Installation & Operational Manual

Radio Over IP Gateway

Model RoIP300Dx

Firmware Version 2.9.0.17

RoIP Box Contents

1. Radio Over IP Gateway
2. Ethernet Cable
3. Radio Interface Cable
4. Power Adopter 9V DC

For any support,
Contact: +91-7303211220

Document Data Sheet

Document Data Sheet

Specification No.	StackIOT/RoIP/300Dx/2024-004
Tile of Document	User manual for RoIP Gateway.
Prepared By	StackIOT Technologies Private Limited
Abstract	This document specifies the use of RoIP Gateway.

Revision

Version	Chapter/Annexure	Revision	Effective From
StackIOT/RoIP/300Dx/2024-004	All	Ver: 1.0	22/Feb/2023
	All	Ver: 1.1	28/Mar/2024

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BASIC INSTALLATION

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Data Connection

Power Adopter

ON/OFF Button
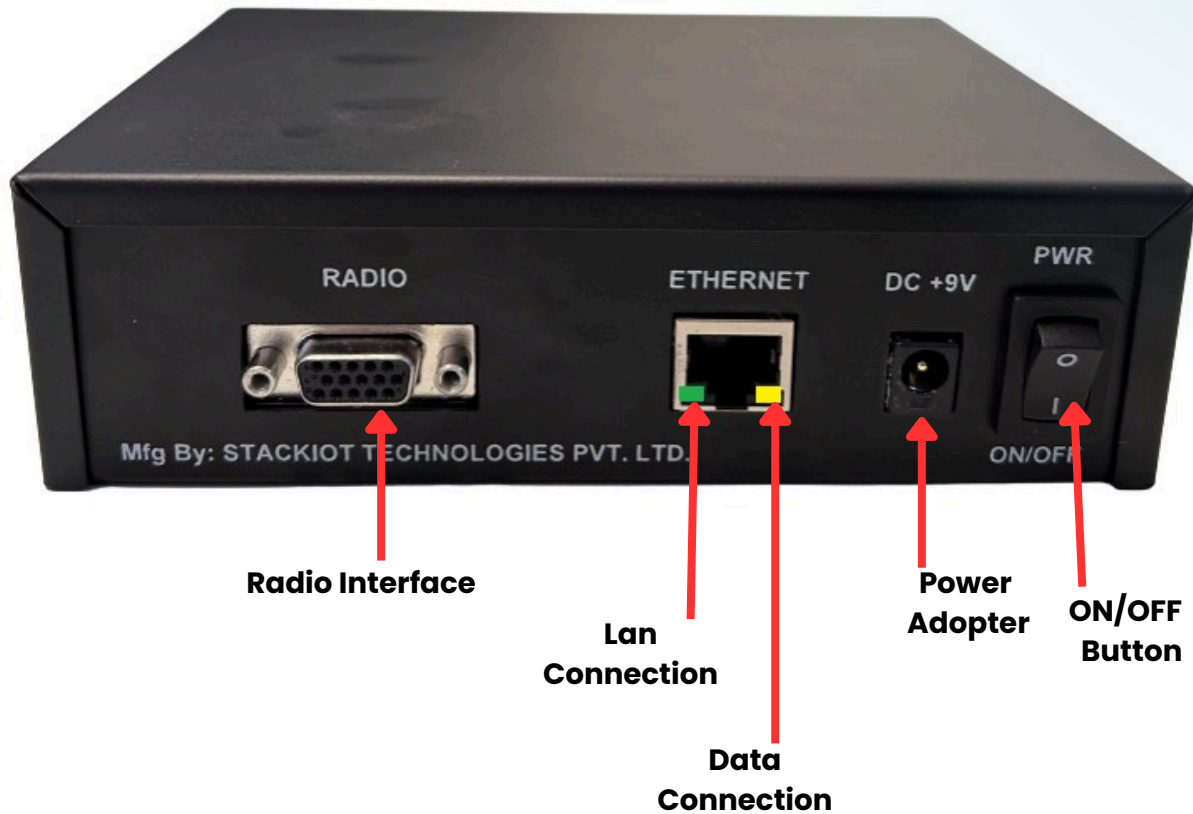
CONNECTOR TYPE	INTERFACE	DESCRIPTION
Power connector	Power interface	Power connector to provide external DC power supply to ROIP
Ethernet (RJ45)	LAN interface	LAN port provides LAN connectivity with other ROIP or Computers.
DB-15 Pin	Radio Interface	Radio connector to interface with Radio

Hardware Front Overview

LED Notifications

| LED	COLOR	STATUS	DESCRIPTION
PWR	RED	ON	System Power ON
		OFF	System Power OFF
LINK	RED	Fast Blinking	Not Connected
		Slow Blinking	Connected to Server. Call Disconnect Mode.
		ON	Connected to Server.
PTT	Green	ON	Radio Set connected is Transmitting Audio.
CSQ	Yellow	ON	Radio Set connected is Receiving Audio.

