INSTALLATION INSTRUCTIONS

MicroComm DXL

IMS-640 VoIP Intercom Master Station

Table of Contents

1. Intent & Scope

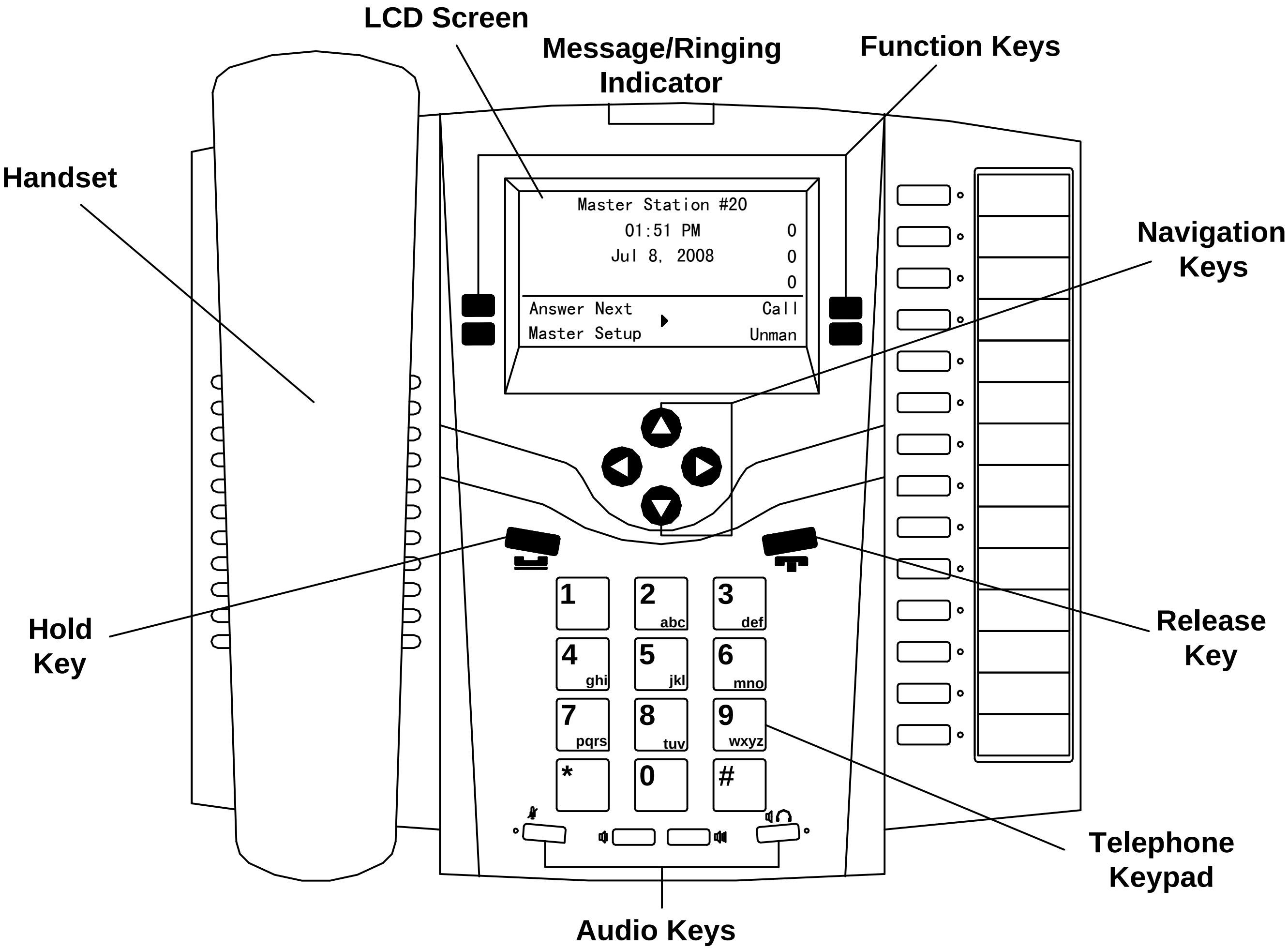
This document describes the installation and setup procedures for the DXL IMS-640 VoIP Intercom Master Station.

2. Description

The IMS-640 is a telephone style intercom master station that uses Voice over Internet Protocol (VoIP). The IMS-640 connects to an exchange via the inter-exchange Ethernet network.

The IMS-640 includes a large 128x64 pixel graphical display and provides the operator with audio communication, paging, and monitoring functions as well as alarm and control functions. It also permits the operator to receive and place calls, answer call requests, make public address and station group call announcements, and manage system background music operations. Other features include the ability to acknowledge, cancel, and reset incoming alarms and to monitor, activate and deactivate output points.

The following diagram shows the IMS-640 and the key designations.



