

Configuration by the Serial Console

Modbus Ethernet Gateways (G01 - G03 & G14 - G16)

Another way to configure the device is via a serial console. In case of the G01 - G03 Modbus gateways an additional USB/UART converter is needed.

Procedure to enter serial console mode on G01 - G03

- Turn off the power of the device.
- Connect Ethernet converter to the dedicated USB/UART converter via the microUSB port.
- Connect the USB/UART converter to the PC.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (**orange** LED) lights up (it should light up after red light - service mode).
- Release the S1 button.
- Login using user's personal credentials or default login details.
- If the process is successful, configuration command can be typed into the terminal.

Procedure to enter serial console mode on G14 - G16

- Install STM32 Virtual COM Port Driver.
- Turn off the power of the device.
- Connect Ethernet converter directly to the PC (the dedicated USB/UART converter is not obligatory).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (**yellow** LED) lights up.
- Release the S1 button.
- Login using user's personal credentials or default login details.

- If the process is successful, configuration command can be typed into the terminal.

```

COM7 - PuTTY
Welcome
login: admin
Password:
Login correct
#>

```

List of all commands

Command	Description
help	Print the help.
conn	Print active TCP connections.
net_stat	Print lwIP statistics.
eth_mac	Print or change MAC address.
ipconfig	Print or change the network configuration.
http_port	Print or change default http port.
telnet_port	Print or change default telnet port.
modbus_tcp_port	Print or change modbus port.
ping	Check internet connection with the desired host.
restart	Restart the system.
user	Print or change user configuration.
sys_heap_usage	Print current heap usage.
modbus	Print or changes modbus settings.
modbus_ports	Print or changes modbus ports settings.
modbus_routing	Print or change modbus routing settings.
exit	Exit console.

Modbus ports configuration commands

- **modbus**

- **modbus help**
Print command help.

- **modbus int_addr VALUE**
Set internal Modbus address.

Example:
modbus int_addr 5

- **modbus idlet VALUE**
Show or set the idle TIME (in seconds) of the TCP connection after which the TCP connection is terminated by the converter and the TCP socket is released.

Example:
modbus idlet 720

If a subcommand that normally sets a value is not given an argument, it will print the current value.

Example:
modbus idlet
Set idle time is 5000

- **modbus_ports**

- **modbus_ports help**
Print command help, does not require com_number.

- **modbus_ports PORT_NUMBER add_slaves [SLAVE_ADDR ;/- SLAVE_ADDR, *]**
Set all addresses of slaves connected to com_port. A star in value means fill rest free slaves. It means all slaves that are not set to other ports will be set to this one.

Example:
modbus_ports 1 addslaves 124

Example:
modbus_ports 1 addslaves 12-124

Example:
modbus_ports 1 addslaves 12;14;18

Example:
modbus_ports 1 addslaves 12;14-17;150-200

Example:
modbus_ports 1 addslaves 12;14-17;150-200, *

- **modbus_ports PORT_NUMBER show_slaves**

Show addresses of slaves connected to com_port.

Example:

```
modbus_ports 1 showslaves
```

- **modbus_ports PORT_NUMBER mode [ascii/rtu]**

Set Modbus port mode to ASCII or RTU.

Example:

```
modbus_ports 2 mode ascii
```

- **modbus_ports PORT_NUMBER baud [RATE]**

Set the baud rate to RATE. For a list of acceptable baud rates, please refer to the manual.

Example:

```
modbus_ports 1 baud 9600
```

- **modbus_ports PORT_NUMBER bits [CPS]**

Set bit count to C, parity to P, and stop bits to S. Valid values are:

C: 7, 8 or 9

P: N, E or O (N- none, E- even, O- odd)

S: 1 or 2

Example:

```
modbus_ports 1 bits 8N1
```

Example:

```
modbus_ports 2 bits 7O1
```

- **modbus_ports PORT_NUMBER state [GATEWAY/ROUTER/DISABLE]**

Enable or disable uart functionality.

Example:

```
modbus_ports 1 state GATEWAY
```

Example:

```
modbus_ports 2 state DISABLE
```

- **modbus_ports PORT_NUMBER termination [on/off]**

Enable or disable termination on RS485 port.

Example:

```
modbus_ports 1 termination on
```

- **modbus_ports PORT_NUMBER slave_response_timeout TIMEOUT**

Set response timeout (serial slave) in ms. When this timeout expires, delayed frames are dropped.

Example:

```
modbus_ports 1 slave_response_timeout 2000
```

If a subcommand that normally sets a value is not given an argument, it will print the current value.

Example:

```
modbus_ports 2 baud
```

Set baud rate is 115200

PORT_NUMBER is a number of ports in modbus gateway and it is counted from 0.

- **modbus_routing**

- **modbus_routing help**

Print routing's help.

- **modbus_routing show**

Display all active routing table in system.

```
[LP]: [SLAVES NUMBERS] [IP/HOSTNAME] [PORT] [TIMEOUT]
```

- **modbus_routing add SLAVE_ADDR HOSTNAME PORT TIMEOUT**

SLAVE_ADDR with HOSTNAME PORT is used by uarts working in Modbus router mode. TIMEOUT (in ms) is used to close the connection if a slave is not responding. The maximum records is 8. One record for one address/ip.

