USER MANUAL FOR MF0200 GATEWAY BOX

VERSION 2.0

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FCC STATEMENT

FEDERAL COMMUNICATION COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

CE Mark Warning

This equipment is compliant with Class A of CISPR 32.In a residential environment this equipment may cause radio interference.

BATTERY CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Do not discard used batteries in to regular trash. These batteries need to be recycled according to the manufacturer's instructions.

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1. INTRODUCTION TO MF0200 CSP GATEWAY

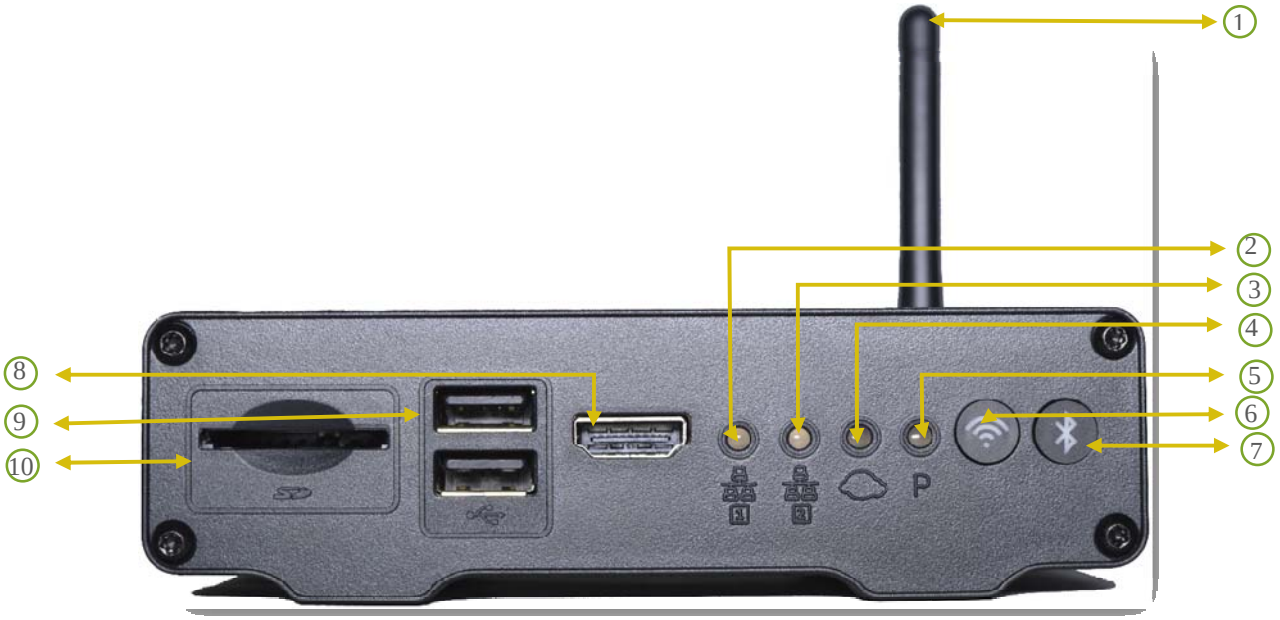
The MF0200 CSP gateway hardware is a cloud-connected high-performance computer which is a component of Mentor Graphics' Cloud Services Platform (CSP). This device is fully managed from a flexible and extendable cloud-hosted backend. The MF0200 serves as an interface between any cloud-hosted service and on premise devices connected to the gateway via wired and/or wireless interfaces such as TV/Display connected via HDMI cable to the gateway, USB devices (e.g. mouse, keyboard, camera, etc.), network devices (e.g. printer, camera, etc.), and Wi-Fi connected devices (e.g. Wi-Fi sensors, Wi-Fi actuators).

1.1. CSP GATEWAY SPECIFICATION

Following table shows specifications of the CSP gateway device.

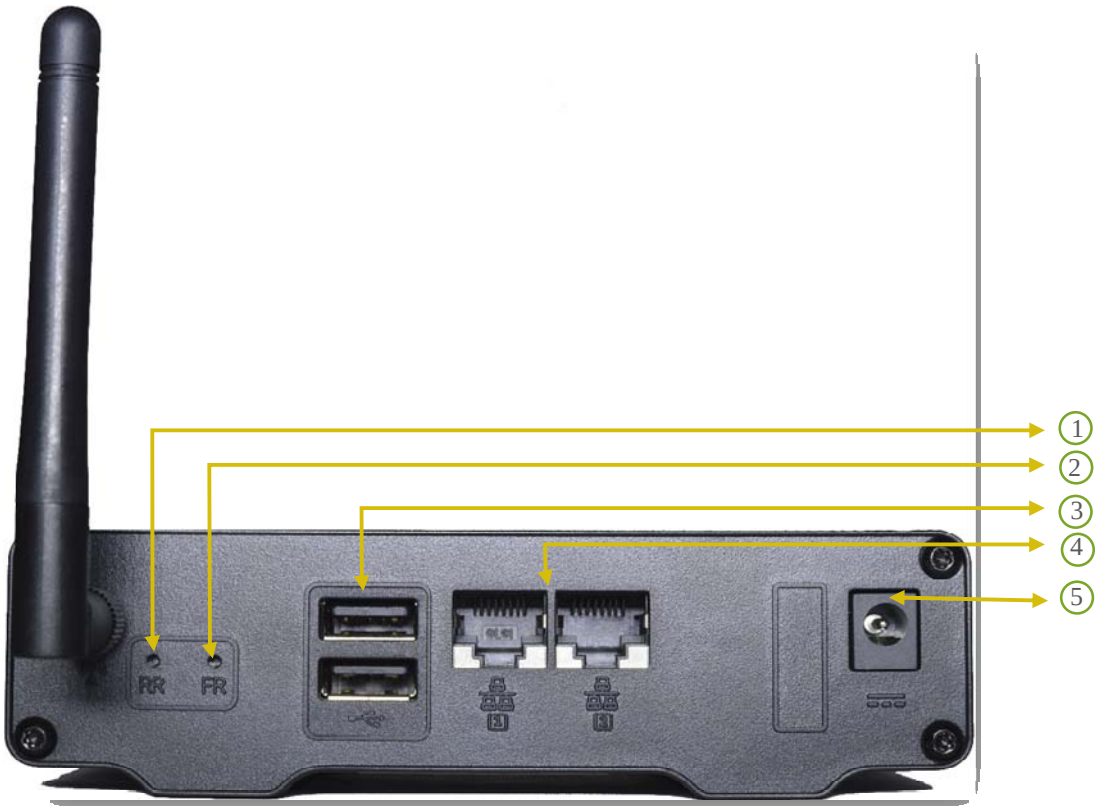
	CPU	NXP i.MX6 quad-core 1.0GHz
	Heatsink	Yes
	System RAM	2GB DDR3
	eMMC	16GB
	WiFi	802.11b/g/n 2.4G single-band
	Bluetooth	Yes
	HDMI	One (1) full-size HDMI
	RTC	Yes
	UART (internal)	One (1) | 6pin | wire-to-board connector
		Pin1 – Red – UART4_TX
		Pin2 – DCDC_5V
		Pin3-GND
		Pin4 – UART5_TX
		Pin5-UART5_RX
		Pin6 – UART4_RX
	NGFF Slot	One (1) M.2 (NGFF socket 2) slot for storage SSD
	USB (external)	Four (4) Host | standard-a receptacle
	USB (internal)	One (1) 1*OTG | 5 pin | wire-to-board connector
	SD Card Slot	One (1) full size SD card slot
	Ethernet LAN	Two (2) Gigabit LAN for RJ45
	EEPROM	2Kbit EEPROM
	GPIO	One (1) 10pins | wire-to-board connector
	Power / DC Jack	12V / 2A (24W) wall-mount type of adaptor | US-type plug
	LEDs	Two (2) LAN indicators One (1) Cloud connection indicator One (1) Peripheral connection indicator
	Buttons	Reset (RR)
		Factory reset (FR)
	Antenna (external)	One (1) WiFi/BT | connector is SMB type
	Board Dimensions	129.0 (L) * 89.6 (W) mm
	RoHS	Yes

1.1.1. FRONT VIEW OF CSP GATEWAY DEVICE



1. Wi-Fi Antenna.
2. LED: Ethernet 0 interface activity indicator
3. LED: Ethernet 1 interface activity indicator
4. LED: Cloud LED
5. LED: Peripherals LED
6. Wi-Fi Indicator
7. Bluetooth Indicator
8. HDMI out-port
9. USB Ports
10. SD card slot

1.1.2. BACK VIEW OF CSP GATEWAY DEVICE



1. RR: Reset
2. FR: Factory Reset
3. USB ports
4. Ethernet 0 and Ethernet 1 port
5. Power Supply

1.1.3. CSP GATEWAY LED INDICATOR CHART

Following table shows how the LED lights indicate the operations being performed on the CSP gateway device.

no.	CSP Box State	GREEN Peripherals LED	RED Peripherals LED	GREEN Cloud LED	RED Cloud LED
1	Power On	ON	OFF	ON	OFF
2	Kernel Booting	Heartbeat	OFF	OFF	OFF
3	Kernel Booted Successfully	ON	OFF	OFF	OFF
4	CSP System Starting	ON	OFF	Heartbeat	OFF
5	CSP System Signaling Connecting	ON	OFF	Timer	OFF
6	CSP System Signaling Connected	ON	OFF	ON	OFF
7	CSP System applying patch	ON	OFF	Heartbeat	Heartbeat
8	CSP System updating firmware	ON	ON	ON	ON
9	CSP System No Configuration Object	ON	OFF	OFF	ON
10	CSP System Fatal Error	ON	OFF	OFF	Timer
11	CSP Box Rebooting	Heartbeat	OFF	Heartbeat	OFF
12	CSP System Error updating	OFF	Heartbeat	OFF	Heartbeat

	firmware				
13	CSP System Error applying patch	ON	OFF	OFF	Heartbeat
14	CSP System firmware update done	Heartbeat	Heartbeat	Heartbeat	Heartbeat

2. GETTING STARTED

To setup the gateway, you require:

2.1. CSP MOBILE PORTAL APPLICATION

The basic system requirements to set up the gateway device are:

1. Android device which operates on android version 5.1 or above.
2. CSP Admin Console App installed on the device. If the user does not have the app; it can be downloaded from the CSP Admin Portal.
    a. After downloading and installing the application the user needs to log in using the credentials through which they access the CSP web portal.
    b. If the user does not have the credentials for CSP Web portal then he/she can request for credentials through CSP web Portal as mention in Section no. 1.2 “Apply for Account” in the document “CSP Admin Portal R7”.

