

## CXE2000/CXE3000 CompletePBX: Getting Started Guide

### Package Contents

- CXE2000/CXE3000 (2U 19" width unit)
- Power cord
- Support hardware for 19" cabinet
- CompletePBX software preinstalled on the hardware

### Prerequisites

You need a computer equipped with an Internet browser. Firefox is recommended.

### Step 1: Powering Up the Unit

1. For safety reasons, if the line wiring exits the building, it is essential to ground the unit.

**Note: Not properly grounding this device will void your warranty!**

- a. Connect a grounding tab to the grounding screw on the rear panel.
- b. Using 12-16 gauge wire, connect the grounding tab to a reliable ground.



Figure 1: Grounding Screw on CXE2000 Rear Panel

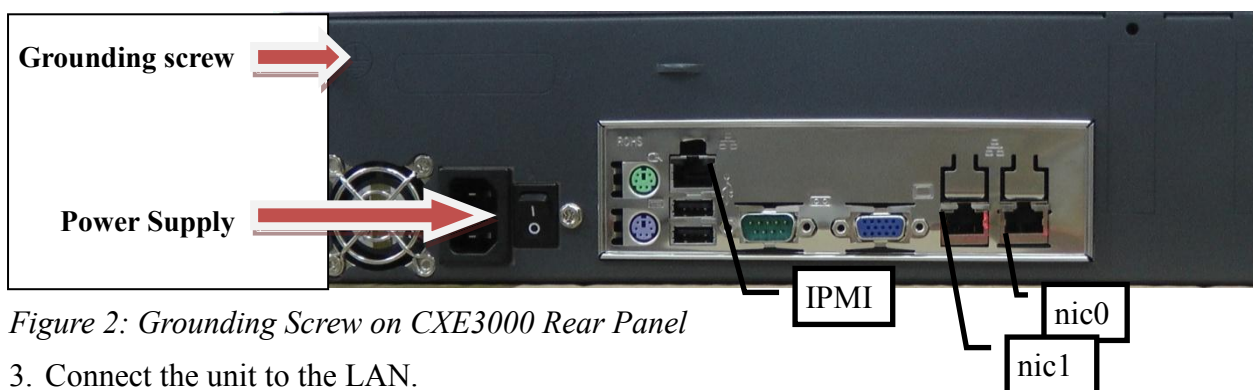


Figure 2: Grounding Screw on CXE3000 Rear Panel

3. Connect the unit to the LAN.
4. Connect the power cord to the device and turn on the power using the power button on the front panel. The device startup process takes about 2 minutes. The startup time depends on the number of telephony ports installed in your CXE2000/CXE3000 unit. You will see the "Loading..." notification on the Liquid Crystal Display (LCD) panel. When the booting process is near completion, "XORCOM" will appear on the LCD panel.

### Step 2: Submit Warranty Activation Request

At this point activate the product warranty (a pre-requisite for submitting any request for technical support). Go to <https://xorcom.com/xorcom-product-warranty>, complete and submit the form found there.

## Step 3: Configure or Obtain the IP Settings for CXE2000/CXE3000

*It is possible to configure or obtain the IP settings by using either the LCD panel or a keyboard and a display monitor.*

### Method 1: Using the LCD Panel

#### *a. How to obtain IP address(es) received from DHCP server*

The CXE2000/CXE3000 will try to obtain the IP address from your DHCP server, if one is available. To check the received IP address by using the LCD panel:

Press the “Menu” button and then navigate as follows:

Status->SystemInfo->IP address

You will see the “IP address:” notification. Scroll down by using the down arrow navigation button to review the received IP addresses for the nic0 and nic1 interfaces. If an interface failed to receive an IP address from the DHCP server the display will read: 0.0.0.0

#### *b. How to configure a static IP address(es)*

Press the “Menu” button and navigate to Settings->ManualNet. “Manual Net:” will appear on the display.

Press the down arrow button to navigate from one parameter to another. You will be able to define the following parameters:

- the default gateway (“Enter gateway”),
- two DNS servers (“Enter DNS1” and “Enter DNS2”)
- IP address and network mask for nic0 (“nic0 IP” and “nic0 Netmask”)
- IP address and network mask for nic1 (“nic1 IP” and “nic1 Netmask”)

You can use the number buttons to enter the required IP addresses. Use the '\*' (asterisk) button for the '.' (period) character.

