VoIP2ALL™

SIM Server

Up to 512 SIM cards

Version 5.5

User Manual

Note:
The most updated VoIP2ALL Gateway manual is located on our Web site, at:
www.gsm4voip.com in the download section.
Check this site for latest updates.

Connecting to the Cellular with Remote SIM

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Usage Warnings

High voltage transients, surges, and other power irregularities can cause extensive damage. It is the user's responsibility to provide a power protection system.

It is the user's responsibility to install, operate, and maintain the system in accordance with all applicable codes, regulations, and safety measures.

Trademark and Patents

General Manual Notes

Without a notice and without obligation, the contents of this manual may be revised to incorporate changes and improvements. Every effort has been made to ensure that the information is complete and accurate at the time of publication. Nevertheless, Eurotech Communication cannot be held responsible for errors or commissions.
The screen snapshots in this manual may have older version labels than your delivered package version.

Dear Customer,

We thank you for purchasing our VoIP2ALL SIM Server.

The information in this manual does not constitute a warranty of performance, although the information has been compiled and checked for accuracy by Eurotech Communication Ltd.

All our products are developed and produced by experienced engineers, who aspire to achieve customer satisfaction, utility value and reliability of products.

Warranty Policy

The product you have purchased is under warranty of 12 months from the date of purchase, by the original purchaser. In case of defects of materials or workmanship, Eurotech Communication will replace it free of charge. This warranty applies to hardware/software but does not include SIM Cards.

This warranty will not be honored if the device has been mishandled in any way.

We hope you enjoy our product and we will be happy to receive any comments you may have. This will enable us to improve our products and the technical support that we give to every customer.

Table of Contents

Getting Started

Eurotech Communication team is glad you have chosen to use the Eurotech's VoIP2ALL Gateway for your needs. We will do our best, to make your installation efforts as well as day-to-day configuration and monitoring tasks, to be as pleasant as possible. We wish you a smooth operation, while greatly saving on your office mobile phone calls.

This chapter is your ***"Map for installation, configuration and monitoring tasks"*** and includes a short explanation on each stage, as well as references for more elaborated explanations, drawings and examples in following chapters. The following is a list of tasks which are recommended to go through. It includes mandatory tasks as well as optional tasks that are not required for your current needs. It is advised, that you will use the following menu as your check-up **To-Do-List.**

We advise you, to print this chapter and mark each stage when completed (e.g. V mark when done).

- **Mandatory - Check package items delivered in your package**

  Refer to the **"Check your Package Items"** chapter in order to see if all items, which should be in your package, are delivered.

- **Mandatory – SIM cards installation and connections**
  - **Install SIM Cards**
  - **Install LAN Cable**
  - **Install power Cable**

  Refer to **"Chapter 1: SIM Cards Installation and Cables Connecting"** for specific and detailed guidelines.

- **Mandatory – Install the management application**

  Install the MS-Windows Management Application on the PC/Laptop allocated for the system management. Use the provided CD.

  Refer to **"Chapter 2: Installing the Manager Application**" for further information.
- **Mandatory – General configurations**

  In order to operate the system, mandatory basic setup steps should be performed by using the LAN.

Check Your Package Items

Please verify that your package contains the following components (some were ordered specifically) before installation:

- Main Hardware Device - **The VoIP2ALL SIM Server**
- **110/220V 50-60Hz Power Cable.**
- **LAN connection cable** - for VoIP2ALL connection to the internet.
- **TCP/IP Cross Cable (Red Cable)** – for connecting the gateway directly to the PC Network Interface Card.
- **RS-232 Serial PC Comport connection cable (RJ-45 to RS-232 COM)** – for debugging and direct access to the configuration files. Will be referred as Com cable in this manual.
- **Software Installation CD** - Installation kit of the gateway Manager CD for MS-Windows Management Application, including the User Manual file and additional auxiliary utilities.

The VoIP2ALL Solution Overview

The Eurotech™ SIM Server is a solution that enables flexible and convenient storage and management of SIM cards, for developed networks of mobile gateways. The Server offers virtual allocation of SIM cards via IP from one location to mobile gateways, no matter their location.

