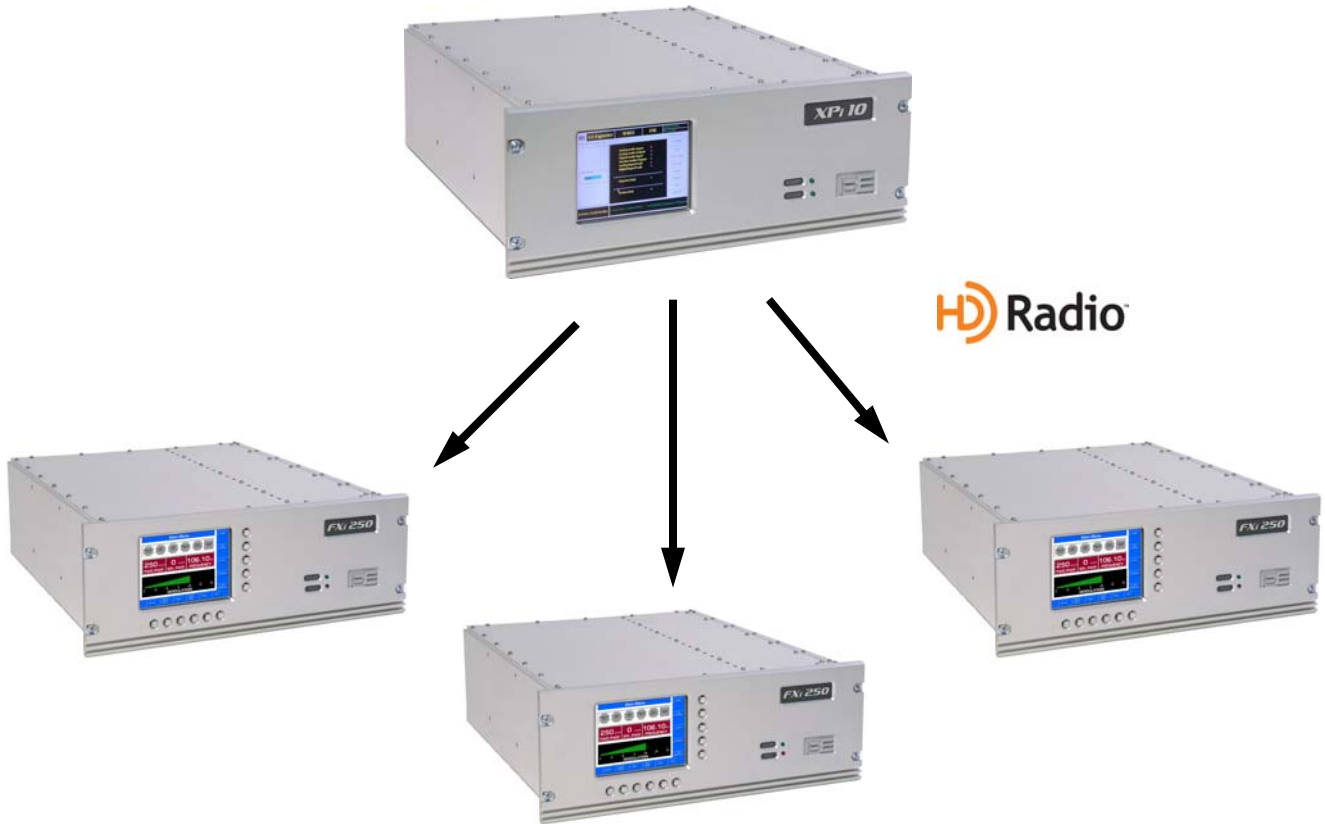**Broadcast HD Data
From a Single XPi 10 Exporter to
Multiple FXi Exciters**

XPi 10 Exporter
Broadcast Mode Application Guide

597-0542-004 Revision A
12/27/06

XPi 10 Exporter
Broadcast Mode Application Guide

Table of Contents

1. XPi 10 Exporter Broadcast Mode Overview

The XPi 10 Exporter has the ability to be put into "Broadcast Mode". In this mode, one Exporter will send data to all FXi Exciters on a given I.P. Network (provided they are in the same I.P. family).

1.1.　Tools Needed

☐　External Mouse

☐　External Keyboard

1.2.　Estimated Time for Broadcast Mode Setup

It will take 10 - 15 minutes to setup the XPi 10 for Broadcast Mode.

2. XPi 10 Exporter Broadcast Mode Setup

2.1. XPi 10 Exporter and FXi Exciter I.P. Addressing Overview

The XPi 10 Exporter and the FXi Exciters MUST be in the same I.P. Family and on the same Subnet Mask in order to communicate.

Figure 1 shows typical I.P. Address and Subnet Mask settings for an XPi 10 Exporter in "Broadcast Mode" sending HD data to multiple FXi Exciters.

