

RG-1000e Upgrade to Firmware R3.0 Guide

This document describes how to upgrade the RG-1000e firmware to version R3.0. All manufactured RG-1000e units with firmware R1.* or R2.* can be upgraded to R3.0.

To upgrade RG-1000e to firmware R3.0, you need the following equipment and software:

- RG-1000e CPS R3.0.
- RG-1000e firmware files:
 - RG1000e-3v00.bin
 - RG1000e-3v00.boot
 - RG1000e-3v00.rom
- USB cable A-miniB.
- External power supply 12-14 VDC, 0.5 A.
- Desktop computer or laptop with OS Windows 7/8/8.1/10.

Attention!

- You must use only CPS R3.0 for upgrading the RG-1000e to firmware R3.0. Using other CPS versions, such as R1.* or R2.*, leads to corruption of the firmware data. In this case, the RG-1000e unit must be delivered to the service center for recovery.
- To perform the firmware upgrade, you must disconnect the RG-1000e from all donor radios, disconnect the Ethernet cable, and connect the unit to an external power supply via the power socket (for details, see section 4.3 in *RG-1000e User Guide*).

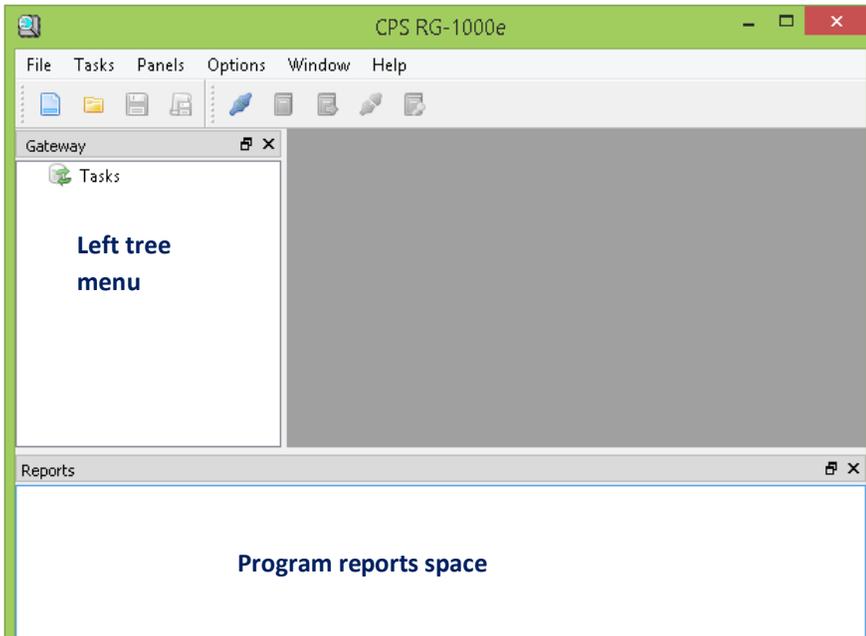
The process of the RG-1000e upgrade to firmware version R3.0 includes the following steps:

1. Copy the CPS RG-1000e R3.0 files to the computer.
2. Run CPS RG-1000e R3.0 and switch it to the service mode.
3. Connect the RG-1000e unit to the computer and power up the device.
4. Establish a connection between CPS RG-1000e and the RG-1000e.
5. Create a new (default) RG-1000e configuration.
6. Specify the RG-1000e IP settings for initial remote IP access to the RG-1000e.
7. Flash the DSP firmware.
8. Write the new configuration.
9. Flash the Boot firmware.
10. Flash the MCU firmware.

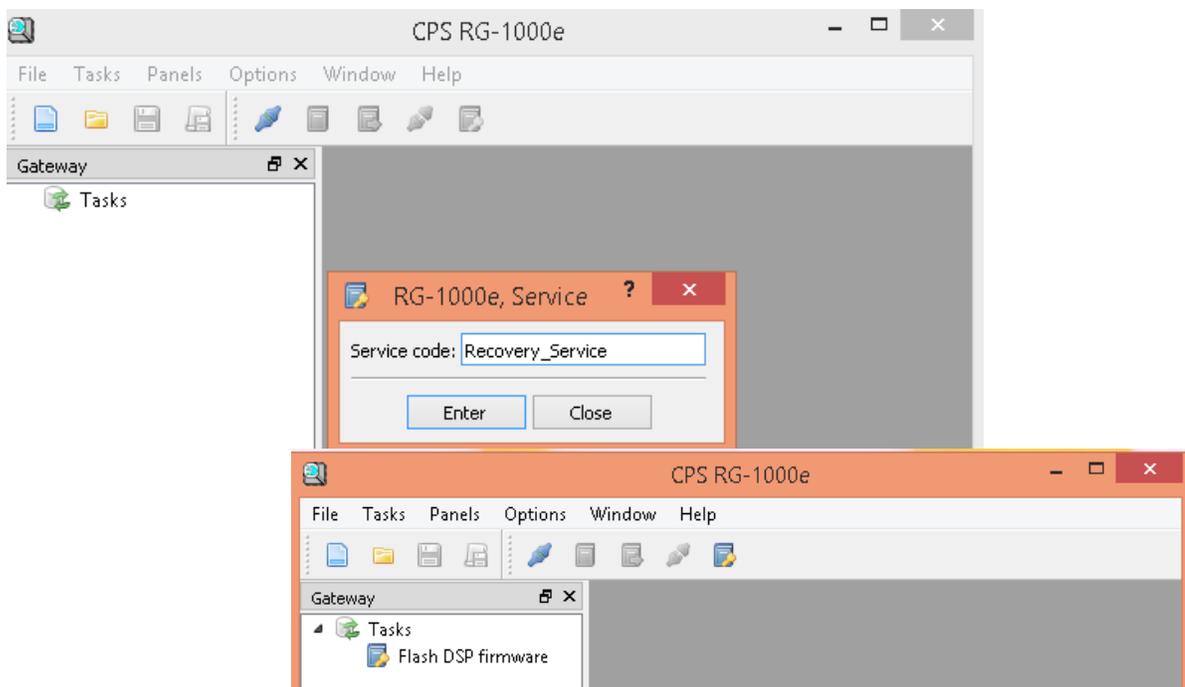
1. Copy the CPS R3.0 files to a folder on your computer and run the program.

When you connect the RG-1000e gateway to the computer for the first time, the operating system detects connection of a new device and requires the driver installation. For information on the USB driver installation procedure, see Appendix 1.

Run CPS R3.0. After the program starts, the home screen appears.