ROIP Quick Setup Guide

- Plug the Power Adapter in RoIP
- Connect Lan Cable in the RoIP and other end to your Laptop/ Desktop
- Configure your Laptop/ Desktop Ethernet Adapter IPv4 Settings to Manual with following IP Settings:
  (IP Address / Subnet Mask)
  192.168.1.20 / 255.255.255.0
- Open Web Browser and enter RoIP Default IP: 192.168.1.80
- Default Login Password is : admin
- Open IP config Settings
- Configure the Local IP Settings of ROIP Device which you need. Click on Save and reboot.
- Connect Radio Interface Cable at RoIP Radio Port (DB-15 Pin Connector) and other end at Radio Accessory Connector Port
- Once the RoIP Link Led turns to Permanent On, your RoIP System is connected and Ready to Use.
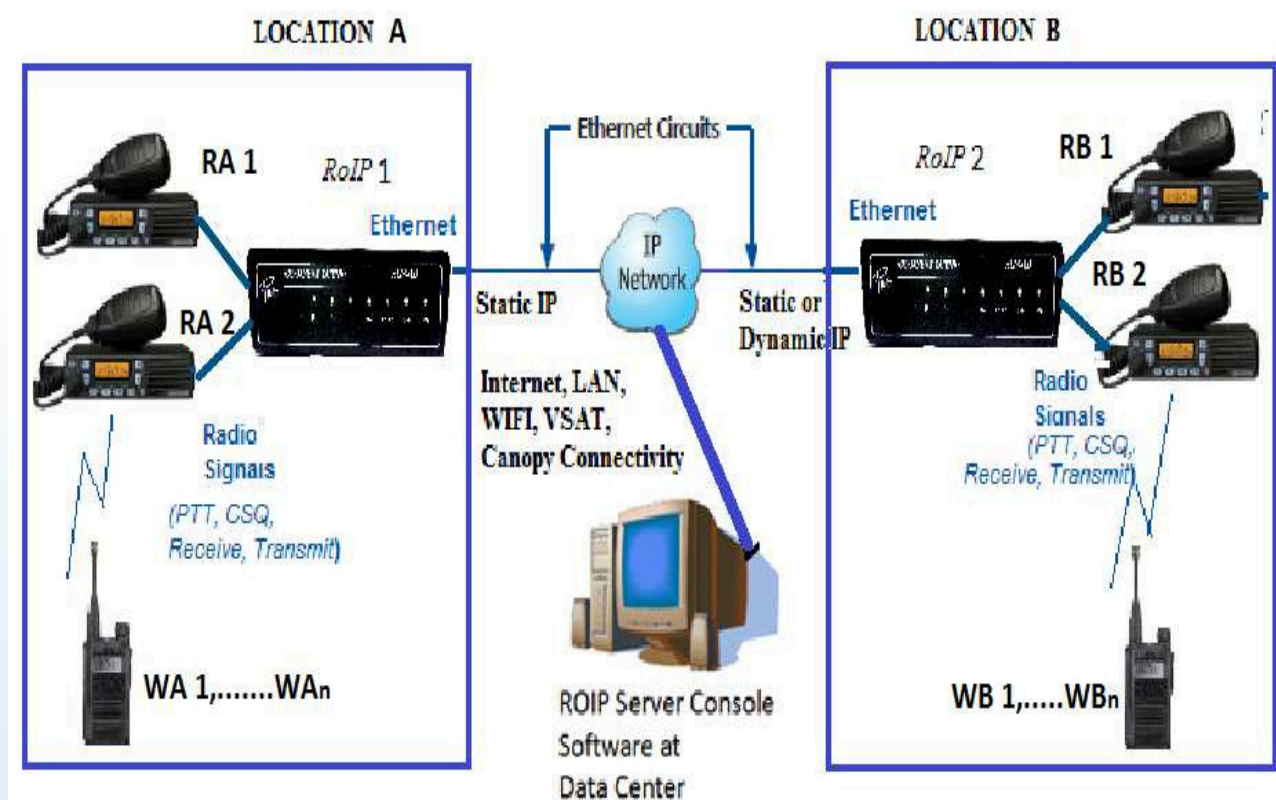
SETTINGS CONFIGURATION

