

## ***RVON Resource Guide***

**RVON-8**  
**RVON-1**  
**RVON-I/O**

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# *Basic Network Configuration*

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## *Basic Network Configuration*

This section covers basic network configuration set-up and testing. Also covered are basic concepts and operations, including the difference between LAN and WAN networks and how IP Addressing is used.

In a networked environment, such as a company, typically there are many computers connected together using a **router** or a **switch**. In larger companies, there may be several different routers distributed in buildings and plant locations. A router allows any LAN-side computer to communicate with other computers and devices outside the LAN (local area network). Routers send data packets from one place to another place on a network. routers use network addresses to route packets to the correct destination. For example, in a TCP/IP network, the IP (internet protocol) address of the network interface is used to direct router destinations.

Because routers help computers inside the LAN “talk” with computers outside of the LAN, the security of a company’s LAN may be compromised by gaps of open ports in the router. Security measures may have been instituted to compensate for these vulnerabilities. Consult you network administrator to learn about the security measures taken to protect your network. **VPN**, or virtual private network, is one such security measure to protect the intelligence of the LAN. A computer outside the LAN must have an address or key known by the VPN to allow access to the LAN. Many companies use a VPN to connect two different LANs, thus allowing the transfer of data between two networks.

### **LAN (local area network) vs. WAN (wide area network)**

#### **LOCAL AREA NETWORK**

Simply put, a LAN is a computer network that connects a relatively small area (a single building or group of buildings). Most LANs connect workstations and computers to each other. Each computer (also known as a “node”), has its own processing unit and executes its own programs; however, it can also access data and devices anywhere on the LAN. This means many users can access and share the same information and devices. A good example of a LAN device is a network printer. Most companies cannot afford the budgetary or hardware expense of providing printers for each of its users; therefore, one printer (or device) is placed on the LAN where every user can access the same printer.

The LAN uses IP Addresses to route data to different destinations on the network. An IP Address is a 32-bit numeric address consisting of four numbers separated by periods (for example, 1.160.10.240).

NOTE: For more information on IP Addresses, see you local network administrator.

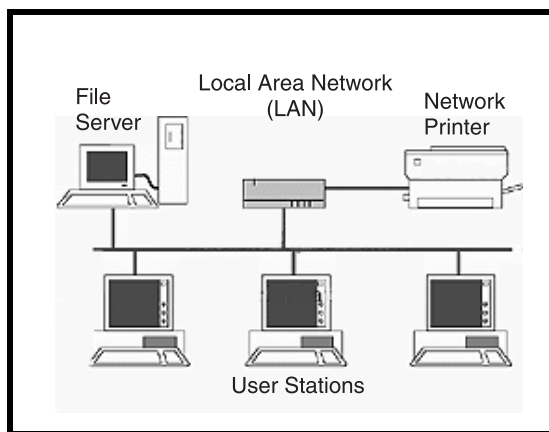


Figure 1. Local Area Network Diagram

## WIDE AREA NETWORK

A wide area network (WAN) connects two or more LANs and can span a relatively large geographical area. For example, Telex Headquarters in Burnsville, MN is connected to several branch offices in Nebraska and Arkansas over a WAN. The largest WAN in existence is the Internet.

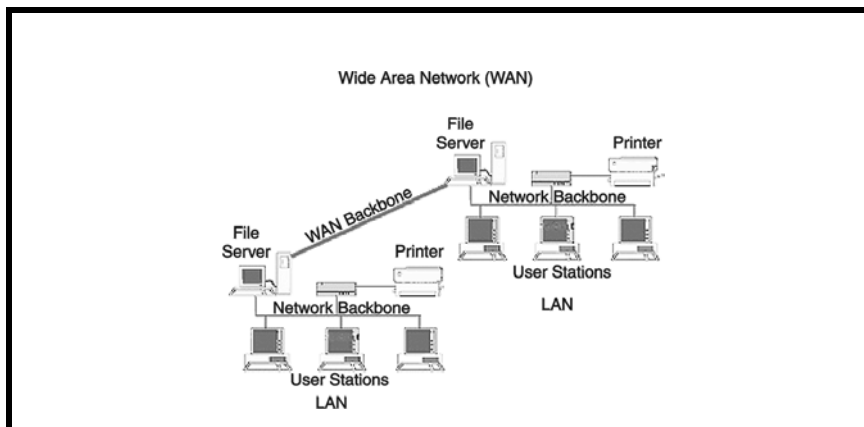
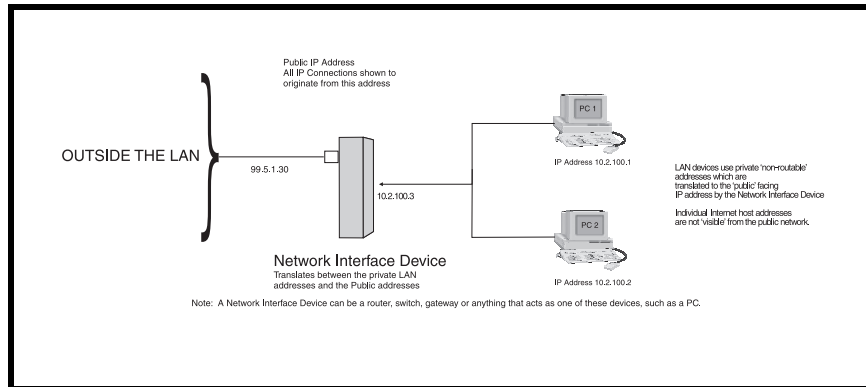


Figure 2. Wide Area Network Diagram

## ACCESSING THE WIDE AREA NETWORK (WAN)

Figure 3 shows LAN IP Addresses using a common IP Address, 10.2.100.X (192.168.X.X is another common address). Most devices are shipped with these addresses as its default. It is recommended to use these addresses for LANs.



**Figure 3.** Network Address Translation

## NETWORK ADDRESS TRANSLATION (NAT)

Using the initial IP Address, then converting it to a valid WAN IP Address is how the network address translation works, in theory. Once the IP address is changed, it is up to the network interface device (such as a router, gateway, switch, etc.) to keep track of which computers are talking on which ports. For example, if two local devices (PC1 and PC2 in Figure 3) both wanted to talk via port 1031, then the network interface device would have to change one of the port requests to the next available port, 1032.

## PORTS

In general, a network port is an endpoint to a logical connection. The port number identifies what type of port it is. For example, port 80 is used for HTTP traffic. When you type an address into the *address bar* of a web browser, your computer goes to find an IP Address for the url you are requesting (<http://www.telex.com>). To obtain this address, the computer contacts a DNS server (Domain Name Server). Once the IP Address is found, it tries to connect to the http port of the network device (port 80). See Table 1 for a list of the more well-known port numbers.

Each network device can be set-up to respond or not respond to the various ports. The function of responding or “hosting a service” is called “serving”.

**TABLE 1.** Packet Translation

|               | Source         |             | Destination    |             | Source         |             | Destination    |             |
|---------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|
|               | IP Address     | Port Number | IP Address     | Port Number | IP Address     | Port Number | IP Address     | Port Number |
| To Internet   | 10.2.100.2     | 1031        | 192.156.136.22 | 80          | 99.5.1.30      | 1031        | 192.156.136.22 | 80          |
| From Internet | 192.156.136.22 | 80          | 99.5.1.30      | 1031        | 192.156.136.22 | 80          | 10.2.100.2     | 1031        |

If a second workstation on the LAN wants to communicate to the same server, and happens to use the same source port number, then the LAN Modem will translate the source port number as well as the source IP address. In Table 2, a second

LAN computer wants to access a web page. The NAT device now uses port 1032 for this connection where it used port 1031 in Table 1.

**TABLE 2.** Packet Translation

|               | Source         |             | Destination    |             | Source         |             | Destination    |             |
|---------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|
|               | IP Address     | Port Number | IP Address     | Port Number | IP Address     | Port Number | IP Address     | Port Number |
| To Internet   | 10.2.100.1     | 1031        | 192.156.136.22 | 80          | 99.5.1.30      | 1032        | 192.156.136.22 | 80          |
| From Internet | 192.156.136.22 | 80          | 99.5.1.30      | 1032        | 192.156.136.22 | 80          | 10.2.100.1     | 1031        |

Amazingly, all the address translation that occurs takes place automatically in order to make web browsing and other functions easier. This is also a way for large web hosting services to speed up the network by having different devices perform different functions.

