VLink
System Administration Guide

Up to and including version 3.0.0.395

PROPRIETARY NOTICE

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WARRANTY AND SERVICE INFORMATION

For warranty and service information, refer to the appropriate web site below:

RTS ..... www.rtsintercoms.com/warranty

RTSTW ..... www.rtstw.com/warranty

AudioCom.....www.telexaudiocom.com/warranty

RadioCom ..... www.telexradiocom.com/warranty

Headsets ..... www.intercomheadsets.com/warranty

CUSTOMER SUPPORT

Technical questions should be directed to:

Customer Service Department
Bosch Security Systems, Inc.
12000 Portland Avenue South
Burnsville, MN 55337 USA
Telephone: 877-863-4169
Fax: 800-323-0498
Info@rtsintercoms.com

Technical Questions EMEA
Bosch Security Systems Technical Support EMEA
http://www.rtsintercoms.com/contact_main.php

Disclaimer

The manufacturer of the equipment described herein makes no expressed or implied warranty with respect to anything contained in this manual and shall not be held liable for any implied warranties of fitness for a particular application or for any indirect, special, or consequential damages. The information contained herein is subject to change without prior notice and shall not be construed as an expressed or implied commitment on the part of the manufacturer.

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CHAPTER 1

VLink Software Installation and Activation

Introduction

VLink is a non-blocking all software, multi-channel/multi-access intercom over internet protocol based on a dedicated server, multiple client architecture. It is engineered for professional, mission critical communications in broadcast, production, military, aerospace, and government application.

IMPORTANT: When you start the VLink Virtual Matrix software for the first time, you will need to get the System Identification of the computer you are running the software, see “Obtain the System Identification Code” on page 5. The System Identification Number is needed to license the software, see “Obtain the System Identification Code” on page 5.

System Requirements

Hardware

Pentium 4, 2.4GHz or better with 4Gb memory (requirements may be greater depending on system size)

Software

Windows Server 2008 (preferred), Windows Server 2003, Windows XP, Windows Vista, Windows 7

Network

100BaseT connection

See “Network Bandwidth Requirements Guide” on page 69 for Network Bandwidth Requirements

Firewall Requirements

Outbound: Allow TCP connection for data on port 1000 and UDP connection for audio on port 1000

Inbound: Port forwarding TCP and UDP on port 1000 to IP Address server

Installation

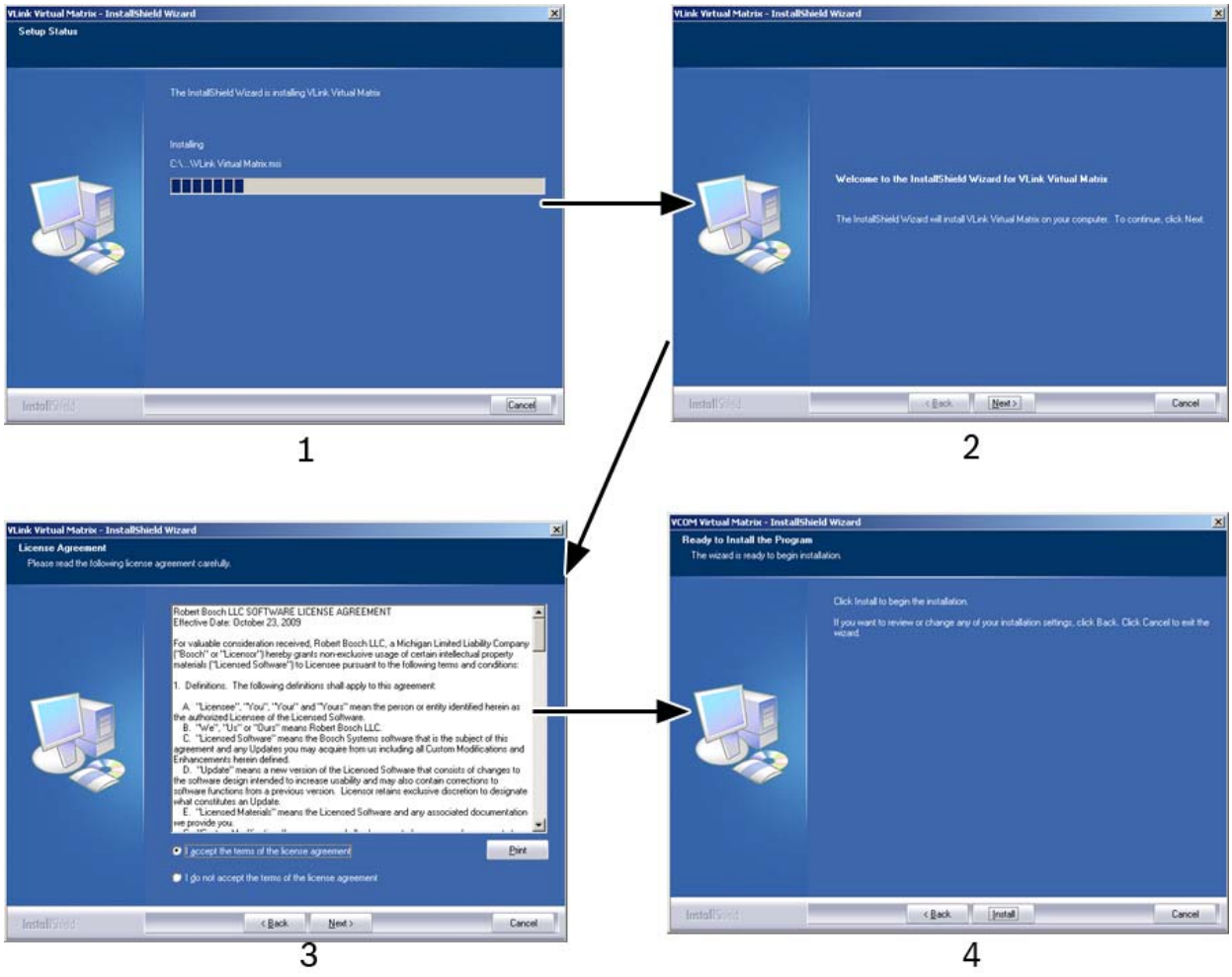
NOTE:

- The VLink Virtual Matrix can be run before licensing, however you cannot connect to the control panel or device interfaces.
- If you are using multiple **NIC** (Network Interface Cards), verify you are using the correct card to run VLink.

To **install the VLink Virtual Matrix software**, do the following:

1. Double-click **VLink_Virtual_Matrix_Setup.exe**.
   The installation wizard begins.
2. Accept all the **defaults**.

   NOTE: You must accept the end user license agreement to finish the installation.



3. Click **Finish**.
   The VLink Matrix software is installed.

Licensing

To license your VLink System, you need to acquire a valid license file from Technical Service Support. To do so, you must provide your unique System Identification Code, generated automatically when you install the VLink Virtual Matrix, to the contact person listed in Table 1 on page 7.

IMPORTANT: The System Identification Code is a unique value specific to the computer on which the Virtual Matrix is installed and is not transferable to any other computer. If the server you are running the VLink Virtual Matrix has dual network cards, verify the correct card is chosen before sending the system identification code.

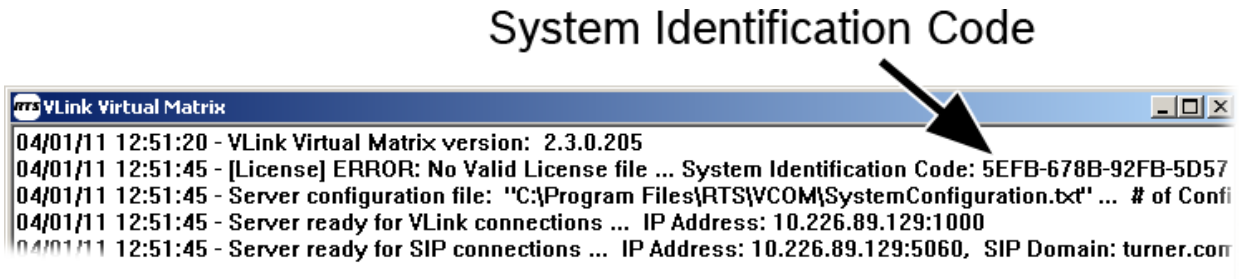
Obtain the System Identification Code

There are two (2) ways to obtain the system identification code.

- From the Virtual Matrix first time logon window
- From the System Identification Code window in the System Administration window

To **obtain the system identification code from the virtual matrix window**, do the following:

1. From the Start menu, select **Programs|Intracom|VLink Virtual Matrix**.
   VLink Virtual Matrix starts.



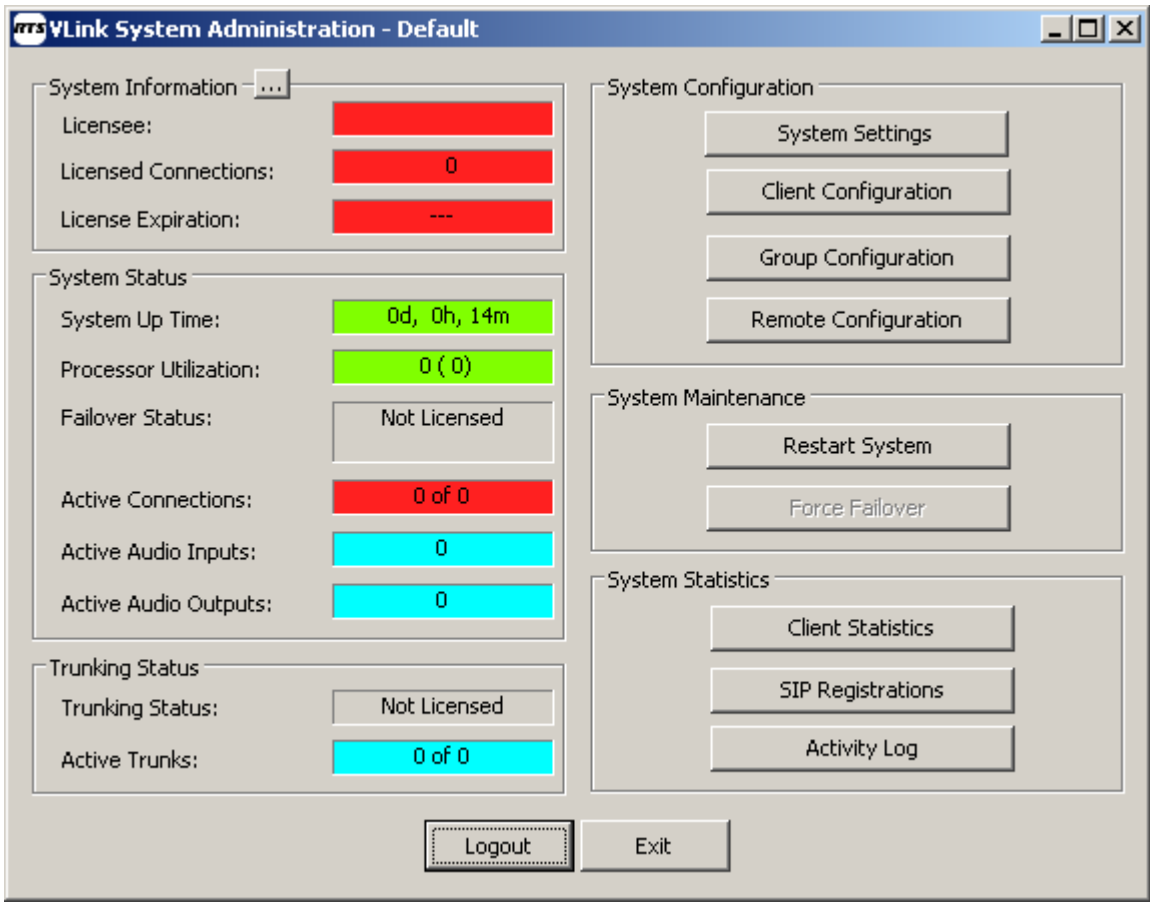
2. Record the **System Identification Code** to submit for the license code.

To **obtain the system identification code from the System Administration window**, do the following:

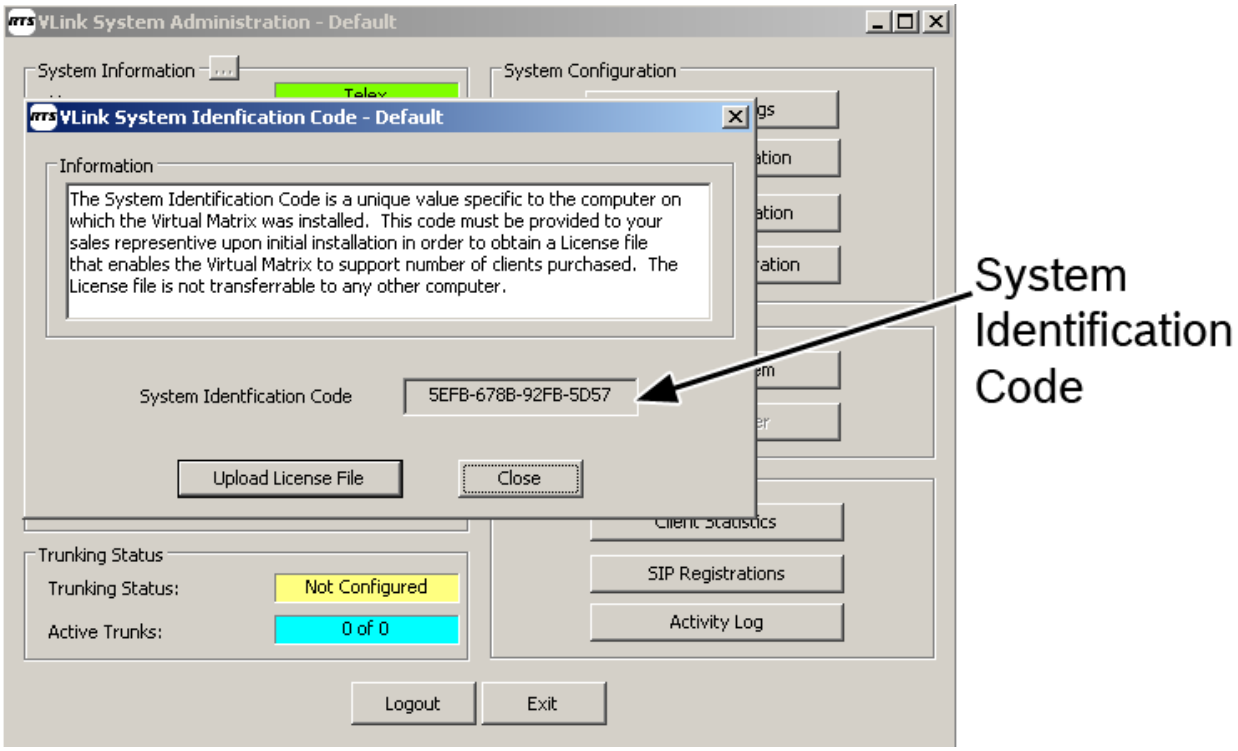
NOTE: System Status fields are color-coded as follows:

- Red indicates a problem
- Yellow indicates a condition needs attention
- Green indicates normal operation

1. From the Start menu, select **Programs|Intracom|VLink System Administration**.
   The System Administration Login window appears.
2. Click **Login**.
   The System Administration window appears.



3. Click the **System Information button** located in the upper-left hand corner. 
The System Identification Code window appears.



4. Record the **System Identification Code** to submit for the license code.

Obtain a Valid License Code

To **obtain a valid license code**, do the following:

> Using the licensing contact person information below, send an **email** to the appropriate contact requesting a license code.

TABLE 1. Licensing Contact Person

Region	Email	Contact Name
Asia (APR Region)	alice.onn@sg.bosch.com	Alice Onn
Europe, Africa, Middle East (AMEA Region)	NSOOrderDeskExport.STSEC-LOG@de.bosch.com	Susi Betzenhauser Sabina Basic
Americas (AMEC Region)	buv.orders@us.bosch.com	Lisa Wenger Diane Dressel

IMPORTANT: When you receive your license code, save it to your desktop for later use.

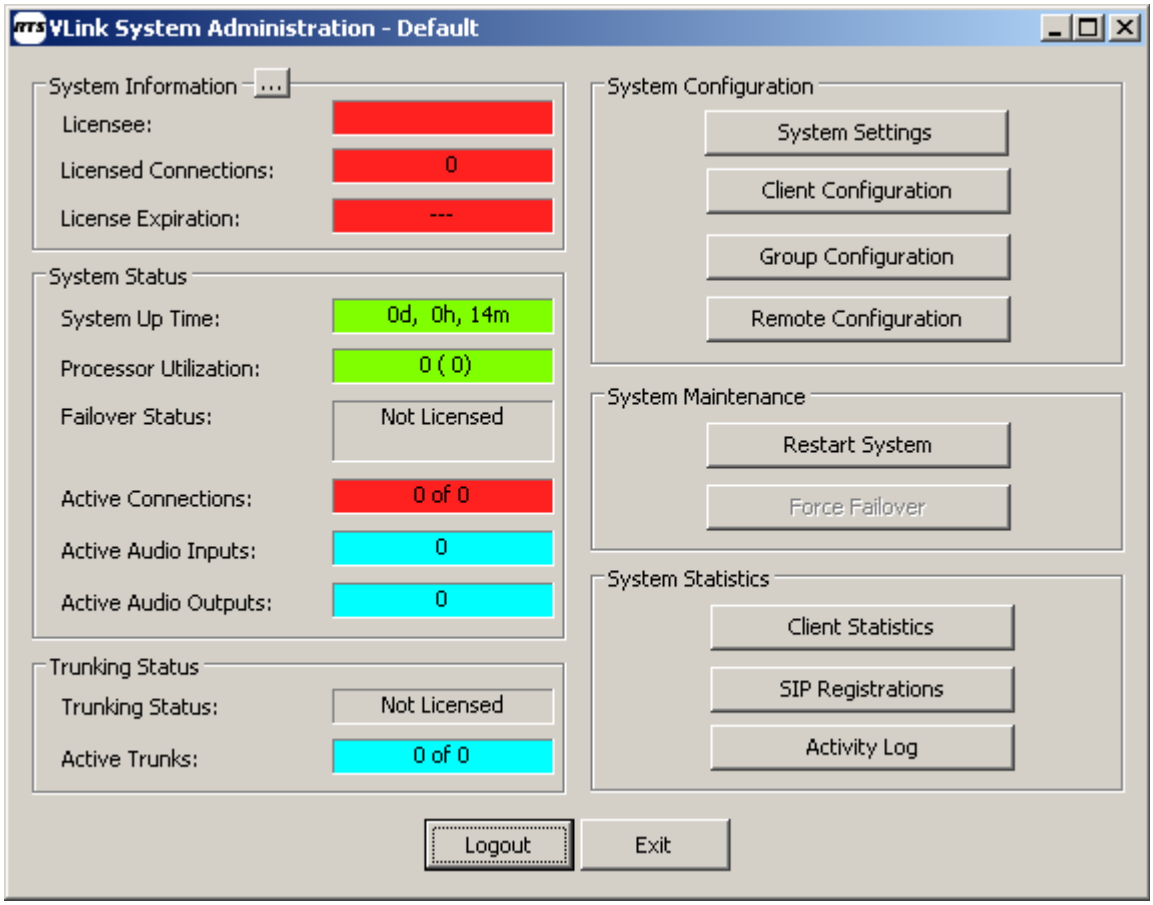
Activating the VLink Software

To **activate the VLink software application**, do the following:

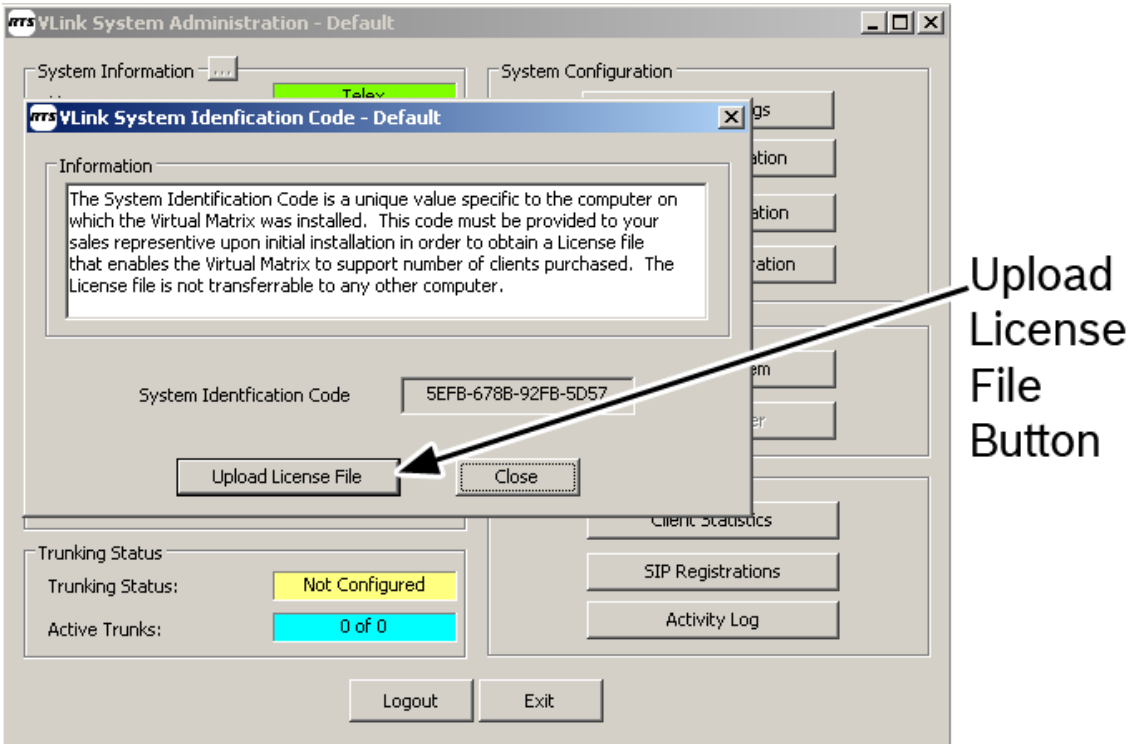
NOTE: System Status fields are color-coded as follows:

- Red indicates a problem
- Yellow indicates a condition needs attention
- Green indicates normal operation

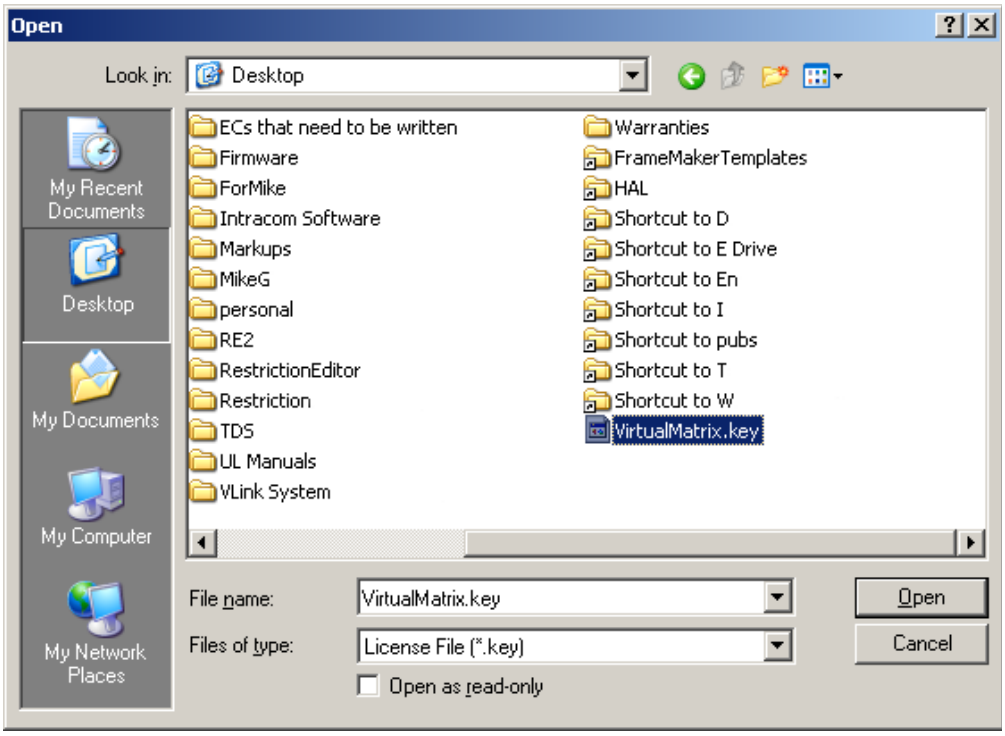
1. From the Start menu, select **Programs|Intracom|VLink System Administration**.
   The System Administration Login window appears.
2. Click **Login**.
   The System Administration window appears.



