Global Consciousness GCP 2.0 NextGen Random Number Generator Standalone Device User Manual

NextGen RNG
User Manual
Version 1.1

Contents

Overview

The GCP 2.0 NextGen Random Number Generator (RNG) is a standalone device for the purpose of determining if human consciousness and intention interacts with the physical world by detecting increased coherence in the GCP 2.0 network. The RNG requires only power and an internet connection to operate successfully after an initial one time activation. While these devices are designed to recover from power and internet outages in rare instances they may need your attention, typically only to be restarted.

The following pages provided information and specifications about the RNG as well as troubleshooting details.

To learn more about how the RNG technology and how it creates random numbers please visit: **https://gcp2.net/rng-network/rng-technology**

System Requirements

Network

GCP 2.0 relies heavily on NTP (Network Time Protocol) which requires a stable broadband internet connection.
3rd Party Server Connections

- AWS (Amazon Web Services)
- Google NTP Servers (time.google.com)

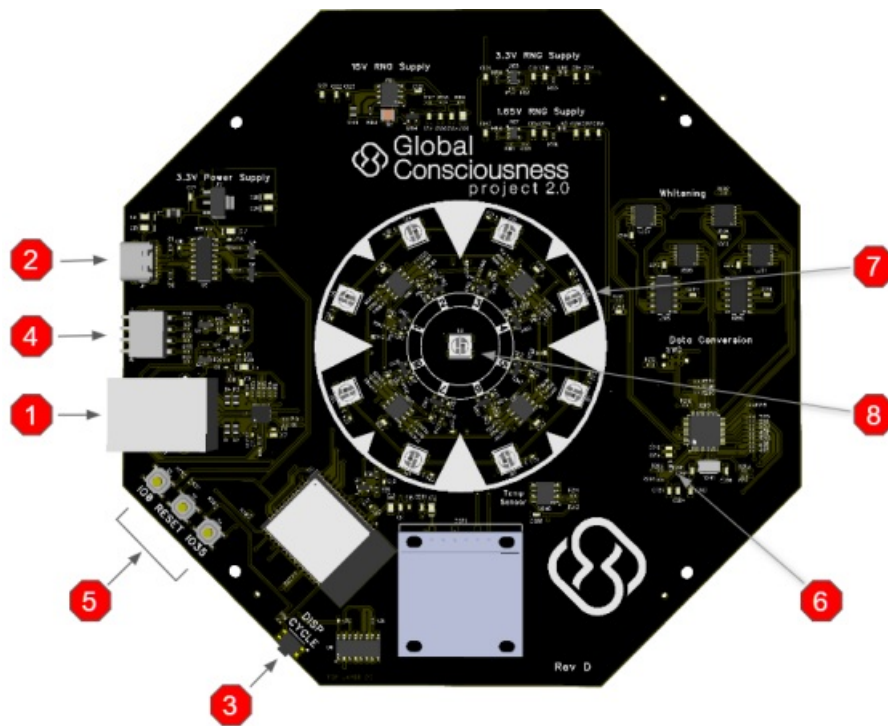**Network Ports**

- Port 8883 – MQTT
- Port 123 – NTP

Power Supply

The GCP 2.0 hardware should only be used with the provided "Cana Kit 3.5A Raspberry Pi 4 Power Supply". Under powering the device could result in unpredictable behavior.
Specifications

- 5 VDC
- 3.5 Amps
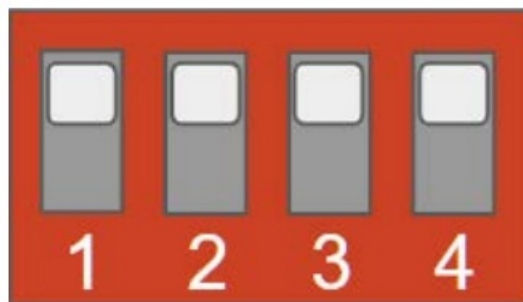
Buttons, Indicators and Ports

Ports

1. Ethernet
   • Connects to a Modem, Router, or Switch
2. Power (USB-C)
   • Connects to Cana Kit 3.5A Raspberry Pi 4 Power Supply Only

   Buttons

3. DISP CYCLE
   • Toggles between a Status screen and Hardware Information screen
4. Piano Switches
   • Turns Off The RGB LEDs and OLED Display. PPS LED will continue to blink.

