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wm SYSTEM M2M Industrial Router 2 BASE User Guide

M2M Industrial Router 2 BASE®
– Quick User Guide

Contents

INTERFACES

1. POWER (9-32V DC): 4-pin Microfit power connector (for 12V DC adapter)
2. SIM card slot (type 2FF)
3. micro-USB connector (for configuration)
4. Reset button
5. Ethernet (RJ45, 10/100 Mbit)
6. Antenna connector (SMA-M, 50 Ohm)
7. 3 Operation LEDs (reconfigurable)

CELLULAR MODULE TECHNICAL DATA

- Mini SIM card slot (2FF type, push/insert)
- Cellular Module:

  o SIMCOM A7676E – LTE Cat.1 / 450MHz – with 2G „fallback"
- LTE Cat.1: B1/B3/B8/B20/B31/B72
- GSM/GPRS/EDGE: 900/1800MHz

  o SIMCOM SIM7070E – LTE Cat.NB / Cat.M, 450MHz – with 2G „fallback"
- LTE Cat.M:

  B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B31/B66/B72/B85• LTE Cat.NB:

  B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B31/B66/B85• GSM/EGPRS:

  850/900/1800/1900MHz

POWER SUPPLY / OPERATION CONDITIONS

- Power connection: 12V DC, 1A (9-32VDC), 4-pin Microfit power input connection • Consumption: 200mA –
  260mA 12VDC / 2.4 – 3.1W @ 12VDC
- Operation: from -40'C to +75'C / Storage: from -40'C to +80'C at 0 to 95 rel. humidity
- Dimensions: • 92.5 x 85 x 35 mm / Weight: 175gr. (without antenna, adapter)
- IP51 industrial aluminum casing, mountable to a 35mm DIN rail (by DIN rail adapter – order option) or wall

INSTALLATION STEPS

1. Ensure that the router is not under power voltage, or remove power adapter from the POWER microfit connector (1). Ensure that all the 3 LEDs (7) are blank.
2. Mount a proper LTE antenna to the Antenna connector (6).
3. Insert a SIM card (activated with APN) into the SIM tray (2) – the SIM chip surface must be look to top and the cutted edge of the SIM must be look to the router – then push the SIM until it will be fixed and closed (you will hear a soft click sound).
4. Connect an UTP cable to the router's Ethernet titled RJ45 port (5). During the configuration the cable's opposite connector must be connected to the PC's Ethernet port. (After the configuration connect it to the network- or industrial device's RJ45 port.) (You can also configure the router through the micro-USB (3) connection by a microUSB-USB cable of the PC connection. Then install the USB Ethernet / RNDIS Gadget driver to your computer by using the following link in your web browser: **https://www.m2mserver.com/m2mdownloads/RNDIS_win10.ZIP**)
5. Connect the power adapter to the AC plug. Then the router begins its operation, the LED lights will be signing and inform you about the current status of the device.
   The system start requires about 1-2 minutes, while the device loads the necessary modules or the operation and prepares the web configuration user interface – the LED2 will sign it. Then the web interface will be availble for login.
6. To connect to the router, allow the router IP address for the Ethernet connector interface in your computer's network settings of the Microsoft Windows® system (IP address for Ethernet connection: 192.168.127.x, Subnet mask: 255.255.255.0) – „x": from 2 to 255.
   (For USB connection setup USB Ethernet / RNDIS Gadget virtual interface for IP: 192.168.10.x, subnet mask: 255.255.255.0 – „x": from 2 up to 255.)

IMPORTANT! Configure the device's wireless internet module settings (SIM and APN data on the router web interface) for the cellular internet connection – otherwise the router will be restarting in every 10 minutes.

BOOT SEQUENCE OF THE DEVICE

1. After a long time off, when powering the device, all 3 LEDs will be active with orange color for a few seconds. The charging of the supercapacitors has began. Normally, in case of rebooting, the supercapacitors are already charged, therefore LEDs will be active with green.

2. Then the LED1 is lighting continously by green, which signs that the system is during loading (boot in progress).

3. The system start requires about 1-2 minutes, while the device loads the necessary modules or the operation and prepares the web configuration user interface – the LED2 will sign it. Then the web interface will be ready to login. If the cellular module was already configured, the LED3 will be flashing, which means the network registration is in progress.