3. Click the **System Information button** located in the upper-left hand corner. 
   The System Identification Code window appears.



4. Click **Upload License File**.
   A navigation window appears.



5. Navigate to where you saved the **VirtualMatrix.key file**.
6. Click **Open**.
   The license code is uploaded into the application.

CHAPTER 2

Introduction and Configuration

VLink System Administration

VLink is configured via the client-side System Administration application which allows for dynamic configuration from any workstation. This application can also be run on the server hosting the VLink Virtual Matrix and is installed automatically along with it.

System Requirements

Hardware

Dedicated: Pentium Celeron 1.0GHz or equivalent with 1Gb memory

Multipurpose: Pentium 4, 2.0GHz or equivalent with 1Gb memory

Software

Windows XP, Windows Vista, or Windows 7

Network

100BaseT connection

System Administration Window

The **System Administration** window, shown in Figure 31, is the backbone of the VLink System Administrator application. From this window, you can configure system settings, client settings, and group settings, as well as display client statistics, SIP registrations, and activity logs. Also, this window is used to upload license information.

NOTE: System Status fields are color-coded as follows:

- Red indicates a problem
- Yellow indicates a condition needs attention
- Green indicates normal operation

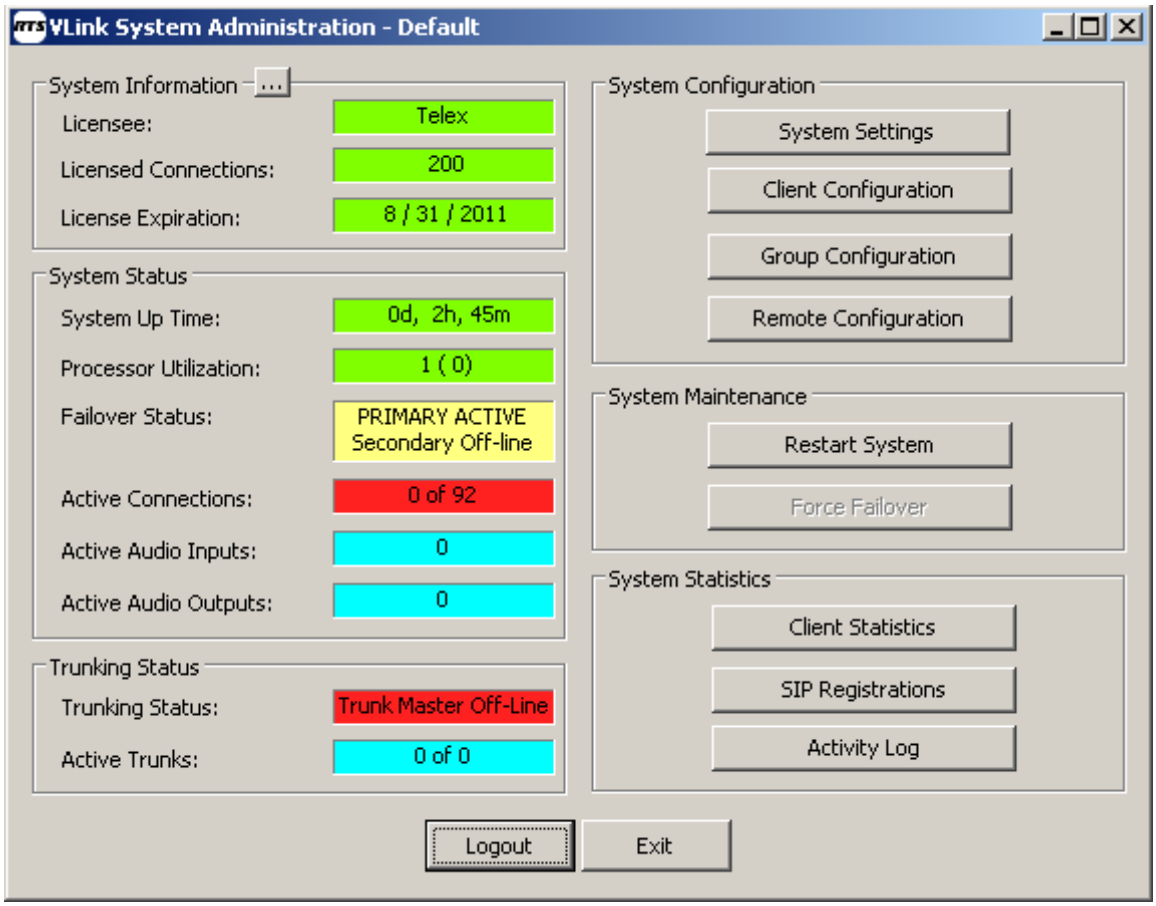


FIGURE 31. VLink System Administration Window

System Information Group Box

The **System Information** group box displays important software and licensing information.

System Information Button

The **System Information** button opens the System Identification Code Window. For more information, see “The Remote Configuration Edit window, shown in Figure 31, is used to define the type of trunk being referenced, add a label description, and name the selector reference.” on page 17.

Licensee Field

The **Licensee** field displays the name of the person or company the software license is issued to.

This field cannot be modified.

Licensed Connections Field

The **Licensed Connections** field displays the number of licenses granted to the Licensee. The number of licenses dictates the number of simultaneous client connections allowed by the VLink Virtual Matrix.

This field cannot be modified.

License Expiration Field

The **License Expiration** field displays the date the license will expire. If the license is a permanent license with no expiration date, the field displays - - - (dashes)

NOTE: If you have a temporary licensed copy of the VLink software, you see an expiration date in this field.

This field cannot be modified.

System Status Group Box

The **System Status** group box is used to view system status variables such as System Up Time, Processor Utilization, Failover Status, Connection Status, Audio Inputs/Output Status.

System Up Time Field

The **System Up Time** field displays the amount of time in days, hours, and minutes, the VLink system has been running.

This field cannot be modified.

Processor Utilization Field

The **Processor Utilization** field displays the amount of processor power being used.

This field cannot be modified.

Failover Status

The **Failover Status** field displays the status of the primary and secondary servers, if applicable. If Failover is not licensed, this field displays *Not Licensed*. If a secondary server IP Address has not been configured, this field displays *Not Configured*.

This field cannot be modified.

Active Connections Field

The **Active Connections** field displays the number of connections currently being used.

This field cannot be modified.

Active Audio Inputs Field

The **Active Audio Inputs** field displays the number of current active inputs.

This field cannot be modified.

Active Audio Outputs Field

The **Active Audio Outputs** field displays the number of current active inputs.

This field cannot be modified.

Trunking Status Group Box

Trunking Status Field

The **Trunking Status** field displays the status of the trunk line. If trunking is not licensed, *Not Licensed* displays in the field.

Active Trunks Window

The **Active Trunks** window displays the number of active trunks in the system.

System Configuration Group Box

The **System Configuration** group box contains four (4) buttons that take the you to four (4) configuration areas – system, client, group and remote configuration.

System Settings Button

The **System Settings** button opens the System Settings window. From this window, you can configure or modify system settings. For more information, see “System Settings Window” on page 20.

Client Configuration Button

The **Client Configuration** button opens the Client Configuration window. From this window, you can add, modify or delete clients from the system. For more information, see “Client Configuration Window” on page 24.

Group Configuration Button

The **Group Configuration** button opens the Group Configuration Window. From this window, you can add, edit, and delete groups (for example, Party Lines). For more information, see “VLink Group Configuration Window” on page 43.

Remote Configuration Button

The **Remote Configuration** button opens the Remote Configuration window. From this window, you can see all labels (alphas) imported from the remote, non-VLink, systems.

System Maintenance Group Box

The **System Maintenance** group box displays the Restart System button and the Force Failover button.

Restart System Button

The **Restart System** button restarts the system. When clicked, a warning message appears confirming that you want to restart the system, Figure 32. This feature is only available to the system administrator logged in with the master login name and password.

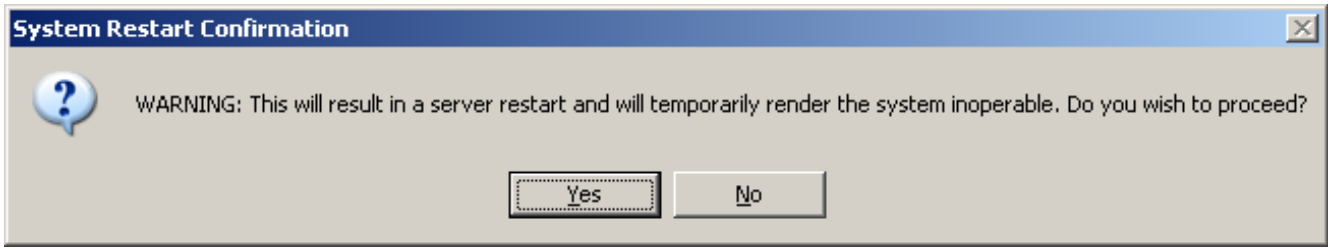


FIGURE 32. System Restart Confirmation Message

Force Failover Button

The **Force Failover** button is used to force a failover of the system to the secondary server. For example, you may want to force a failover to the secondary server if you need to do hardware maintenance on the primary server. If the server is currently running on the secondary server, the button displays Force Failback. The Force Failback button is used to force a failback of the system from the secondary system back to the primary system.

System Statistics Group Box

Client Statistics Button

The **Client Statistics** button is used to open the Client Statistics window. For more information, see “VLink Client Statistics Window” on page 49.

SIP Registrations Button

The **SIP Registrations** button is used to open the SIP Registrations window. For more information, see “VLink SIP Registrations Window VLink” on page 52.

Activity Log Button

The **Activity Log** button is used to open the activity log for the system. For more information, see “Activity Log Window” on page 53.

Logout Button

The **Logout** button is used to log out of the VLink system without closing the application.

Exit Button

The **Exit** button is used to close the VLink application.

Remote Configuration Window

The **Remote Configuration** window, shown in Figure 33, displays a list of active trunks and each trunk configuration information. The trunk information is obtained from the Trunk Master.

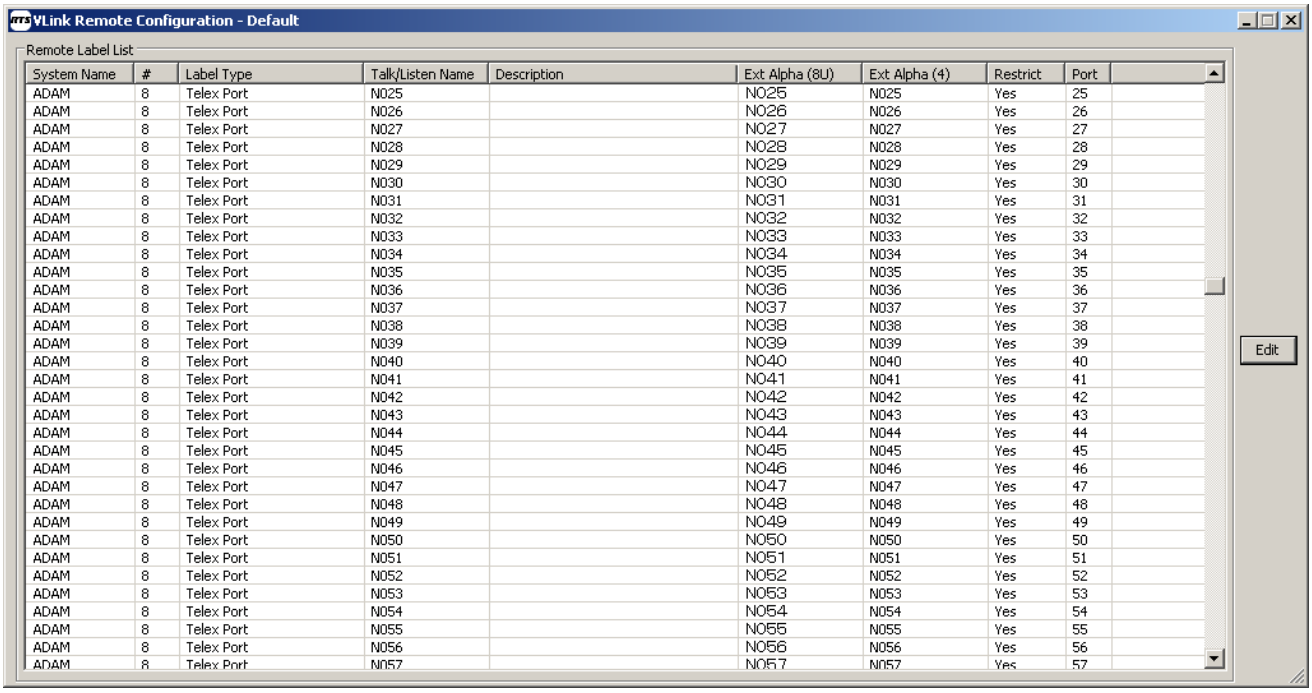


FIGURE 33. VLink Remote Configuration Window

System Name Column

The **System Name** column displays the name of the recently trunked RTS Intercoms.

Column

The **#** column displays the intercom number in the trunking system.

Label Type Column

The **Label Type** column displays the user assigned label for the type of connection.

Talk/Listen Name Column

The **Talk/Listen Name** column displays the name assigned to the trunk for talk/listen operation.

Description Column

The **Description** column displays the description assigned to the trunk.

Ext Alpha (8U) Column

The **Ext Alpha (8U)** column displays the eight (8) character unicode external alpha, if applicable.

Ext Alpha (4) Column

The **Ext Alpha (4)** column displays the four (4) character external alpha, if applicable.

Restrict Column

The **Restrict** column displays if the client has any selector assignment restrictions.

Port Column

The **Port** column displays the port number of the client.

Edit Button

The **Edit** button is used to open the VLink Remote Configuration Edit window.

Remote Configuration Edit Window

The **Remote Configuration Edit** window, shown in Figure 34, is used to define the type of trunk being referenced, add a label description, and name the selector reference.

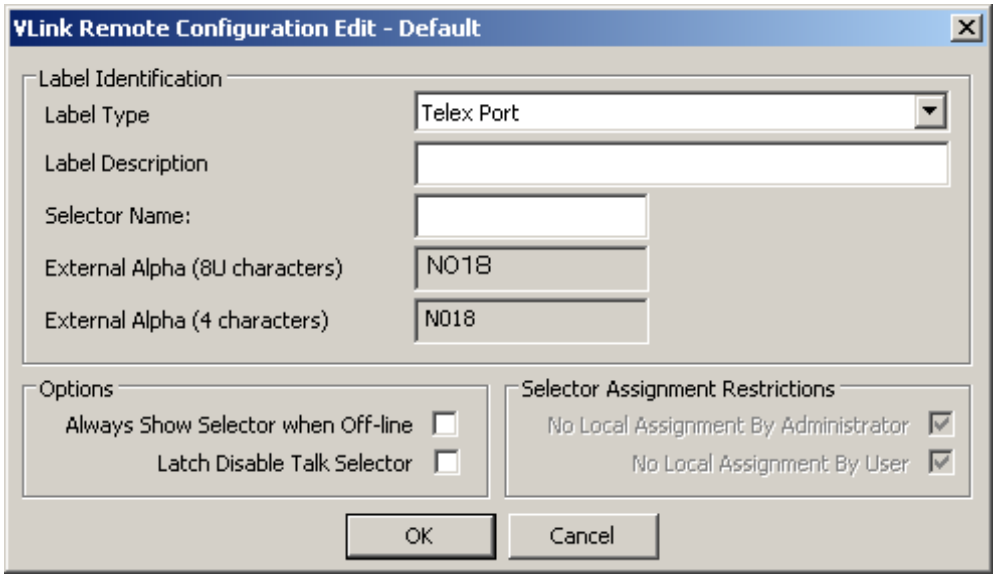


FIGURE 34. Remote Configuration Edit Window

Label Identification Group Box

Label Type Drop Down Menu

The **Label Type** drop down menu is used to select the type of remote connection. For example, Telex Port for the clients from Telex trunks.

Label Description Field

The **Label Description** field is used to create additional text to describe the remote connection, such as the city or origin of the remote system.

Selector Name Field

The **Selector Name** field is used to enter the name seen on the selector.

External Alpha (8U characters) Field

The **External Alpha (8U characters)** field is used to enter an eight (8) character unicode alpha which is displayed when connected remotely to VLink.

External Alpha (4 characters) Field

The **External Alpha (4 characters)** field is used to enter a four (4) character alpha which is displayed when connected remotely to VLink.

Options Group Box

Always Show Selector when Off-line Check Box

The **Always Show Selector when Off-line** check box specifies the selector for this client is visible even if off-line on a Vlink control panel configured to hide offline selectors. Generally, this is used for VLink device interface clients that should never go off-line.

Latch Disable Talk Selector Check Box

The **Latch Disable Talk Selector** check box indicates the latching state of the talk selector key. When selected, latching is turned off on the talk key.

Selector Assignment Restrictions Group Box

No Local Assignment By Administrator Check Box

The **No Local Assignment By Administrator** check box indicates this client cannot be assigned locally by the administrator.

No Local Assignment By User Check Box

The **No local Assignment By User** check box indicates this user cannot assign themselves locally to the system.

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

System Identification Window

The **System Identification** window, shown in Figure 35, is used to retrieve the system identification code and to upload a new or modified license file.

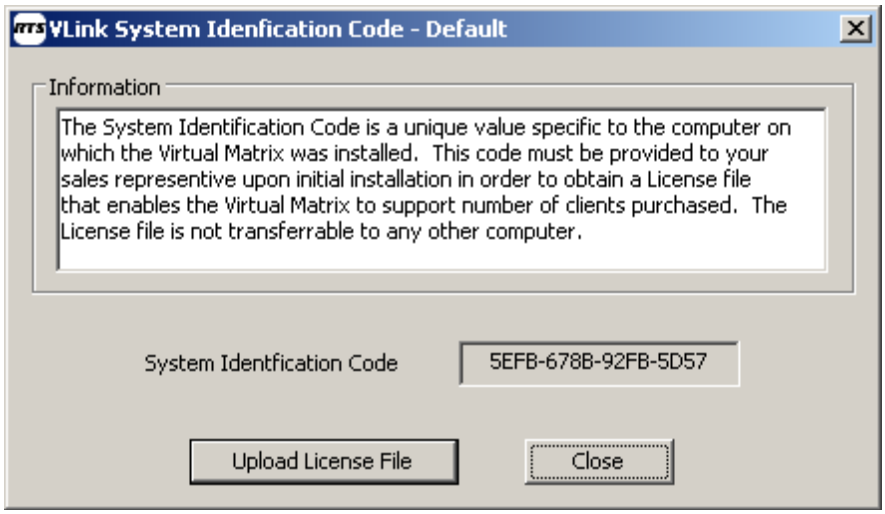


FIGURE 35. System Identification Code Window

Information Group Box

The **Information** group box displays the definition of the system identification code.