**TABLE 3.** Well-Known TCP Port Numbers

| 1   | TCP Port Service Multiplexer (TCPMUX) |
|-----|---------------------------------------|
| 5   | Remote Job Entry (RJE)                |
| 7   | ECHO                                  |
| 18  | Message Send Protocol (MSP)           |
| 20  | FTP-Data                              |
| 21  | FTP- Control                          |
| 23  | Telnet                                |
| 25  | Simple Mail Transfer Protocol (SMTP)  |
| 29  | MSG ICP                               |
| 37  | Time                                  |
| 42  | Host Name Server (Nameserv)           |
| 43  | Whols                                 |
| 49  | Login Host Protocol (Login)           |
| 53  | Domain Name Server (DNS)              |
| 69  | Trivial File Transfer Protocol (TFTP) |
| 70  | Gopher Service                        |
| 79  | Finger                                |
| 80  | HTTP                                  |
| 103 | X.400 Standard                        |
| 108 | SNA Gateway Access Server             |
| 109 | POP2                                  |

**TABLE 3.** Well-Known TCP Port Numbers

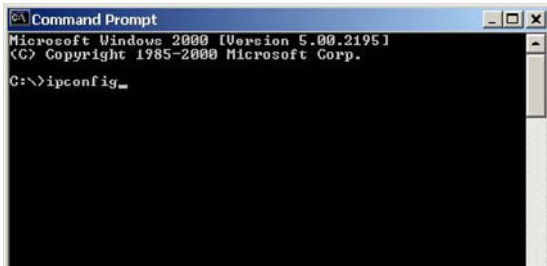
| 110 | POP3   |
|-----|--|
| 115 | Simple File Transfer Protocol                |
| 118 | SQL Services                                 |
| 119 | Newsgroup (NNTP)                             |
| 137 | NetBIOS Name Service                         |
| 139 | NetBIOS Datagram Service                     |
| 143 | Interim Mail Access Protocol (IMAP)          |
| 150 | NetBIOS Session Service                      |
| 156 | SQL Server                                   |
| 161 | SNMP   |
| 179 | Border Gateway Protocol (BGP)                |
| 190 | Gateway Access Control Protocol (GACP)       |
| 194 | Internet Relay Chat (IRC)                    |
| 197 | Directory Location Services (DLS)            |
| 389 | Lightweight Directory Access Protocol (LDAP) |
| 396 | Novell Netware over IP                       |
| 443 | HTTPS  |
| 444 | Simple Network Paging Protocol (SNPP)        |
| 445 | Microsoft-DS                                 |
| 458 | Apple Quick Time                             |
| 546 | DHCP Client                                  |
| 547 | DHCP Server                                  |
| 563 | SNEWS  |

## IP ADDRESSES

If you do not know your IP Address, you can open a DOS screen in a Windows®-based environment and bring up the ipconfig screen.

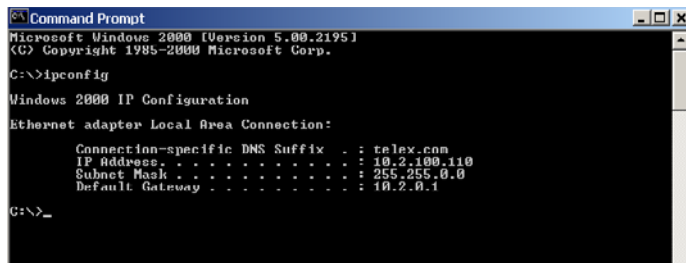
To find your IP Address using ipconfig, do the following:

1. From the Start Menu, open a **Command Prompt** screen.



```
Command Prompt
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.
C:\>ipconfig_
```

2. At the prompt, type **ipconfig**, then press **Enter**.  
*The IP configurations appear for your machine, such as the DNS suffix, IP Address, Subnet Mask, and Default Gateway.*



```
Command Prompt
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.
C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : telex.com
    IP Address. . . . . : 10.2.100.110
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 10.2.0.1

C:\>_
```

3. At the prompt, type **Exit** to close the screen.

**NOTE:** If you want more detailed parameters for your machine, type **ipconfig/All**. This screen shows the computers network configuration settings.

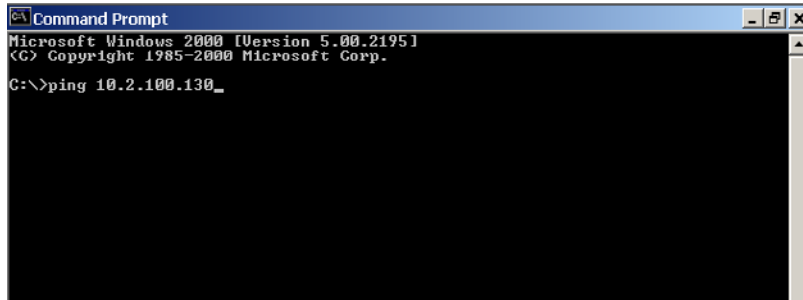
## Ping a Computer

Pinging a computer on the network makes sure it is able to be “seen” and receive messages on the network.

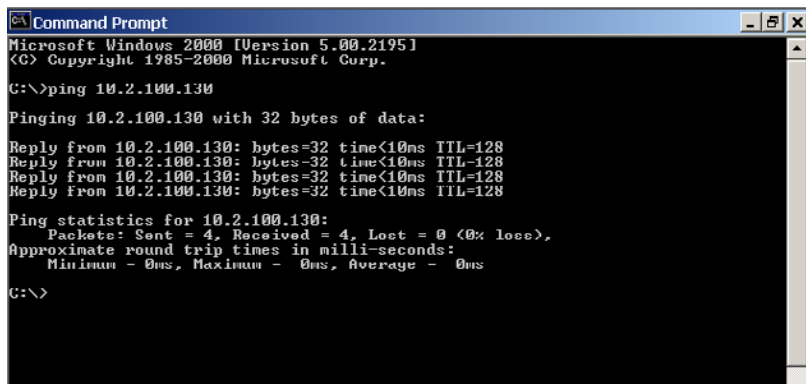
**NOTE:** You can also ping your RVON-8 card to verify that it is responding over the network by putting the cards IP Address in place of the computer IP Address.

To Ping a computer on the network, do the following:

1. From the Start menu, select **Run...**
2. At the Run command, type **CMD** to open a **Command Prompt** screen.



3. At the prompt, type the **IP Address** of the computer you wish to ping (for example, 10.2.100.130).
4. Press **Enter**.



**NOTE:** If the computer you are ping is not responding to the ping, you will receive a time-out message in the command prompt screen.

## POSSIBLE PITFALL WITH ROUTERS, GATEWAYS, AND SWITCHES

Anytime computers communicate through routers, gateways, and switches, they may be allowed or denied the connection. Network interface devices can be configured to block specific outgoing requests, as well as incoming requests, based on the IP Address and/or port. This is one of the security mechanisms of a router. This also happens when broadcast messages are sent and received.

To view the path an IP Address takes to retrieve information, you can execute a tracert from the Command Prompt Screen.

1. From the Start Menu, open a **Command Prompt** screen.



- At the prompt, type **tracert** and type the url or IP Address you want to trace.

```

Microsoft Windows [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>tracert www.telex.com

```

- Press **Enter**.  
*The details of the tracer route are displayed.*

```

Microsoft Windows [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>tracert www.telex.com

Tracing route to www.telex.com [192.112.63.15]
over a maximum of 30 hops:
  0  15 ms  <10 ms  <10 ms  router-burn.telex.com [10.2.0.1]
  1  *      *      *      Request timed out.
  2  <10 ms  <10 ms  <10 ms  www.telex.com [192.112.63.15]

Trace complete.

C:\>

```

**NOTE:** You will the message “request timed out” if the IP Address/ port IN or OUT is denied to the incoming or outgoing message.

- When you are finished, type **exit** to close the Command Prompt screen.

## RVON Configuration

RVON cards use ports for communication of audio and control packets. Because routers can be configured to block certain incoming and outgoing requests, you will need to open the following ports in your network to allow WAN connections to and from a Network Interface Device. See Table X for the ports that need to be opened for the RVON cards to operate properly.

**TABLE 4.** Ports necessary for RVON card functionality.

|      |                                  |
|------|----------------------------------|
|      |                                  |
| 2076 | UDP Call Control Signalling      |
| 2077 | UDP Audio Packets                |
| 2079 | UDP Telex Proprietary Signalling |
| 2080 | TCP Telex Keypanel Protocol      |
| 2081 | UDP Pass Through Serial          |
| 2082 | TCP Firmware Download            |

**TABLE 4.** Ports necessary for RVON card functionality.

|      |                       |
|------|-----------------------|
|      |                       |
| 2100 | Remote Administration |
| 2102 | Authentication Server |

Below, is an example of a router configuration screen. Not all routers are configured the same way and may not look exactly like this screen.

