



MAI-625 Master Audio Interface

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1 Intent & Scope

This document describes the installation procedure for the VoIP MAI-625 Master Audio Interface.

2 Description

The MAI-625 Master Audio Interface is a Voice over Internet Protocol (VoIP) device for DXL intercom systems and is used to facilitate the integration of a variety of intercom master station components into a console or control panel.

The MAI-625 provides three separate RJ-25 connectors in support of an SMK-126/136 Panel Mount Handsfree Speaker/Microphone Kit, an HHK-136 Handset/Hookswitch Kit, and an HSK-136 Headset Kit. These kits provide handsfree audio, a privacy handset, or a headset interface, and can be installed in any combination desired. Please refer to their individual datasheets for further information.

The MAI-625 also includes a line-level input and output to facilitate making audio connections to an existing system. The line level output can also connect to an amplifier for driving external powered speakers. A status input, and a DPDT control relay are also available. These signals are provided on terminal blocks with the line-level output (also) brought out to a 3.5 mm stereo audio jack.

A combination of these audio devices can be used. If more than one audio/input device is connected to the MAI the hookswitch and headset detector will determine which speaker receives audio and which microphone is active. If the hookswitch is off hook the speaker audio is connected to the handset speaker and handset microphone audio is connected to the microphone audio lines. If the hookswitch is on hook the speaker audio is connected to either the headset or handsfree speaker depending on the state of the headset detector. If the headset detector is closed (corresponding to having a headset jack plugged in) the headset microphone is active and the speaker audio is connected to the headset. If the hookswitch is on hook and the headset is unplugged then handsfree operation is possible. Figure 1 describes the operation of the hookswitch and headset switch.

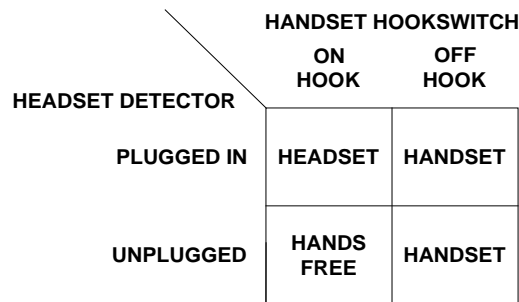


Figure 1 Operation of Handset Hookswitch and Headset Detector

The MAI-625 has provisions for a line level output that can be used to drive speakers via an external amplifier. The following table summarizes the audio resource priorities

| Priority | Device | Audio Resource |
|--------------|-----------|--|
| Highest ↓ | Handset | Input: Handset Microphone Output: Handset Speaker (Line Out disabled) |
| | Headset | Input: Headset Microphone Output: Headset Speaker (Line Out disabled) |
| | | Line Out |
| Lowest | Handsfree | Input: Handsfree Mic (Panel Mount Gooseneck or Flush Mic) Output: Panel Mount Handsfree Speaker |

Table 1 Audio Resource Priorities

Note when driving external speakers the panel mount handsfree speaker is not disabled when the line output is active.

The MAI-625 has provisions for several press-to-talk (PTT) inputs. The PTT switches can be used to control the audio direction of half duplex calls. The PTT inputs are available on the RJ-25 connectors

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The MAI-625 can be software controlled so that the line level inputs and line level outputs can serve as a bridge between a DXL system and an existing audio system.

3 Wall Mounted MAI-625 Master Audio Interface

The MAI-625 can be either wall mounted using the 0.15" diameter holes and #6 screws or mounted on a DIN rail using the 4 holes for mating to a pair of DIN railclip. (A Wago 209-188 Mounting Foot (Harding HDW0193) for mounting on standard DIN rails)

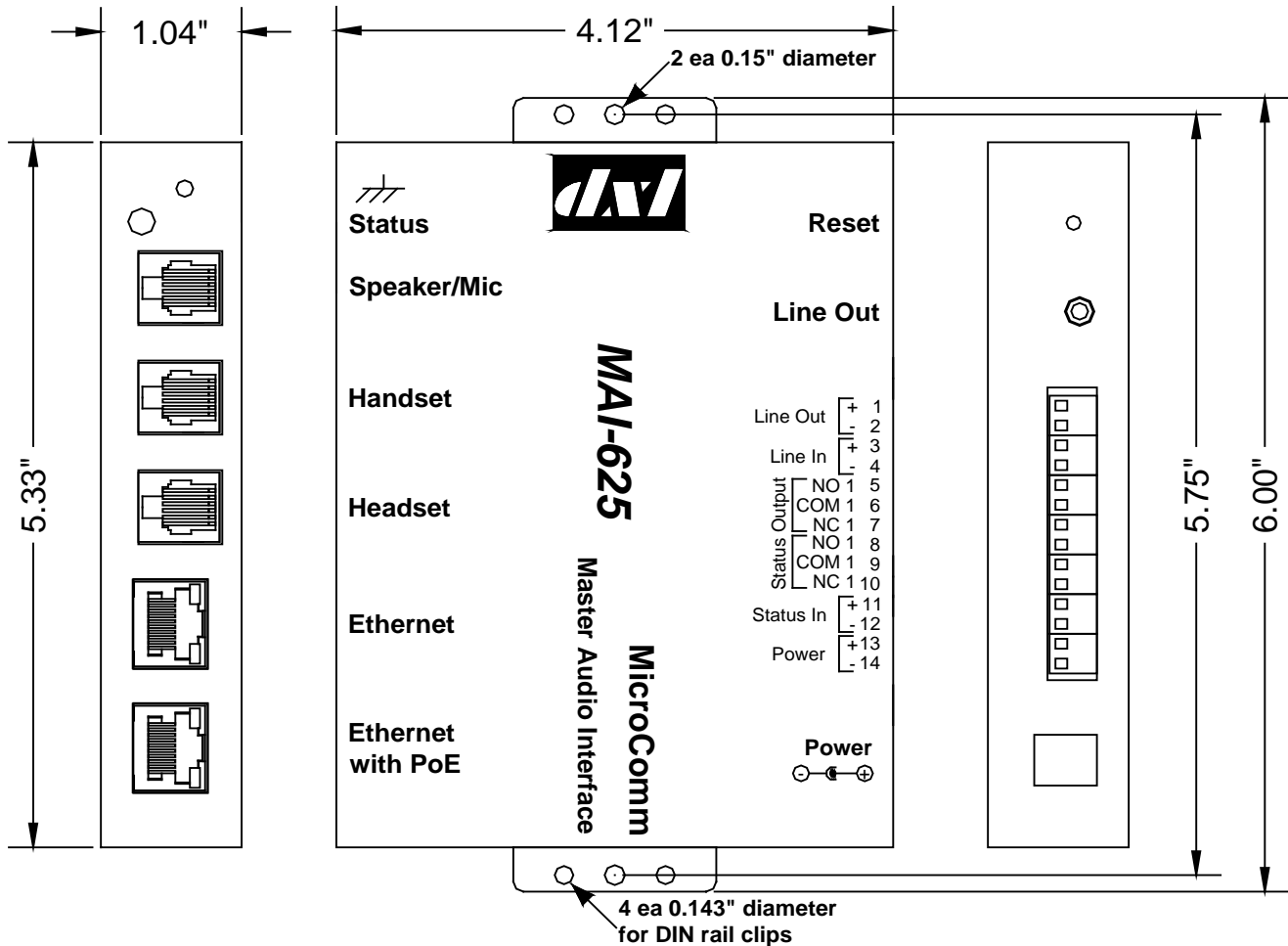


Figure 2 Mounting hole positions, for the MAI-625

4 Wiring Diagram for MAI-625

The following diagram shows the wiring required to connect up the Headset, Handset, and Handsfree Speaker/Microphone kits to an MAI-625.