Computer IP Configuration to configure ROIP

- Go to Control Panel-> Network and Internet-> Network and Sharing Center
- Click on Local Area Connection/ Wireless Network Connection.
- Click "Properties".
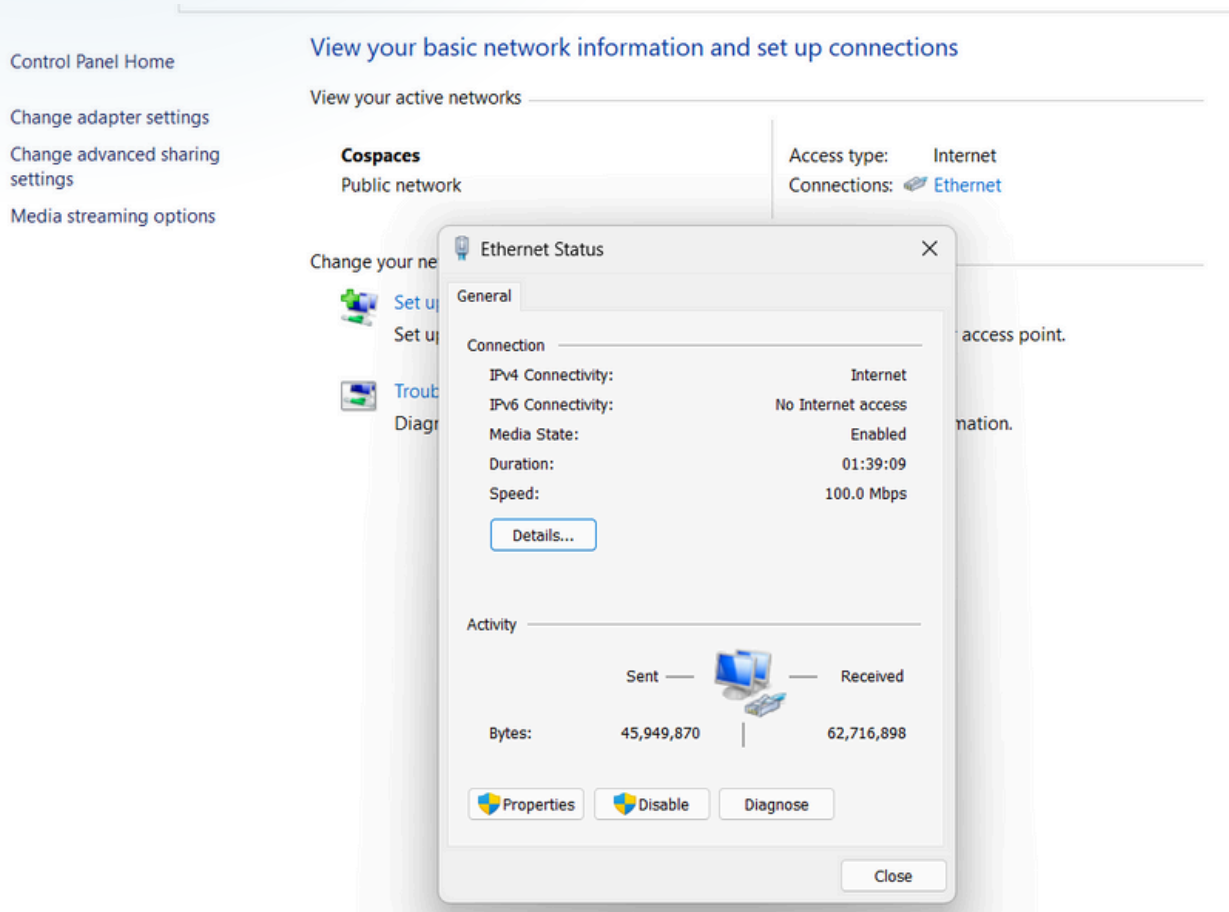
- Select "Internet Protocol Version 4 TCP/IPv4" and Click "Properties".
- Select "Use the following IP address" option.
- Enter IP Address of computer (should be in the same local network range as of ROIP). If ROIP is in default mode, enter "192.168.1.x" (x is any value from 1 to 254 other than 80)
- Enter Subnet Mask. If ROIP is in default mode, enter "255.255.255.0"
- Enter Default Gateway. If ROIP is in default mode, enter "192.168.1.1"

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Ethernet Status

General

Connection
IPv4 Connectivity
IPv6 Connectivity
Media State:
Duration:
Speed:

Details...

Activity

Bytes:

Properties

Organize ▾   Disable this network device   Diagn...   Change setting

Inactivate the selected network
device so that it cannot be used.

Ethernet
Cospaces
Realtek USB FE Family Controller

Ethernet Properties   ✕

Networking   Sharing

Connect using:

Realtek USB FE Family Controller

Configure...