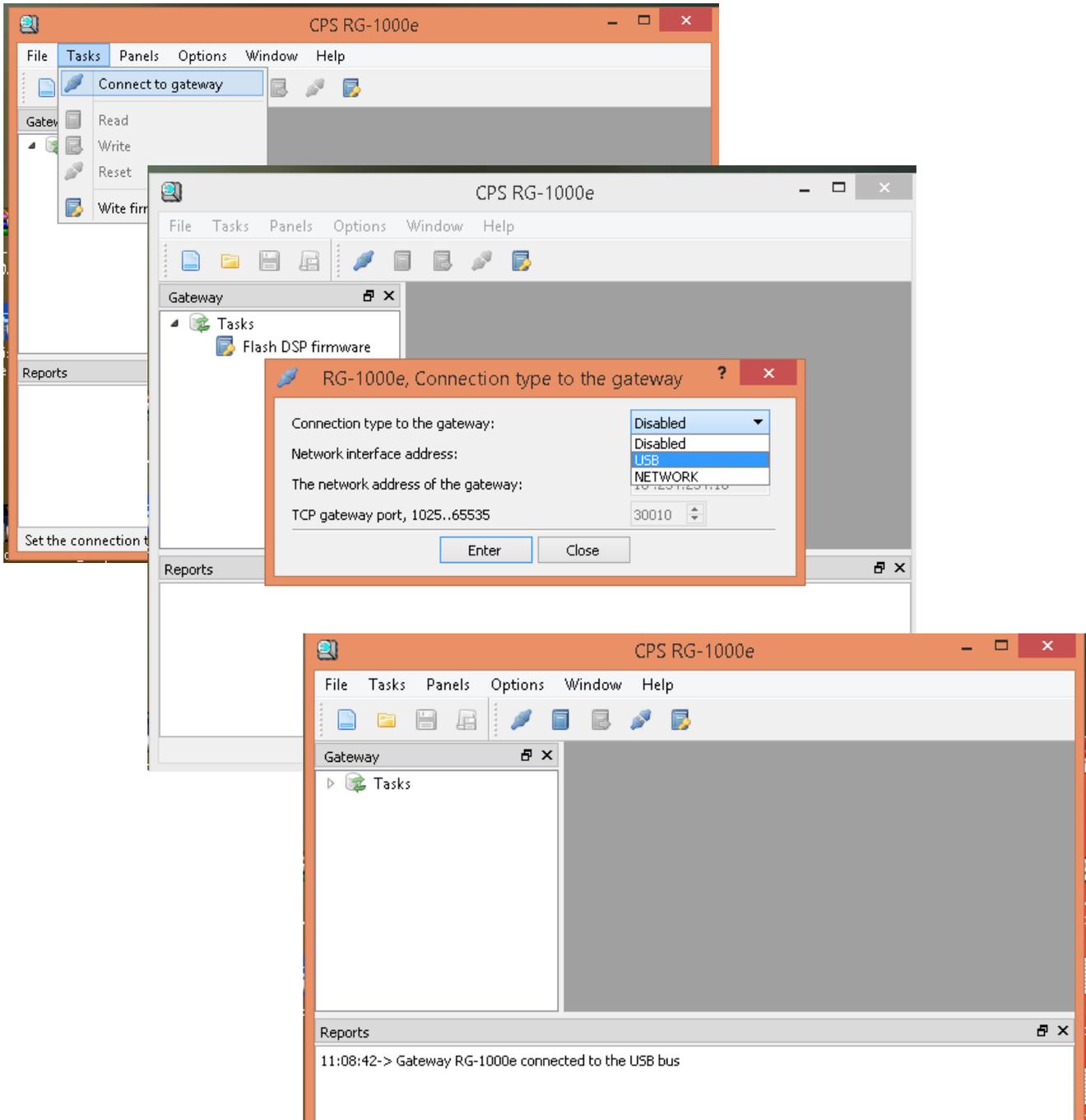
2. Switch the program to the service mode. Click **Options** -> **Service** on the menu bar, and then, in the **Service code** box, type **Recovery_Service**. Click **Enter**.



Ensure the service code validity. In the left part of the window, in the menu tree, expand the **Tasks** node. It must have an only child node - **Flash DSP firmware**.

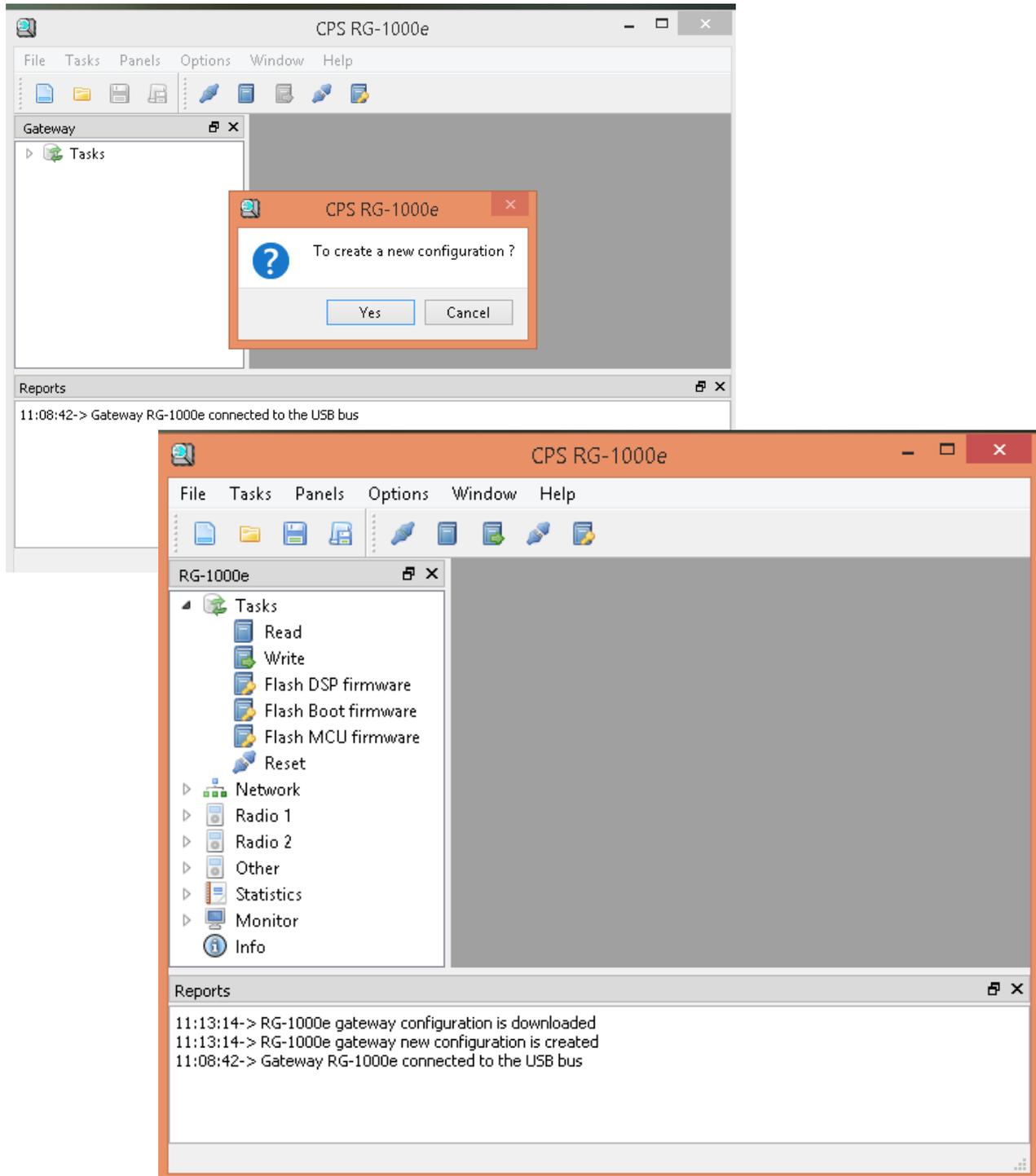
3. Connect the RG-1000e unit to the computer and power up the device.

- Establish a USB connection between CPS RG-1000e and the RG-1000e unit. Click **Tasks** -> **Connect to gateway** on the menu bar, and then, in the window that appears, in the **Connection type** box, select the **USB** option, and then click **Enter**.



