Voter Remote Interface (VRI)
for the
Raytheon®
JPS Communications™
SNV-12 12 Channel DSP Voter

Instruction Manual

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1 VOTER REMOTE INTERFACE

The SNV-12 12 Channel DSP Voter from Raytheon® JPS Communications™ selects the best audio input signal from up to 12 sites. The SNV-12 voter is a rack-mount shelf unit containing a Power Supply Module (PSM), a Console Interface Module (CIM), a Control Processor Module (CPM), and up to 12 individual Site Voter Modules (SVM) used to determine the best Signal Quality input.

The Voter Remote Interface (VRI) from Fial Incorporated provides a means of remotely monitoring and controlling the individual Site Voter Modules in multiple SNV-12 Voter shelves. The Fial Voter Remote Interface consists of a single Server program (VRIServer.exe) and up to 10 instances of the Client program (VRIClient.exe) running on separate computers. The VRI Server program can connect to a maximum of 14 individual SNV-12 shelves. The connection is over a TCP/IP network using a co-located TCP/IP to RS-232 serial converter (such as the Black Box® Advanced Console Server 8). The VRI Server program reads the state of the individual Site Voter Modules in each of the monitored SNV-12 voter shelves two times a second. The VRI Server program then passes only change of state information over the TCP/IP network to all connected VRI Client programs. All Server/Client communications are encrypted for security. It also forwards any control commands received from VRI Client programs to the target SNV-12 and SVM card.

The VRI Client program graphically displays each of the connected SNV-12 Voter shelves and the individual Site Voter Module cards populating each shelf. The individual Site Voter Modules in each shelf can also be remotely controlled from the VRI Client program. The SNV-12 must be properly configured to allow serial port remote control for this function to operate.

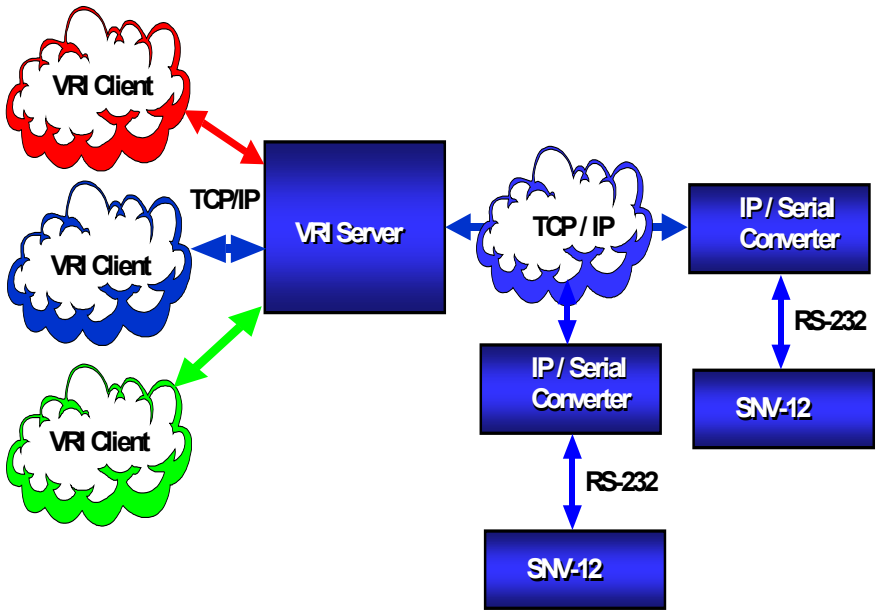

Figure 1-1. VRI System Overview

1.1 VRI Server Installation and Setup

Load the VRI Server program (VRI_Server.exe) on any computer that has access to the JPS SNV-12 Voter rear panel serial port via a TCP/IP connection and co-located converter box. By default, the installation program installs the VRI Server program in the ***C:\Program Files\Fial Incorporated\Voter Remote Interface*** directory.

