

Configuring Direct Mode vs SIP Peer-to-Peer Mode

IP7 Audio Endpoints can be configured to communicate with each other without a TalkMaster Server or SIP Server. There are two configurations that can be used to accomplish this, **Direct Mode** or **SIP Peer-to-Peer Mode**.

With **Direct Mode**:

- Two IP7's establish and maintain a TCP connection between each other (a Server and a Client)
- Connections can be over a LAN, WAN or across the Internet
- Only Half duplex audio conversations are supported
- The Server can receive and signal an Incoming call
- Activating the **Server's** Microphone always overrides the **Clients** Microphone

With **SIP Peer-to-Peer Mode**:

- The IP7's sit on the network in an idle state and wait for a call
- Connections can be over a LAN or VPN
- Only full duplex conversations are supported
- Either device can initiate a call to the other IP7
- Either device can end the call

In **Direct Mode**, one IP7 is configured with as a **Server** and the other is configured as a **Client** that connects to the **Server** using the TCP/IP protocol. The **Server** has a fixed IP Address and the **Client** connects to it on Port 3000. The following options control how the call is carried out:

- **Server-Peer Hands Free Mode** – Selecting this option allows the **Client** IP7 to place a call to the **Server** IP7. The Server IP7 controls which IP7 is talking and listening and must end the call when it is done
- **Default to Listen** – This option allows the **Server** IP7 to continually Listen to the **Client** IP7. The Server IP7's can Talk to the Client IP7 or turn listening off and on
- If neither of these options is selected, then both the **Server** and **Client** IP7s operate in push-to-talk mode. Both the **Server** and the **Client** must press and hold the PTT/Talk switch to send audio to the other IP7
- The **Server's** microphone always overrides the **Clients** microphone

In **SIP Peer-to-Peer Mode**, the IP7s are configured as peers and either end can call the other. SIP calls are made using the SIP Protocol for call setup and tear down and the RTP Protocol for audio. Calls are automatically answered, so no ringing is heard when a call is connected unless one of the the following :

- The "called" IP7 is connected to an HS-A1 Handset and configured with the **Handset** option (found on the IP Endpoints → General → Opt 2 tab)
- The "called" IP7 is configured with the **Handset** option (found on the IP Endpoints → General → Opt 2 tab). The Sensor pin J3-5 (Sensor) must be activated by connecting it to J3-6 (GND) to answer the call and must stay connected for the duration of the call

The following sections explain how to configure **Direct Mode** and **Peer-to-Peer Mode**.

Configuring Direct Mode

Download TalkMaster FOCUS Installer from the Digital Acoustics website and run the installation option for **Install TalkMaster Server/Admin Console**

- Connect the IP7s to the network and power them up
- Open the **TalkMaster Admin Console**
- Logon with the default UserID and Password of: admin
- Select tab **IP Endpoints → Configuration**
- Press the **Find All** button on the bottom right of the screen
- The two IP7s should appear in the left-hand side of the screen

Auth	Location Name	Icom ID	IP Address	Queue
<input type="radio"/>		04AA40	10.2.2.30	Unassigned
<input checked="" type="radio"/>		0454C9	10.2.2.36	West Camp

General	WiFi	eSIP	ZC
Configuration	Adapters	Opt 1	Opt 2
Type: Client Location Name: <input type="text"/> Adapter In Use: Ethernet IP Address: 10.2.2.36 Subnet Mask: 255.255.255.0 Gateway: 10.2.2.1 DNS Address: 192.168.254.237 Server-Peer Port: 3000 <input type="checkbox"/> Authorized IP Endpoint Server IP: 0.0.0.0 : 3000 NIC Version 7.3.0.19 ICOM Version 7.3.0.19, 18-1.0-8.E6 ZC Version Unknown - No Board Found WiFi Adapter Not Found Last Saved: Wed, Oct 23, 2019 @ 15:19:16 Copy Defaults			
Delete	Save	Find All	Replace

Configuring the Server IP7

Click on the IP7 to be used as the **Server** (match the ICOM ID on the screen to the ID number on the IP7) and enter the following configuration parameters:

- **Type** – Select **Server-Peer (Direct Mode)** from the drop down
- **Location Name** – Enter a description such as “Server IP7”
- Select the **Adapters** tab
- **IP Address** - Enter a **fixed** IP address for the **Server** IP7.
- **Subnet Mask** - Enter the Subnet Mask
- **Gateway** - Enter the Gateway address. If no Gateway is available, use the IP Address
- **DNS** – DNS will be ignored

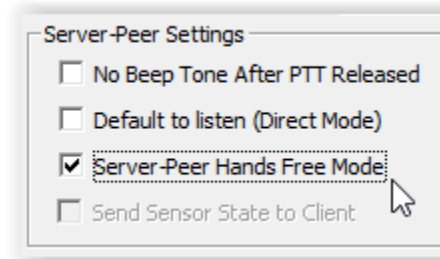
General	WiFi	eSIP	ZC
Configuration	Adapters	Opt 1	Opt 2
Type: Server-Peer (Direct Mode) Location Name: <input type="text"/> Adapter In Use: Ethernet IP Address: 10.2.2.36 Subnet Mask: 255.255.255.0 Gateway: 10.2.2.1 DNS Address: 192.168.254.237 Server-Peer Port: 3000			