IMS-640 Showing Key Names

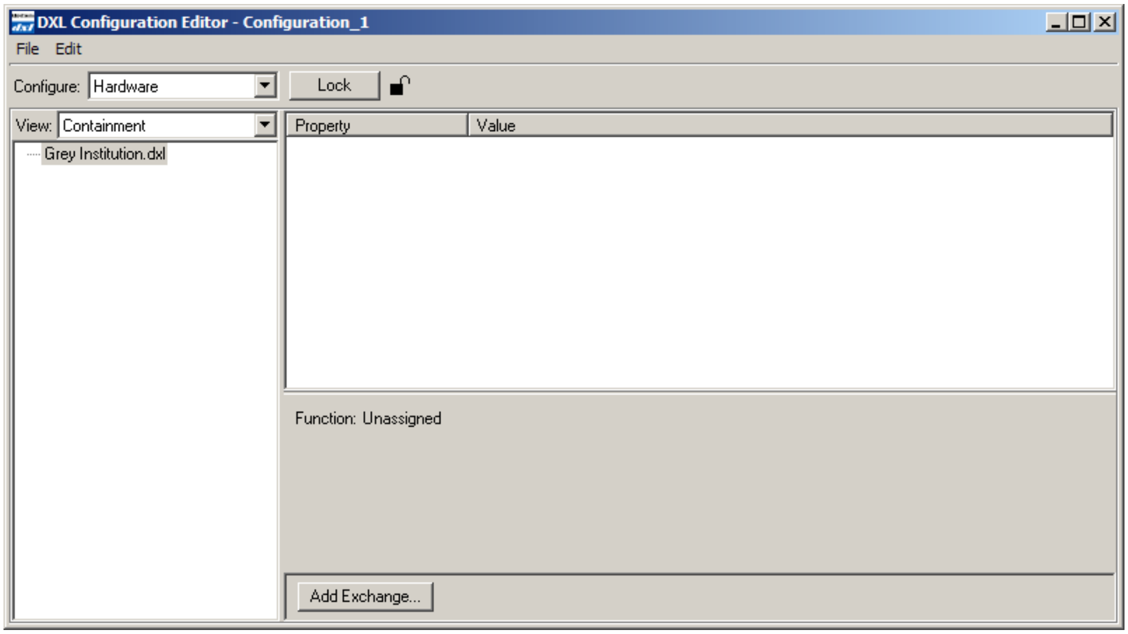
The IMS-640 is powered by a 36Vdc wall adapter power supply (included with the IMS-640).

The functional operation of the IMS-640 in a DXL system is carried out using the DCC software. Three procedures are required to configure an IMS-640 master station:

1. Configuring an IMS Master using the Administrator
2. Set the IP Address of the IMS-640 master station
3. Use a web browser to configure the IMS-640 master station to operate with the MicroComm system.

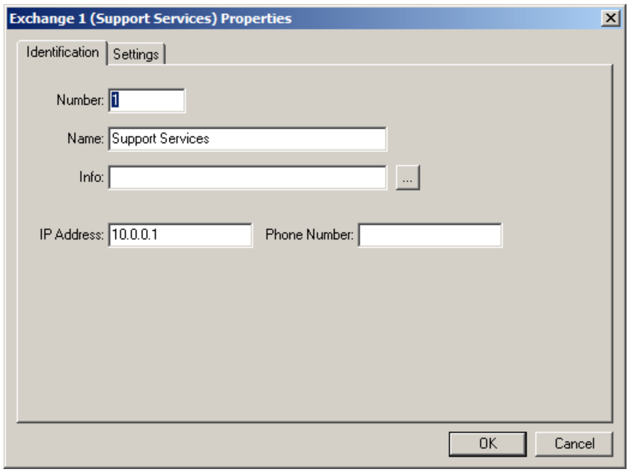
3. Configuring an IMS-640 with the Administrator Software

The Administrator Software is used to create a configuration where a particular VoIP port must be assigned to each VoIP IMS-640 master station. The first step in creating a configuration is to create all the Exchanges in the system. The following **DXL Configuration Editor** screen allows you to **Add Exchange…** to the configuration



Configure: Hardware
View: Containment
Function: Unassigned

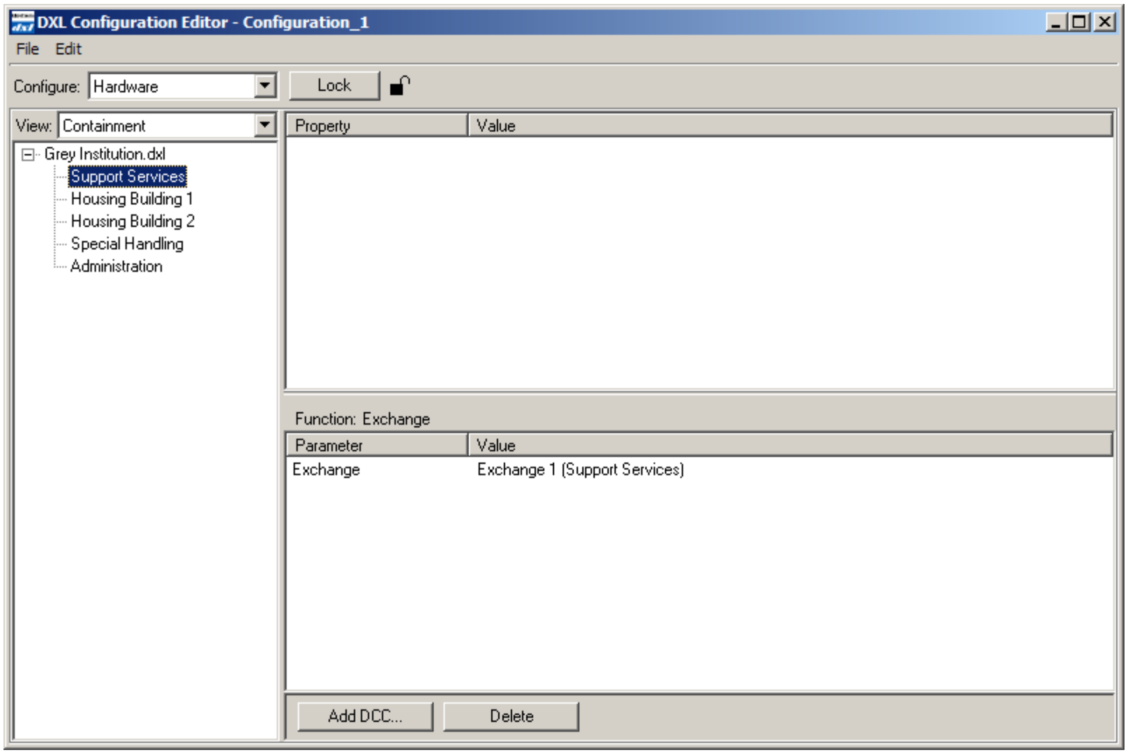
Click on the **Add Exchange…** button and the **Exchange Properties** text box with two tabs will pop up. In the **Identification tab** you need to type in a **Number:** for the exchange, the **Name:** of the exchange and assign a unique **IP Address:** to the exchange.