NOTE: The I.P. and Subnet Mask Settings shown in **Figure 1** will be used throughout the remainder of this document. Contact your network administrator for I.P. and Subnet Mask addresses assignment for the equipment in your specific system.

XPi 10 Exporter
I.P. = 10.2.4.7
Subnet Mask = 255.255.255.**0**
Exciter Link Broadcast I.P. = 10.2.4.**255**
Exciter Exgine Mac = FF FF FF FF FF FF

Since the last digit of the Subnet Mask is "0" in this case, you MUST replace the last digit of the Exciter Link Broadcast I.P. with "255". This will allow the Exporter to send data to any device on the I.P. network in the **10.2.4.X** family with a subnet mask of **255.255.255.0**.

FXi Exciter #1
I.P. = 10.2.4.8
Subnet Mask = 255.255.255.0

FXi Exciter #2
I.P. = 10.2.4.9
Subnet Mask = 255.255.255.0

FXi Exciter #3
I.P. = 10.2.4.10
Subnet Mask = 255.255.255.0

Figure 1 – XPi 10 Exporter in Broadcast Mode Sending Data to Multiple FXi Exciters

2.2. Configure the I.P. Address and Subnet Mask of the FXi 60/250 Exciter

Ensure that the I.P. Address and Subnet Mask of the FXi Exciters that the XPi 10 Exporter is going to Broadcast to are setup in the same I.P. Family and on the same Subnet Mask as the XPi 10 Exporter as shown in **Figure 1.**

NOTE: Both the FXi 60/250 Exciter (w/Exgine) and the XPi 10 Exporter are configured at the factory to be in the same I.P. family.

If it is desired to change from the original factory setting, the FXi and XPi must BOTH be changed to ensure communication. This section provides instruction on setting the I.P. Address of the FXi Exciter (w/Exgine).

Step 1 – Select **LOG IN**
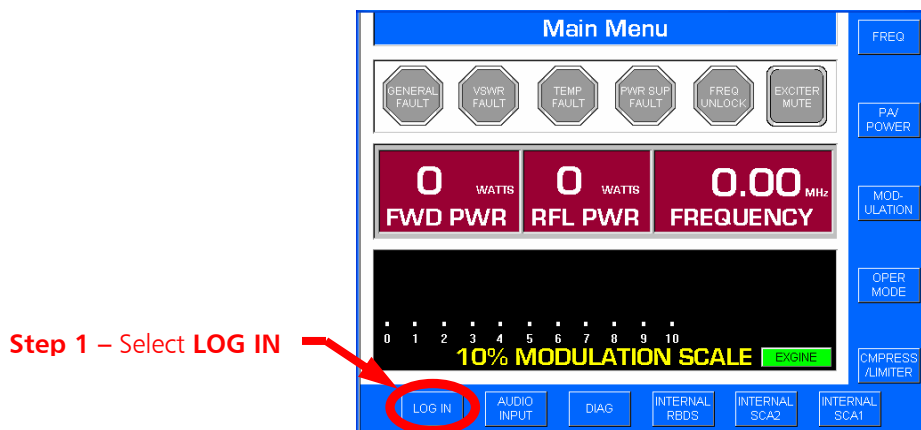
Figure 2 – Main Menu Before Login

Step 2 – Using the numeric buttons, enter the password and then press ENTER (the default is **1 2 3 4 5 6**)
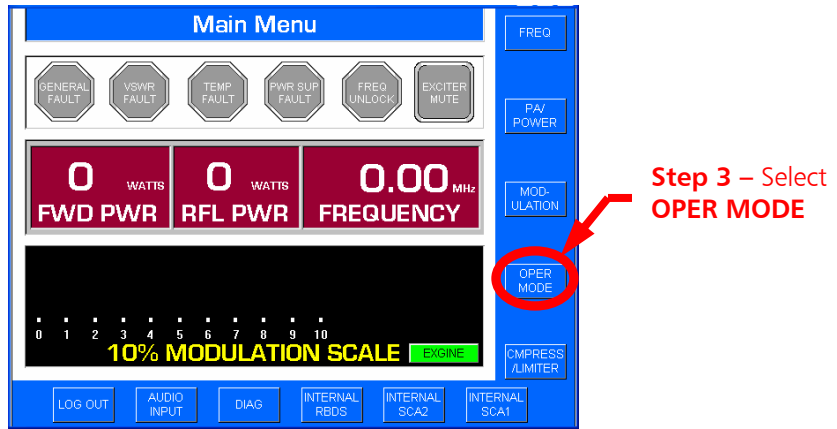
Figure 3 – Login Menu