This connection uses the following items:

☑ File and Printer Sharing for Microsoft Networks
☑ VirtualBox NDIS6 Bridged Networking Driver
☑ Npcap Packet Driver (NPCAP)
☑ QoS Packet Scheduler
☑ Internet Protocol Version 4 (TCP/IPv4)
☐ Microsoft Network Adapter Multiplexor Protocol
☑ Microsoft LLDP Protocol Driver

Install...   Uninstall   Properties

Description
Transmission Control Protocol/Internet Protocol. The default
wide area network protocol that provides communication
across diverse interconnected networks.

OK   Cancel

3 items   1 item selected

Ethernet Status

General

Connection
IPv4 Connectivity
IPv6 Connectivity
Media State:
Duration:
Speed:

Details...

Activity

Bytes:

Properties

Ethernet Properties   ✕

Networking   Sharing

Connect using:

Realtek USB FE Family Controller

This connection uses the following items:

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☑ Npcap Packet Driver (NPCAP)
☑ QoS Packet Scheduler
☑ Internet Protocol Version 4 (TCP/IPv4)
☐ Microsoft Network Adapter Multiplexor Pr
☑ Microsoft LLDP Protocol Driver

Install...   Uninstall

Description
Transmission Control Protocol/Internet Protocol
wide area network protocol that provides comm
across diverse interconnected networks.

OK

Search Network Connections

Change settings of this connection

Internet Protocol Version 4 (TCP/IPv4) Properties   ✕

General

You can get IP settings assigned automatically if your network supports
this capability. Otherwise, you need to ask your network administrator
for the appropriate IP settings.

○ Obtain an IP address automatically
● Use the following IP address:

IP address: 192 . 168 . 1 . 11
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 1

○ Obtain DNS server address automatically
● Use the following DNS server addresses:

Preferred DNS server: 192 . 168 . 1 . 1
Alternate DNS server: 8 . 8 . 8 . 8

☐ Validate settings upon exit   Advanced...

OK   Cancel

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Factory Default ROIP Settings

IP Settings:

   Local IP: "192.168.1.80"
        Subnet Mask: "255.255.255.0"
        Gateway: "192.168.1.1"
        Password: "admin" (without using "")

ROIP Configuration

- Connect ROIP to a computer/laptop using Ethernet Cable and follow "Computer IP Configuration" procedure.
- Open a Web browser (Internet Explorer, Mozilla Firefox, Chrome, etc) on the computer.
- Enter the Local IP address of the ROIP on the address bar of web browser as shown below (factory default: "192.168.1.80"):
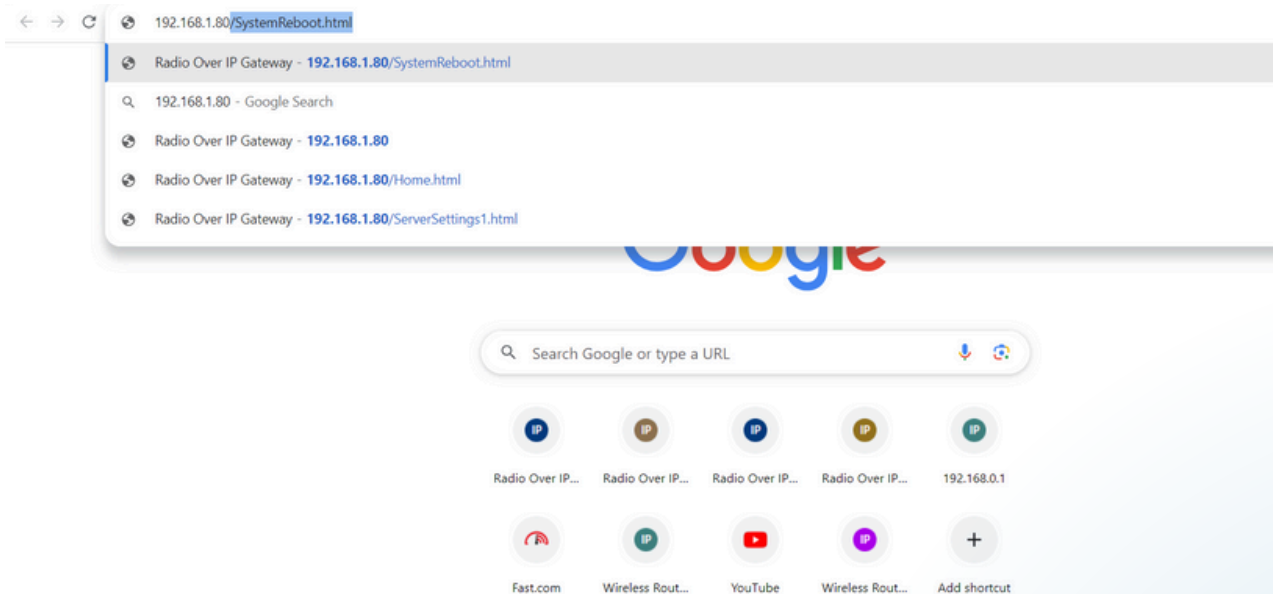
- A Login page will appear as shown below. Enter login password andpress Login (factory default: admin).