Number: 1
Name: Support Services
Info:
IP Address: 10.0.0.1
Phone Number:

Once all the exchanges have been created each exchange requires a DCC. After the DCC has been configured DCEs, TBEs and PZEs can be added to the exchange as required.

Using the pull-down menu and setting the **Configure:** entry to **Hardware** in the **DXL Configuration Editor** and selecting one of the Exchanges you can now add a DCC to the exchange.



Configure: Hardware

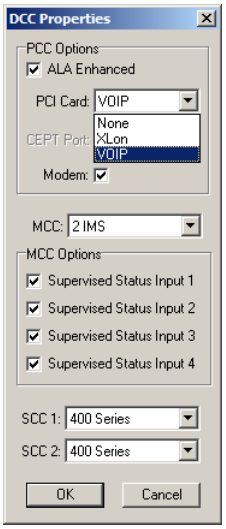
View: Containment

- Grey Institution.dxl
  - Support Services
  - Housing Building 1
  - Housing Building 2
  - Special Handling
  - Administration

Function: Exchange

Parameter	Value
Exchange	Exchange 1 (Support Services)

Click on the **Add DCC…** button to bring up a **DCC Properties** text box as shown on the right. Use the check boxes and pull-down menus to configure the DCC. In this example you are going to use VoIP master stations so the **PCI Card:** should be set to **VOIP**. Once you select **VOIP** the **CEPT Port** entry will be dimmed and cannot be selected. When the parameters of the DCC have been set click on the **OK** button and return to the **DXL Configuration Editor**.



☑ ALA Enhanced

PCI Card: VOIP

CEPT Port:

Modem: ☑

MCC: 2 IMS

☑ Supervised Status Input 1

☑ Supervised Status Input 2

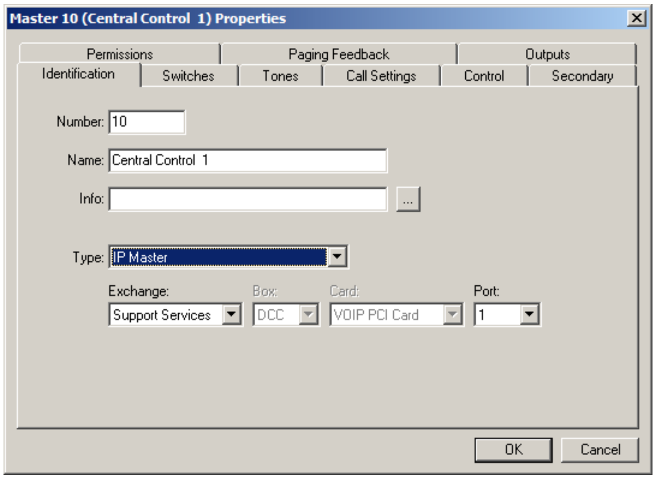
☑ Supervised Status Input 3

☑ Supervised Status Input 4

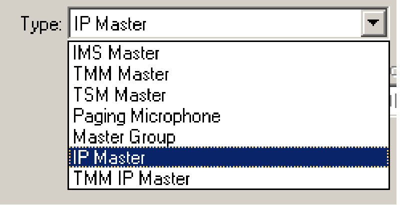
SCC 1: 400 Series

SCC 2: 400 Series

To add an IMS-640 VoIP master station set the **Configure:** entry of the **DXL Configuration Editor** to **Masters** then click on the **Add…** button to bring up a **Master Properties** dialog box. In the **Identification** tab you need to assign a **Number:** to the master station, a **Name:** for the master station and use the pull down menu to select the **Type:** of master station. In this case we need to specify that it is an IP Master.


Master 10 (Central Control 1) Properties

Number: 10
Name: Central Control 1
Info:
Type: IP Master
Exchange: Support Services
Box: DCC
Card: VOIP PCI Card
Port: 1


Type: IP Master

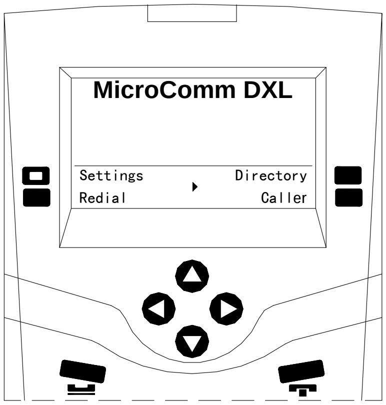
You must specify the **Exchange:** associated with this master and assign a unique port number for the IP Master using the **Port** pull-down menu. By default the next available port will be displayed.

4. Setting the IP Address for the IMS-640

Every device connected to the inter-network Ethernet network in a DXL system must have a unique IP address. To set the IP address for an IMS-640 you should carry out the following steps.

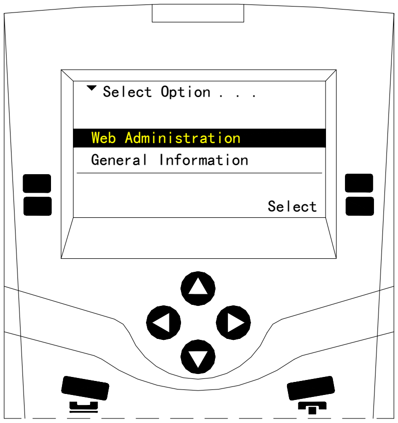
The IP address of the master station is set using the setup menu system that is built into the master station. Note that once the master station is connected to a DXL system via the inter-exchange Ethernet network and operating as a master station using the IMS menus you will not be able to access the setup menus. If you press the ▬ key (called the **HOLD** key) the master station will briefly display a setup menu but will immediately return to the current IMS menu. The normal function of the HOLD key has been disabled when you are operating with IMS menus.

In this case to access the setup menus disconnect the Ethernet connection to the master station and press the ▬ key (the **HOLD** key). The setup menu will now be displayed. Press the **Settings** function key and the display will change to a new menu.