2.2. CONNECT THE GATEWAY WITH NETWORK

Gateway device can be connected through both wireless and wired networks.

2.2.1. WIRED

1. DHCP.
2. Static.

2.2.3. WIRELESS

1. DHCP.

3. INITIAL CONFIGURATION AND CONNECTION

3.1. POWER UP

1. Attach the provided antenna to the gateway: Screw on antenna to the provided socket on the gateway. The antenna can be rotated and angled so it can be aligned in any installation position.
2. In case of wired connection: Attach the LAN wire to the gateway device
3. Connect the provided power adaptor to the gateway
4. Wait for about one minute to allow the gateway to fully boot itself
5. Login to the CSP portal using your mobile device (smartphone) – see chapter 3.2

3.2. LOGIN

Launch the CSP mobile setup application on your mobile device and login into the CSP mobile portal by providing a valid username and password.

Figure 1: Login

Enter Credentials provided to you by the CSP administrator to login. Following screen would appear after you launch the CSP mobile setup application

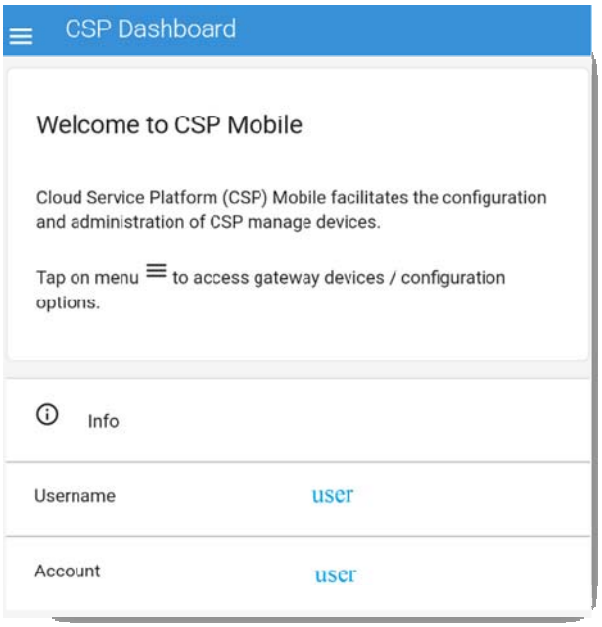


Figure 2: Home screen

3.3. PAIRING & CONNECTING

To pair the gateway device it is needed to go to the dashboard and setup the device.

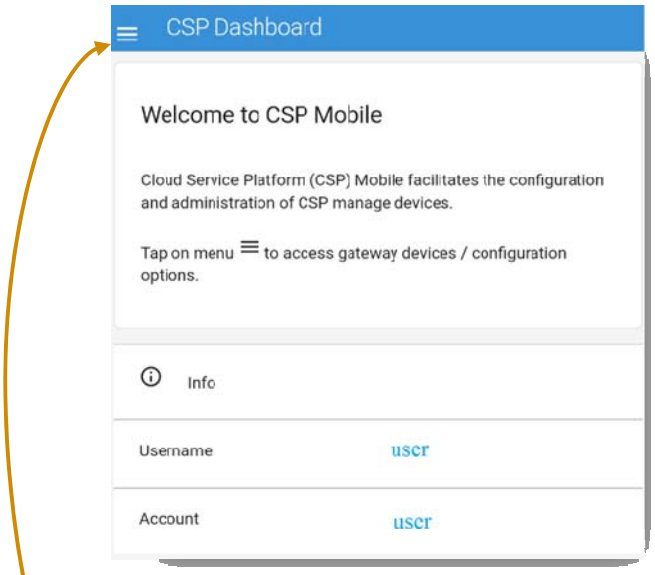


Figure 3: Home screen

After clicking the menu button the Dashboard can be seen.

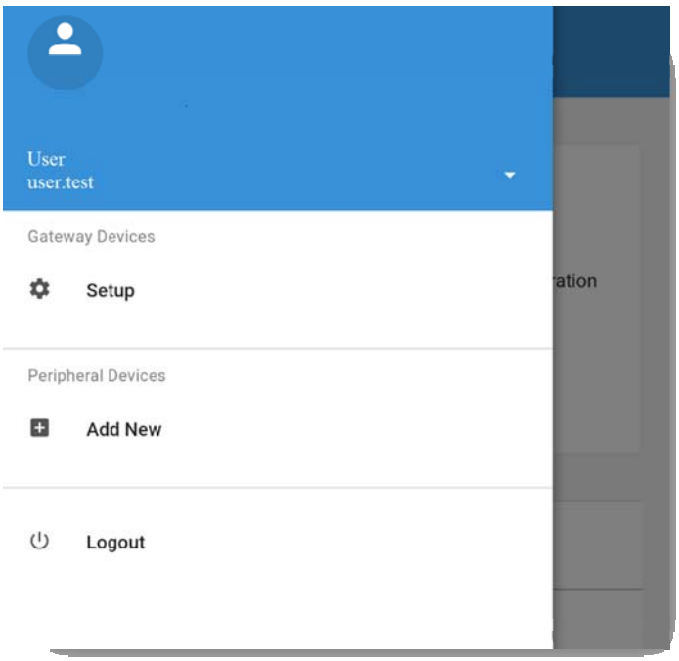


Figure 4: Dashboard

Click on setup to pair and configure the box.

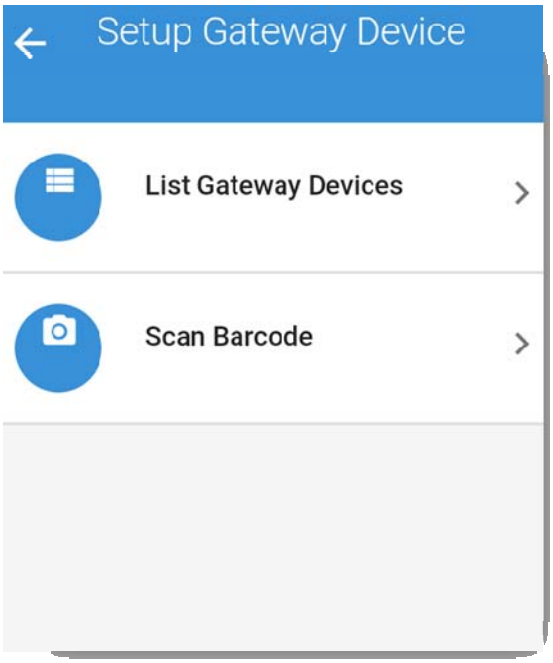


Figure 5: Two ways of setting up a gateway device

The gateway device can be selected in two ways – by selecting the gateway from a drop-down list or by scanning the barcode located on the back of the gateway. The list provides the IDs of gateway devices available, user can search the device manually. Alternatively, the user can scan the "Gateway Barcode" to choose the device directly.

Prerequisite:

The device has already been provisioned on CSP backend

3.3.1. LIST GATEWAY DEVICES

List of all the gateway devices provisioned with particular account will be displayed.

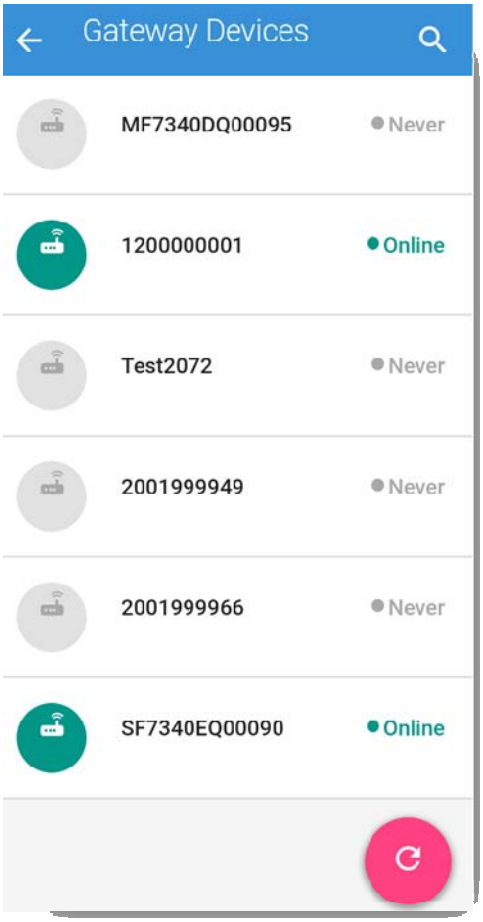


Figure 6: List of gateway devices

After choosing the gateway, application requests to turn on the Bluetooth on the mobile device (smartphone) if it already has not been enabled. After selecting the gateway it following screen would appear to pair the mobile device with CSP gateway device.