LINKSYS®

Filters Forwarding Dynamic Routing Static Routing UPnP Host MAC Addr. Clone Setup

PORT RANGE FORWARDING

Port forwarding can be used to set up public services on your network. When users from the Internet make certain requests on your router, they will be redirected to the specified IP.

| Customized Applications |  | Ext.Port     | Protocol                 | Protocol                            | IP Address | Enable                              |
|-------------------------|--|--------------|--------------------------|-------------------------------------|------------|-------------------------------------|
|                         |  |              | TCP                      | UDP                                 |            |                                     |
| RVON VOIP               |  | 2077 To 2077 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 10.2.210.0 | <input checked="" type="checkbox"/> |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |
|                         |  | 0 To 0       | <input type="checkbox"/> | <input type="checkbox"/>            | 10.2.210.0 | <input type="checkbox"/>            |

UPnP Forwarding Port Triggering

Apply Cancel

NOTE: Linksys™ supports up to 253 nodes on a router. This is why it is called a Router/Switch because there are WAN functions like a router as well as having a 4-port LAN switch. It also does not support simultaneous forward and DHCP.

## Network Terminology

### Bridges

A **bridge** is a device that connects two LANs, or two segments of the same LAN that use the same protocol. Sometimes called “transparent bridges, they work at the OSI model Layer 2. Simply put, they are not concerned with protocols. Their main job is to pass data to a destination address that is predetermined in the data packet.

With a bridge, all of your computers are on the same network subnet (see Subnet). This means your computers can communicate with each other and have their own Internet connection. If you assign your own IP Addresses be sure to use the same first 3 “octets” of the IP Address (for example, 192.168.0.X).

### Domain Name Server (DNS)

A **DNS Server** is an Internet service that translates domain names (for example, in the URL *http://www.telex.com*, the domain name is the *telex.com*) into IP Addresses. The Internet is based on IP Addresses

which are numeric and since domain names are alphabetic, they are easier to remember. Every time a domain name is used it must go through the DNS server to be translated into an IP Address.

## Gateway

A **gateway** is a node on a network that serves as an entrance to another network. The gateway routes traffic from a computer to an outside network that is serving the web pages. For example, the gateway for a home computer is the ISP provider that connects the user to the Internet.

In a corporate environment, the gateway often acts as a proxy server and a firewall. Gateways are similar to routers and switches in that they forward data to the destination and provide the path for which the data will travel to the destination.

## Hub

A hub is a common connection point for devices in a network. A hub has multiple ports. When a data packet arrives at a hub, it is copied and distributed to all of its ports so that all nodes on the LAN can see the packets.

There are three types of hubs:

**passive hub** - this hub serves as a conduit for the data, enabling it to go from one device to another.

**intelligent hub** (also known as *manageable hubs*) - this hub includes additional features that enable administrators to monitor traffic through the hub.

**switching hub** - this hub reads the destination address of each packet and then forwards the data packet to the appropriate port.

## IP Address (Internet Protocol Address)

An **IP Address** is an identifier or numerical name for a computer or device on a network. Data between computers are routed over the network using these addresses to identify the computer the message is being sent to and the computer the message is being sent from.

The format of an IP Address is a 32-bit numeric address written as four numbers separated by periods. For example, an IP Address looks like 10.100.1.1.

**IMPORTANT:** When working within an isolated network (meaning there is no Internet access), IP Addresses can be assigned at random just as long as they are unique to each computer and device. When the isolated network is connected to the Internet, registered Internet Addresses must be obtained. This is to prevent duplication of addresses.

The four numbers in an IP Address are used in different ways to identify a particular network and host on that network. There are three classes of Internet Addresses.

CLASS A - supports 16 million hosts on each of 127 networks.

CLASS B - supports 65,000 hosts on each of 16,000 networks.

CLASS C - supports 254 hosts on each of 2 million networks.

## LAN

A LAN is a computer network that connects a relatively small area (a single building or group of buildings). Most LANs connect work stations and computers to each other. Each computer (also known as a “node”), has its own processing unit and executes its own programs; however it can also access data and devices anywhere on the LAN. This means that many users can access and share the same information and devices. A good example of a LAN device is a network printer. Most companies cannot afford the budgetary or hardware expense of providing printers for each of its users; therefore, one printer (i.e., device) is placed on the LAN where every user can access the same printer.

The LAN uses IP Addresses to route data to different destinations on the network. An IP Address is a 32-bit numeric address written as four numbers separated by periods (for example 1.160.10.240).

#### Port

A port, when referring to TCP and UDP networks, is an endpoint in a logical connection. The port number identifies the type of port it is. For example, port 80 is used for HTTP traffic.

#### Routers

A **router** is a device that forwards data packets over networks. Most commonly, a router is connected to at least two networks (normally LANs or WANs). Routers are located at gateways, the place where two networks are connected. Routers do little data filtering, they mainly deliver the data.

#### Subnet

A **subnet** is a portion of a network that shares a common address component. On a TCP/IP network, a subnet is described as all computers or devices whose IP Address have the same prefix.

Subnetting a network is useful because it provides security for the network as well as increases performance of the network. IP networks are divided using subnet masks.

#### Switches

A **switch** is a device that filters and forwards data packets between networks. Switches operate at the data layer, and sometimes at the network layer.

#### WAN

A **wide area network** connects two or more LANs and can span a relatively large geographical area. For example, Telex Headquarters in Burnsville, MN is connected to several of its branch offices in Nebraska and Arkansas over the wide area network. The largest WAN is the Internet.

# Serial Port Programming

## RVON Serial And Telnet Commands

RVON card programming can be done via direct serial or telnet connection. There are several physical connections to an RVON board.

- Direct serial through custom debug cable (J20 6-pin bottom front)
- Backcard DB-9 J2 - The backcard DB-9 must be disabled/enabled via a DIP Switch because it can also be used for serial port pass-through. The backcard DB-9 can be used for a debug terminal when DIP switch 6 is switched to the ON position.
- Backcard RJ-45 J1 (Telnet Only)

### Setup

Serial Port 38,400 baud, no-flow control

Telnet IP Address, port 23

**TABLE 5.** RVON Supplemental Coding Table

| Coding | Codec | Codec Rate | Size | VAD |
|--------|-------|------------|------|-----|
| 1      | 711u  | 64k        | 10   | Y   |
| 2      | 711u  | 64k        | 20   | Y   |
| 3      | 711u  | 64k        | 30   | Y   |
| 4      | 711u  | 64k        | 10   | N   |
| 5      | 711u  | 64k        | 20   | N   |
| 6      | 711u  | 64k        | 30   | N   |
| 7      | 711A  | 64k        | 10   | Y   |
| 8      | 711A  | 64k        | 20   | Y   |
| 9      | 711A  | 64k        | 30   | Y   |
| 10     | 711A  | 64k        | 10   | N   |
| 11     | 711A  | 64k        | 20   | N   |
| 12     | 711A  | 64k        | 30   | N   |
| 13     | 729AB | 8k         | 10   | Y   |

TABLE 5. RVON Supplemental Coding Table

| Coding | Codec | Codec Rate | Size | VAD |
|--------|-------|------------|------|-----|
| 14     | 729AB | 8k         | 20   | Y   |
| 15     | 729AB | 8k         | 40   | Y   |
| 16     | 729AB | 8k         | 60   | Y   |
| 17     | 729AB | 8k         | 10   | N   |
| 18     | 729AB | 8k         | 20   | N   |
| 19     | 729AB | 8k         | 40   | N   |
| 20     | 729AB | 8k         | 60   | N   |
| 21     | 723   | 5.3k       | 30   | Y   |
| 22     | 723   | 5.3k       | 60   | Y   |
| 23     | 723   | 5.3k       | 30   | N   |
| 24     | 723   | 5.3k       | 60   | N   |
| 25     | 723   | 6.3k       | 30   | Y   |
| 26     | 723   | 6.3k       | 60   | Y   |
| 27     | 723   | 6.3k       | 30   | N   |
| 28     | 723   | 6.3k       | 60   | N   |