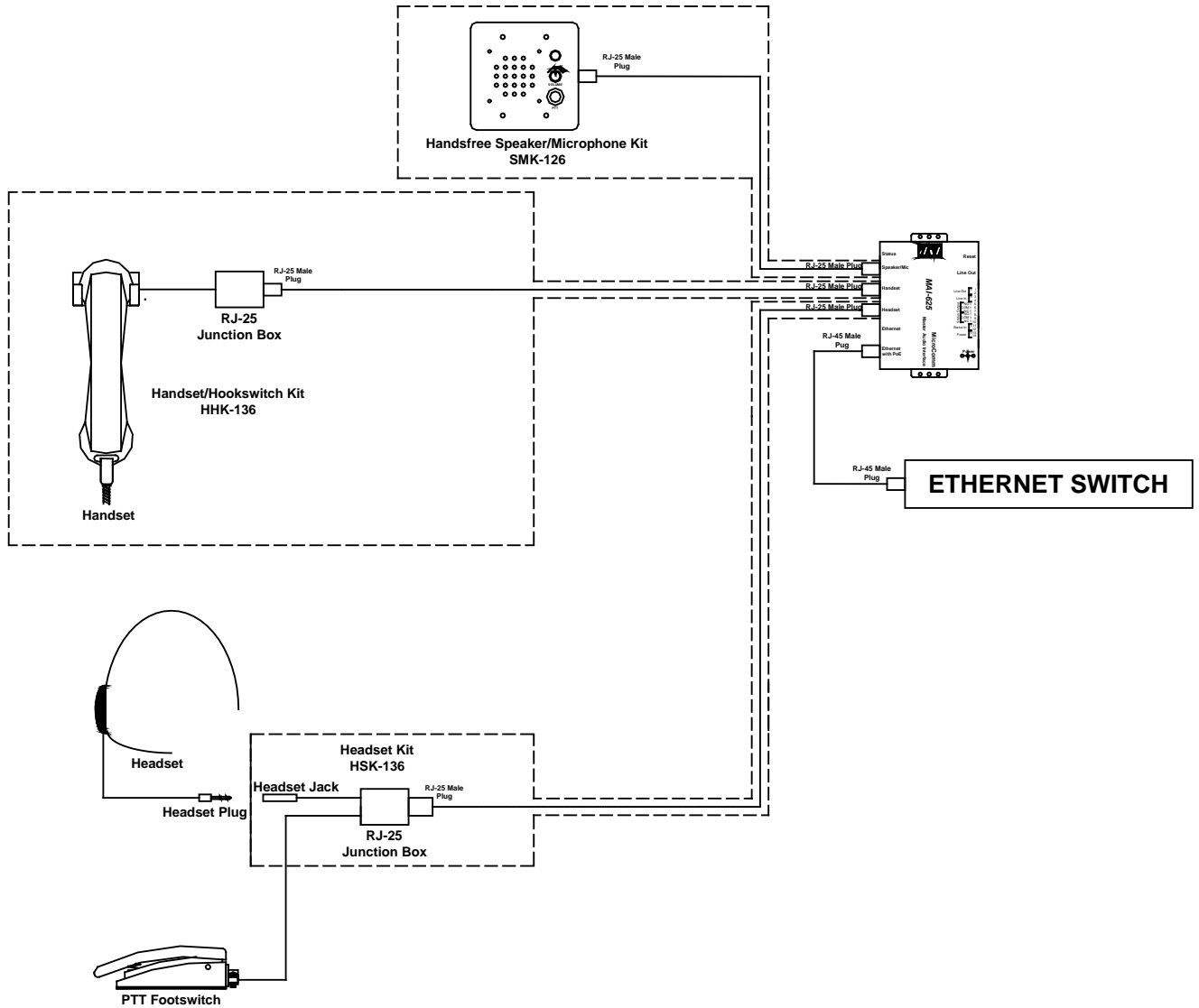


Figure 3 Wiring Diagram for MAI-625

5 Field Connection

5.1 Network Connections

Although the PSE (Power Source Equipment) must use the pin pairs assigned to an endspan or midspan (not both) the PD (Powered Device) must have the capability to accept power from either the endspan or midspan device. The Ethernet RJ-45 includes both the network and power connections.

| RJ-45 Pin | Function |
|-----------|----------------|
| 1 | Tx+ |
| 2 | Tx- |
| 3 | Rx+ |
| 4 | 48Vdc (SRC) |
| 5 | 48Vdc (SRC) |
| 6 | Rx- |
| 7 | 48Vdc (RETURN) |
| 8 | 48Vdc (RETURN) |

Table 2 RJ-45 Ethernet & PoE (Lower position)

The second RJ-45 includes only the network connections and is intended for the purpose of facilitating the connection of another device.

| RJ-45 Pin | Function |
|-----------|----------|
| 1 | Tx+ |
| 2 | Tx- |
| 3 | Rx+ |
| 4 | NC |
| 5 | NC |
| 6 | Rx- |
| 7 | NC |
| 8 | NC |

Table 3 RJ-45 Ethernet (Upper Position)

5.2 Connections for SMK-126/136, HHK-136 and HSK-136 Kits

5.2.1 Handsfree Speaker/Microphone

The handsfree speaker and gooseneck (or flush mount) microphone with PTT connect via an RJ-25. The Speaker Microphone Kit (SMK-126 or SMK-136) is available to facilitate the installation.

| RJ-25 Pin | Function |
|-----------|-----------------------|
| 1 | Mic + |
| 2 | Push to Talk (PTT +) |
| 3 | Spk + |
| 4 | Spk - |
| 5 | Vol + (Potentiometer) |
| 6 | Mic -, PTT -, Vol - |

Table 4 RJ-25 Handsfree Speaker/Microphone with PTT

5.2.2 Handset Hookswitch

The handset speaker and microphone with hookswitch and PTT connect via an RJ-25. The Handset Hookswitch Kit (HHK-136) is available to facilitate the installation.

| RJ-25 Pin | Function |
|-----------|-----------------------------|
| 1 | Mic + |
| 2 | Push to Talk (PTT +) |
| 3 | Spk + |
| 4 | Spk - |
| 5 | HKSW + |
| 6 | Mic -, PTT -, HKSW -, (Gnd) |

Table 5 RJ-25 Handset with PTT

5.2.3 Headset

The headset speaker and microphone with optional PTT footswitch connect via an RJ-25. The Headset Kit (HSK-136) is available to facilitate the installation.

| RJ-25 Pin | Function |
|-----------|------------------------------|
| 1 | Mic + |
| 2 | Push to Talk (PTT +) |
| 3 | Spk + |
| 4 | Spk - |
| 5 | Jackswitch + |
| 6 | Mic -, (PTT -), Jackswitch - |

Table 6 RJ-25 Headset with PTT

5.3 Other Connections

5.3.1 Line Output

A right angle 3.5mm stereo jack connects the line out with the mono output connected to both the left and right speakers.

| Jack | Function |
|--------|------------|
| Tip | Line Out + |
| Ring | Line Out + |
| Sleeve | Line Out - |

Table 7 Line Output

5.3.2 Line Input/Output

The line input/output supports the potential audio bridging to an existing DXI system. The Line out is in parallel with the 3.5mm stereo jack described previously.

| TB-04 | Function |
|-------|-----------------|
| 1 | Line Out + |
| 2 | Line Out - |
| 3 | Line In + |
| 4 | Line In - (Gnd) |

Table 8 Line Input/Output

5.3.3 Status Input

An unsupervised input is supported via a two pin terminal block. The status input is required for the audio bridging function.

| TB-02 | Function |
|-------|---------------|
| 1 | Input + |
| 2 | Input - (Gnd) |

Table 9 Status Input

5.3.4 Status Output

The DPDT relay outputs are as follows.

| TB-06 | Function |
|-------|----------|
| 1 | NO |
| 2 | COM1 |
| 3 | NC |
| 4 | NO |
| 5 | COM2 |
| 6 | NC |

Table 10 Status Relay Contacts

5.3.5 Auxiliary Power

A right angle 2.1mm barrel jack configured as center-positive is available in place of PoE.

5.3.6 Status Indicator

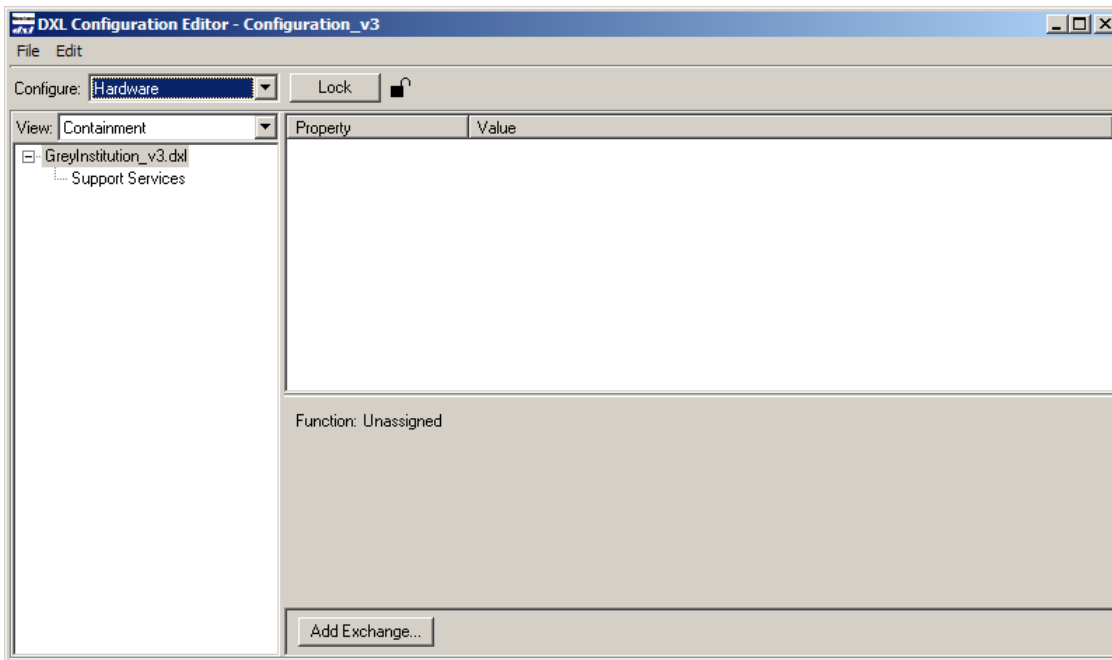
A right angle green LED for general status indication.