DIP Switch Functions				
Function	Switch Positions			
	1	2	3	4
RGB LEDs and Display (ON)	X	UP	UP	UP
RGB LEDs and Display (OFF)	X	DOWN	DOWN	DOWN

X = Not Used, Doesn't Matter

Note: If ANY combination of switches 2, 3, or 4 are in the down position the RGB LEDs and OLED Display will

be turned off.

5. **IO0, RESET, and IO35**

• IO0 and reset are for factory programming.

• IO35 is used to revert the firmware to a factory default and would only be used in the event that an over the air (OTA) update failed in a way that wasn't recoverable OTA. See IO35 Factory Reset Button topic under the Firmware Updates section for details. Do not press this button unless requested by a support representative. Indicators

6. **PPS Indicator LED**

This LED blinks every 1010 ms at bootup. Once enough NTP data has been collected the LED is synchronized with a Pulse Per Second (PPS) signal generated by the ESP32processor.

7. **The eight LED**

positioned in a circle around the center of the RNG are used to indicate various states of the device and network status. On initial startup before device registration the LEDs will rotate counterclockwise blending from yellow to green. After initial registration the 8 ring LEDs will sparkle randomly fading in and out through various shades of blue and purple. This is the normal or default state of the ring LEDs.

During times when significant shifts in the GCP 2.0 network are detected the ring LEDs will reflect significant changes with different LED colors. There are 4 levels of significant network activity. In order of increasing significance they are:

I. Ring LEDs rotate clockwise with shades from dark to light blue.

II. Ring LEDs rotate clockwise a little faster in shades of light purple, pink and orange.

III. Ring LEDs rotate clockwise even faster in shades of light orange and yellow.

IV. Ring LEDs rotate clockwise in shades of yellow and gold.

The ring LED can also indicate error states, blue and green LEDs rotating counterclockwise signal that the network cable may be unplugged. If all 8 LEDs pulse red an error has occurred, see the troubleshooting section for more details.

8. RGB Center LED

The center LED is a constant light rose color and typically does not change, although this is subject to change. The color of this LED is determined by the network administrator.

Display Screens

Power-up

- The GCP2 logo is scrolled during power up. This is for presentation purposes only.

Registration Screen

- Notice to device hosts registering their device at gcp2.net/reg. The ID is the MAC address of the device.
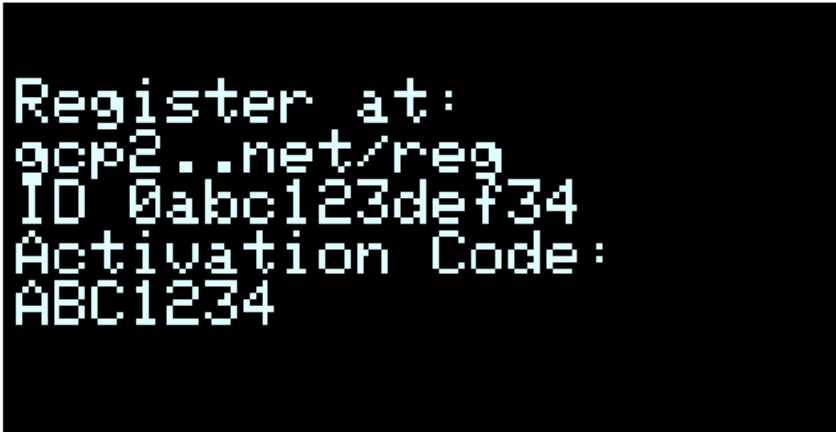