System Identification Code Field

The **System Identification Code** field displays the system identification code given to you.

Upload License File Button

The **Upload License File** button is used to upload license files to the system.

To **upload a license file**, do the following:

1. Click **Upload License File**.
   The VLink folder, which stores the application information, appears.
2. Navigate to the **folder** that holds the license file.
3. Select the **license file** you want to upload.
4. Click **Open**.
   The license file is uploaded to the system.

Close Button

The **Close** button is used to close the System Identification Code window.

System Settings Window

The **System Settings** window, shown in Figure 36, is used to configure the system administration logon information, server settings, and audio settings.

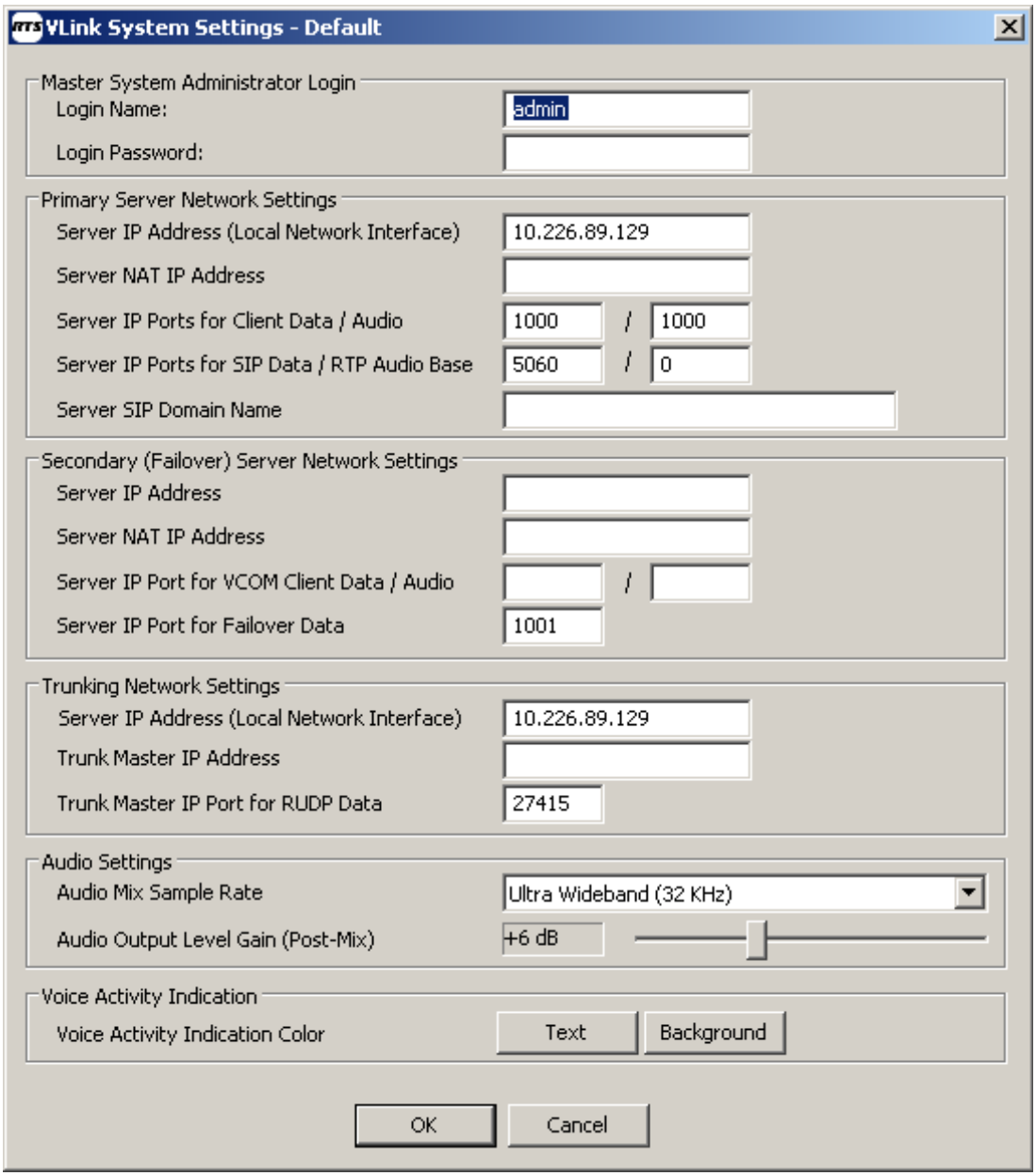


FIGURE 36. System Settings Window

Master System Administrator Login Group Box

Login Name Field

The **Login Name** field is used to enter the master administrator's login name.

This field can contain *up to 20 characters*.

Login Password Field

The **Login Password** field is used to enter the master administrator's password.

This field can contain *up to 20 characters*.

Primary Server Network Settings Group Box

The **Primary Server Network Settings** group box is used to configure the IP Address or SIP information for the primary server used to run the application.

Server IP Address Field

The **Server IP Address** field is used to enter the IP Address of the server where the application is run from.

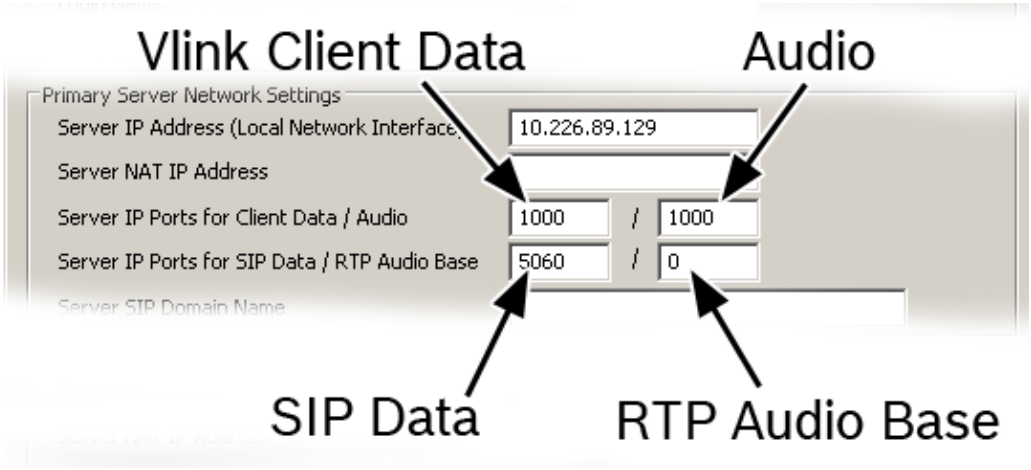


FIGURE 37. VLink Client Data, Audio, SIP Data, RTP Audio Base fields

Server IP Ports for VLink Client Data Field

The **Server IP Ports for VLink Client Data** field is used to control the TCP/IP port that all client side control panels and device interfaces use to transport data to the virtual matrix. If the virtual matrix is behind a firewall and external access is required, a port forwarding entry must be added to route all traffic on this port to the internal virtual matrix IP Address.

The default for this field is port 1000.

Server IP Ports for VLink Client Audio Field

The **Server IP Ports for VLink Client Audio** field is used to control the UDP port that all client side control panels and device interfaces use to transport audio to the virtual matrix. The system has no restriction other than reserved ports. If the virtual matrix is behind a firewall and external access is required, a port forwarding entry must be added to route all traffic on this port to the internal virtual matrix IP Address.

The default for this field is port 1000.

Server IP Ports for SIP Data Field

The **Server IP Ports for SIP Data** field is used to define the IP Port for the integrated SIP server. In general, this value never changes because it is an industry standard port number; however, the value must be changed if multiple VLink virtual matrix instances are to be run on the same physical computer.

The default for this field is 5060.

Server IP Ports for RTP Audio Base Field

The **Server IP Ports for RTP Audio Base** field is used to establish the IP port number. When set to zero (0), all SIP RTP session establish the IP Port randomly in the range of 10000–42767. In many situations this is adequate, however, if the audio must travel through a firewall, it is not practical or safe to open such a large range of addresses. By specifying an RTP audio base port, the system assigns IP ports sequentially upward from the assigned base port. Once an IP port is assigned to a SIP client, it never changes unless the base port changes.

Server SIP Domain Name Field

The **Server SIP Domain Name** field is used to define the optional SIP domain for the integrated SIP server. If the SIP domain is specified, it can be used as the SIP proxy name and the registrar name when configuring SIP clients. Whether or not the SIP domain is specified, the virtual matrix IP Address can always be used as the proxy name and the registrar name.

Secondary (Failover) Server Network Settings Group Box

The **Secondary (Failover) Server Network Settings** group box is used to configure the IP Address or SIP information for the secondary server used to run the application if the primary server has a failure.

Server IP Address Field

The **Server IP Address** field is used to enter the secondary server IP Address.

Server IP Ports for VLink Client Data Field

The **Server IP Ports for VLink Client Data** field is used to control the TCP/IP port that all client side control panels and device interfaces use to transport data to the virtual matrix. If the Virtual Matrix is behind a firewall and external access is required, a port forwarding entry must be added to route all traffic on this port to the internal virtual matrix IP Address.

The default for this field is port 1000.

Server IP Ports for VLink Client Audio Field

The **Server IP Ports for VLink Client Audio** field is used to control the UDP port that all client side control panels and device interfaces use to transport audio to the virtual matrix. The system has no restriction other than reserved ports. If the virtual matrix is behind a firewall and external access is required, a port forwarding entry must be added to route all traffic on this port to the internal virtual matrix IP Address.

The default for this field is port 1000.

Server IP Port for Failover Data Field

The **Server IP Port for Failover Data** field is used to configure the port used for the two (2) virtual matrix servers to communicate with each other.

Audio Settings Group Box

Audio Mix Sample Rate Drop Down Menu

The **Audio Mix Sample Rate** drop down menu is used to assign the sampling rate for the audio being passed. The higher the sample rate is, the better quality audio you have. However, higher sample rates equate to more network usage.

Available options for this field are:

Narrowband (8KHz)

Wideband (16KHz)

Ultra Wideband (32KHz)

The default for this field is *Ultra Wideband (32KHz).*

Audio Output Level Gain (Post-Mix) Field and Slider

The **Output Level Gain (Post-Mix)** field and slider is used to set the output level gain for the audio being sent in the system.

Available options for this field are:

0 dB
6dB
12dB
18dB

The default for this field is *6dB.*

Voice Activity Indication Group Box

Voice Activity Indication Color Text Button

The **Voice Activity Indication Color Text** button is used to assign a color to the button text when audio is detected. When the button is clicked, a color palette window appears. From this window, choose the color you want to display when audio is detected.

Voice Activity Indication Color Background Button

The **Voice Activity Indication Color Background** button is used to assign a color to the button background when audio is detected. When the button is clicked, a color palette window appears. From this window, choose the color you want the background to display when audio is detected.

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

Client Configuration Window

The **Client Configuration** window, shown in Figure 38, is used to add, edit, and delete VLink clients. The upper portion of the client configuration window displays all configured users and device, login names, passwords, selector labels, client types, and if the given channel is set to party line. There are three (3) types of clients available:

- Control panel clients
- Device interface clients
- SIP clients

To **access the Client Configuration window**, do the following:

> On the System Administration window, click **Client Configuration**.
The VLink Client Configuration window appears.

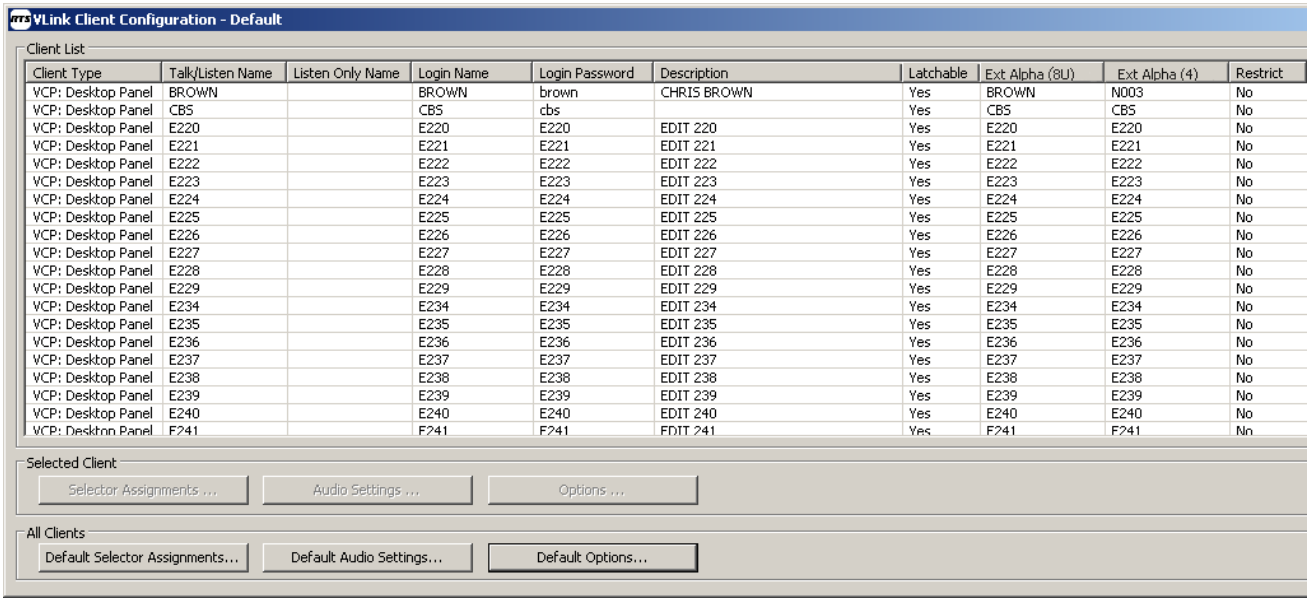


FIGURE 38. Client Configuration Window

Client List Group Box

The **Client List** group box displays a list of all the clients in the system.

Client Type Column

The **Client Type** column displays the client type. For more information, see “Client Configuration Add/Edit Window” on page 27.

Talk/Listen Name Column

The **Talk/Listen Name** column displays the name assigned to the client for talk/listen operation.

Listen Only Name Column

The **Listen Only Name** column displays the name assigned to the client for listen only operation.

Login Name Column

The **Login Name** column displays the login name for the client.

Login Password Column

The **Login Password** column displays the login password for the client.

Description Column

The **Description** column displays the description assigned to the client.

Latchable Column

The **Latchable** column displays the latching state of the client.

Ext Alpha (8U) Column

The **Ext Alpha (8U)** column displays the eight (8) character unicode external alpha, if applicable.

Ext Alpha (4) Column

The **Ext Alpha (4)** column displays the four (4) character external alpha, if applicable.

Restrict Column

The **Restrict** column displays if the client has any selector assignment restrictions.

Port Column

The **Port** column displays the port number of the client.

Add Button

The **Add** button is used to open the Add/Edit Client Window. For more information, see “VLink Group Configuration Add/Edit Window” on page 45.

Edit Button

The **Edit** button is used to open the Add/Edit Client Window. For more information, see “VLink Group Configuration Add/Edit Window” on page 45.

Delete Button

The **Delete** button is used to remove a client from the system. When clicked, a confirmation message appears.

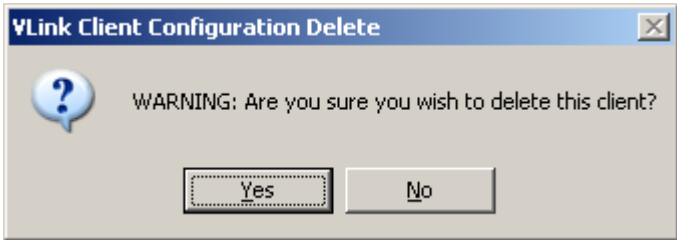


FIGURE 39. Client Deletion Confirmation Message

Selected Client Group Box

The **Selected Client** group box becomes active only when a client from the client list is selected. Otherwise, these buttons stay inactive.

Selector Assignments... Button

The **Selector Assignments...** button is used to open the Client Configuration Selector Assignments window. For more information, see “VLink Client Configuration Selector Assignments Window” on page 30.

Audio Settings... Button

The **Audio Settings...** button is used to open the Configuration Audio Settings window. For more information, see “VLink Client Configuration Audio Settings Window” on page 34.

Options... Button

The **Options** button is used to open the Configuration Options window. For more information, see “VLink Client Configuration Options Window” on page 39.

All Clients Group Box

The **All Client** group box becomes inactive only when a client from the client list is selected. Otherwise, these buttons stay active.

Default Selector Assignments... Button

The **Default Selector Assignments...** button is used to open the Client Configuration Selector Assignments window.

Default Audio Settings... Button

The **Default Audio Settings...** button is used to open the Client Configuration Audio Settings window.

Default Options... Button

The **Default Options...** button is used to open the Client Configuration Options window.

Client Configuration Add/Edit Window

The **VLink Client Configuration Add/Edit** window, shown in Figure 40, is used to add and/or edit client types. From this window you can create a client type and configure some basic client operations.

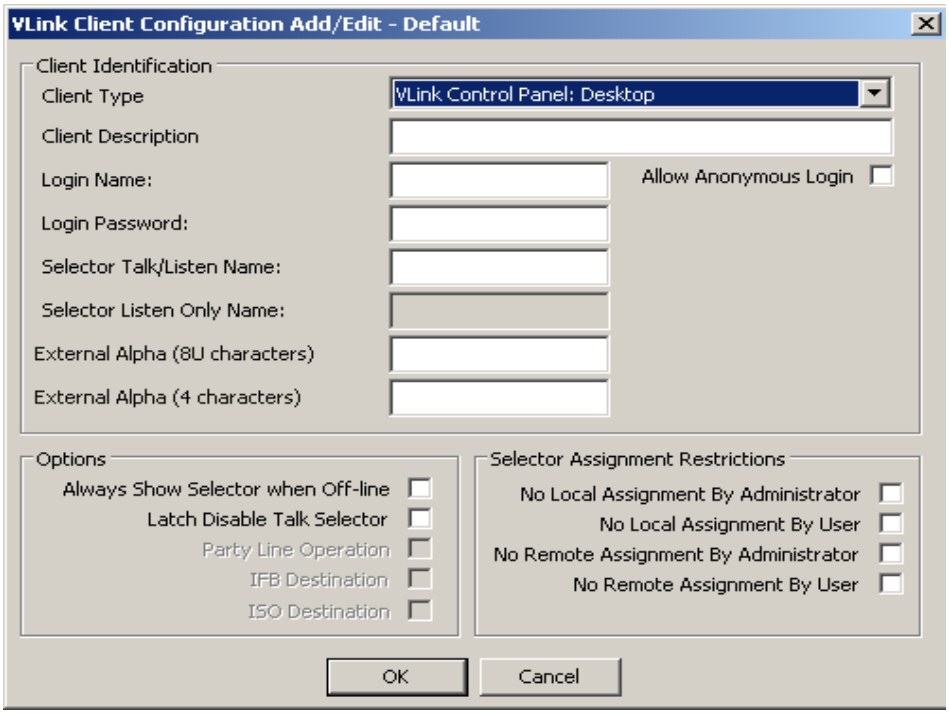


FIGURE 40. Client Configuration Add/Edit Window

Client Type Drop Down Menu

The **Client Type** drop down menu is used to select the type of client you want to create.

Available options for this menu are:

- *VLink Control Panel: Desktop*
- *VLink Device Interface: Four-Wire Interface*
- *VLink Device Interface: Telephone Interface*
- *VLink Device Interface: 2-Way Radio Interface*
- *VDI: Telex Trunk*
- *SIP Device: Analog Telephony Adapter (FXS)*
- *SIP Device: PSTN Telephone Interface (FXO)*
- *SIP Device: Softphone*
- *SIP Device: Hardphone/IP Phone*

Client Description Field

The **Client Description** field is used to enter a description of the created client. For example the client type may be a hard phone, and the description may be Standard VOIP Hardphone.

This field can contain *up to 50 characters*.

Login Name Field

The **Login Name** field is used to enter the name of the client. For example, JackM.

This field can contain *up to 20 characters*.

Allow Anonymous Login Check Box

The **Allow Anonymous Login** check box allows a user to login a control panel by entering any login name they choose, followed by the designated password. The chosen login name appears on the selector.

Login Password Field

The **Login Password** field is used to enter a password for the client you are creating.

This field can contain *up to 20 characters*.

Selector Talk/Listen Name: Field

The **Selector Talk/Listen Name:** field is used to enter a display name that is seen above the talk/listen key in the display.

NOTE: Selector is the reference name for keypanel keys or buttons.

This field can contain *up to 20 characters*.

Selector Listen Only Name Field

The **Selector Listen Only Name:** field is generally only assigned when a client has a split functionality for the audio input and output as with a program feed input and IFB output.

NOTE: Selector is the reference name for keypanel keys or buttons.

This field can contain *up to 20 characters*.

External Alpha (8U Characters) Field

The External Alpha (8U Characters) field is used to enter an eight (8) character unicode alpha which is displayed when connected remotely to VLink.

External Alpha (4 Characters) Field

The **External Alpha (4 Characters)** field is used to enter an four (4) character alpha which is displayed when connected remotely to VLink.