5.3.7 Earth Ground

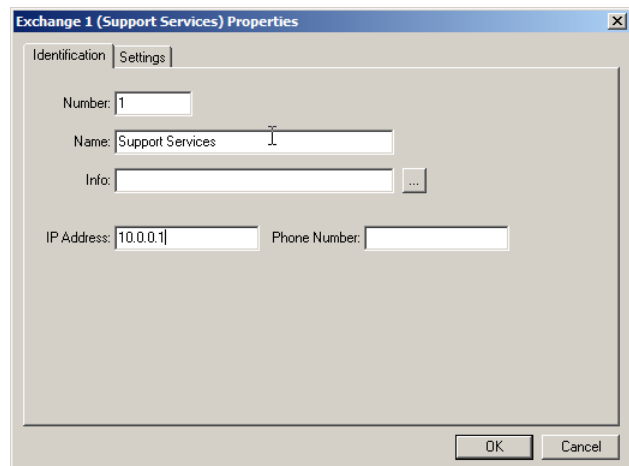
A hole is available for the purpose of earth grounding the enclosure using a #6 self-tapping screw to attach a ground wire.

6 Configuring a MAI-625 with the Administrator Software

The Administrator Software is used to create a configuration where a particular VoIP port must be assigned to each VoIP MAI-625 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 Exchanges...** to the configuration

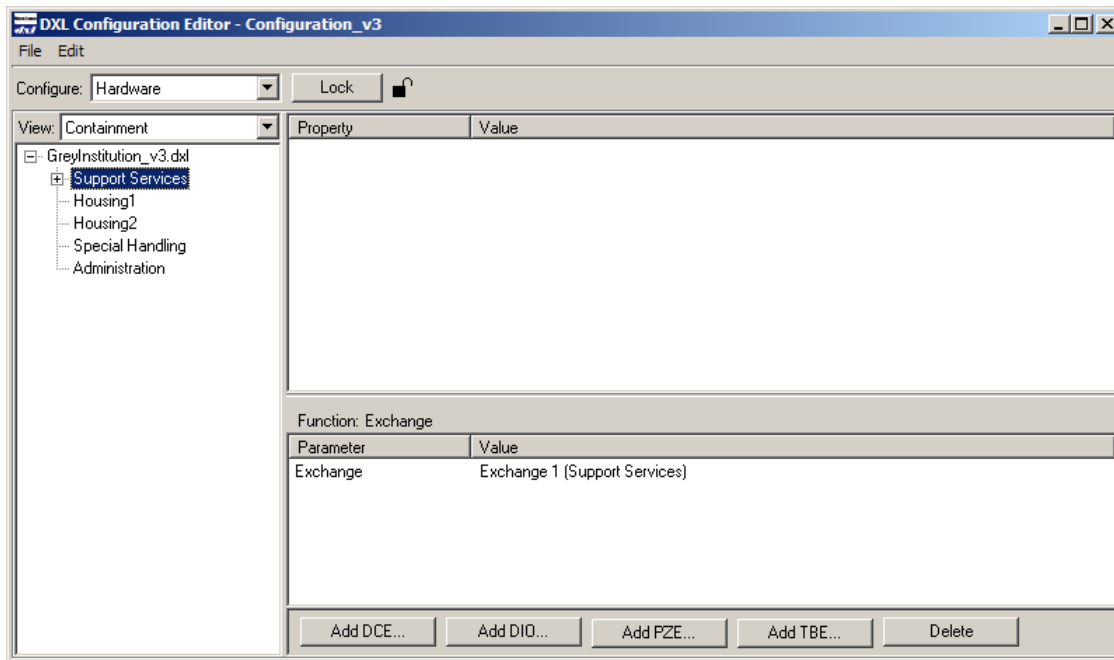


Click on the **Add Exchanges...** button and the **Exchange Properties** text box with two tabs will pop up. In the **Identification tab** you need to type in a **Number:** for the exchange, the **Name:** of the exchange and assign a unique **IP Address:** to the exchange.

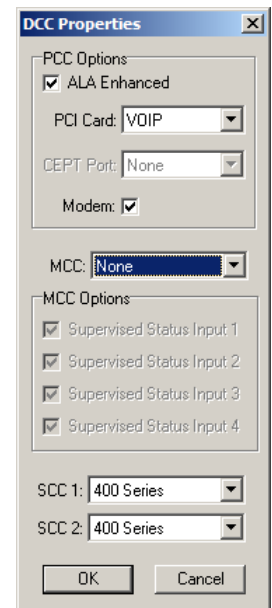


Once all the exchanges have been created each exchange requires a DCC. After the DCC has been configured, DCEs, TBEs and PZEs can be added to the exchange as required.

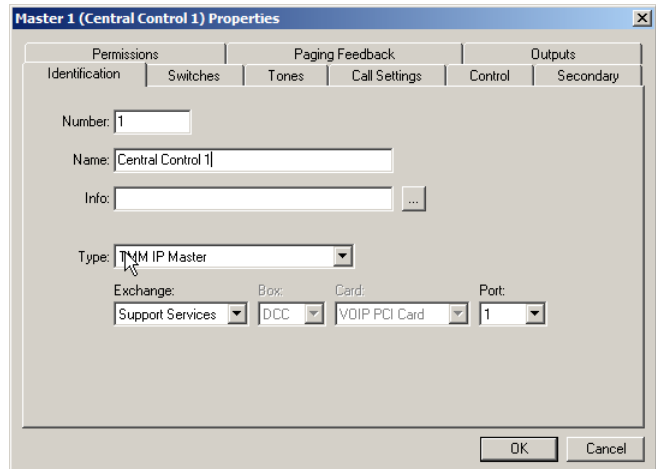
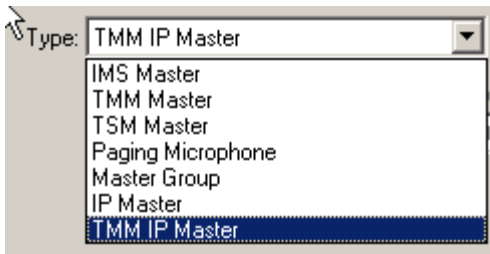
Using the pull-down menu and setting the **Configure:** entry to **Hardware** in the **DXL Configuration Editor** and selecting one of the Exchanges you can now add a DCC to the exchange.



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**.



To add an MAI-625 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 **TMM 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.

7 Setting the IP Address for the MAI-625

Every device connected to the inter-network Ethernet network in a DXL system must have a unique IP address.

Since the MAI-625 does not have any switches or keypad on it to set its address, it has to initially be given a temporary address from your network by using a DHCP (Dynamic Host Configuration Protocol) server. In order to configure the masters you will need a computer or device (such as a router) that can assign DHCP addresses. **This is used for initial configuration only.** After the masters have been configured, they will use Static IP addresses, and DHCP will no longer be required.

After you have set up a computer or device which acts as a DHCP server, connect up the bottom Ethernet port of the TMM-640 to the network switch that the DHCP server is connected to. The network switch should assign an IP address to the TMM-640. Once the TMM-640 indicator LED on the front is blinking green (indicating it is on), press the PTT switch on the TMM-640. Using a voice synthesizer, the TMM-640 should speak the IP address that was assigned to it by the DHCP server. Write this address down for use in the next step.