Activation Code

- After the host visits gcp2.net/ reg and enters their ID (aka MAC Address) a code will be sent to the device. Enter this code into the website to activate the device
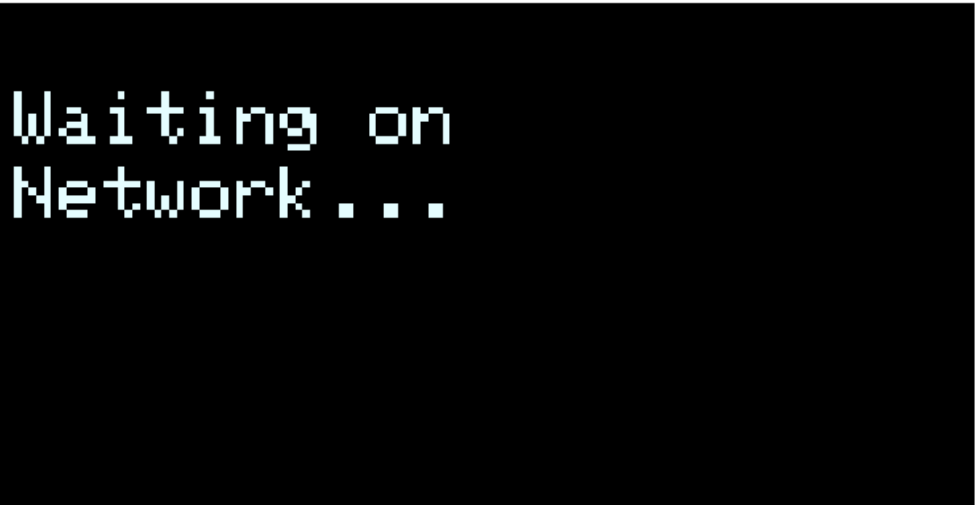

Waiting on Network

- Indicates that an ethernet connection has not yet been established.

- **Note:**
- This screen has priority over the registration screen meaning the Registration Screen will not be displayed if a Network is not detected.
- A Network connection does not necessarily mean there is an Internet connection. For example a device could

be plugged into a router but the router may not have a connection to the internet. In this case this Waiting on Network screen would not be displayed as the router is a network.

- If the internet is not present but the device is attached to a network then after approximately 6 minutes an Error Message will be displayed as shown below.

Error Messages (inverted color)

- This screen demonstrates an error message being displayed alongside a normal message such as the Registration screen. See the Troubleshooting section of this manual for more details about these error messages.

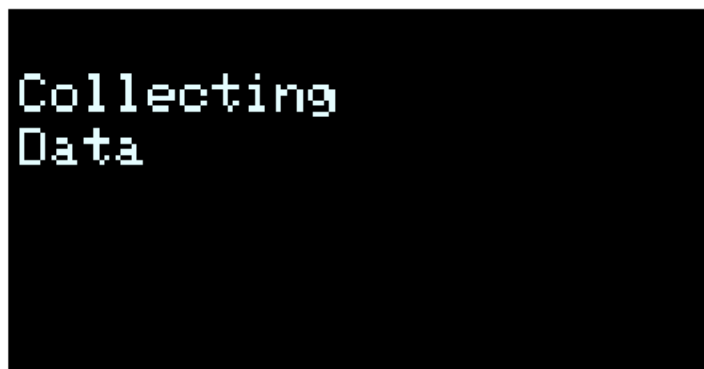**Waiting on NTP Sync**

- Before data is collected approximately 4 minutes of NTP time synchronization is required. This screen will remain until the device has an accurate time.
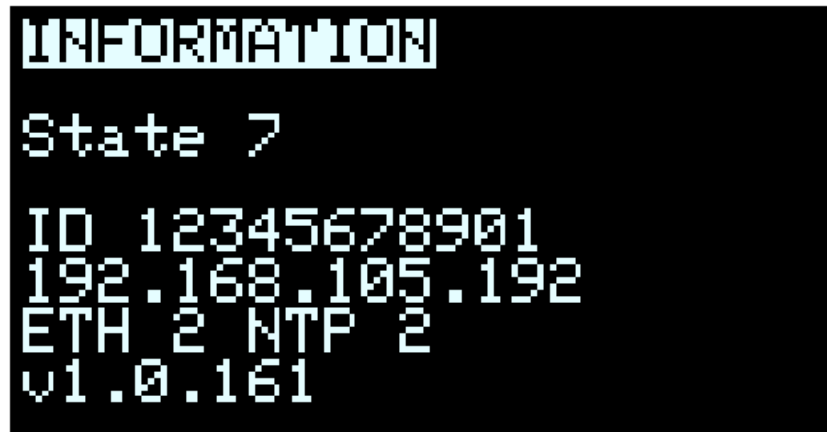
Collecting Data

- Indicates the device is ready and sending data over the internet.