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ROIP WEBSEVER LOGIN

Password :

Login

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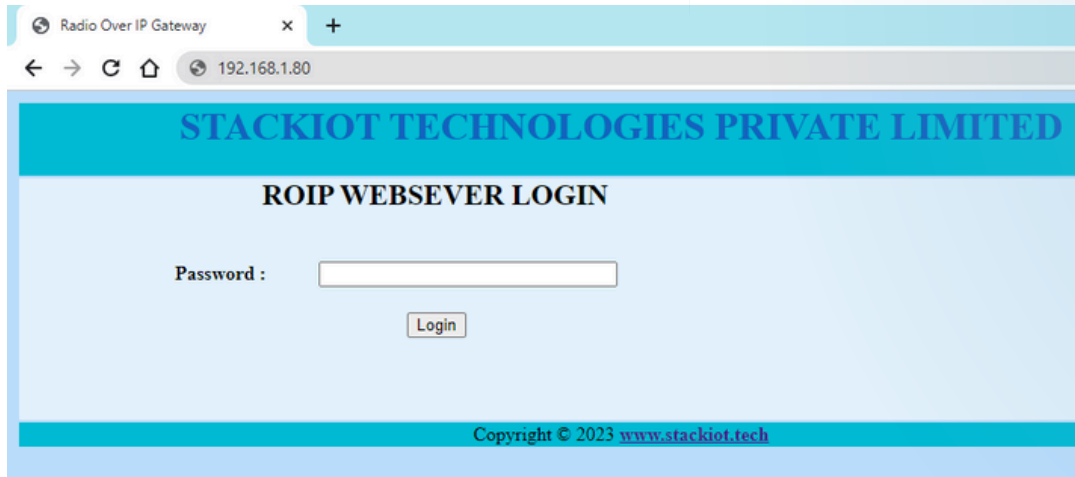
• Radio Over Ip Gateway Settings Home Page will appear as below.

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Radio Over IP Gateway (Model ROIP-300Dx)

Home
Ip Config Settings
Radio Config Settings
Server Config Settings
Other Config Settings
Logs
Change Password
System Reboot
System Update
Logout

Version : 2.9.0.17
Mac Address: 8C:1F:64:AB:F0:25

Connection 01: CONNECTED (065.001.095.092 : 04040)
Connection 02: CONNECTED (065.001.095.092 : 04041)

RADIO: CONNECTED

SERIAL DATA ---- RX:0222 bytes, TX:0090 bytes
DMR COMMANDS ------- RX: 0018 TX: 0000

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Local-IP Settings Configuration

- Select "IP Config Settings" on the Home Page.
- An IP Configuration Settings Page will open as shown below.
- Modify values as mentioned in "System Configuration".
- Click on Save to confirm the changes.
- Reset Power of Roip for changes to take effect.
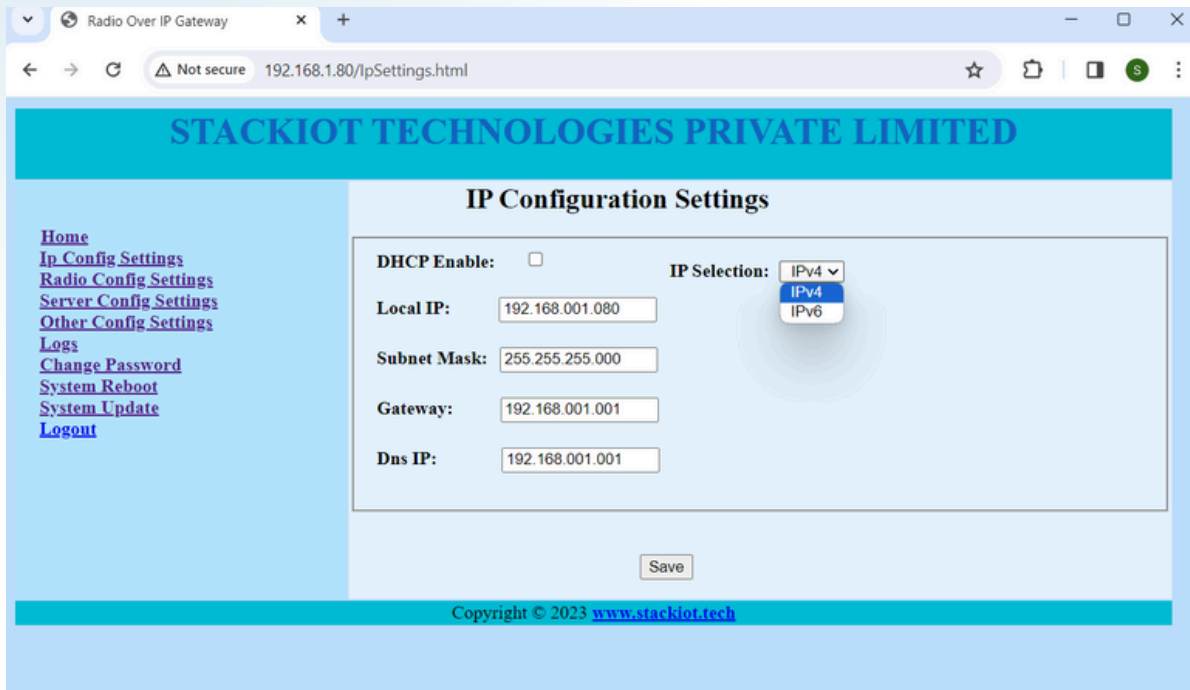
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- You can also change IP Configuration between IPv4 and IPv6 in IP Settings Configuration
- Select DHCP Enable Checkbox to request IP Configuration Settings from the Network Gateway / DHCP Server