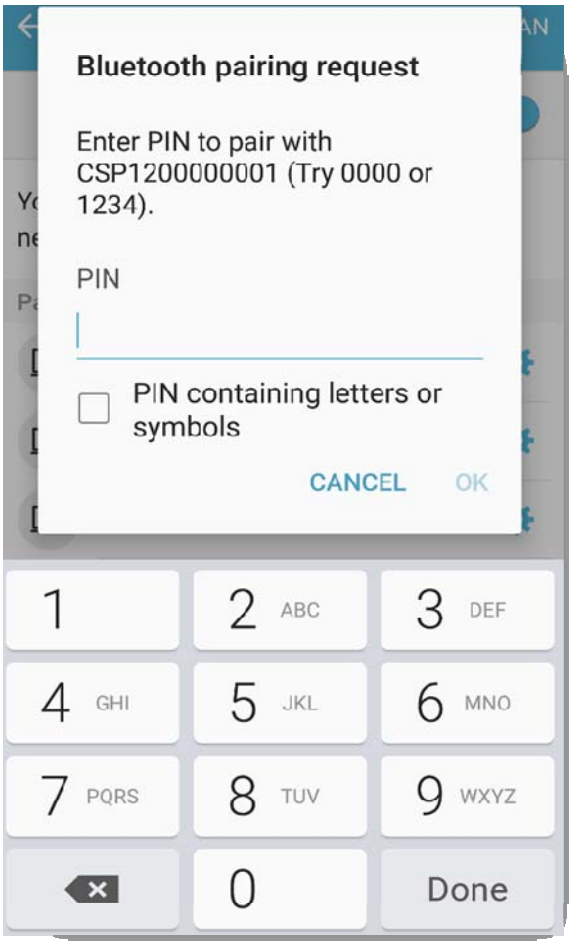


Figure 7: Enter pin for pairing

Enter the pin of CSP gateway device provided to you by the CSP administrator.

3.3.1.1. Gateway Device Info

After authentication the following screen would appear with information regarding the selected CSP gateway device. This shows the current settings of the CSP Gateway device.

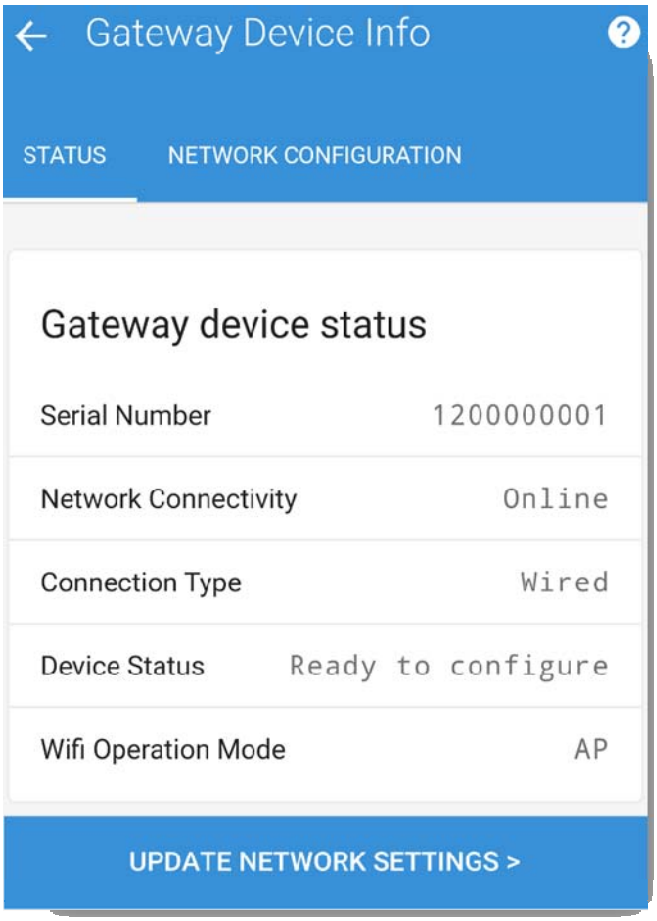


Figure 8: Gateway Device Info- ***status***

To see the network configurations of the CSP gateway device select “Network Configurations” tab.

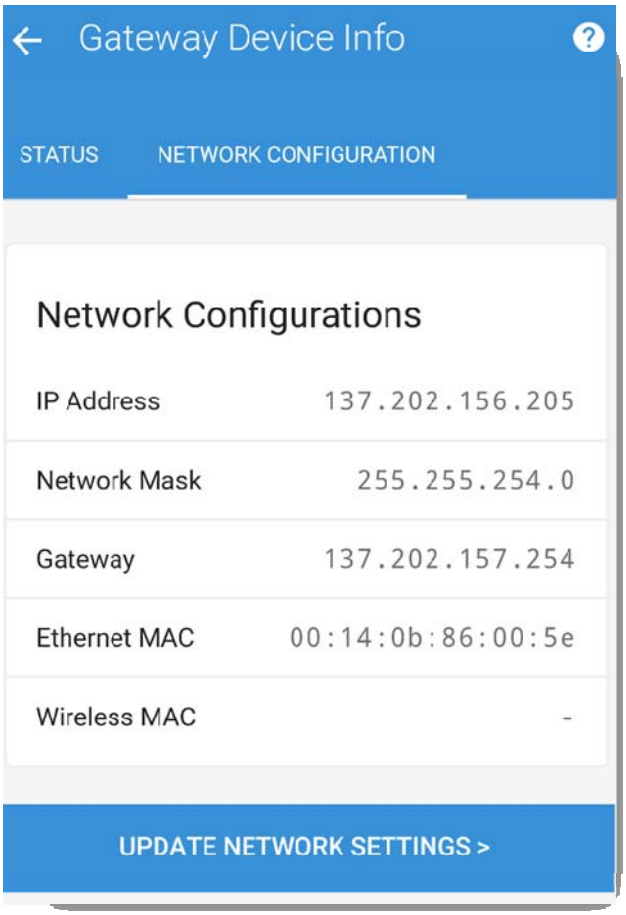


Figure 9: Gateway Device Info- ***Network Configuration***

3.3.1.2. Update Network Settings

Click on Update Network Settings to change the network settings.

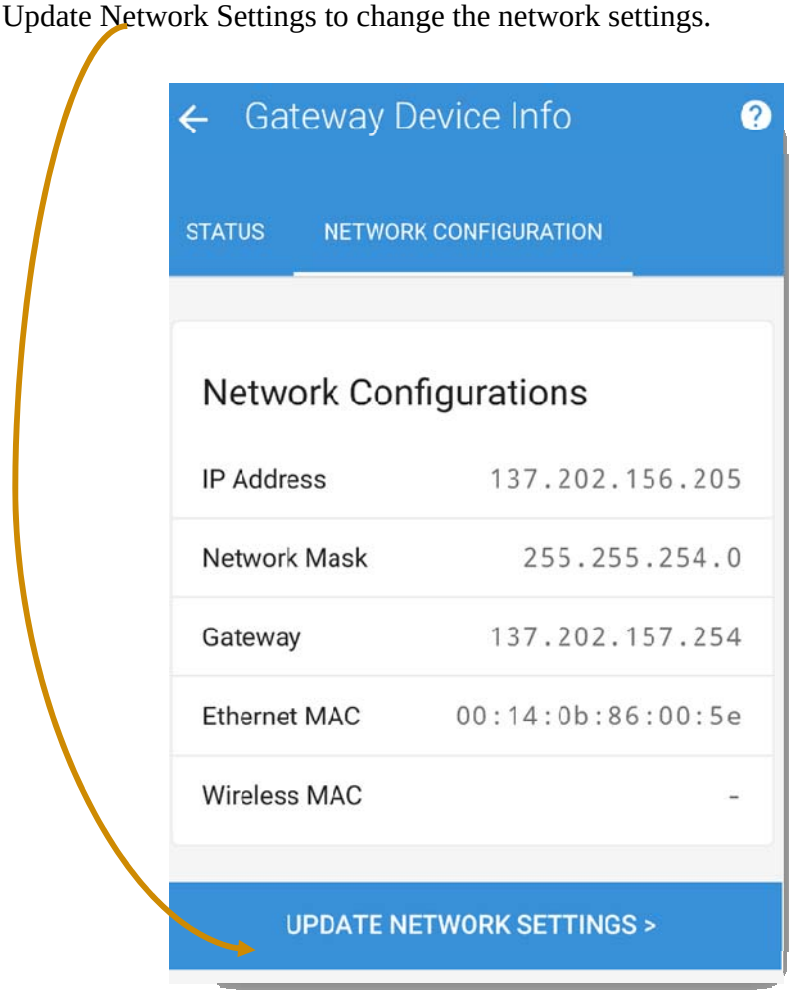


Figure 10: Update Network Settings.

