Troubleshooting CCGX to VRM connectivity

This document outlines the procedure to troubleshoot connectivity between a Color Control GX and the VRM Portal, https://vrm.victronenergy.com/.

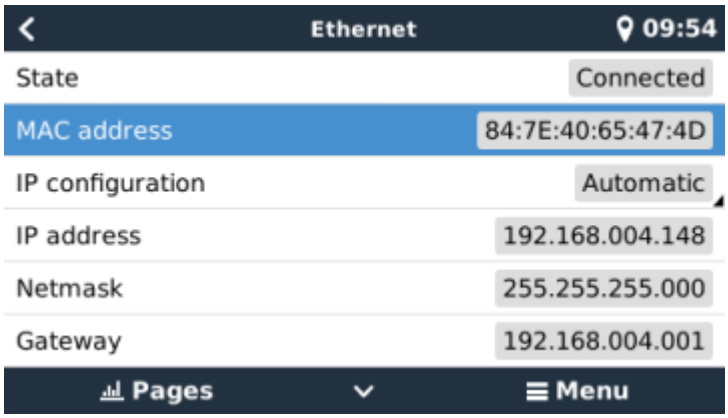
Please also read the manual of the Color Control GX on how to setup an internet connection and the logging to the VRM Portal: https://www.victronenergy.com/live/ccgx:start

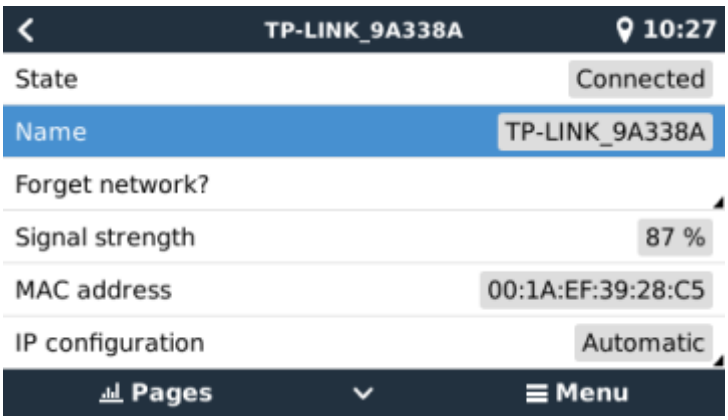
Not using a Color Control GX but a Victron Global Remote or Victron Ethernet Remote? See this document instead:
https://www.victronenergy.com/upload/documents/Manual-Troubleshooting-VGR-connectivity-EN.pdf.

Trouble shooting Remote Console on VRM? See last section in this document.

Step 1 - Verify that the Color Control has received an IP address

In the menu Settings → Ethernet or Settings → Wi-Fi, State should be 'Connected' and there should be an IP address that does not start with 169:





When using Ethernet and State shows 'Unplugged', verify that the Ethernet network cable is not faulty: try another one. The two lights at the back of the CCGX, where the Ethernet RJ45 cable plugs in, should be lit or blinking. Two dead lights indicate a connection problem.

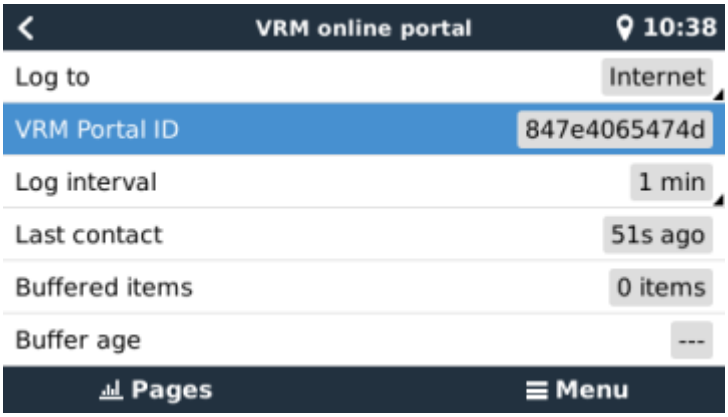
When using Wi-Fi and the menu shows 'No Wi-Fi adapter connected' check the USB connection to the Wi-Fi dongle. Try to remove the dongle and insert it again.

