

Identifying and Correcting MAC Address Fault in UCTRONICS POE Adapters

A manufacturing error has recently been identified in the latest production version of the UCTRONICS Micro USB to Ethernet/PoE Adapter available on Amazon. It is listed as the 'upgraded' version of the device under ASIN designation B0B9ZLVGJ4.

Affected units were shipped without correctly programmed MAC addresses. This error resulted in failure of the devices to be properly recognized on a network.

The greatest impact has been felt by the Wyze Cam community segment using the popular 'wz_mini' supplemental firmware to enable USB/POE/ETH wired capability on various Wyze camera models. This document is primarily designed to assist those users.

If you currently have a non-working adapter or happen to receive one from remaining Amazon inventory, UCTRONICS is providing the means and method for programming a legitimate manufacturer's MAC address into your non-working adapter to correct the problem and establish full functionality of the device.

Following are the steps, considerations and tool required to do so. Once the tool package is downloaded, the entire process should take less than five minutes.

The software tool package is provided by Realtek, the manufacturer of the ethernet controller. It is a Windows based utility. It is available for download here: https://drive.google.com/drive/folders/1wk5m6uj9mQk04b2iIrm1xiBwD5PYwMM?usp=share_link Right click the WIN_USB_PGTOOL_v2.0.9 folder link at the top of the window to zip and download the package.

Download and unzip the package into a single folder. RtPGtoolUI.exe is the utility for programming the adapter. It is a self-contained program that is not installed on your machine. It is run directly from the folder.

Name	Date modified
TOOL	2/24/2023 9:12 AM
x64	3/1/2023 5:21 PM
x86	2/24/2023 9:12 AM
RtPGtool.LOG	3/1/2023 5:21 PM
RtPGtoolUI.cfg	3/1/2023 5:22 PM
RtPGtoolUI.exe	2/24/2023 9:12 AM

USB Male to Micro USB female connectivity is needed between the host PC and the adapter. (OTG adapter spaghetti to achieve the configuration is not recommended.)

This is a suitable solution. (Such an adapter is also needed for using the UCTRONICS unit with a Wyze Cam v2.) https://www.amazon.com/Micro-Female-Converter-Adapter-2Pack/dp/B07SDB7XY1/ref=sr_1_20?crid=HXWFD8VMG0KH

Steps:

Please use the following steps to test the PoE adapter.

Connect the adapter to the host PC.

Launch the RtPGtool.

The RTL8152B controller should be pre-selected in the device box. Click 'Search'. This should result in the connected adapter being identified with or without an associated MAC address.

The screenshot shows the RtPGtoolUI window. At the top, the 'Device Select' dropdown is set to 'RTL8152B' and the 'SEARCH' button is highlighted. The 'Model Select' dropdown is set to 'EFUSE'. Below this, the 'Program Item' dropdown is set to 'Program ALL'. The 'MAC ADDRESS' section shows 'CURRENT' as '00E04C360003', 'Fix MacAddress' as 'Mgmt MacAddress', 'MINIMUM' as '00E04C360001', and 'MAXIMUM' as '00E04C36FFFF'. The 'ID' section shows 'Vendor' as '0BDA', 'Product' as '8152', and 'bcdDevice' as '2000'. The 'SW_Reset' checkbox is checked. The 'EXECUTE LOG' section is empty. The 'RESULT' section shows the following information:

Information	
Manufacture	Realtek
Product	USB 10/100 LAN

SerialNumber: ☐ Increment ☐ Fource
SN:

Characteristics
Do not change following parameters without Realtek approval

<input checked="" type="checkbox"/> SPI_FLASH_EN	<input checked="" type="checkbox"/> GPHY_FLOW_CONTROL	LED_SEL_CFG	A97C
<input type="checkbox"/> EEPROM_EN	<input type="checkbox"/> BOS_DESC_SUPERSPEED	NWAY_LINK_CAPA	04
<input type="checkbox"/> CTAPSHORT	<input type="checkbox"/> ECM_FLOW_CONTROL	<input type="checkbox"/> LPM_BESL_EN	
<input type="checkbox"/> LAN_WAKE_EN	<input type="checkbox"/> LINK_OK	<input type="checkbox"/> LAN_DIS	<input checked="" type="checkbox"/> LPM_EN
<input type="checkbox"/> APPLE_LIGHTNING	SW_FEATURE		
<input type="checkbox"/> NO_REMOTE_WAKEUP	<input type="checkbox"/> DOCKING	<input type="checkbox"/> MAC_CLONE	<input type="checkbox"/> SELF_POWER