After selecting “Update Network Settings” new screen would appear that allows the user to choose the networking interface. In this case it is “Ethernet”.

3.3.1.3. Ethernet Configuration:

Figure 11: Choose the network interface

After choosing Ethernet click “NEXT”.

3.3.1.3.1. Ethernet Setup - DHCP

Ethernet can be setup to either DHCP or Static configuration. Click on save button to select DHCP.

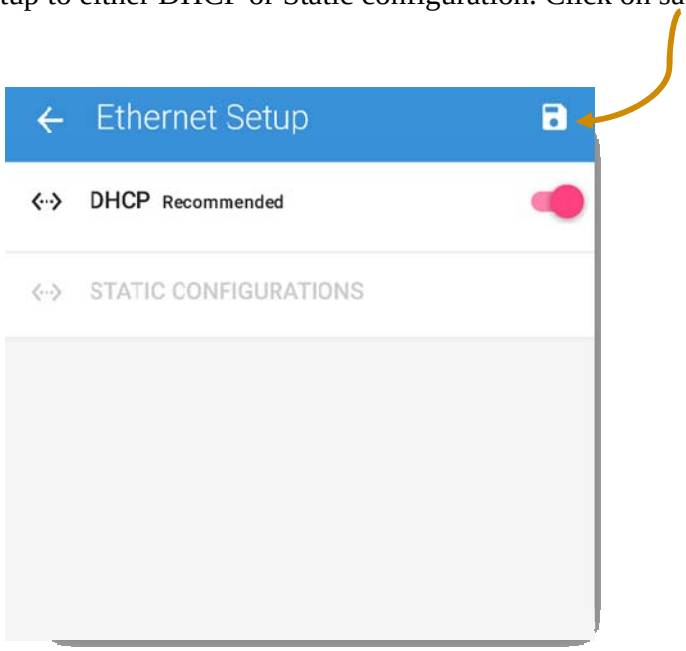


Figure 12: Ethernet Setup

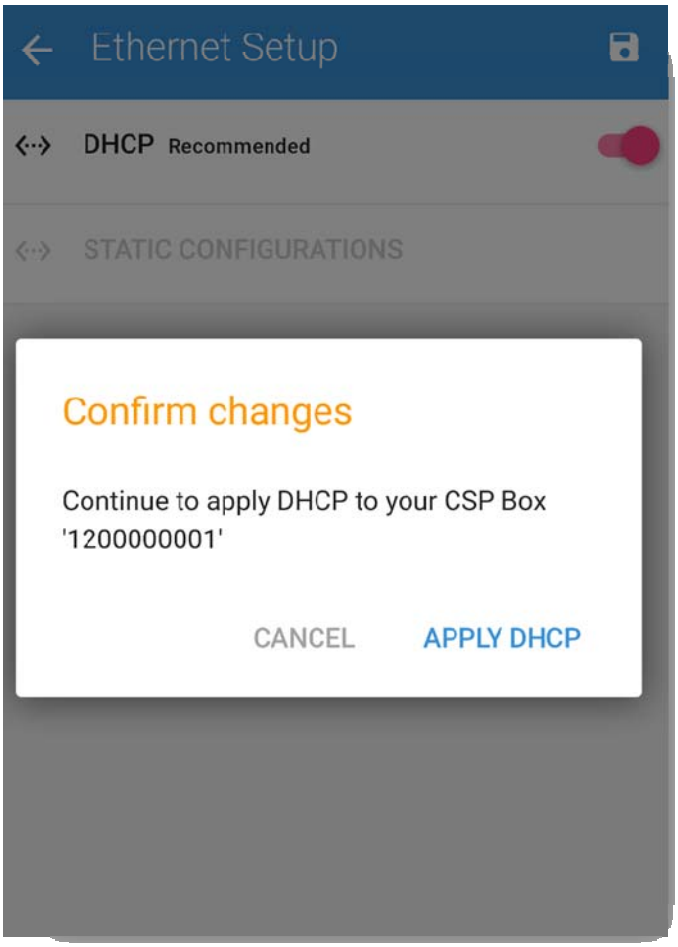


Figure 13: Confirm Changes to Setting.

Select “Apply DHCP” to confirm the selection.

After DHCP settings; following window appears to confirm that configuration is sent.

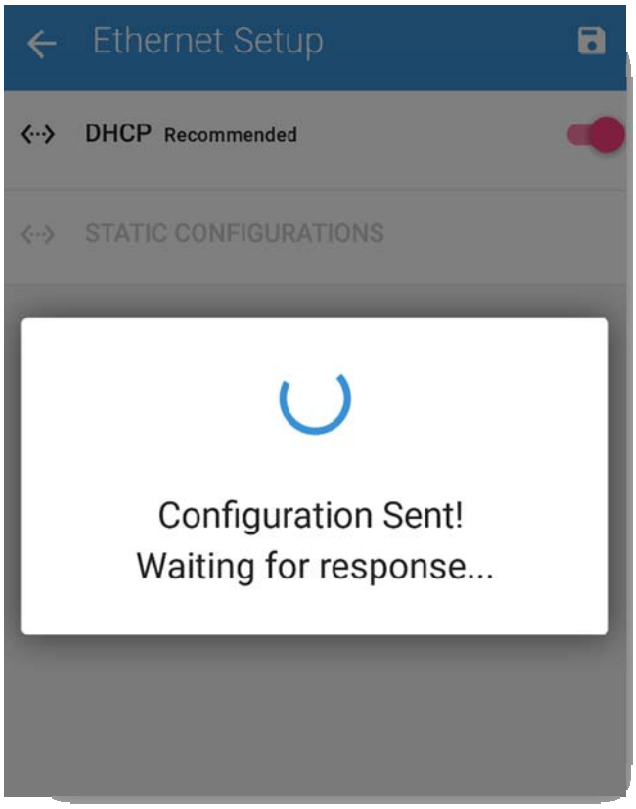


Figure 14: Configuration sent

After configurations are sent the CSP gateway device is automatically rebooted.

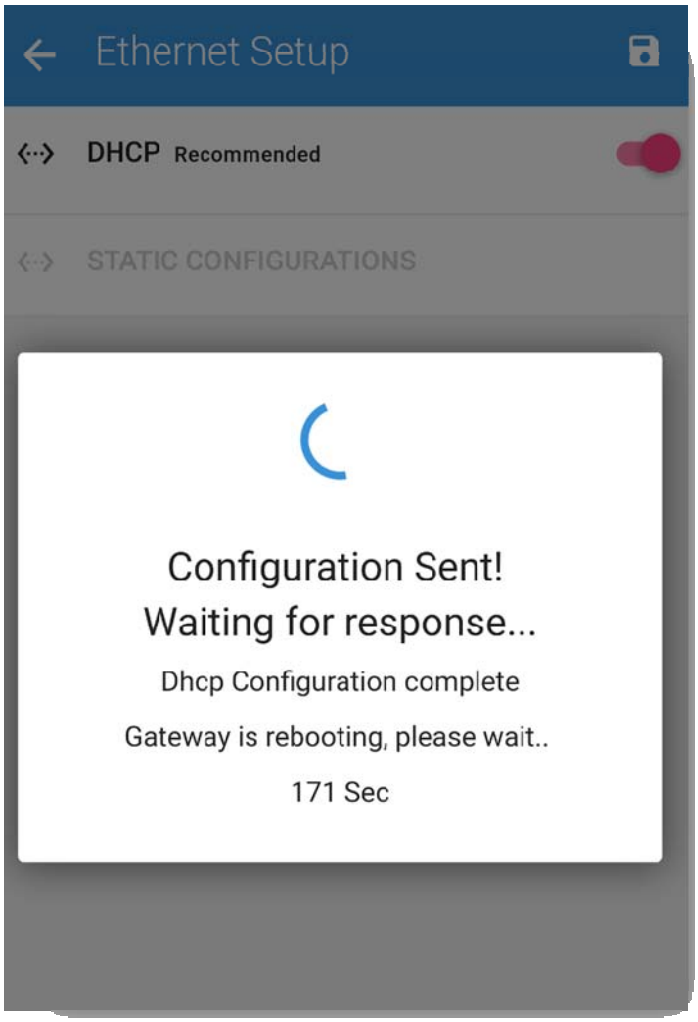


Figure 15: Rebooting the device.

Updated configurations are displayed after reboot of CSP gateway device.