When using Wi-Fi and the State shows 'Failure', it might be that the Wi-Fi password is incorrect. Press 'Forget network' and try to connect again with the correct password.

In case there is an IP address that starts with 169, check whether your network had a DHCP server running. 99% of all networks have a DHCP server running and it is enabled by default on all well-known ADSL, cable and 3G routers. If there is no DHCP server running, then the ip address should be configured manually.

Step 2 - Check connectivity between CCGX and VRM Portal

Navigate to Settings → VRM online portal.



1) Check that 'Log To' is set to 'Internet'. If this is set to 'microSD or USB storage', then the CCGX will not log directly to the VRM portal using an internet connection, but will log to inserted microSD or USB storage. The database files on this storage should be uploaded manually on the VRM portal.

2) Check 'Last contact'. If this shows dashes or a time that is much larger than 'Log interval', make sure that your network has access to the internet. Plugin a laptop and navigate to https://vrm.victronenergy.com/ for example.

If 'Buffered items' is larger than 0, it means that the CCGX cannot connect to the VRM Portal. All data is sent using the First in First out principle: the VRM Portal will only show the most up to date information after all old data has been sent.

In case all above checks have been done, internet connection is sure to work, and still 'Last contact' keeps showing dashes, try re-installing the firmware with a recovery image.

And if that also doesn't help, you could dig deeper, see the two advanced options below. But that requires knowledge of Linux, working on the console, and ssh. Note that in 99% of all cases the root cause lies in the internet connection.

Debugging the connection (advanced)

Data is sent to the VRM Portal using HTTP POST requests to http://ccgxlogging.victronenergy.com/log/log.php. In case all above checks have been done, internet connection is sure to work, and still 'Last contact' keeps showing dashes: try logging into the CCGX with ssh. And do:

```
wget --quiet -O- http://ccgxlogging.victronenergy.com/log/log.php
```

The output should be a line containing the text 'vrm: OK'. If it does not, or wget hangs, check your network. Apparently communication is blocked.

Using HTTPS instead of HTTP (advanced)

If your provider is blocking HTTP requests (e.g. the wget request above times out or fails), you can change the CCGX to log to the VRM portal via HTTPS:

```
root@ccgx:~# dbus -y com.victronenergy.settings /Settings/Vrmlogger/Url
SetValue https://ccgxlogging.victronenergy.com/log/log.php
```

Verify that the setting has been changed:

```
root@ccgx:~# dbus -y com.victronenergy.settings /Settings/Vrmlogger/Url
GetValue
'https://ccgxlogging.victronenergy.com/log/log.php'
```

It is then recommended to reboot the CCGX to apply the changes. (Alternatively, you could manually restart the vrmlogging services, but it's easier just to restart)

After you reboot, you should see the buffer size decrease:

```
# before rebooting
root@ccgx:~# dbus -y com.victronenergy.logger /Buffer/Count GetValue
375
# after rebooting
root@ccgx:~# dbus -y com.victronenergy.logger /Buffer/Count GetValue
362
```

Step 3 - Add the site to your VRM account

Adding a CCGX to your account is only possible after the CCGX has made its first initial contact to the VRM Portal.

As long as 'Last Contact' shows 'Never', go back to step 1 and 2.