Example:

```
modbus_routing add 18 192.168.0.10 502 2000
```

Example:

```
modbus_routing add 18;25 192.168.0.10 502 2000
```

Example:

```
modbus_routing add 18-25 192.168.0.10 502 2000
```

Example:

```
modbus_routing add 18-25;* 192.168.0.10 502 2000
```

Example:

```
modbus_routing add 18-25 modbus.local 502 2000
```

- **modbus_routing remove [HOSTNAME_NUMBER/all]**

Remove Modbus Routing Table record. HOSTNAME_NUMBER is line number from /show/ command.

Example:

```
modbus_routing remove 2
```

Example:

```
modbus_routing remove all
```

Network settings

The following commands might be helpful to change network settings according to target LAN parameters,

- **ipconfig**

- **ipconfig addr ADDRESS**

Set IP address to ADDRESS.

Example:

```
ipconfig addr 192.168.0.10
```

- **ipconfig mask NETMASK**

Set subnet mask to NETMASK (in dot-decimal format).

Example:

```
ipconfig mask 255.255.255.0
```

- **ipconfig mask BIT_COUNT**

Set subnet mask to BIT_COUNT bits.

Example:

```
ipconfig mask 24
```

- **ipconfig gateway GATEWAY_IP**

Set network gateway to GATEWAY_IP.

Example:

```
ipconfig gateway 192.168.0.1
```

- **ipconfig dhcp [enable/disable]**

Enable or disable DHCP client.

Example:

```
ipconfig dhcp enable
```

- **ipconfig dns1 ADDRESS**

Set primary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns1 192.168.100.1
```

- **ipconfig dns2 ADDRESS**

Set secondary DNS to ADDRESS, disable getting DNS from DHCP if enabled.

Example:

```
ipconfig dns2 1.1.1.1
```

- **eth_mac**

- **eth_mac help**

Print the help message.

- **eth_mac default**

Set device's MAC address to factory-default one.

- **eth_mac set MAC_ADDR**

Set device's MAC address to MAC_ADDR. Accepts both dash and colon-separated formats.

Example:

```
eth_mac set 01-02-03-04-05-06
```

Example:

```
eth_mac set 01:02:03:04:05:06
```

- **http_port**

- **http_port help**

Print the help message.

- **http_port PORT_NUMBER**

Set http port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
http_port 80
```

- **http_port status**

Print current http port.

Example:

```
http_port status
```

A current http port is 80

- **telnet_port**

- **telnet_port help**

Print the help message.

- **telnet_port PORT_NUMBER**

Set Telnet port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
telnet_port 23
```

- **telnet_port status**

Print current Telnet port.

Example:

```
telnet_port status
```

A current telnet port is 23

- **modbus_tcp_port**

- **modbus_tcp_port help**

Print the help message.

- **modbus_tcp_port PORT_NUMBER**

Set http port to PORT_NUMBER. A PORT_NUMBER value must be in range: 1-65535.

Example:

```
modbus_tcp_port 502
```

- **modbus_tcp_port status**

Print current Modbus port.

Example:

```
modbus_tcp_port status
```

A current modbus port is 502

Changing username or password

To change username or password, use user command. Available commands:

- **user help**

Print the help message.

- **user mod_name USER_NAME NEW_NAME**

Change the user name to NEW_NAME. It fails if the name is used by another user.

Example:

```
user mod_name admin NEW_NAME
```

- **user passwd USER_NAME**

Change USER_NAME's password.

Example:

```
user passwd admin
```

```
***** <- here is entered password, but '*' appears instead
```

Note: Everyone can change the password for themselves.

Service mode

Procedure to enter service mode for G01 - G03 gateways

- Turn off the power of the device.
- Connect Ethernet converter to the dedicated USB/UART converter via the microUSB port.
- Connect the USB/UART converter to the PC.
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (red LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

Procedure to enter service mode for G14 - G16 gateways

- Install STM32 Virtual COM Port Driver (if it was not done before).
- Turn off the power of the device.
- Connect Ethernet converter directly to the PC (the dedicated USB/UART converter is not obligatory).
- Open the serial console (default baud rate is 115200 bps).
- Press and hold the S1 button.
- Turn on the power.
- Wait until the ST indicator (red LED) lights up.
- Release the S1 button.
- If the process is successful, service commands can be typed into the terminal.

List of commands in the service mode

Command	Description
help	Print the help.
credits	Print current credits value for this device.

Command	Description
dev_ident	Print the device identification value.
restart	Restart the system.
serial_num	Print the serial number of this device.
version	Display the bootloader version.
xmodem	Download image to the internal flash using xmodem.
defaults	Reset application variables to defaults.
ipconfig	Print or change the network configuration.
flash_read	Read bytes from flash memory.
md	Read bytes from memory address.

In the service mode, the “ipconfig” command can only show a last static IP address.

Factory reset

To restore default settings, type “defaults”. After that, user will be asked for type “default network” to reset the network settings as well. Then user will be informed if the process is successful.

Default login details:

- login: **admin**
- password: **admin123**
- IP: **192.168.100.100**

Additional notes

In order to avoid issues like connecting to host, type “help” to get more information.

To get more details about every particular command, append “help” after each commands (example: "ipconfig help").

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