TABLE 6. Codec Specifications

| Coding Profile  | Codec | Codec Rate | Audio (ms) / Packet | Packets / Second | Encoded Audio (bytes) | IP Overhead (bytes) | Total Package Size (bytes) | Bandwidth (Bytes/sec) | Bandwidth (kbps/side) | Bandwidth (kbps/channel) |
|---|-------|------------|---------------------|------------------|-----------------------|---------------------|----------------------------|-----------------------|-----------------------|--------------------------|
| 0,3,6,9   | G.711 | 64k        | 10                  | 100.00           | 80                    | 60                  | 140                        | 14000                 | 112                   | 224                      |
| 1,4,7,10  | G.711 | 64k        | 20                  | 50.00            | 160                   | 60                  | 220                        | 11000                 | 88                    | 176                      |
| 2,5,8,11  | G.711 | 64k        | 30                  | 33.33            | 240                   | 60                  | 300                        | 10000                 | 80                    | 160                      |
| 12,16   | G.729 | 8k         | 10                  | 100.00           | 10                    | 60                  | 70                         | 7000                  | 56                    | 112                      |
| 13,17   | G.729 | 8k         | 20                  | 50.00            | 20                    | 60                  | 80                         | 4000                  | 32                    | 64                       |
| 14,18   | G.729 | 8k         | 40                  | 25.00            | 40                    | 60                  | 100                        | 2500                  | 20                    | 40                       |
| 15,19   | G.729 | 8k         | 60                  | 16.67            | 60                    | 60                  | 120                        | 2000                  | 16                    | 32                       |
| 20,22   | G.723 | 5.3k       | 30                  | 33.33            | 24                    | 60                  | 84                         | 2800                  | 22.4                  | 44.8                     |
| 24,26   | G.723 | 6.3k       | 30                  | 33.33            | 24                    | 60                  | 84                         | 2800                  | 22.4                  | 44.8                     |
| 21,23   | G.723 | 5.3k       | 60                  | 16.67            | 48                    | 60                  | 108                        | 1800                  | 14.4                  | 28.8                     |
| 25,27   | G.723 | 6.3k       | 60                  | 16.67            | 48                    | 60                  | 108                        | 1800                  | 14.4                  | 28.8                     |
| <b>NOTE:</b> A channel consists of a transmitting and a receiving side, so the bandwidth is double for a bi-directional audio stream.<br><b>NOTE:</b> Bandwidth values are approximate maximums, actual bandwidth could be considerable lower with VAD enabled. |       |            |                     |                  |                       |                     |                            |                       |                       |                          |

|            |  |
|------------|--|
| Codec      | Determines how the audio is compressed/decompressed and the name given to the defined algorithm.   |
| Codec Rate | Actual bits per second of the audio in compressed form. This is sent over the network through various data packets. Network efficiency can be calculated with an IP header for each packet of X ms of audio.   |
| Size       | Amount of audio in each IP packet, milliseconds (ms)   |
| VAD        | Voice Activity Detection, when enabled and only when audio is above a certain threshold, will send packets. Otherwise, a silence packet is sent once, and not again until audio is above the threshold. Enabling this will result in a more efficient network. If there is ever a need to have all audio paths open and active, a network designer must account for this scenario. |

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FLASH FILE SYSTEM INITIALIZED.

DIP SWITCH SETTINGS:.....X

CONFIGURATION VIA AZEDIT DISABLED (VIA DIP SWITCH 1 ON)  
BACK CARD UART ENABLED FOR PASS-THROUGH SERIAL (VIA DIP SWITCH 6 OFF)  
BOOT DOWNLOADER DISABLED (VIA DIP SWITCH 7 OFF)  
AUTOLOAD ENABLED (VIA DIP SWITCH 8 OFF)

|                            |                           |
|----------------------------|---------------------------|
| MONITOR REVISION           | 1.00.00                   |
| MONITOR COMPILATION TIME   | SEPT 4 2003, 15.52.31     |
| BOARD TYPE / REVISION      | 0 (RVON-8) / 1            |
| RTL ID / REVISION          | 9 (RVON-8) / 0.16         |
| PROCESSOR ID / REVISION    | 0x80 (4Kc) / 0x50         |
| AVALANCHE DEVICE TYPE      | AVALANCHE-I, REVISION 1.3 |
| MEMROY CONTROLLER REVISION | 1.204                     |
| ENDIANNESS                 | BIG                       |
| EXTERNAL MEMORY RATE       | FULL                      |
| CPU FREQUENCY              | 125 MHZ                   |
| FLASH MEMORY SIZE          | 8 MBYTES                  |
| RAM SIZE                   | 64 MBYTES                 |
| FIRST FREE RAM ADDRESS     | 0x9401FLA8                |
| PLL MODE                   | OPERATING 2.50X           |

PRESS ANY KEY TO ABORT OS LOAD, OR WAIT 5 SECONDS FOR OS TO BOOT....

\*\*DEFRAGMENTING FILE SYSTEM FLASH AREA(S)\*\*

READING FLASH FILE SYSTEM... NO DELETED FLASH FILE ENTRIES FOUND.

LOADING FILE/ BIN/TELEXI FROM EFS

PC: 94020000

FTP DONE!, PC: 94020000

TARGET NAME: vxTARGET

ATTACHED TCP/IP INTERFACE TO EMAC UNIT 0

ATTACHING NETWORK INTERFACE Io0,,, DONE

NFS CLIENT SUPPORT NOT INCLUDED.

ADDING 5270 SYMBOLS FOR STANDALONE.

APPCREATE: AUTOBOOTLEVEL=2

MXP ENVIRONMENT IS CREATED.

CREATING RVON-8 APPLICATION...

```
-> BRINGING DSP SUBSYSTEM OUT OF RESET...
DSP DAUGHTERCARD TYPE IS SET TO NONE - No DSP DAUGHTERCARD FOUND
0000002223 - ROOT: FPGA VERSION = FF24
0x97E796F0 (TNETTASK): LINK IS UP ON EMAC A: 100 MBPS AND HALF DUPLEX.
ABOUT TO CREATE IDLE TASK
ABOUT TO CREATE MEASUREMENT TASK
IDLE MEASUREMENT TASKS CREATED
0000002536 - SERV: INITIALIZING CONNECTION SERVER
0000002536 - DNLD: INITIALIZING DOWNLOAD SERVER
0000002535 - NMM: ATPM UPDATE DATABASE GRANTED
0000002735 - NMM: ATPM CONFIGURED FOR RVON OPERATION
0000002735 - NMM: ATPM UPDATE DATABASE DONE
0000002735 - NMM: 0, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002741 - NMM: 1, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002742 - NMM: 2, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002743 - NMM: 3, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002744 - NMM: 4, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002744 - NMM: 5, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002745 - NMM: 6, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002746 - NMM: 7, STATES: OPER=NORMAL, ADMIN=NORMAL, CALL=IDLE
0000002746 - RVON: PORT 0, NOW IDLE
0000002746 - RVON: PORT 1, NOW IDLE
0000002746 - RVON: PORT 2, NOW IDLE
0000002746 - RVON: PORT 3, NOW IDLE
0000002746 - RVON: PORT 4, NOW IDLE
0000002746 - RVON: PORT 5, NOW IDLE
0000002746 - RVON: PORT 6, NOW IDLE
0000002746 - RVON: PORT 7, NOW IDLE
0000003037 - CBTX: MC/DBX IS TALKING
0000003041 - FNRX: CONTROL BUS FIFO NOW ENABLED
0000003093 - FNRX: NEW CARD CONFIGURATION RECEIVED
```

Following the power-ON messages, press **Return**.  
The -> appears. This is the operating system prompt.

There are many different serial port commands support from here, but is **NOT** recommended that any be used **EXCEPT**:

### **dbgcmd**

Type “dbgcmd”, then press Return.  
This places the serial port into the MXP> (MXP command mode)

The MXP Command Mode is the only mode that will be used. Table 1 is a list of commands support from the MXP Shell Prompt.