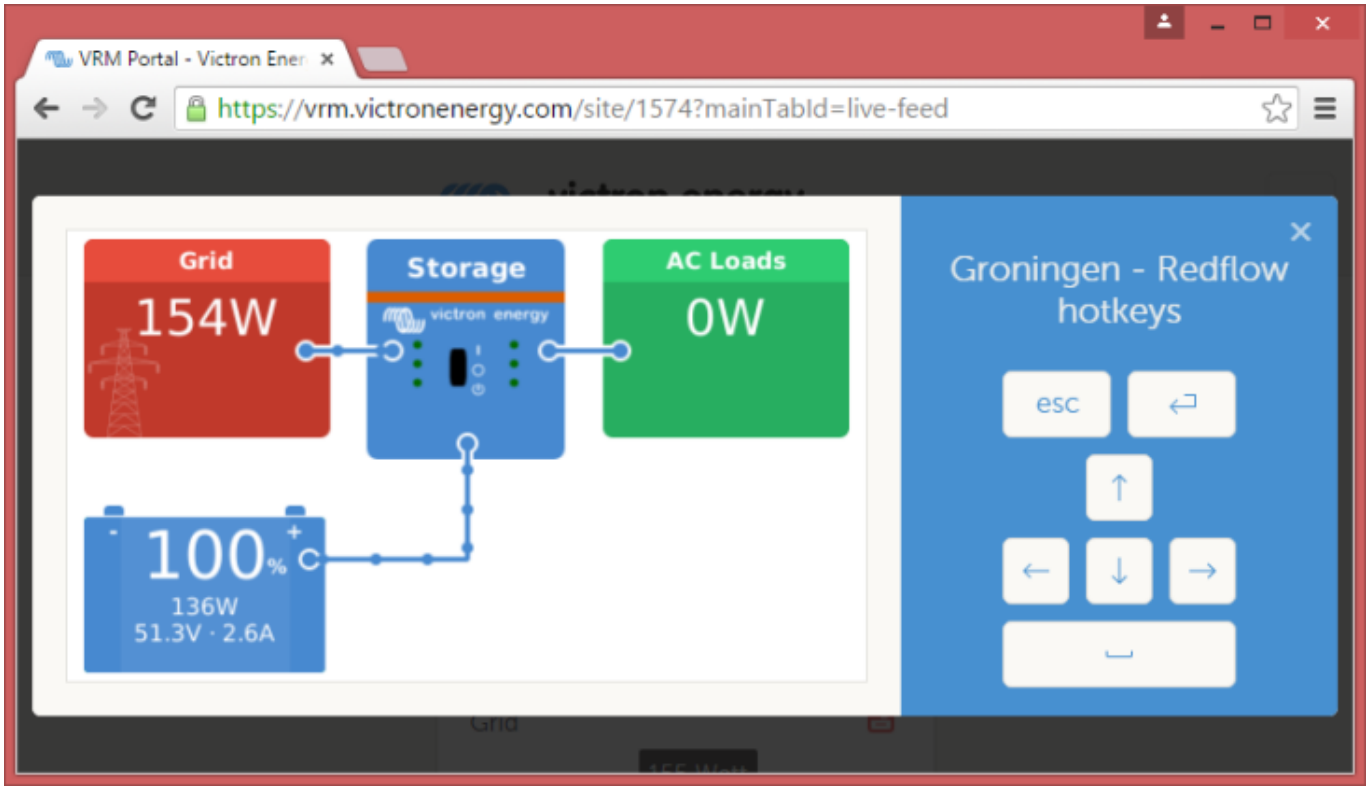
Once the internet communication is up, and 'Last contact' shows several seconds or minutes ago, continue with ADD Site on the VRM Portal. See Getting started with VRM for further instructions.