Buttons: Program, Compare, Dump

If present, a Realtek MAC address will begin with 00:e0:4c. If a Realtek MAC address is displayed, any connectivity issues with the adapter are likely due to other causes and should be investigated accordingly.

All zeros indicate no assigned MAC address. The adapter is ready to program.

Under some circumstances a randomly assigned MAC address from the PC itself may be present. If disconnecting and re-connecting the USB cable results in a different MAC address being assigned each time, the adapter has no MAC address and should accept and retain a Realtek MAC address programmed by RtPGtool. Repeating the "Search" after each re-connect may be necessary to identify random results. Even if the adapter retains a non-standard MAC address an attempt should be made to program a legitimate Realtek MAC address.

- To program the adapter:
- Select "**EFUSE**" in **Model Select**, "**SPI_FLASH_EN**" in the **Characteristics**, "**A97C**" in **LED_SEL_CFG**, and finally click "**Program**".

The screenshot shows the RtPGtoolUI window. On the left, under 'Device Select', 'RTL8152B' is chosen. Below it, 'Program Item' is 'Program ALL'. The 'MAC ADDRESS' section has 'CURRENT' set to '00E04C360003'. The 'ID' section has 'Vendor' as '0BDA', 'Product' as '8152', and 'bcdDevice' as '2000'. The 'Characteristics' section has a warning: 'Do not change following parameters without Realtek approval'. It lists several options, with 'SPI_FLASH_EN' checked (marked with a red box and '2'). Other options like 'GPHY_FLOW_CONTROL', 'LED_SEL_CFG' (set to 'A97C', marked with a red box and '3'), 'EEPROM_EN', 'BOS_DESC_SUPERSPEED', 'CTAPSHORT', 'ECM_FLOW_CONTROL', 'LAN_WAKE_EN', 'LINK_OK', 'LAN_DIS', 'LPM_BESL_EN', 'LPM_EN', 'APPLE_LIGHTNING', 'NO_REMOTE_WAKEUP', 'DOCKING', 'MAC_CLONE', and 'SELF_POWER' are unchecked. The 'SW_Feature' section is also visible. At the bottom right, the 'Program' button is highlighted with a red box and '4'. Other buttons like 'Compare' and 'Dump' are also present.

- Successful programming will show the result as displayed on the following page and also by invoking 'ipconfig /all' at a Windows command prompt.

