ACU-M Control and Network Configuration

The ACU-M may be controlled by a single computer either by an RS-232 serial control connection or by a direct Ethernet connection using a standard CAT5 cable with RJ45 connectors at each end. If Ethernet connectivity is chosen, the ACU-M will allow multiple computers running ACU Controller software to control the ACU-M simultaneously. Refer to the ACU Controller software manual for information on remotely controlling the ACU-M.

Factory Default Serial Settings

The ACU-M from the factory has been configured with "Factory Default" settings as listed below.

Table 1 ACU-M Factory Defaults

Baud Rate	115.2 K Baud
Stop Bits	1
Serial Port Data Bits	8
Remote Control	Enabled
Serial Sync Char	Disabled

Changing the RS-232 Serial Port Baud Rate

The default Serial Baud rate for the ACU-M is 115.2K Baud. The ACU Controller software can be set to 115.2K baud, which is the default for the ACU-M. The Serial Baud rate may be changed directly from the ACU-M serial port without having to connect the ACU-M to a network via Ethernet.

If it is necessary to change the ACU-M serial port baud rate to something other than 115.2K baud, then the user must use a computer with a terminal program such as MTTTY (available for download from http://www.netburner.com/products/netburner-software/deployment-tools) or HyperTerminal (included with Windows) to change the serial port configuration.

These examples show the use of MTTY.

1. Connect to the ACU-M serial port at 115200 baud.
2. Enter the command *CONFIG* and press Enter.
3. The ACU-M should return with "OK".
4. Enter the desired baud rate using the BAUD command. The example below changes the baud rate to 9600. Valid baud rates are 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200. To set the baud rate to 9600 type BAUD 9600 and press Enter.
5. The ACU-M will show the new baud rate setting.
6. Enter the command, SAVE and press Enter.
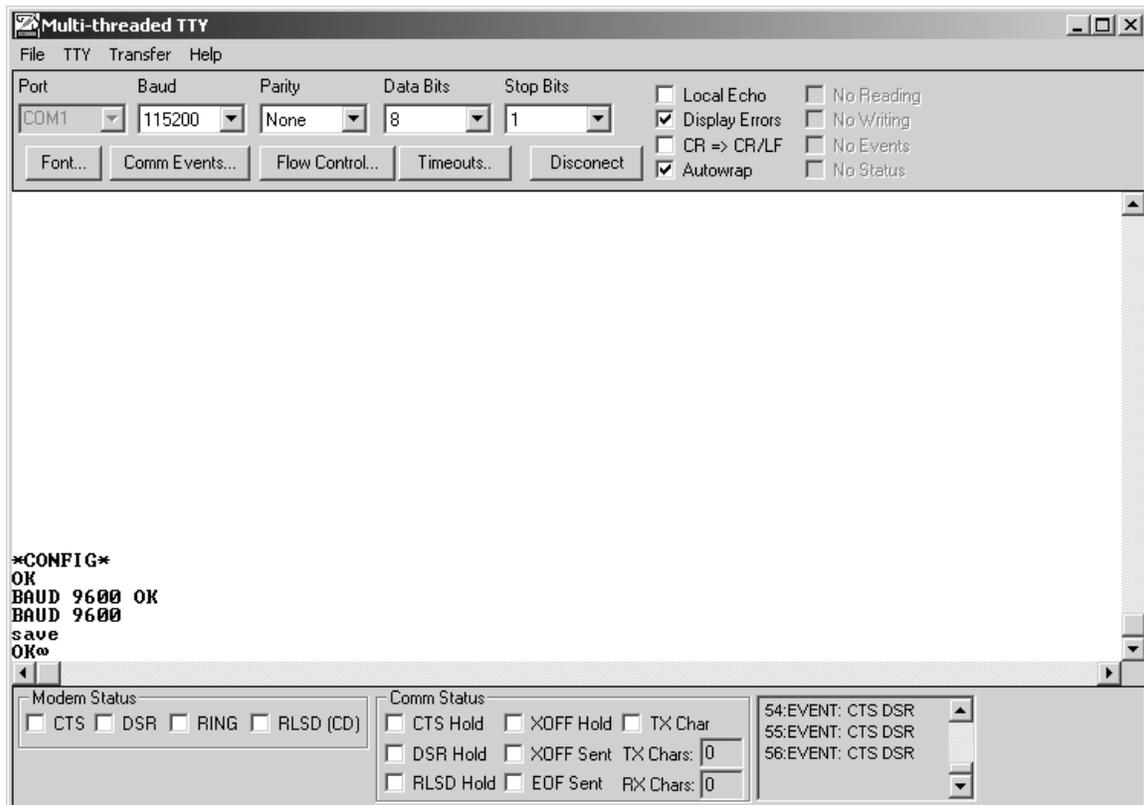7. The ACU-M will reboot at the new baud rate.

