VCOM Control Panel for Mobile User Guide

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IntraCom Systems, LLC
20337 Via Medici
Northridge, CA 91326
Ph: 818-357-2347
support@intracomsystem.com
www.intracomsystem.com

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1. INTRODUCTION

1.1 VCOM

VCOM is a non-blocking, all software multi-channel/multi-access Intercom over Internet Protocol based on a dedicated server, multiple client architecture. VCOM is engineered for professional, mission critical communications in broadcast, production, military, aerospace, and government applications.

This document provides information on how to install, configure, and use the client-side VCOM Control Panel designed for PDA's and Smartphones running Windows Mobile. A troubleshooting section addresses commonly encountered issues. Additionally, a product features list is included.

1.2 SYSTEM REQUIREMENTS

- Hardware Requirements
    - 400 MHz, 64 MB Memory
        - It is recommended that you have a minimum 10MB of free storage memory on your device to install the VCOM Control Panel for Mobile.
- Software Requirement
    - Windows Mobile, version 5.0 and 6.0
- Network Requirements
    - Recommended configuration: WiFi - 802.11
    - 3G Data Cellular Connection
        - Please note that data usage costs apply for using VCOM over 3G mobile networks (EDGE, EV-DO and UMTS), so we recommend an unlimited data plan.
    - Bandwidth Utilization per client:

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*]
8 KHz	32	23.6	20.8	19.4	18.56
16 KHz	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

2. INSTALLATION

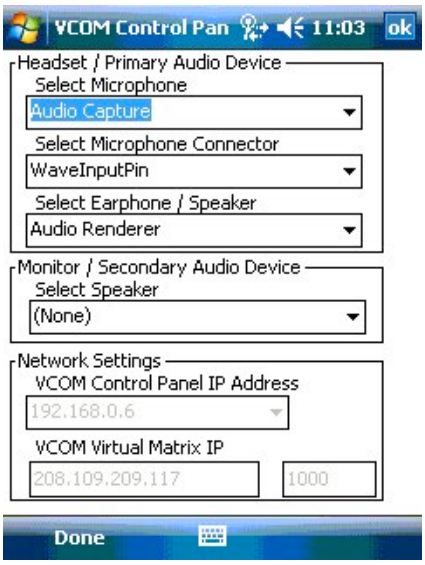
Download the setup application, typically named 'VCOM_Control_Panel_Mobile_Setup.cab' that was provided either electronically via web link or on CD. If via CD you will need to download the executable to a PC and then transfer it to your device.

Run the installer and follow the prompts.

Once installation is complete open the 'VCOM Control Panel' found under the 'Start' menu or 'Programs' on your Windows Mobile device.

3. CONFIGURATION

When running the 'VCOM Control Panel' for the first time, the 'VCOM Control Panel Configuration' screen will automatically appear.

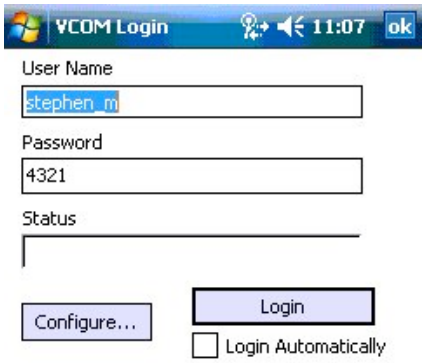


- Under 'Headset / Primary Audio Device,' the primary audio input/output device must be selected. Use the 'Select Microphone' drop down to locate the correct audio input device, typically 'Audio Capture.' Often, but not always, the 'Select Microphone' and 'Select Earphone / Speaker' drop downs will automatically default to correct setting. The 'Select Microphone Connector' drop down allows selection of which input jack the audio input device is to use. Typically this will be named 'WaveInputPin.' Use the 'Select Earphone / Speaker' drop down to locate the correct audio output device if not already defaulted, 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.

- Under 'Monitor / Secondary Audio Device,' the secondary audio output device can be selected to allow monitoring the VCOM System even when the headset is removed. This is typically set at '(None)' when using the VCOM Control Panel for Mobile on a PDA or Smartphone.

- Under 'Network Settings' enter the 'Virtual Matrix IP Address' and port number (after the colon) supplied by your system administrator. The 'Control Panel IP Address' is your device's IP address and should already be inputted however some device's may have multiple connections so be sure that the correct address is selected.

When complete, click 'Done' to save the configured settings and close the VCOM Control Panel Configuration dialog box. The 'VCOM Login' window will appear.



Enter the user name and password supplied by your system administrator and click the 'Login' Button. If a Firewall is active, you may be asked for permission to allow the VCOM Control Panel to communicate with the VCOM Virtual Matrix in which case you should select 'Allow' and 'do not ask me again' or their equivalents.

Your Control Panel will appear.

The VCOM Control Panel software installation is now complete and you are ready to communicate.