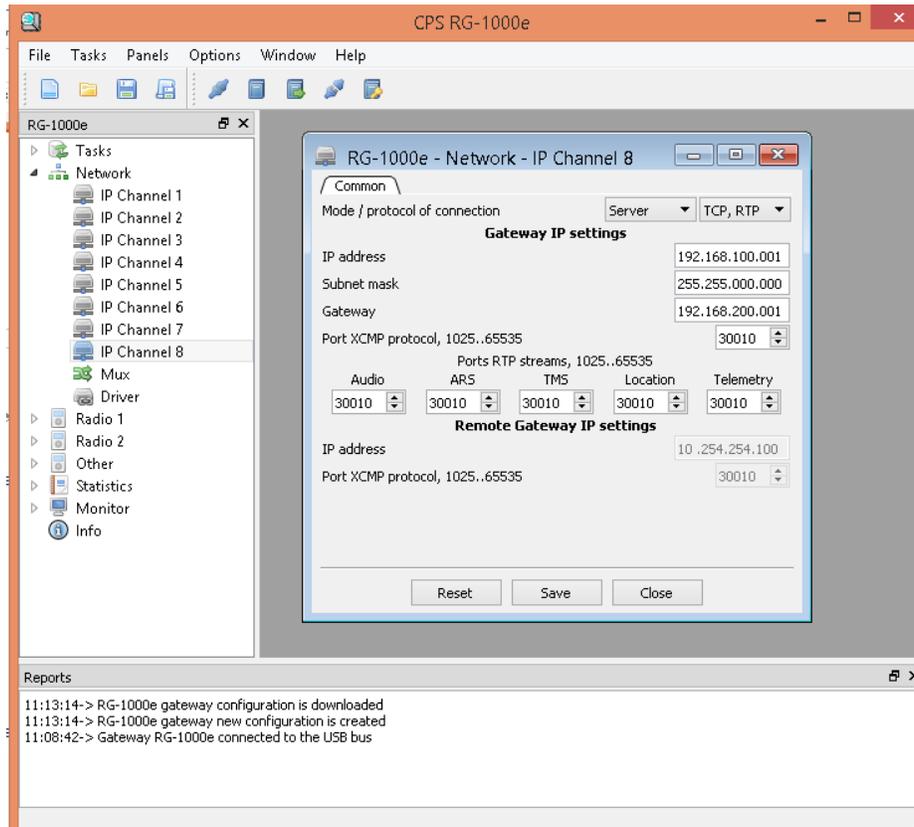
If the RG-1000e connection to the USB bus is established successfully, the corresponding message appears in the **Reports** panel.

5. Create a new (default) RG-1000e configuration. Click **File** -> **Create** on the menu bar, and then, in the window that appears, click **Yes**.



If the configuration is created and downloaded successfully, the corresponding messages appear in the **Reports** panel. In the menu tree in the left part of the window, more nodes appear, and more child nodes appear under the **Tasks** node (**Read**, **Write**, **Flash DSP firmware**, **Flash Boot firmware**, **Flash MCU firmware**, **Reset**).

6. Specify the RG-1000e IP settings that may be considered as default for initial remote IP access to the RG-1000e.



Open the **IP channel 8** window and configure the channel settings.

In the **Mode/Protocol of connection** boxes, select the **Server** and the **TCP, RTP** options.

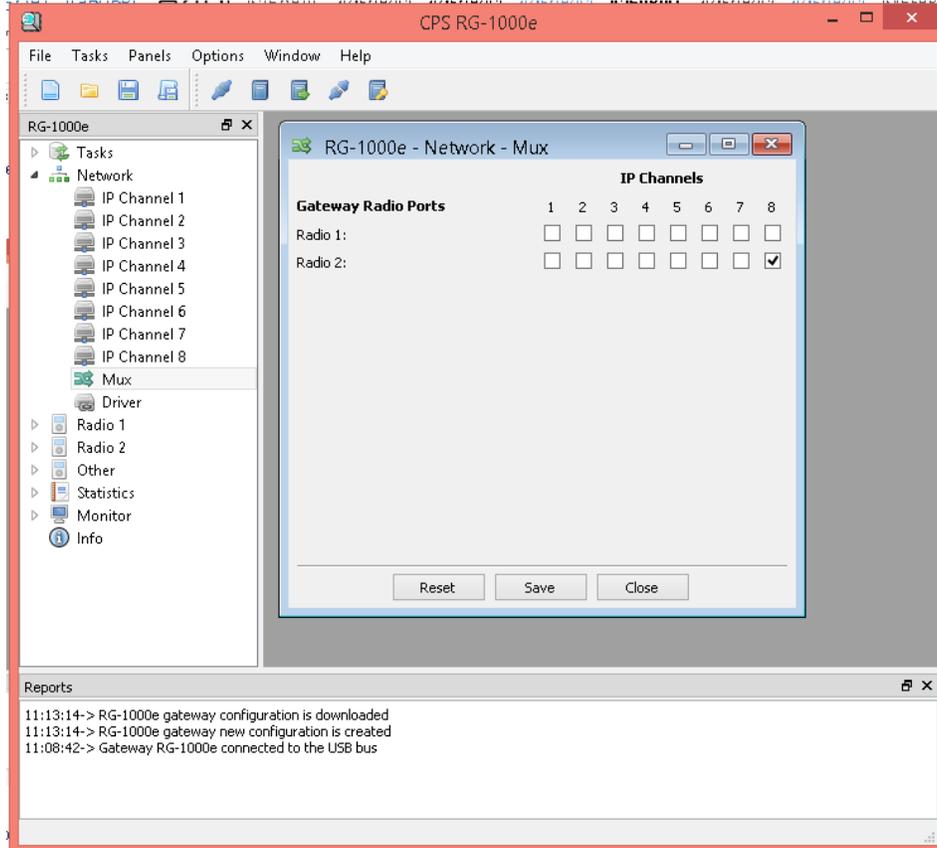
In the **IP address** box, specify **192.168.100.001**

In the **Subnet mask** box, specify **255.255.0.0**

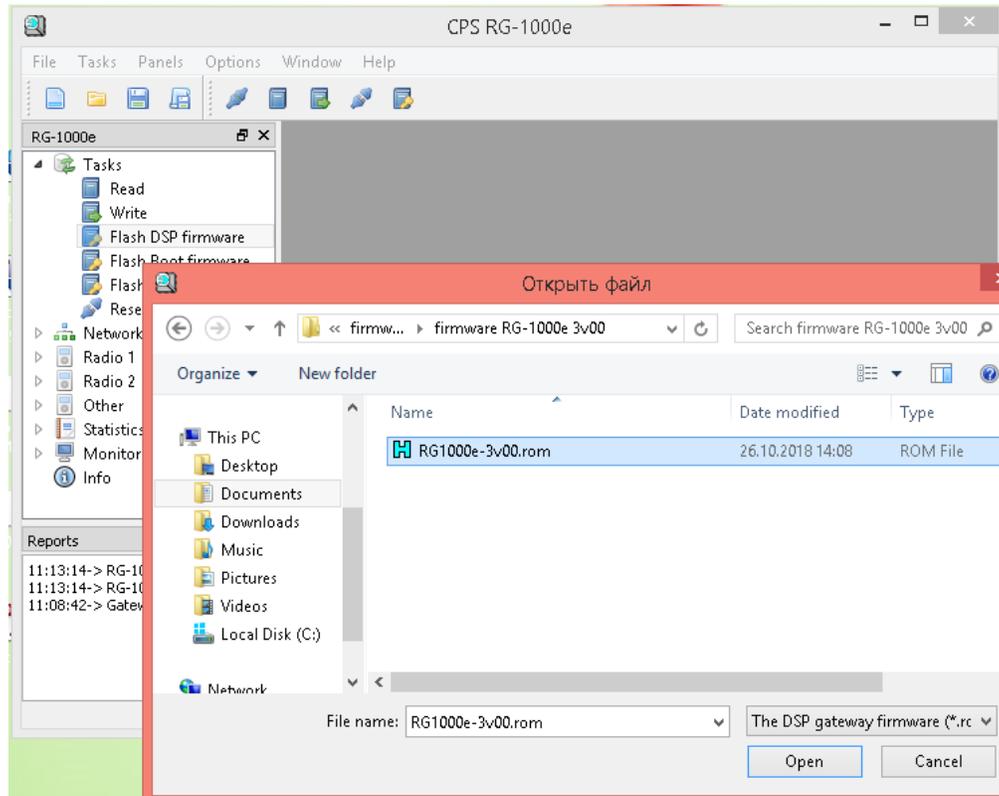
In the **Gateway** box, specify **192.168.200.001** (provided that the RG-1000e and the computer where CPS RG-1000e is installed reside on the same LAN segment).