Figure 4 – Main Menu After Login

Step 3 – Select
OPER MODE
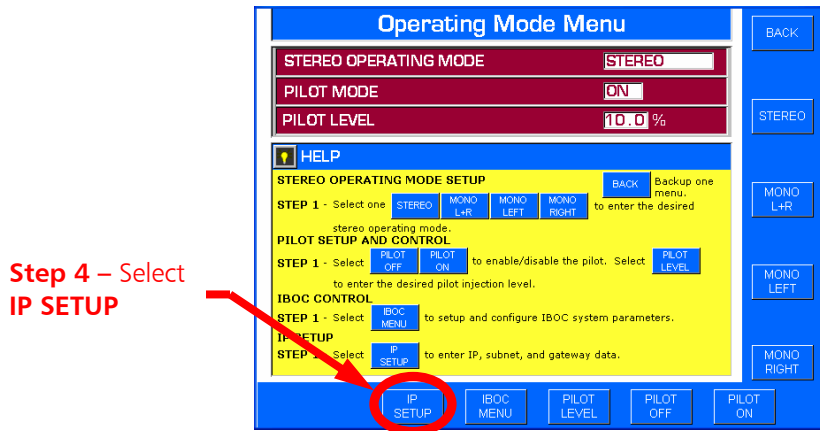
Figure 5 – Operating Mode Menu

Step 4 – Select
IP SETUP

Figure 6 – I.P. Setup Menu
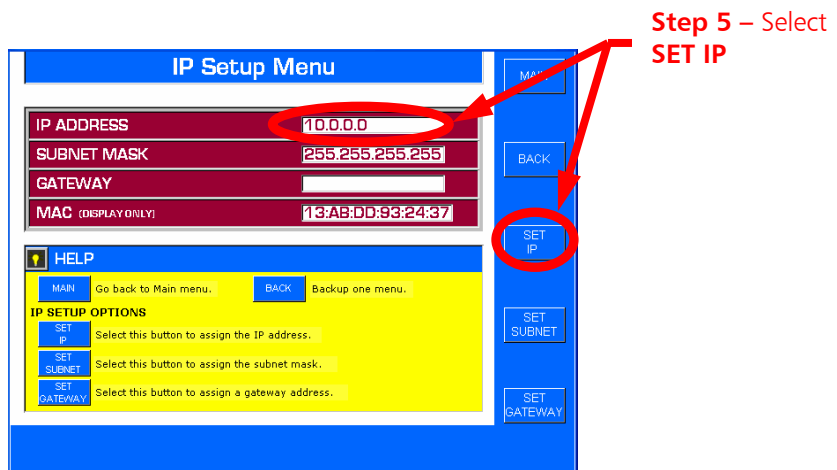
Step 5 – Select
SET IP

Figure 7 – I.P. Address Entry Menu

Step 6 – Use the buttons provided to enter the I.P. address.
(Use the <ENTER/.> button to advance to the next field).

Also, be sure to press <ENTER/.> when finished or the I.P. Address will NOT be saved.

Figure 8 – I.P. Setup Menu
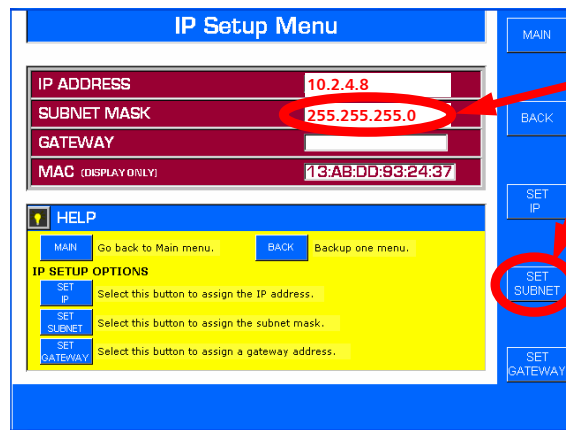
Step 7 – Select **SET SUBNET** and enter the Subnet Mask

Figure 9 – I.P. Setup Menu

NOTE: The MAC address from the Exgine / NetBurner card will be automatically displayed here upon the initial power up.
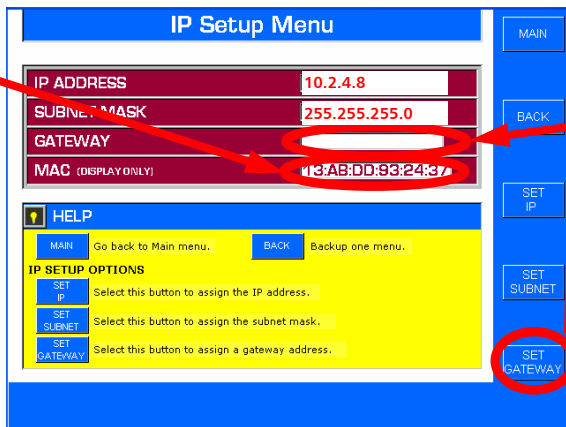
Step 8 – If a Gateway address Is required, select **SET GATEWAY** and enter the Gateway

Step 9 – Turn the AC Power Switch on the FXi OFF then back ON

This completes the I.P. Address and Subnet Mask setup of the FXi Exciter.