- **Server-Peer Listening Port** - The default port is 3000

The following options can be used to change the operation of the **Server** IP7 (typically an IP7 EDx/ESx series)

Server-Peer Hands Free Mode

- Select the **Opt 2** tab
- Pressing the **Client** IP7's PTT/Talk switch initiates a call. Both the **Client** and **Server** begin ringing
- Pressing the **Server's** PTT/Talk switch answers the call and begins speaking to the **Client**
- When the **Server** IP7's PTT/Talk switch is released, the **Client** IP7's microphone is switched on and the **Client** can respond without pressing any buttons
- The **Server** IP7's PTT/Talk switch can be pressed at any time to speak to the **Client** IP7
- The **Server** IP7 must end the call by pressing the **Monitor/Open** button or activating the IP7's Sensor
- The **Server** IP7 can send a "Door Open" command to the **Client** IP7 by pressing and holding the **Monitor/Open** button or activating its Sensor switch for at least two seconds
- If no call is in session, pressing the **Server** IP7's PTT/Talk switch allows the **Server** IP7 to talk to **Client** IP7. When the PTT/Talk switch is released, the **Client** IP7's microphone will be turned on so the **Server** IP7 can listen to the **Client** IP7
- If no call is in session, pressing the **Server** IP7's **Monitor/Open** button or Sensor will turn on the **Client** IP7's microphone so the **Server** IP7 can listen to the **Client** IP7



Default to Listen (Direct Mode)

- As soon as the **Client** IP7 connects or reconnects to the **Server** IP7, the **Client** IP7's microphone is switched on so the **Server** can listen to the **Client**
- The **Server** IP7's Talk switch can be pressed at any time to speak to the **Client**
- When the **Server** IP7's Talk switch is released, the **Client** IP7's microphone is switched back on and the **Client** IP7 can talk to the **Server** IP7 without pressing any buttons
- The **Server** may turn off the **Client** IP7's microphone by pressing the **Monitor/Open** button or activating the IP7's Sensor. If the **Server** presses the **Monitor/Open** button again, the **Client** IP7's microphone is turned back on
- The **Server** can send a "Door Open" command to the **Client** by pressing and holding the **Monitor/Open** button or Sensor for at least two seconds

Neither option set

- Pressing and holding the PTT/Talk switch on the **Client** IP7 sends audio to the **Server** IP7
- Pressing and holding the PTT/Talk switch on the **Server** IP7 sends audio to the **Client** IP7. The Server always
- The **Server** IP7 can send a "Door Open" command to the **Client** IP7 by pressing and holding the **Monitor/Open** button or Sensor for at least two seconds
- The **Server** IP7 can send a "Door Open" command to the **Client** IP7 by pressing and holding the **Monitor/Open** button or Sensor for at least two seconds

No Beep Tone after PTT Released – When an IP7's speaker is turned off, a beep is played to inform the listener that it is their turn to speak. When this option is checked, the Beep Tones are disabled in Direct Mode. This can be used in conjunction with any other option.

Press the **SAVE** button to save the changes to the Server IP7

Configuring the Client IP7

Click on the IP7 to be used as the **Client** (match the ICOM ID on the screen to the ID number on the IP7) and enter the following configuration parameters:

- **Type** – Select **Client** from the drop down
- **Location Name** – Assign a descriptive name such as “Client IP7”
- **Server IP** - Enter the **IP address** and **Port** of the **Server** IP7
- Select the **Adapters** tab
- **Assign IP automatically with DHCP** - Check this box to automatically assign an IP address to this device. To manually assign an IP address, uncheck the **Assign IP automatically with DHCP** box and type in the **IP Address**, **Subnet Mask** and **Gateway**. The **DNS** will be ignored

Additionally, the Client's Relay can optionally be configured to open a Door

- Click the **Option 1** tab
- **Relay Mode** – Select **Door / Relay Output** from the drop down
- **Door / Relay Output** – Enter the number of seconds for the Relay to stay engaged

Press the **SAVE** button to save the changes to the **Client** IP7

The two IP7s will connect and play a confirmation tone.

Hardware Notes

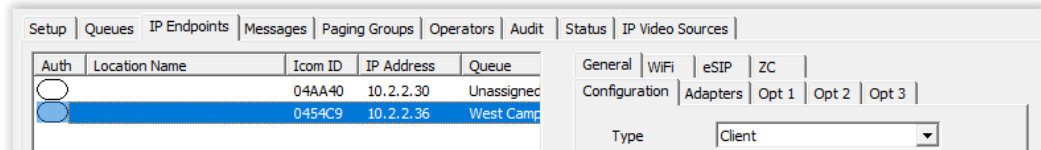
Typically, the IP7-EDx/ESx is used as the **Server** IP7, but any other IP7 model IP7 can be used. Please note the following when configuring other IP7 models as the **Server**:

- The **TALK** switch (J2-5) works the same as the **Push To Talk (PTT)** button on an IP7 Desktop
- The **SENSOR** (J3-5) works the same as the **Monitor/Open** button on an IP7 Desktop

Configuring SIP Peer-to-Peer Mode

Download TalkMaster FOCUS Installer from the Digital Acoustics website and run the installation option for **Install TalkMaster Server/Admin Console**

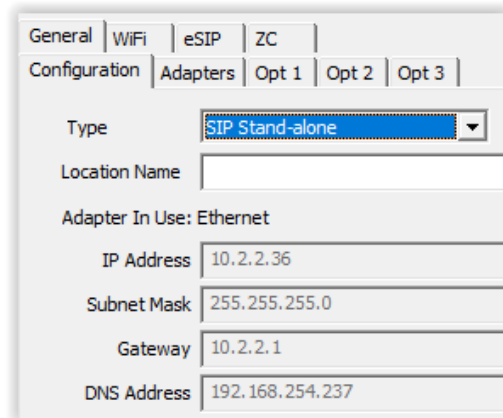
- Connect the IP7s to the network and power them up
- Open the **TalkMaster Admin Console**
- Logon with the default UserID and Password of: admin
- Select tab **IP Endpoints** → **Configuration**
- Press the **Find All** button on the bottom right of the screen
- The two IP7s should appear in the left-hand side of the screen



Configure Each IP7 as a SIP Peer

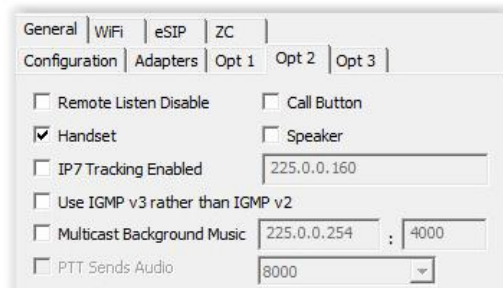
Click on the first IP7 (match the ICOM ID on the screen to the ID number on the IP7) and enter the following configuration parameters:

- **Type** – Select **SIP Stand-alone** from the drop down
- **Location Name** – Enter a description such as “Main Gate SIP Peer IP7”
- Select the **Adapters** tab
- The server must have a fixed IP Address
- **IP Address** - Enter a **fixed** IP address of the **Server** IP7.
- **Subnet Mask** - Enter the Subnet Mask
- **Gateway** - Enter the Gateway address. If no Gateway is available, use the IP Address
- **DNS** – DNS will be ignored



Optionally, configure the IP7 to ring when it is called:

- Click the Opt2 tab
- Check the **Handset** option. This will cause the IP7 to ring when it receives a call.
- To answer the call the IP7 pin j3-5 (Sensor) must be connected to pin J3-6 (GND)



Click on the second IP7 (match the ICOM ID on the screen to the ID number on the IP7) and enter the following configuration parameters:

- Click on the eSIP tab
- Click the Options 2 tab
- Click Peer-to-Peer

General | WiFi | eSIP | ZC |

Options 1 | Options 2 |

SIP Local Address Use Local Address

External IP Address 0.0.0.0

STUN Server

STUN Status: Not in use

Keep-Alive Period (30-285) 30

REGISTER retry period (1-255) 0

Default to Listen ☐ Peer-to-peer ☒

- Click on the Options 1 tab
- Select **Dial SIP Extension on PTT** from the drop down
- Set the **SIP Local Port** to 5060
- Set the **RTP Port** to 46000
- Set the SIP Extension to any 4-digit extension
- Check the **SIP Full Duplex** option
- In the **Out Dial Extension** enter the Extension and IP Address of the 2nd IP7 in the format extension@IP Address. (The IP7's **PTT** or **Talk** switch is used to dial the Out Dial Extension)
- To enable this IP7 the ability to hang up a call, specify either **PTT Ends Call** or **Sensor Active ends Call**

General | WiFi | eSIP | ZC |

Options 1 | Options 2 |

Dial SIP Extension On PTT

Primary Registrar 0

Primary Server 0

Secondary Registrar 0

Secondary Server 0

SIP Local Port 5060 RTP Port 46000

SIP Extension 6000

SIP Password

SIP Authentication

SIP Full Duplex ☒ Out Dial on Queue Overflow ☐

Out Dial Extension 6010@10.2.2.30

Door Open Code 5 Then press #

Call Timeout 10

No Call End @ Station

No Call End @ Station

PTT Ends Call

Sensor Active ends Call

Now configure the 2nd IP7

- Follow the same steps with the following differences
- The 2nd IP7 will have a different **Location Name**, **IP Address**, **SIP Extension**, and **Out Dial Extension**
- Either IP7 can initiate the call and/or end the call

Hardware Notes

On the IP7-EDx/ESx Desktop and Wall mount devices:

- The **Push To Talk (PTT)** button is the same as the IP7's **TALK** switch (J2-5) and GND (J2-4)
- The **Monitor/Open** button is the same as the IP7's **SENSOR** (J3-5) and GND (J3-6)