In the **Port XCMP protocol** box, specify **30010** (note that it is recommended that you use port 30010 for IP remote access only and not use it for regular SmartPTT operations).

Open the **Mux** window. Under the **IP Channels** heading, select the **8** check box in the **Radio 2** row (regardless of how the Radio 2 port is actually used).

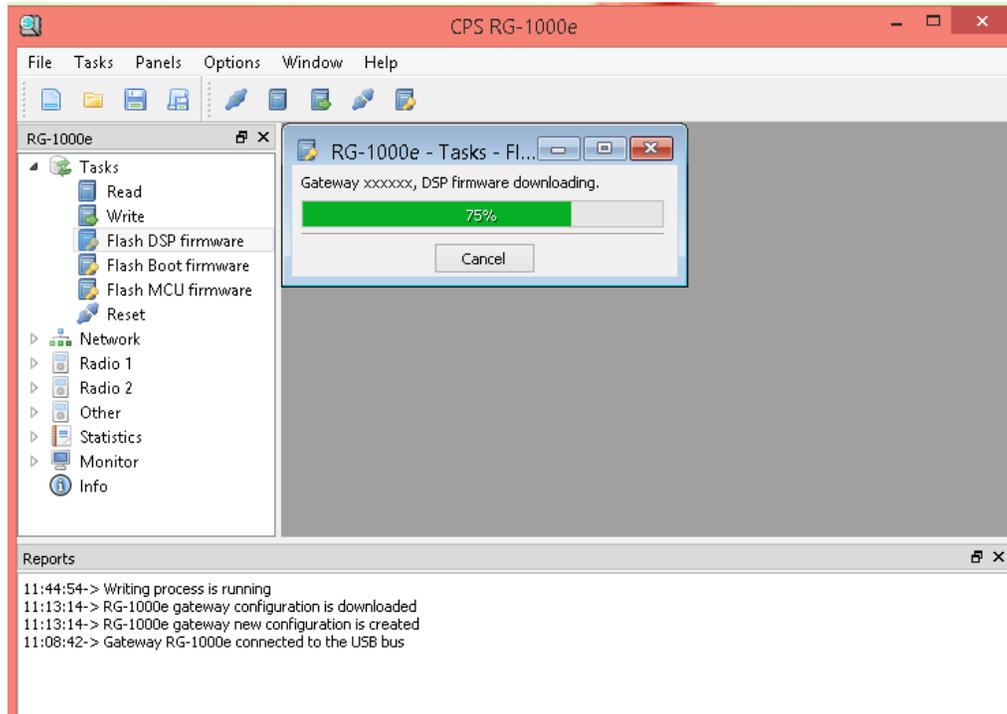


7. Flash the DSP firmware. In the menu tree in the left part of the window, double-click the **Flash DSP firmware** node. In the window that appears, select the **RG-1000e-3v00.rom** DSP firmware file, and then click **Open**.



The flashing process starts automatically.

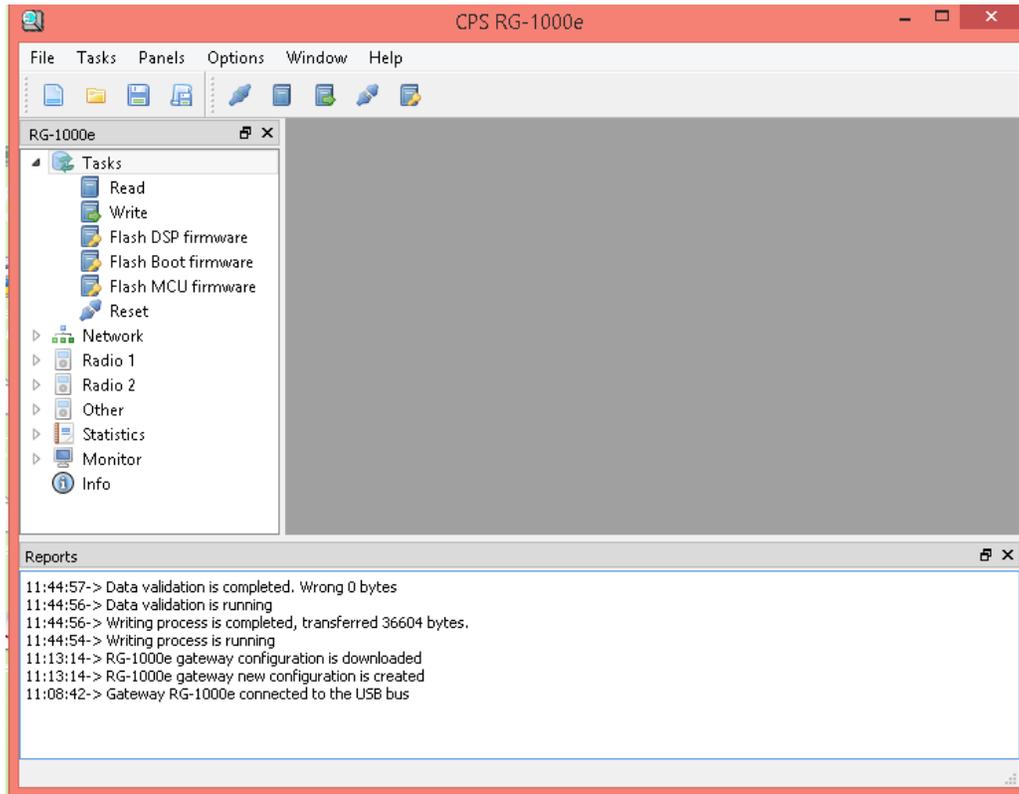
Do not interrupt the process! Do not power off the RG-1000e! Do not disconnect the RG-1000e from the computer!



When the firmware flashing process is complete, the firmware validating process starts automatically.

Do not power off the RG-1000e! Do not disconnect the RG-1000e from the computer!

If the flashing process is completed successfully, in the **Reports** panel, the *“Data validation is completed. Wrong 0 bytes”* message appears.