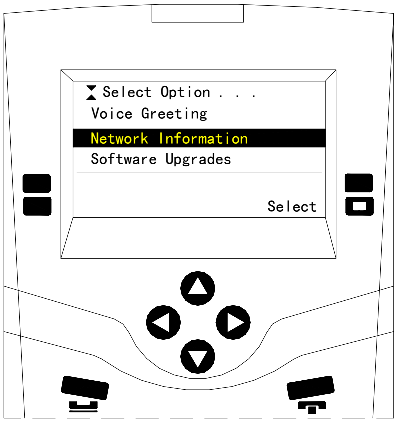
Setup Menu

The new menu as shown on the right will display a list of options that can be set. Use the scroll buttons to scroll down until the “Network Information” option is highlighted.



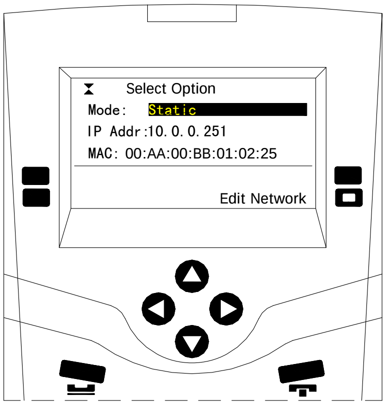
Settings Menu

Once you have scrolled to the “Network Information” option and it is highlighted press the **Select** function key.



Network Information Option Highlighted

A new menu will be displayed showing the current mode of operation as well as the current IP address

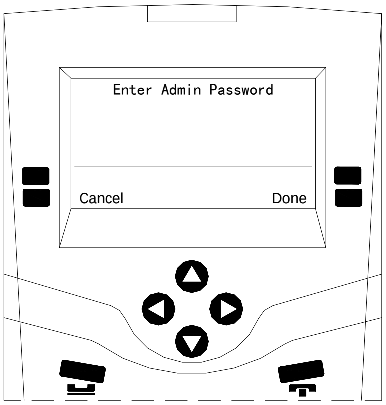


Mode: Static
IP Addr:10. 0. 0. 251
MAC: 00:AA:00:BB:01:02:25

Network Settings Displayed

If you wish to change any of the settings, press the **Edit Network** function key to bring up a display that allows you to modify the existing settings.

If you are prompted to enter the current administrator password with the number keys on the keypad press the number key which has the letter of the password on it. The default password is “admin” (23646). Press the **Done** function key when finished.

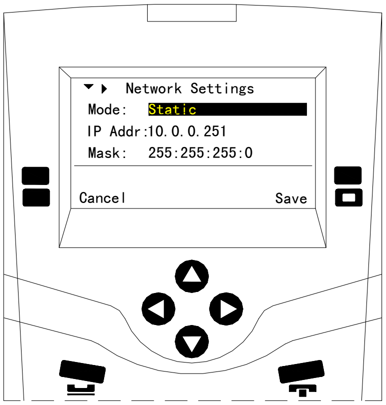


Enter Password

The Mode should be set to Static by pressing ►until Static is shown.

Scroll to the **IP Addr:** then enter the IP address for this phone using the number keypad and the * key for periods. In this example to assign an IP address of 10.0.0.251 you would type in the string “10*0*0*251”.

Press the down arrow until the **Mask:** is highlighted and type in the mask for the security network assigned by your system administrator. Usually this is 255.255.255.0 or 255.255.0.0. Once these settings have been entered press the **Save** function key to save the new values. The master should reset with these new settings.



Mode: Static
IP Addr:10. 0. 0. 251
Mask: 255:255:255:0

Edit Menu

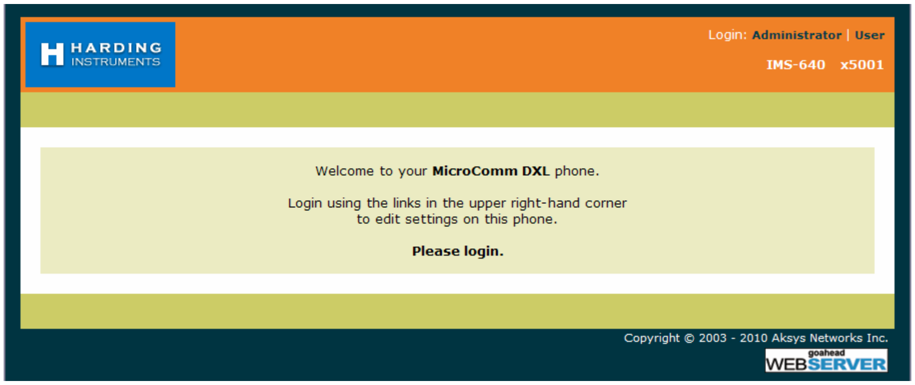
5. Using a Web Browser to configure the IMS-640

Once the IP address of the IMS-640 has been defined and connected to an Ethernet network, a PC on the same network can access the IMS-640 and use a web browser to set the remaining parameters necessary to make the IMS-640 work in a DXL system.

The first step is to hook up the top Ethernet port on the master to a network switch. Once the master has reset and has the setup screen displayed, you can bring up a web browser from a PC on the same network (that is assigned an IP address within the same network mask as the phone).

In the address bar, type “**http://<address of master>**”. For example if the master is 10.0.0.41, type “**http://10.0.0.41**”. This will bring up a MicroComm DXL setup page.

The initial web page for configuring the IMS-640 is as follows.



Welcome to your **MicroComm DXL** phone.

Login using the links in the upper right-hand corner
to edit settings on this phone.

Please login.