Figure 1 Reconfiguring the AC-M Serial Port Baud Rate

Remote Control via the ACU Controller

The user attaches the serial port of the computer to the serial port of the ACU-M and selects the proper serial port in the ACU Controller software. In the case of network control, the ACU Controller provides remote control of the unit across an IP network.

When configuring ACU Controller for network control the user should enter the IP address and port number of the ACU-M in the ACU Controller network settings in the Connect menu. The default IP address of the ACU-M, as shipped from the factory, is 192.168.1.200, and the control port is 23. Directions for changing these settings are included below.

ACU-M Network Configuration Overview

When connected to a network, the ACU-M can provide a network connection for the ACU Controller software program. This section will address how to use the Ethernet Network connection in the ACU-M to manage system configuration settings, as well as to make any changes necessary to control the ACU-M using the ACU Controller software.

The ACU-M is equipped with a standard Ethernet RJ-45 jack on the rear panel. The network connection to the ACU-M is accomplished via a PC / Browser / Ethernet web access.

To change the ACU-M system configuration settings, the user must connect the ACU-M to the user's Ethernet LAN via the front panel RJ-45 Ethernet connector, via a "straight" Ethernet cable to a switch or router which is also connected to a PC with network access to the same switch or router. Alternatively the user may connect the Ethernet port of the ACU-M directly to the computer's Ethernet port via an Ethernet "crossover" cable.

The user must browse (using a web browser like "Internet Explorer") to the IP address of the ACU-M. The default address of the ACU-M as shipped from the factory is 192.168.1.200. This IP address may be changed to comply with the user's network setting.

Information

Upon successfully browsing to the ACU-M, a screen similar to Figure 2 will appear. This page contains a summary of the current ACU-M operating status and configuration. Items in the top section are relevant to system configuration while the items in the lower section pertain to VoIP operation.

Figure 2 Information Screen

To modify any of the ACU-M operating parameters, select the "Configuration" link that appears at the top of the page. The Configuration Screen will appear as you see in Figure 3.

Figure 3 Configuration Screen

Configuration changes to the ACU-M are made either by selecting a field and entering text, or by making a selection from pull down boxes. Each of these fields and its options are described in the next section.

Configuration Screen Field Descriptions

Field Types	Descriptions
My IP Address	The user may enter numeric text (0-255 decimal) into each of the four fields that define the unique Internet Protocol address of the unit. Note: upon saving the changes, the user will need to browse to the new address to continue configuration.
Subnet Mask	The user may enter numeric text (0-255 decimal) into each of the four fields that define the unique Internet Protocol mask of the unit. Note: upon saving the changes, the user will need to browse to the new address to continue configuration.
IP Gateway	The user may enter numeric text (0-255 decimal) into each of the four fields that define the gateway address that the unit will use for resolving external network accesses.
Remote IP	The user may enter numeric text (0-255 decimal) into each of the four fields that define the unique Internet Protocol address of the remote VoIP unit that is paired with this unit.
Baud Rate	The pull down menu allows the user to configure the baud rate for the RS-232 serial port located on the rear panel of the ACU-M. Nine baud rates are available: 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200.
Serial Port Data Bits	The pull down menu allows the user to configure the number of data bits for the serial port. Two choices are available: 7 or 8 bits.
Stop Bits	The pull down menu allows the user to configure the number of stop bits for the serial port. Two choices are available: 1 or 2 bits.