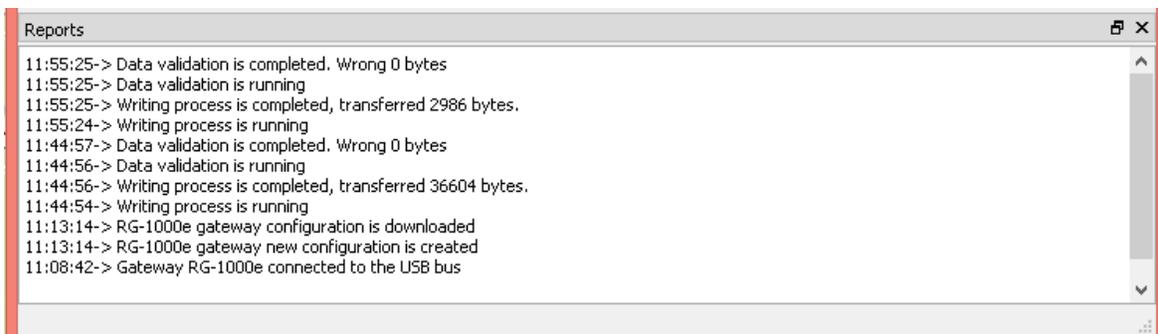


If the message in the **Reports** panel indicates an error, power off the RG-1000e, disconnect it from the computer, close CPS RG-1000e, and start the firmware flashing from step 1. If after the fifth attempt the flashing process still fails, contact SmartPTT Tech Support about the problem.

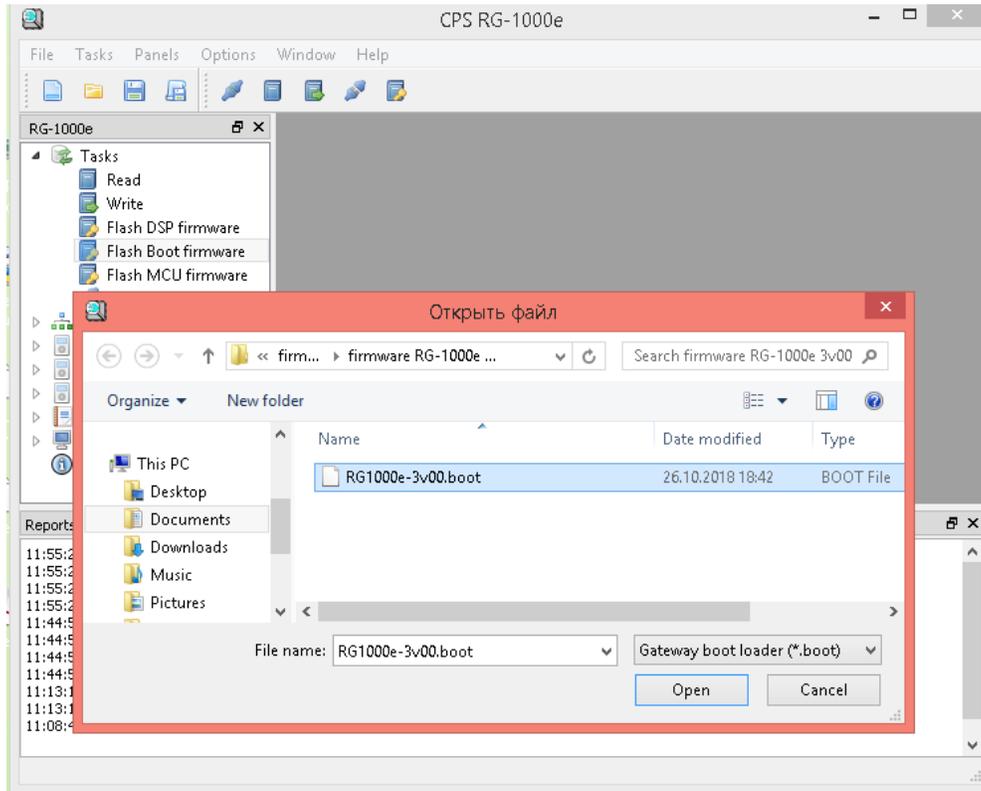
8. Write the new configuration to the RG-1000e. In the menu tree in the left part of the window, click **Tasks** -> **Write** to start writing the new RG-1000e configuration.

Do not disconnect the RG-1000e from the computer! Do not power off the RG-1000e!

If the new RG-1000e configuration is written successfully, in the **Reports** panel, the *“Data validation is performed. Wrong 0 bytes”* message appears.

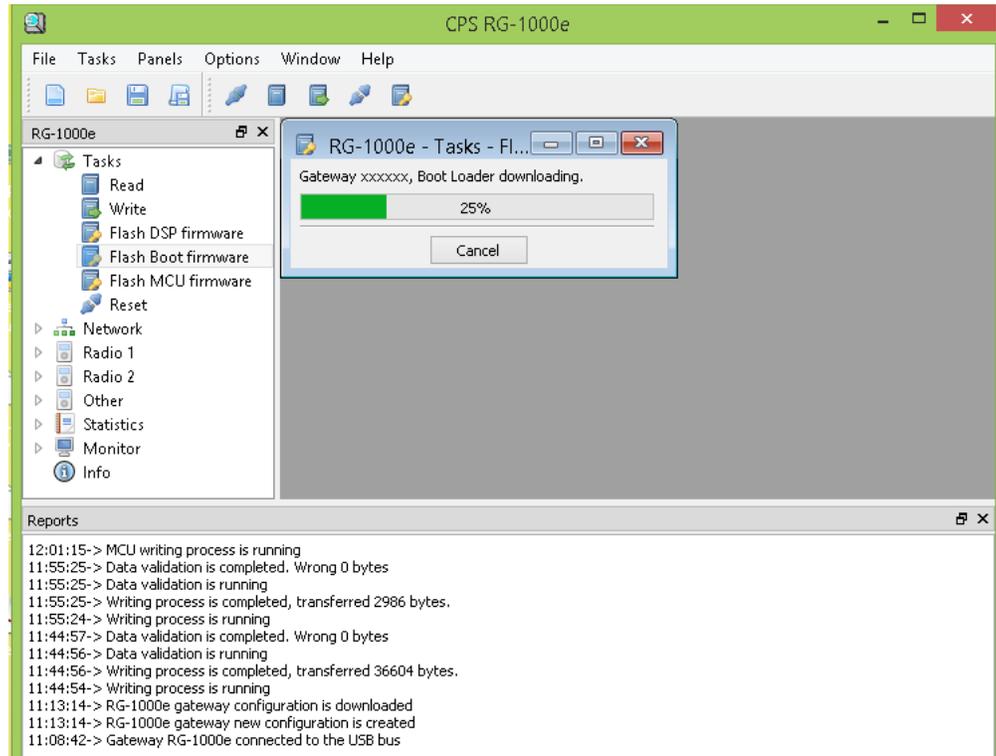


9. Flash the Boot firmware. In the menu tree in the left part of the window, double-click the **Flash Boot firmware** node. In the window that appears, select the **RG-1000e-3v00.boot** Boot firmware file, and then click **Open**.



The flashing process starts automatically.

