is a sidebar with menu items: Email Config, ModBus Slave, Titan Scripts (highlighted), Connectivity tools, Digital I/O, Custom Skin, Led Config, and Syslog. The main panel is titled 'Other > Titan Scripts v2 > Options'. It contains an 'Autostart' checkbox which is currently unchecked, with the text 'Autostart script after Titan power up' to its right. Below this is a 'Period' dropdown menu set to 'Once after Power Up', with a descriptive text 'Start script period. (Normally 'Once after power up')'. At the bottom left of the main panel is a 'SAVE CONFIG' button.

If you want the device to automatically run the script when it starts, you must activate the “Autostart” box.



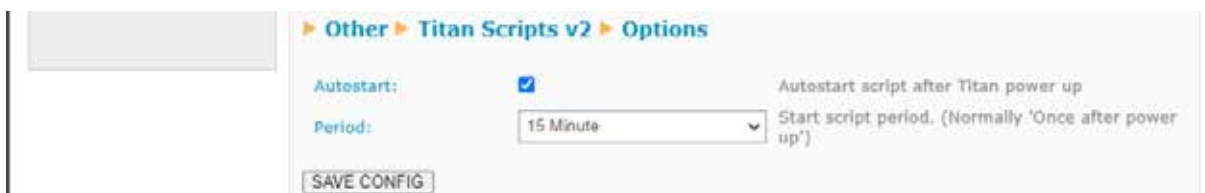
This screenshot is similar to the previous one, but the 'Autostart' checkbox is now checked. A red rectangular box highlights the 'Autostart' checkbox and the 'Period' dropdown menu. The 'Period' is still set to 'Once after Power Up'. The 'SAVE CONFIG' button remains at the bottom left.

With the above configuration, the TITAN-based device will execute the script once at startup. This is normal for scripts of the type:

```
while (true) {  
...  
}
```

in which the code is always executed cyclically.

However, in your scenario it might be more convenient to have the script run automatically at certain time intervals (every minute, every 2 minutes, 5 minutes, etc.) to perform certain tasks. For example, imagine a case where we need a script to read a Modbus RTU device every 15 minutes and send the data to an MQTT broker. In this case you may find it easier to auto-run the script every 15 minutes using the following startup configuration:



This screenshot shows the configuration interface with 'Autostart' checked. The 'Period' dropdown menu is now set to '15 Minute'. The 'SAVE CONFIG' button is still present at the bottom left.