Press the Enter button once you have defined all the required data. You will be prompted for confirmation.

*Note: The Enter button should be pressed only once after all the parameters are defined. Use the down arrow and up arrow buttons to navigate between parameters.*

### Method 2: Using a keyboard and display monitor

1. Connect a keyboard and a VGA/SVGA screen.
2. Login to the CXE2000/CXE3000 as follows:

User name: root

1. Password: !x0rc0m!voip5472#

*Note: Note the use of the number zero in the password*

*The default CompletePBX keyboard configuration is US English. When entering the password, the # (hash) key is shift/3 (i.e. uppercase three).*

*On UK keyboards, the hash character is located below the backspace, above the right-hand enter key.*



**a. How to obtain IP address(es) received from DHCP server**

To see the IP addresses of the nic0 and nic1 interfaces use the command:

```
ip addr show
```

As a result you'll get a block of data like this:

```
2: nic1: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc pfifo_fa..  
  link/ether 00:0a:cd:25:58:04 brd ff:ff:ff:ff:ff:ff  
3: nic0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast s  
  link/ether 00:22:4d:ab:18:8c brd ff:ff:ff:ff:ff:ff  
  inet 192.168.0.64/20 brd 192.168.15.255 scope global nic0  
    valid_lft forever preferred_lft forever  
  inet6 fe80::222:4dff:feab:188c/64 scope link  
    valid_lft forever preferred_lft forever
```

In this example the CXE2000/CXE3000 nic0 interface received IP address 192.168.0.64. The nic1 interface did not receive an IP address.

**b. How to configure a static IP address(es)**

Replace 1.2.3.4/24 and 1.2.3.1 with the required IP address (in CIDR format) and default gateway and then run the following command:

```
nmcli con mod nic0 ipv4.method manual \  
ipv4.address 1.2.3.4/24 ipv4.gateway 1.2.3.1
```

If you also want to define the nic1 interface, then:

```
nmcli con mod nic1 ipv4.method manual \  
ipv4.address 1.2.3.5/24 ipv4.gateway 1.2.3.1
```

Define the DNS server in the /etc/resolv.conf file. For example:

```
nameserver 5.6.7.8
```

Run `systemctl restart network` in order to apply the changes

**Note:** Correct network parameters settings are extremely important for normal CompletePBX functionality. Always make sure that the 'localhost' is defined in the /etc/hosts file:

```
127.0.0.1 localhost.localdomain localhost
```

## Step 4: Configure the CXE2000/CXE3000

If the unit is equipped with FXS ports they are configured as CompletePBX extensions starting from number 3001.

In order to configure the device follow these steps:

- a) From a computer's Internet browser enter the CXE2000/CXE3000 IP address (for example <http://192.168.0.64>).
- b) You will be prompted to define a password for "administrator". Once you define a password you will be able to connect to the web interface as user **admin** with password that you defined.

Now you can modify your CXE2000/CXE3000 CompletePBX configuration. See the [CompletePBX Reference Guide](#).

## Step 5: Protect CompletePBX Against Unauthorized Access

Once you have **fully configured** CompletePBX we highly recommend that you use the following procedures and applications supported in CompletePBX to protect it against unauthorized access:

### Change the Linux Password

The password for the Linux root user can be changed by using the Linux `passwd` command.

### IP Protection

CompletePBX must be installed on a protected LAN and must not be directly connected to the public Internet. The LAN must be protected by a Firewall/NAT router.

### Intrusion Detection (*fail2ban*) and Firewall

In order to maximize protection from external threats, the **fail2ban** process is activated, in addition to the internal firewall. Use the Admin|Security|Firewall and Admin|Security|Intrusion Detection dialogs to modify the internal firewall and intrusion detection settings.

## Unit Status LED (Light Emitting Diode) Indicators

The CXE2000/CXE3000 is equipped with varying LED indicators on the front panel.