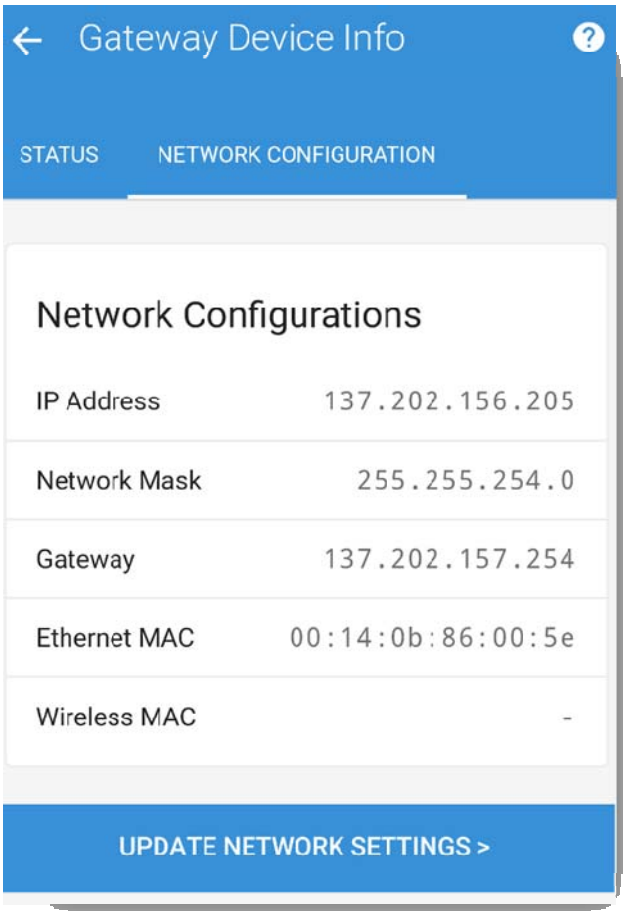


Figure 16: Updated network configuration

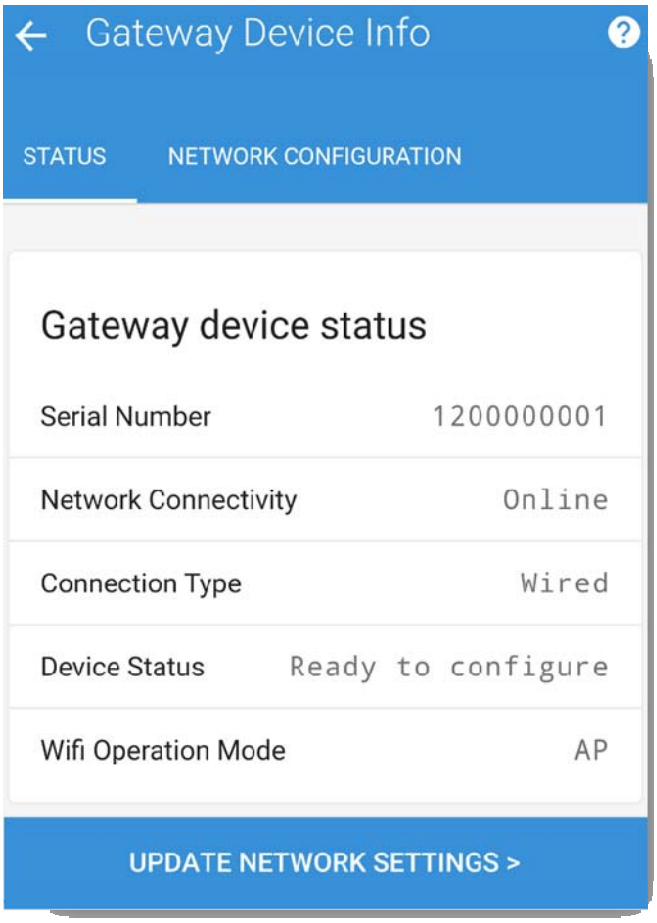


Figure 17: Updated Status

3.3.1.3.2. Ethernet - Static Configuration

DHCP is selected by default but if the user requires to change it to Static configuration; it can be changed by turning DHCP off.

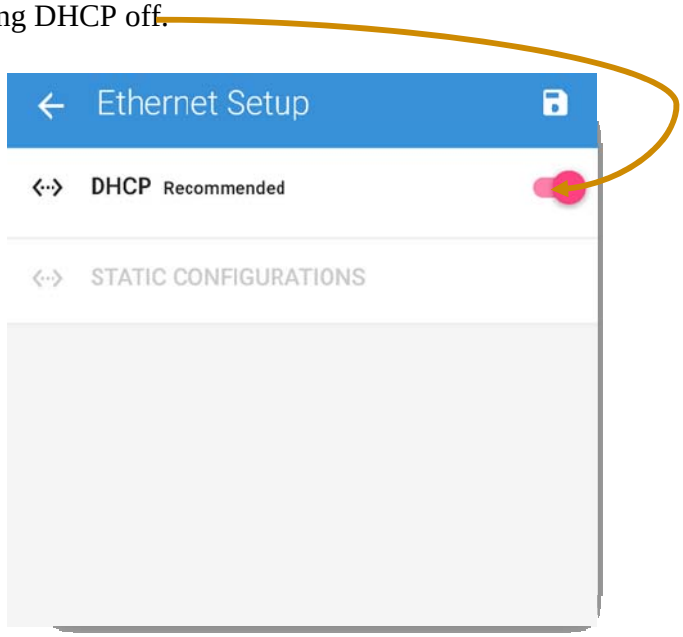


Figure 18: Ethernet Setup

Fill in the needed fields and “click” save button.

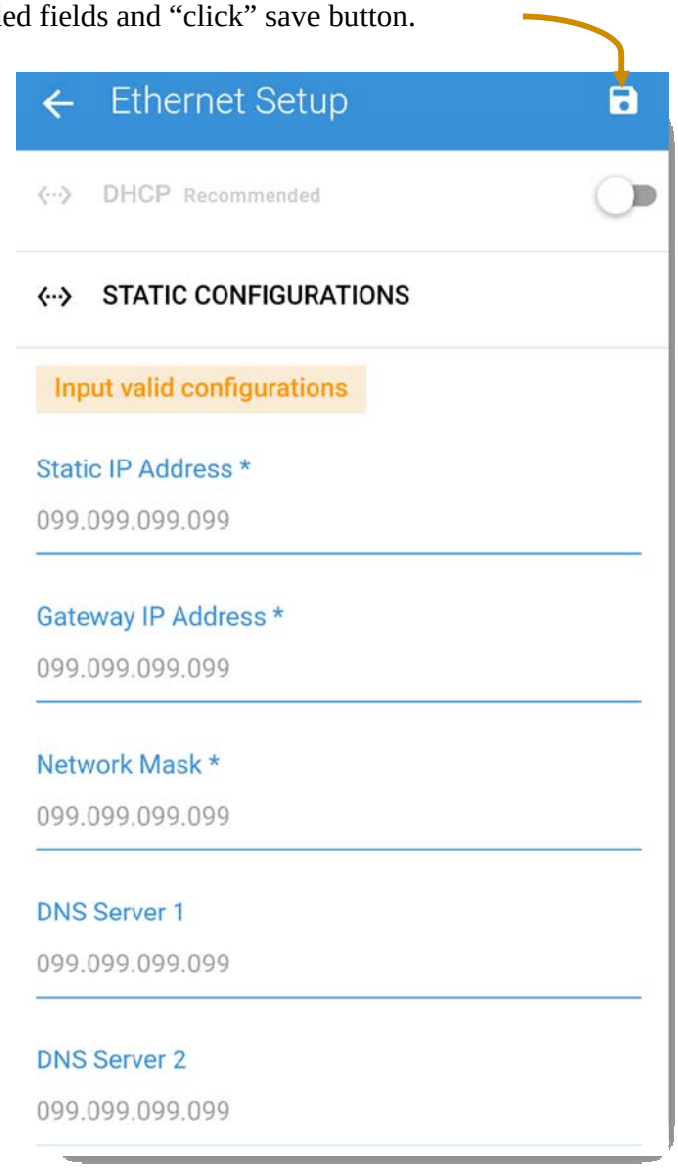


Figure 19: Ethernet Setup- Static Configuration

The application prompts if the user wants to continue applying new settings to the CSP gateway device. Same flow is followed as described in “Ethernet DHCP”.

3.3.1.4. Wireless Configuration

To configure the CSP gateway device to connect to the CSP backend via wireless connection select Wi-Fi in the options and follow the following steps.

Figure 20: Configuration options

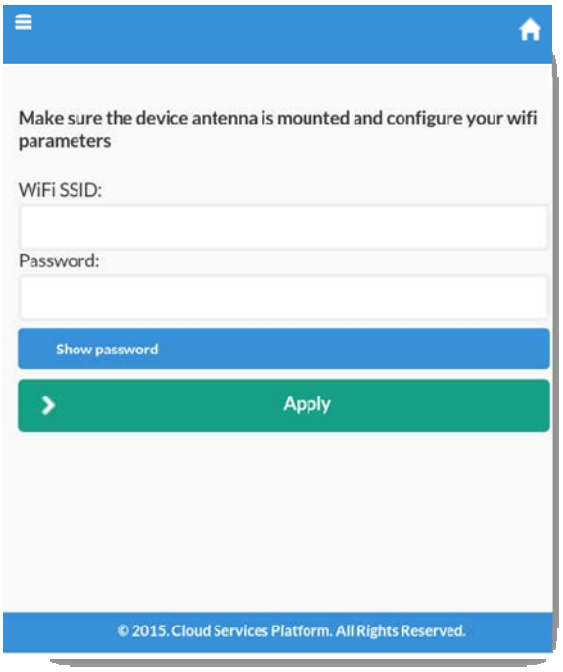


Figure 21: Wi-Fi credentials

Fill in the required fields:

1. Wi-Fi SSID: the SSID for the Wi-Fi network to be used.
2. Password: password for the Wi-Fi.

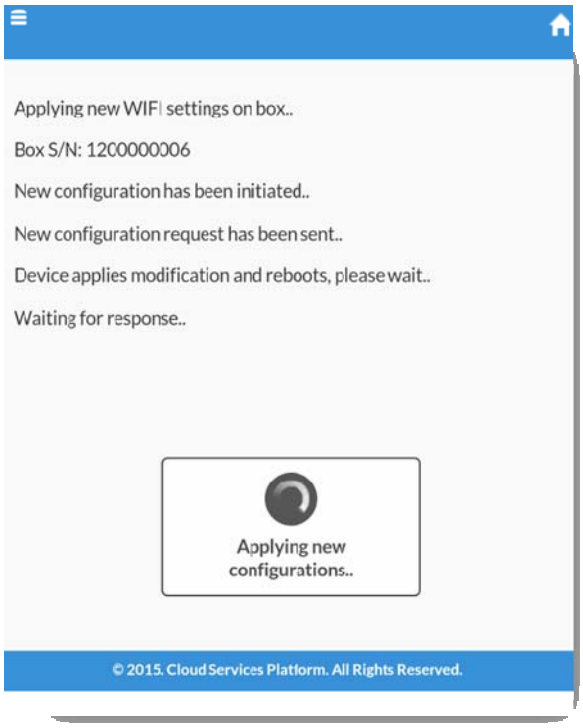


Figure 22: Applying configurations to the box

Once the reboot of CSP gateway device is done it will be online via Wi-Fi.