4. OPERATION

4.1 BASIC FUNCTIONALITY AND FEATURES

This section covers the basic functionality and features of your VCOM Control Panel for Mobile. Section 4.2, Conducting Multi-channel/Multi-access Communications, details the system's operation.

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.

VCOM Control Panels support virtually an unlimited number of channel selectors. If you have more selectors programmed for your Control Panel than fit on one screen, use the 'Next' and 'Prev' buttons located on the Windows bar at the bottom of the screen to scroll through additional selector screens. If another user calls you on a Point-to-Point the screen with that user's selector will appear so you can easily click on the flashing tally to establish a return voice path.

Selector Context Menu

Right click on a selector to bring up the Selector Content Menu.

'Selector Volume +' and 'Selector Volume -' increase/decrease individual channel levels a maximum of 18dB in 6dB steps. You can also use your computer keyboard by first ensuring that the application has keyboard focus, highlighting the label you want to change with the mouse and then use the +/- keys on the numeric keypad.

Select 'Release Remote Talk' to unlatch another user's talk path to you.

Users designated as Administrator can select 'Disable Client Login' to log out a user and prohibit re-entry; select 'Enable Client Login' to restore login privileges to the user.

Integrated Telephone Interface

When used in conjunction with a supported Telephone Interface device, the Control Panel supports both outbound call initiation and inbound call reception.

To make a call right click the selector corresponding to the telephone interface to bring up the context menu and select the dial pad option. Input the number to call and click 'Dial' to initiate the connection. This will also turn on the talk and listen functions and leave them on until they are released which will then drop the call. Any number of operators may join the call by turning on their talk and listen buttons but the line will be held off hook until all operators have released their talk buttons.
To receive a call click on the flashing selector which signals an incoming call. Depending on availability, Caller ID may display the telephone number of the caller.

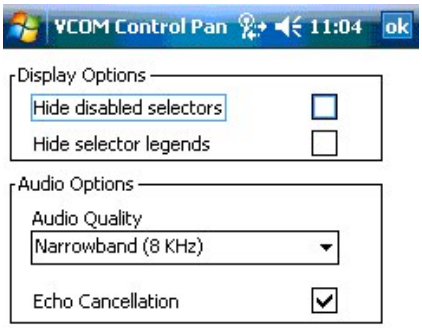
Microphone
To mute your microphone, click the microphone button on the lower left hand portion of the control panel.

Earphone and Speaker Level Adjustments
To mute the speakers used to monitor the system, click the speaker button on the lower left hand side of the control panel. Use the associated slider to adjust the volume of both the speakers used to monitor the system and your headset volume across all channels.

Control Panel Buttons
The first button found on the upper left portion of the control panel () logs the control panel off and brings the user back to the 'VCOM Control Panel Login' screen.

The second button found on the upper left portion of the control panel () displays the 'VCOM Control Panel Configuration' window, which is also accessible from the Login screen. For a description of this window, please refer to the Installation section of this manual.

The third button found on the upper left portion of the control panel () brings you to the 'VCOM Control Panel Options' window.



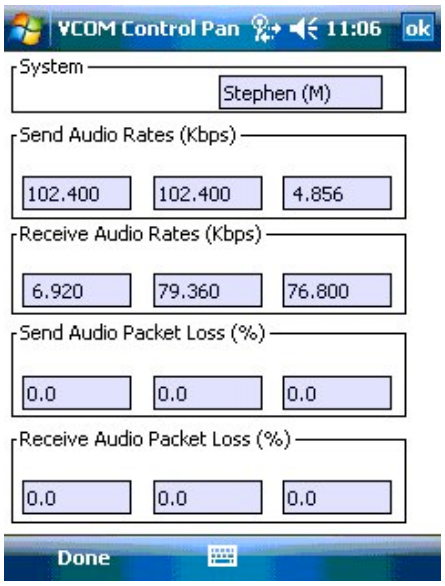
Under 'Display Options' select 'Hide disabled selectors' to hide the selectors assigned to users or audio devices not logged into the system. When they come online they will dynamically appear.

Select 'Hide selector legends' to hide on-selector listen ('L') and talk ('T') identifiers.

Under 'Audio Options,' 'Audio Quality,' depending on how your system administrator has configured the system you can select up to three different audio sampling rates: Narrowband (8KHz), Wideband (16KHz), and Ultra Wideband (32KHz).

Select 'Echo Cancellation' to activate the Control Panel's echo cancellation feature. Note that this function is designed to reduce the possible echo heard by someone talking to your Control Panel and will have no audible effect on what is heard by this Control Panel.

The fourth button found on the upper left portion of the control panel ( ) brings you to the 'Statistics' window that displays your send and receive audio rates and packet loss data.



Control Panel Context Menu
Right click anywhere on the control panel other than over the selectors to display the Control Panel Context Menu.

Select 'About VCOM' to view your control panel version and support contact information.

