

**TECHNICAL NOTE T010****Using SCOTTY mm745 videophones with MultiTech MultiVoIP MVP200.**

©SCOTTY Group plc 2004 U-9901-02003

**Introduction.**

As an IP only device, there are occasions where mm745 users have no infrastructure to support regular telephone calls through an analog line, and require a more cost-efficient solution.

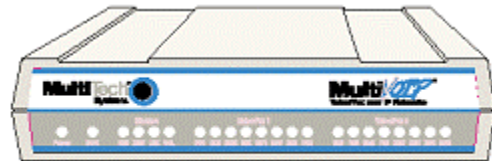


Figure 1-1. MultiVoIP 200

The MultiVoIP offers such a solution.

It supports two analog lines in any of the following configurations:

- FXS- For connection to regular analog telephones.
- FXO- For connection to an analog telephone line.
- E&M- For tie line use between PABX systems.

**Required functions.**

- Ability to make outgoing calls through analog PBX or phone line
- Ability to receive incoming calls through analog PBX or phone line
- Ability to register with a gatekeeper as a gateway device

## **System Considerations.**

The MultiVoIP does not disconnect from the line when the remote phone is hung up, unless the mm745 user also hangs up.

The autoconnect feature is required to route incoming calls directly to the mm745. This means 1 line per phone, or 2 lines for each 2 channel unit. The alternative is that the caller hears dialtone, and just knows to dial the extension.

The DTMF operation for outgoing calls is a little slow.

When making an outgoing call, the user will hear 2 rings before getting dial tone.

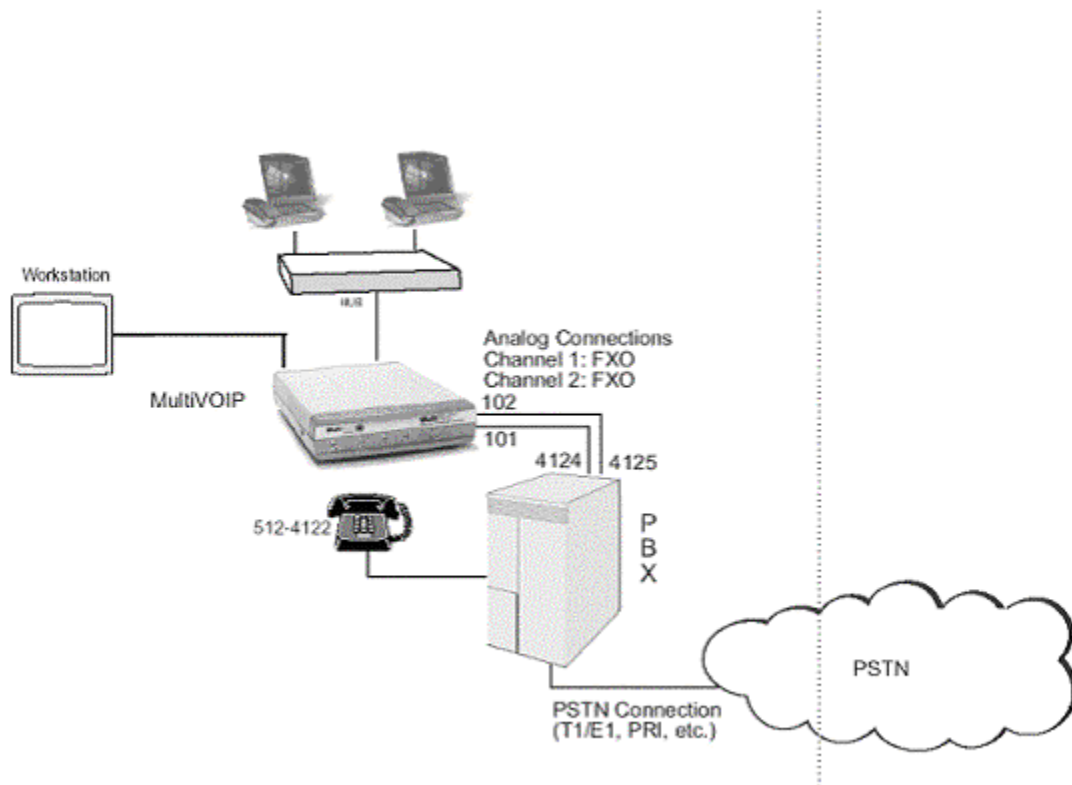
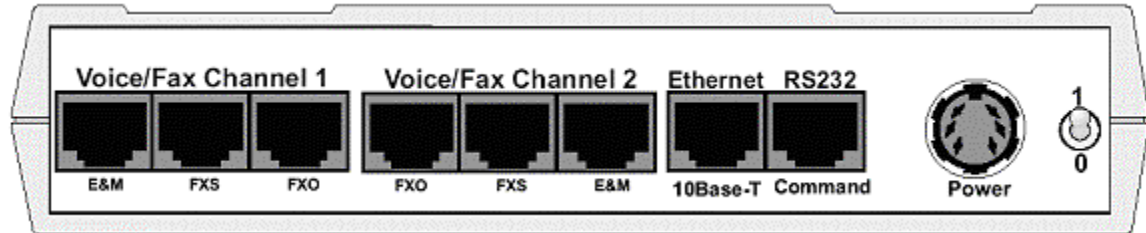
An external gatekeeper is required.