When you run the Server program for the first time, an initial *Settings* dialog window opens (see Figure 1-2). This dialog allows you to specify the port number the VRI Client programs will use to connect to this server. Enter a ***unique*** and ***free*** port number in the Network ***Port Number*** entry field. This same number is used when setting up the VRI Client program. They must match.

Define the number of shelves to display in the VRI Client in the ***Set Up*** section. The number of shelves displayed can be set from the minimum of 4, up to the maximum of 14 (in multiples of 2). Use the up-arrow and down-arrow to select the desired number of shelves.

The VRI Server program restricts which VRI Client users are allowed to send control commands to the Site Voter Modules by specifying individual users login names and passwords. Enter a unique login name in the ***Login*** field and a password in the ***Password*** field. Push the ***Save*** button to accept this user login and password. All users can use the same login name and password, or - you can specify a login name and password for each user.

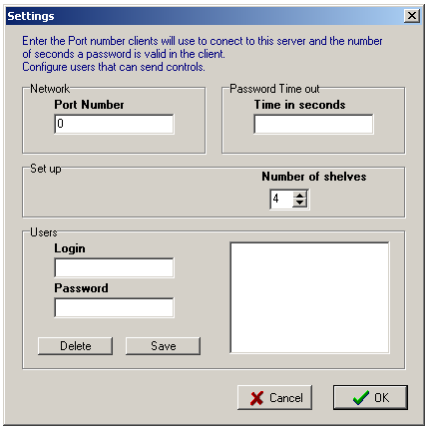

Figure 1-2. VRI Server Setup Dialog Window

The Server program also controls how long a Client password remains valid before it must be re-entered. This insures that if a VRI Client connection is left open, it does not allow unauthorized users control access. Enter the desired value in the ***Time in Seconds*** input field. Enter a value of ***0*** if you want the password entered every time.

Push the ***OK*** button to accept the setup choices and create the VRIServer.ini file. This then opens the main VRI Server window (see Figure 1-3). If you need to edit the Server setup parameters ***after*** the initial start-up, left-click on the Fial

Incorporated logo (upper-right corner of the rack graphic in the VRI Server window - see Figure 1-3). This opens the VRI Server setup dialog window again for editing.

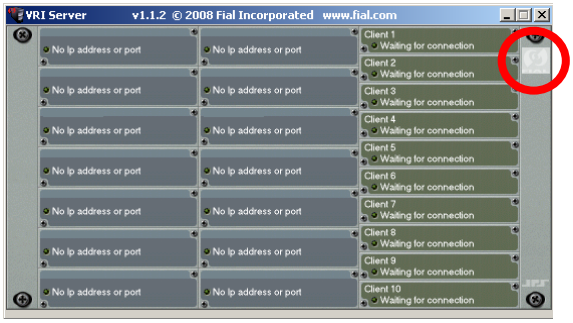

Figure 1-3. VRI Server Window

The VRI Server window also displays the connection status of up to ten different VRI Client programs in a simulated rack graphic. VRI Client connection information is displayed on *shelf-like* graphic placeholders on the right side of the display. Each Client connection has an individual placeholder that either displays a message of "Waiting for connection", or "Connected: NNN.NNN.NNN.NNN". The connected message includes the Client computer's IP address. Clients are listed in the order they connect. This section of the display is for VRI Client connection information purposes only, no settings are performed from this section.

1.1.1 VRI Server Configuration of SNV-12 Shelves

The VRI Server program can connect to a maximum of 14 different SNV-12 shelves. Individual SNV-12 shelves are represented as *shelf-like* graphic placeholders on the Server window. These shelf placeholders are arranged in a array of 2 columns by from 2 up to 7 rows, to display the number of SNV-12 shelves configured in the VRI Server set-up. The placeholders are in the same location and order as found on the VRI Client program window (see Figure 1-7). For VRI systems with fewer shelves, you can configure the server to display anywhere from a minimum 4 to the maximum 14 shelves.

To configure the VRI Server for a particular SNV-12 shelf, find the desired shelf placeholder location, move the mouse pointer over it and left-click. This opens the *Shelf X Settings* dialog window (see Figure 1-4). Use this window to enter *Network* parameters for the SNV-12 shelf and card names for the individual Site Voter Modules populating the shelf.