2.3. Selecting a Configuration in the XPi 10 to Setup for Broadcast Mode
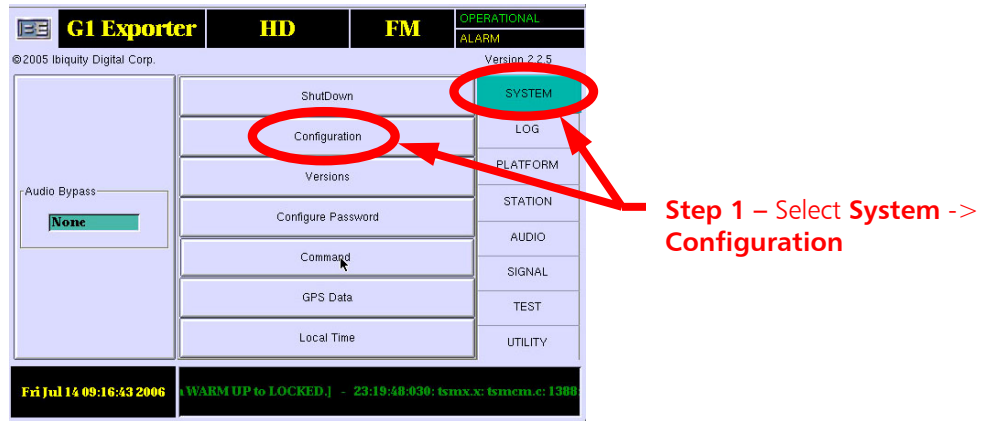
Figure 10 – XPi 10 Main Menu

Step 1 – Select **System** -> **Configuration**

Figure 11 – XPi 10 Configuration Menu

Step 2 – Enter the Item Number of the Configuration you want to setup for Broadcast Mode, and select Restart.

In this document we will change an existing configuration (Item No. 4).

NOTE: FM MP1 (Item No. 4) is the only FM HD configuration approved by the FCC at the time of printing of this document and is the default. If this is the case you do not need to do anything in this menu at this point in the procedure.
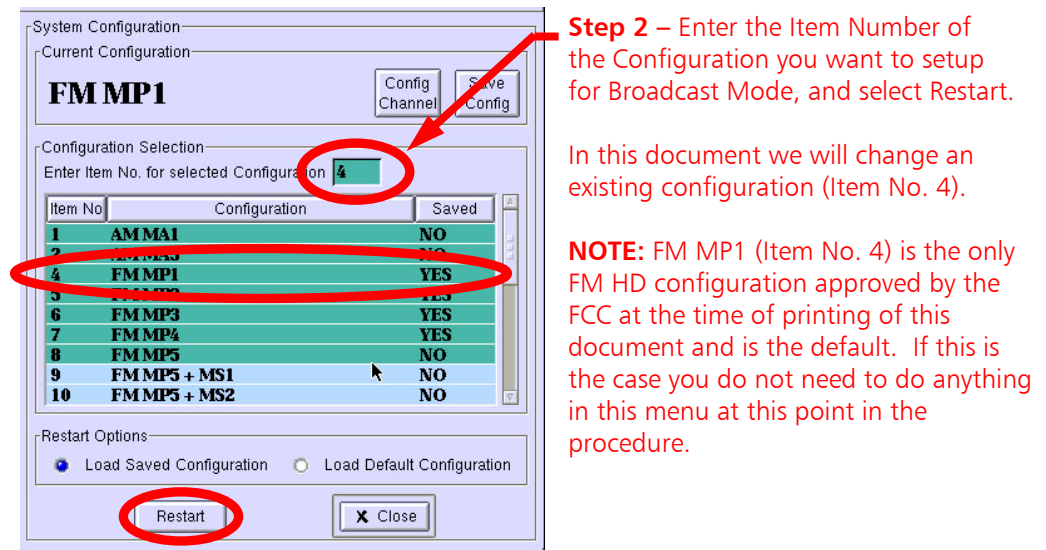
2.4. Connect an External Keyboard and Mouse to the XPi 10

NOTE: An External Keyboard and Mouse **MUST** be connected to the XPi 10 when changing the I.P. Address and Subnet Mask. Please note that the XPi 10 **ONLY** recognizes the Mouse and Keyboard when the Operating System Boots up.