3.3.2. SCAN BARCODE

Alternatively, to add the gateway with barcode place the barcode in the view provided.

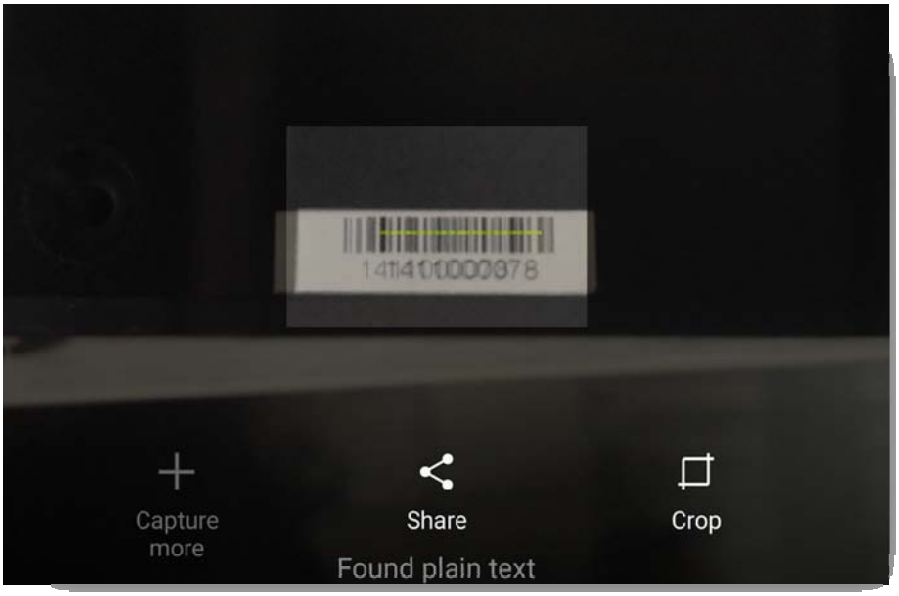


Figure 23: Barcode Scanning

After the device is recognized follow the same steps as given in Section 3.3.1.1 “Gateway Device Info”; up till Section 3.3.2.

3.4. FIRMWARE UPDATE

When the CSP gateway device is properly configured it will automatically update the firmware, if update is available. Operation of patch update can also be seen through LED indication, as specified in Section no. 1.1.1. “CSP GATEWAY LED INDICATOR CHART”.

4. ADD PERIPHERAL DEVICE

To add the peripheral device go to the dashboard and select “Add New”.

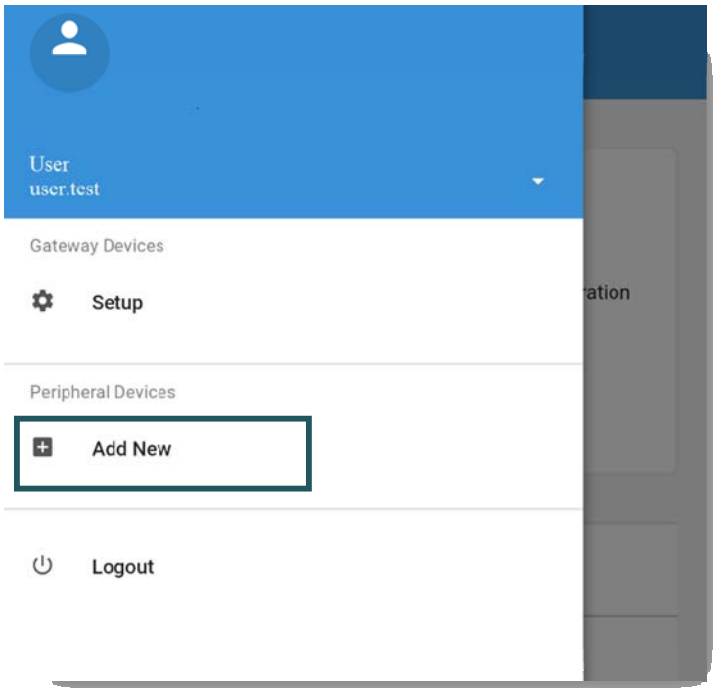


Figure 24: Dashboard

4.1. STEP 1

This will list the CSP gateway devices available for that particular account.

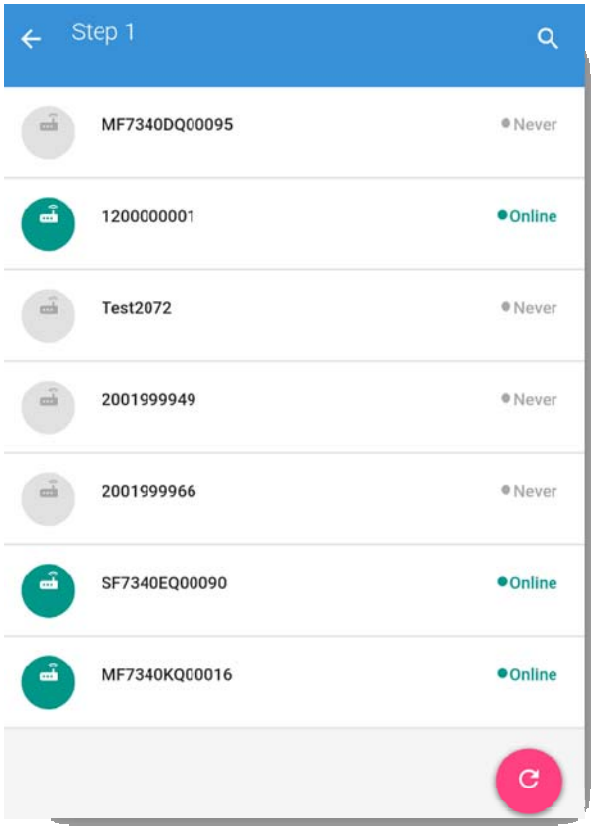


Figure 25: List of CSP gateway devices

Select the gateway device to add new peripheral.

4.2. STEP 2

Input the basic information of the peripheral.

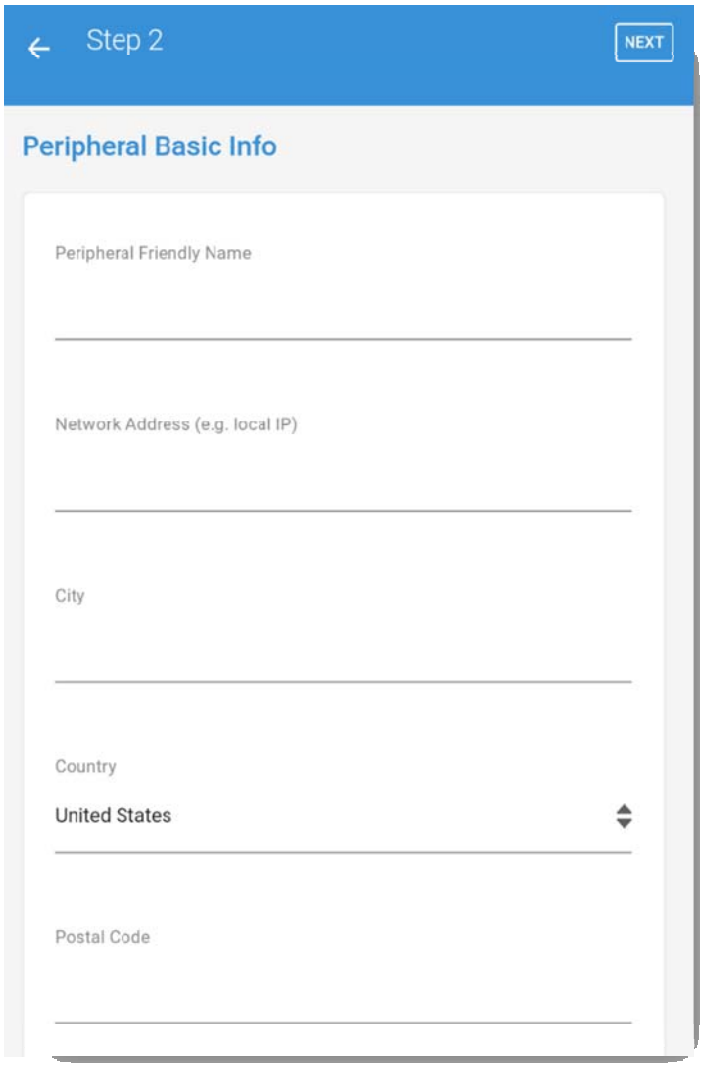


Figure 26: Peripheral Basic Info

Fill in the required fields:

1. Peripheral Friendly Name: name of the peripheral for easy recognition
2. Network Address: local IP of the peripheral
3. City: name of the city
4. Country: name of the country
5. Postal code: postal code of the area

Click next when done with filling in the fields

4.3. STEP 3

The information regarding manufacturer, type and model of the peripheral are added in this step.