Enter a unique name for the SNV-12 shelf in the ***Name*** field. The shelf name should be limited to 12 characters. This is so that the entire name can be displayed on the placeholder in the VRI Server window and also on the left side of the corresponding shelf display in the VRI Client program window.

Enter the address of the IP to RS-232 converter box, used to connect to the target SNV-12 shelf, in the ***IP Address*** field. Each RS-232 connection port on the converter box is assigned a unique port number. Enter the number assigned to this connection in the ***Port Number*** field. Refer to the operations manual supplied with your IP to RS-232 converter box for complete configuration instructions.

The Login and Password security settings are for a future enhancement and are not enabled at this time. When enabled, you would assign the required ***Login*** and ***Password*** to access the IP to RS-232 converter box that accesses the selected SNV-12 shelf.

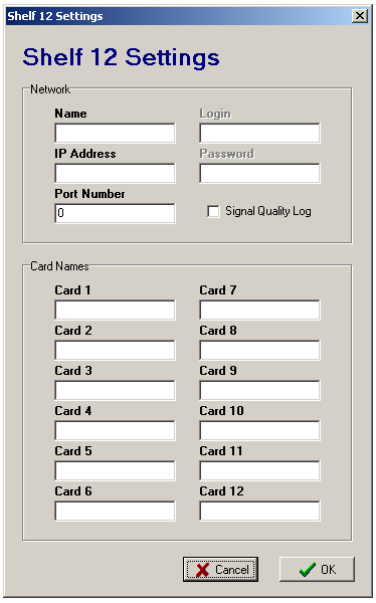

Figure 1-4. Shelf Settings Window

Check the ***Signal Quality Log*** checkbox to create a log file of the Signal Quality levels for each Site Voter Module populated in this shelf. These values drive the bar graph display on each SVM card graphic on the VRI Client shelf. The log file is saved as a ***TAB*** delimited text file for simple import into any spreadsheet program. Data is retrieved once a minute and logged.

New data is appended to the file if the file already exists. You should disable this function when not needed, in order to keep the log file from growing too large. The log files are saved in the VRI Server program's home directory. The files are named "***Signal Quality Log*** – ", appended with the selected shelf name (i.e. Signal Quality Log - Test Shelf 1.txt).

Timestamp	SVM1	SVM2	SVM3	SVM4	SVM5	SVM6	SVM7	SVM8	SVM9	SVM10	SVM11	SVM12
5/6/2009 13:42	0	13	0	11	0	0	0	0	0	0	0	0
5/6/2009 13:43	0	7	0	5	0	0	0	0	0	0	0	0
5/6/2009 13:44	0	7	0	4	0	0	0	0	0	0	0	0
5/6/2009 13:45	0	9	0	7	0	0	0	0	0	0	0	0
5/6/2009 13:46	0	5	0	1	0	0	0	0	0	0	0	0
5/6/2009 13:47	0	5	0	2	0	0	0	0	0	0	0	0
5/6/2009 13:48	0	8	0	5	0	0	0	0	0	0	0	0
5/6/2009 13:49	0	10	0	6	0	0	0	0	0	0	0	0

Figure 1-5. Sample Signal Quality Log

The above sample log shows data for a shelf that is populated with only two SVM cards (SVM2 & SVM4). There are columns for the twelve possible module positions in the shelf. Each row of data is time-stamped.

Enter a name for each of the Site Voter Module cards populating this shelf in the appropriate ***Card Names*** entry fields (see Figure 1-4). These card names are displayed on the individual Site Voter Module graphics of the appropriate SNV-12 shelf, in the VRI Client window. Card name entry is optional. The name should be limited to 6 characters in order to fit in the limited space available at the top of the individual card graphic.

1.2 VRI Client Installation and Setup

The VRI Client and Server programs communicate over an IP network connection. Load the VRI Client program (VRIClient.exe) on any computer that has network connectivity to the computer hosting the VRI Server program. When you run the Client program for the first time, an initial setup dialog window opens (see Figure 1-6). This dialog allows you to specify the IP address of the VRI Server program computer.