## RVON-8 Command Table

TABLE 7. RVON-8 Command Table

|                    |               |                |   |
|--------------------|---------------|----------------|---|
|                    |               |                |   |
| set rvon           |               |                | Help screen which lists all “set rvon” commands.  |
| set rvon           | ip_addr       | X.X.X.X        | Set the IP Address for the RVON-8 Card.   |
| set rvon           | netmask       | X.X.X.X        | Set network mask for the RVON-8 Card.   |
| set rvon           | gateway       | X.X.X.X        | Set the gateway IP Address for the RVON-8 card.   |
| set rvon           | user          | abcdefg        | Set the RVON-8 user name for telnet access.<br><i>Default “telex”</i>                                 |
| set rvon           | password      | abcdefg        | Set the RVON-8 password for telnet access (8-40 characters).<br><i>Default “password”</i>             |
| set rvon           | vad_threshold | [adaptive   #] | Set the VAD threshold (silence detection) Adaptive refers to auto-select. The # can be -20 to +10dBm. |
|                    |               |                |   |
| set channel [chan] |               |                | Help screen which lists all “set tcid” commands (TCID 0-7).   |
| set channel [chan] | dest_ip       | X.X.X.X        | Set the destination IP Address for this particular RVON_Channel (same as tcid).                       |
| set channel [chan] | dest_type     | X              | dest_type X = 0 (rvon-8), 1 (rvon-1), 2 (rvon-I/O).   |
| set channel [chan] | chan_codec    | X              | Set the profile to use which includes the compression codec see below (0-27).                         |
| set channel [chan] | onhook        |                | Force the channel to disconnect the port.   |
| set channel [chan] | offhook       |                | Force the channel to connect the port.  |
|                    |               |                |   |
| set emac auto*     |               |                | Enables auto-negotiation of the Ethernet interface configuration.                                     |
| set emac 10 half   |               |                | Configures the Ethernet interface for 10Mbps half duplex.   |
| set emac 10 full   |               |                | Configures the Ethernet interface for 10Mbps full duplex.   |
| set emac 100 half  |               |                | Configures the Ethernet interface for 100 Mbps half duplex.   |
| set emac 100 full  |               |                | Configures the Ethernet interface for 100 Mbps full duplex.   |
|                    |               |                |   |
| set serial         | ip_addr       | X.X.X.X        | Set the destination IP Address for this serial pass-through port.                                     |

---

**TABLE 7. RVON-8 Command Table**

|                        |      |   |  |
|------------------------|------|---|--|
|                        |      |   |  |
| set serial             | baud | X | Set the baud rate to use: 50 through 115000.                 |
|                        |      |   |  |
| activate               |      |   | Must do an activate command to cause changes to take effect. |
|                        |      |   |  |
| show rvon              |      |   | Display current settings                                     |
| show channel<br>[chan] |      |   | Display current settings                                     |
| show emac              |      |   | Display current settings                                     |

*RVON-1 Command Table***TABLE 8.** RVON-1 Command Table

|                        |               |                |   |
|------------------------|---------------|----------------|---|
|                        |               |                |   |
| set rvon               |               |                | Help screen which lists all “set rvon” commands.  |
| set rvon               | ip_addr       | X.X.X.X        | Set the IP Address for the RVON-1 Card.   |
| set rvon               | netmask       | X.X.X.X        | Set network mask for the RVON-1 Card.   |
| set rvon               | gateway       | X.X.X.X        | Set the gateway IP Address for the RVON-1 card.   |
| set rvon               | user          | abcdefg        | Set the RVON-1 user name for telnet access.<br><i>Default “telex”</i>                                 |
| set rvon               | password      | abcdefg        | Set the RVON-1 password for telnet access (8-40 characters).<br><i>Default “password”</i>             |
| set rvon               | vad_threshold | [adaptive   #] | Set the VAD threshold (silence detection) Adaptive refers to auto-select. The # can be -20 to +10dBm. |
|                        |               |                |   |
| set channel<br>[chan]  |               |                | Help screen which lists all “set chan” commands (CHAN 0-7).   |
| set channel<br>[chan]  | dest_ip       | X.X.X.X        | Set the destination IP Address for this particular RVON channel.                                      |
| set channel<br>[chan]  | dest_type     | X              | dest_type X = 0 (rvon-8), 1 (rvon-1), 2 (rvon-I/O).   |
| set channel<br>[chan]  | dest_chan     | X              | Set the destination channel - the port at the far end of the connection (0-7).                        |
| set channel<br>[chan]  | chan_codec    | X              | Set the profile to use, which includes the compression codec see below (0-27).                        |
| set channel<br>[chan]  | onhook        |                | Force the channel to disconnect the port.   |
| set channel<br>[chan]  | offhook       |                | Force the channel to connect the port.  |
| activate               |               |                | Must do an activate command to cause changes to take effect.  |
|                        |               |                |   |
| show rvon              |               |                | Display current settings.   |
| show channel<br>[chan] |               |                | Display current settings  |



*RVON-I/O Command Table***TABLE 9.** RVON-I/O Command Table

|                    |               |              |  |
|--------------------|---------------|--------------|--|
|                    |               |              |  |
| show rvon          |               |              | Shows RVON-I/O IP Address and other general information.   |
| show channel       |               |              | Shows destination address and connection information.  |
| show serial        |               |              | Shows serial port setting.   |
| show gpio          |               |              | Shows gpio settings.   |
| show panel         |               |              | Shows the channel control settings (poll id and baud rate).  |
| show emac          |               |              | Shows Ethernet settings.   |
|                    |               |              |  |
| set rvon           |               |              | Help screen which lists all “set rvon” commands.   |
| set rvon           | ip_addr       | X.X.X.X      | Set the IP Address for the RVON-I/O.   |
| set rvon           | netmask       | X.X.X.X      | Set the Network Mask for the RVON-I/O.   |
| set rvon           | gateway       | X.X.X.X      | Set the Gateway IP Address for the RVON-I/O.   |
| set rvon           | user          | username     | Set the RVON-I/O user name for Telnet access.<br><i>Default = telex</i>                                |
| set rvon           | password      | password     | Set the RVON-I/O password for Telnet access (8-40 characters).<br><i>Default = password</i>            |
| set rvon           | vad_threshold | adaptive (#) | Set the VAD threshold (silence detection). Adaptive refers to autoselect. The # can be -20 to +10 dBm. |
|                    |               |              |  |
| set channel [chan] |               |              | Help screen, which lists all “set chan” commands (0-7). This refers to VOIP channel setting.           |
| set channel [chan] | dest_ip       | X.X.X.X      | Set the destination IP Address for this particular RVON channel.                                       |
| set channel [chan] | dest_type     | X            | X = 0 (rvon-8), 1 (rvon-1), 2 (rvon-I/O)   |
| set channel [chan] | dest_chan     | X            | Set the destination channel - the port on the far end (0-7).   |
| set channel [chan] | chan_codec    | X            | Set the profile to use which includes the compression codec (see page X) (0-27).                       |
| set channel [chan] | input_gain    | X            | Set the input gain for the specified channel - 14 to +14dB   |
| set channel [chan] | output_gain   | X            | Set the output gain for the specified channel - 14 to +14 dB.  |

**TABLE 9.** RVON-I/O Command Table

|                       |           |         |  |
|-----------------------|-----------|---------|--|
|                       |           |         |  |
| set channel<br>[chan] | onhook    |         | force the channel to disconnect.   |
| set channel<br>[chan] | offhook   |         | force the channel to connect.  |
|                       |           |         |  |
| set serial            |           |         | Help screen, which lists all “set serial” commands.  |
| set serial            | mode      | X       | Set the serial mode.<br>0 = Pass Through mode  |
| set serial            | ip_addr   | X.X.X.X | Set the destination IP Address for this serial pass-through port.  |
| set serial            | ip_addr_2 | X.X.X.X | Not Available  |
| set serial            | baud      | X       | Set the baud rate to use:<br>50 through 115000.  |
|                       |           |         |  |
| set gpio              |           |         | Help screen, which lists all “set gpio” commands.  |
| set gpio              | mode      | X       | Set the gpio mode.<br>0 = Pass Through<br>1 = 1 Keypanel<br>2 = All Keypanels  |
| set gpio              | ip_addr   | X.X.X.X | Set the destination IP Address for pass-through mode.  |
| set gpio              | panel     | X       | Set the IO port the gpio are associated with on the RVON-I/O.  |
|                       |           |         |  |
| set panel             |           |         | Help screen, which lists all “set panel” commands.   |
| set panel<br>[pnl]    | poll_id   | X       | Make sure the panel poll_id corresponds to the source of the audio it is connected to.<br>0-10<br>0= do not respond to polls |
| set panel<br>[pnl]    | baud      | X       | Set the baud rate for the panel.<br>9600 or 76800  |

## Default RVON-8 Setup

Every attempt is made to ensure the board is shipped from the factory containing the following:

All are “**set rvon**” commands

**TABLE 1.** Default Set RVON-8 Commands

| ip_addr       | EMACA_IPADDR       | 192.168.1.1   | IP Address for the RVON-8 card.                             |
|---------------|--------------------|---------------|---|
| netmask       | EMACA_NETMASK      | 255.255.255.0 | Network mask for the RVON-8 card.                           |
| gateway       | EMACA_GW           | none          | Gateway IP Address for the RVON-8 card.                     |
| serial_ip     | RVON_SERIAL_IP     | none          | Pass-thru serial port IP Address for the RVON-8             |
| serial_baud   | RVON_SERIAL_BAUD   | 9600          | Set the pass-thru serial port baud rate for the RVON-8 card |
| user          | RVON_USER          | telex         | RVON-8 user name for Telnet access                          |
| password      | RVON_PASSWORD      | password      | RVON-8 password for Telnet access (8-40 characters)         |
| vad_threshold | RVON_THRESHOLD_VAD | adaptive      | VAD Threshold   |

There are more parameters that the software will auto-configure if they have not been previously setup. The user can also set these parameters, in which case the software would not modify, but take them as they are.