## Physical connections.

The MultiVoIP requires a connection to the LAN, power, and connection to up to two telephone lines through the supplied adaptors and a straight through telephone lead.

Configuration is achieved through an RJ-45 to DB9 console cable supplied, and the configuration software supplied on CD.

## Rear panel connectors.



## Configuration.

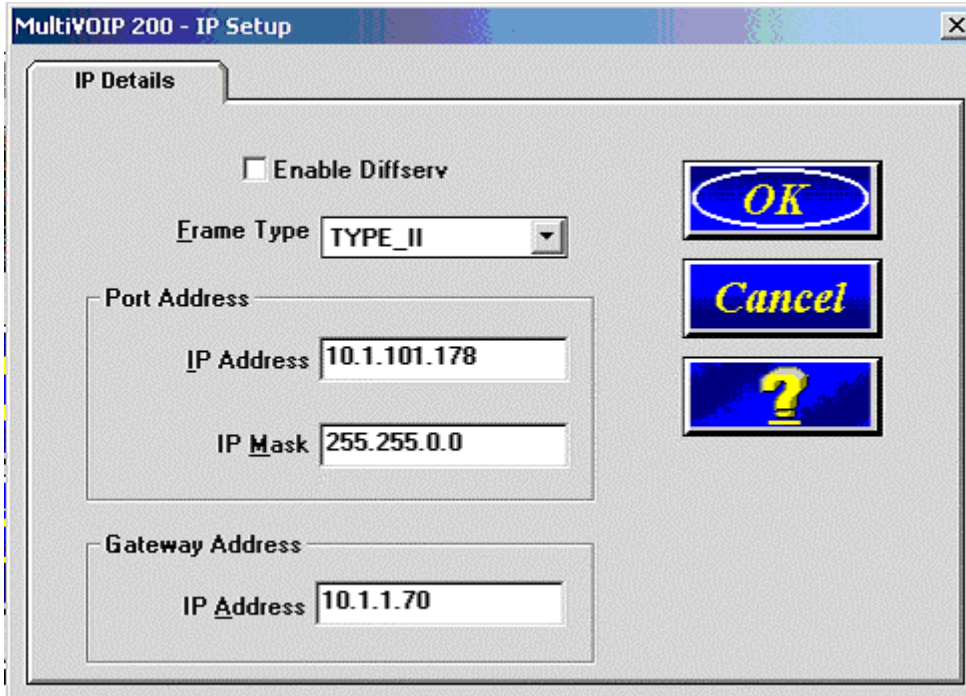
With all physical connections in place, run the CD and select 'install software'

Once installed, run the configuration by selecting Start/Programs/MultiVoIP/MultiVoIP configuration.