Options Group Box

Always Show Selector when Off-line Check Box

The **Always Show Selector when Off-line** check box specifies the selector for this client is visible even if offline on a VLink control panel configured to hide off-line selectors. Generally, this is used for VLink device interface clients that should never go off-line.

Latch Disable Talk Selector Check Box

The **Latch Disable Talk Selector** check box indicates the latching state of the talk selector key. When selected, latching is turned off on the talk key.

Party Line Operation Check Box

The **Party Line Operation** check box indicates a given client operates as a party line. This means that anyone talking to the client also talks to anyone listening to that client; and anyone listening to that client hears everyone talking to that client.

IFB Destination Check Box

The **IFB Destination** check box designates a client as an IFB destination. This causes the system to interrupt any assigned listen or program feeds to the destination when a control panel initiates a talk path to the destination. Typically, this setting is used with on-air talent who need to be constantly monitoring the on-air program feed, but take cues from the director or producer.

ISO Destination Check Box

The **ISO Destination** check box designates a client as an ISO destination which causes the system to interrupt any assigned listen or program feeds to the destination when a control panel initiates a talk path to the destination and automatically activates a return talk path from the destination back to the control panel. Additionally, the talk paths in both directions are isolated so conversations are kept private. Typically, this setting is used with cameras when the director or producer needs to isolate a particular camera from the camera **PL** (Party Line) to provide private instruction.

Selector Assignment Restrictions Group Box

No Local Assignment By Administrator Check Box

The **No Local Assignment By Administrator** check box indicates this client cannot be assigned locally by the administrator.

No Local Assignment By User Check Box

The **No Local Assignment By User** check box indicates this user cannot assign themselves locally to the system.

No Remote Assignment By Administrator Check Box

The **No Remote Assignment By Administrator** check box indicates this client cannot be assigned remotely by the administrator.

No Remote Assignment By User Check Box

The **No Remote Assignment By User** check box indicates this user cannot assign themselves remotely to the system.

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

VLink Client Configuration Selector Assignments Window

The **VLink Client Configuration Selector Assignments** window, shown in Figure 41, is used to assign users/clients to available selectors in the system and, once assigned, allows you to assign operations the client is permitted to use.

NOTE: Selector is the reference name for keypanel keys or buttons.

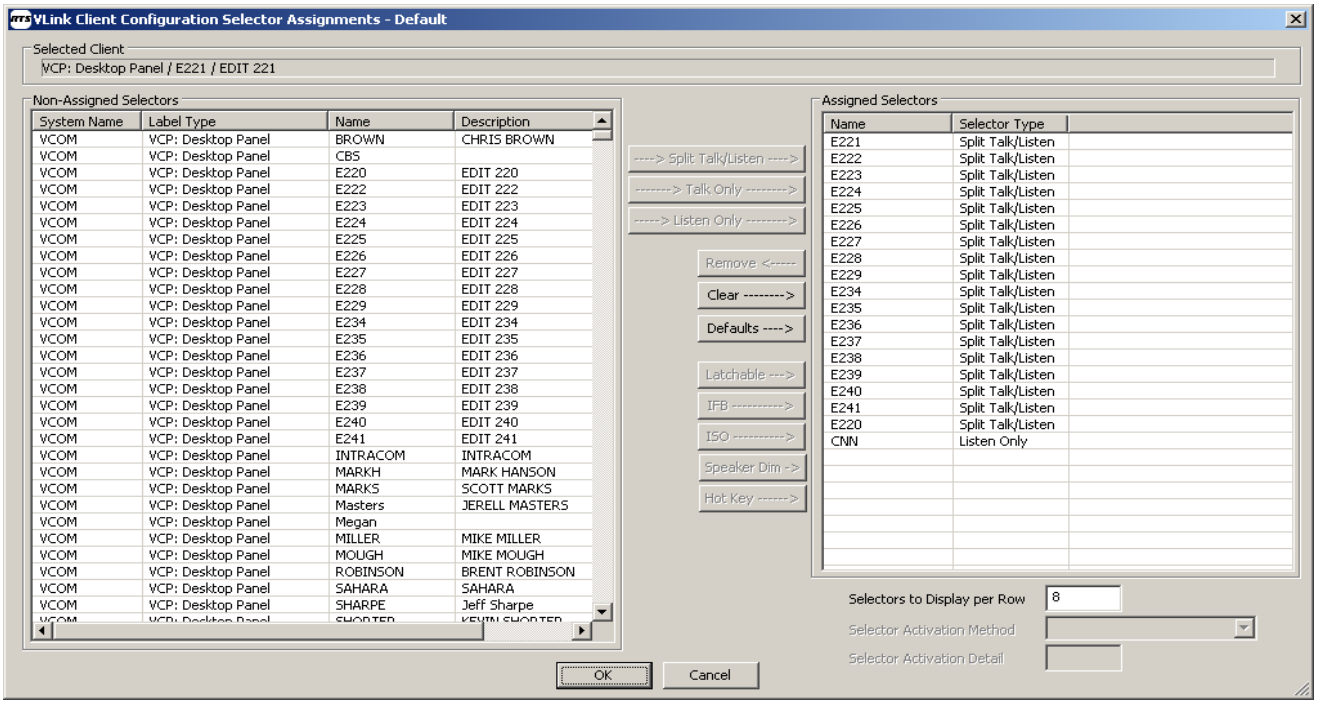


FIGURE 41. VLink Client Configuration Selector Assignments Window

Selected Client Group Box

The **Selected Client** group box displays the type of client being displayed. The information in this field is directly related to the selection or non-selection of a specific client.

Available options for this field are: *Default Settings for all Clients* or the *Name* of the selected client.

Non-Assigned Selectors Group Box

The **Non-Assigned Selectors** group box displays a list of selectors that have not yet been assigned in the system.

Label Type Column

The **Label Type** column displays the label type of the non-assigned selector.

Name Column

The **Name** column displays the name of the non-assigned selector.

Description Column

The **Description** column displays the description of the client.

Selector Configuration Buttons

---> Split Talk/Listen ---> Button

The **---> Split Talk/Listen --->** button is used to move a non-assigned selector to the assigned selector column with a split talk/listen button assignment.

-------> Talk Only -------> Button

The **---> Talk Only ---->** button is used to move a non-assigned selector to the assigned selector column with a talk only button assignment.

----->Listen Only -------> Button

The **---> Listen Only --->** button is used to move a non-assigned selector to the assigned selector column with a listen only button assignment.

Remove <----- Button

The **<----- Remove** button is used to move an assigned selector to the non-assigned selector list.

Clear --------> Button

The **Clear -------->** button is used to remove any additional capabilities that were added to the selector.

Latchable ---> Button

The **Latchable --->** button is used to add the ability to latch to the selected selector assignment.

IFB ----------> Button

The **IFB -------->** button is used to add the ability to be an IFB destination to the selected selector assignment.

ISO ----------> Button

The **ISO -------->** button is used to add the ability to be an ISO to the selected selector assignment.

Speaker Dim -> Button

The **Speaker Dim** -> button is used to add the speaker dim setting to the client selector settings.

Hot Key ------> Button

The **Hot Key ------>** button is used to define a keyboard shortcut to activate or deactivate the selector on a control panel. When clicked, the Selector Hot Key window appears. From this window, you can define what keyboard actions are used for the shortcut (i.e., Ctrl+Alt+Space Bar). For more information, see “Selector Hot Key Window” on page 33.

Assigned Selectors Group Box

Name Column

The **Name** column displays the name of the selector.

Selector Type Column

The **Selector Type** column displays the selector type. There are three (3) selector types available.

Available options for this field are: *Split Talk/Listen, Talk Only,* and *Listen Only.*

Selectors to Display per Row Field

The **Selectors to Display per Row** field designates the number of selectors that can be displayed per row in the control panel.

Selector Activation Method Drop Down Menu

The **Selector Activation Method** drop down menu is used to select under what circumstances the assigned selectors become active.

Available options are:

On This Client Connect -	This is the default option. This option results in the selectors be activated as long as the client is connected.
On Other Client Disconnect -	This option results in the selectors being activated only when a specific client as designated by the Selector Activation Detail is disconnected allowing for a redundant audio input of a critical feed.
On Voice Activity Detection -	This option results in the selectors being activated only when voice activity is detected allowing for a device like a 2-way radio to provide In-Use indication when the channel is active.
On Logic Input Activation -	This option results in the selectors being activated only when an external logic input signal is detected via the device interface application. This allows for a device like a 2-way radio to provide in-use indications when the channel is active.
On DTMF Tone Detection -	This option, available only for SIP clients, results in the selectors being activated only when the selector's corresponding DTMF code is detected. The corresponding DTMF codes are the order in which the selectors appear in the list from one (1) to the number of selectors. A DTMF code of zero (0) turns off any previously activated selector.

Selector Activation Detail Field

The **Selector Activation Detail** field displays the activation method selected. This is applicable only to non-client devices (i.e., 4-wire input/output, SIP, etc).

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

Selector Hot Key Window

The **Selector Hot Key** window, shown in Figure 42, is used to configure a hot key for the application. A hot key is also known as a keyboard shortcut and used similarly.

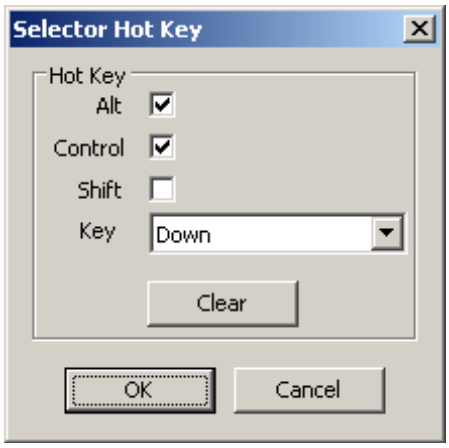


FIGURE 42. Selector Hot Key Window

Hot Key Group Box

Alt Check Box

The **Alt** check box is used to indicate the Alt key is used in the hot key operation.

Control Check Box

The **Control** check box is used to indicate the Ctrl key is used in the hot key operation.

Shift Check Box

The **Shift** check box is used to indicate the Shift key is used in the hot key operation.

Key Drop Down Menu

The **Key** drop down menu is used to define a key to be used in conjunction with the Alt, Ctrl, and/or Shift keys in the hot key operation.

Available options for this field are: *Space, Page Up, Page Down, End, Home, Left, Up, Right, Down, Select, Print, Execute, Snap Shot, Insert, Delete, Help, 0-9 (top row numbers), A-Z, Sleep, 1-9, *,+,-, , (comma), . (period), /, F1-F24, Browser Back, Browser Forward, Browser Refresh, Browser Stop, Browser Search, Browser Favorites, Browser Home, Volume Mute, Volume Up, Next Track, Prev Track, Stop Media, Play/Pause Media, Launch Mail, Launch Media, Launch App 1,* and *Launch App 2.*

Clear Button

The **Clear** button is used to clear the hot key configurations made.

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

VLink Client Configuration Audio Settings Window

The **VLink Client Configuration Audio Settings** window, shown in Figure 43, is used to configure the audio heard in the system.

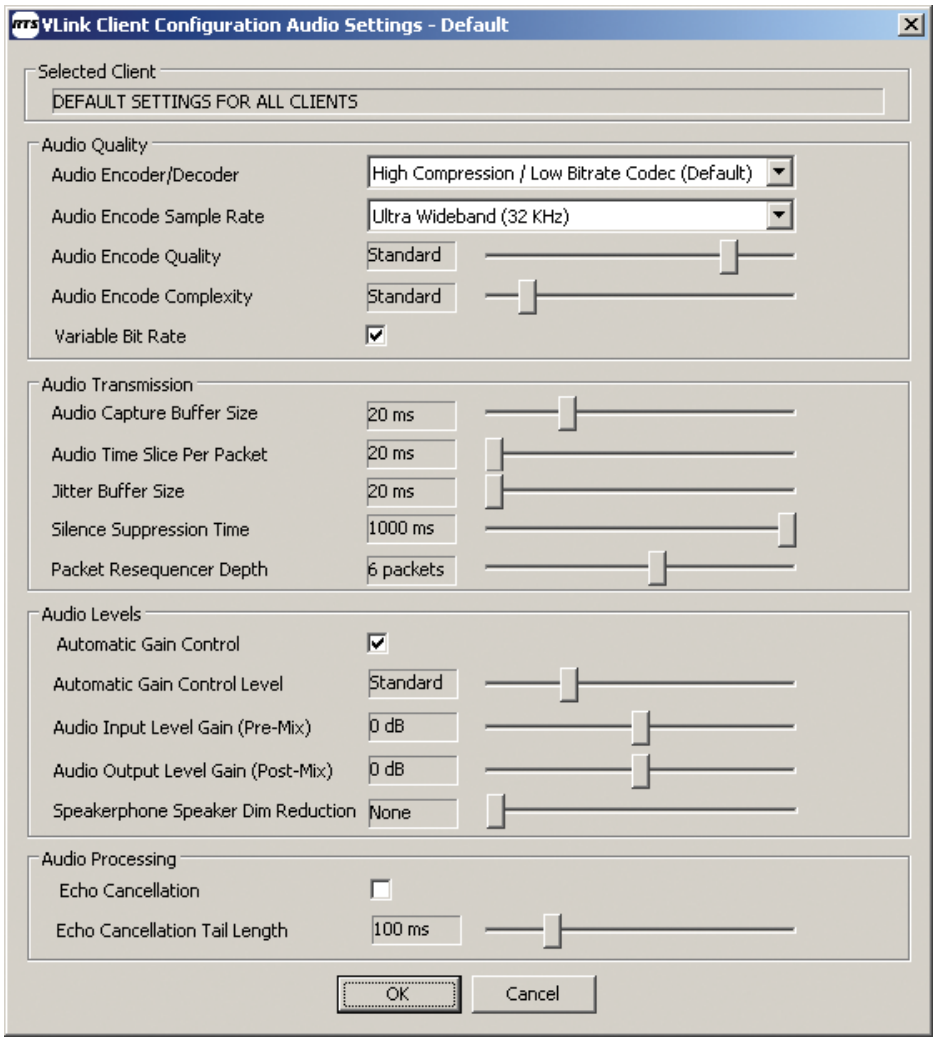


FIGURE 43. VLink Client Configuration Audio Settings

Selected Client Group Box

The **Selected Client** group box displays the type of client being displayed. The information in this field is directly related to the selection or non-selection of a specific client.

Available options for this field are: *Default Settings for all Clients* or the *Name* of the selected client.

Audio Quality Group Box

Audio Encoder/Decoder Drop Down Menu

The **Audio Encoder/Decoder** drop down menu is used to select a different encoder/decoder

Available selections for VLink control panels and device interfaces:

High Compression/Low Bitrate Codec (Default, Used for Internet connectivity)

Low Compression/Hi Bitrate Codec (Used for local network connectivity to slightly reduce latency)

Available selections for SIP clients:

Preferential Codec used when negotiating which codec to use with the SIP device.

Audio Encoder Sample Rate Drop Down Menu

The **Audio Encoder Sample Rate** drop down menu is used to control the sampling rate supported by the clients and dictates the default fidelity for the client connections. This setting is typically the same as the system audio sampling rate, however it can be set at a lower rate but never at a higher rate.

NOTE: Higher audio sampling rates have more significant requirements both in computational speed and network bandwidth, so careful consideration must be made when choosing this setting with respect to client hardware and the client network connection.

Available selections for this field are:

Ultra Wideband (32KHz) Default

Wideband (16KHz)

Narrowband (8KHz)

TABLE 2. Bandwidth Utilization

Audio Sample Rate	Data Rate (Kbps) [ATS[a]=20ms]	Data Rate (Kbps) [ATS[a]=40ms]	Data Rate (Kbps) [ATS[a]=60ms]	Data Rate (Kbps) [ATS[a]=80ms]	Data Rate (Kbps) [ATS[a]=100ms]
8KHz	32	23.6	20.8	19.4	18.56
16KHz	44.8	36.4	33.6	32.2	31.36
32KHz	46.8	38.4	35.6	34.2	33.36

a. **ATS** (Audio Time Slice) per packet controls how many 20ms audio frames are transmitted within a single UDP packet. As each UDP packet requires a fixed amount of overhead, the more frames sent at the same time, the less the UDP overhead is used, which conserves network bandwidth. Conversely, the more audio frames sent per transmission, the greater the system latency and the potential audible consequence of a lost packet. The default is 20ms.

Audio Encode Quality Field and Slider

The **Audio Encode Quality** field and slider are used to set the compression rate for the audio. The higher the compression is, the lower the quality of the input speech signal. Unlike some other speech codecs, it is possible to control the trade-off made between quality and bit rate.

Available options for this field are: *-8*, *-7*, *-6*, *-5*, *-4*, *-3*, *-2*, *-1*, *Standard*, *+1*, and *+2*.

Audio Encode Complexity Field and Slider

The **Audio Encode Complexity** field and slider is used to elevate the audio complexity level to achieve superior results when encoding non-speech sounds, like DTMF tone.

Available options for this field are: 1, Standard, +1, +2, +3, +4, +5, +6, +7, and +8.

Variable Bit Rate Check Box

The **Variable Bit Rate** check box indicates the system's codec is allowed to dynamically change the bit rate at which audio is being encoded. Sounds, like vowels, require a higher bit rate to achieve good quality as compared to "s" and "f" sounds, this setting achieves the best sound quality within the given confines. The system can be set for variable rate or fixed rate. While this setting improves the quality of speech, it conversely degrades the quality of music and should therefore be disabled when using a program feed.

Audio Transmission Group Box

Audio Capture Buffer Size Field and Slider

The **Audio Capture Buffer Size** field and slider are used to control the size of the audio capture buffer used by the VLink control panel and VLink device interface when using the Microsoft WDM drivers. With some slower computers and/or handhelds, the audio capture buffer size may need to be increased in order to prevent audio overrun issues.

NOTE: Increasing this value also increases the audio latency.

Available options for this field are: *20ms*, *40ms*, *60ms*, *80ms*, *100ms*, *120ms*, *140ms*, *160ms*, *180ms*, and *200ms*.
The default value for this field is 20ms.

Audio Time Slice Per Packet Field and Slider

The **Audio Time Slice Per Packet** field and slider is used to control how may 20ms audio frames are transmitted within a single UDP packet. As each UDP packet represents a fixed amount of overhead, the more frames sent at the same time the less UDP overhead which conserves network bandwidth. Conversely, the more frames sent per transmission, the greater the system latency and audible consequence of lost packets, e.g. 20ms of lost frames is hardly audible, where 40ms is.

Available options for this field are: *20ms*, *40ms*, *60ms*, *80ms*, and *100ms*.
The default for this field is *20ms*.

Jitter Buffer Size Field and Slider

The **Jitter Buffer Size** field and slider is used to specify the depth of the jitter buffer in milliseconds. In network-based communications, the delivery time of audio packets across the network may not be uniform. This characteristic is known as jitter. As such, audio received from a network connection must be buffered to compensate for this such that a continuous time-relative stream of audio can be delivered to the user of the audio. Different network topologies have different jitter characteristics, for example, a public Internet connection, will have significantly more jitter than an internal local network. The effect of a jitter buffer that is set too small, results in audio gaps. The value is specified in milliseconds.

Available options for this field are: *20ms, 40ms, 60ms, 80ms, 100ms, 120ms, 140ms, 160ms, 180ms*, and *200ms*.
The default for this field is *20ms*.

Silence Suppression Time Field and Slider

The **Silence Suppression Time** field and slider are used to cease all transmission of audio data when no voice activity is detected from a control panel or device interface after the specified time lapse. This eliminates most background noise during multi-party conferences; however, it may be initially disconcerting to some individuals as the comfort noise typically associated with analog systems is suppressed. Additionally, this feature minimizes the overall required network bandwidth. The value is specified in milliseconds in the range of 100–1000ms, or can be turned off completely.

Available options for this field are: *Off, 100ms, 200ms, 300ms, 400ms, 500ms, 600ms, 700ms, 800ms, 900ms*, and *1000ms*.The default for this field is *1000ms*.

Packet Resequencer Depth Field and Slider

The **Packet Resequencer Depth** field and slider is used to specify the number of packets that are stored when waiting for an out of sequence audio packet. In some network topologies, UDP packets are sent in sequential order are received non-sequentially. As such, these packets must be re-sequenced before use. After the maximum re-sequencer depth has been reached, the packet being waited for is declared to be lost and the re-sequencing is restarted at the next earliest received packet.

Available options for this field are: *1 packet, 2, packets, 3 packets, 4 packets, 5 packets, 6 packets, 7 packets, 8 packets, 9 packets,* and *10 packets.*
The default for this field is *6 packets*.

Audio Levels Group Box

Automatic Gain Control Check Box

The **Automatic Gain Control** check box enables or disables **AGC** (Automatic Gain Control) on the audio path from client to the server. AGC automatically increases or decreases the audio level that the client presents a uniform audio level to the virtual matrix. AGC is primarily appropriate for use with a control panel when used with a headset microphone. In some situations, where there is a high amount of background noise or some return audio leakage, the AGC may incorrectly amplify the noise to normal audio levels.

Automatic Gain Control Level Field and Slider

The **Automatic Gain Control Level** field and slider is used to increase or decrease the sensitivity of the AGC. Increasing or decreasing the sensitivity of the AGC, changes the behavior of the AGC that it adapts faster or slower to audio levels not considered to be at uniform level. Decreasing the sensitivity may be useful in cases where there is a high amount of background noise or some return audio leakage.

Available options for this field are: *-8, -7, -6, -5, -4, -3, -2, -1, Standard, +1,+2, +3, +4, +5, +6, +7, +8, +9, +10, +11, +12, +13, +14, +15, +16, +17, +18, +19, +20, +21, +22,* and *+23.*
The default for this field is *Standard*.