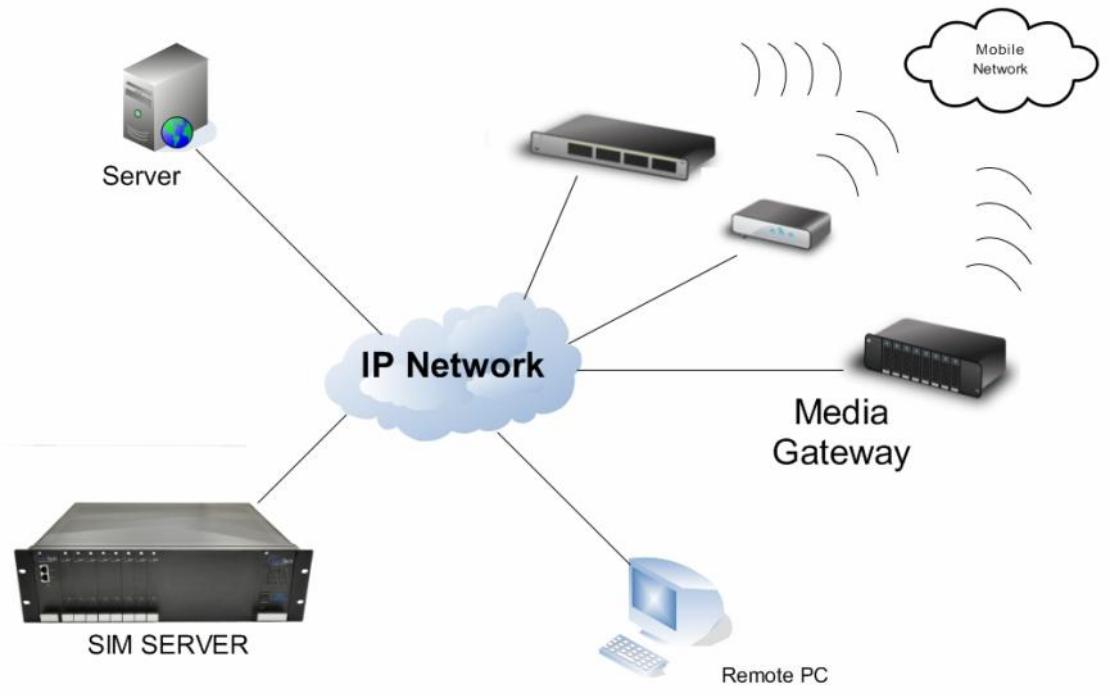
SIM cards used are virtually stored and managed in a single central server unit. The SIM Server then allocates the SIM cards remotely, via IP connection. Thus, a GSM modem may access to the remote SIM via GSM terminal adapter/SIM emulation.

The SIM Server supports simultaneous access to up to 512 SIM cards. Typical applications use the device as a central SIM Server in distributed GSM/CDMA/3G applications. The device supports ISO/IEC 7816 compatible Smart-cards in ID-000 format including GSM RUIM and USIM cards.

There two types of SIM Servers:

3U SIM Server – Holds up to 256/512* SIMs.

1U SIM Server – Holds up to 192 SIMs.



Basic Terms

Gateway – A VoIP2ALL with cellular ports.
SIM Server - A VoIP2ALL with a SIM Server program that has only SIM cards and no cellular cards.
Internal SIM Server – A SIM Server program that's run on a gateway. Allows you access to the SIM cards that is on the SIM Server cards that in the gateway.
External SIM Server – A SIM Server program that's run on external SIM Server or another Gateway. Allows you access to the SIM cards that are on the external SIM Server.
Master card – The card that control the operation of the VoIP2ALL. Contain a DSP processor with a Linux based operating system.
Slave Card – A card with cellular ports (modules).
SIM Server Card – A SIM Server card that has 32 SIM sockets. Can be on a SIM Server or Gateway.
VoIP – A protocol of transmitting voice calls on Ethernet networks.
SIP – A protocol of registering VoIP clients and making VoIP calls.
SIP Server – A virtual PBX that can register and connect SIP phones.
SIP Account – A user name and password which is given to a SIP phone to register with.
SIP Registration – The process of the initial connection to the SIP Server with the SIP account.
SIP Client – A SIP phone that is registered in a SIP Server.
Internal SIP Server – The SIP Server that is on the gateway.
SIM Registration – Is the activation process of the SIM in the cellular network. Only when the SIM is register we can make calls.
Local SIM – A SIM on slave cards.
Virtual SIM – A SIM from a SIM Server.