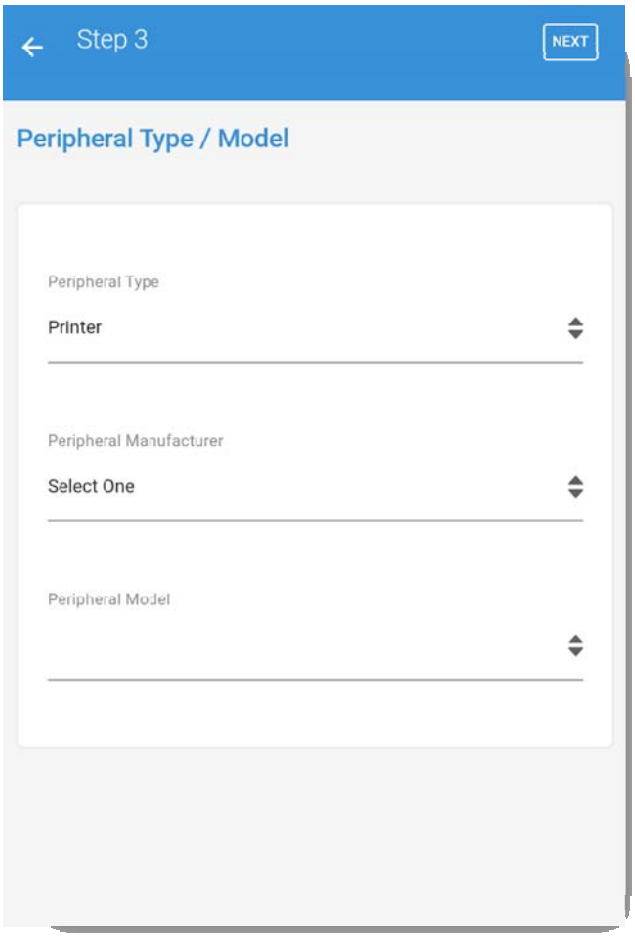


Figure 27: Peripheral Type/ Model

Select a peripheral type to add the type of the peripheral. There are two basic types of peripherals printer and mote.

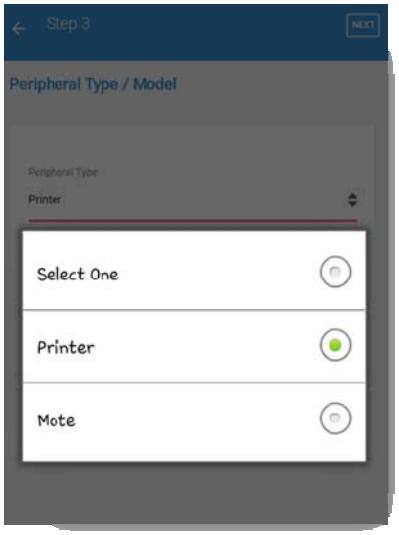
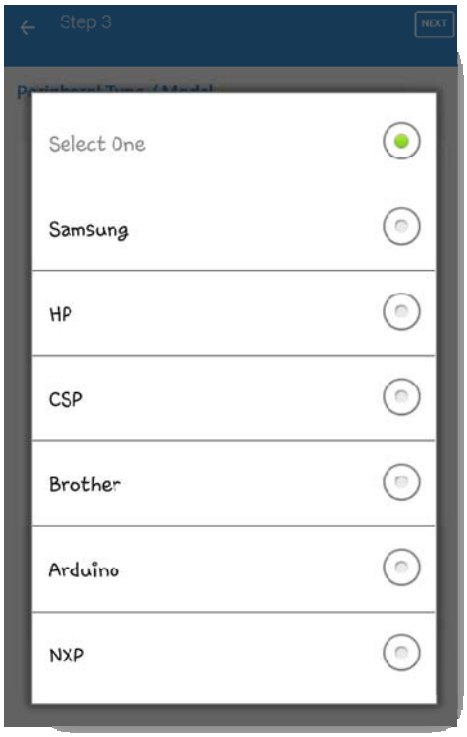


Figure 28: Types of peripheral

After choosing the peripheral type, select the manufacturer of the



peripheral.

Figure 29: Manufacturers

After choosing the manufacturer, select the model of the peripheral and click next.

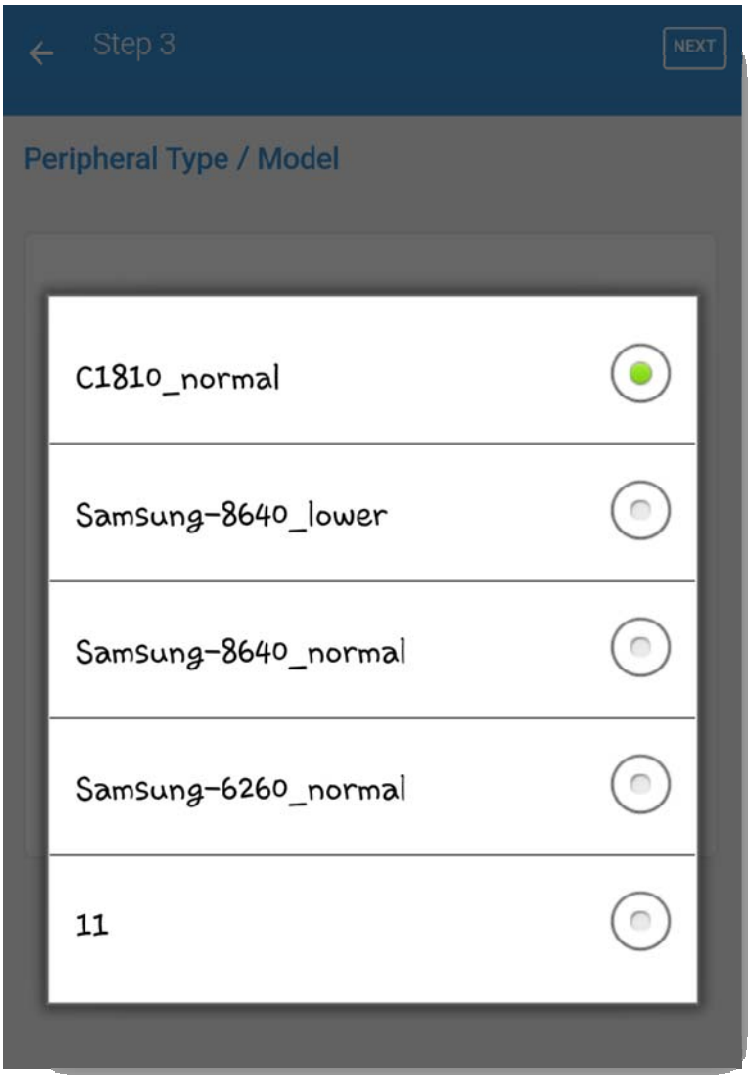


Figure 30: models of peripherals

4.4. STEP 4

Add the QR and NFC details of the peripheral. It is an optional step. If the user does not wish to input this information the system would generate these codes by itself.

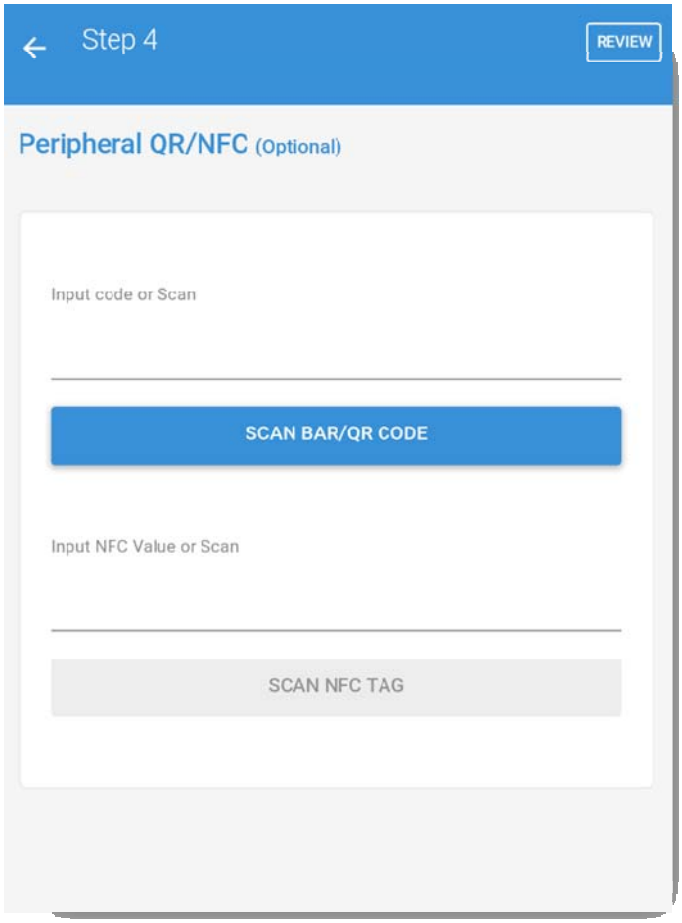


Figure 31: Peripheral QR/NFC code

Both of these codes can be scanned or entered manually. Select review to see the complete information regarding the peripheral.