General notes

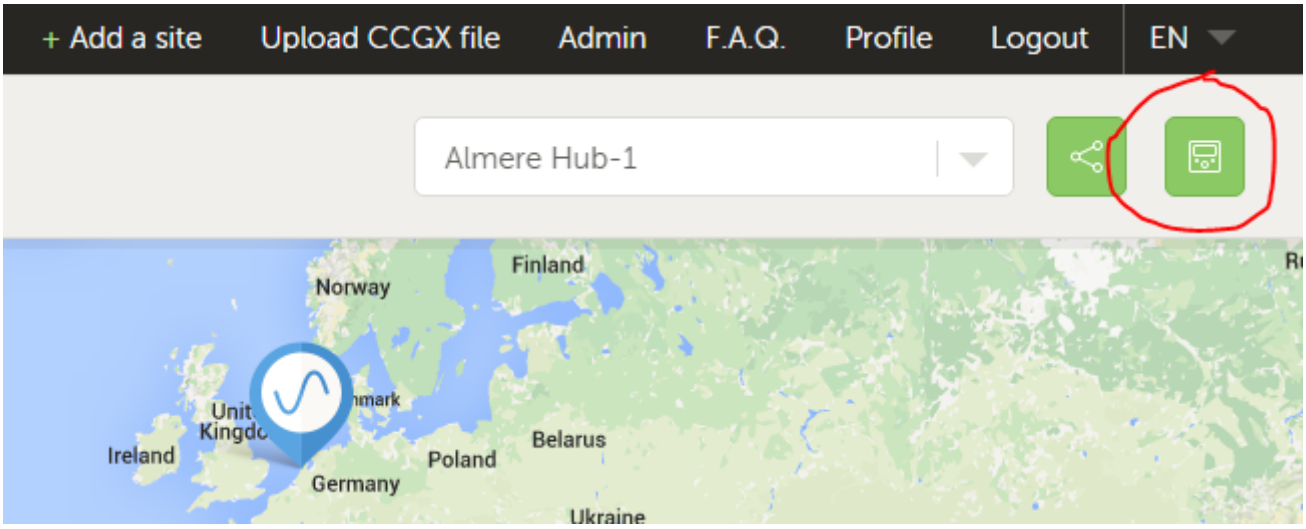
- On initial contact with the VRM site it may take a few minutes for data to appear, as a newly-connected or re-connected CCGX's presence requires that data to be filtered through our back-end systems, before the information becomes visible on the VRM site.
- If the data backlog size continues to increase after the chosen logging interval time is met, then you have internet connectivity issues. You could try to increase the logging interval to a longer time, in order to reduce necessary bandwidth. Bandwidth requirement is quite low, so this only happens when using a cellular data connection, try moving the antenna or obtain a higher gain antenna.

Trouble shooting Remote Console on VRM

The Remote Console on VRM feature allows full remote control of a CCGX, over the internet:



After enabling the feature in the CCGX setting menu, and then restarting the CCGX, a green button will show on the VRM website. Click it to open the Remote Console.



Steps to take when it does not work:

1. First make sure that basic communication with VRM works, see above steps.
2. After enabling the feature, make sure to restart the CCGX.
3. Make sure to update to CCGX v1.32 or higher: instead of only connecting on port 80, it also tries 22 and 443 which has proven to solve connection issues for several users.
4. After the restart, check the Remote Console on VRM status shows online or a port number. In case it says offline, or port number 0, the CCGX was unable to connect to the Remote Console server. This is normally caused by a (company) firewall, blocking the connection. The solution is then to configure an exception rules in the firewall.
5. Verify that your local web browser can access the websocket port (8080 on vncrelay.victronenergy.com). If you click that link and get 'Error response, method not allowed', it means the connection between your PC and the VNC relay is working. If you get a timeout or another (browser) error, there may be a firewall blocking the connection.

Remote Console on VRM uses the same reverse SSH tunnel as is used for Remote Support: outbound connection to supporthost.victronenergy.com on port 22, 80 or 443. It is not necessary to set up port forwarding in routers to use Remote Console on VRM. It is however necessary for the firewall/router to which the CCGX is connected, to allow outbound connections to supporthost.victronenergy.com on at least one of these ports: 22, 80 or 443. Most routers will allow this by default.

Enabling Remote Console from the commandline

If you have a CCGX already installed, but Remote Support is not enabled, follow these steps to enable it remotely:

1. SSH into CCGX (make a root password by following instructions here)
2. dbus -y com.victronenergy.settings /Settings/System/RemoteSupport SetValue 1
3. dbus -y com.victronenergy.settings /Settings/System/VncInternet SetValue 1
4. dbus -y com.victronenergy.settings /Settings/System/VncLocal SetValue 1
5. touch /data/conf/vncpassword.txt
6. Reboot CCGX via SSH (reboot)
7. Now you should be able to access Remote Console feature from VRM
8. If you want to set a password, go to Settings → Remote Console → Enable password check

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Last update: **2016-09-19 13:34**