If the MAI-625 speaks a 12 digit Ethernet MAC address this means that the MAI has not received a DHCP address, indicating that there is probably no DHCP server on the network

The small opening in the front above the C in MicroComm can be used to activate a switch that will reset the MAI to the original factory set default values with the address set by the DHCP. The switch must be pressed at the same time the Ethernet cable is plugged into the MAI.

8 Using a web browser to configure the MAI-625

Once the IP address of the MAI-625 has been determined and connected to an Ethernet network, a PC on the same network can access the MAI-625 and use a web browser to set the remaining parameters necessary to make the MAI-625 work in a DXL system.

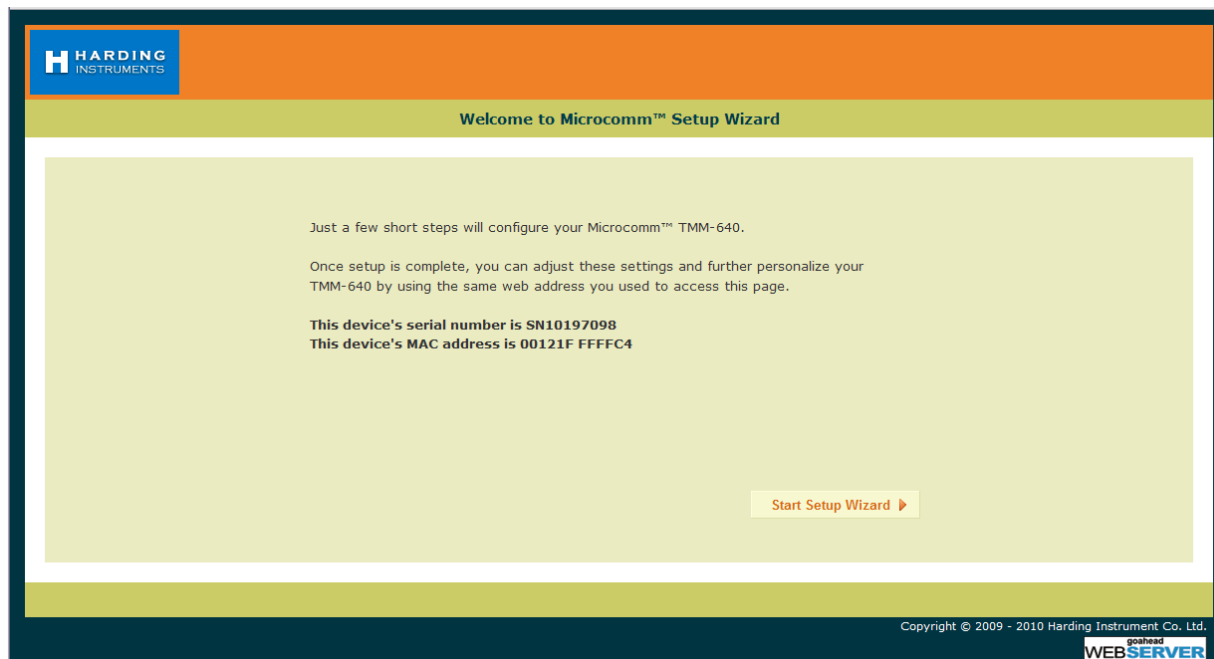
The first step is to hook up the bottom Ethernet port on the master to a network switch. Once the master has reset and the LED on the front is flashing green, you can bring up a web browser from a PC on the same network (that is assigned an IP address within the same network mask as the TMM-640).

In the address bar, type "<http://<address of master>>". For example, if the master is 10.0.0.56, type "<http://10.0.0.56>". This will bring up a MicroComm DXL master setup page.

If this is not the first time that the web browser has been used to configure the MAI-625 after a factory reset, the MAI-625 will skip the MicroComm Setup Wizard screens and go directly to the web browser menus. The user will have to sign in as the administrator (using the password assigned during initial configuration) to make changes to these settings. If this is the first setup after a factory reset then the user will have to enter some information before being allowed to go directly to the web browser menus. The following section describes the MicroComm Setup Wizard screens and how to configure them. The section after that describes the settings to make in the web browser menus.

8.1 Using the MicroComm Setup Wizard

If this is the first time that the MAI-625 has been configured with a web browser, the following screen will come up. If this screen is not shown, then the MAI-625 was likely previously configured, in which case you can skip to the next section.



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Click the **“Start Setup Wizard”** button to continue.

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On the first page, assign a **Workgroup Key**. This key can be any value you choose, but the same key should be entered on every IP master in the MicroComm system. In this example, “**microcomm**” is used for the **Workgroup Key** for this system. Once this is entered, click “**Next**” to continue.

Workgroup Key microcomm

You must enter the same workgroup key in each of the TMM-640s that will be part of your system. Your workgroup key must be:

- Between 8 and 16 characters long
- Kept secret to prevent unauthorized access to your system
- Something that is not easily guessed

Example: 34piNkdUcks

Reminder: The Workgroup Key is case sensitive.

◀ Previous Next ▶

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Next, enter the **Extension Name** and **Extension Description**. Enter a short name describing this master in the **Extension name** setting. In this case, “**TMM-640**” is used. Enter a long description for this master as **Extension Description** (or leave it blank). Click the “**Next**” button to continue.

Extension Name TMM-640

Enter the name of this extension. This should indicate the location of this TMM-640. This will show on the display when intercom calls are made.

Examples:

- Jane Smith
- Larry Jones
- Shipping
- Lobby

Extension Description Lloyd's Lab TMM * Optional

This is an **optional** field where you may enter a short comment about the extension such as its location, serial number, or any other piece of information you wish to note.

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MAI-625 Master Audio Interface

Next, enter the **Extension Number** for this TMM-640. This extension number must correspond to the IP master number configured in the DXL Administrator for this master. There can be only one IP master in the system that has this extension number. In this example, “6400” was used as the ID number of the master in the DXL Administrator, so this must be entered as the **Extension Number** of this TMM-640. Click the “**Next**” button to continue once this has been entered.

The screenshot shows a web-based configuration interface for the MAI-625 Master Audio Interface. At the top left is the Harding Instruments logo. The main header is orange with the text "Extension Number" in white. Below the header is a light green background with a white border. In the center, there is a dark blue label "Extension Number" next to a white text input field containing the value "6400". Below the input field, there is a paragraph of text: "Enter the extension number of this device. This number should be unique; no other extension in your system should have the same number." At the bottom of the form area, there are two buttons: "Previous" with a left-pointing arrow and "Next" with a right-pointing arrow. At the bottom right of the entire interface, there is a small copyright notice: "Copyright © 2009 - 2010 Harding Instrument Co. Ltd."

Set the **DCC/Registrar IP Address** 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 “10.0.0.82”. Once this is entered, click “**Next**”.

The screenshot shows a web-based configuration interface for the MAI-625 Master Audio Interface. At the top left is the Harding Instruments logo. The main header is orange with the text "DCC/Registrar IP Address" in white. Below the header is a light green background with a white border. In the center, there is a dark blue label "DCC/Registrar IP Address" next to a white text input field containing the value "10.0.0.82". Below the input field, there is a paragraph of text: "Enter the address of the registrar of this extension. This will typically be the IP address of the DCC where this extension number was assigned." At the bottom of the form area, there are two buttons: "Previous" with a left-pointing arrow and "Next" with a right-pointing arrow. At the bottom right of the entire interface, there is a small copyright notice: "Copyright © 2009 - 2010 Harding Instrument Co. Ltd."

Now set the **GMT Offset** time zone setting to an appropriate time zone where the master will be used, then click **“Next”**.

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Timezone Setup

GMT Offset (GMT-7:00) Mountain Time - Denver

Select the Greenwich Mean Time (GMT) offset which will be used to display the time on the phone.

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Next, enter a **User Password** for the user account on the TMM, then click “**Next**”. This allows a separate account for install or maintenance technicians to examine the TMM-640 parameters, yet while not being able to modify them. Click “**Next**” after the password is entered.

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User Password

New User Password

Enter the password for the user of this phone. This password is used to access user configurable data and to access the user's voicemail. Your password may be text or numbers. If text is used it is converted to the equivalent number sequence when voice mail is accessed. The conversion is done using the letters assigned to each key on the phone keypad. For example the password "DOG" becomes 364, and the password "USER" becomes 8737

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In the following screen, re-type the same **User Password** to verify it, and then click “**Next**”.