## IP Configuration.

Press the IP button for IP configuration.



The screenshot shows a dialog box titled "MultiVOIP 200 - IP Setup". It has a tab labeled "IP Details". Inside the dialog, there is a checkbox for "Enable Diffserv" which is unchecked. Below it is a dropdown menu for "Frame Type" set to "TYPE\_II". There are three buttons on the right: "OK", "Cancel", and a question mark button. The "Port Address" section contains two text boxes: "IP Address" with the value "10.1.101.178" and "IP Mask" with the value "255.255.0.0". The "Gateway Address" section contains one text box: "IP Address" with the value "10.1.1.70".

Type II appears to be the only available frame type, and works on a standard network.

Select IP address, subnet mask (IP Mask) and Default Gateway (Gateway address/IP address). If unsure contact your system administrator for an available address.

## Voice Channel Configuration- Interface.

The above configuration has been found to work for connection to an analog PBX.

Selecting FXO means the physical connection is enabled, and capable of connection to a phone line or PBX.

DTMF regeneration is required in order to create DTMF tones when making outgoing calls.

1 is the minimum inter-digit time. It would be desirable to reduce this further but no option is available from the menu.

Setting the ring count controls the number of rings before the unit autoanswers an incoming call from the line. Setting this number to 0 prevents incoming calls from being answered- therefore the mm745 user will not receive the call at all. We suggest 1 ring as the best setting.

The MultiVoIP answers an incoming H.323 call immediately. This is desirable, as the user will then wish to dial out using DTMF tones, so the time to availability of a line is important. In reality, the mm745 user hears 2 rings before getting dial tone (the time for the call to set up).

## Voice Channel Configuration- Voice/Fax.

MultiVOIP 200 - Channel Setup

Interface **Voice/Fax** Billing/Misc Regional

Select Channel: **Channel 2** Copy Options...

**Voice Gain**  
 Input: **4** dB Output: **7** dB

**DTMF Gain**  
 High: **-4** dB Low: **-7** dB

Duration: **100** ms  DTMF Out of Band

**Coder**  
 Manual  Automatic  
 Selected Coder: **G.711 U-law @ 64 kbps**  
 Max Bandwidth: **64** Kbps

**Fax**  
 Fax Enable  
 Max Baud Rate: **14400**  
 Fax Volume: **-9.5** dB  
 Jitter Value: **400** ms

**Advanced Features**  
 Silence Compression  
 Echo Cancellation  
 Forward Error Correction

**OK** **Cancel** **Default** **?**

The voice gain settings shown produced a reasonable result.

DTMF out of band must be enabled, and setting the duration to a minimum improves the response of the system.

The coder must be set to manual, and whilst the mm745 supports both G.711 a-law and u-law, superior results were obtained with u-law. The system does not seem to exchange audio capabilities, so if left at default no audio will result.