SOFTWARE SYSTEM

The device has a built-in eMMC chip (4 or 8 GByte storage – by order option) for Secure Boot process / encrypted storage of all customer data. It uses an OTP-enabled memory chip.

The router comes with a pre-installed OpenWRT® system, which is tailored to the customer's requirements and includes the operating system, software, and a factory default configuration. The device uses a web user interface (LuCi®), and standard Linux-based and UCI commands at the command line.

The product can also be managed with our state-of-the-art Device Manager® platform (order option), providing clients with the ability to perform OTA firmware updates and mass deployments more efficiently

IMPORTANT! The DHCP service is turned off by default. When enabled, the router assigns IP addresses to connected devices, while the available Ethernet interface addresses use static addresses. If you want to assign IP addresses by DHCP, change the protocol value to DHCP client. You can do this in Network / DHCP and DNS settings menu or in the Network / Interfaces menu, at the LAN interface, in the DHCP section.

CONFIGURATION STEPS

1. Open the router's local website in an Internet browser, on LAN (Ethernet): **https://192.168.127.1** while on USBLAN connection: **https://192.168.10.1**

2. Accept the security risk messages in the internet browser by choosing the Advanced option at the Potential Security Risk, then choose Accept the Risk and Continue option. Then the router's local web interface will be loaded and you can login. Username: root Password: wmrpwd Push to the Login button.

3. The list of the available network interfaces can be found at the Interfaces / Interface Overview menu item. At the WAN (Protocol: 4g-wan) interface, at right modify the settings with the EDIT button. At the General Settings tab setup the module parameters.

   - Fill the APN name, then the PIN code (if SIM card using it).

   - PAP/CHAP username and PAP/CHAP password settings can be also configured here – if they are required for the connection.
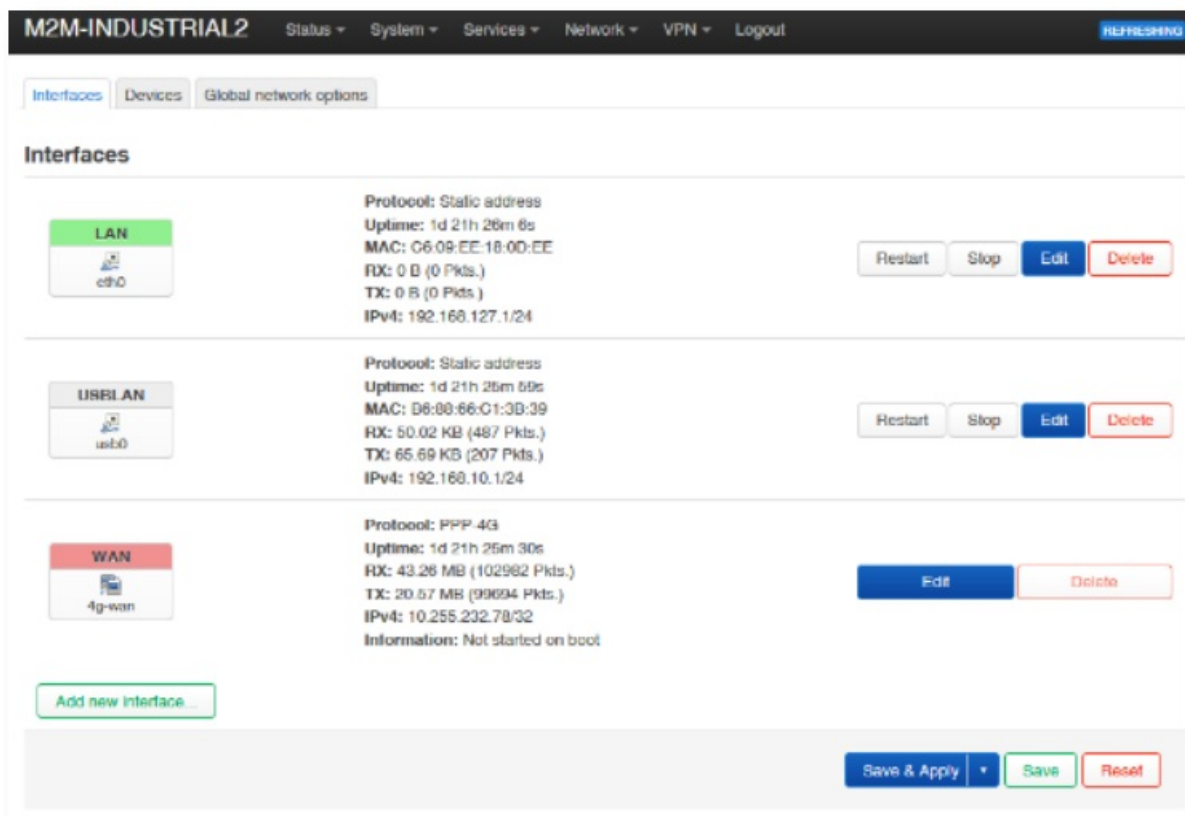
IMPORTANT! For using LTE Cat.M or NB-IoT cellular networks a compatible SIM card is required! Ask your mobile network provider for the correct type of SIM card and for the APN, SIM PIN and PAP/CHAP username and password information.

