

# Com.X5

## Getting Started Guide



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<http://www.farsouthnet.com>

Welcome to the world of Com.X intelligent Asterisk™ solutions! This leaflet will help you to get started with your new Com.X5 solution. This getting started guide addresses networking and installation of the Com.X5 unit and should be read in conjunction with the Com.X Administrator's guide.

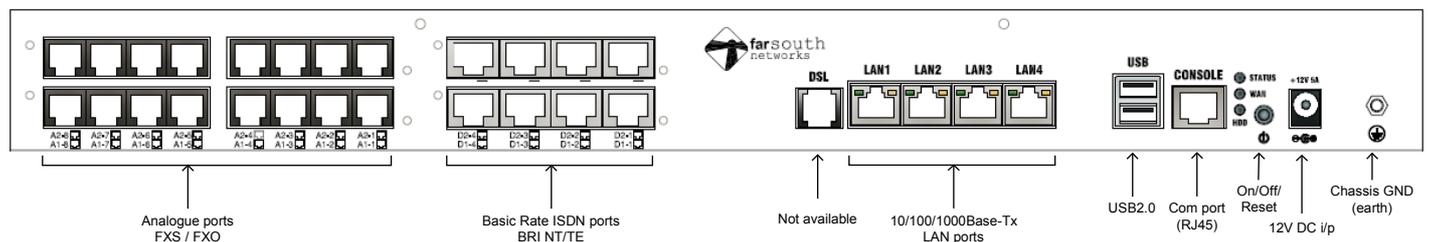
For further information see: <http://farsouthnet.com/resource-center/>

### Description

The Com.X5 supports two variants of hardware build:

1. Full rack mount or Traditional PBX: ISDN and/or Analogue support (part number Com.X5 - W)
2. Half rack mount or Gateway: ISDN only (analogue support for future release) (part number Com.X5)

### Com.X5-W: Full Rack mount or "Traditional PBX"

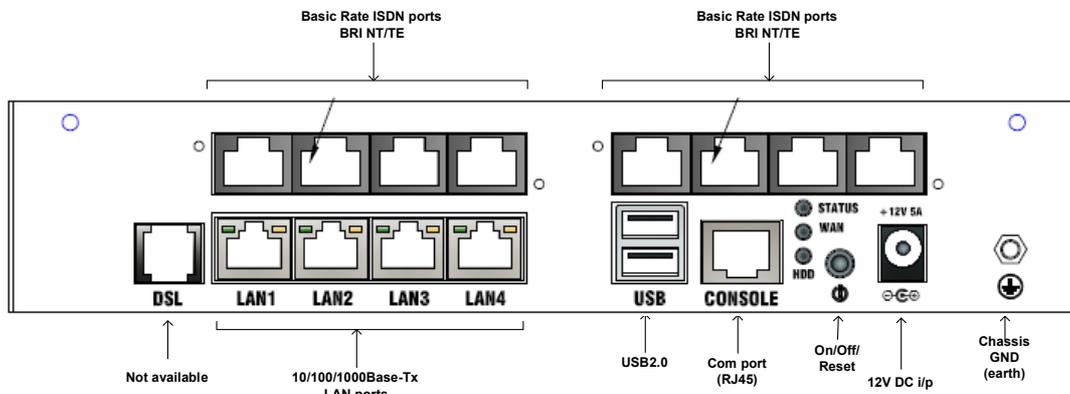


The figures above shows the rear panel view of the "traditional PBX" Com.X5 build variant. This layout has a casing that supports Basic Rate ISDN (4 or 8 BRI ports) and Analogue telephony ports (up to 16 ports FXS or FXO) and any combination thereof. All telephony hardware interfaces are modular, availability thereof is dependent on the Com.X5 build to order.

Two slots are available for analogue interfaces, numbered a1 & a2. Each a1 & a2 slot may be installed with octal FXO, octal FXS or 4FXS/4FXO card, providing eight RJ11 ports, numbered 1 to 8. Thus each analogue RJ11 interface is designated a1-1 to a1-8 and a2-1 to a2-8.

Two slots are available for Basic Rate ISDN (BRI) interfaces, numbered d1 & d2. Each BRI slot may be installed with a quad BRI card, providing four RJ45 ports, numbered 1 to 4. Thus each BRI interface is designated d1-1 to d1-4 and d2-1 to d2-4.

## Com.X5: Half Rack mount or "Gateway"



The figures above shows the rear panel view of the Half Rack mount or "Gateway" Com.X5 build variant. This layout has a casing that supports Basic Rate ISDN (4 or 8 BRI ports) only. Support for analogue interfaces will be provided in future product releases. All telephony hardware interfaces are modular, availability thereof is dependent on the Com.X5 build to order.

Two slots are available for Telephony interfaces (presently Basic Rate ISDN (BRI) support only), labeled 1 and 2. Each slot may be installed with a quad BRI card, providing four RJ45 ports, numbered 1 to 4. Thus each interface is designated 1-1 to 1-4 and 2-1 to 2-4.

Four 10/100/1000Base-T LAN interfaces are provided, designated LAN1 (Eth0), LAN2 (Eth1), LAN3 (Eth2) and LAN4 (Eth3). The remaining connectors are Chassis GND, 12V DC input, USB0 & USB1, Com port (UART), On/Off button.