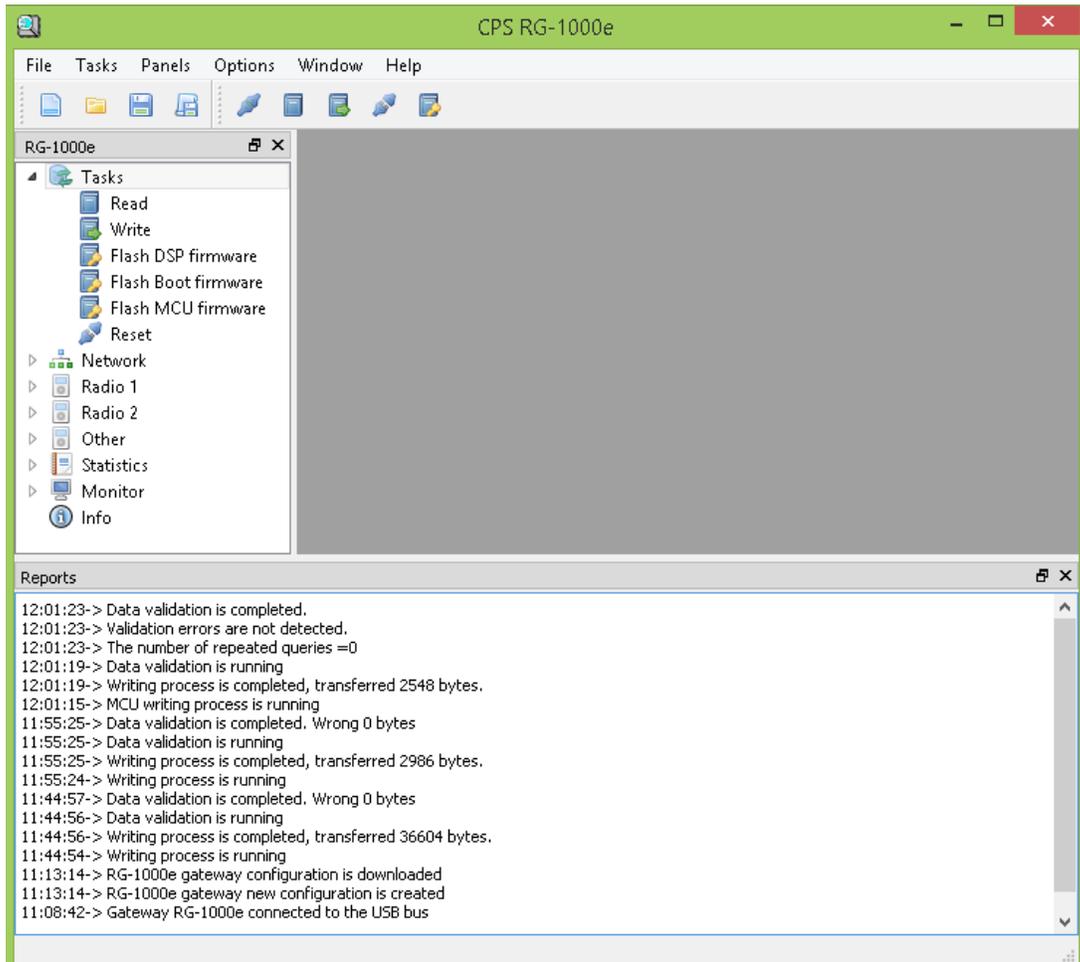
Do not interrupt the process! Do not power off the RG-1000e! Do not disconnect the RG-1000e from the computer!



When the firmware flashing process is complete, the firmware validating process starts automatically.

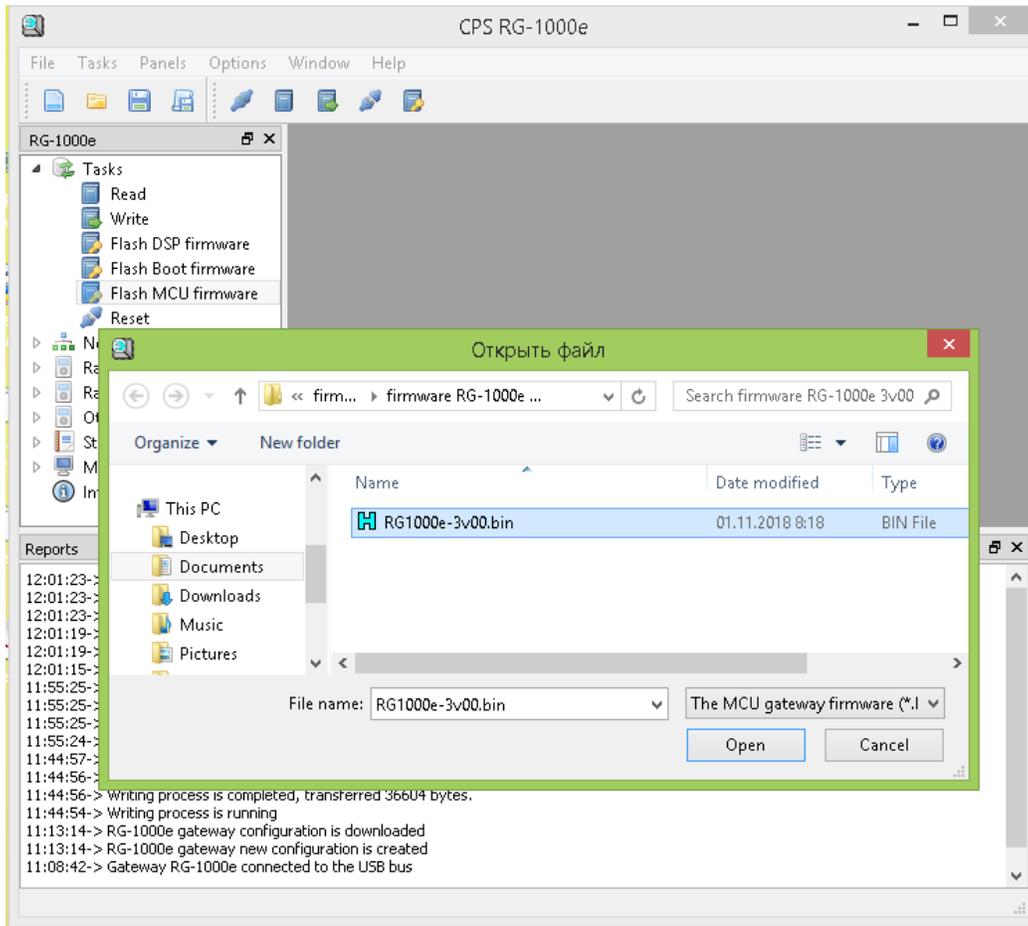
Do not power off the RG-1000e! Do not disconnect the RG-1000e from the computer!

If the flashing process is completed successfully, in the **Reports** panel, the *“Validation errors are not detected. Data validation is completed”* message appears.



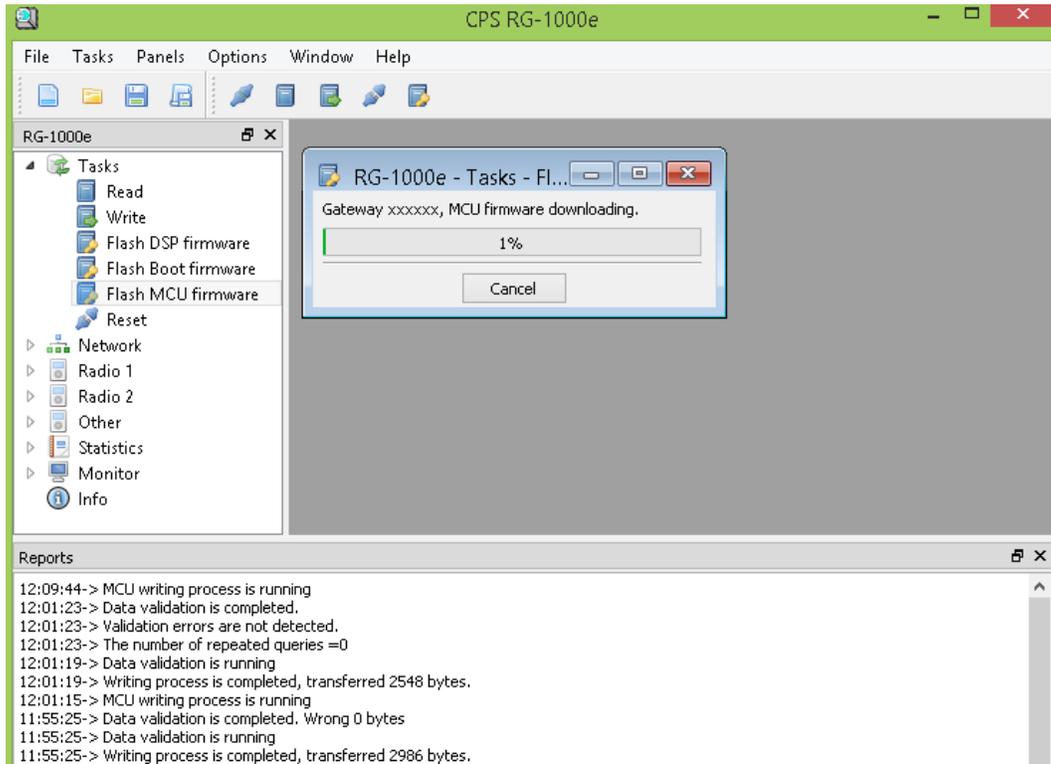
If the message in the **Reports** panel indicates an error, power off the RG-1000e, disconnect it from the computer, close CPS RG-1000e, and start the firmware flashing from step 1. If after the fifth attempt the flashing process still fails, contact SmartPTT Tech Support about the problem.