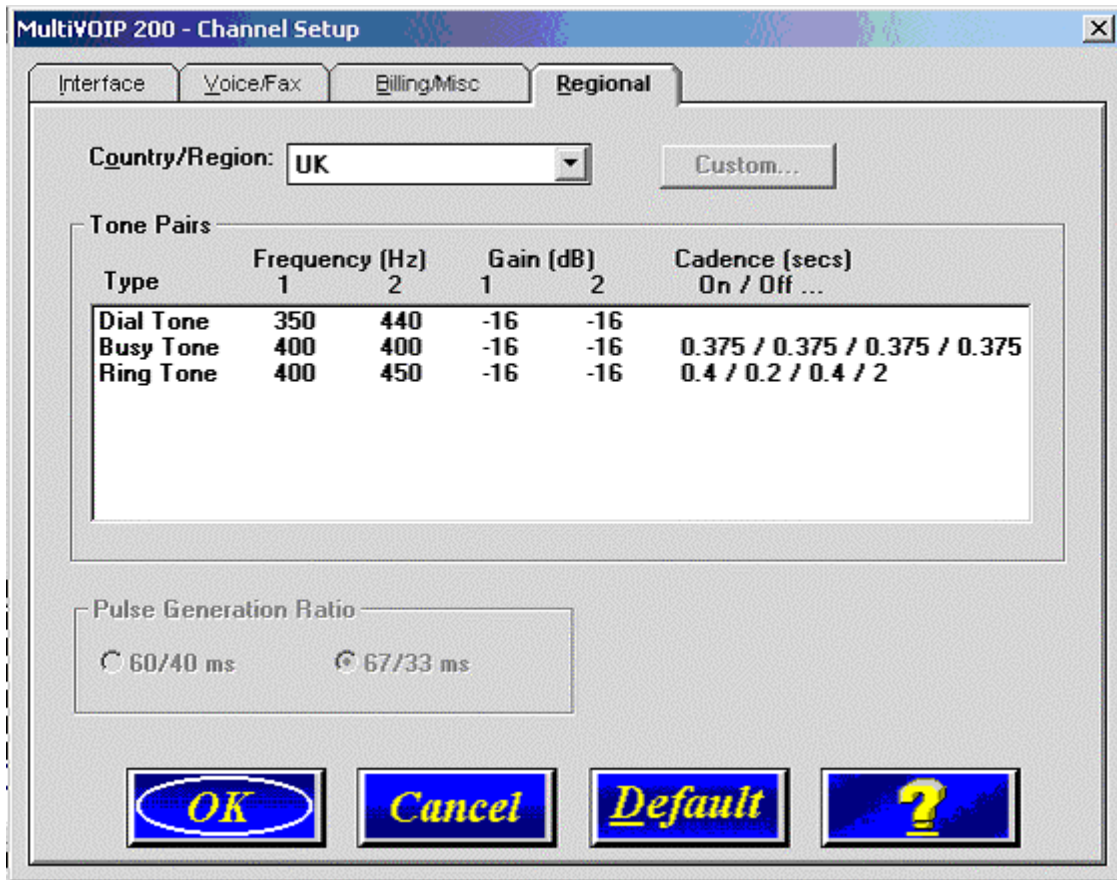
Fax should be disabled.

Silence compression causes an unwanted clicking sound in the mm745 handset if enabled. Echo cancellation should also be disabled, as should forward error correction.

## Channel Setup- Billing/Misc and regional.

Billing/Misc can be left at default settings.

For regional, select according to country preference.



The screenshot shows the 'MultiVOIP 200 - Channel Setup' dialog box with the 'Regional' tab selected. The 'Country/Region' dropdown is set to 'UK'. Below this is a table of 'Tone Pairs' and a 'Pulse Generation Ratio' section.

Type	Frequency (Hz)		Gain (dB)		Cadence (secs) On / Off ...
	1	2	1	2	
Dial Tone	350	440	-16	-16	
Busy Tone	400	400	-16	-16	0.375 / 0.375 / 0.375 / 0.375
Ring Tone	400	450	-16	-16	0.4 / 0.2 / 0.4 / 2