Chapter 1: Installing SIM Cards and Connecting the Cables

Chapter 1.1: The SIM Server layout

The SIM Server consists of one master card, that controls the operation of the gateway, and SIM Server cards, that holds all the SIM cards.
The master card has a connection to the LAN and the COM Port in the left of the SIM Server.
3U SIM Server - The SIM Server cards are set from card 1 to card 8 from left to right, where card 1 is the closes to the master of the SIM Server. (* future expansion to 16 cards 512 SIMs)
1U SIM Server - The SIM Server cards are set from card 1 to card 6 from bottom left to top right, where card 1 is the closes to the master of the SIM Server.
All the SIM Server cards are hot swappable, you can replace the SIMs while the SIM Server in working (see chapter 3.4) and you can also replace the places of the cards if needed.
When inserting a SIM Server card in, the SIM Server scan the card for any changes and build a data base with the current SIMs information.

Chapter 1.2: Installing the SIM Cards in the SIM Server cards

Insert the SIM cards as follows:

- 3U SIM Server - Open the two screws that secure the SIM Server card to the case.
- Pull the SIM Server card out.
- Each SIM Server card has 32 SIM sockets in it.
- The SIM sockets are marked from 1 to 32.
- To open the socket, slide the metal lock inward and push the socket up.
- Position the SIM in the socket, so the SIM metal contacts facing downward and the snubbed triangle outwards.
- Insert the SIMs in the socket.
- Push the socket down toward the card.
- Slide the metal lock of the socket outward until the SIM is locked.
- The SIMs now is in place.
- Slide the SIM Server card back in to is place.

Fig: Inserting SIM in SIM Server card.

Chapter 1.3: Connecting the Cables

- **LAN cable** - The LAN cable is used to connect the system to the internet network, connect the LAN line to the left RJ-45 marked LAN (the right RJ-45 that marked LAN are not in use).

- **Com Cable** – Connect the Com Cable from the PC RS-232 comport to the left RJ-45 marked COM (the right RJ-45 that marked COM are not in use). The com connection is not essential for the day to day work.

- **Power cable** - Connect the power supply cable from your 110-240V 50-60Hz power outlet to the VoIP2ALL Gateway power connector. After connecting the power to the gateway, To power up the gateway turn the power switch, all the LEDs in the master will go on while the initialization process continue. At the end of this process the LED that marked 2 will start blinking and the LED that marked 1 will go off.

Chapter 2: Installing the Manager Application

Before operation, configuration settings must be made in the VoIP2ALL. Configuration is done on an auxiliary computer by using the VoIP2ALL Management MS-Windows Application provided for MS-Windows operating system.

Chapter 2.1: Install the VoIP2ALL Management Application into an MS-Windows PC

1. Insert the VoIP2ALL Management installation CD into the CD drive of the PC.
2. In Windows Explorer, navigate to the installation CD drive.
3. Double click 

to install the Management Application.
4. Click **Next**.
5. The **Setup Type** window will open.
6. Select **Complete** and click next.
7. Click **Install**. The VoIP2ALL Management application installs itself. Wait until a completion message will appear.

Chapter 3: Operating the SIM Server

3.1 Overview

At the core of every VoIP2ALL unit there is a DSP processor. On the processor run a Linux operating system. On it run the v2g_2 program which operate the unit and a sim_server program which operate the internal SIM Server.

The SIM Server is connected to the net with one IP Address in 3 different Ports, 2007 is the port for managing the unit, 2008 is the port for managing the SIMs, 2009 is the port of the Internal SIM Server.

The work of the SIM Server is done automatically. Each time you insert a new SIM Server card, it scan the card. And he updates the data base of the SIMs.

The data base of the SIMs is kept on DB file and the settings of the SIM Server are kept in sim_server.xml file inside the SIM Server.

When connecting with the PC management (port 2007), the only setting that needs to be done with the PC software is the IP settings. That includes the IP Address of the unit, the Default Gateway address and the Subnet Mask. The rest of the settings are relevant only to the gateway.

When a gateway is connected to management software, he can read the SIMs data base from the SIM Server and then, for each sim he can view the status of the SIM and change the settings of the SIM.

The gateway can set up for each SIM when to work and with what setting to register in the cellular network. The gateway will save in is xml file when to register a SIM and with what settings.

When the time to work with a SIM from the SIM Server will arrive the gateway will connect to the SIM Server port 2009 and will request registration data from the SIM Server. The transferring of the data of the SIM will be done with port 2008.

After the SIM is registered in the cellular network the gateway can work without a constant connection to the SIM server. He will need to connect to the SIM Server only if during a call the cellular network will need additional data from the SIM.