Server IP Configuration

- On this Page, we will configure the Server Connection Details to connect to the RoIP Server.
- There are two connection Ports provided to enter Connection Details for two Server. They could be configured either in Multi-Connection or as Redundant Mode.

- Remote DNS Enable : *Enable this feature if Server DNS Name is available and Server IP keeps on dynamic.*
- Remote IP : *Enter the Server IP Address or leave as blank or 0.0.0.0 if not available.*
- Remote Port: *Enter the Port Address on Server where this RoIP will connect. Check User Configuration Settings on the RoIP Server for this RoIP Account Port details*

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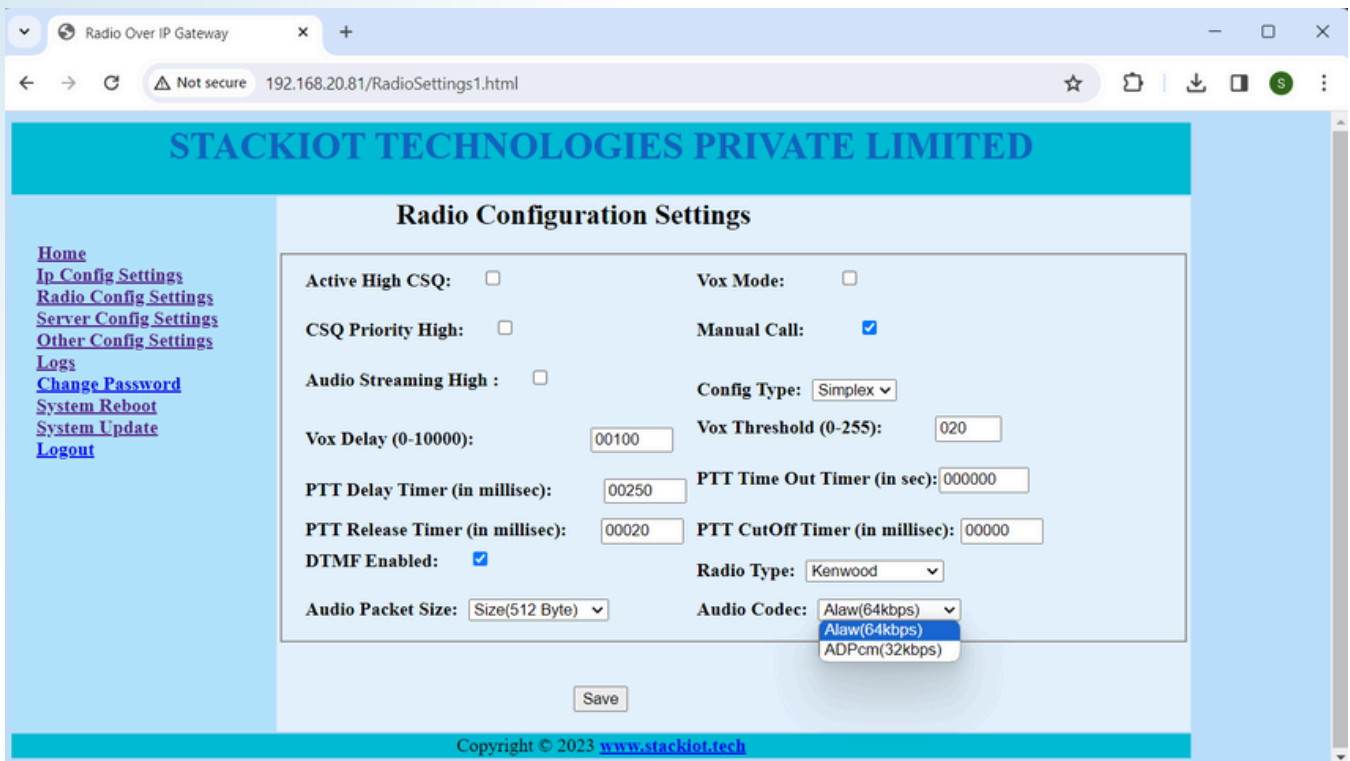www.stackiot.tech   support@stackiot.tech
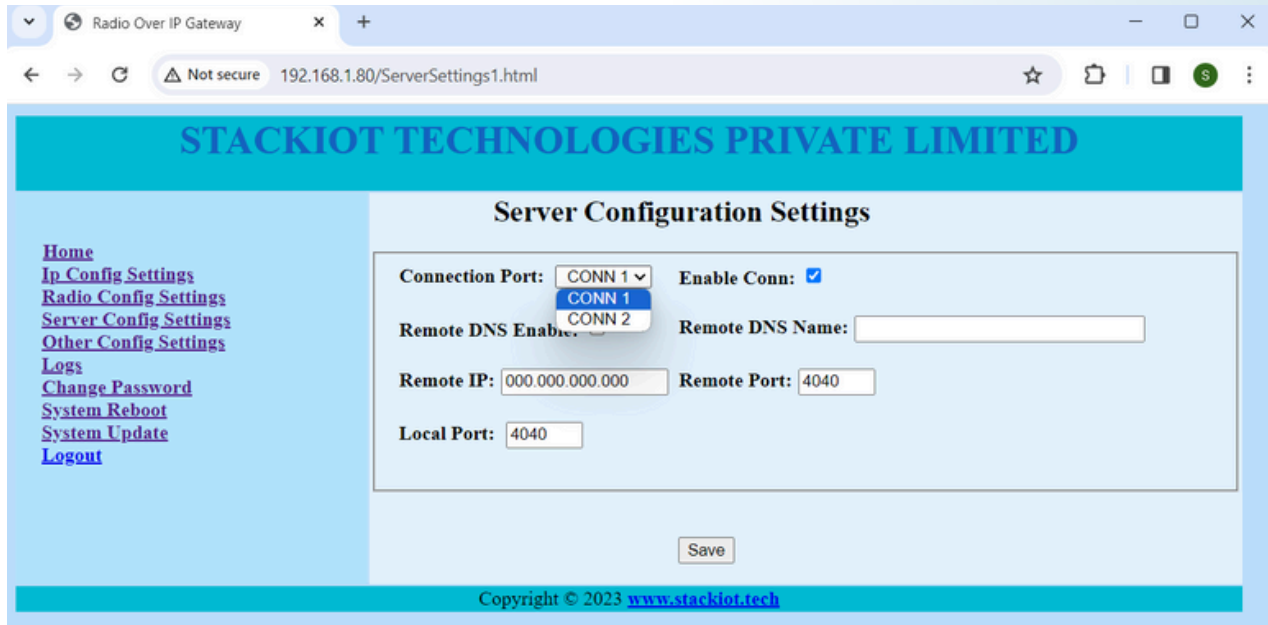
- Local Port: This is the Local Port of RoIP Device from which it will make the IP Connection to Server. Leave it as default. It would be 4040 for Connection 1 and 4041 for Connection 2.
- Click on Save
- Click on System Reboot after Saved Successfully is shown.

Radio Settings Configuration

- Select "Radio Config Settings" on the Home Page.
- A Radio Configuration Settings Page will open as shown below.
- Modify values as mentioned in "System Configuration".
- Click on save to confirm the changes.
- Reset Power of ROIP for changes to take effect.

ROIP Supports interface for all conventional analog and digital radios. Radio Interface port has provision to connect audio, control signals from all radios and also has USB Port, RS232 UART Port to connect to digital signaling. Radio Type Selection for the same can be done in Radio configuration Settings. Audio, Control Signal and Digital Data Signal Configuration of the Radio can also be controlled from this page.

Key Points

- Active High CSQ: Enable Option if CSQ is Active High.
- Vox Mode: Enable Option for Vox mode operation, CSQ Signal not coming from Radio Set.
- CSQ Priority High: Enable option for permanent Call Active Mode.
- Config Type: Select "Simplex " for Radio Communication (default).
- Vox Delay: Vox Delay value in millisecond, applicable only when Vox mode is enabled.
- Vox Threshold: Minimum threshold audio level to trigger CSQ Signal in Vox mode. (Range: 0 to 255).
- PTT Delay Timer: PTT Audio Delay/Buffering Timer in millisecond.
- PTT Time Out Timer: Max Continuous PTT Enable Timer (in millisecond). Enter 0 to disable the feature.