Pulse Generation Ratio:  
 60/40 ms     67/33 ms

Buttons: **OK**, **Cancel**, **Default**, **?**

## Phonebook.

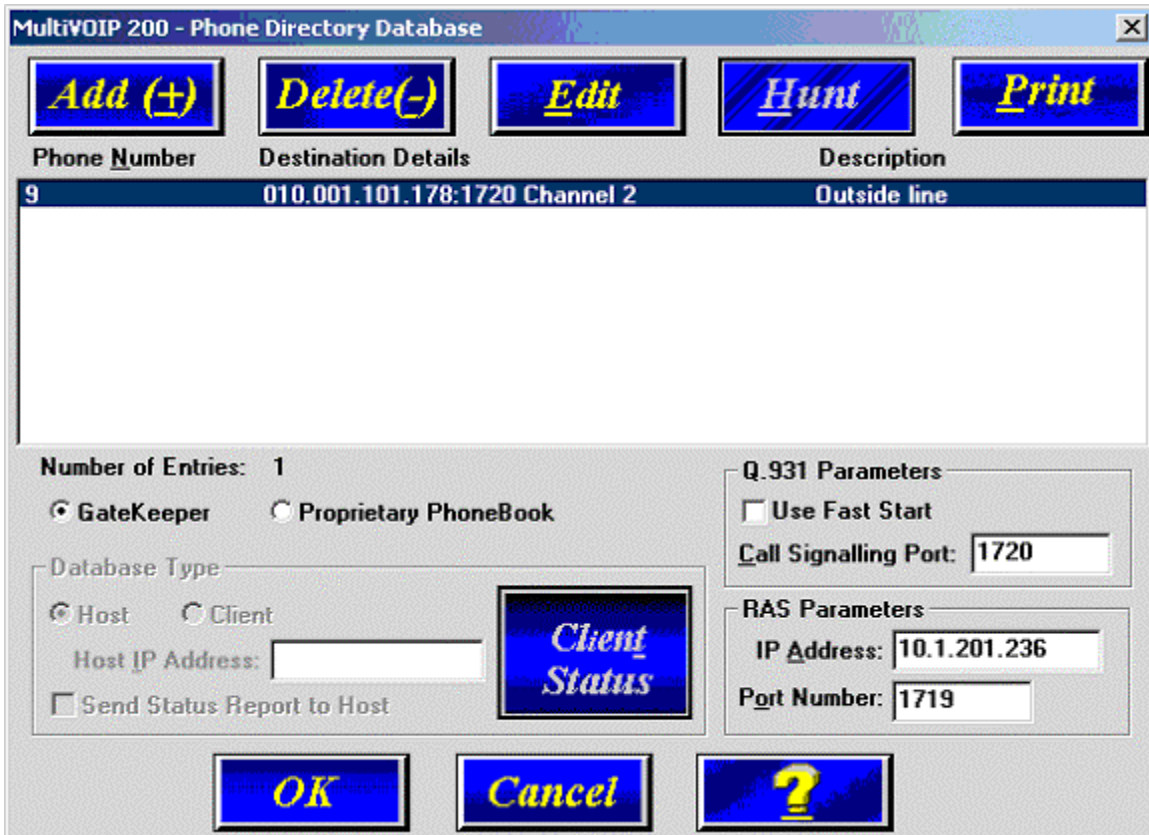
For all functions to be available the unit must be used in association with a gatekeeper. It is assumed that mm745s are registered with the gatekeeper according to the instruction manual for the mm745. As a quick guide, select settings/ advanced configuration/h.323 setup.

On the mm745, enter the IP address of the gatekeeper, an alias, and an e.164 telephone number. Ensure the manual button is selected, then press close.

On the MultiVoIP, check the gatekeeper box. The gatekeeper address is entered in the 'RAS parameters' screen. The port number should be 1719 for manual registration as shown below.

Uncheck the fast start box as it is not supported on the mm745.

The call signaling port should be set to the 1720 default as shown.



Phone Number	Destination Details	Description
9	010.001.101.178:1720 Channel 2	Outside line

Number of Entries: 1

GateKeeper     Proprietary PhoneBook

Database Type

Host     Client

Host IP Address:

Send Status Report to Host

**Client Status**

Q.931 Parameters

Use Fast Start

Call Signalling Port:

RAS Parameters

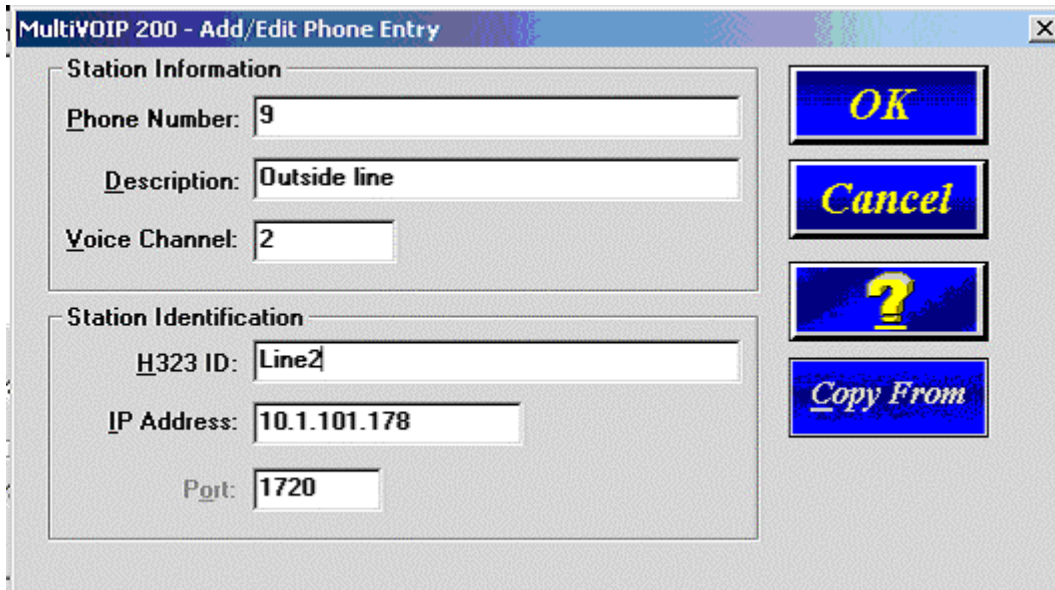
IP Address:

Port Number:

You must now add the channel phone numbers to the database by clicking the add button.

## Adding Phone number entries.



The screenshot shows a dialog box titled "MultiVOIP 200 - Add/Edit Phone Entry". It is divided into two main sections: "Station Information" and "Station Identification".