Connect the Mouse and Keyboard to the unit. Next, on the GUI go to **SYSTEM** -> **Shutdown.** Select **OS Restart** then **OK**.
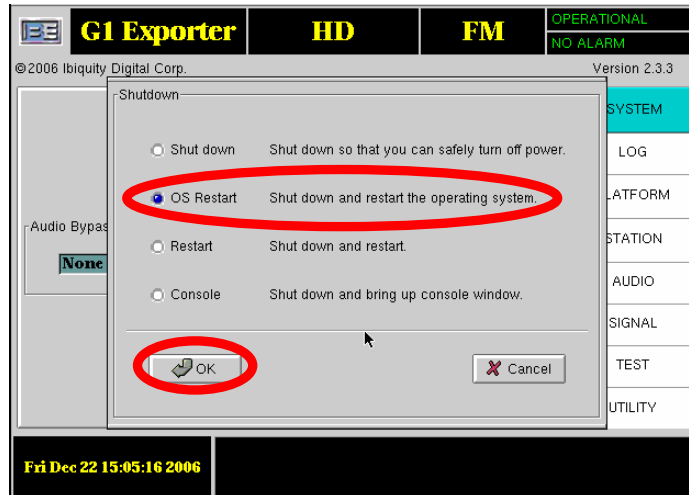
Figure 12 – SYSTEM -> Shutdown Menu

2.5. Configure the Subnet Mask of the XPi 10 Exporter
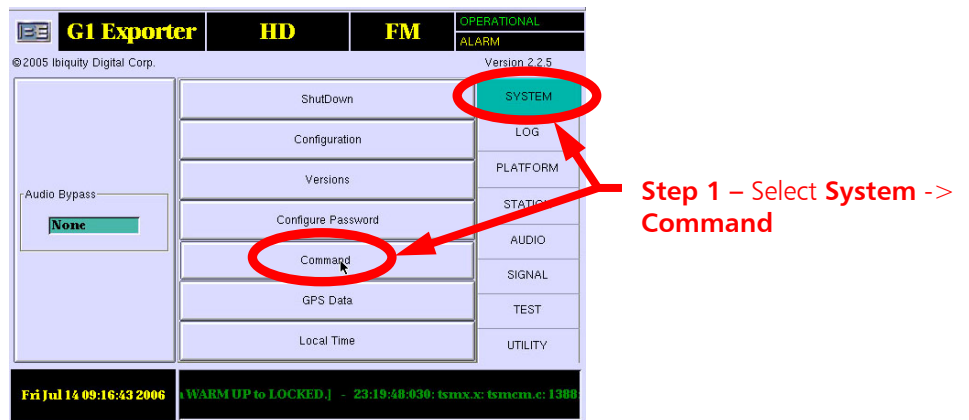

Step 1 – Select **System** -> **Command**

Figure 13 – XPi 10 Config / Control Menu

Step 2 – Enter your password and select **OK .**

The factory default password is "password" (all lowercase).

Figure 14 – Password Menu

Uncheck the virtual keyboard box as shown

Step 3 – Select **linuxconf**
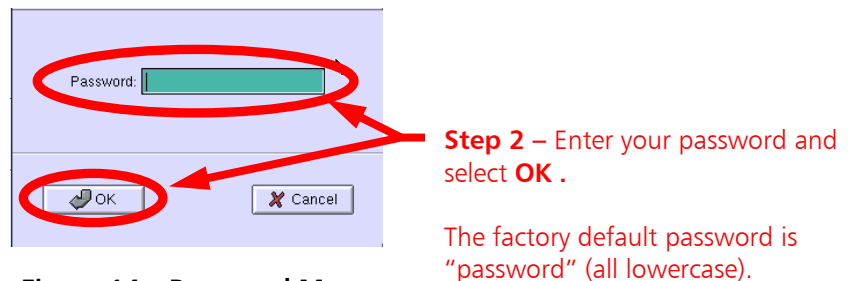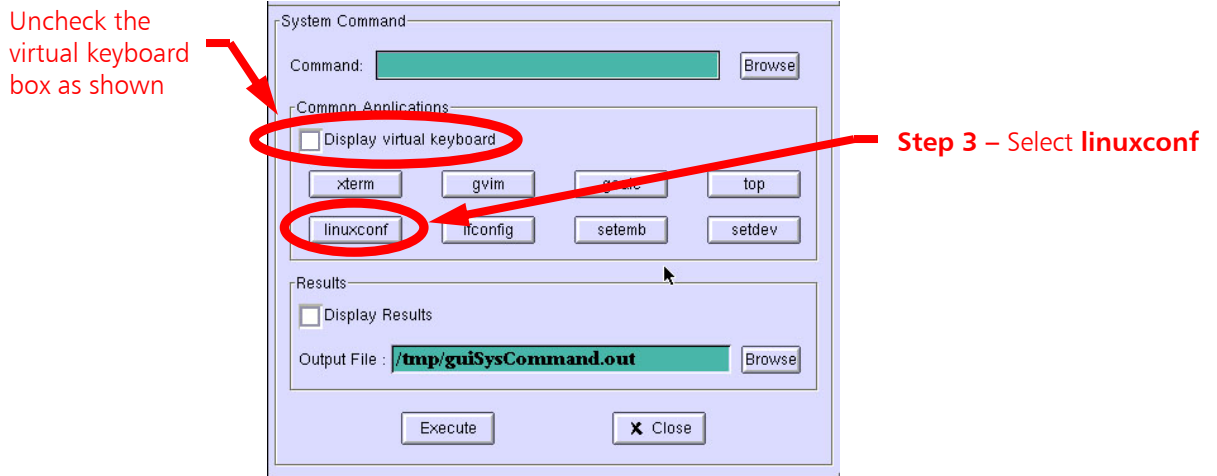
Figure 15 – XPi 10 Config / Control Menu