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User Password Verification

Retype User Password

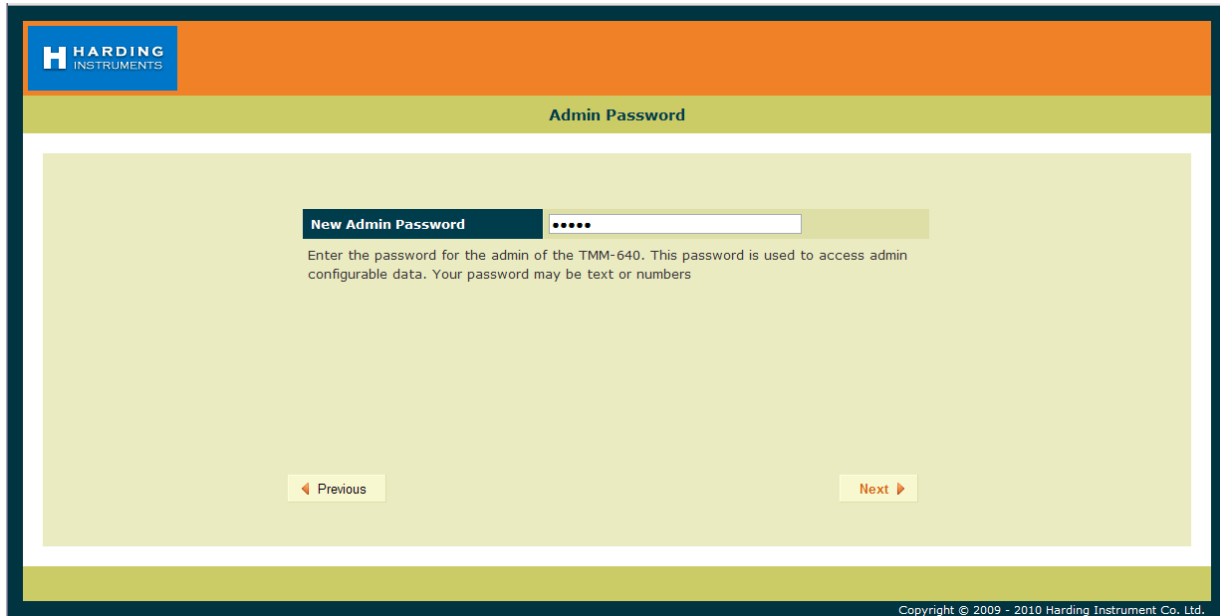
Retype the user password that you just entered.

[◀ Previous](#) [Next ▶](#)

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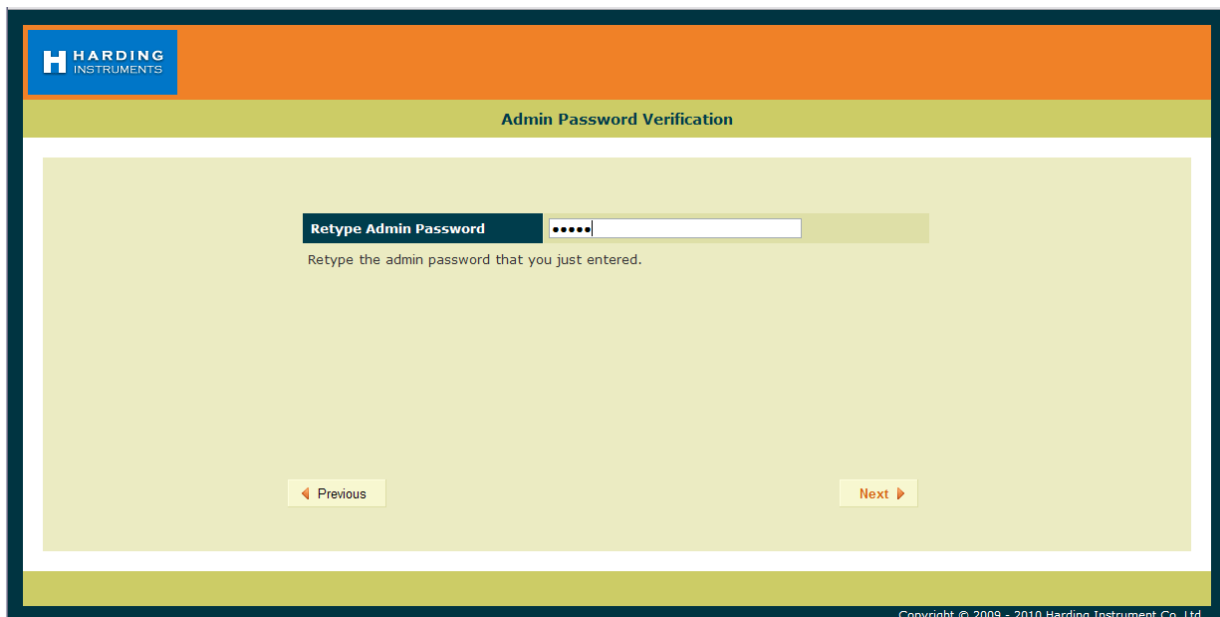
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Now enter an **Admin Password** for the administrator account on the TMM-640, then click “Next”. The Administrator account and password will be used to change as well as examine settings. In this case the password “**admin**” is used (this will be used later on in the configuration settings).



The screenshot shows a web interface for setting an admin password. At the top left is the 'HARDING INSTRUMENTS' logo. The page title is 'Admin Password'. Below the title is a form with a label 'New Admin Password' and a password input field containing five dots. Below the input field is the instruction: 'Enter the password for the admin of the TMM-640. This password is used to access admin configurable data. Your password may be text or numbers'. At the bottom of the form are two buttons: 'Previous' with a left arrow and 'Next' with a right arrow. A copyright notice 'Copyright © 2009 - 2010 Harding Instrument Co. Ltd.' is visible at the bottom right of the page.

In the following screen, re-type the same **Admin Password** to verify it, and then click “Next”.



The screenshot shows a web interface for verifying the admin password. At the top left is the 'HARDING INSTRUMENTS' logo. The page title is 'Admin Password Verification'. Below the title is a form with a label 'Retype Admin Password' and a password input field containing five dots. Below the input field is the instruction: 'Retype the admin password that you just entered.' At the bottom of the form are two buttons: 'Previous' with a left arrow and 'Next' with a right arrow. A copyright notice 'Copyright © 2009 - 2010 Harding Instrument Co. Ltd.' is visible at the bottom right of the page.

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The next screen shows a summary of the initial settings entered in the MicroComm Setup Wizard. Click “Next” to continue.

The screenshot shows the 'Initial Settings Summary' screen. At the top left is the 'HARDING INSTRUMENTS' logo. The title 'Initial Settings Summary' is centered at the top. Below it is a table with the following data:

| Initial Settings Summary | |
|--------------------------|-----------------------------------|
| Workgroup Key | microcomm |
| Extension Name | TMM-640 |
| Extension Description | Lloyd's Lab TMM |
| Extension Number | 6400 |
| DCC/Registrar IP Address | 10.0.0.82 |
| Timezone | (GMT-7:00) Mountain Time - Denver |
| Admin Password | ***** |

Below the table is a checkbox with the text: Please confirm that you have printed or recorded this information for your records.

At the bottom are three buttons: 'Previous' (with a left arrow), 'Print' (with a printer icon), and 'Next' (with a right arrow).

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The last screen in the MicroComm Setup Wizard asks you to confirm the settings you entered. Click the “Update” button to complete the wizard.

The screenshot shows the 'Setup Completed' screen. At the top left is the 'HARDING INSTRUMENTS' logo. The title 'Setup Completed' is centered at the top. Below it is a text area with the following instructions:

If the settings on the previous page are correct then press UPDATE. If they are incorrect click "Previous" button below to get to the appropriate page to correct the entries.

Once you click the "Update" button below, the settings will be configured on your TMM-640 and you may make other changes to the TMM-640's configuration or begin using the TMM-640.

At the bottom are three buttons: 'Previous' (with a left arrow), 'Print' (with a printer icon), and 'Update' (with a green checkmark icon).