Audio Input Level Gain (Pre-Mix) Field and Slider

The **Audio Input Level Gain (Pre-Mix)** field and slider is used to control the audio input level sent from the client to the virtual matrix. This setting is typically used only when the client's audio input device does not provide a sufficiently audible level (as heard by all other clients) and doe not have a local gain control to compensate. The value can be adjusted a maximum of ±18dB in 6dB increments.

Available options for this field are: *-18dB, -12dB, -6dB, 0dB, +6dB, +12dB,* and *+18dB*.
The default for this field is *0dB*.

Audio Output Level Gain (Post-Mix) Field and Slider

The **Audio Output Level Gain (Post-Mix)** field and slider is used to control the audio output level sent to the client from the virtual matrix. This setting is typically used only when the client's audio output device does not provide a sufficiently audible level and does not have a local gain control to compensate. The value can be adjusted a maximum ±18dB in 6dB increments.

Available options for this field are: *-18dB, -12dB, -6dB, 0dB, +6dB, +12dB,* and *+18dB*.
The default for this field is *0dB*.

Speakerphone Speaker Dim Reduction Field and Slider

The **Speakerphone Speaker Dim Reduction** field and slider are used to adjust the audio level of the speaker phone by lowering the Dim level.

Available options for this field are: *None, -6dB, -12dB, -18dB, -24dB, -30dB, -36dB,* and *Mute*.
The default for this field is *-12dB*.

Audio Processing Group Box

Echo Cancellation Check Box

The **Echo Cancellation** check box is used to enable or disable the client's echo cancellation. Echo cancellation is useful if there is any return audio leakage from the client's speaker back to their microphone, as this may result in an audible echo heard by any other client that is talking and listening to the client with the return audio leakage.

Echo Cancellation Tail Length Field and Slider

The **Echo Cancellation Tail Length** field and slider is used to control the duration the echo canceller waits to received the echo before it begins the cancellation process. The recommended tail length is approximately a third of the room reverberation time. For example, in a small room, reverberation time is approximately 300ms. A tail length of 100ms is recommended.

Available options for this field are: 50ms, 100ms, 150ms, 200ms, 250ms, and 300ms.
The default for this field is *100ms*.

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

VLink Client Configuration Options Window

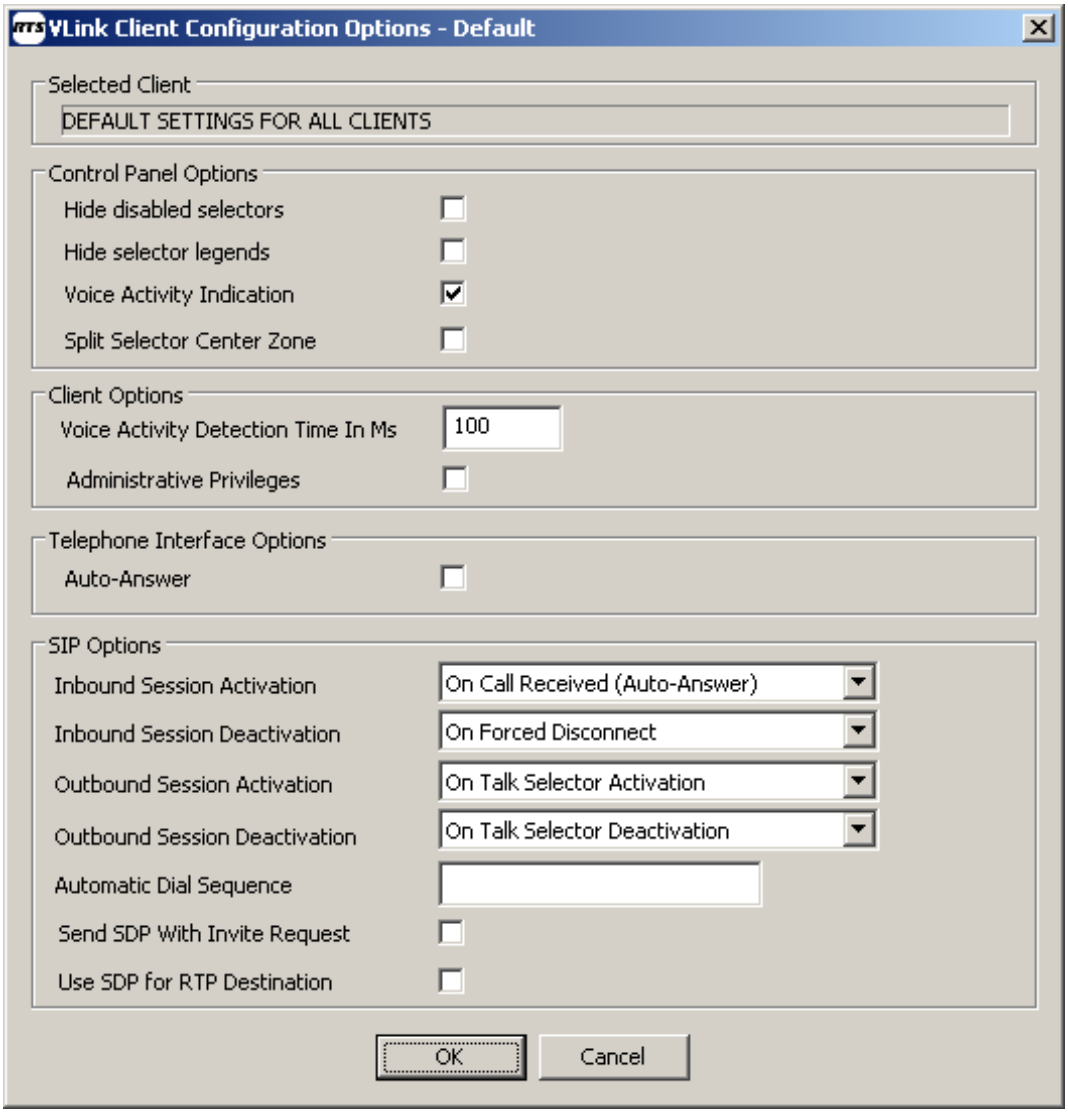


FIGURE 44. VLink Client Configuration Options Window

Selected Client Group Box

The **Selected Client** group box displays the type of client being displayed. The information in this field is directly related to the selection or non-selection of a specific client.

Available options for this field are: *Default Settings for all Clients* or the *Name* of the selected client.

Control Panel Options

Hide Disabled Selectors Check Box

The **Hide Disabled Selectors** check box is used to hide selectors assigned to other clients not logged into the system. When the clients come online, their selector dynamically becomes active.

Hide Selector Legends Check Box

The **Hide Selector Legends** check box is used to hide the overlaid selector legends displayed on the listen selectors (L) and talk selectors (T).

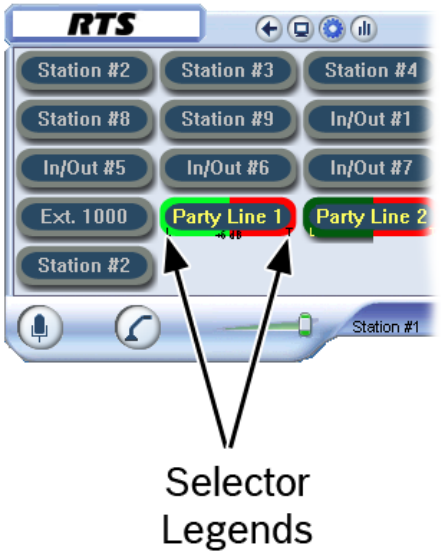


FIGURE 45. Selector Legends

Voice Activity Indication Check Box

The **Voice Activity Indication** check box is used to visually indicate voice activity on control panel selectors, represented by selector text and background color switching between base state (yellow text/navy background) and default activity indication colors (white text/light navy background) or selected activity indication colors (variable). Voice activity indication is only available if the control panel has the ability to listen to or is being talked to by the client indicating voice activity.

Split Selector Center Zone Check Box

The **Split Selector Center Zone** check box is used to configure a split talk/listen key. When selected, it allows the user to select the center of the key to turn on both functions at the same time.

Client Options Group Box

Voice Activity Detection Time in Ms Field

The **Voice Activity Detection Time in Ms** field is used to determine the duration in milliseconds after which a voice or sound is valid for indication.

Administration Privileges Check Box

The **Administration Privileges** check box is used to give administrative privileges to the selected users when logging in to the System Administration application with their assigned user name and password.

Telephone Interface Options Group Box

Auto-Answer Check Box

The **Auto-Answer** check box is used to enable the system to automatically answer an incoming telephone call.

SIP Options Group Box

Inbound Session Activation Drop Down Menu

The **Inbound Session Activation** drop down menu is used to select how the virtual matrix handles the activation of a call initiated by the SIP client.

Available options for this field are:

- If configured for disabled, the call initialized by the SIP client is ignored.
- If configured for On Call Received (Auto-Answer), the call initiated by the SIP client is automatically answered by the virtual matrix.
- If configured for On Talk Selector Activation, the call initiated by the SIP client is answered only if a control panel activates the talk selector associated with the SIP client.

Inbound Session Deactivation Drop Down Menu

The **Inbound Session Deactivation** drop down menu is used to select how the virtual matrix handles the deactivation of a call initiated by the SIP client.

Available options for this field are:

- If configured for Disabled, the call initiated by the SIP client can never be disconnected by the virtual matrix.
- If configured for On Forced Disconnect, the call initiated by the SIP client can only be disconnected by the control panel using the disable client login feature.
- If configured for On Talk Selector Deactivation, the call initiated by the SIP client disconnects when all control panels deactivate the talk selectors associated with the SIP client.

Outbound Session Activation Drop Down Menu

The **Outbound Session Activation** drop down menu is used to select how the virtual matrix handles the activation of a call initiated to the SIP client.

Available options for this field are:

- If configured for Disabled, the virtual matrix cannot initiate any call to the SIP client.
- If configured for On Registration, the virtual matrix initiates a call to the SIP client as soon as the SIP client makes its presence known through a process know as Registration.
- If configured for On Talk Selector Activation, the virtual matrix initiates a call to the SIP client when any control panel activates the talk selector associated with the SIP client.

Outbound Session Deactivation Drop Down Menu

The **Outbound Session Deactivation** drop down menu is used to select how the virtual matrix handles the deactivation of a call initiated to the SIP client.

Available options for this field are:

- If configured for Disabled, the call initiated to the SIP client can never be disconnected by the virtual matrix.
- If configured for On Forced Disconnect, the call initiated to the SIP client can only be disconnected by a control panel using the Disable Client Login feature.
- If configured for On Talk Selector Deactivation, the call initiated to the SIP client disconnects when all control panels deactivate the talk selectors associated with the DIP client.

Automatic Dial Sequence Field

The **Automatic Dial Sequence** field is used to specify a dial sequence to be dialed as soon as a call is established with a SIP client.

To **insert a delay in the dial sequence**, do the following:

> In the Automatic Dial Sequence field, enter **P** to insert a five (5) second delay.
> OR
> In the Automatic Dial Sequence field, enter **p** to insert a one (1) second delay.

Send SDP With Invite Request Check Box

The **Send SDP With Invite Request** check box is used to change the default behavior of call initiated by the virtual matrix to allow compatibility with devices that do not conform to proper SIP implementation. Normally when the virtual matrix initiates a call to the SIP client, it does so without sending a **SDP** (Session Description Protocol) so that it can subsequently control the codec selection.

Use SDP for RTP Destination Check Box

The **Use SDP for RTP Destination** check box is used to change the default behavior of the virtual matrix to allow strict conformance with the **RTP** (Real-Time Protocol) specification. Normally, the virtual matrix ignores the RTP IP Address specified in the SDP and uses the actual received RTP IP Address as the SIP specification as written does not account for SIP clients behind NAT firewalls.

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

VLink Group Configuration Window

The **Group Configuration** window, shown in Figure 46, is used to add, edit, and delete party lines and fixed groups, change selector names, and change group memberships.

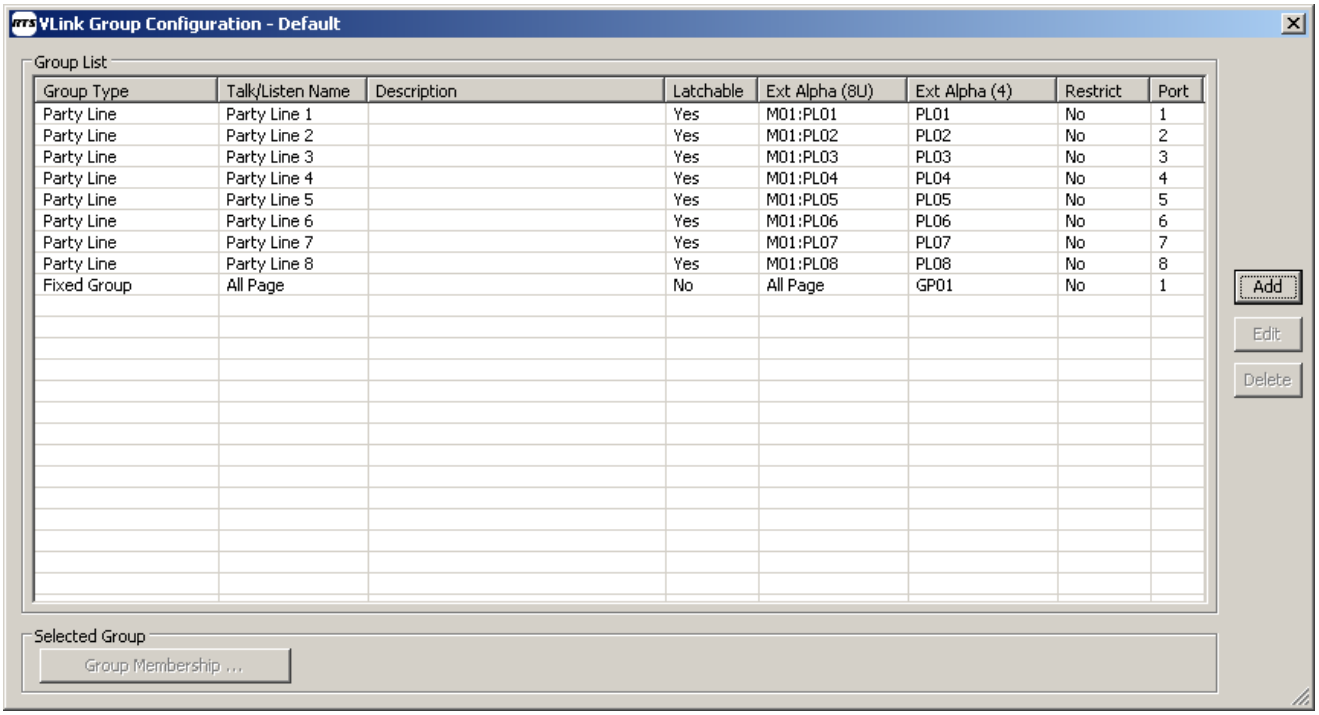


FIGURE 46. VLink Group Configuration Window

Group List Group Box

Group Type Column

The **Group Type** column displays the types of group types currently existing in the system.

Talk/Listen Name Column

The **Talk/Listen Name** column displays the name assigned to the talk/listen assignment.

Description Column

The **Description** column displays a description of the Group, if available.

Latchable Column

The **Latchable** column displays the status of latching for that group. No displays if latching is disabled, Yes displays if latching is enabled.

Ext Alpha (8U) Column

The **Ext Alpha (8U)** column displays the eight (8) character unicode external alpha, if applicable.

Ext Alpha (4)Column

The **Ext Alpha (4)** column displays the four (4) character external alpha, if applicable.

Restrict Column

The **Restrict** column displays if the client has any selector assignment restrictions.

Port Column

The **Port** column displays the port number the group is assigned.

Add Button

The **Add** button is used to open the VLink Group Configuration Add/Edit window. For more information, see “VLink Group Configuration Add/Edit Window” on page 45.

Edit Button

The **Edit** button is used to open the VLink Group Configuration Add/Edit window. For more information, see “VLink Group Configuration Add/Edit Window” on page 45.

Delete Button

The **Delete** button is used to remove a group from the group list. When the Delete button is clicked, a warning message appears confirming the deletion.

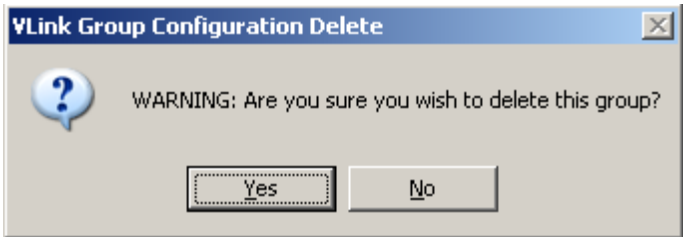


FIGURE 47. Group Deletion Confirmation

Selected Group Group Box

Group Membership Button

The **Group Membership** button is used to open the VLink Group Configuration Membership window. For more information, see “VLink Group Configuration Membership Window” on page 47.

VLink Group Configuration Add/Edit Window

The **Group Configuration** Add/Edit window, shown in Figure 48, is used to create or edit a group in the system.

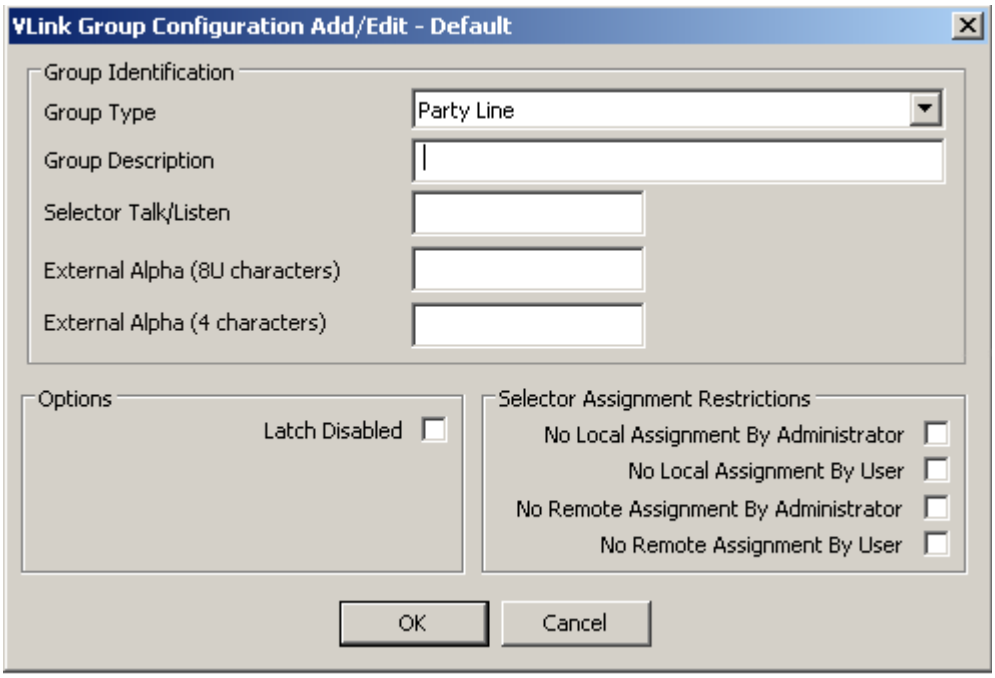


FIGURE 48. VLink Group Configuration Add/Edit Window

Type Drop Down Menu

The **Type** drop down menu is used to select what type of group you want to create.

Available options for this field are:

Party Line - the group is configured for party line operation.

Fixed Line - the group is configured for fixed line or special list operation.

Description Field

The **Description** field is used to enter a description of the group you create.

This field can contain *up to 50 characters*.

Selector Talk Label Field

The **Selector Talk Label** field is used to assign a name that is seen on the selector in the software.

This field can contain up to 20 characters.

External Alpha (8U Characters) Field

The **External Alpha (8U Characters)** field is used to enter an eight (8) character unicode alpha which is displayed when connected remotely to VLink.

External Alpha (4 Characters) Field

The **External Alpha (4 Characters)** field is used to enter a four (4) character alpha which is displayed when connected remotely to VLink.

Options Group Box

Latch Disabled Check Box

The **Latch Disabled** check box is used to enable or disable latching for the group configuration. If selected, latching is not active.

Selector Assignment Restrictions Group Box

No Local Assignment By Administrator Check Box

The **No Local Assignment By Administrator** check box indicates this client cannot be assigned locally by the administrator.

No Local Assignment By User Check Box

The **No Local Assignment By User** check box indicates this user cannot assign themselves locally to the system.

No Remote Assignment By Administrator Check Box

The **No Remote Assignment By Administrator** check box indicates this client cannot be assigned remotely by the administrator.

No Remote Assignment By User Check Box

The **No Remote Assignment By User** check box indicates this user cannot assign themselves remotely to the system.