- PTT Release Timer: CSQ Signal Wait Timer (in millisecond) after PTT signal is disabled.
- PTT Cut off Timer: Transmit Audio Cut off Timer at end to truncate.
- DTMF: Enable Option for DTMF Dialing feature through Hand Sets Held.

Change Login Password

- Select "Change Password" on the Home Page.
- A Change Login Password Page will open as show on web as shown below.
- Enter "Old Password" , "New Password", Re-Enter "New Password" Click on Save to change password
- Click on System reboot ROIP for changes to take effect..

Reset ROIP to Factory Default Settings

- Power On the ROIP.
- Locate a small press button at the bottom side of ROIP.
- Press the button for 5-6 seconds while the ROIP wise led on, till all led at the front panel blinks twice.
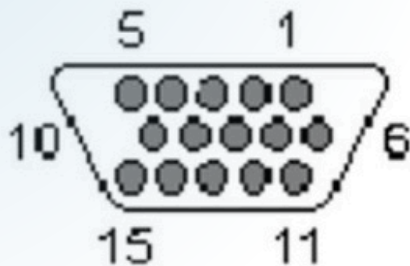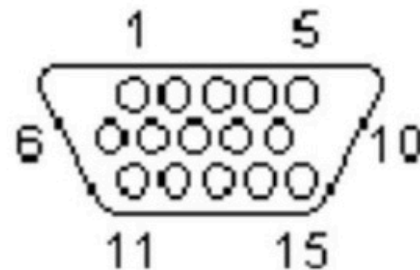- Reset Power of ROIP for changes to take effect.

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RADIO CONFIGURATION

Interface Cable Connections

ROIP BACK PANEL

Female Head

INTERFACE CABLE

Male Head

DB-15 (MALE)

RADIO 26-PIN CONNECTOR COLOUR CODE

- **Pin 1 - RX AUDIO**
- **Pin 2 - TX DATA (RS232)*** *(Optional)*
- **Pin 3 - RX DATA (RS232)*** *(Optional)*
- **Pin 4 - TX Audio**
- **Pin 5 - GND**
- **Pin 6 -** *No Connection*
- **Pin 7 -** *No Connection*
- **Pin 8 -** *No Connection*
- **Pin 9 - USB_VCC **** *(Optional)*
- **Pin 10 -** *No Connection*
- **Pin 11 -** *No Connection*
- **Pin 12 - USB DATA - **** *(Optional)*
- **Pin 13 - USB DATA + **** *(Optional)*
- **Pin 14 - PTT**
- **Pin 15 - CSQ**

PIN 14- BROWN

PIN 11- WHITE

PIN 5- BLACK

PIN 3- GREEN

PIN 1- RED

PIN 2- ORANGE

PIN 17- YELLOW

PIN 20- BLUE

* Connection for Serial data Interface

** Connection for USB data Interface

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QUICK TROUBLESHOOT

Indication	Problem	Resolution
Link Led Off	Ethernet not initialized	Reset Power of Roip and check for Lan Connection Led on the Ethernet (RJ45) Connector.
Link Led Blinking Fast	Connection Not Established	Check Lan Connection. Check Ping status of both IP. Check ROIP IP Configuration
Lan Connection Led Off/Blinking	Not Connected to LAN	Check Ethernet Cable.
Radio Receiving but CSQ Led not glowing	ROIP not receiving	Check Interface Cable. Check Radio Configuration Settings for CSQ mode or Vox mode. Check Radio Settings.
PTT Led glowing but Radio not transmitting	Radio not transmitting	Check Interface Cable. Check Radio Settings.
ROIP's CSQ Led glowing but other ROIP's PTT Led not glowing	Connection Break	Check Lan Connection. Check Ping status of both IP. Check ROIP IP Configuration.

NOTES

Interface Cable Connections

ROIP (DB-15 Male)	Description	Color Coding For Motorola	MOTOROLA XIRM	KENWOOD NX-3720
PIN 5	GND	Black	PIN 5	PIN 15
PIN 4	TX AUDIO (MIC+)	White	PIN 11	PIN 5
PIN 15	CARRIER (CSQ DETECT)	Blue	PIN 20	PIN 11
PIN 14	PTT	Yellow	PIN 17	PIN 10
PIN 1	RX AUDIO (SPK+)	Brown	PIN 14	PIN 4
PIN 2	TXDATA		-	PIN 7
PIN 3	RXDATA		-	PIN 6
PIN 9	PWR 5V	Green	PIN 3	-
PIN 12	USB DATA (+)	Orange	PIN 2	
PIN 13	USB DATA (-)	Red	PIN 1	