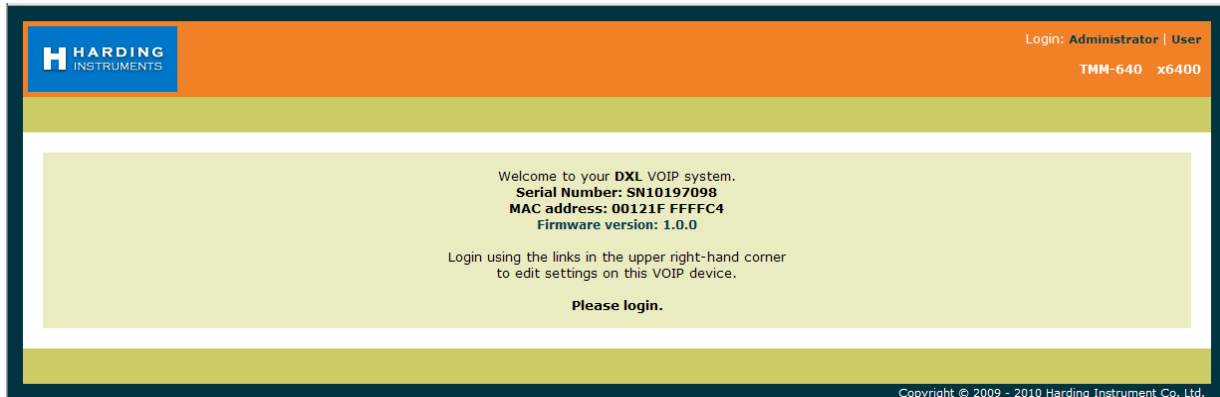
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After this, the main configuration screens will be shown as in the next section.

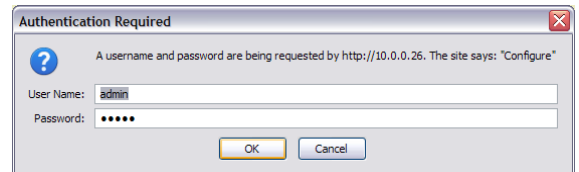
8.2 Setting the TMM-640 Operating Parameters

If the TMM-640 has been configured with the MicroComm Setup Wizard previously, it will skip the previous screens and go directly to the following screen when the web browser accesses the TMM-640's web page. To make changes, the user will have to sign as the administrator using the password previously assigned during the initial configuration.

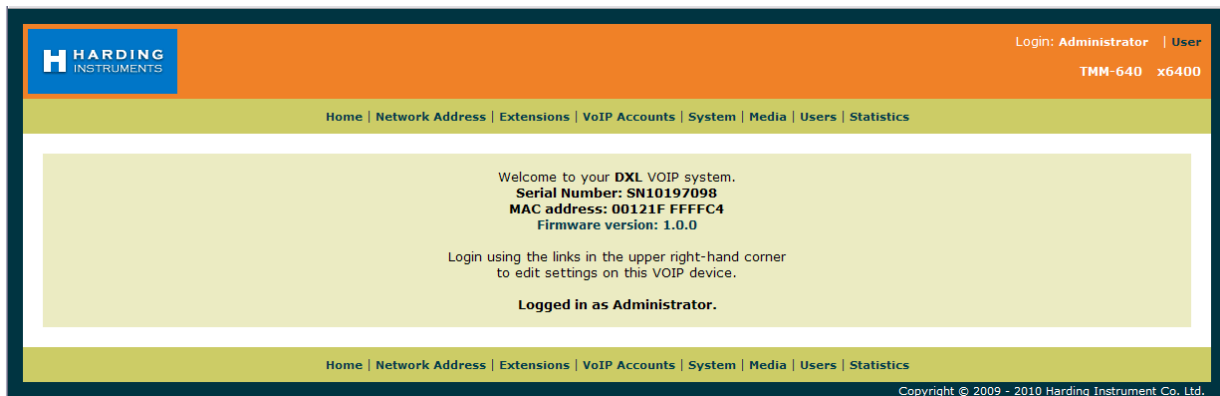
The initial web page for configuring the TMM-640 is as follows.



Click on the “Administrator” text at the top right corner of this page. This will bring up a login prompt text box. Use the user name “admin” and enter the password assigned to this master (“admin” was assigned in the above example), then click OK.



Once you are logged in you will see more menu options.



Click on the **Network Address** menu tab on the menu bar to bring up the **Network Settings** menu.

In the **Network Settings** menu, set the following parameters:

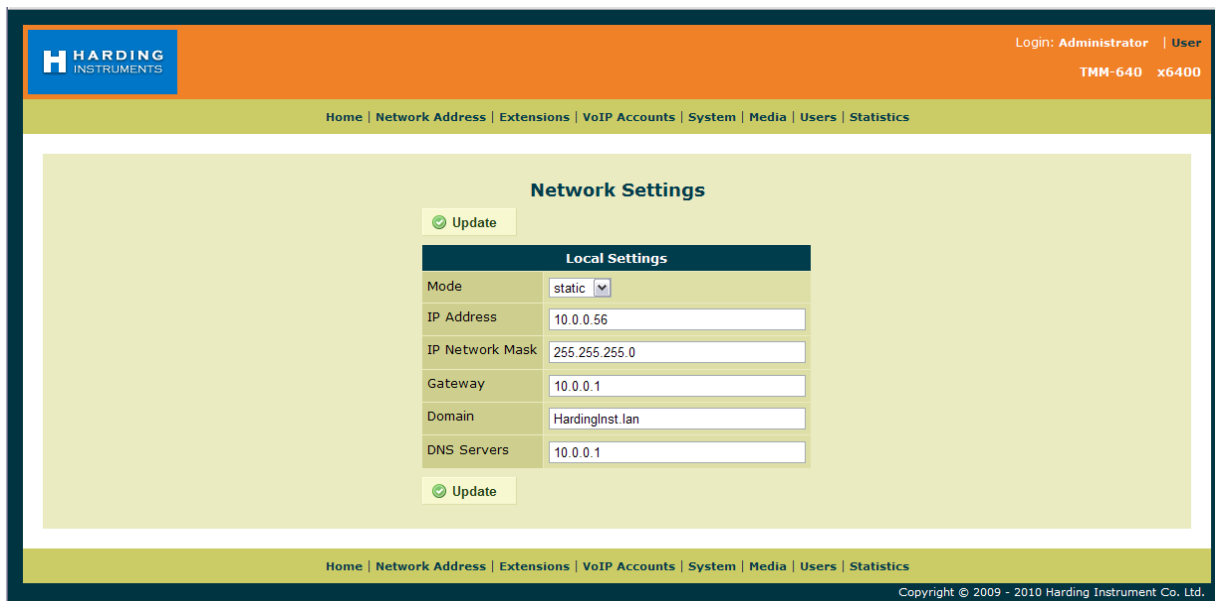
Set **Mode** to “Static” (to assign the master a static IP address). Static is recommended for all IP master stations.

Set **IP Address** to the IP address for this master. It should be assigned by your network administrator, and must not conflict with other IP addresses on this system. In this case this master was assigned address “10.0.0.56”

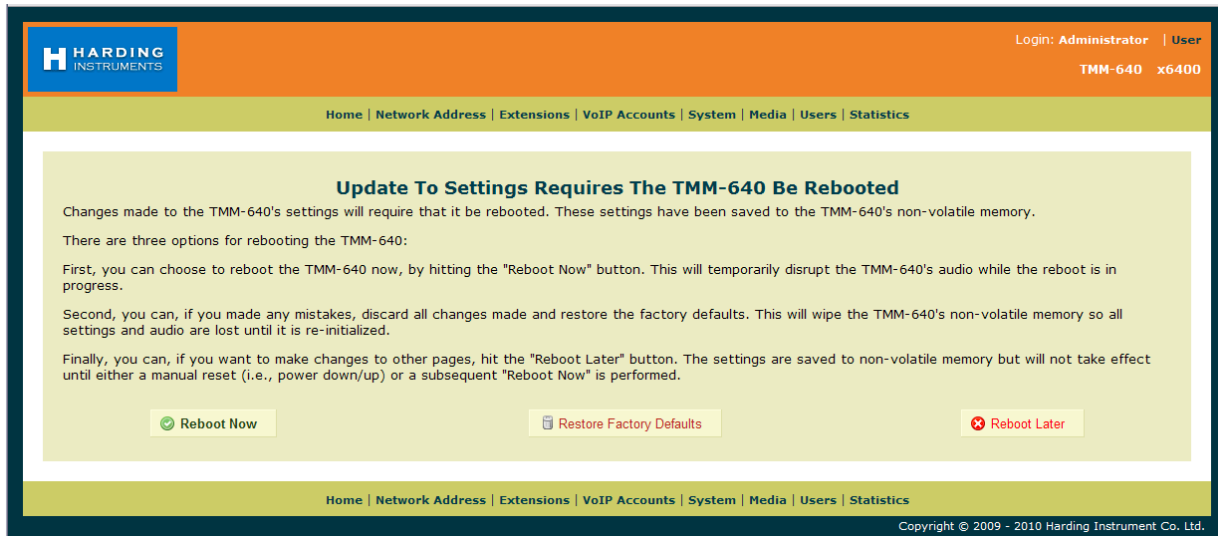
Set **IP Network Mask** to the Network mask for the network. This is also assigned by your network administrator, and should be the same network mask used for all DXL equipment including IP masters, IP stations, and IP page speakers, as well as the DXL DCC's. This example network is assigned "255.255.255.0" for the network mask.

