



RHINO EQUIPMENT CORP.

Ceros Chassis

Designed for Asterisk*

Users Manual

Rhino Equipment Corp. is proud to manufacture our products in the U.S.A.

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* Asterisk is a registered trademark of Digium.



Managing your open source telecommunication needs has never been easier than with Rhino products. Ceros provides instant credibility to your Value Added Reseller (VAR) product line, by providing an unmarked PC chassis that is simply customized by editing a simple four line by 40 character text file. The text in the file is displayed on the LCD at all times for your customers to visually identify your own branded PBX product.

Knowing that Rhino products are ready to perform right out of the box means that you can spend more time developing important customer relationships. Ceros comes preloaded with Linux and Asterisk, along with all the necessary configurations for the specific installed Rhino hardware. All that is needed is to customize extensions and other outside system environment configurations.

The Ceros chassis was designed with VARs in mind. The chassis comes with no external markings or silk screening, and comes shipped in two cartons -- an outside carton that can be discarded so that a pristine, inside carton can be cleanly shipped to your end customer.

Rhino Equipment Corp. offers you a complete line of low cost PCI plug-in cards including Single T1/E1, Dual T1/E1, Quad T1/E1, Quad FXO analog, Octal FXS/FXO and 24-port analog mixed mode analog interfaces. And don't forget the full line of Rhino Channel Bank products, for large scale analog FXS or FXO applications.

Rhino designed products are tough. In the rare case of trouble, our technical support staff is ready to give you the support you need, when you need it. Our 5-year, limited warranty means that you can be confident that Rhino will always work hard in your Open Source Telephony application.

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1. PREINSTALLATION

Thank you for purchasing a Ceros chassis and SLI LCD front panel. For unparalleled performance and years of operation please follow the instructions provided in this user manual.

Ceros is easy to setup and use, which we hope will make your telephony life easier! Please spend a few minutes reviewing these instructions to ensure a successful installation.

1.a Warranty

The Ceros chassis is covered by a 5 year limited factory warranty. The warranty statement is available on the Rhino CD-ROM, the Rhino Public FTP, or by request. Contact support@rhinoequipment.com to request a copy.

Please note that damage caused by improper installation or acts of nature are not covered by this warranty.

1.b Standards

This equipment complies with Part 15 and Part 68 of the FCC Rules. The number is located on the back of the individual Rhino OST PCI Cards and equipment. The label contains the FCC Registration Number for this equipment. If requested, this information must be presented to your telephone company.

If trouble is experienced with this unit, please contact customer service at the address and phone listed below. **DO NOT DISASSEMBLE THIS EQUIPMENT**

Contact: Rhino Equipment Corp.
Attn: CUSTOMER SERVICE DEPT.
8240 S. Kyrene Rd. Suite 107
Tempe, AZ 85284
480-940-1826, Fax 480-961-1826
Email: support@rhinoequipment.com

You must receive an RMA (Return Material Authorization) number from us so that your return is handled promptly. Failure to do so may result in a lost or delayed replacement.

1.c Surge Protection

It is recommended that a surge protector or uninterruptible power supply (UPS) be installed in conjunction with the Ceros. This will help minimize damage as a result of lightning strikes and other AC line surges. Failure to use a UPS could affect the 5 year limited warranty.

1.d Unpacking

It is recommended that once you unpack your Ceros you save the packaging. The Ceros packaging was designed to support and protect your purchase from potentially harsh handling while in route. Please note that this packaging can be used again to ship the Ceros to another location.

The Ceros is suspended in packaging to help protect it from an impact it may receive during shipment or storage; however it is still a good idea to visually inspect the box and its contents to see if any thing has been damaged before receiving the unit. It is also a good idea to take this time and make sure all appropriate cables and accessories have arrived with the unit; this may vary depending on what if any cards have been added to the Ceros, for all units you will receive a power cable as well as mounting brackets and hardware for rack mounting your Ceros.

The minimal contents that you should find the Ceros box is:

- 1) Ceros chassis
- 2) 19" or 23" rack mount brackets and mounting hardware
- 3) Rubber bumper feet
- 4) Wall mount brackets
- 5) AC power cord

2. INSTALLATION

Installing the Ceros requires choosing a suitable long term location for the unit. The Ceros has two cooling fans, one located in the front left of the chassis, and one in the center of the rear panel. These fans allow for air to be pulled in from the front and exhausted out the back. Pick a location that is free from dust and debris so that the inside of the chassis does not become contaminated over time.

2.a Ceros Installation

i. Rack Mounting

Locate the two larger rack mount ears, and install the correct side to the Ceros chassis using three Philips head screws on each side. Note that the longer dimensioned rack ears are for 23" rack mounting, and the shorter are for 19" rack mounting.

ii. Wall Mounting

Locate the two small mount ears, and install the correct side to the Ceros chassis using three Philips head screws on each side. Mount the other side to a suitable wall location.

ii. Desktop Location

Locate the four rubber bumper feet, peel off the backing and stick to the chassis bottom.

iv. AC Power

All AC connections should be plugged in to an un-interruptible power supply (UPS) with surge suppression for protection against lightning and up stream electrical damages.

v. Ethernet

This in almost all cases will plug directly in to your network and can be configured in software to use DHCP or static IP address as needed. **DHCP is default.**

vi. Monitor and Keyboard

In almost all cases, a keyboard and mouse are unnecessary since you can either use the LCD interface or SSH into the system for configuration. However, both can be connected at any time.