Enter the appropriate address in the ***IP Address*** entry field. You must also enter the port number used to connect to the VRI Server program. Enter the ***same*** port number in the Client's ***Port Number*** entry field that you entered for the port number in the initial VRI Server setup. These port numbers must match.

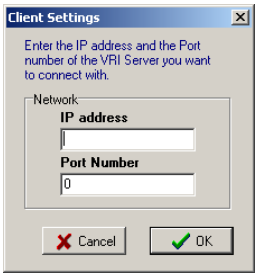

Figure 1-6. VRI Client Setup Dialog Window

Push the ***OK*** button to accept the initial Client settings and open the VRI Client window displaying a graphical view of the SNV-12 rack (see Figure 1-7). If you need to edit the Client setup parameters ***after*** the initial start-up, left-click over the Fial Incorporated logo on the top-right SNV-12 shelf graphic (the top-right corner of shelf - see Figure 1-7). This opens the Client Settings dialog window again for editing.

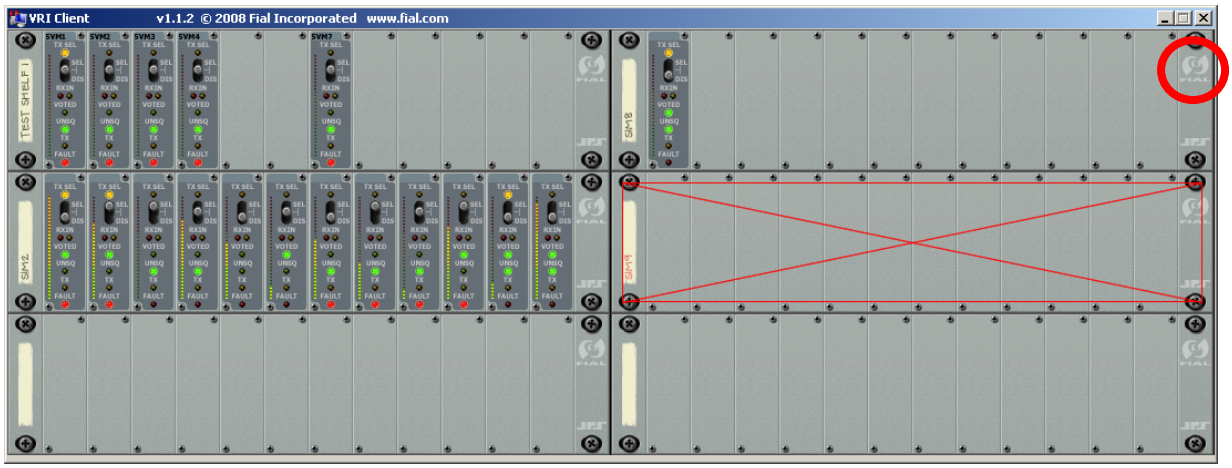

Figure 1-7. VRI Client Window with 1 Responding SNV-12 Shelf

The VRI Client window displays the SNV-12 shelves as configured in the VRI Server window, displaying the individual Site Voter Module cards populating each shelf. The order of the SVM cards displayed in the shelf graphic is based on the left-to-right order of the cards populating in the physical shelf, to the right of the CPM module. The PSM, CIM and CPM modules are ***not*** displayed on the shelf graphic. The SNV-12 shelves configured in the Server, but not responding, are represented by a red "X" over the shelf graphic on the Client window (middle-right of Figure 1-7).

Placing the mouse cursor over an individual shelf label (the vertical tag on left-side) of a connected shelf opens an expanded view of the selected SNV-12 shelf graphic (see Figure 1-8). This expanded view displays the same graphical information as the standard rack view, with the addition of the numeric Signal Quality level value at the top of the bar graph for each module (see Figure 1-8). Moving the mouse cursor off of the label closes the expanded view.