The **Gateway**, **Domain**, and **DNS Servers** settings are typically used if your DXL system extends across one network. They are typically left blank, but you can assign the **Gateway** setting to your gateway server IP address for this network, the **Domain** setting to the domain name of your network, and the **DNS Servers** setting to the DNS server IP address for this network.

Once you have entered all of the settings you require, click the "Update" button.

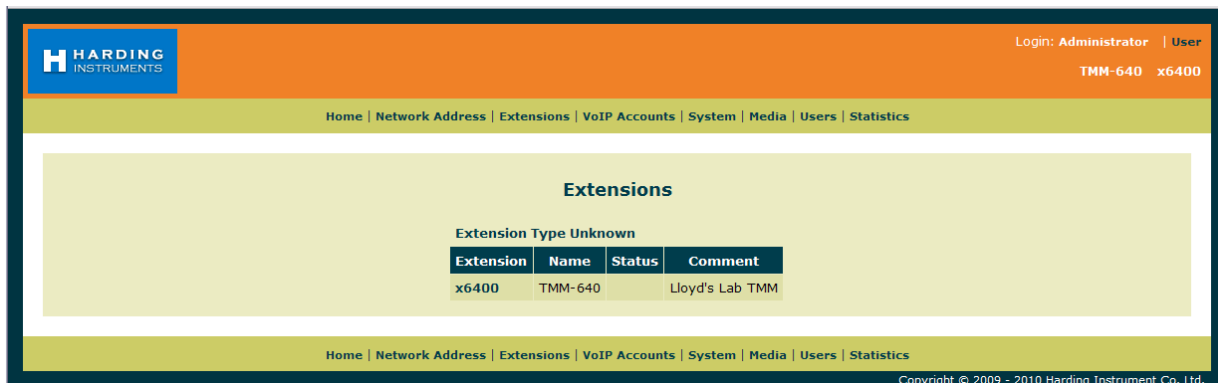


Note that changing the Network Settings will require a reboot for the settings to take effect. You can either use the "Reboot Now" option and re-establish the connection at the new IP address by typing "<http://<address of master>>", in your web browser, or use the "Reboot Later" option and continue to change the settings and reboot after you have changed all of the settings.



Once you have rebooted and logged in, or have continued from the previous screen, select the “Extensions” menu bar option.

Click on the number under **Extension** (which is the extension number entered in the MicroComm Setup Wizard) to bring up the **Settings** screen. In this example, the extension number to click is “x6400”.



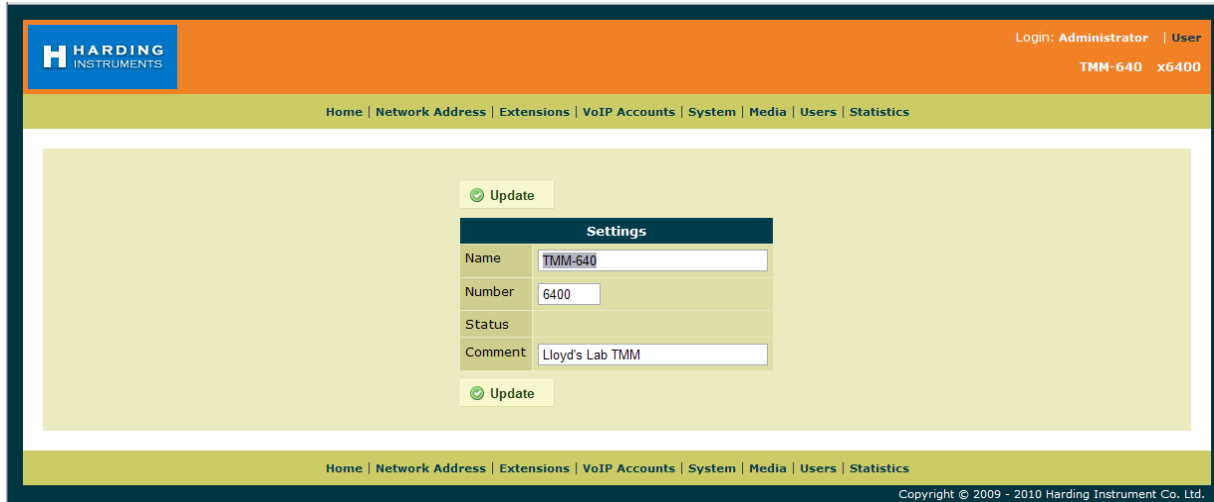
The settings for **Extensions** were previously entered in the MicroComm Setup Wizard, but a brief description of the settings is below if you need to change them after the initial setup.

Name is a short descriptive name of this master station; in this case “TMM-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 “6400”.

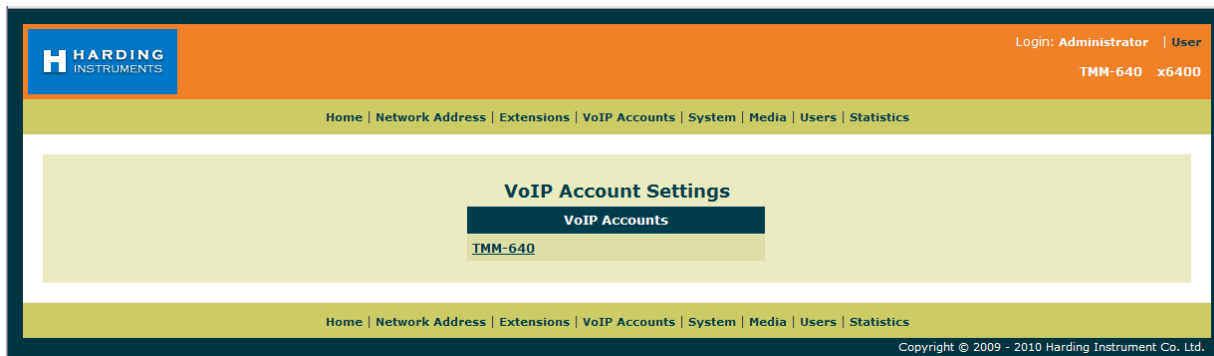
Comment is an optional long description of this master station, and can be left blank if desired.

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



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

On the **VoIP Account Settings** screen, click the name of the master under **VoIP Accounts** (in this example, the name given during setup was “TMM-640” so in this case you would click the text “TMM-640”). This brings up the **VoIP Account Settings** screen for this master.



These **VoIP Account Settings** were previously entered in the MicroComm Setup Wizard, but a brief description of the settings is below if you need to change them after the initial setup.

Account Name is a short description for this SIP account; usually this should be the same as the **Extension Name**.

Account Username must be the master number (same as the Master **Number** in the DXL Administrator).