Parity	The pull down menu allows the user to configure the parity for the serial port. Three choices are available: even, odd, or none.
Connection Configuration	The ACU-M can be configured to automatically restore the module connections to the user programmed preset configuration upon power-up. **Auto Restore,** puts the module connections in the user programmed configuration on power-up. **No Restore,** leaves all modules unconnected on power-up.
Remote Control	This pull down menu allows the ACU-M RS-232 serial port on the rear panel to be **Enabled** or **Disabled**.
Serial Sync. Char	This pull down menu is used to **Enable** or **Disable** the RS-232 remote control synchronizing character feature.
ACU-M Name	The user may enter text in this field that identifies this ACU-M. The name should uniquely identify this unit, from all others on the network.

The following menu items are related to the VoIP capabilities of the ACU-M. There is a configuration section for each of the two VoIP ports, V1 and V2. The items described below are contained in each of these configurations sections.

VoIP Port	The user may enter numeric text in this field (1-65535) defining which port to use for the VoIP traffic.
Unit is a	The pull down menu allows the user to choose either "server" or "client" mode. VoIP operation requires pairing of clients and servers.
Command Port	The user may enter numeric text in this field (1-65535) defining which port to use for the remote control traffic.

Remote Port	The user may enter numeric text in this field (1-65535) defining which port to use when connecting to it's paired unit for VoIP traffic.
Voice Compression	The pull down menu allows the user to configure the voice compression (vocoder) that is used for VoIP audio traffic. Five choices are available: GSM at 13Kbps, ADPCM at 16Kbps, ADPCM at 24Kbps, ADPCM at 32Kbps, and PCM at 64Kbps. If the unit is a server, adaptation to the incoming client vocoder is automatically selected to match the client request.
Communications Mode	The pull down menu allows the user to configure for either "normal", "broadcast", "connectionless", or "multicast" modes of VoIP communications. Except for special applications this setting should be left as "normal."
Client Autoconnect	The ACU-M VoIP port can be configured to automatically attempt to establish connection with a given Server if the ACU-M VoIP port is configured as a *Client* and a valid IP address has been entered for the *Server*.
Remote IP	The user may enter numeric text (0-255 decimal) into each of the four fields that define the unique Internet Protocol address of the remote VoIP unit that is paired with this unit.

Connection Status

VoIP session status may be monitored by browsing to the "Connection Status" link.
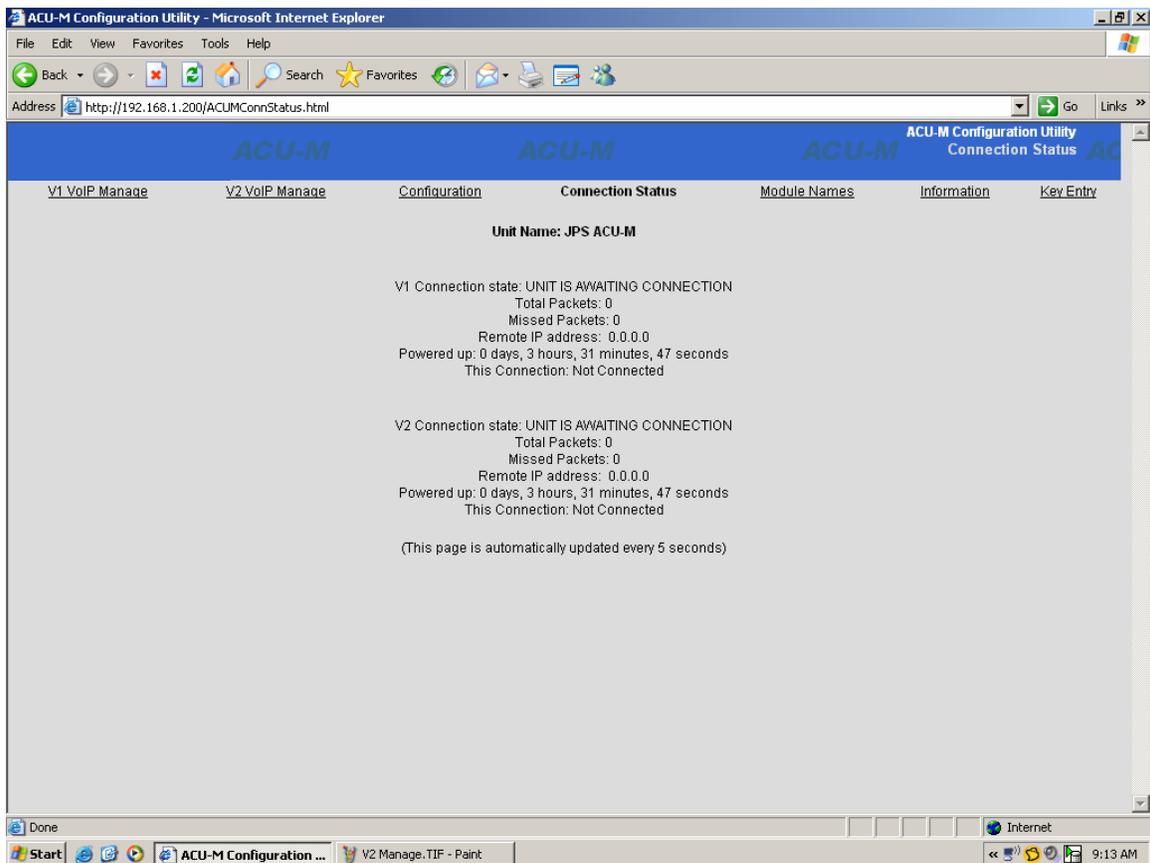