System Information

- Pressing the DISP CYCLE button changes the screen to display important system information including

- State – Used for debugging purposes

- ID – Used to identify the devices on the network

- Local IP Address

- Ethernet and NTP status codes

- FW Version Number

Firmware Updates

Over the Air (OTA) Updates

GCP 2.0 can be updated remotely by the network administrator . No interaction from the device host should be required when this occurs. During planned firmware updating the device may appear frozen or may reboot several times. In the event the update fails the system administrator will be notified, at which time you may be asked to assist in using one of the other methods to update the device.

Factory Reset

IO35 Factory Reset Button

In the rare event that a firmware update is pushed to the devices OTA fails, a factory reset can be performed. By pressing and holding the IO35 button at boot time the firmware will reset to a version stored locally on the device. This can be performed by the host with limited interaction with the network admin to reset the device ". Do not press this button unless requested by a support representative.

USB Programming

Firmware can be loaded using the USB-C connector. However, this requires access to multiple binary files and detailed instructions. This method is not intended to be used by hosts and should be done only at the direction of the network administrator.

Troubleshooting

Note: During planned firmware updating the GCP 2.0 device may appear frozen or may reboot several times.
Pro tip: The most common suggestion to resolve an error state in the device is to reboot it by disconnecting the power cable (and sometimes the cable connecting it to your modem) for 15 seconds and then reconnecting

Error Codes

LED Color Indication

When an error occurs the LEDs will turn red after 10 minutes of the device being in an error state.

OLED Display

Note that not all messages shown below are indicative of a serious problem. Some messages are only a problem if they are persistent.

Register at:
9cp2.net/reg
ID 0abc123def34

NTP REQ failed!

Message	Description	Suggestions
FM Down!	Indicates a loss of Ethernet connection.	Ensure the Ethernet cable is plugged in
No IP!	Could not obtain an IP address using DIICP	Check network configuration to ensure an IP address is being assigned
NTP timeout!	Indicates request to the NTP Server at ntp.google.com has timed out.	A few occasional timeouts isn't a problem. Persistent timeouts could Indicate the google servers are rejecting requests or could indicate an issue with your local network stability.
DNS Failed!	Indicates a problem with the network's domain name server.	Check your domain name server (DNS) configuration settings.
NTP REQ failed!	Indicates a problem with NTP request	A few occasional "NTP REQ failed!" are normal. Persistent messages could Indicate a problem with the network configuration. Correct network settings preventing the NTP Request from completing.
RNG dropped pkt	Failed to get a packet from the 5TM32 less than 20 times	"Reboot by disconnecting the power cable for 15 seconds then reconnecting it. Contact support if the error persists."
RNG no packets	Failed to get a packet from the 5TM32 more than 20 times	"Reboot by disconnecting the power cable for 15 seconds then reconnecting it. Contact support if the error persists."
Data Queue Full	Memory is full, likely because the device cannot send its data to the cloud, so it continues to store the data in memory until the memory is full.	Check your internet connection. Data collection will resume when the connection is re-established.

Tip: If you are experiencing connection issues it might be a network issue. In the case of a network usage you can wait a few hours to see if the issue resolves itself , or contact your Internet Service Provider.

Known Issues
DNS Failed!

- It's possible that the DNS server configured in the hosts router returns a bad IP address from the AWS IP address pool. A quick fix is to change the DNS server address in the router to 9.9.9.9 or 8.8.8.8. The long term

fix is likely to just wait hours or days to get a new IP address.

OLED Display and LEDs are Off

- The most likely cause is that the DIP Switches are not ALL in the up position.

Documents / Resources

	Global Consciousness GCP 2.0 NextGen Random Number Generator Standalone Device [pdf] User Manual GCP 2.0 NextGen Random Number Generator Standalone Device, GCP 2.0 NextGen, Random Number Generator Standalone Device, Standalone Device

References

- ⊗ **Global Consciousness**
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