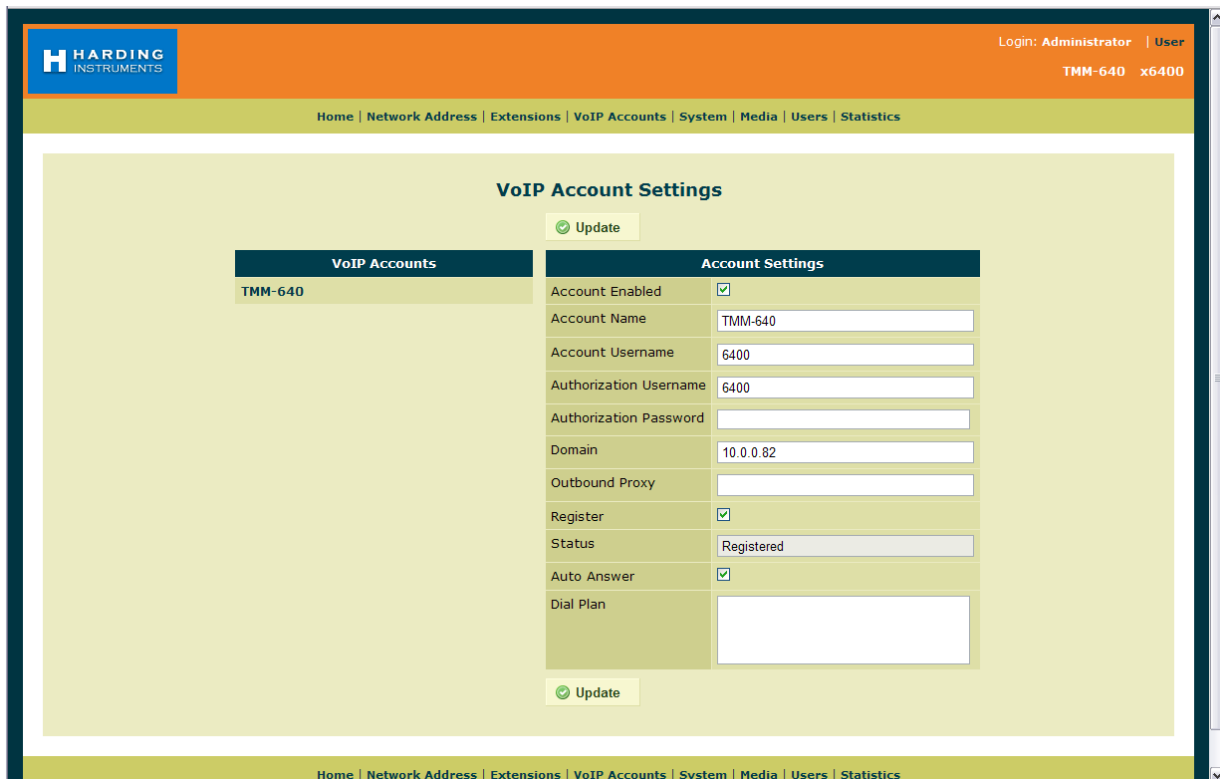
Domain must be set to the IP address of the DCC that controls the exchange that the master associated with in the DXL Administrator.

Authorization Username, Authorization Password, and Outbound Proxy settings are only used when the TMM-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 **Register** and **Auto Answer** check boxes.

The remainder of the settings should be left at the default settings.

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



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

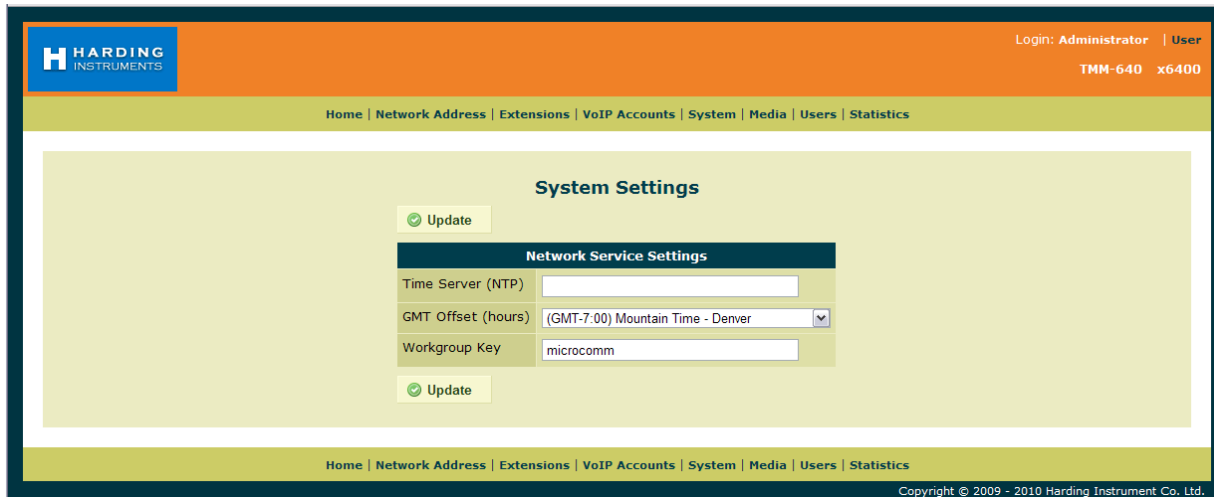
Most of these **System Settings** were previously entered in the MicroComm Setup Wizard, but a brief description of the settings is below if you need to change them after the initial setup.

Time Server (NTP) is the IP address or Domain Name of a Network Time Protocol (NTP) server. This can be used by the TMM-640 master to set its clock time to same time as the NTP server. This should be left blank for most cases.

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

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**.

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



Next, click on the **Media** tab on the top menu bar to access the **Media Settings** menu. Normally you can start with the default settings, but if you need to change the master's volume settings or VOX control you can make changes to these settings to adjust audio quality. A brief description of these settings is as below.

Gain settings are 0 dB for mid-range, negative values to make it quieter than normal, and positive values to make it louder than normal.

Microphone Gain – Fixed setting has a fixed microphone gain, **AGC** setting (Automatic Gain Control) will automatically adjust microphone volume to be relatively consistent even with operators who talk louder or quieter than average.

Fixed Microphone Gain is the base gain adjustment for all microphones when **Microphone Gain** is set to **Fixed**.

AGC Microphone Gain is the target gain level for all microphones when **Microphone Gain** is set to **AGC**. This can increase or decrease the voice volume for loud or quiet talkers.

Gooseneck Microphone Gain, **Handset Microphone Gain**, and **Headset Microphone Gain** settings are the gain settings for the built-in microphone, handset microphone, and headset microphone respectively.

Bass Volume and **Treble Volume** adjust the frequency response of the master speaker output for low and high frequencies. These values are only acted on when the **Speaker Boost** setting is checked.

Gooseneck Speaker Gain, **Handset Speaker Gain**, and **Headset Speaker Gain** settings are the gain settings for the built-in speaker, handset speaker, and headset speaker respectively.

HARDING INSTRUMENTS Login: Administrator | User TMM-640 x6400

Home | Network Address | Extensions | VoIP Accounts | System | Media | Users | Statistics

Media Settings

| Peripheral Detection | |
|-----------------------------------|---------------|
| Headset Detected? | NOT CONNECTED |
| Handset Status? | NOT CONNECTED |
| Lineout Detected? | NOT CONNECTED |
| Push-To-Talk Pressed? | RELEASED |
| Microphone Power (RMS %fullscale) | 9.3% |
| Microphone Noise (RMS %fullscale) | 9.5% |
| Speaker Power (RMS %fullscale) | 0.0% |

| Microphone Settings | |
|---------------------------|--|
| Microphone Gain | <input type="radio"/> Fixed <input checked="" type="radio"/> AGC |
| Fixed Microphone Gain | 0 dB |
| AGC Microphone Gain | -5.5 dB |
| Gooseneck Microphone Gain | 0 dB |
| Handset Microphone Gain | 0 dB |
| Headset Microphone Gain | 0 dB |

| Speaker Settings | |
|------------------------|--------------------------|
| Speaker Volume | -20.75 dB |
| Speaker Boost | <input type="checkbox"/> |
| Bass Volume | 0 dB |
| Treble Volume | 0 dB |
| Gooseneck Speaker Gain | 0 dB |
| Handset Speaker Gain | 0 dB |
| Headset Speaker Gain | 0 dB |

| VOX Settings | |
|--------------------------------|--------------------------|
| VOX Enabled | <input type="checkbox"/> |
| Threshold (dB) | 3 dB |
| Threshold (RMS %fullscale) | Disabled |
| Attack Time (milliseconds) | 100 |
| Hold Time (milliseconds) | 200 |
| Noise Window (milliseconds) | 1000 |
| Noise Floor (RMS %fullscale) | 0 |
| Noise Ceiling (RMS %fullscale) | 100 |

| Audio Network Settings | |
|-----------------------------|------------|
| Preferred Codec Order (LAN) | |
| Preferred Codec (LAN) | G.711u-Law |
| Preferred Codec Order (WAN) | |
| Preferred Codec (WAN) | G.711u-Law |
| UDP RTP Starting Port | 16384 |
| UDP RTP Number of Ports | 10 |
| UDP RTP DSCP | Default |

VOX Enabled allows the master to use automatic voice switching (Voice Operated Switching) for hands-free operation without requiring the use of the Push To Talk button. However for control room operation usually it is best to use PTT operation (VOX not enabled) for security and operational purposes since a PTT switch allows staff to only talk out when they are ready to talk rather than picking up possibly confidential background conversations or radio chatter.

MAI-625 Master Audio Interface

Threshold (dB) is a VOX related setting that indicates how loud above the average room noise that voice has to be to trigger the microphone to be active.

The remainder of the VOX Settings affect the operational parameters of the VOX and are best left at the default values.

The Audio Network Settings affect the VoIP audio communication of the TMM-440 master station and should be left at the default values.

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

This concludes the settings for one MAI-625 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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.