VLink Group Configuration Membership Window

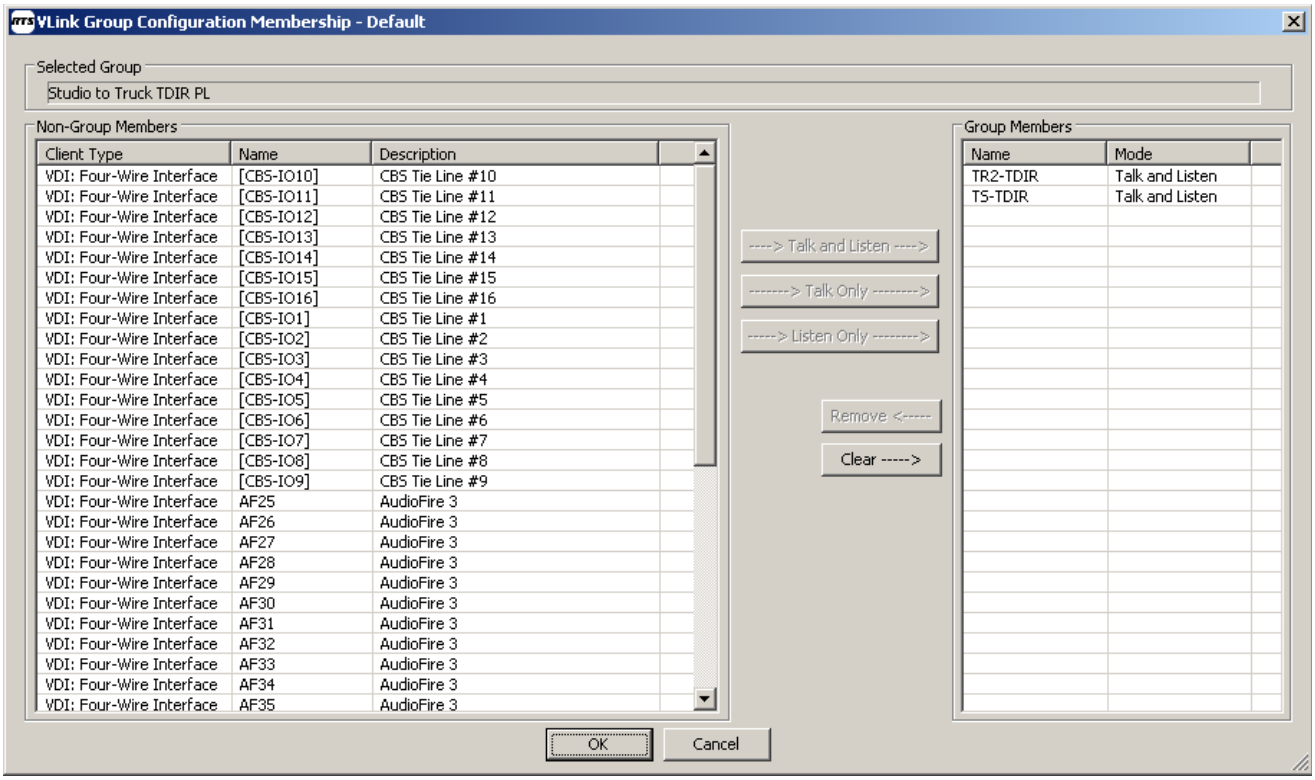


FIGURE 49. VLink Group Configuration Membership Window

Selected Group Group Box

Non-Group Members Group Box

Client Type Column

The **Client Type** column displays the client type. For more information, see “Client Configuration Add/Edit Window” on page 27.

Name Column

The **Name** column displays the name assigned to the client.

Description Column

The **Description** column displays the description assigned to the client.

---> Talk and Listen ---> Button

The **Talk and Listen** button is used to move a non-assigned selector to the assigned selector column with a talk and listen button.

-------> Talk Only -------> Button

The **Talk Only** button is used to move a non-assigned selector to the assigned selector column with a talk only button.

----->Listen Only -------> Button

The **Listen Only** button is used to move a non-assigned selector to the assigned selector column with a listen only button.

Remove <----- Button

The **Remove** button is used to move any assigned select to the non-assigned selector list.

Clear --------> Button

The **Clear** button is used to remove any additional capabilities that were added to the selector.

Group Members Group Box

Name Column

The **Name** column displays the name of the group.

Mode Column

The **Mode** column displays the mode the group is configured for (for example, talk and listen).

OK Button

The **OK** button accepts the modifications and closes the window.

Cancel Button

The **Cancel** button rejects the modifications made and closes the window.

VLink Client Statistics Window

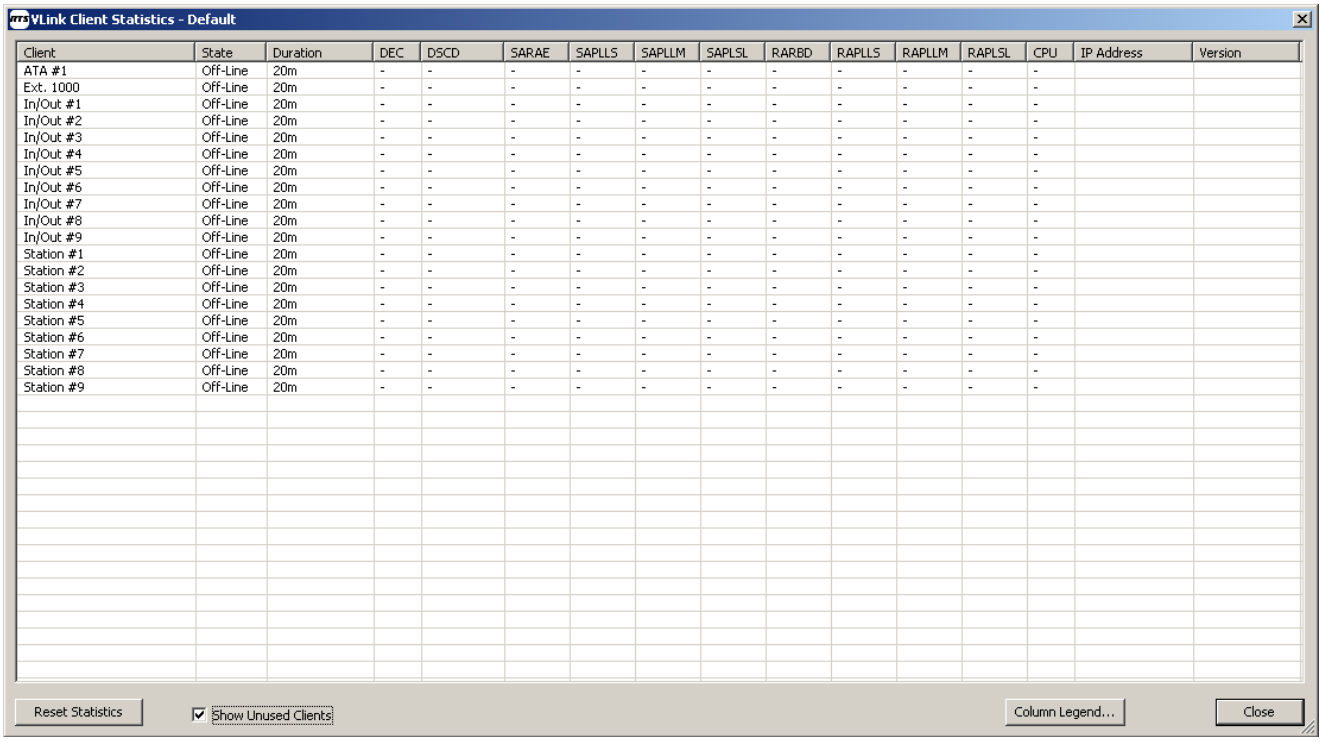


FIGURE 50. VLink Client Statistics Window

Client Column

The **Client** column displays the name of the client.

State Column

The **State** column displays the state of the client. When a client is active, Online displays. When a client is not online, Off-Line displays.

Duration Column

The Duration column displays the amount of time the user has been active. Times are given in hours (h) and minutes (m)

DEC Column

The **DEC** (Disconnect Event Column) column displays the number of times the connection has gone down.

DSCD Column

DSCD (Disconnect State Cumulative Duration)

SARAE Column

The SARAE (Send Audio Rate After Encoding (Kbps)) displays the amount of audio data present on transmit.

SAPLLS

The **SAPLLS** column displays the percentage of send audio packets lost in the last second.

SAPLLS (Send Audio Packet Loss Last Second [%])

SAPLLM Column

The **SAPLLM** column displays the percentage of send audio packets have been lost in the last minute.

SAPLLM (Send Audio Packet Loss Last Minute [%])

SAPLSL Column

The **SAPLSL** column displays the percentage of send audio packets lost since logging into the system.

SAPLSL (Send Audio Packet Loss Since Login [%])

RARBD Column

RARBD (Receive Audio Rate Before Decoding (Kbps))

RAPLLS Column

The **RAPLLS** column displays the percentage of receive audio packets lost in the last second.

RAPLLS (Receive Audio Packet Loss Last Second [%])

RAPLLM Column

The **RAPLLM** column displays the percentage of receive audio packets lost in the last minute.

RAPLLM (Receive Audio Packet Loss Last Minute [%])

RAPLSL Column

The **RAPLSL** column displays the percentage of receive audio packets lost since logging into the system.

RAPLSL (Receive Audio Packet Loss Since Login [%])

CPU Column

The **CPU** column displays the percentage of the **CPU** (Centralized Processing Unit) the client is using.

IP Address Column

The **IP Address** column displays the IP Address of the client.

Version Column

The **Version** column displays the version of the client.

Reset Statistics Button

The **Reset Statistics** button is used to reset all the values collected for the displayed clients.

Show Unused Clients Check Box

The **Show Unused Clients** check box is used to display clients not currently active.

Column Legend... Button

The **Column Legend...** button is used to open a window displaying the full names of the acronyms used in the Client Statistics window.

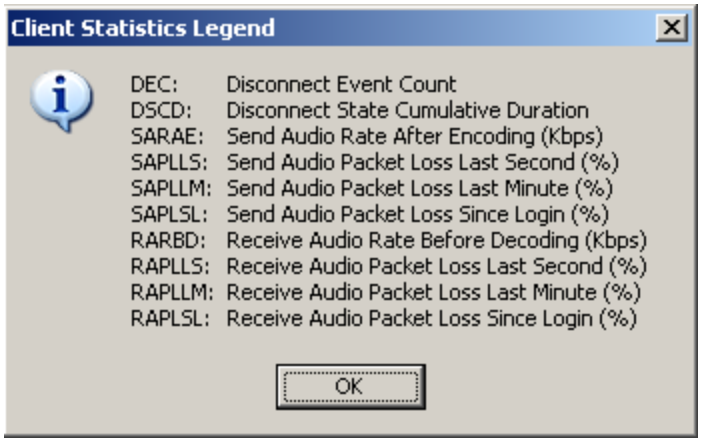


FIGURE 51. Client Statistics Legend Window

Close Button

The **Close** button closes the window.

VLink SIP Registrations Window VLink

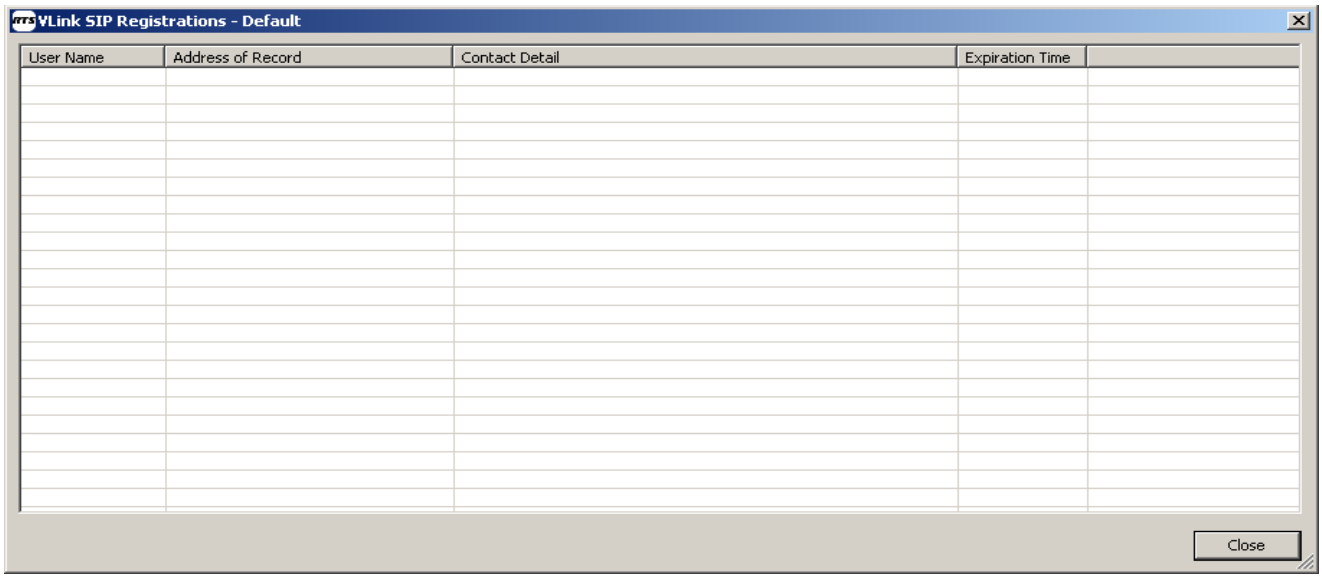


FIGURE 52. VLink SIP Registrations Window

User Name Column

The **User Name** column displays the name of the user currently using SIP.

Address of Record Column

The **Address of Record** column displays the IP Address of the SIP record currently being used.

Contact Detail Column

The **Contact Detail** column displays the contact information for the SIP registration.

Expiration Time Column

The **Expiration Time** column displays the time the SIP registration expires.

Close Button

The **Close** button closes the window.

Activity Log Window

The **Activity Log** window, shown in Figure 53, is used to see a line item view of all activity that has occurred on the system. Log entries display the date, time, and the event.

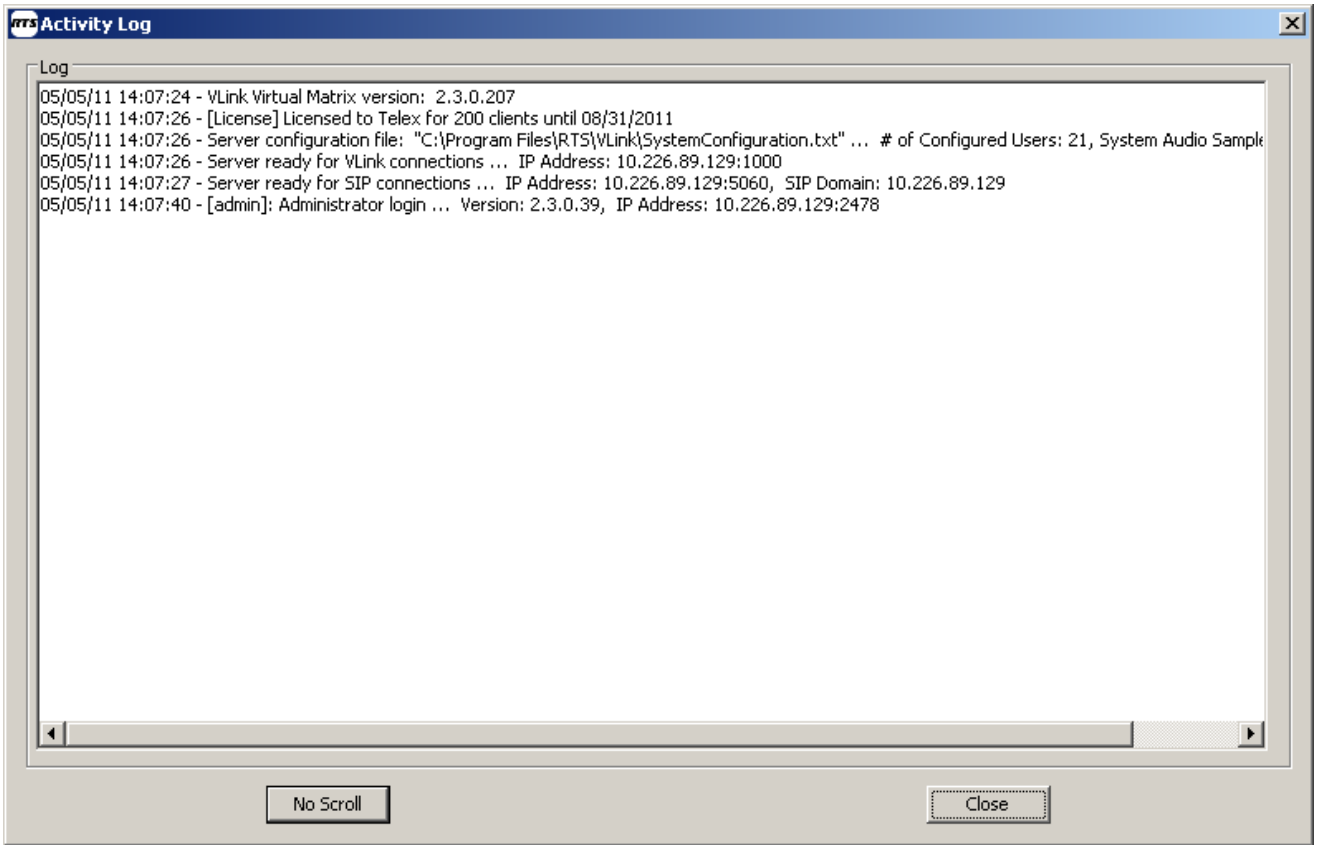


FIGURE 53. Activity Log Window

Log Group Box

The **Log** group box displays the events that have occurred on the system.

No Scroll Button

The **No Scroll** button is used to manually scroll through the activity log. Normally, the activity log dynamically updates, showing the most current activity logged. When the No Scroll button is selected, a right-hand slider appears allowing for you to look through the activity log history.

Close Button

The **Close** button closes the window.

CHAPTER 3

VLink Device Interface

VLink Device Interface

VLink Device Interface is a software application that bridges VLink with multiple external communications systems.

NOTE: A hardware audio/logic interface is required to convert 4-wire and 2-wire analog signals into digital to bridge with the IP world, typically via USB or Firewire[1] connection. To bridge a telephone system a hybrid is also required or a PC/server card which accepts analog phone lines or T-1(s) directly.

Installation

To **install the VLink Device Interface software**, do the following:

1. Locate the **VLink Device Interface setup application** (provided either electronically or on the CD).
2. Run the **installer**.
3. Follow the **prompts**.
   You must to accept VLink Systems' License Agreement to install the software.
4. Once installation is complete, select the **Launch VLink Device Interface** check box.
5. Click **Finish**.

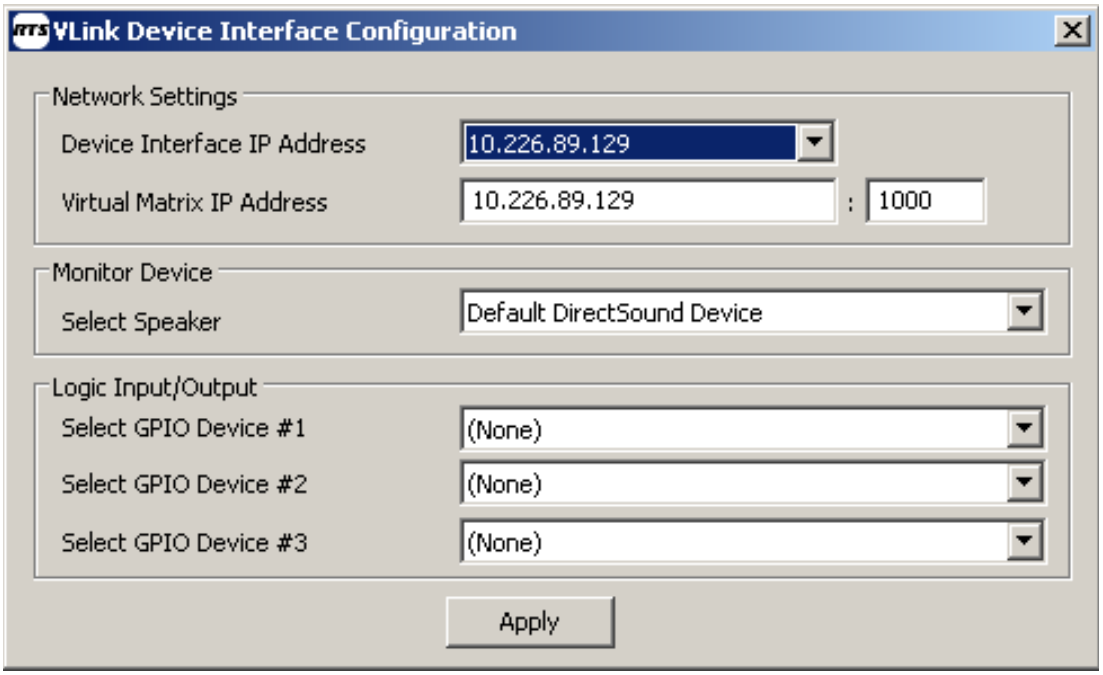
1. *This high-speed interface has become a new standard for connecting peripherals. Firewire can be used to connect devices such as digital video cameras, hard drives, audio interfaces, and MP3 players, such as the Apple iPod, to your computer. A standard Firewire connection can transfer data at 400Mbps, which is roughly 30 times faster than USB 1.1.*

Configuration

When running the VLink Device Interface for the first time, the VLink Device Interface Configuration window automatically appears.