Step 4 – Select **Networking** then **<Enter>** on the keyboard
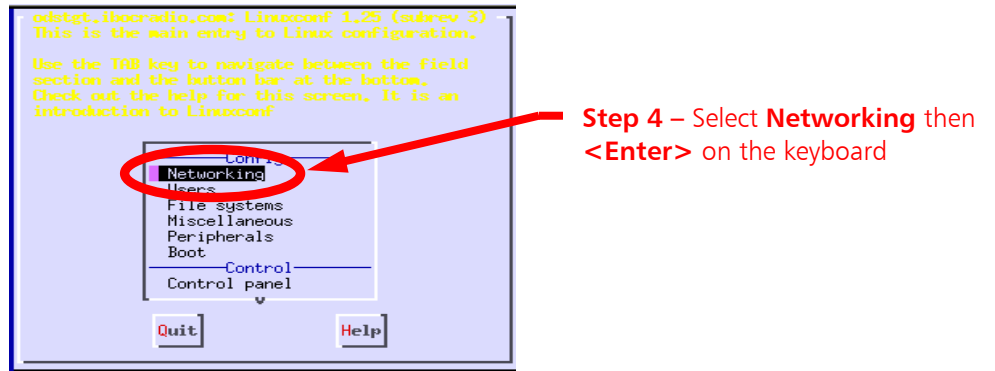
Figure 16 – XPi 10 Config / Control Menu

Step 5 – Select **Host Name and IP Network Devices** then **<Enter>** on the keyboard

Figure 17 – XPi 10 Networking Menu
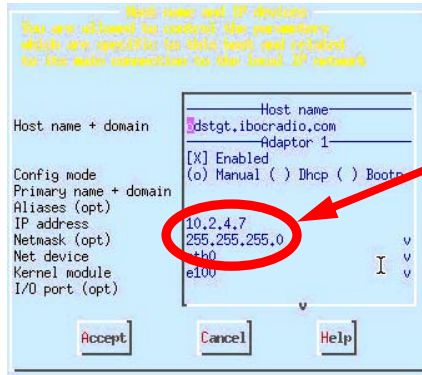
Step 6 – Use arrows to go to the XPi 10's I.P. Address and Netmask. Change both to the desired values.

Hit **<TAB>** to accept (Accept will then highlight) then press **<ENTER>** on the keyboard.

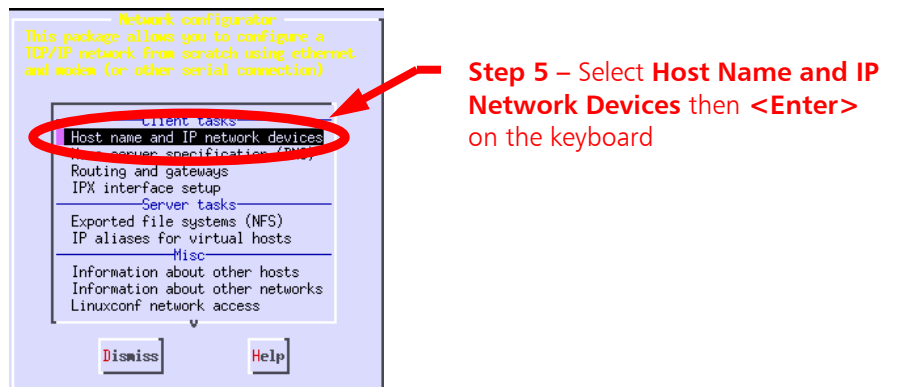**Figure 18 – XPi 10 Networking Sub-Menu**
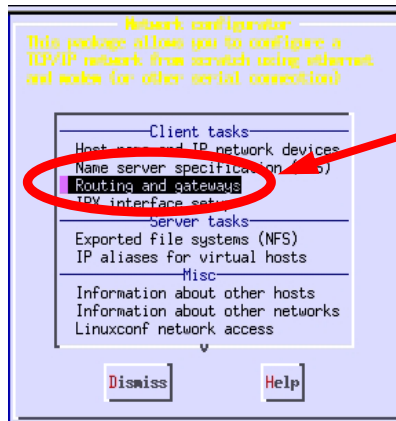
Step 7 – If you are using a Gateway, select **Routing and Gateways** then **<Enter>** on the keyboard