Network Bandwidth

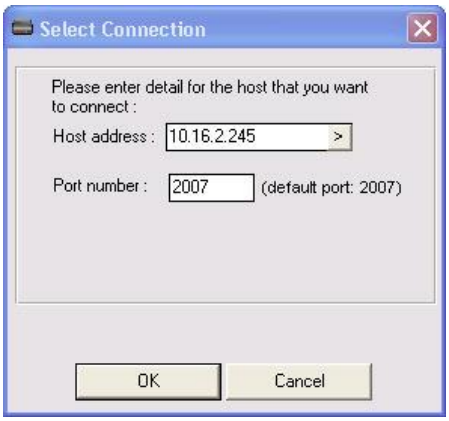
When the gateway is registering SIMs from the SIM Server in the cellular network it will send 250 Bytes per seconds, for each SIM.

When the SIM is registered, it will send 50 Bytes every 30 seconds , for each SIM.

3.2 Connecting with the PC management to the SIM Server

1. Launch the VoIP2ALL Management by pressing the VoIP2ALL logo on your PC desktop.
2. Press 

in the toolbar. The Selected Connection window will open.



3. Enter in the **Host Address** the IP Address of the SIM Server (The default IP address is 10.16.2.245).
4. Enter in the **Port Number** the connection to GUI port of the SIM Server (The default port is 2007).
5. Enter in the 'Password' the password of the VoIP2ALL gateway (The default password is **admin**).
6. Press OK to connect.

Note: If you can't remember the IP Address see Appendix A: Com Port.

3.3 Changing the IP Address of the SIM Server

1. Connect to the SIM Server with the current IP address in port **2007**.
2. Open the **VoIP** window, the **General** tab.
3. Enter in the **IP Address** box the new IP address for the gateway.
4. Press **Save**.
5. Disconnect from the gateway.
6. Restart the gateway, wait 30 seconds for the of the initialization process.

Note: This PC software is compatible for working with all types of the VoIP2ALL. When you are connected with the PC to the SIM Server, except the IP settings there is no other settings in the PC software that are relevant to the SIM Server.

3.4: Replacing SIMs

Replace the SIM cards as follows:

- 3U SIM Server - Open the two screws that secure the SIM Server card to the case.
- Pull the SIM Server card out.
- Each SIM Server card has 32 SIM sockets in it.
- The SIM sockets are marked from 1 to 32.
- To open the socket, slide the metal lock inward and push the socket up.
- Position the SIM in the socket, so the SIM metal contacts facing downward and the snubbed triangle outwards.
- Insert the SIMs in the socket.
- Push the socket down toward the card.
- Slide the metal lock of the socket outward until the SIM is locked.
- The SIMs now is in place.
- Slide the SIM Server card back in to is place.
- The LEDs will blink slowly and then rapidly.
- The gateway will scan the information of the SIMs. When he will finish the LEDs will stop blinking.

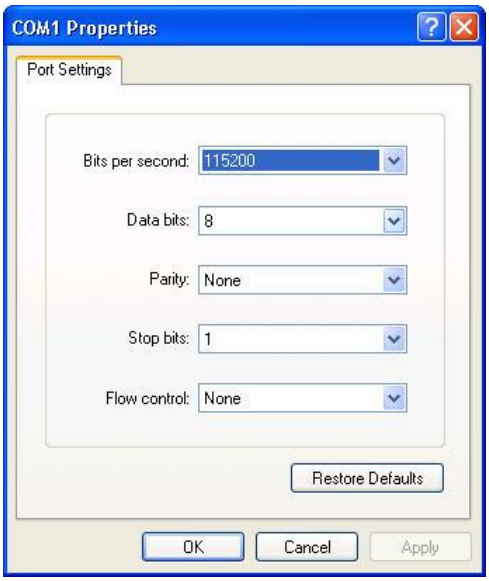
Note: After extracting a SIM Server card, you have to wait 60 seconds before sliding it back for the gateway to recognize that it was extracted.

Fig: Inserting SIM in SIM Server card.

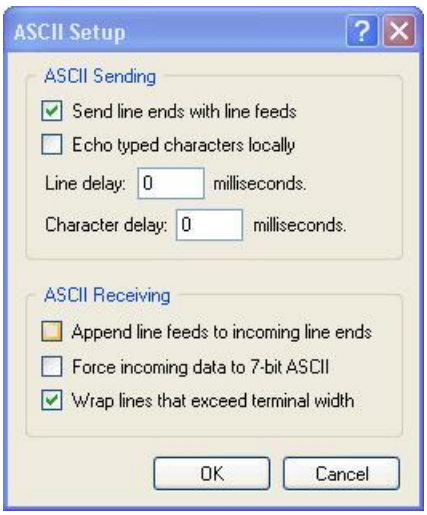
Appendix A: Com Port

The Com Port connection, give you direct access to the Linux based operating system files of the DSP.