To **configure the VLink Device Interface**, do the following:

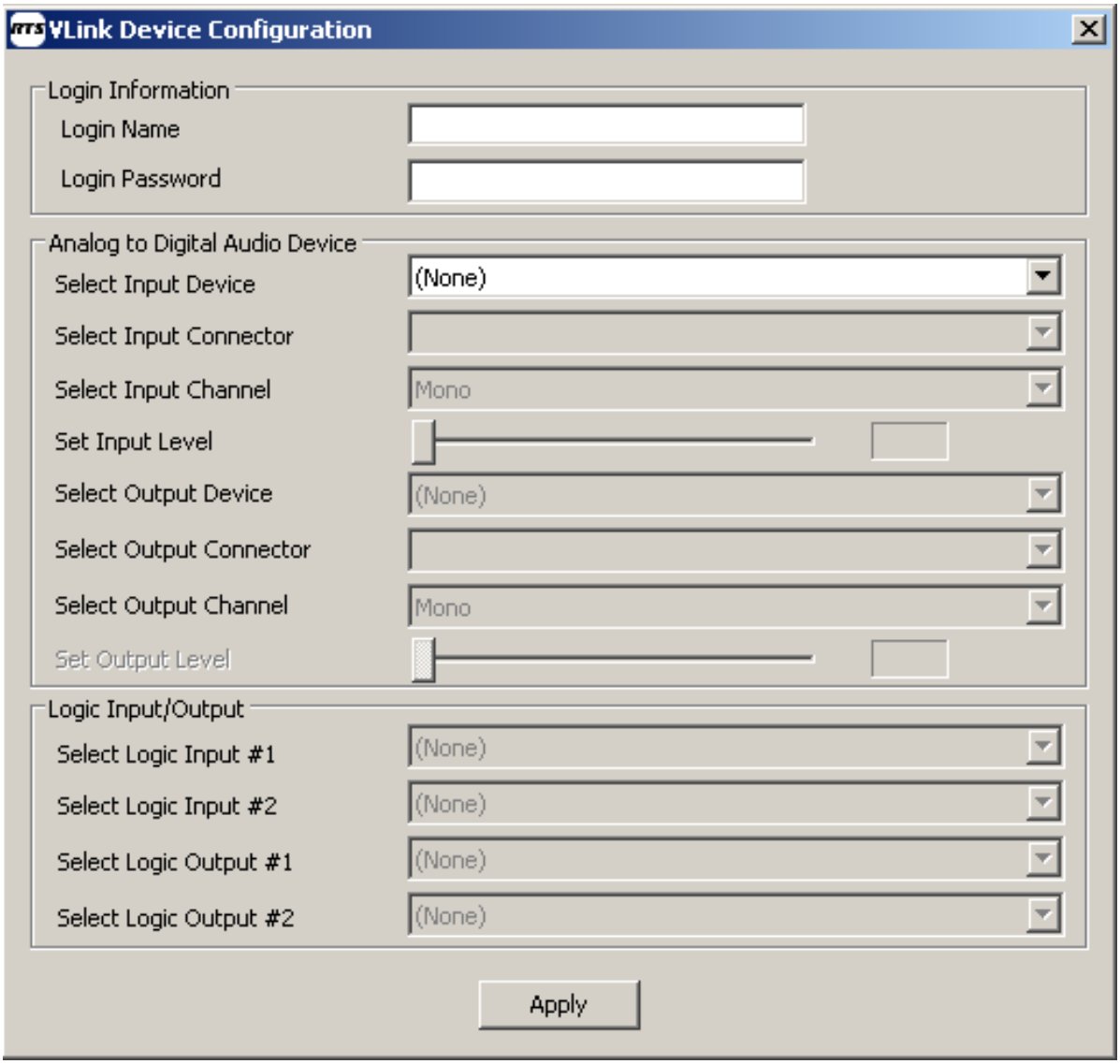
1. On the VLink Device Interface window, click **Configure**.
   The Device Interface Configuration Window appears.



2. Under Network Settings, enter the **Virtual Matrix IP Address** and **port number** (after the colon) supplied by your system administrator.
   The Device Interface IP Address is your computer's IP address and should already be input; however, some PCs may have multiple connections. Verify the correct address is selected.
3. Under Monitor Device, select the **secondary audio output device**.
   Typically, an external speaker allows monitoring the audio input and output of the configured devices.
4. Under Logic Input/Output, select the **GPIOs device** (if any) you use to control your audio devices. Optional.
5. Click **Close** to save the configured settings.

To **add a device**, do the following:

1. On the Device List window, click **Add**.
   The VLink Device Configuration Window appears.



2. In the Login Name field, enter the **login name** for the device, as pre-configured in the VLink System Configuration application.
3. In the Login Password field, enter the **login password f**or the device, as pre-configured in the VLink System Configuration application.

   NOTE: Under Analog to Digital Audio Device, select the **audio input** and **output device**.
   Typically this a a USB 4-wire to digital converter; however any audio input and output device can be used.

4. From the Select Input Device drop down menu, locate the **correct audio input device**.
   Often, but not always, the select input connector and the select output device drop down menus automatically populate with the correct setting.
5. From the Select Input Connector drop down menu, select the **input jack** the audio input device is to use.
6. From the Select Input Channel drop down menu, select either **mono**, **stereo – left**, or **stereo – right**.
7. Using the Set Input Level slider, adjust the **input audio level**, if applicable.
8. From the Select Output Device drop down menu, locate the **correct audio output device**.

9. From the Select Output Connector drop down menu, select the **output jack** the audio output device is to use.
10. From the Select Output Channel drop down menu, select either **mono**, **stereo – left**, or **stereo – right**.
11. Under Logic Input/Output, select the **logic protocol and input(s)/output(s)** that you wish to use for the given audio device.
12. Click **Apply**.
    The device is added to device interface list.

To **edit a device**, do the following:

1. In the Device list, select a **device**.
2. Click **Edit**.
   The VLink Device Configuration window appears for the specified device.
3. Make the modifications you want.
4. Click **Apply**.

To **delete a device**, do the following:

1. In the Device list, select a **device**.
2. Click **Delete**.

Operation

BASIC FUNCTIONALITY AND FEATURES

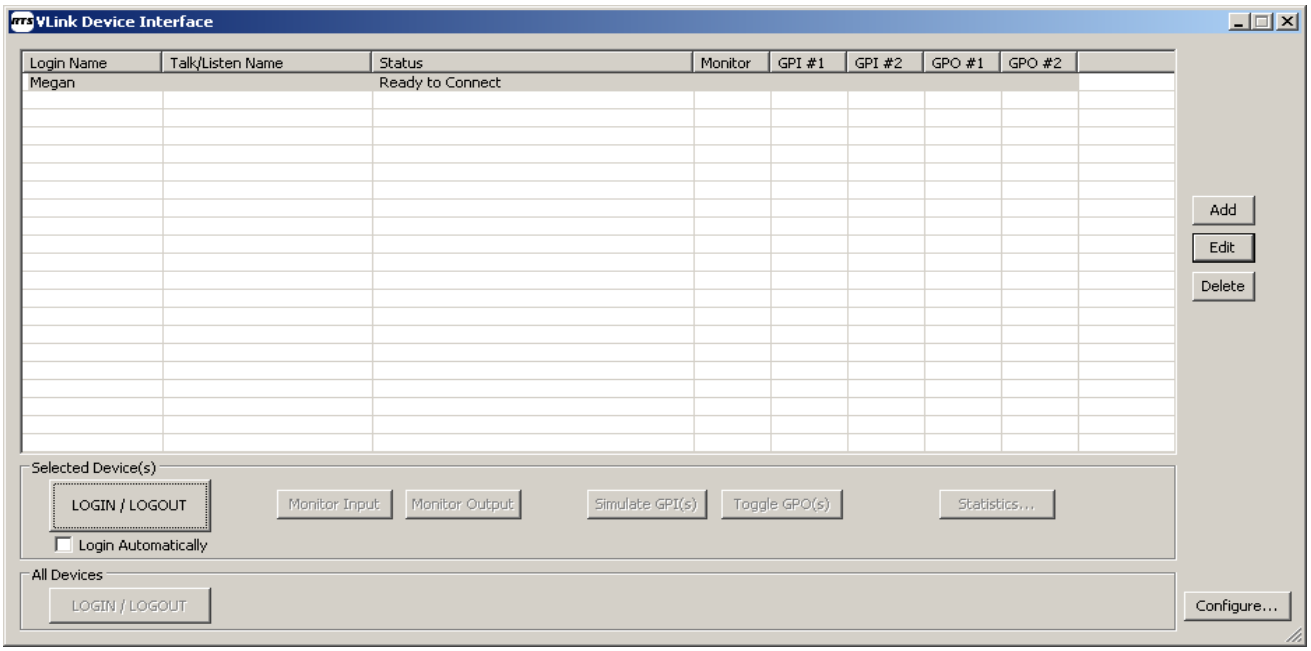


FIGURE 54. VLink Device Interface

All Devices Group Box

Login/Logout Button

The **Login/Logout** button is used to connect or disconnect all configured devices simultaneously.

Selected Device(s) Group Box

Buttons in the section operate only on the selected device in the Device List

Login/Logout Button

The **Login/Logout** button is used to connect or disconnect the selected device.

Monitor Input Button

The **Monitor Input** button allows monitoring of the audio being sent from the device to the virtual matrix.

Monitor Output Button

The **Monitor Output** button allows monitoring of the audio being sent from the virtual matrix to the device.

Simulate GPI(s) Button

The **Simulate GPI(s)** button is used to demonstrate the effect of activating the configured general purpose inputs and is for testing purposes only.

Toggle GPO(s) Button

The **Toggle GPO(s)** button forces activation of the configured general purpose outputs and is for testing purposes only.

Statistics Button

The **Statistics** button displays the send and receive audio rates and packet loss data.

Configure Button

The **Configure** button opens the VLink Device Interface Configuration window.

Add Button

The **Add** button opens the VLink Device Configuration window which is used to add a device.

Edit Button

The **Edit** button opens the VLink Device Configuration window corresponding to the device highlighted in the Device List.

Delete Button

The **Delete** button deletes the selected device.

TROUBLESHOOTING

Following are answers to the most commonly experienced issues of new users.

Question	Answer
When attempting to login to the Virtual Matrix I get a “Cannot connect to Virtual Matrix” message?	The Device Interface is unable to establish a TCP/IP data connection with the Virtual Matrix. Check the Device Interface Configuration to ensure Device Interface IP Address is valid and represents a valid and active network connection. Ensure that the Virtual Matrix IP Address is entered exactly as provided with the designated port number. Check to ensure a corporate firewall is not intentionally blocking the designated TCP/IP data port.
When attempting to login to the Virtual Matrix I get a “Unable to establish return audio path” message?	The Device Interface is unable to establish a UDP audio connection with the Virtual Matrix. Check to ensure a corporate firewall is not intentionally blocking the designated UDP audio port which is typically the same as the TCP/IP data port.
When attempting to log in to the Virtual Matrix I get a *Provided username and/or password is invalid!* message?	The Device Interface is unable to validate the username and password. Check to ensure the name is typed exactly as provided as the username and password are both case sensitive. Check to ensure the correct TCP/IP data port is specified to ensure you are logging in to the correct system.

APPENDIX D

Trunking

Configure for Trunking

There are two (2) ways to trunk a system, shown in Figure 55 on page 62 and Figure 56 on page 63, using a breakout panel connected to an Intracom Device Interface, or connecting the a Madi-16 Plus card to a MADI-16 Plus Interface Device which is connected to the network.

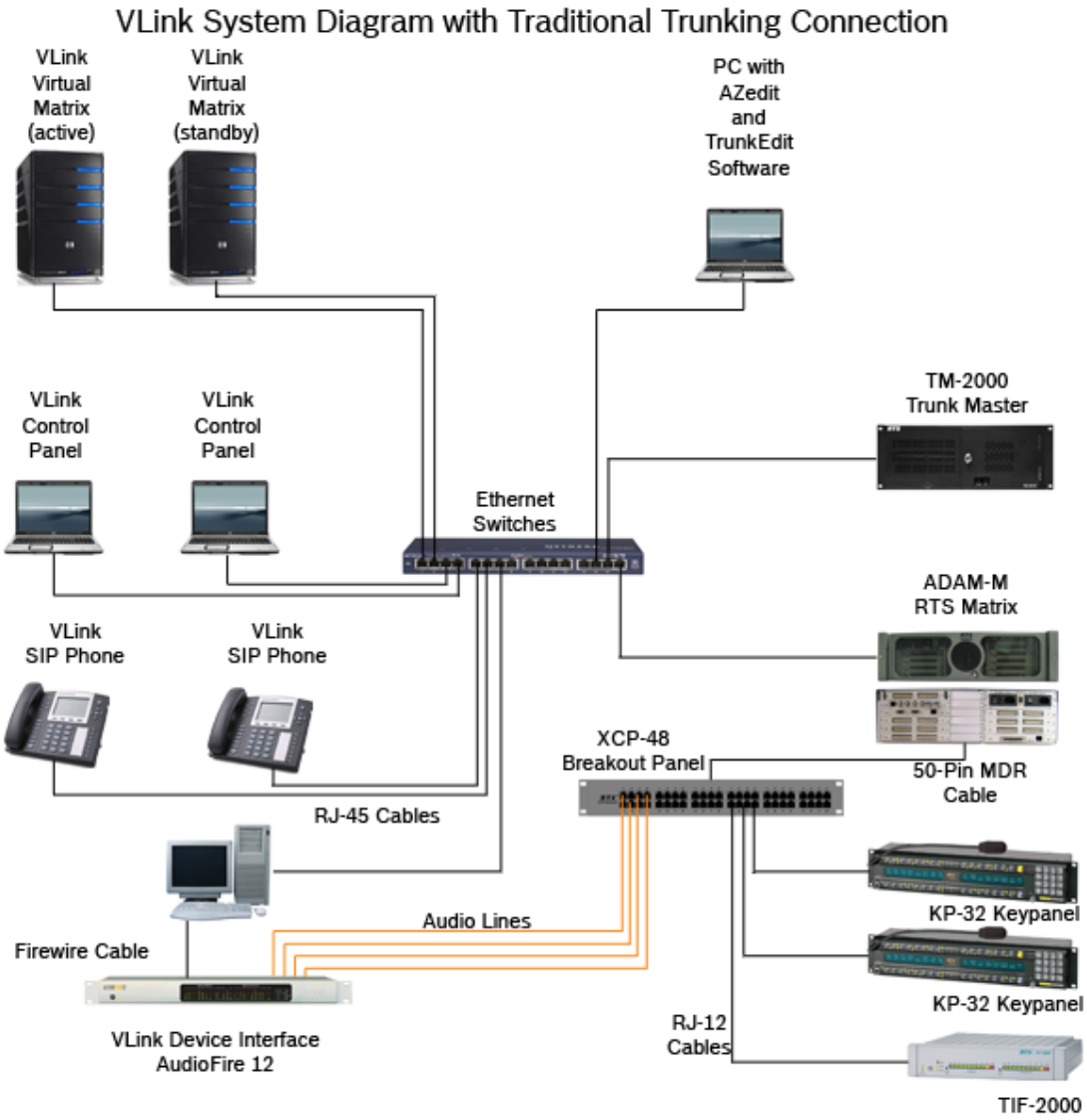


FIGURE 55. VLink LE System Diagram with Traditional Trunking Connection

To **cable trunking using a MDR-50 cable**, do the following:

1. Using an MDR-50 cable, connect the **ADAM-M frame to a XCP-48 Breakout Panel**.
2. Using an RJ-45 cable, connect the **XCP-48 Breakout panel to the VLink Device Interface**.
3. Using Firewire cable, connect the **VLink Device Interface to the VLink Server**.
4. Using an Ethernet cable, connect the **VLink Server to the Ethernet Switch**.
5. Using an Ethernet cable, connect the **ADAM-M to the Ethernet Switch**.
6. Using an Ethernet cable, connect the **TM-2000 Trunk Master to the Ethernet Switch**.
7. Using an Ethernet cable connect the **PC with the AZedit and Trunkedit software loaded**.

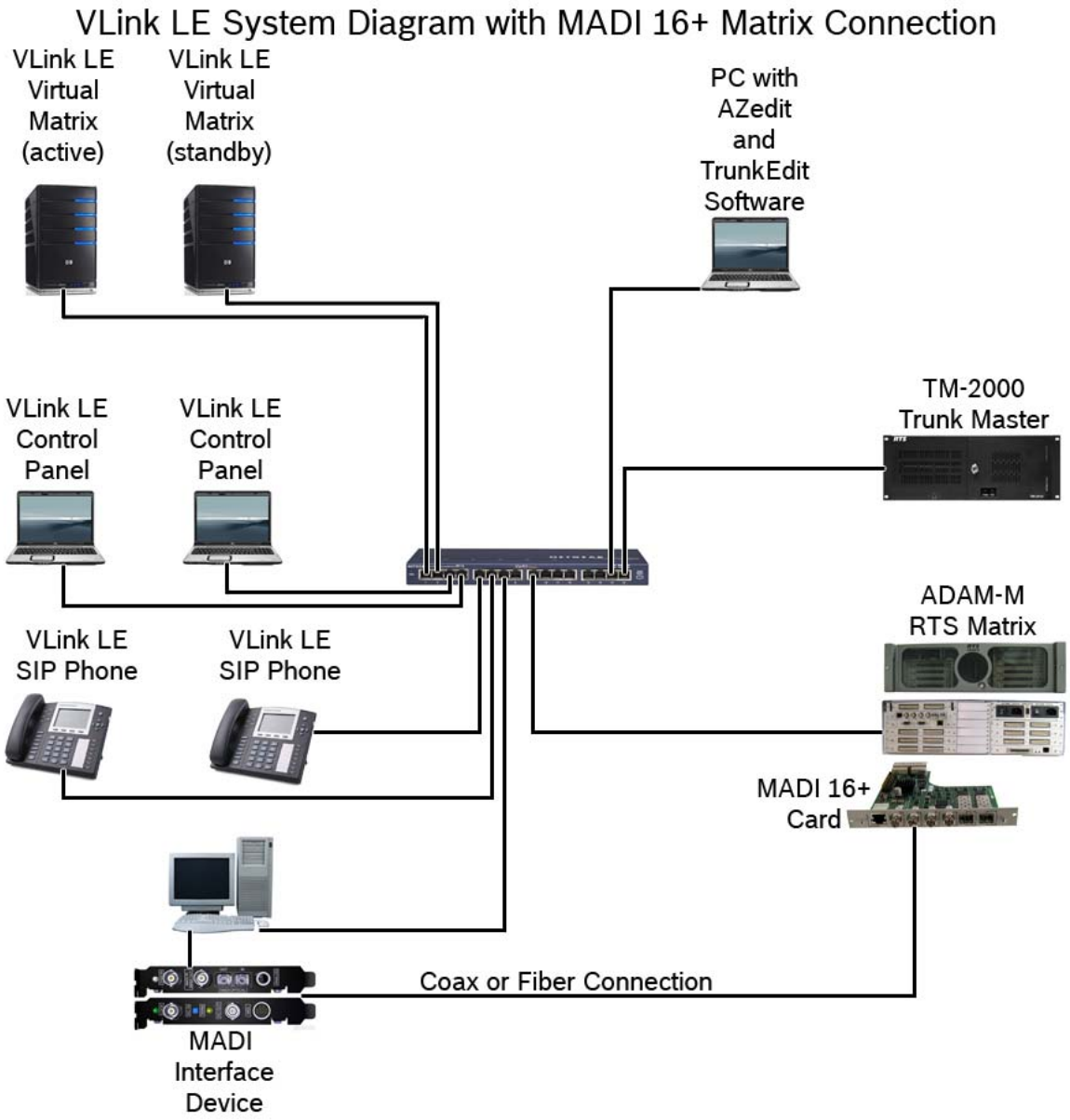


FIGURE 56. VLink LE System Diagram with MADI-16+ Matrix Connection (Trunking)

To **cable trunking using a fiber or coaxial cable (requires a MADI-16 Plus card)**, do the following:

1. Using either coaxial or fiber cable, connect the **MADI-16 Plus card to the PC with the MADI Interface Device** installed on it.
2. Using an Ethernet cable, connect the **PC with the MADI Interface Device installed on it to the Ethernet Switch**.
3. Using an Ethernet cable, connect the **ADAM-M to the Ethernet Switch**.
4. Using an Ethernet cable, connect the **TM-2000 Trunk Master to the Ethernet Switch**.
5. Using an Ethernet cable connect the **PC with the AZedit and Trunkedit software loaded**.

Configuring VLink to Trunk

When trunking VLink with an ADAM, you must configure a client in the VLink LE System Administration software.