Figure 19 – XPi 10 Client , Server, and Misc Tasks Menu
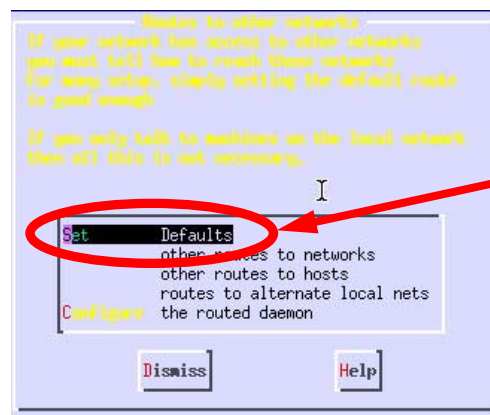
Step 8 – Select **Defaults** then **<Enter>** on the keyboard

Figure 20 – XPi 10 Client , Server, and Misc Tasks Menu

Step 9 – Enter the Gateway Address for your network

Figure 21 – Gateway Menu

Step 10 - Press **<TAB>, type A** to Accept, then press **<Enter>** on the keyboard.
Step 11 - Press **<TAB>, type D** to Dismiss, then press **<Enter>** on the keyboard.
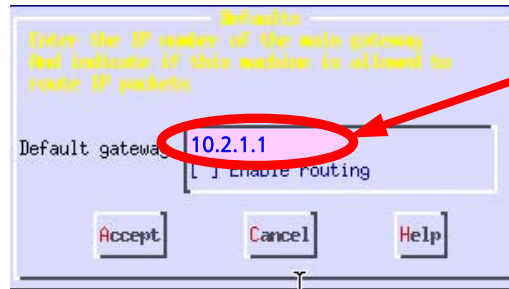**Step 12** - Press **<TAB>, type Q** to Quit, then press **<Enter>** on the keyboard.
Step 13 - Press **<TAB>** twice to highlight **Do It**, type **D**, then press **<Enter>** on the keyboard.
Step 14 - The Command window should now be displayed.

2.6.   Configure the XPi 10 Exporter with a Broadcast I.P. Address

Step 1 – Select **PLATFORM**

Step 2 – Select **Exciter Link Config**

Figure 22 – XPi 10 Main Gui Menu

Step 3 – Enter the Password. The factory default is "password" (all lower case)
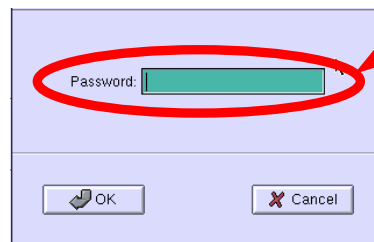
Figure 23 – Password Menu

Step 4 – Set the communication protocol to Uni-directional

Step 5 – Enter the Exciter Link **"Broadcast"** Mode I.P. Address

Since the last digit of the Subnet Mask is "0" in this case, you MUST replace the last digit of the Exciter Link Broadcast I.P. with "255". This will allow the Exporter to send data to any device on the I.P. network in the **10.2.4.X** family with a subnet mask of **255.255.255.0**.