10. Flash the MCU firmware. In the menu tree in the left part of the window, double-click the **Flash MCU firmware** node. In the window that appears, select the **RG-1000e-3v00.bin** MCU firmware file, and then click **Open**.



The flashing process starts automatically.

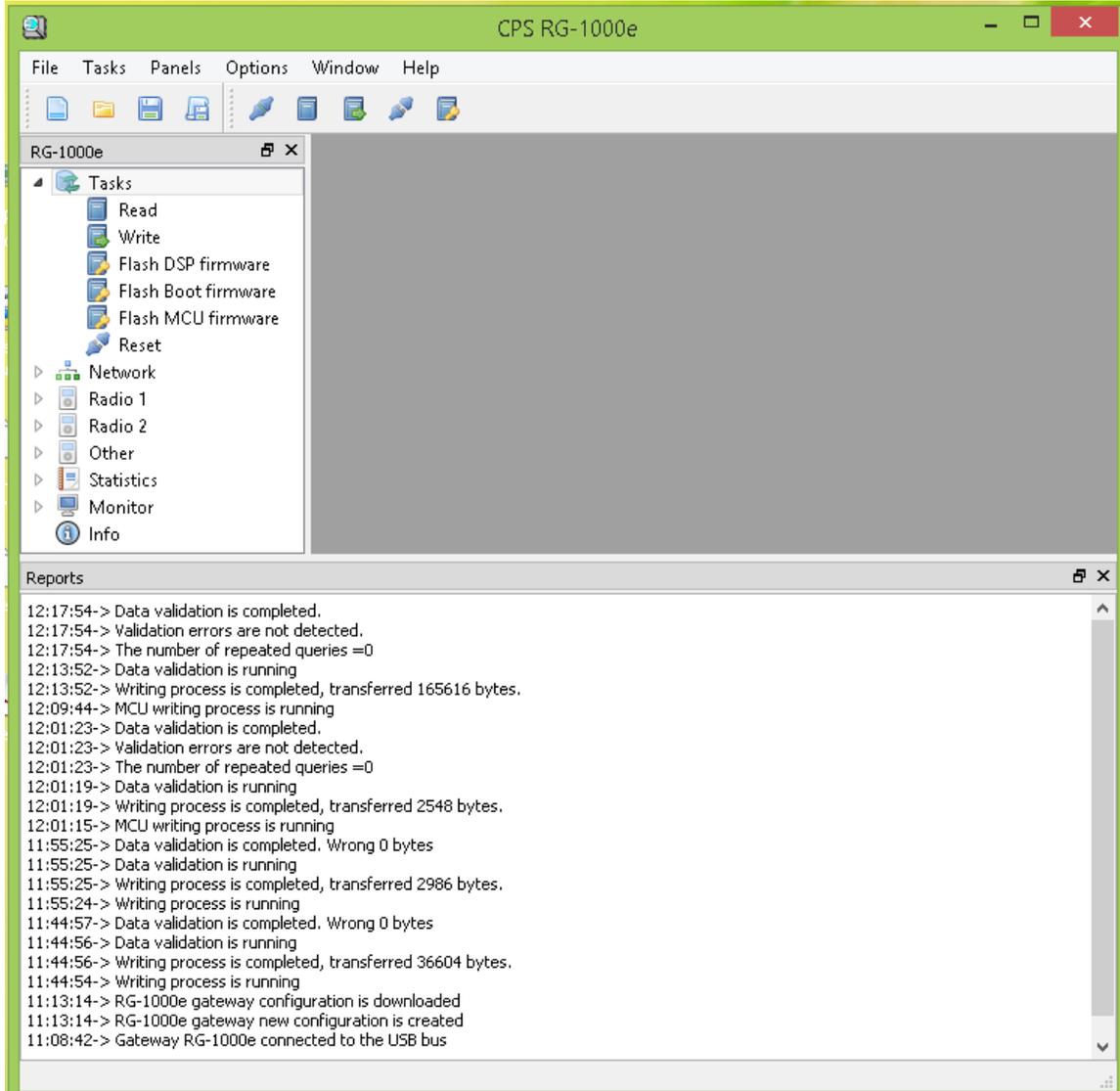
Do not interrupt the process! Do not power off the RG-1000e! Do not disconnect the RG-1000e from the computer!



When the firmware flashing process is complete, the firmware validating process starts automatically.

Do not power off the RG-1000e! Do not disconnect the RG-1000e from the computer!

If the flashing process is completed successfully, in the **Reports** panel, the “*Validation errors are not detected. Data validation is completed*” message appears.