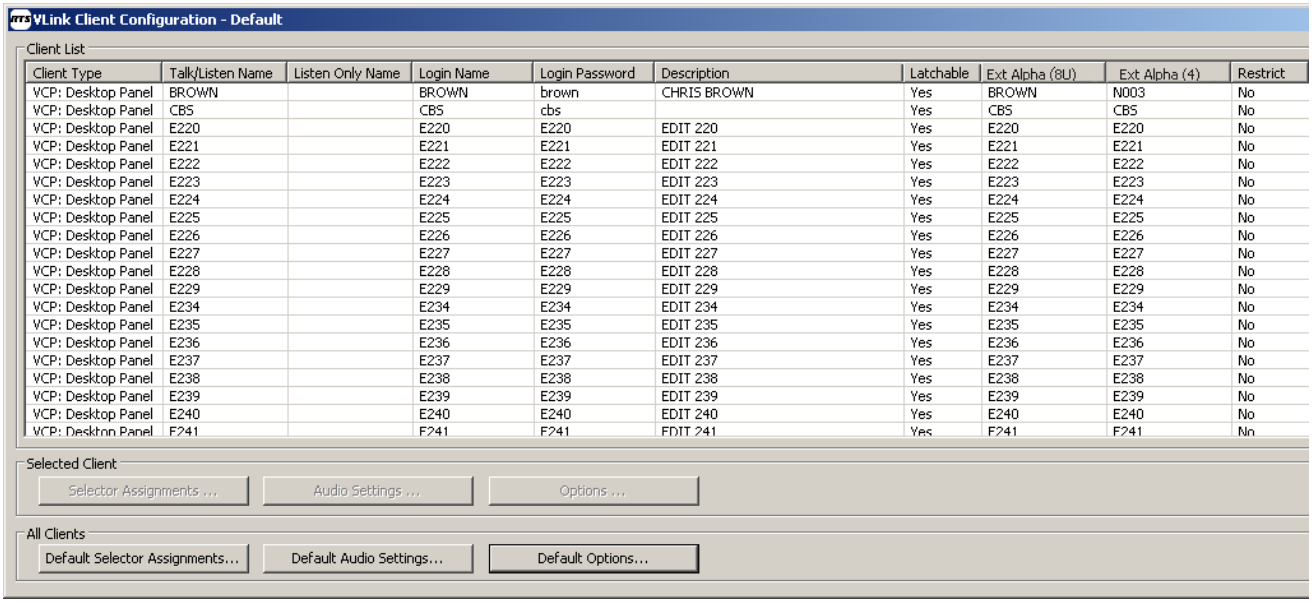
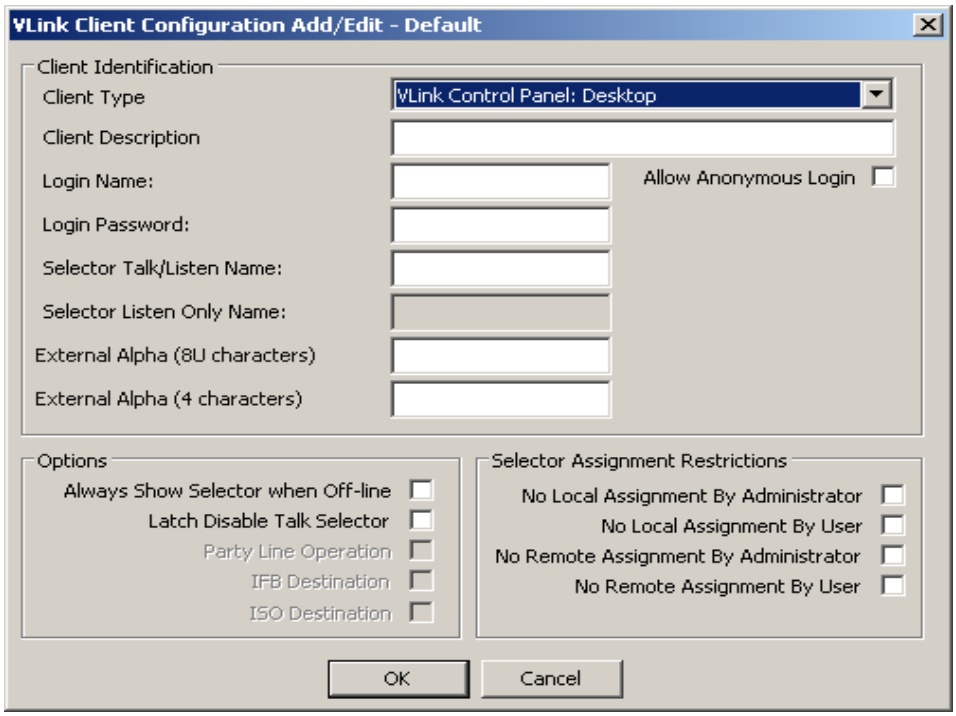


FIGURE 57. Client Configuration Window

To **configure trunking using the VLink LE software**, do the following:

1. Open the **VLink LE System Administration** application.
2. Click **Client Configuration**.
   The Client Configuration window appears.
3. Click **Add**.
   The Client Configuration Add/Edit window appears.



4. From the Client Type drop down menu, select **VLINK Device Interface: Telex Trunk**.

5. In the Class Description field, enter a **description** of the trunk line.
6. In the Login Name field, enter a **login name**.
7. In the Login password, enter a **login password**.

   NOTE: If the Login Password field is left blank, there is no password associated with the Login name.

8. In the Selector Talk/Listen Name field, enter a **Talk/Listener name** you want to appear.
9. In the External Name (Long) field, enter a **name**.
   The External Name (Short) field truncates the External Name (Long) field to the first 8 characters.
10. Click **OK**.
    The Trunk Client is created.

    NOTE: When the Trunk Client is created, it is given the next sequential port number available. For example, if the last client port used was 39, then the trunk client would be port 40. This is the port to use when configuring the trunks in Trunkedit.

APPENDIX A

SIP

Overview

SIP (Session Initiation Protocol) is a widely adopted signaling protocol for Internet conferencing, telephony, presence, events notification and instant messaging.

The VLink Virtual Matrix includes an integrated SIP server which allows connection of SIP enabled **VoIP** (Voice over Internet Protocol) peripherals directly into the virtual matrix from any network connection without the need for a PC. You can seamlessly connect IP phones/phone systems, **ATAs** (Analog Telephone Adapters), or IP gateways into a network and using the VLink system administration application, map your SIP peripherals to point-to-points, group calls, and/or party lines in any complexity.

Typically, SIP devices are used with Telephone IP **PBX** (Private Branch Exchange) systems to implement a traditional telephone system whereby one (1) user dials the number of another user and waits for the recipient to answer. VLink, however is an always on non-blocking intercom system and as such, the SIP implementation has been tailored to best compliment this functionality. As such, each configured SIP client becomes an extension of a VLink port by connecting the SIP device to a dedicated virtual SIP client associated with a VLink port.

There are many ways SIP devices can be utilized with VLink. Below are a number of common applications:

Interoperating ProComm and IP Phone Systems:	ProComm Administrators can seamlessly bridge intercom with widely deployed IP Phone Systems which are prevalent in the governmental and defense markets.
Interfacing Phone Lines:	Analog and digital phone lines can be bridged into VLink from any network connecting using SIP-ready VoIP gateways.
Party Line Systems:	Users with simple intercommunication requirements, such as only needing to monitor or talk on one (1) or two (2) channels have a wide array of user interface options that do not require a PC. Options include WiFi enabled IP phones, iPhones (running softphone clients), and desktop speaker phones.
Hoot n' Holler:	VLink is widely deployed as a next generation Hoot n' Holler system replacing private circuit leased lines from the phone companies which are expensive and can have a low quality of service. In this application most users have the simple requirement of monitoring and talking on a single party line and use an analog telephone attached to an ATA or IP phone, requiring no client-side PCs.

Configuring VLink for SIP Devices

A SIP Device is added or edited in the VLink System Administration application under Client Configuration, in the same fashion as a VLink control panel or VLink device interface. The SIP device connection that is established can be configured in different ways to suit the application and/or the device.

For SIP devices with a DTMF (Dual Tone Multi-Frequency) or touch-tone keypad, VLink talk/listen selectors can be assigned to activate with the DTMF access codes.

Configuring SIP Devices for VLink

Softphones

To **configure a SIP phone**, do the following:

1. Configure the **SIP phone** with the following:
    - IP Address or the Domain Name of the SIP Server
    - Account Name
    - Password
2. In the SIP Default Port number field, enter **5060**.

    NOTE: Unless changed in the VLink System Administration, the standard SIP default port number is 5060.
3. In the Display Name field, enter the **display name** desired.
4. In the User Name field, enter the **username**.
5. In the Password field, enter the **password**.

IMPORTANT:	The Display Name, Username, and Password must match the settings configured under Client Configuration for any given softphone.

Hardphones and ATAs

SIP hardphones and ATAs are configured via a web interface. You need to begin by determining the device IP Address typically by using Internet Explorer to access your router's web interface and view the list of attached devices.

Once you determine your devices IP Address input it into a web browser to access the device's configuration page. Use your VLink Server IP Address as the Domain, Proxy, and the Registrar address. Unless changed in the VLink System Administration the standard SIP default port number is 5060. Set the Display Name, User Name, and Password to match the settings programmed in the 'Client Configuration' section of the VLink System Administration for any given hardphone or ATA.

APPENDIX B

Network Bandwidth Requirements Guide

The network bandwidth requirements must be carefully analyzed to ensure proper bandwidth is available at any point where multiple clients will share the same physical connection point. The most obvious connection point where this is critical is at the server where bandwidth requirements are the sum of the requirements of every possible client. The least obvious connection point where this is also important occurs when multiple remote in one (1 physical location need to access the server in another physical location as the bandwidth requirements for the connection between these two (2) points is the sum of the requirements for all remote clients.

To determine the bandwidth requirements, it is necessary to determine the network bandwidth utilization per client connection, which is indicated below for the various audio sample rates that can be configured.

TABLE 3. Network Bandwidth Utilization

Audio Sample Rate	Data Rate (Kbps) (ATS=20ms[a])	Data Rate (Kbps) (ATS=20ms[a])	Data Rate (Kbps) (ATS=20ms[a])	Data Rate (Kbps) (ATS=20ms[a])	Data Rate (Kbps) (ATS=20ms[a])
8KHz	32	23.6	20.8	19.4	18.56
16KHz	44.8	36.4	33.6	32.2	31.36
32KHz	46.8	38.4	35.6	34.2	33.36

a. ATS=Audio Time Slice per packet which controls how many 20ms audio frames are transmitted within a single UDP packet. As each UDP packet requires a fixed amount of overhead, the more frames went at the same time, the less the UDP overhead which conserves network bandwidth. Conversely, the more audio frames sent per transmission, the greater the system latency and the potential audible consequence of a lost packet. The default is 20ms.

To **determine server bandwidth requirements**, do the following:

1. Determine maximum potential bandwidth utilization by multiplying the **number of clients** (users and devices interfaced) by the **Data Rate associated with appropriate Audio Sample Rate** for the configured Audio Time Slice per packet.
   The product is the bandwidth required if every client were to receive audio simultaneously (maximum download bandwidth requirement) and also the bandwidth required if every client were to send audio simultaneously (maximum upload bandwidth requirement).

In a typical system, the maximum download bandwidth requirement must be allocated for, as several system functions can require simultaneous audio transmission to all clients. The maximum upload bandwidth requirement however can realistically never be achieved, as it is not feasible that all audio sources in a system would be active simultaneously since the result would be inaudible. As such, the upload bandwidth to be allocated must be made based on the estimation of the number of simultaneous active audio sources noting that inactive audio has no bandwidth requirements.

Appendix C

Glossary

Audio Sampling Rate. The number of times per second an analog audio wave form is digitally sample, i.e. takes a “digital snapshot” to create a digital representation. The more samples taken, the higher the fidelity.

Automatic Gain Control (AGC). An adaptive system where the average signal level is used to adjust the gain to an appropriate level for a range of input signal levels. AGC reduces the volume if the signal is strong and raises it when it is weaker.

Client. A VLink specific term to refer collectively to either a Control Panel or Device Interface.

Control Panel. VLink’s client-side **GUI** (Graphical User Interface) enabling users to conduct communications using color coded selectors which represent audio/voice channels.

Device Interface. VLink’s client-side software application that bridges VLink with multiple external communications systems.

IFB. An abbreviation for Interrupt Foldback or Interrupt Feedback. It is sometimes referred to as **PI** (Program Interrupt). In radio and television broadcasting, IFB serves as a voice cuing mechanism for the on air talent. The talent listens to a program audio signal which can be interrupted by the voice of a production person, such as a director or producer, for the purpose of giving instructions to the talent regarding the show in progress. This is seen by a television viewer as the earpiece that a news announcer wears.

ISO. An abbreviation for Isolate. ISO is a high level intercom function by which a temporary and private communications link is established between an operator who is located at an intercom control panel and another operator. The function is valuable wherever a short term private exchange is required between two (2) operators who are normally sharing the conversation required to accomplish a group activity. When any two (2) people need to talk together without interfering with or being heard by anyone else, ISO is the function required. The most common application is that of a video control operator and television camera operator.

System Administration. VLink’s client-side system administration application which allows for dynamic configuration from any workstation or the server hosting the Virtual Matrix.

SIP. An abbreviation for session initiation protocol. SIP is a widely adopted signalling protocol for Internet conferencing, telephony, presence, events notification, and instant messaging. By supporting SIP, VLink can readily interface with many commonly used IP phones, IP phone systems, and other SIP-compliant devices.

APPENDIX D

Mobile Devices

Introduction

System Requirements

Hardware Requirements

- 400MHz, 64MB Memory

NOTE: It is recommended that you have a minimum 10MB of free storage memory on your device to install the VLink Control Panel for Mobile.

Software Requirement

- Apple iOS version 4.2 or higher

Network Requirements

- Recommended configuration: WiFi - 802.11
- 3G Data Cellular Connection

NOTE: Data usage costs apply for using VLink over 3G mobile networks, so we recommend an unlimited data plan.

- Bandwidth utilization per client:

TABLE 4. Bandwidth Utilization Table

Audio Sample Rate	Data Rate (Kbps) [ATS=20ms*]	Data Rate (Kbps) [ATS=40ms*]	Data Rate (Kbps) [ATS=60ms*]	Data Rate (Kbps) [ATS=80ms*]	Data Rate (Kbps) [ATS=100ms*]
8KHz	32	23.6	20.8	19.4	18.56
16KHz	44.8	36.4	33.6	32.2	31.36

* ***ATS*** *(Audio Time Slice) per packet which controls how many 20ms audio frames are transmitted within a single UDP packet. As each UDP packet requires a fixed amount of overhead, the more frames sent at the same time, the less the UDP overhead which conserves network bandwidth. Conversely, the more audio frames sent per transmission, the greater the system latency and the potential audible consequence of a lost packet. The default is 20ms.*

Firewall Requirements

- Allow TCP connection for data on port 1000 and UDP connection for audio on port 1000

Installation

To **install the control panel mobile device software**, do the following:

1. From the App store, download and install the **Vlink App**.
2. Once installation is complete, open the **VLink Control Panel** (found under the 'Start' menu or 'Programs' on your Windows Mobile device).

Configuration

When running the VLink Control Panel for the first time, the VLink Control Panel Configuration window automatically appears.

1. Under Headset/Primary Audio Device, select the **primary audio input/output device**.
2. From the Select Microphone drop down menu, locate the correct **audio input device** (typically, Audio Capture).

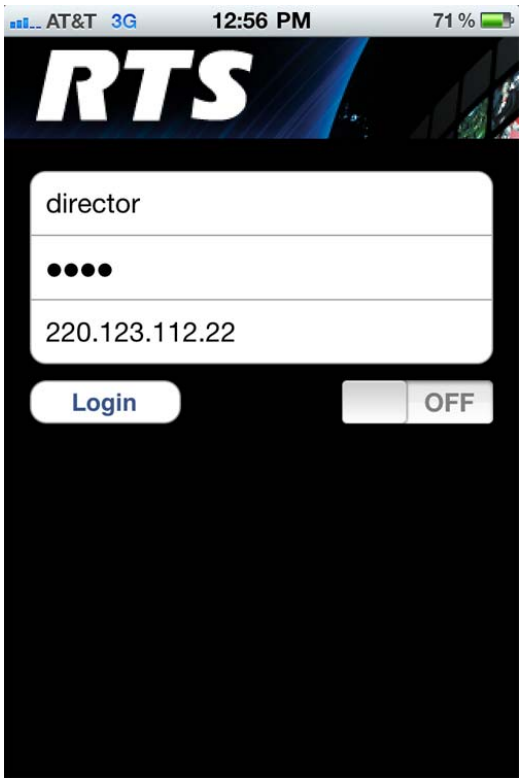
   NOTE: Often, but not always, the Select Microphone and Select Earphone/Speaker drop down menus automatically default to the correct setting.
3. From the Select Microphone Connector drop down menu, select the **input jack** the audio input device is to use. *Typically this is named WaveInputPin*.
4. From the Select Earphone/Speaker drop down menu, locate the correct **audio output device** if not already selected. *Typically Audio Renderer.*

   NOTE: These settings are typical for using your device's internal speaker/mic, a headset/mic connected via mini-USB, 2.5 or 3.5mm jack, or a Bluetooth headset/mic.
5. From the Monitor/Secondary Audio Device drop down menu, select the **secondary audio output device** to allow monitoring the VLink System even when the headset is removed.
   This is typically set at '(None)' when using the VLink Control Panel for Mobile on a PDA or Smart phone.
6. From the VLink Control Panel IP Address drop down menu, select the **Control Panel IP Address**.
7. In the Virtual Matrix IP Address fields, enter the **virtual matrix IP Address** and **port number** (after the colon) supplied by your system administrator.

   NOTE: The Control Panel IP Address is your device's IP address and should already be populated, however some device's may have multiple connections so verify the correct address is selected.
8. Click **Done** to save the configured settings and close the VLink Control Panel Configuration dialog box.
   The VLink Login window appears. *The VLink Control Panel software installation is now complete and you are ready to communicate.*

To **log on to your mobile device for the first time**, do the following:

1. On your mobile device, launch the **RTS VLink Application**.
   The VLink Login screen appears.



2. In the Username field, enter the **username**.
3. In the Password field, enter the **password supplied by your system administrator**.
4. In the IP Server field, enter the **Matrix server address**.
5. Click **Login**.
   The Control Panel appears.

Operation

Basic Functionality And Features

FIGURE 58. VLink Mobile Device Assignments

Talk/Listen Selectors

The main display provides a series of buttons referred to as Talk and Listen selectors. An available Talk selector is red and an available Listen selector is green. Some selector provide for dual Talk/Listen selector operation. The Talk and Listen selectors are optionally shown with a Selector Legend indicated as ‘L’ for Listen and ‘T’ for Talk for operators with color recognition disabilities. If a selector is grayed out, this indicates that the source or destination is not connected to the system and as such not available for selecting a talk or listen. To activate a Listen to a particular source click a dim green selector. When active the selector will be bright green. To deactivate a listen to a particular source click the bright green selector. To activate a Talk to a particular destination click a dim red selector. When active the selector will be bright red. To deactivate a talk to a particular source click the bright red selector. To use a selector in momentary mode click and hold the selector; it will deactivate when you release.

Selectors display channel state using the following patterns:

- Voice activity: color oscillation of selector name
- Incoming call: fast flash of talk selector (NOTE: click on the selector to establish a return voice path)
- Device active tally (e.g. telephone off-hook): slow flash of talk selector
- In-use tally: slow double flash of talk selector

A selector can refer to either an individual source or destination or to a Group Call or Party Line. A Group Call is a single selector that activates a Talk and Listen to multiple destinations. A Party Line is a dynamic conference whereby activation of the associated selector automatically makes you a participant of the selected conference. When talking to a Party Line you talk to everyone who is listening to that Party Line. When listening to a Party Line, you listen to everyone who is talking to that Party Line.

VLink Control Panels support virtually an unlimited number of channel selectors. If you have more selectors programmed for your Control Panel than fit on one (1) screen, you must scroll through additional selector screens. If another user calls you, the screen with that user’s selector appears so you can easily click on the flashing tally to establish a return voice path.

Control Panel Buttons

The **Control Panel** buttons are located at the bottom of the Control Panel screen.

Button	Description
	Displays a message asking to log off of the VLink Application. When selected, answer **Yes** or **No**.
	Opens the Mobile Device's Statistics screen. This screen displays send and receive audio rates and packet loss data. For more information, see "Statistics Screen" on page 80.
	Opens the Mobile Device's Options screen. For more information, see "Mobile Device Options Screen" on page 78.
	Allows you to switch between showing and not showing disabled (grey) selectors
  	Allows the user to switch between Speaker Mute, Speaker and Headset modes on their mobile device.
 	Allows the user to switch between Microphone Active and Microphone Mute.

Mobile Device Options Screen

FIGURE 59. Mobile Device Options Screen

Done Button

The **Done** button is used to close the Options screen.

NOTE: Any modifications you make to this screen are activated when the Done button is tapped.

Startup Options

Enable Autologin On/Off Slider

The **Enable Autologin** on/off slider is used to enable (ON) or disable (OFF) the auto login function for the VLink Mobile Device Control Panel.

Display Options

Hide Selector Legends On/Off Slider

The **Hide Selector Legends** on/off slider is used to turn on (hide) or turn off (display) the selector listen (L) and talk (T) identifiers.

Split Selector Center On/Off Slider

The **Split Selector Center** on/off slider is used to configure a split talk/listen key. When enabled (ON), it allows the user to select the center of the key to turn on both functions at the same time..

Selectors Columns Display Field

The **Selectors Columns** display field displays the number of columns shown on the mobile device control panel.

Audio Options

Headset Only On/Off Slider

The **Headset Only** on/off slider is used to allow only headset use with the mobile device. When enabled (ON), only headsets are allowed to be used.

Narrowband (8kHz) Touch point

The **Narrowband (8kHz)** touch point is used to assign a narrow band sampling rate for the audio being passed. The higher the sample rate is, the better quality audio you have. However, higher sample rates equate to more network usage.

Wideband (16kHz) Touch point

The **Wideband (16kHz)** touch point is used to assign a wide band sampling rate for the audio being passed. The higher the sample rate is, the better quality audio you have. However, higher sample rates equate to more network usage.

Ultra Wideband (32kHz) Touch point

The **Ultra Wideband (32kHz)** touch point is used to assign an ultra wide band sampling rate for the audio being passed. The higher the sample rate is, the better quality audio you have. However, higher sample rates equate to more network usage.

Statistics Screen

FIGURE 60. Statistics Screen

Send Audio Rates (Kbps) Display Field

The **Send Audio Rates (Kbps)** display field shows the speed audio is sent, in kilobytes per second, by the mobile device (for example, 256.000).

Receive Audio Rates (Kbps) Display Field

The **Receive Audio Rates (Kbps)** display field shows the speed audio is received, in kilobytes per second.

Send Audio Packet Loss (%) Display Field

The **Send Audio Packet Loss (%)** display field shows the percentage of audio packets lost being sent from the mobile device.

Receive Audio Packet Loss (%) Display Field

The **Receive Audio Packet Loss (%)** display field shows the percentage of audio packets lost being received.

NOTES

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