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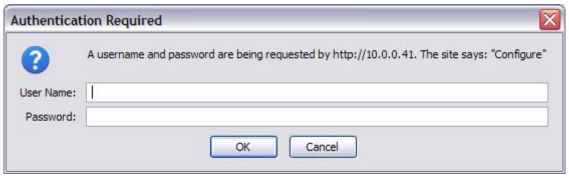
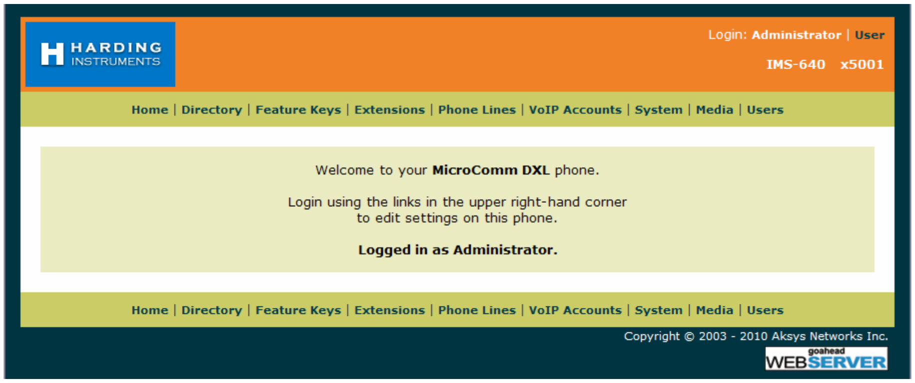
Click on the “Administrator” text at the top right. This will bring up a login prompt text box. Use the user name “**admin**” and enter the password assigned to this master (“**admin**” is the default password), then click OK.
Once you are logged in you will see more menu options.



A username and password are being requested by http://10.0.0.41. The site says: "Configure"

User Name:
Password:


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x5001
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users

Welcome to your **MicroComm DXL** phone.

Login using the links in the upper right-hand corner
to edit settings on this phone.

Logged in as Administrator.

Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users

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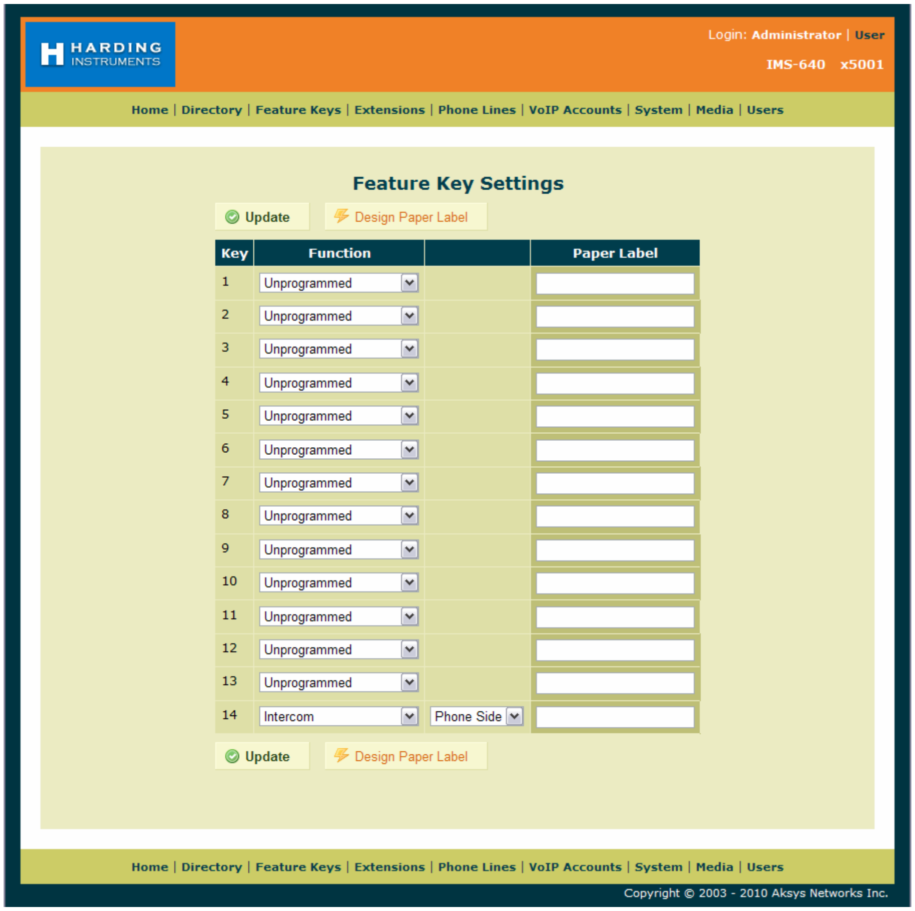
Click on the **Feature Keys** menu tab on the menu bar to bring up the **Feature Keys** menu page. Set up feature **Key 14** function to “**Intercom**”. Set the rest of the keys to “**Unprogrammed**” and click “**Update**”.


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x5001
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
Update
Design Paper Label
Update
Design Paper Label
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
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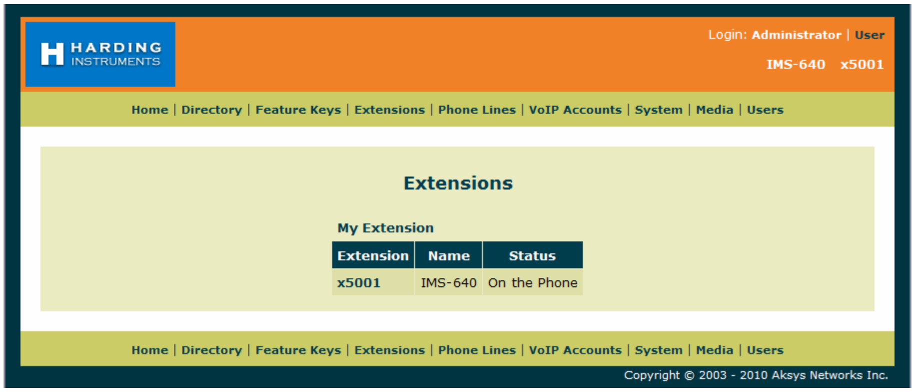
Feature Key Settings

Key	Function		Paper Label
1	Unprogrammed		
2	Unprogrammed		
3	Unprogrammed		
4	Unprogrammed		
5	Unprogrammed		
6	Unprogrammed		
7	Unprogrammed		
8	Unprogrammed		
9	Unprogrammed		
10	Unprogrammed		
11	Unprogrammed		
12	Unprogrammed		
13	Unprogrammed		
14	Intercom	Phone Side	

Next, click on the **Extensions** tab on the menu bar.