1. Connect the **Com Cable** from the gateway to the PC RS232 Com Port.
2. Connect the Hyper Terminal press "Disconnect" than "Properties".
3. In the "Connect To" tab press "Configure", The "Port Setting" should be:

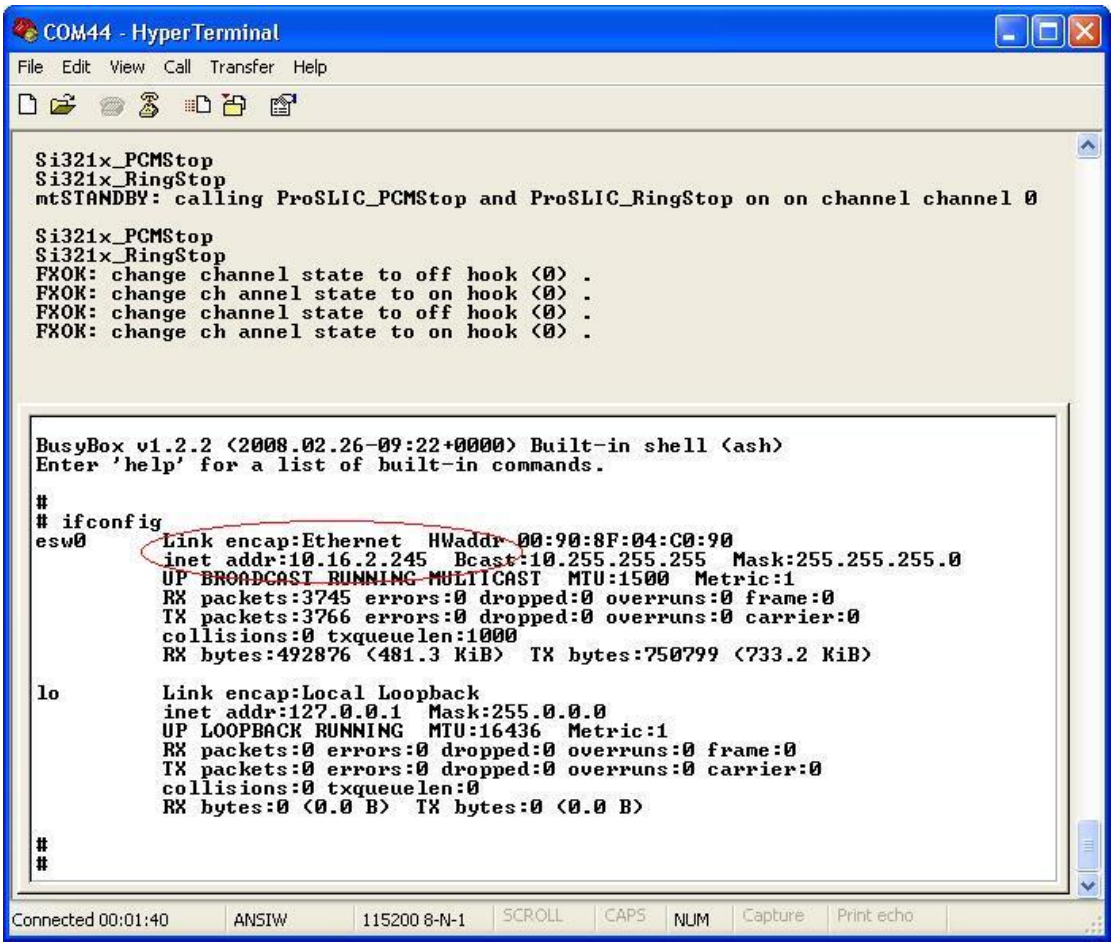


4. Press "OK" and move to the Settings tab.
5. Press ASCII Setup:



6. Sett this settings and press OK.
7. Press "Connect" in the Hyper Terminal.
8. When restarting the gateway you will see the initialization process. Wait until it finished.
9. Press the **Enter** button. On screen you will see **#**.
10. To see the IP settings write the command **ifconfig** and press Enter.

11. On screen you will:



12. The IP Address of the gateway is marked in a red circle.