**Station Information:**

- Phone Number: 9
- Description: Outside line
- Voice Channel: 2

**Station Identification:**

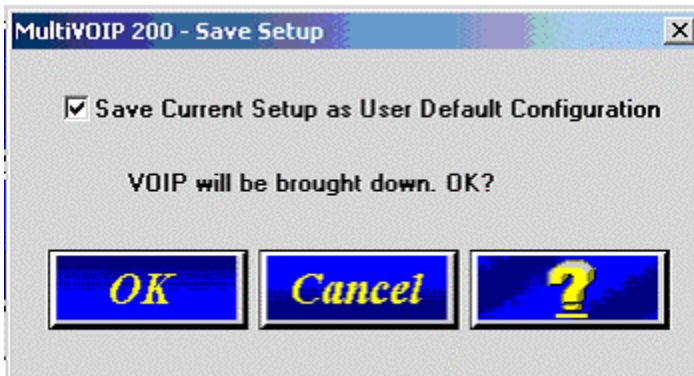
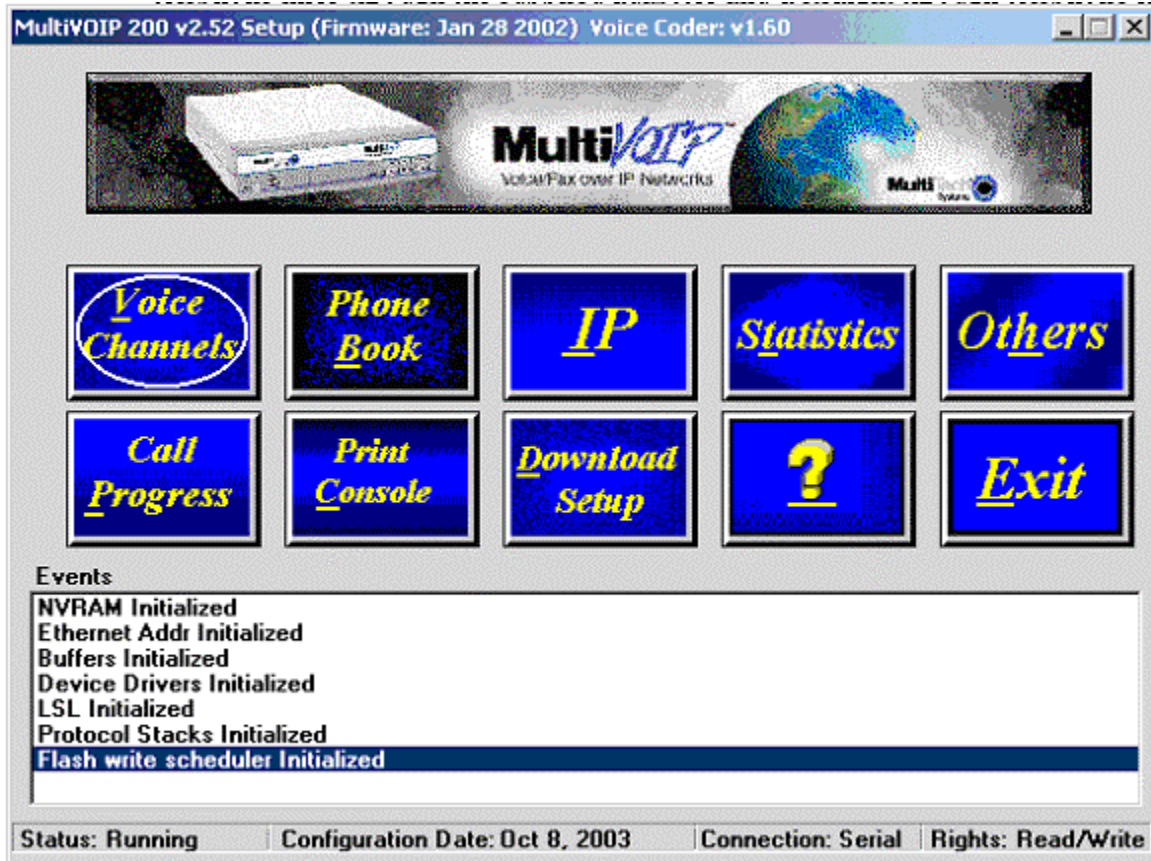
- H323 ID: Line2
- IP Address: 10.1.101.178
- Port: 1720

On the right side of the dialog box, there are four buttons: "OK", "Cancel", a button with a question mark, and "Copy From".

The phone number entries added in this screen will be registered with the gatekeeper, and will be available to call through the gatekeeper using either the Phone Number or H323 ID.

## Downloading the setup to the MultiVoIP

Press the Download Setup button when configuration is complete.