Step 6 – Click the **Enable Box**

Step 7 – Enter **FF FF FF FF FF FF** for the MAC Address

Step 8 – Click OK

Figure 24 – XPi 10 Main Gui Menu

2.7. Save the Active Configuration after Broadcast Mode Setup

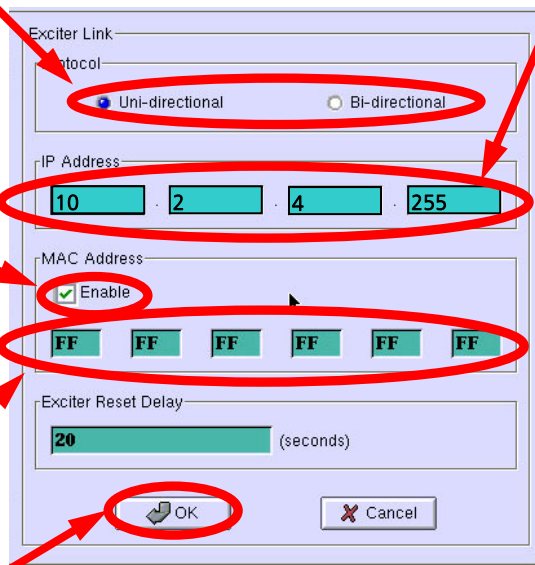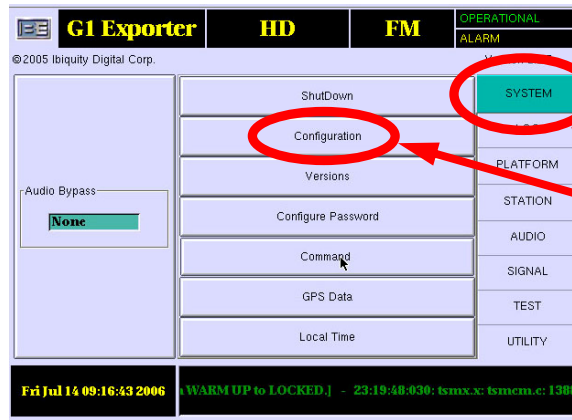It is necessary to save the Active Configuration after changing any system parameters from their defaults. This includes I.P Address and Subnet Mask changes.

Figure 25 – XPi 10 Main Menu

Step 1 – Select **System** -> **Configuration**

Figure 26 – XPi 10 Configuration Menu
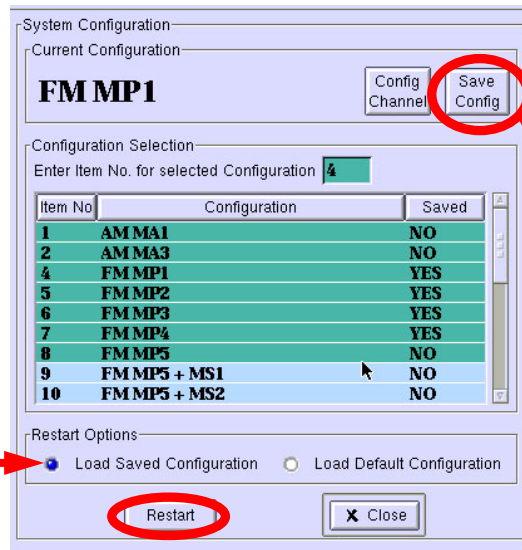
Step 2 – Select **Save Config** and then **Restart**

Step 3 - Repeat the entire process from **Sections 2.3, 2.5, 2.6 and 2.7** for each configuration (i.e. MP2, MP3, etc) that you want to setup for "Broadcast Mode".

NOTE: Saving each configuration will keep the Exciter and Exgine I.P. Addresses you previously entered when switching configurations. When loading saved configurations, ensure that the "Load Saved Configuration" button has been selected.

3. IMPORTANT! Switching System Configurations via the IDi 20

Please note that when switching configurations via the IDi 20, the XPi 10 will loose the Exciter Link address information. This is true even if the Configuration was previously saved in the XPi 10. If this happens, re-enter the Exciter Link Configuration information into the XPi 10 as shown in **Section 2.6** of this document.

4. System Setup and Operation

Reference B.E. document **FXi 60/250 Exciter w/Exgine and XPi 10 Exporter Quick Installation Guide (597-0542-XM3)** for additional information regarding system Setup and Operation. This document was included in the shipment from B.E. and may also be found at **www.bdcast.com** under the "**Support**" tab, then "**all Product Manuals**."

5.   Terms and Definitions

AAS	Advanced Application Services
AES/EBU	Audio Engineers Society/European Broadcast Union
AM	Amplitude Modulation
CRC	Cyclic Redunancy Code
DI	Decoder Identification Setting
DPS	Dynamic Program Service
EASU	Exciter Auxiliary Service Unit
EOC	Ensemble Operations Center
FM	Frequency modulation
GPIO	General Purpose In Out
IBOC	In-Band On-Channel
MF	Medium Frequency
MPA	Main Program Audio
MPS	Main Program Service
NVRAM	Non Volatile Random Access Memory
PS	Program Service
PAD	Program Associated Data
PTY	Program Type
PTYN	Program Type Name
PI	Program Identification
QoS	Quality of Service
SIS	Station Information Service
SPS	Supplemental Program Service
VHF	Very High Frequency
WAN	Wide Area Network
LAN	Local Area Network
CM	Connection Manager
LP	Logistics Processor
RDi	Broadcast Electronics' RDS Subcarrier Generator
RDS	Radio Data System (European Standard)
RBDS	Radio Broadcast Data System (U.S. Standard)
RSS	Received Signal Strength
IDi	Broadcast Electronics' brand name for an Importer
FSi	Broadcast Electronics' IBOC Signal Generator
FXi	Broadcast Electronics' Digital Exciter
XPi	Broadcast Electronics' Digital Exporter

Figure 27 - Terms and Definitions