Figure 4 Connection Status Screen

VoIP Connection Management

Client VoIP sessions may be managed by browsing to the "V1 or V2 VoIP Manage" link at the top of any of the unit's web pages. Only Clients can be managed.
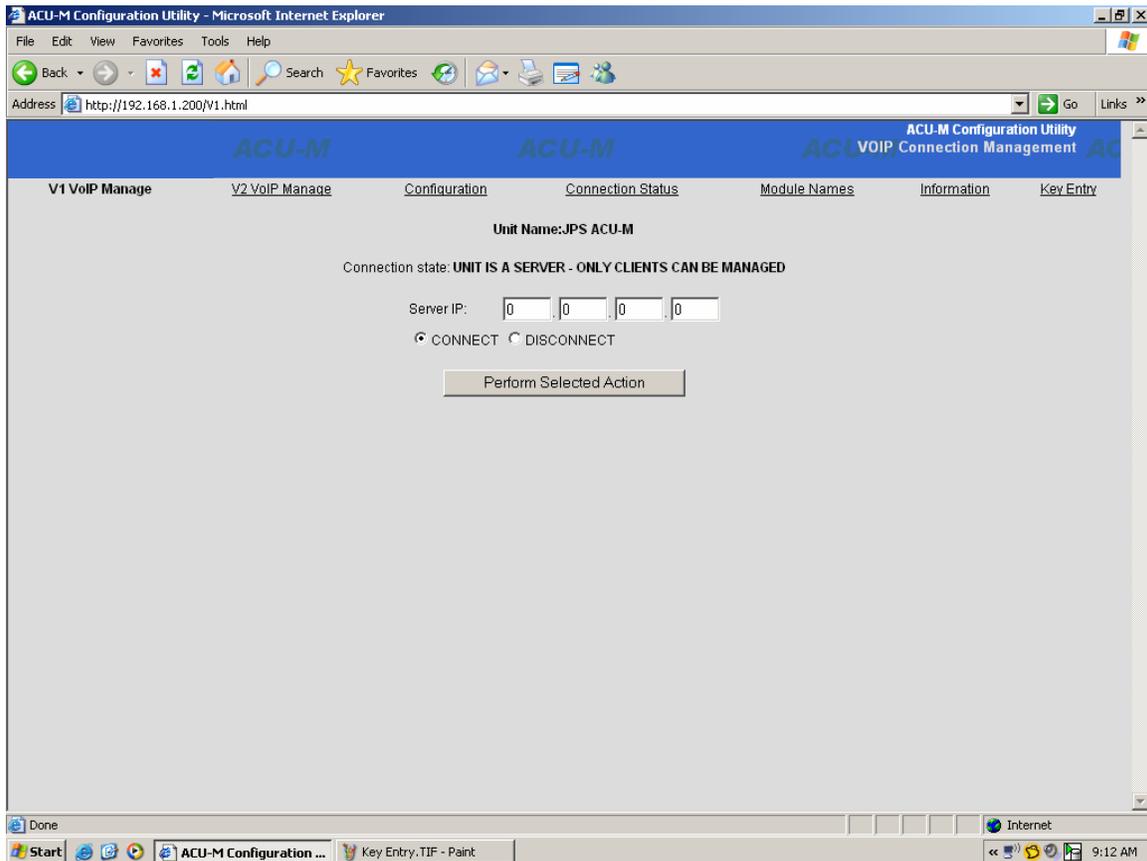