### Digital CXE2000/CXE3000 Models

These are models that have at least one digital PSTN port – ISDN BRI or PRI. They have a vertical array of four status indicators on the left side of the front panel (**Fig 3**).



Fig. 3 – BRI/PRI Panel (allows up to additional 24 FXS ports)

LED Label	Indication
PHONE	This yellow LED indicates that the CXE2000/CXE3000 is supplying the necessary voltage for analog or ISDN telephone sets.
SYNC	This green LED is the synchronization. It blinks once the CXE2000/CXE3000 is synchronized with the telephony modules.
ACTIVE	This red LED lights up when at least one PSTN / Analog phone is active.
ON	This green LED lights up when the CXE2000/CXE3000 is powered.

### Analog (FXS and/or FXO) CXE2000/CXE3000

These models do not have digital modules and therefore have a different set of indicators, as described in **Fig 4**:



Fig 4. All-Analog Panel

The functionality of the LED indicators is the same, with two exceptions:

1. All the indicators are Red.
2. The Phone indicator is replaced with H/W LED, indicating hardware failure (when on).

### Port Status LED (Light Emitting Diode) Indicators

The CXE2000/CXE3000 has a single green LED status indicator for analog ports (**Fig. 4**). The Red LEDs are NOT USED for line status indication), and there are two LED indicators for digital ports.

- FXS ports: The Green LED is on for off-hook status. It blinks when the phone rings.
- FXO ports: The Green LED is on for off-hook status. It blinks when the line rings.

BRI port (**Fig. 4**): Solid green indicates that the port is configured as TE. Solid yellow indicates that the port is configured as NT. Two fast green blinks Indicates that ISDN TE layer 1 is active. Two fast yellow blinks Indicates that ISDN NT layer 1 is active. One green blink indicates that ISDN TE layer 2 is active. One yellow blink indicates that ISDN NT layer 2 is active.

PRI port (**Fig. 4**): Solid green indicates that the port is configured as TE. Solid yellow indicates that the port is configured as NT. Two fast green blinks Indicates that ISDN TE layer 1 is active. Two fast yellow blinks Indicates that ISDN NT layer 1 is active. One green blink indicates that ISDN TE layer 2 is active. One yellow blink indicates that ISDN NT layer 2 is active.

For more information about the unit status and port status LED indicators refer to the **Astribank** manual on the Xorcom Web site: <http://www.xorcom.com>.



## Additional Functionality Supported by the LCD Touch Panel

### ***Internal Flash Drive for Restore Functionality***

In addition to the standard **external** Rapid Recovery disk-on-key, all CXE series CompletePBX models feature an **internal** device as well, which is attached to the LCD panel inside the appliance.

Initially, factory defaults are stored on this device. Later on, you can create and store your own customized backups here as well.

To activate the “restore” image function from the internal flash drive:

1. Connect a monitor and keyboard to the server.
2. Switch off the server.
3. Switch on the server and press the Enter button on the LCD keypad until the "Loading from internal flash..." message appears on the LCD.
4. The Xorcom Rapid Recovery menu will be displayed on the monitor.

### ***Additional LCD Panel Functions***

#### **Status**

- System Info
  - IP Address (shows all configured IP addresses)
  - Hardware Status (CPU utilization, temperature, etc. -- not implemented yet)
- PBX Info
  - Blink port
    - Extension (blink Astribank port that corresponds to a given extension number)
    - Channel (blink Astribank port that corresponds to a given DAHDI channel number)
    - XPD (blink Astribank ports that correspond to a given DAHDI XPD number)
    - SPAN (blink Astribank ports that correspond to a given DAHDI SPAN number)
  - Active Calls (current number of active calls)
- TwinStar Status (DRBD role, DRBD connection status)
- RPS Status (status of power supplies in dedicated Redundant Power Supply unit, which provides redundant power to Astribanks connected to the CXEn000 server)

#### **Maintenance**

- Asterisk restart
- DAHDI restart
- Server reboot
- Server power off

#### **Settings**

- DHCP (enable/disable DHCP on particular Ethernet interface)
- Manual Net (manual IP configuration)

**Scan the QR code on the front panel of the IP-PBX for easy access to all relevant product info for this specific product, including detailed technical documentation, “how to” videos, and more.**