Figure 1-8. Expanded Shelf View

1.2.1 Site Voter Module Cards

The Site Voter Modules are graphically represented in the shelf display using the SVM-2 faceplate as the template for both SVM-1 and SVM-2 cards (see Figure 1-9). Real-time selection switch position and LED indicator states (ON/OFF) for each SVM are accurately reproduced on the graphic.

Figure 1-9. SVM Cards in SNV-12 Shelf Graphic

Representation of the Signal Quality level (not displayed on the real SVM cards) is displayed as a color-coded vertical LED bar graph on the left edge of each SVM card graphic (see Figure 1-10). The better the Signal Quality level, the higher the SQ level value and higher the bar graph.

Figure 1-10. Site Voter Module Signal Quality Level Bar Graph Display

Moving the mouse cursor over the SVM cards automatically opens a status window for the selected (highlighted grey) SVM (see Figure 1-11). This is a textual display of the current switch position and LED states of the SVM card, with additional information of the current Signal Quality Level (SQ Level) and the date and time this SVM card was last voted (to the right of the current Voted status).

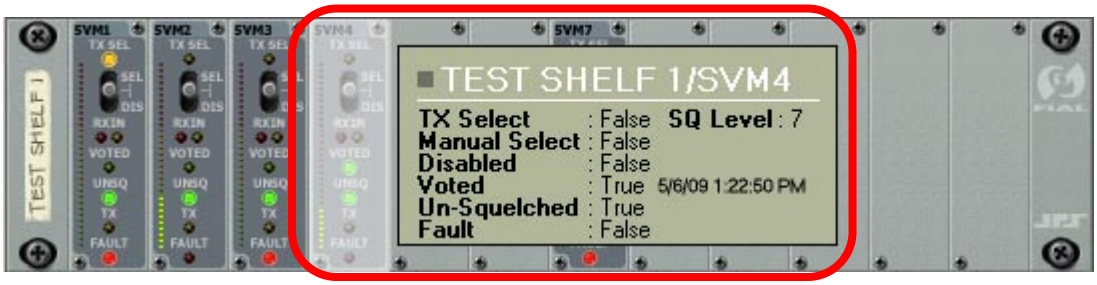

Figure 1-11. Selected SVM Card Status Window

1.2.1.1 Manual Control of Site Voter Modules

To manually control individual SVM cards, select the desired card by positioning the mouse cursor over the SVM graphic (highlight it) and then left-click. This opens the selected SVM card option menu (see Figure 1-12).