4. Click to the Save button for saving the settings. Then the device will attempt to connect to the mobile network. Then the LED3 indicates the network registration process.

5. If the APN and SIM settings are correct, it flashes by green. When the network registration is successful, LED2 is lighting continously by green, which shows that the router can access the cellular network already.

OTHER IMPORTANT SETTINGS

- Configure the Ethernet interface in the Interfaces / Interface Overview menu, at the LAN tab.
- Configure the DHCP, DNS services in the Network / DHCP and DNS menu.
- Save your settings in the System menu, Backup / Flash Firmware item, then choose the Backup / Restore, Download backup part to push the Generate Archive button.
- You can refresh the firmware in the System menu, Flash Firmware item, then choose the Browse and Refresh Firmware button. Ask our sales about the latest firmware!
- If you need IPSec or VPN, first you have to enable the required services in Systems / Startup menu, then configure it according the User Manual.

SSH ACCESS
The router can be also accessed via SSH connection also, when it is available on its IP address – use the putty terminal program for the connection.

- Connect to the 192.168.10.1:22 IP address (Login: root, password: wmrpwd)
- Accept the security risk (RSA token) encryption key usage warning notice (visible at first time only).
- Then the Linux command line will appear, where you can use standard Uc Linux commands and execute scripts on the device.
- The router's operating system uses the embedded Micro uClinux kernel version 5.10 and interprets UCI Command line interface commands

UCI COMMANDS

The UCI® (Unified Configuration Interface) is an OpenWrt® API / utility that allows centralized configuration and management of OpenWrt® system.

To review the UCI commands and options that can be used, we recommend that you review the UCI guide in English, which can be downloaded from our website: **https://m2mserver.com/m2m-downloads/UCI_Command_Line_Reference_v3.pdf**

FASTENING THE DEVICE

The product's aluminum casing can be fastened by an AB800MKL fixation part (order option) to a 35mm DIN-rail. You can also mount the product case to wall, place into server rack or similar fixation opportunity.

DOCUMENTATION & SUPPORT

User Manual and latest firmware: **https://m2mserver.com/en/product/m2m-industrial-router-2-base/**
Read our support website for the further contact opportunities please: **https://www.m2mserver.com/en/support/**
In case of product support request, ask our support at the **iotsupport@wmsystems.hu** email address.
This product is marked with the CE symbol according to the European regulations.

CE The crossed out wheeled bin symbol means that the product at the end of its life cycle should be disposed of with general household waste within the European Union. Only discard electrical/electronic items in separate collection schemes, which cater for the recovery and recycling of materials contained within. This refers

not only to the product, but also to all other accessories marked with the same symbol.

Documents / Resources

	wm SYSTEM M2M Industrial Router 2 BASE [pdf] User Guide M2M Industrial Router 2 BASE, M2M, Industrial Router 2 BASE, M2M Industrial Router, Industrial Router, Router

References

- M2M **Support - WM Systems LLC - M2M / IoT Communication Solutions**
- M2M **Middle East Energy event in Dubai -**
- M2M **m2mserver.com/m2m-downloads/RNDIS_win10.ZIP**