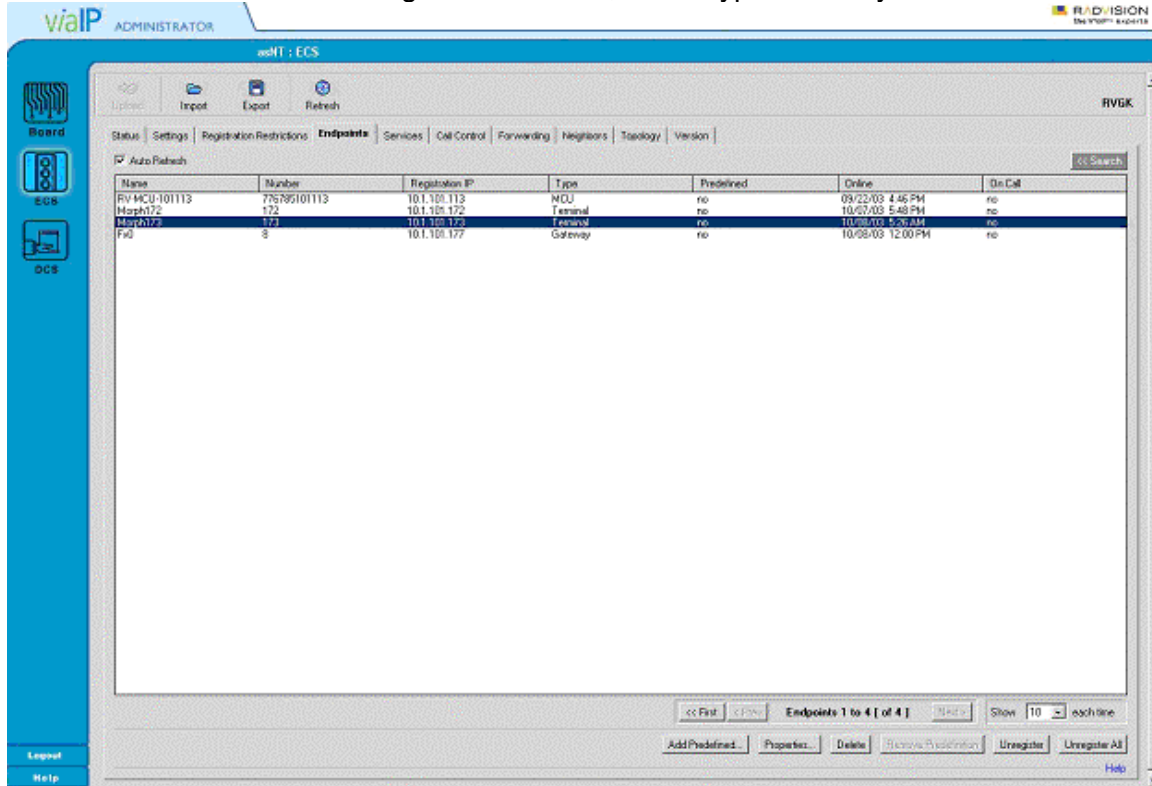


Check the box shown above before clicking OK.

## Testing and verifying the configuration.

Check registration with the gatekeeper.

In this case the MultiVoIP is registered as FxO, and is type Gateway.



The screenshot shows the vialP ADMINISTRATOR interface for the edHT : ECS system. The 'Endpoints' tab is active, displaying a table of registered endpoints. The 'Fax' endpoint is highlighted, indicating it is the focus of the configuration check.

Name	Number	Registration IP	Type	Predefined	Online	On Call
RIV-MCU-101113	776785101113	10.1.101.113	MCU	no	09/22/03 4:46 PM	no
Marsh172	172	10.1.101.172	Terminal	no	10/29/03 5:49 PM	no
Marsh172	172	10.1.101.172	Terminal	no	10/28/03 5:26 AM	no
Fax	8	10.1.101.177	Gateway	no	10/28/03 12:00 PM	no

Using the ECS gatekeeper is possible to browse the entries in the phonebook, but double clicking the entry.

**Online Endpoint Properties**

Aliases:

Value	Type
Fx0	Name
MP	Name
8	Phone number
4000	Phone number

Endpoint type:  Predefined:

Registration IP:  Port:

Call Signaling IP:  Port:

Registration time:  Services

[Help](#)

Warning: Applet Window

## Try making an outgoing call.

By placing a call to tel. No. 8 in the example from the mm745, the user should hear two rings before hearing dial tone.

## Try making an incoming call.

The caller must call the telephone number of the line, then call the mm745 unit by keying in the mm745 extension number- in this case number 172.

## Comments.

Before configuring the system, it is good to consider how the dialing will work.

Some recommendations are as follows:

1. Give the mm745 a 4 digit extension number.
2. Give the FXO port a single digit extension number. Number 9 should often be avoided.

The information provided in this Documentation is believed to be accurate and reliable. However, SCOTTY Group plc assumes no responsibility for its use, and reserves the right to revise this Documentation without notice.