Figure 5 V1 VoIP Management Screen

Module Names

The ACU-M has the ability to store and retrieve user-defined names for each of the Radio or resource ports. The port names may be programmed by browsing to the "Module Names" link at the top of the web pages and typing in the name alongside the associated radio or resource port. Note: These names are only needed when using the ACU-M in a WAIS (Wide Area Interoperability System.) See the WAIS Controller manual for details. Note: Module 0 corresponds with the Local Operator of an ACU-M. Numbers 1 through 6 are associated with the unit's radio/resource and VoIP port numbers.
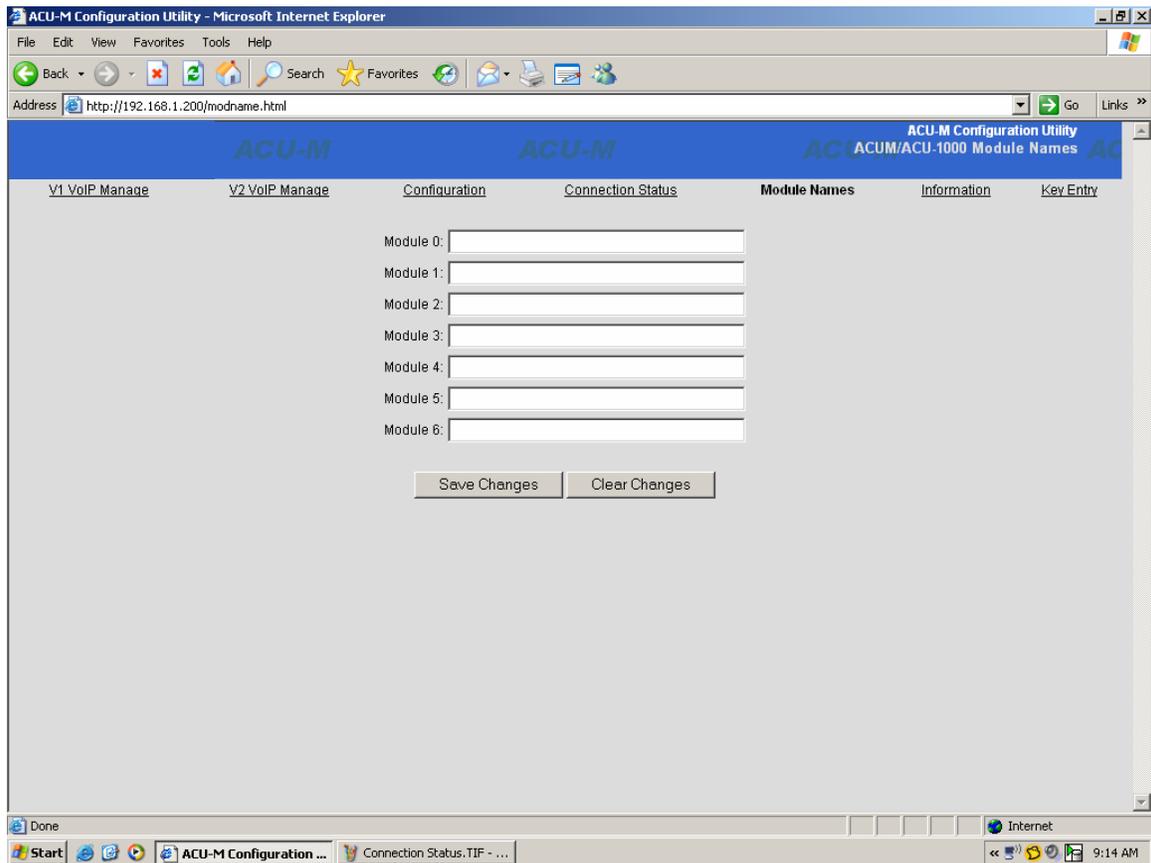