4.2 MULTI-CHANNEL, MULTI-ACCESS COMMUNICATIONS

Following is a detailed functional description of how to use the VCOM Control Panel for multi-channel, multi-access communications. Note, the system is "Non-blocking" meaning that any number of operators may talk to a single operator simultaneously; no busy condition will result. When a talk is pushed the audio path is completed with no action required by the called party.

Selector Configuration

When you log into your control panel you will see a number of color-coded buttons, referred to as Selectors that you activate by clicking with your mouse. There are three primary types of selector configurations, that your systems administrator has the ability to program:

1) Point-to-Point for communication directly between two operators
2) Group Call for communication from one operator to many operators simultaneously
3) Party Line for a dynamic group conference

The Selector Configuration can typically be construed by the names on the keys, which your system administrator has complete flexibility in naming. A Point-to-Point may show an individual's name or function, such as 'Sam,' 'Director,' or 'Plant Mgr.' A Group Call may be named descriptively such as 'Paging, 'Emergency,' or 'Security.' Similarly, a Party Line may be named 'Conference.'

Selector Colors and Function

- Gray keys signify an offline Point-to-Point which indicates that the associated Control Panel or Device Interface is not connected to the VCOM Virtual Matrix.
- Green keys are Listen keys. A dim green key signifies an online Point-to-Point or Group Call channel meaning the operator(s) on the other end of the channel are logged into the system. Party Lines always appear online. You can only listen on a channel when you activate it by clicking on it, changing the dim green key to bright green.
- Red keys are Talk keys. A dim red key signifies an operator on the other end of the channel is logged into the system. You can only talk on a channel when you activate it by clicking on it, changing the dark red key to bright red. A blinking red key on a Point-to-Point channel signifies that the operator on the other end is calling you; click on the key to establish a return voice path.
- Green/red keys signify combined talk/listen keys. Click on the left portion of the selector to activate a Listen; click on the right of the selector to activate a Talk; click on the middle of the selector to activate a Talk/Listen.

Point-to-Points are typically assigned as talk only to prevent monitoring of other Control Panel communications. Party Lines typically have talk and listen keys. Group Call channels typically are assigned as talk only. You can listen and/or talk to as many channels as are available on your control panel, simultaneously.

Dynamic 'Answer Back' selectors indicate incoming calls from clients for whom a dedicated key is not programmed.

Interfacing with other Systems

VCOM interfaces with two-way radios, hardware-based communications systems, and telephone networks. These channels are typically designated

to reflect such and may be talk only (such as paging) or talk/listen. They can be set up as Point-to-Point, Group Call, or Party Line depending on functional requirements. For use with a two-way radio, clicking on the talk key initiates the transmit function. Refer to the VCOM Device Interface User Guide for information on setting up interfaces.

5. TROUBLESHOOTING

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

Q: When attempting to login to the Virtual Matrix I get a "Cannot connect to Virtual Matrix" message?

A: The Control Panel is unable to establish a TCP/IP data connection with the Virtual Matrix. Check the Control Panel Configuration to ensure 'Control Panel 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.

Q: When attempting to login to the Virtual Matrix I get a "Unable to establish return audio path" message?

A: The Control Panel 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.

Q: When attempting to login to the Virtual Matrix I get a "Provided user name and/or password is invalid!" message?

A: The Control Panel 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.

Q: Why can I hear people but they can't hear me?

A: Click 'Configure' from your login window or the control panel. Under 'Headset / Primary Audio Device' verify that the correct microphone is chosen under 'Select Microphone' and that the correct headset microphone input is selected under 'Select Headset Mic Input.'

On the lower left hand corner of your control panel check to see that your microphone is not muted represented by a red line through the microphone image. Each click on the image cycles between microphone on and microphone mute.

Check in the 'System' area of your device's 'Settings' that the microphone gain is turned up.

Click the statistics icon and under 'Send Audio Rate,' verify that audio packets are being sent. If not, there may be a problem with the selected Headset device. NOTE: The 'Send Audio Rate' will not indicate that audio packets are being sent during silent periods.

Q: Why can people hear me but I can't hear them?

A: Click 'Configure' from your login window or the control panel. Under 'Headset / Primary Audio Device,' verify that the correct earphone or speaker is selected under Select "Earphone / Speaker'.

Click the Statistics button and under 'Receive Audio Rate' verify that audio packets are being received. If not, you are likely being blocked by your firewall and you should consult your network administrator. NOTE: The 'Receive Audio Rate' will not indicate that audio packets are being received during silent periods.

On the lower left hand corner of your control panel check to see that your volume slider bar is adjusted towards the right. Check your audio device master volume by clicking on the speaker icon in your system's tray.

6. SUPPORT

Visit our web site at www.intracomsystem.com for general information.

Email us at support@intracomsystem.com for questions not addressed in the sections above or call our technical support hotline at 818-357-2347.

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