Note that with the Users tab a new password can be defined and "admin" will no longer be recognized as the password.

Click on the number under **Extension** to bring up the **My Extension** screen. In this example, the extension number to click is “**x5001**”.


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x5001
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
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Extensions

My Extension

Extension	Name	Status
x5001	IMS-640	On the Phone

If this is the first time you are configuring the IMS-640, you will need to make some changes to these settings.

Name is a short descriptive name of this master station; in this case “**IMS-640**” is used.

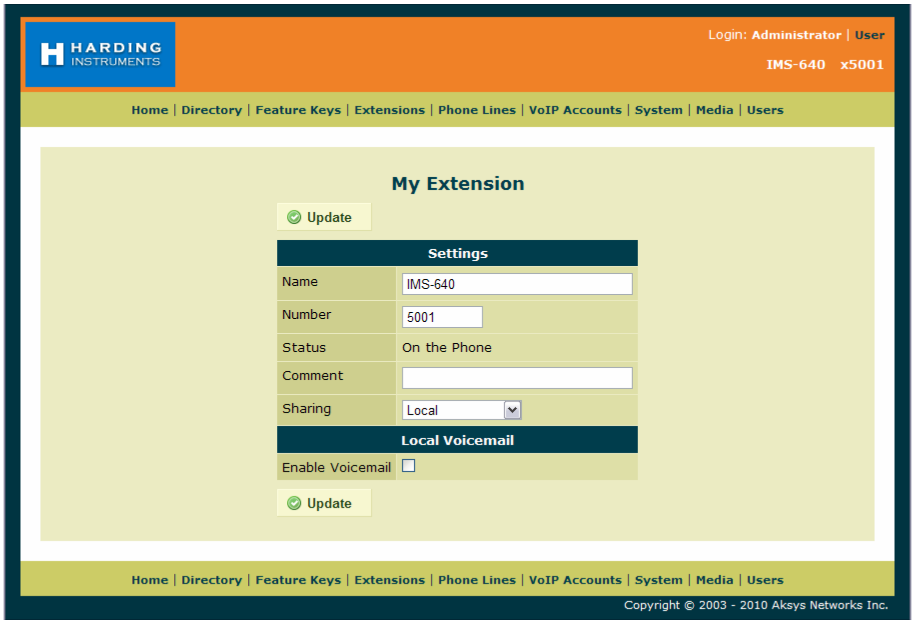
Number is the master number for this master (this must be the same number as the Master **Number** entered in the DXL Administrator software for the master station). This master number cannot be the same number as any other master in the system. In this case the master number is “**5001**”.

Comment is an optional long description of this master station, and can be left blank if desired.

Sharing should be left at the default setting.

The **Enable Voicemail** check box should be un-checked.

If you have changed any settings, click “**Update**”.


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x5001
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
Update
Update
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
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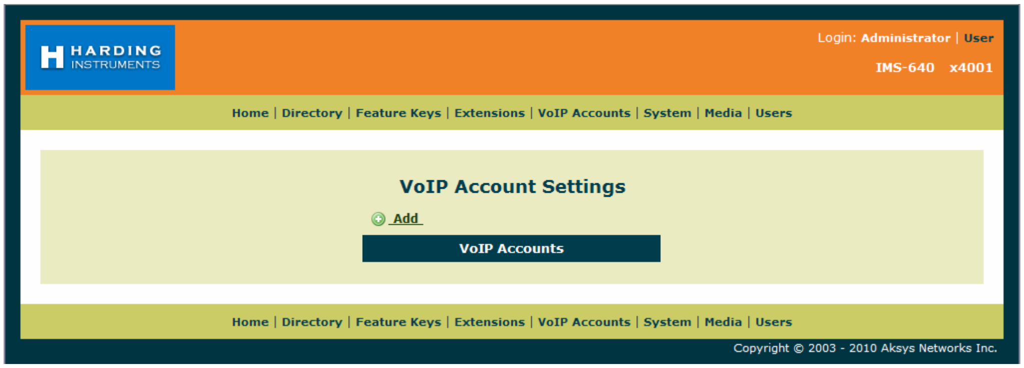
My Extension

Settings	
Name	IMS-640
Number	5001
Status	On the Phone
Comment	
Sharing	Local
Local Voicemail	
Enable Voicemail	☐

Next, click on the **VoIP Accounts** tab on the menu bar.

On the **VoIP Account Settings** screen, the VoIP accounts created on the IMS-640 are listed. If this is the first time the IMS-640 settings page is accessed, there are no current VoIP accounts listed, in which case you would click the “**Add**” button to add a new account. If the IMS-640 was previously configured and you are making changes, you would click the name of the master which would be under the **VoIP Accounts** heading.

In this example the master is newly configured. Click “**Add**”.


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x4001
Home | Directory | Feature Keys | Extensions | VoIP Accounts | System | Media | Users
VoIP Account Settings
Add
VoIP Accounts
Home | Directory | Feature Keys | Extensions | VoIP Accounts | System | Media | Users
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In either case above, the next **VoIP Account Settings** screen would be shown after either clicking the “**Add**” button or the name of the VoIP account listed under the **VoIP Accounts** header.

Account Enabled should be check-marked to enable the account.

Account Name is a short description for this SIP account; usually this should be the same as the **Extension Name**. In this case the Extension name was “**IMS-640**”, so you can enter “**IMS-640**” as the **Account Name**.