Figure 6 Module Names Screen

Key Entry

To allow access and functionality of the ACU-M VoIP capabilities, an upgrade option must be purchased and the feature activated. An authentication process must be performed to activate the VoIP feature by entering an Authentication Key. This key is obtained from JPS Interoperability Solutions and is entered in the Key field as shown in Figure 7.
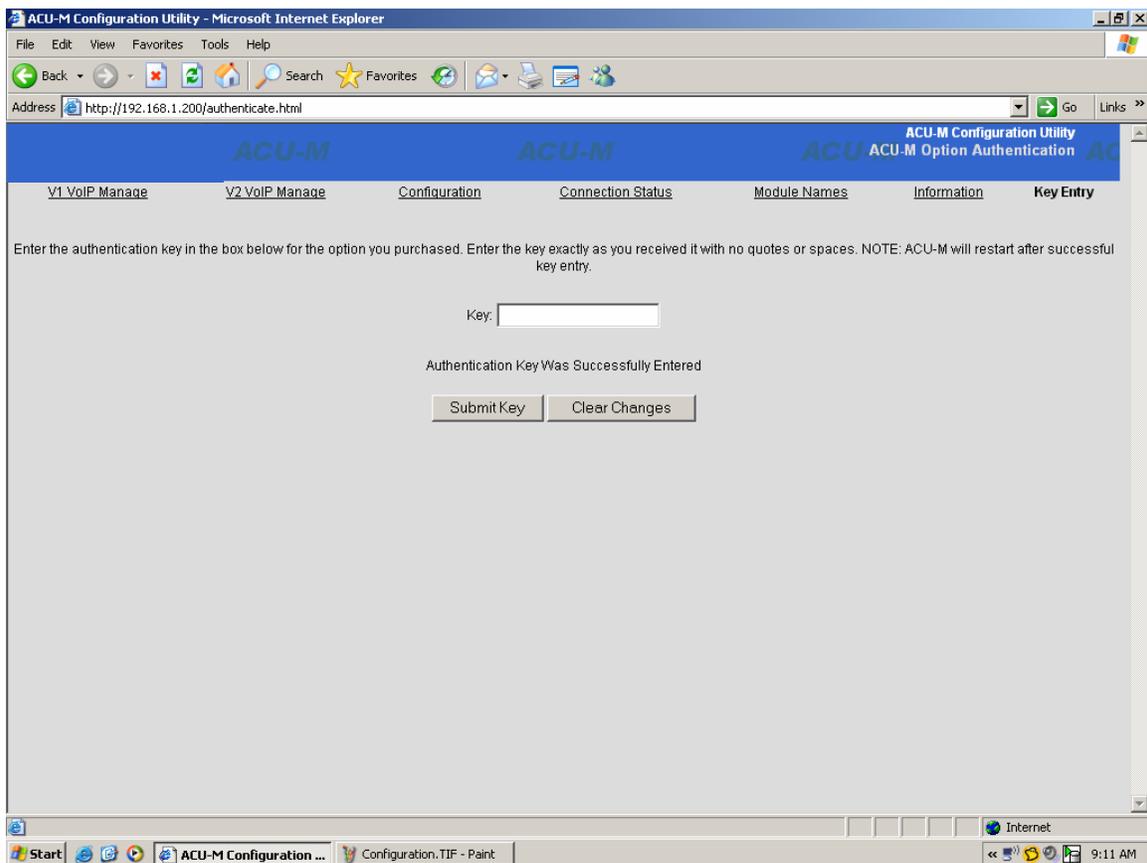

Figure 7 Key Entry Screen

Restoring Factory Defaults

In rare circumstances, there may be need to completely restore the ACU-M to the original configuration that was established when the unit was manufactured. The procedure for doing this is as follows:

1. Turn ACU-M power off.
2. Depress "Reset" button on the rear panel of the ACU-M.
3. While "Reset" button is depressed, power on the ACU-M.
4. Keep "Reset" button depressed until the ACU-M has completed its power on sequence.
5. This process will completely restore the ACU-M to factory default configuration.