All are “**set chan #**” commands because they are for each audio channel.

**TABLE 2.** Set Chan # Setup Commands

| dest_ip    | RVON_DEST_IP_#    | X.X.X.X | Destination IP Address for this particular RVON_CH           |
|------------|-------------------|---------|--|
| dest_type  | RVON_DEST_TYPE_#  | X       | Destination Type - Y = 0 (rvon-8), 1 (rvon-1), 2 (rvon-I/O). |
| dest_chan  | RVON_DEST_CHAN_#  | X       | Destination Channel - What port of far-end (0-7).            |
| chan_codec | RVON_CHAN_CODEC_# | X       | Profile to use (see coding table)                            |

Typing “**printenv**”, then pressing **Return** from RVON-8 boot code or “**sys\_printenv**” from the “MXP” debug system prompt may show these commands. The Environment name is listed because this is the label used by the software.

**IMPORTANT:** If the user is attempting to do a “setenv” to change a parameter from the RVON-8 boot code, the Environment Name must be used, NOT the “set rvon” Variable name.

---

## Default RVON-1 Setup Commands

Every attempt is made to ensure the board is shipped from the factory containing the following:

All are “**set rvon**” commands

**TABLE 1.** Default RVON-1 Setup Commands

| ip_addr       | EMACA_IPADDR   | 10.2.210.170  | IP Address for the RVON-1 card.                      |
|---------------|----------------|---------------|--|
| netmask       | EMACA_NETMASK  | 255.255.255.0 | Network mask for the RVON-1 card.                    |
| gateway       | EMACA_GW       | none          | Gateway IP Address for the RVON-1 card.              |
| user          | RVON_USER      | telex         | RVON-1 user name for Telnet access.                  |
| password      | RVON_PASSWORD  | password      | RVON-1 password for Telnet access (8-40 characters). |
| vad_threshold | RVON_THRESHOLD | adaptive      | VAD Threshold  |

There are more parameters the software will auto-configure if they have not been previously setup.

All are “**set channel #**” commands because they are for each audio channel.

**TABLE 2.** Set Channel # Setup Commands

| dest_ip    | RVON_DEST_IP_# (0,1)    | X.X.X.X | Destination IP Address for this particular channel.         |
|------------|-------------------------|---------|---|
| dest_type  | RVON_DEST_TYPE_# (0,1)  | X       | Destination Type: X = 0 (rvon-8), 1 (rvon-1), 2 (rvon-I/O). |
| dest_chan  | RVON_DEST_CHAN_# (0,1)  | X       | Destination Channel - what port of far-end (0-7).           |
| chan_codec | RVON_CHAN_CODEC_# (0,1) | X       | Profile to use (see coding table).                          |

Typing “**sys\_printenv**” from the “MXP” Debug system prompt these settings.



---

## *Default RVON-I/O Setup*

Every attempt is made to ensure the board is shipped from the factory containing the following settings.

All are “**set rvon**” commands

|               |             |  |
|---------------|-------------|--|
|               |             |  |
| ip_addr       | 192.168.0.1 | IP address for the RVON-I/O                            |
| netmask       | 255.255.0.0 | Network mask for the RVON-I/O                          |
| gateway       | none        | Gateway IP address for the RVON-I/O                    |
| user          | telex       | RVON-I/O username for Telnet access.                   |
| password      | password    | RVON-I/O password for Telnet access (8-40 characters). |
| vad_threshold | adaptive    | VAD Threshold  |

**Table 1.** Set rvon default values. For more information see table on page X.

There are more parameters the software will auto-configure if they have not been previously setup.

All are “set channel #” commands because they are for each audio channel.

|            |         |   |
|------------|---------|---|
|            |         |   |
| dest_ip    | X.X.X.X | Destination IP Address for this particular channel.       |
| dest_type  | X       | Destination type X = 0 (rvon-8), 1 (rvon-1), 2 (rvon-I/O) |
| dest_chan  | X       | Destination channel - the port on the far end (0-7)       |
| chan_codec | X       | Profile to use (previous coding table).                   |

**Table 2.** Set Channel # commands



## *Product Specific Descriptions*

---

---

## *RVON-1 Jumpers and Connections*

A selectable RS232/485 serial port is a connector J1. Jumper connections on J10, J11, and J12 select the signal mode on J1.

- When J10, J11, and J12 are jumped from pins 1 to 2 - J1 is configured for RS485.
- When J10, J11, and J12 are jumped from pins 2 to 3 - J1 is configured for RS232.

J21 must be jumped from pins 1 to 2 to select UART B for RS485 RVON-1 keypanel operation.

### J2 Connector

The RVON-1 card is designed to be used with either a keypanel or an RVON-I/O card. The J2 connector mounts the RVON-1 card onto a keypanel.

RS232 debug serial port via Connector J3. J3 is a 6-pin header that connects to RS-232 compatible serial ports of the TNETV2020.

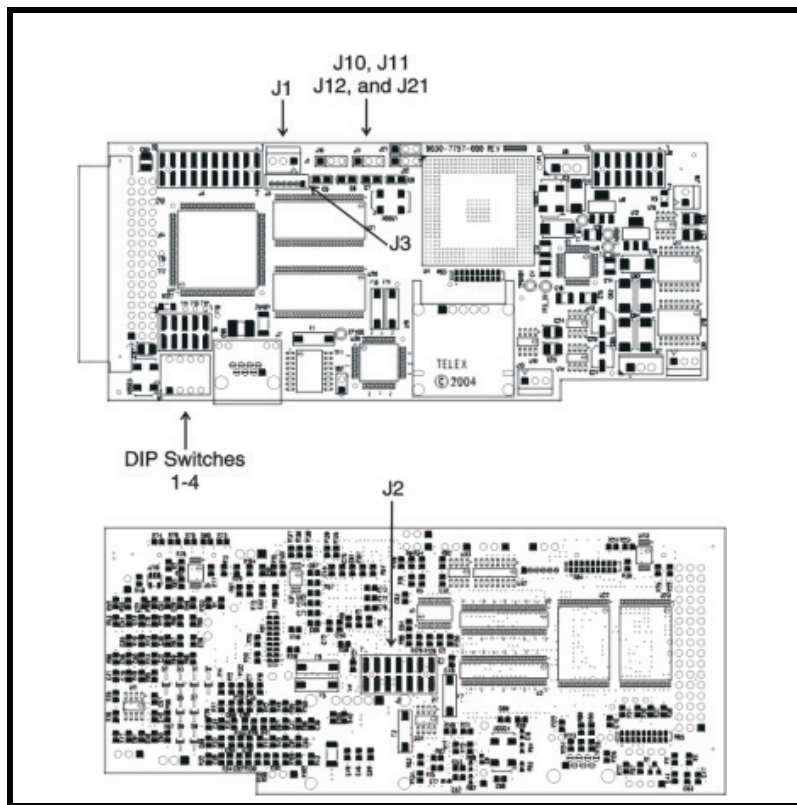


Figure 1. Front and back of the RVON-1 board

---

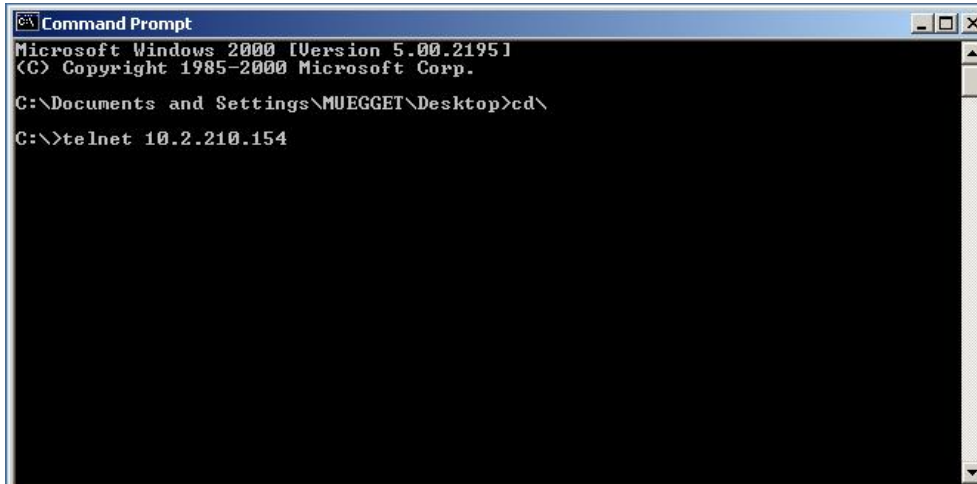
## *How to Configure the RVON-1 using Telnet*

Without access to the physical KP-32 with RVON-1 installed on it, you can still configure the card through the use of Telnet. The following instructions will show you how to access the Telnet screen and show you some of the information you can see and edit.