Account Username must be the master number (same as the Master **Number** in the DXL Administrator). In this example the master number and hence **Account Username** is “**5001**”

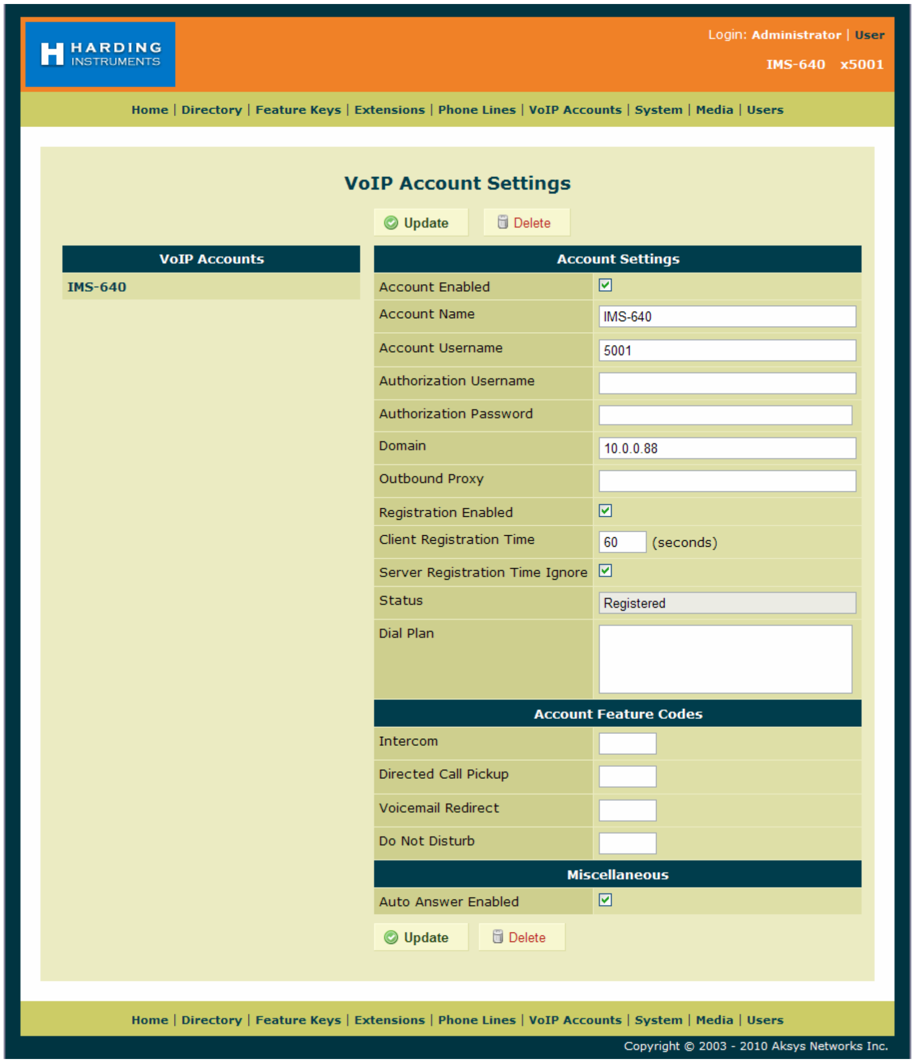
Domain must be set to the IP address of the DCC that controls the exchange that the master associated with in the DXL Administrator. For example, in this case the IP address of the DCC of the exchange that the Master is associated with is “**10.0.0.88**”.

Authorization Username, Authorization Password, and Outbound Proxy settings are only used when the IMS-640 is used with a SIP Proxy server. This is not used for a DXL system, so should be set to blank.

Check-mark the **Registration Enabled** and **Auto Answer Enabled** check boxes.

The remainder of the settings are not used by the DXL system and should be left at the default settings.

If you have made any changes, click “**Update**”.


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x5001
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
Update
Delete
VoIP Accounts
IMS-640
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
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VoIP Account Settings

Account Settings	
Account Enabled	☑
Account Name	IMS-640
Account Username	5001
Authorization Username	
Authorization Password	
Domain	10.0.0.88
Outbound Proxy	
Registration Enabled	☑
Client Registration Time	60 (seconds)
Server Registration Time Ignore	☑
Status	Registered
Dial Plan	
Account Feature Codes	
Intercom	
Directed Call Pickup	
Voicemail Redirect	
Do Not Disturb	
Miscellaneous	
Auto Answer Enabled	☑

Next, click on the **System** tab on the menu bar.

Workgroup Key should be set to the workgroup name used by all of the IP masters in the MicroComm system. While the **Workgroup Key** setting for the network can be any value you choose, all IP masters should have the same **Workgroup Key.** This setting is optional and can be left blank.

Operating Mode is not used by the DXL system and can be left at the default setting. If it is set to **PBX Only**, the **Workgroup Key** setting above will not be available.

Outgoing Email (SMTP) is not used by the DXL system and should be left blank.

Authentication Required should be left blank as the DXL system does not use authentication.