User Access Interface Quick Reference

SSH: Use the IP address that is located on the front panel

Login and Password Data

Login: root

Password: rhino

Front Panel LCD Key Unlock – press the red keys in this sequence: top, right, bottom, left

2.b Operating System Configuration

Your Ceros most likely came preloaded with one of two configurations:

- 1) Rhino special Linux build
- 2) Trixbox with front panel Rhino LCD system installed

Most, if not all of the configuration can be accomplished via SSH or from the Rhino front panel LCD.

Setting Up the IP Address of the Ceros

The Ceros ships with DHCP as a method for automatically setting the IP address of the system. If DHCP is your method, then simply look to the front LCD panel for the current IP address. If a static IP address is needed, you may use the front panel LCD to manually set the IP address. Please note that the Ceros uses a database to store system configuration, and if you use traditional Linux methods to change the IP address, the next time the system boots this will be overwritten.

3. Rhino Front Panel LCD

Most all pertinent system information can be viewed from the Rhino front panel LCD. Unlock the LCD interface using the key press sequence up button, right button, down button and then left button. The display will change to the main menu, indicating that the system is now unlocked.

You can navigate using the up and down buttons to point at different menus, and use the center button to select or view the desired menu. To leave any menu, in most cases you can use the left button to go back to the last menu, and if you are at the main menu this will lock the keys.

3a. Statistics: View the up time of the system and the load on the system.

3b. Network settings: This menu will allow you to view, change, and save network settings that the system is currently using. When this is selected you will notice the screen will display sub menus for: DHCP, IP, Netmask, Gateway, DNS and SMTP Gateway. Note that within all of the sub menus, the navigation keys will work the same.

By default the system will be set to DHCP. If this is not changed all other settings are excluded, except for SMTP Gateway.

To set a static IP, you must deselect DHCP this can be done by pressing the center button while DHCP is selected, the display will then show **DHCP ON** (no sub menu will open for this change). You can now arrow down to the IP field and use the center button to select it. The screen will now show the current IP address, as well as the external IP (what the world would see the system as), if you use the center button while the IP address has the arrow pointing at it you will be taken to an edit screen. All edit screens will use this same formatting.

At the edit screen you will see the IP address that the system is currently using on the first line. The second line will show a list of characters that can be used in the IP field. The third line will show an arrow in both directions with a description of other character sets of which to choose. The fourth line indicates the selected edit mode.

You have two edit modes from which to choose: **Insert** (allows for you to insert new characters into the IP value) and **Overwrite** (will give you a pointer in the value line to allow you to overwrite a character). Place the pointer on the IP line, and the left and right arrows will allow moving across the IP field. In Insert mode, this is non-destructive. In Overwrite mode, characters will be erased and replaced. Place the cursor at the place where you want to edit the IP, and use the down arrow to move to second line, the character selection line. Use the left and right arrows to select the character desired, which will be displayed on the IP line. Once the correct character is in place on the IP line, press the center button to insert that character into the IP field.

To choose from other character sets, navigate to the third line and use the left and right keys to select the proper string of characters. Move back to the top line to use those characters in either Insert or Overwrite mode.

When you have the correct IP address entered, press the center button to accept the entry. This will take you to the previous screen that shows your new IP address and as well as your external IP provided that the entry is valid. Invalid entries will result in the display of the current IP address. You can now arrow down to the Save line and use the center button to finally accept the changes. When leaving this menu the system will check to make sure that the value is a valid format for that field or it will be reset to the last known valid IP address.

After saving any settings you will be taken back to the network settings menu where you can use the left button to go back to the main menu, when all entered values will be put into active use by the system.

3c. Information: This menu has three sub menus, *Versions*, *Span(s)*, and *Freespace*. The versions menu will show you what version of system software you are currently running on the system, along with patch information, under the Rhino System Image menu; also under the versions menu you will be able to see what Rhino PCI cards are installed and what version they are, under the Rhino Hardware submenu. Span(s) menu will allow you to see how spans are defined and their state. The Freespace menu will show the amount of available system media storage.

3d. Advanced: This menu has three submenus: *Logs*, *Reboot*, and *Power Off*. Logs has two log files; System Boot Log will show you a log starting with Linux boot and all the way through the ACPI and information that Linux collects on start up; System Update Log that shows information about updating patches and status during the update.

Reboot will first confirm that you want to restart the system and then perform a full system restart. Power off will again confirm that you want to power down the system and then perform a proper shutdown of the system.

4. Splash Screen: Please note that the “splash screen” data can be changed by editing the text file located at `/etc/rsli.splash`. Use a text editor such as nano to edit this file to add whatever data you wish to display. To display the IP address of the Ceros on the splash screen, use the tag “<IP>” in the text file (without the quotation marks).

nano -w /etc/issue.splash

5. TrixBox Web GUI

Trix Box uses multiple GUI's that are all centrally located on one web page that can be accessed by using your web browser and going to the IP address of the Ceros. For more information on how to configure asterisk using this inter face we suggest going to:

<http://asterisktutorials.com/>

6. SSH

You may SSH into the Ceros operating system using a SSH client. For Windows, a good choice is PuTTY, which can be downloaded from the PuTTY site at:

<http://www.chiark.greenend.org.uk/~sgtatham/putty/>

Use PuTTY to set up a SSH session using the IP address of the Ceros system, and be sure to use root and rhino as the login name and password.

7. Upgrade / Reinstall

Please contact us at support@rhinoequipment.com if you need to reinstall or upgrade your Ceros operating system.