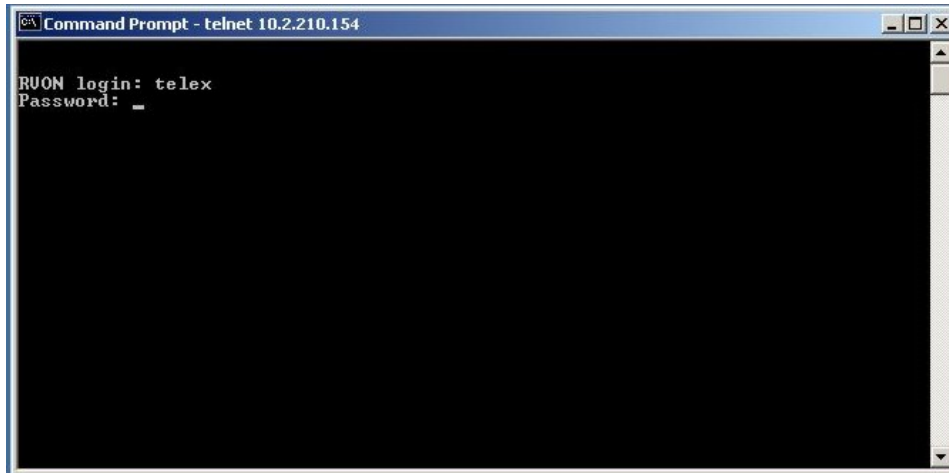
**NOTE:** These instructions are to help you get to the Telnet screens and give you an overview of what can be done. This is NOT an all inclusive document. Not every action that can be performed are contained within the document.

To Display the settings for the RVON-1 Card, do the following:

1. Open a command prompt.
2. At the prompt, type **Telnet <IP ADDRESS>** (The IP Address is the IP Address assigned to the RVON-1 card).

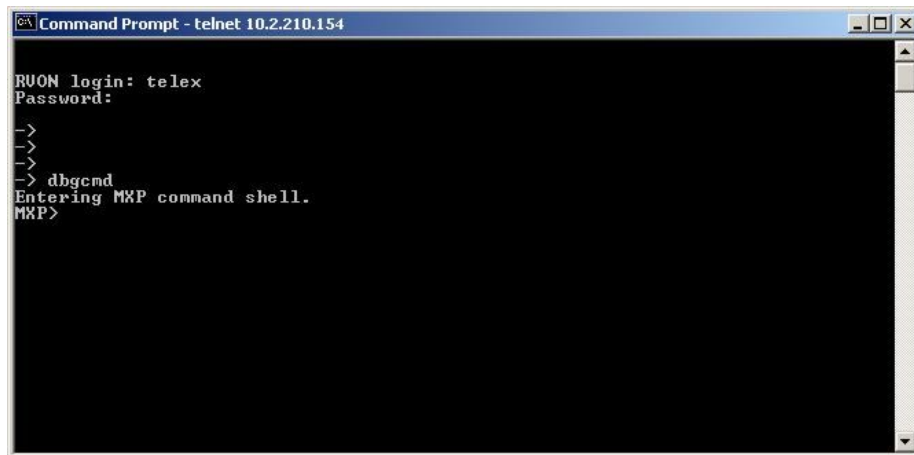


3. Press **Enter**.  
*The RVON logon screen appears.*



4. In the logon field, type the **RVON logon** (default = telex).
5. Press **Enter**.
6. In the password field, type the **RVON password** (default = password).
7. Press **Enter**.  
*A prompt appears.*

8. Type **dbgcmd** to access the debug command screens.

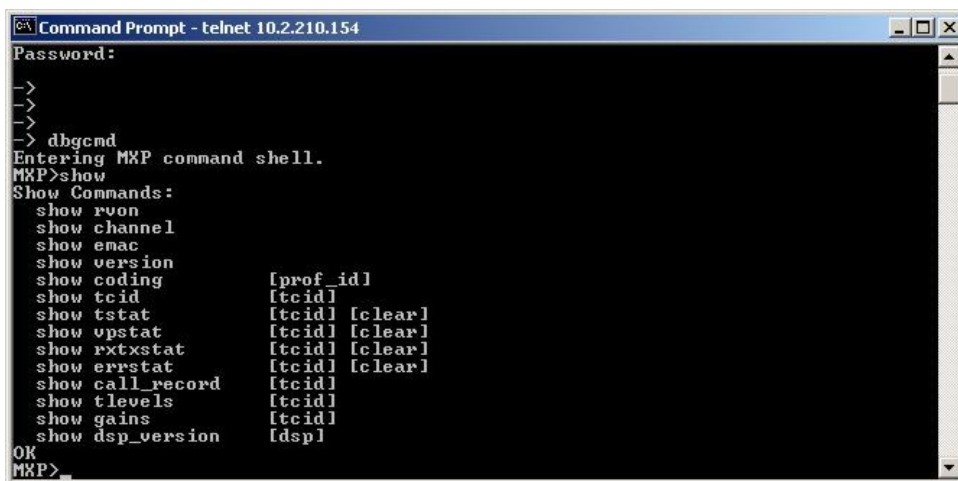


```

Command Prompt - telnet 10.2.210.154

RVON login: telex
Password:
->
->
->
-> dbgcmd
Entering MXP command shell.
MXP>
  
```

9. Press **Enter**.  
*An MXP prompt appears.*
10. At the prompt, type **Show**.
11. Press **Enter**.  
*The show commands screen and MXP prompt appears.*



```

Command Prompt - telnet 10.2.210.154

Password:
->
->
->
-> dbgcmd
Entering MXP command shell.
MXP>show
Show Commands:
show rvon
show channel
show emac
show version
show coding          [prof_id]
show tcid             [tcid]
show tstat            [tcid] [clear]
show upstat           [tcid] [clear]
show rxtxstat         [tcid] [clear]
show errstat          [tcid] [clear]
show call_record      [tcid]
show tlevels          [tcid]
show gains            [tcid]
show dsp_version      [dsp]
OK
MXP>
  
```

12. At the MXP prompt, type the **show command** you want to see (for example, “show rvon”).
13. Press **Enter**.  
*The values for the RVON-1 card appear.*

To edit the RVON-1 configuration, do the following:

1. Repeat steps 1 through 9 from above.
2. At the MXP prompt, type either **set RVON** or **set EMAC** (see screen descriptions below).
3. Press **Enter**.

```

MXP>set rvon
RVON CARD RELATED:
set rvon ip_addr <ip address <x.x.x.x>>
set rvon netmask <netmask <x.x.x.x>>
set rvon gateway <default gateway <x.x.x.x>>

set rvon serial_ip <ip address <x.x.x.x>>
set rvon serial_baud <baud rate <50-38400>>

set rvon user <username>
set rvon password <password <8-40 characters>>

set rvon vad_threshold <adaptive!value -- In dBm <-20 to 10>>

```

|                        |  |
|------------------------|--|
| set rvon ip_addr       | Allows you to edit the IP Address  |
| set rvon netmask       | Allows you to edit the netmask   |
| set rvon gateway       | Allows you to edit the gateway   |
| set rvon serial_ip     | Allows you to edit the serial IP Address   |
| set rvon serial_baud   | Allows you to set the baud rate (50-38400)   |
| set rvon user          | Allows you to set the username for the RVON-1 card. By default the user name is "telex"  |
| set rvon password      | Allows you to set the password for the RVON-1 card. By default, the password is "password"   |
| set rvon vad_threshold | Lets you set the vad threshold.<br><b>NOTE:</b> In AZedit, you can enable and disable VAD, however, through Telnet you able to set the amount. You will able to set the VAD threshold in later versions of AZedit. |