The front panel LED (not shown) displays unit "status" information as follows:

Code	Description
Red	Unit fault
Solid yellow	Boot state
Flashing yellow	Waiting for PSTN connectivity
Solid green	OK (unit operational)

Three rear panel LED display the following basic diagnostic information as follows:

LED label	Code	Description
Status	See front panel	As per above
WAN	Flashing	Indicates DSL activity (where fitted)
HDD	Flashing	Indicates SATAII drive access (where fitted)

## Hardware Installation

**Important:** Refer to the Com.X5 hardware installation guide for important safety instructions, installation guidelines, wiring and surge protection mechanisms and recommendations

1. Ensure adequate Com.X5 chassis ground (zero impedance to earth bar) and surge protection mechanisms are suitably installed.
2. The Com.X5 is powered using the 12VDC power adapter included with your unit. Connect the power adapter to the server and to mains supply and turn the server on.
3. Connect any Comma iTA units to any available LAN ports using Cat5e cables.
4. Connect the Com.X5 server to a LAN switch using LAN1 port (Eth0) and a Cat5e cable.
5. Connect FXS ports to telephones, fax machines etc. using standard Cat3, twisted pair cables.
6. Connect FXO ports to telco lines, PBXs, etc. using standard Cat3, twisted pair cables.
7. Connect BRI ports to telco NT equipment or PBXs using standard S/T RJ-45 cables.
8. Connect PRI port to telco NT equipment or PBXs using standard E1 balanced RJ-45 cable.

## Accessing the Com.X5 server

1. Default access details for the Com.X5s are:  
user: comma  
password: farsouth
2. The Com.X5 server GUI can be accessed using the url `http://<ip>`, where `<ip>` is the IP address assigned to the unit via DHCP, or one of the statically configured IP's. All administrative tasks elaborated on below can be performed from the GUI. Please refer to the Administrator's guide for more detail.
3. The Com.X5 server can also be accessed via its serial port using a null-modem cable with the following settings:  
baud rate: 115200  
data bits: 8  
stop bits: 1  
parity: none
4. The Com.X5 server requests its IP address from the LAN / WAN via physical Ethernet port LAN1, (labelled the eth0 interface in the Operating System). This interface can be re-configured with a static IP in `/etc/network/interfaces` as follows:  
auto eth0  
iface eth0 inet static  
address xxx.xxx.xxx.xxx  
netmask 255.255.255.0

Note that the Operating System networking will need to be restarted after this configuration change:

```
sudo /etc/init.d/networking restart
```

## Network

1. The Com.X5 server comes pre-installed with Ethernet interfaces configured as follows:

Interface	DHCP client	IP	Netmask
eth0	Yes	-	-
eth1	No	192.168.101.1	255.255.255.0
eth2	No	192.168.102.1	255.255.255.0
eth3	No	192.168.103.1	255.255.255.0

2. The Com.X5 server comes pre-installed with the following software:
  - a. DAHDI with Dynamic span patches for PRI and analog
  - b. mISDN with Comma patches for BRI
  - c. Asterisk
  - d. Comma-GUI
3. The Com.X5 server is pre-configured with fixed IP addresses on the Ethernet ports that iTAs are connected to.

For User Guide and Developer information please see <http://farsouthnet.com/mediawiki>

## Configuration

1. The Com.X5 has been pre-configured with each iTA device sold with the unit (/etc/comma.conf), including the MAC address and IP address configuration of each unit.
2. The comma manager, Dahdi, mISDN, Asterisk and Comma-GUI start automatically on system start-up.

NOTE: The Comma unit is reconfigured from the information on the server on every power-up or reset. Firmware upgrades made available on the Com.X5 server thus become active on the next iTA restart.

## Identifying connected iTA's

1. From the GUI, select the Hardware panel. A Scan of the network will list additional devices.
2. Alternatively, from the server, type the following:  
`comma-ls -v`
3. Connected iTA devices will be identified by their MAC addresses and IP addresses if connected correctly, and the hardware configuration and software versions will be listed.
4. If IP addresses are not listed, the unit may be connected in the wrong order. Connect the units to different Com.X5s Ethernet ports. The units' MAC addresses can be viewed with their interface configuration in /etc/comma.conf in order to determine the correct connection order.

## Logging and Diagnostics

1. From the Comma-GUI, select the Monitoring menu for an extensive monitoring suite
2. The command line interface of the Comma iTA may be accessed from the Comma Manager directory by typing:  
`comma-console <IP ADDRESS>`
3. A log is maintained while the Comma Manager is running, typically found at `/var/log/comma.log`.  
`less /var/log/comma.log`
4. The Com.X5 server system log keeps a record of system warnings and errors and can be viewed as follows:  
`less /var/log/syslog`
5. The Asterisk PBX server command line can be accessed from the server as follows:  
`sudo asterisk -vvvr`

## Firmware Upgrade

The embedded firmware is downloaded to the Comma unit from the server at every power-up or reset. In order to upgrade:

1. Copy the new image file to `/var/comma/`
2. Update the `appimage=XXX` configuration record in the configuration file to the new file name
3. Restart Comma iTA:  
`comma-ls -r`
4. In an Ubuntu based system, updating the package `commaimg` will result in updated firmware:  
`sudo aptitude update`  
`sudo aptitude install commaimg`