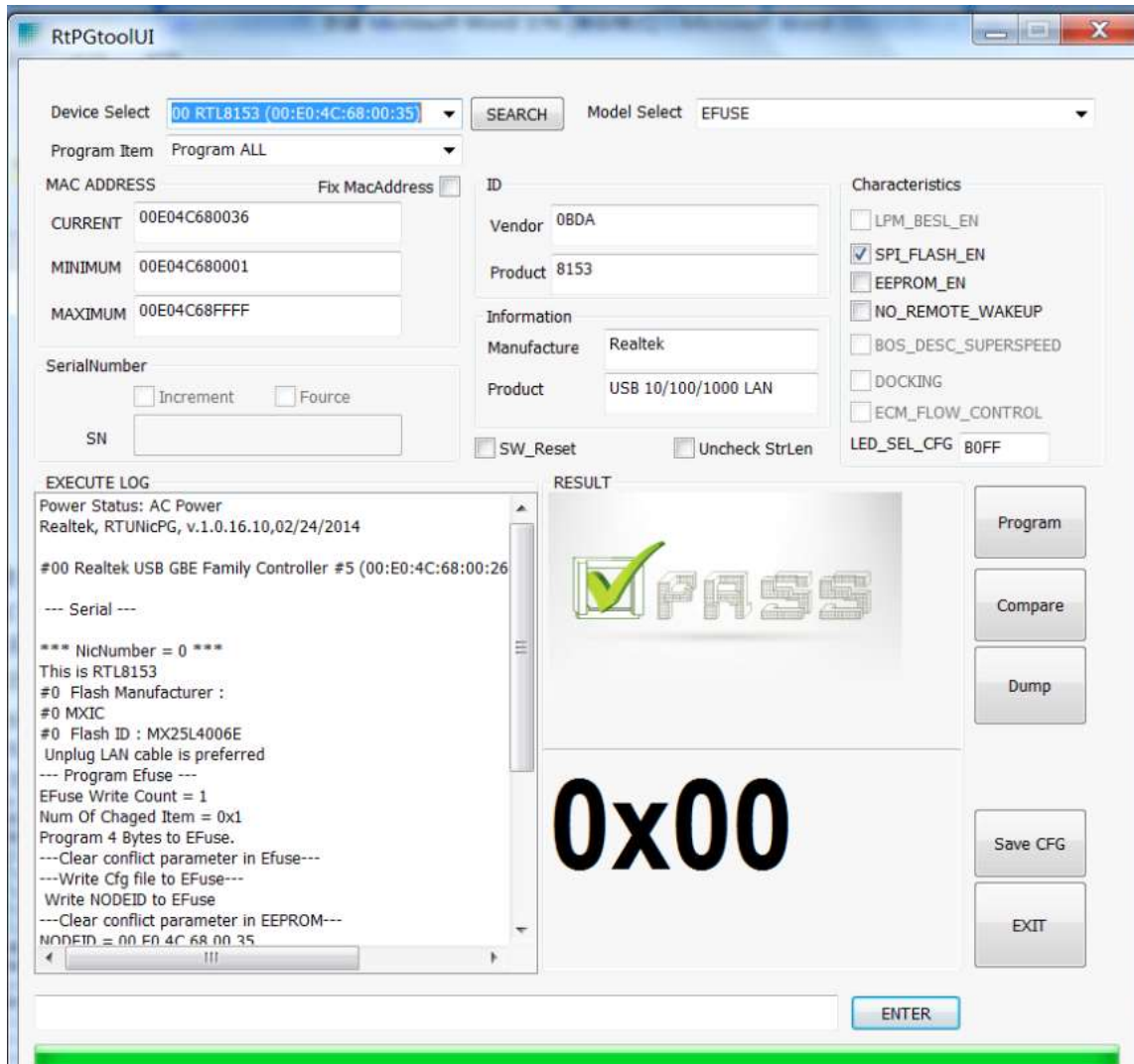
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Connection-specific DNS Suffix  . : 
Description . . . . . : Realtek USB FE Family Controller #3
Physical Address. . . . . : 00-E0-4C-36-00-01
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::72a7:a8be:f4f7:11ad%47(Preferred)
IPv4 Address. . . . . : 192.168.1.29(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Saturday, February 25, 2023 10:10:24 AM
Lease Expires . . . . . : Sunday, February 26, 2023 10:10:25 AM
Default Gateway . . . . . : 192.168.1.1
DHCP Server . . . . . : 192.168.1.1
DHCPv6 IAID . . . . . : 788586572
DHCPv6 Client DUID. . . . . : 00-01-00-01-1C-22-24-D6-74-E6-E2-29-E3-B6
DNS Servers . . . . . : 192.168.1.1
NetBIOS over Tcpip. . . . . : Enabled

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- You may disconnect and reconnect the adapter to verify completion of the process.

Congratulations.



The adapter is now ready to be initialized for a Wyze Cam that is using the wz_mini supplemental firmware. Instructions for successfully doing so can be found here: https://drive.google.com/file/d/1Qb_9M4uJaZ6K6MBWA_hkXR0-WUC8m2ob/view?usp=sharing

Hopefully you have found this information useful and have applied it with success.