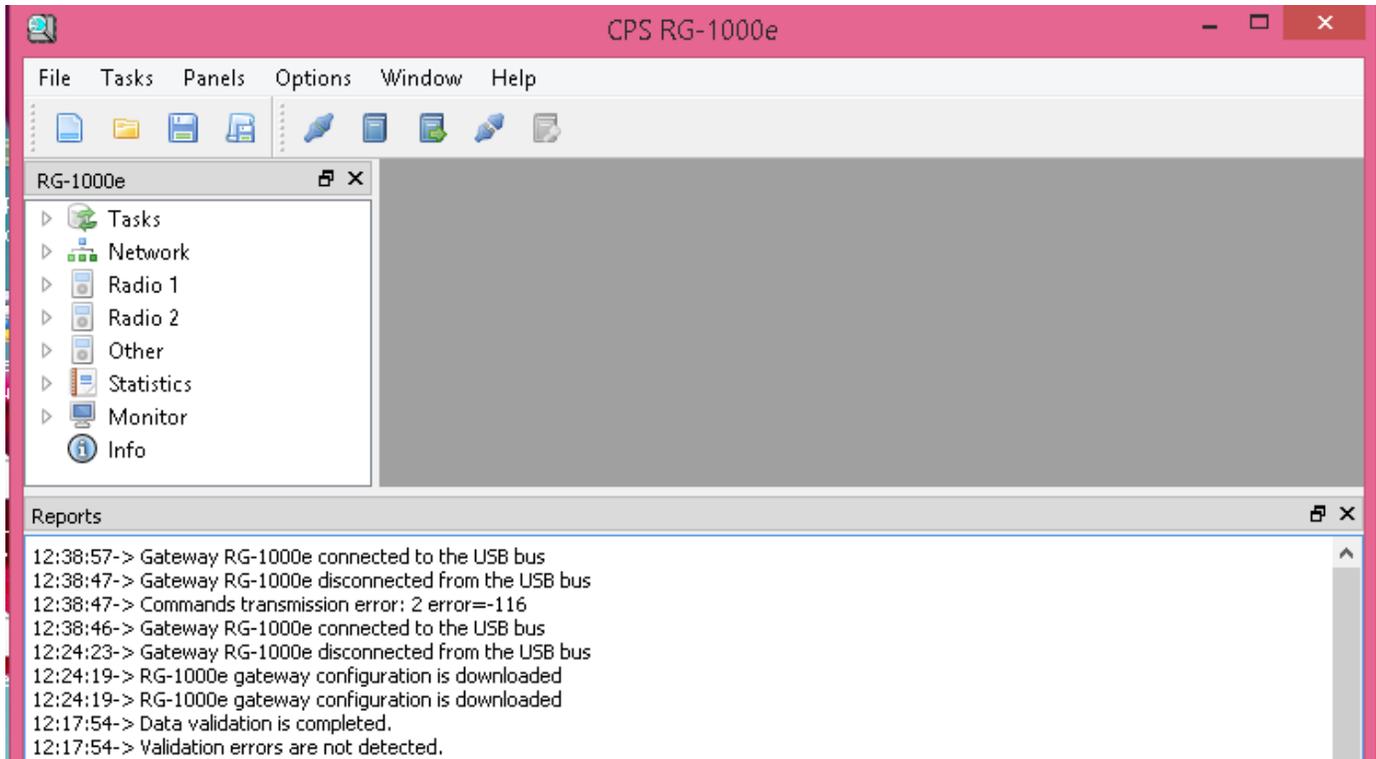
If the message in the **Reports** panel indicates an error, power off the RG-1000e, disconnect it from the computer, close CPS RG-1000e, and start the firmware flashing from step 1. If after the fifth attempt the flashing process still fails, contact SmartPTT Tech Support about the problem.

11. Power-off the RG-1000e. Do not disconnect the RG-1000e from the computer USB port.
12. Switch the program to the customer mode by clicking **Options** -> **Custom** on the menu bar.
13. Power up the RG-1000e. **Wait for 15-20 seconds** until the RG-1000e starts after flashing with the new firmware.

If the RG-1000e has started successfully, its front LEDs start blinking in the following way:

- 1) All LEDs are down.
- 2) All LEDs are blinking fast.
- 3) The **Radio 1 / Radio 2** LEDs are permanently on, the **Link** LED is blinking slowly (with approximate frequency of 1 Hz).

14. Ensure the RG-1000e connection to the USB bus is re-established successfully. The corresponding message must appear in the **Reports** panel.



If the connection has not been re-established, you can do it manually. Click **Tasks** -> **Connect to gateway** on the menu bar. In the window that appears, in the **Connection type to the gateway** box, select the **USB** option, and then click **Enter**.

15. Read the RG-1000e. Click **Tasks** -> **Read** on the menu bar. Alternatively, you can expand the **Tasks** node in the tree menu in the left part of the window, and then select **Read**.

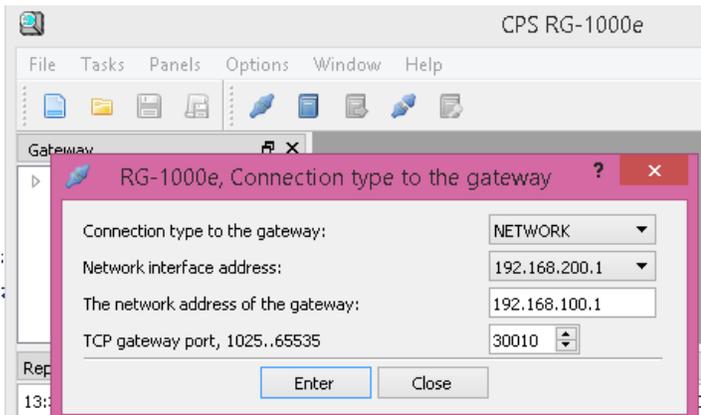
After that, in the tree menu in the left part of the window, click the **Info** node. In the window that appears, ensure the MCU FW and the DSP FW version is 3.0.0.



16. Disconnect the RG-1000e from the USB bus.

17. Connect the Ethernet ports of the RG-1000e and the computer on which CPS RG-1000e is installed to the same LAN segment (for example, to the same L2 switch).

Establish an Ethernet connection between CPS RG-1000e and the RG-1000e. Click **Tasks** -> **Connect to gateway** on the menu bar.



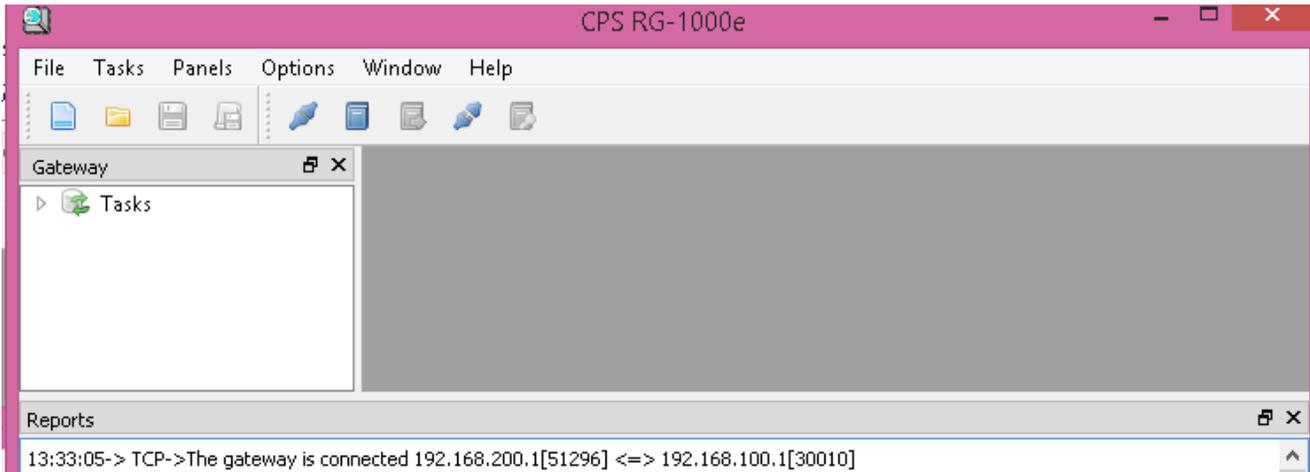
In the window that appears, in the **Connection type** box, select the **Network** option.

In the **Network interface address**, specify the IP address of the computer.

In the **Network address of the gateway** box, specify the RG-1000e IP address.

In the **TCP gateway port**, specify the gateway TCP (XCMP) port.

If the connection is established successfully, in the Reports panel, the corresponding message appears (for example, "TCP->The gateway is connected 192.168.200.1[51296] <=> 192.168.100.1[30010]").



18. Read the RG-1000e. Click **Tasks** -> **Read** on the menu bar. Alternatively, you can expand the **Tasks** node in the tree menu in the left part of the window, and then select **Read**.

After that, in the tree menu in the left part of the window, click the **Info** node. In the window that appears, ensure the MCU FW and the DSP FW version is 3.0.0.

