webdyn

Flexitron group

Application Note

Live Diagnostics

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1 Live Diagnostics

1.1 Introduction

This implementation note describes how the local action **live diagnostics** works.

This action is an alternative to the **diagnostics** action described in the user manual. Instead of uploading a file to the remote server at the end of the listening window, the frames received during the listening window are sent directly to an MQTT broker, allowing you to view the received WMBus frames in real time.

For this action to work, you need to:

- a remote server (HTTP or FTP)
- an MQTT broker

1.2 How It Works

After the magnet has been passed twice, the gateway will first connect to the remote server to upload the configuration file, synchronize the configuration, and check for any command files or configuration update files. Once the connection to the FTP server is complete, the gateway will connect to the MQTT broker and then open a radio listening window. For a duration equal to `/config/local/liveDuration` seconds, every valid WMBus frame received will be published in BSON format to the MQTT broker in the configured topic. This transmission can be buffered if `/remote/mqtt/oneFramePerPost` is set to `false`.

> **Note**
>
> Starting with firmware version V4.0, during this listening window, the contents of the INBOX directory on the remote server are scanned every 120 seconds to process any command or configuration files. If such files are found, the gateway will process them and then terminate the listening window.

Once the listening window has ended, the gateway disconnects from the MQTT broker and then makes one final connection to the remote server (FTP or HTTP).

You can chain multiple actions together using the `/config/local/testCount` parameter.

> **Note**
>
> If an update command is present during the first remote connection, the gateway will immediately update the firmware and then, upon completion, reboot while performing the “live diagnostics” action.

> **Note**
>
> Due to limitations in how the gateway modem handles certain TLS configurations, you must not mix TLS security levels across different protocols. For example, if Server 1 is using FTPS and the broker is using MQTTS, both must use basic TLS with a username and password.
>
> For example, you should not use Server 1 with HTTPS, a certificate, and a CA; Server 2 with plain TLS; and an MQTTS broker with TLS and a certificate.

1.3 Settings

To enable the local action **live diagnostic**, you must modify the parameter `/local/magnet` and set its value to `5`. In the PC configuration software, this mode is called **Live diagnostic**.

Name + tree structure	Description	Type	Default value
/config/local/liveDuration	Duration, in seconds, of the action's listening window	Integer (max 43,200)	600
/remote/mqtt/ oneFramePerPost	For each WmBus frame received, an MQTT message is published	Boolean	false

1.4 MQTT Message Format

The format of MQTT messages is the same as that shown in the frame table of a data file.

Here is an example converted to JSON:


```
{
  "T": 1769615473,
  "R": 70,
  "F": {
    "$binary": {
      "base64": "PkQBBgMACQULB3ppIDCFospae8UekREJTjjm5k8/
xJYYDCzGk9NV+wtDcWI5LsE8YrJG7RI6IT3NvZYFAcOP",
      "subType": "00"
      }
    },
"crc": -1191100535
}
```


- T: Timestamp of the frame in UNIX epoch format.
- A: RSSI reception level
- F: WMBUS frame in binary format in the BSON file and in Base64 format once converted to JSON.