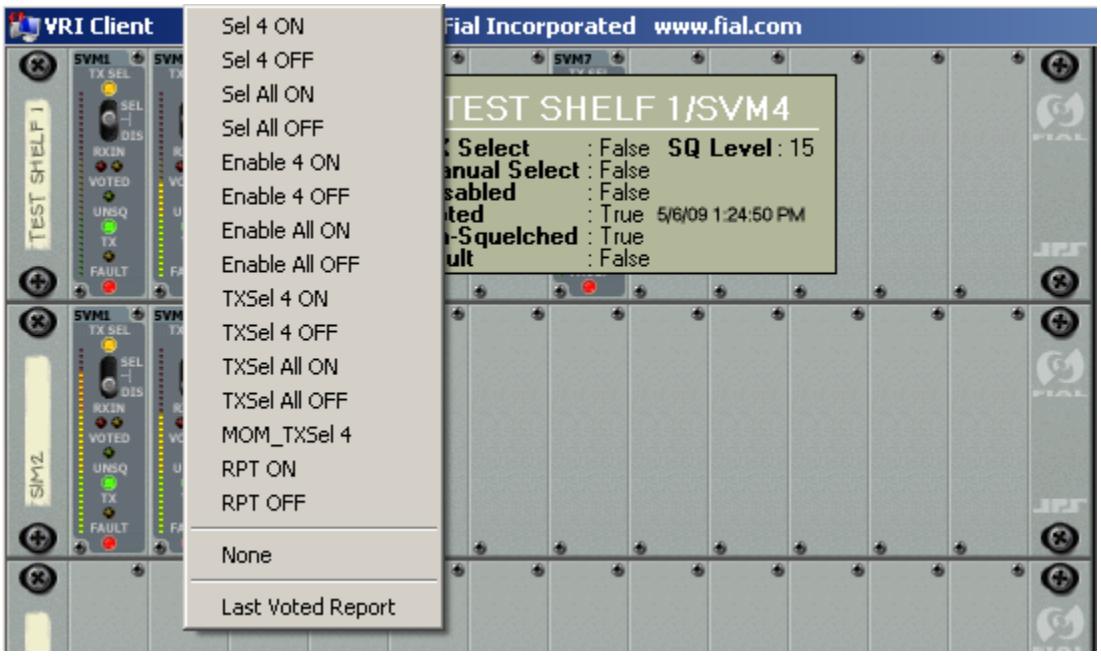

Figure 1-12. Selected SVM Card Option Menu

Select any one of the listed command options as required. Refer to the ***SNV-12 Operations Manual*** supplied with your system for complete explanations of the various commands listed in the VRI options menu.

Selecting and left-clicking on any of the commands (upper section) opens an authentication dialog window asking for a ***Login*** and ***Password*** (see Figure 1-13). The previously entered login and password is retained for the ***Password Time-out*** period (as configured earlier in the VRI Server set-up), so you will not have to re-enter these parameters within this time period.

Figure 1-13. Authentication Dialog Window

If the Password Time-out period has expired, the entry fields are cleared and you will have to re-enter the ***Login*** name and ***Password***. Push the ***OK*** button to send the selected command to the target SNV-12 module. Push the ***Cancel*** button to cancel this command.

After the command has been sent, a status message is displayed across the front of the shelf indicating the success or failure of the attempted command from the VRI Client to the target SVM card (see Figure 1-14).

Figure 1-14. Command Execution Status Message

Either click anywhere outside of the option menu, or select ***None***, to close the option menu.

A special screen report is also available from the SVM card option menu. Select the ***Last Voted Report*** option to generate a report showing the last date and time that every populated module in each shelf was voted. Modules that have never been voted have blank entries.

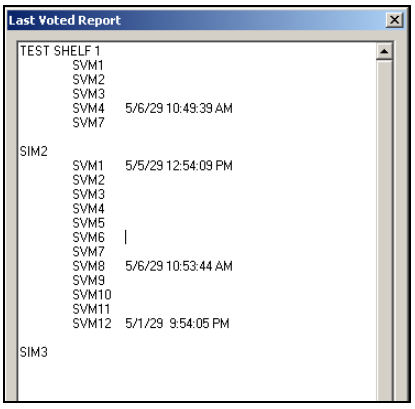

Figure 1-15. Sample Last Voted Screen Report

1.2.1.2 Manual Control Log

A log of all manual controls is available in the file named "Control log.txt". This file is kept in the same folder as the VRI Server program. Entries are time-stamped and indicate the shelf name (shelf number if name is blank), command executed, SVM card number, ON/OFF/All request and which user and their IP address sent the command.

Sample Control Log entries.

```
2/19/2008 9:36:22 AM   Shelf 8 "ENABLE 3 ON"  sent by user admin from 192.168.0.34
2/19/2008 9:38:33 AM   Shelf 8 "TXSEL 3 ON"   sent by user ntl from 192.168.0.34
```

1.2.1.3 Module Fault Log

A log of all module fault state changes is available in the file named "Fault log.txt". This file is kept in the same folder as the VRI Server program. Entries are time-stamped and indicate the shelf number and name (shelf number duplicated if name blank), card number and name (card number duplicated if name blank), and Fault state change.

Sample Fault Log entries.

```
5/5/2009 11:58:45 AM   Shelf 10 Medford      card 8 SVM 8   Fault True
5/5/2009 11:58:55 AM   Shelf 10 Medford      card 9 SVM 9   Fault False
5/5/2009 11:58:55 AM   Shelf 11 Gresham      card 1 SVM 1   Fault True
5/5/2009 11:58:58 AM   Shelf 11 Gresham      card 1 SVM 1   Fault False
```

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