**Note:** This Telnet screen is almost duplicate to the right side of the Configuration screen for the RVON in AZedit.

```

MXP>set channel
RVON CHANNEL RELATED:
set channel [chan] dest_ip <ip address <x.x.x.x>>
set channel [chan] dest_type <type <0-2>, 0=RVON-8, 1=RVON-1, 2=RVON-10>
set channel [chan] dest_chan <chan <0-7>>
set channel [chan] chan_codec <prof_id <0 to <max_prof - 1>>>

set channel [chan] input_gain <gain <-14 to +14 dB>>
set channel [chan] output_gain <gain <-14 to +14 dB>>

set channel [chan] onhook
set channel [chan] offhook

```

|                           |   |
|---------------------------|---|
| set channel dest_ip       | Allows you edit the destination IP Address the RVON-1 card will communicate with  |
| set channel dest_type     | Allows you to edit the destination type for the device the RVON-1 card will talk with   |
| set channel dest_channel  | Allows you to edit the destination channel of the device the RVON-1 will talk with  |
| set channel channel_codec | Allows you to edit the CODEC to be used for transferring the data between the two devices   |
| set channel input_gain    | Allows you to edit the input gain for the RVON-1 card   |
| set channel output_gain   | Allows you to edit the output gain for the RVON-1 card.   |
| set the channel onhook    | onhook = hang up  |
|                           | If the channel was already connected, going offhook will have no effect (it is already offhook if connected). Going onhook will hang up the call, and it should then try to reconnect.  |
|                           | If the channel was not already connected, going offhook will cause it to try and establish a connection. Going onhook in this state will have no effect (it is already onhook if idle). |
| set channel offhook       | offhook = connected   |
|                           | If the channel was already connected, going offhook will have no effect (it is already offhook if connected). Going onhook will hang up the call, and it should then try to reconnect.  |
|                           | If the channel was not already connected, going offhook will cause it to try and establish a connection . Going onhook in this state will have no effect (it is already onhook).        |

**NOTE:** This Telnet screen is almost duplicate to the left side of the Configuration screen for the RVON in AZedit. One item to note is the ONHOOK and OFFHOOK.....this is a setting regarding the connection of the card to the Matrix.

```
ETHERNET INTERFACE CONFIGURATION RELATED:
  set emac  [auto] [100] [10] [full] [half]
MXP>
```

|          |   |
|----------|---|
| set emac | Allows you to edit the Ethernet Speed settings<br>Auto (automatically negotiates the Ethernet settings)<br>10 half duplex<br>10 full duplex<br>100 half duplex<br>100 full duplex |
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## *RVON-I/O Quick Start*

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### *Setting Channel Information of an RVON-I/O for a Local Keypanel*

**NOTE:** In this example, the RVON-I/O is directly connected to the ADAM Intercom System with an RVON-8 installed.

This example installs a keypanel on the first port of an RVON-I/O that connects back to the first channel of the RVON-8.

#### **RVON-I/O Unit Settings**

- All four DIP switches need to be in the OPEN position (Up).
- RVON-I/O IP Address should be set to 192.168.0.1
- Running version 1.0.0 firmware or higher

#### **RVON-8 Unit settings (done in AZedit)**

- RVON-8 IP Address should be set to 192.168.0.10
- Running version 1.2.0 firmware or higher

To set the channel information, do the following:

1. Connect a keypanel to the **J1 I/O 1** (Ethernet) connector on the RVON-I/O.  
*Addressing the keypanel is not needed.*
2. Open a Telnet session.
3. At the prompt, type **telnet 192.168.0.1** (default RVON-I/O IP Address).  
The RVON login screen appears.
4. In the logon field, type **telex** (default user logon for the unit).
5. Press **Enter**.
6. In the password field, enter **password** (default password for the unit).
7. Press **Enter**.
8. At the prompt, type **dbgcmd** and press **Enter** to access the MXP programming shell.
9. At the prompt, type set channel.
10. Press **Enter**.  
*The Set Channel menu list appears.*

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11. At the prompt, type **set channel 0 dest\_ip 192.168.0.10** (the address of the RVON-8 you want to connect with).
  12. Press **Enter**.
  13. At the prompt, type **set channel 0 dest\_type 0** (this tells the RVON-I/O it is connecting to an RVON-8).
  14. Press **Enter**.
  15. At the prompt, type **set channel 0 dest\_chan 0** (this tells the RVON-I/O it is connecting to channel 0 of the RVON-8).
  16. Press **Enter**.
  17. At the prompt, type **set channel 0 chan\_codec 2**.  
*This tells the RVON-I/O to use Codec G.711u, 64k 30ms packtes, VAD ON connecting back to the RVON-8. To use a different codec, see Table 11, "Supplemental Coding Table," on page 27.*
  18. Once finished, type **activate**.
  19. Press **Enter**.
  20. Configure the RVON-8 via AZedit to connect to the RVON-I/O.  
*The panel connected should be passing data and audio within a few moments.*

The front panel Green LED for the first channel should be flashing, instead of solid, from the data.

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## Setting Channel Information of an RVON-I/O for a Remote Keypanel

**NOTE:** In this example, the first port of Zeus (J1) is connected to the I/O connector of the RVON-I/O, then connected via Ethernet back to the first channel of an RVON-1 card installed in a KP-32.

### RVON-I/O Unit Settings

- DIP switches two through four need to be in the OPEN position (Up).
- DIP Switch 1 should be in the "Down" position (Remote)
- RVON-I/O IP Address should be set to 192.168.0.1
- Running version 1.0.0 firmware or higher

### KP-32 Unit settings

- The KP-32 with RVON-1 IP Address should be set to 192.168.0.10
- Running version 1.1.0 firmware or higher on the RVON-1 card

To find the RVON-1 version of the KP-32, do the following:

1. Open a **Telnet Session**.
2. Type **telnet 192.168.0.10** (default).
3. Press **Enter**.  
*RVON login appears.*
4. Type **telex**, and press **Enter**.  
*RVON password appears.*
5. Type **password**, and press **Enter**.
6. At the prompt, type **dbgcmd** and press **Enter**.  
*You have entered MXP programming shell.*
7. At the MXP prompt, type **show rvon** and press **Enter**.  
*A list of settings will appear which contains the RVON-1 version.*

**NOTE:** If the RVON-1 is not at Version 1.1.0 or higher, contact your RTS service engineer.

To set the channel information, do the following:

1. Connect the RVON-I/O Ethernet to the LAN.
2. Open a Telnet session.
3. At the prompt, type **telnet 192.168.0.1** (default RVON-I/O IP Address).  
The RVON login screen appears.
4. In the logon field, type **telex** (default user logon for the unit).
5. Press **Enter**.
6. In the password field, enter **password** (default password for the unit).
7. Press **Enter**.
8. At the prompt, type **dbgcmd** and press **Enter** to access the MXP programming shell.
9. At the prompt, type **set channel**.
10. Press **Enter**.  
*The Set Channel menu list appears.*
11. At the prompt, type **set channel 0 dest\_ip 192.168.0.10** (the address of the RVON-1 you want to connect with).
12. Press **Enter**.
13. At the prompt, type **set channel 0 dest\_type 1** (this tells the RVON-I/O it is connecting to an RVON-1).
14. Press **Enter**.
15. At the prompt, type **set channel 0 dest\_chan 0** (this tells the RVON-I/O it is connecting to channel 0 of the RVON-1).
16. Press **Enter**.
17. At the prompt, type **set channel 0 chan\_codec 3**.  
*This tells the RVON-I/O to use Codec G.711u, 64k 30ms packtes, VAD ON connecting back to the RVON-1 channel. To use a different codec, see X.*
18. Type the **set panel 0 poll\_id 1** and press **Enter**.  
*This tells the RVON-I/O channel that is connection back to a matrix port with a poll id address of 1, por 1,9,17,25, etc.).*
19. Type **set panel 0 baud 9600** and press **Enter**.  
*This tells the RVON-I/O that the data baud rate is 9600 bps for this channel.*
20. Once finished, type **activate**.
21. Press **Enter**.
22. Configure the RVON-1 tp accept the RVON-I/O connection.  
*The panel connected should be passing data and audio within a few moments. The front panel green LED for the first channel of the RVON-I/O should be flashing from the data instead of just solid when the keypanel is connected.*