The final review of the peripheral's information. Tap the add button to add the peripheral.

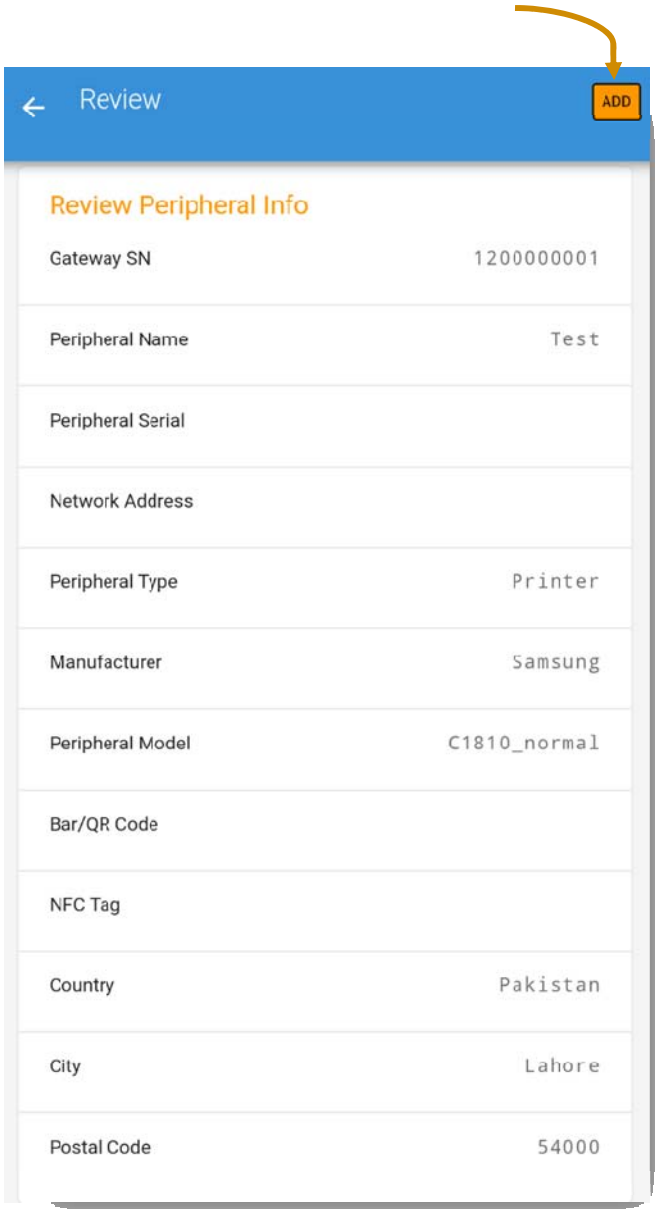


Figure 32: Review information

If the peripheral is added successfully following message is displayed.

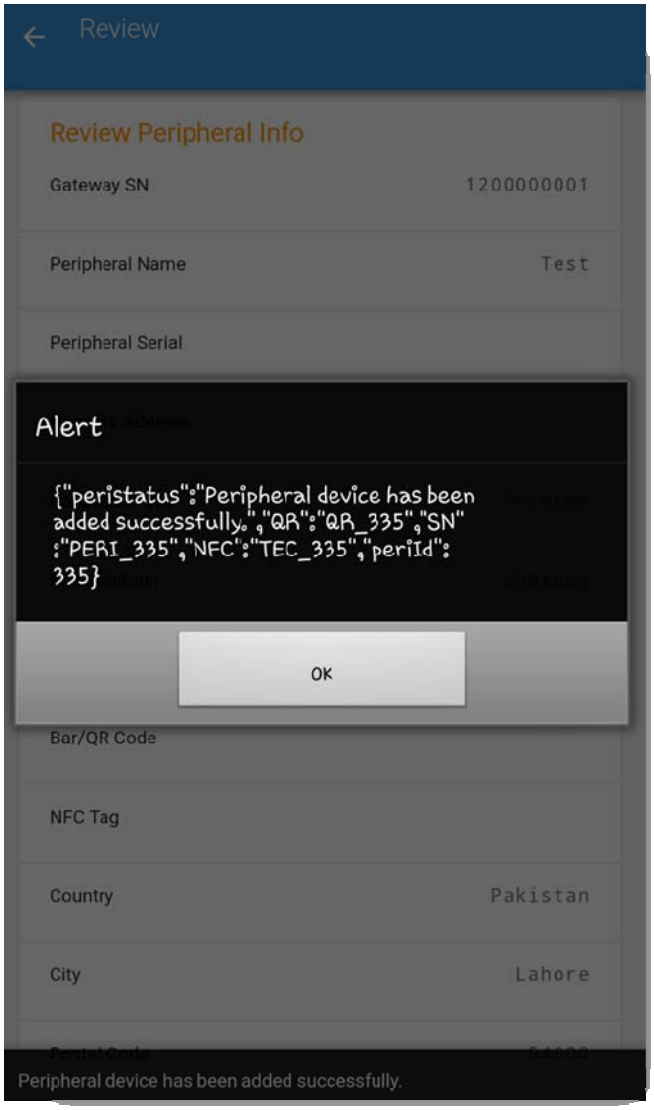
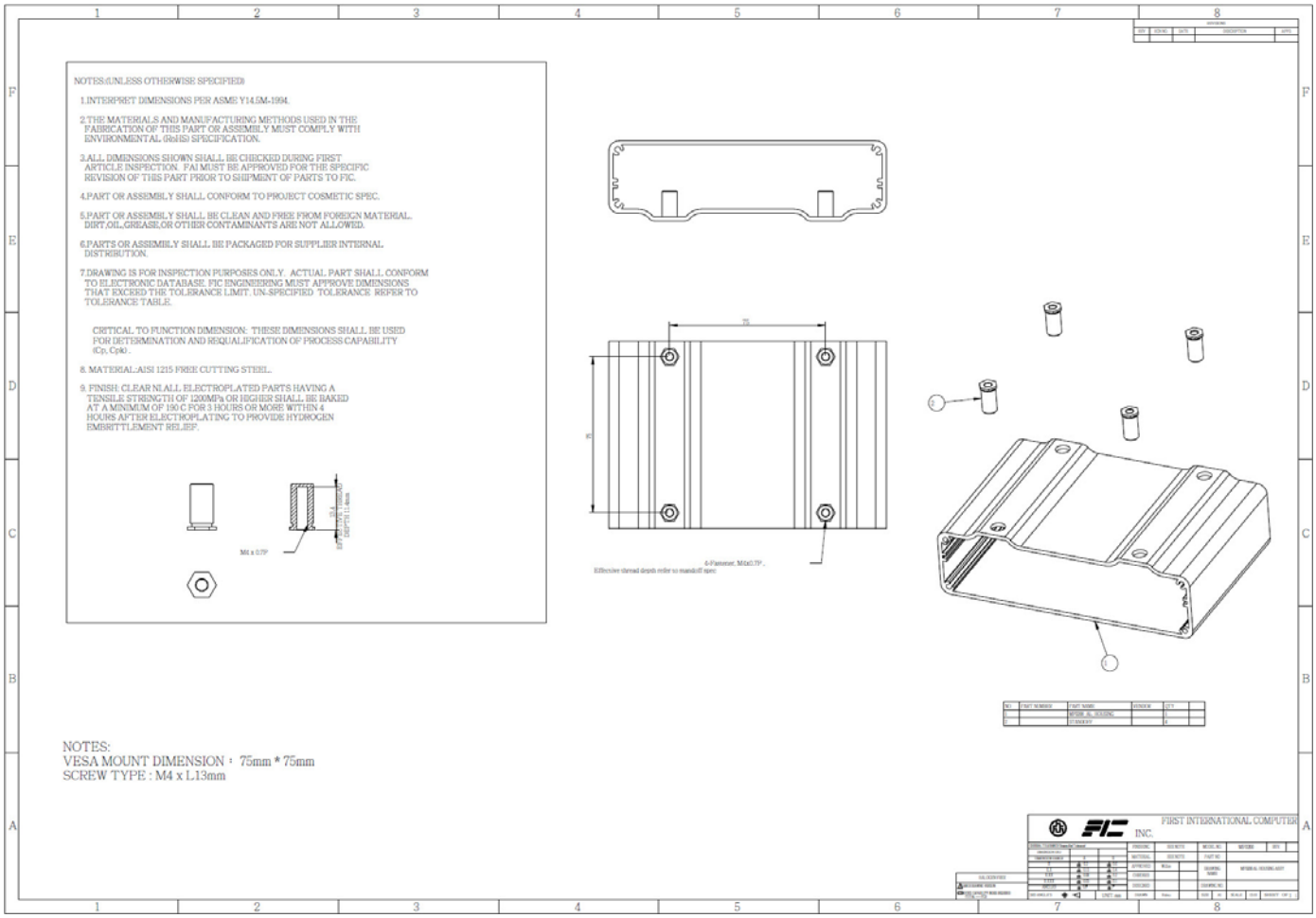


Figure 33: Success response

5. VESA MOUNT 75MM * 75MM INFORMATION



6. CONTACT US

If need be the user can contact for support at: csp_support@mentor.com