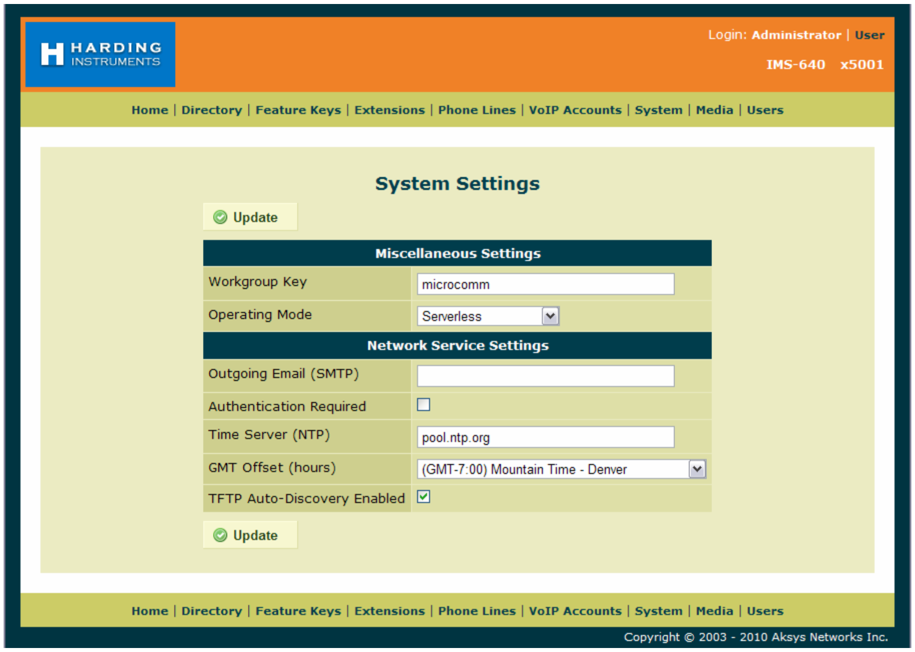
Time Server (NTP) is the IP address or Domain Name of a Network Time Protocol (NTP) server. This can be used by the IMS-640 master to set its clock time to same time as the NTP server when it is not connected to the DXL system. This should be left blank for most cases.

GMT Offset (hours) should be set to the time zone that the IMS-640 will be used in.

TFTP Auto-Discovery Enabled is not used by the DXL system, and can be left at the default setting.

STUN Server, if present on the IMS-640 setup screen, is not used for a DXL VoIP system and needs to be blank.

If you have made any changes, click “**Update**”.


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x5001
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
Update
Update
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
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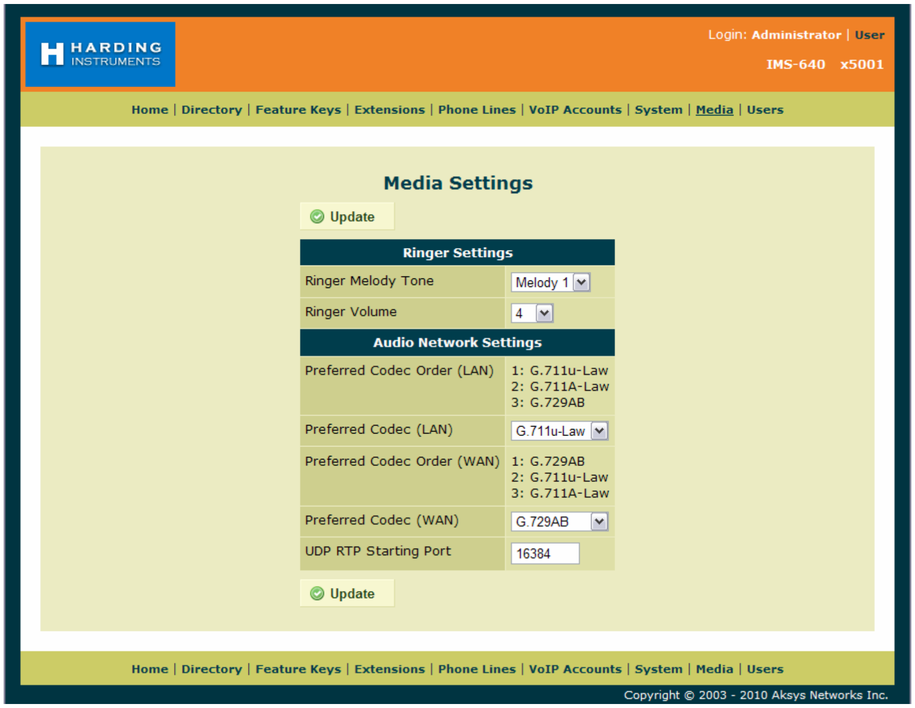
System Settings

Miscellaneous Settings	
Workgroup Key	microcomm
Operating Mode	Serverless
Network Service Settings	
Outgoing Email (SMTP)	
Authentication Required	☐
Time Server (NTP)	pool.ntp.org
GMT Offset (hours)	(GMT-7:00) Mountain Time - Denver
TFTP Auto-Discovery Enabled	☑

Next, click on the **Media** tab on the top menu bar to access the **Media Settings** menu. You do not normally need to change these settings, but a brief description of these settings is as below.


HARDING INSTRUMENTS
Login: Administrator | User
IMS-640 x5001
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
Update
Update
Home | Directory | Feature Keys | Extensions | Phone Lines | VoIP Accounts | System | Media | Users
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Media Settings

Ringer Settings	
Ringer Melody Tone	Melody 1
Ringer Volume	4
Audio Network Settings	
Preferred Codec Order (LAN)	1: G.711u-Law 2: G.711A-Law 3: G.729AB
Preferred Codec (LAN)	G.711u-Law
Preferred Codec Order (WAN)	1: G.729AB 2: G.711u-Law 3: G.711A-Law
Preferred Codec (WAN)	G.729AB
UDP RTP Starting Port	16384

Ringer Melody Tone and **Ringer Volume** are not used with a DXL VoIP system, and they can be left at the default settings (the DXL Administrator tones will be used instead).

The **Preferred Codec (LAN)** and **Preferred Codec (WAN)** settings indicate to the IMS-640 which voice codec (which affects the level of voice compression) is preferred. However, the IMS-640 and DXL DCC will negotiate with each other and determine the best settings between them, and the DXL DCC will prefer and select "**G.711uLaw**" no matter which setting is indicated here. These settings should be set to "**G.711 u-Law**" for clarity's sake. Note that some versions of the IMS-640 will change to a different codec even if "**G.711 u-Law**" is selected. Because these values are negotiated between the IMS-640 and DCC, this is still acceptable.

UDP RTP Starting Port should be left at the default value "**16384**".

If you have made any changes, click "**Update**".

This concludes the settings for one IMS-640 master.

Repeat this process for each IP master, making sure that the IP address for each master is unique. Fill in this master station's number and the Domain IP address of the controlling DCC in the appropriate places above.