NCH Software
Axon Virtual PBX

This user guide has been created for use with

Axon Virtual PBX Version 2.xx

Technical Support

If you have difficulties using Axon Virtual PBX please read the applicable topic before requesting support. If your problem is not covered in this user guide please view the up-to-date Axon Virtual PBX Online Technical Support at www.nch.com.au/pbx/support.html .
If that does not solve your problem, you can contact us using the technical support contacts listed on that page.

Software Suggestions

If you have any suggestions for improvements to Axon Virtual PBX, or suggestions for other related software that you might need, please post it on our Suggestions page at www.nch.com.au/suggestions/index.html .
Many of our software projects have been undertaken after suggestions from users like you. You get a free upgrade if we follow your suggestion.

Axon Virtual PBX

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Overview (what Axon does)

Axon is a virtual PBX designed to manage calls within a business or call center environment. It is installed on a Windows Server and connects to phone lines and extensions using VoIP. The software routes all calls within a business and offers all the normal features of a PBX such as allowing internal or external calls and more advanced call queuing for call center applications.

Axon can also be used in conjunction with other telephony software made by us including IMS On-Hold Messages System
, VRS Voice Recording System, the
IVM Call Attendant, IVR and Voice Mail Software
and the Express Talk Internet Phone.

This software is designed to be very easy and intuitive to use. Within minutes you will be able to set up the software and start making phone calls. A full list of features follow below but a quick way to try it out is to download and install now. You don't need to purchase the Axon trial, and it only takes a couple of minutes to complete the process (
click here to install the full Axon trial
).

There is the option to purchase the Axon Business Edition or Enterprise Edition. Axon Business Edition allows up to 20 extensions and 3 external lines. Axon Enterprise Edition has no limitation on the number of extensions and external lines installed. To view pricing or to purchase Axon Business Edition or Axon Enterprise Edition please see
Purchase Axon Plus Edition
.

Features

- Manages telephone calls within a business.
- All routing of calls is digital over the computer network (or even a wireless network).
- Unlimited number of extensions or external lines.
- Supports all the standard PBX features like call transfer, hold, and record.
- Includes a call queue sequencer with voice prompting and on-hold messages player (links to the IMS On-Hold Messages Player).
- Uses the open SIP standard for signalling (RFC 3261) so it works with the broad range of SIP compatible phones and other devices.
- Works with hardware type VoIP extensions which just plug into the LAN (e.g., Grandstream, Sipura etc.).
- Works with computer based softphones (e.g., the Express Talk Softphone) where you make calls through your computer.
- Works with USB phones plugged into your computer.
- Links directly to VoIP services for your external lines (with cheaper calls). See Recommended VoIP Gateways for more information.
- If no VoIP services are available can also link to ordinary external lines with FXO adapters.
- Automatic "one-click" installer to set up the PBX in just minutes. Does not require detailed technical setup.
- All configuration such as adding extensions is done using a web-like control panel through your internet browser so it can be done remotely.

System Requirements

Computer or Server

- Windows 2000/XP/2003/Vista/2008/7
- Computer network (any IP network)
- Broadband Internet Connection (for external VoIP lines)

Extensions

- SIP Standard VoIP (RFC 2543 or RFC 3261)
- Must support symmetric UDP signalling and audio with reINVITEs

Typically extensions are either VoIP phones, computer based softphones or hybrid softphone with USB phone combinations. For testing, before you buy VoIP phones, we recommend you use the <u>Express Talk Softphone</u>.

External Lines

- VoIP Lines **

  - SIP Standard VoIP (RFC 2543 or RFC 3261)
  - Must provide SIP proxy server, username and password
  - See <u>Recommended Sip Gateway Telco List</u>

- Traditional Analog Lines

  - SIP based FXO adapter for each line
  - SIP Standard VoIP (RFC 2543 or RFC 3261)

** Unless you have existing lines, the preferred option will always be VoIP lines. Companies offer VoIP numbers in almost all cities of developed countries these days. They are better quality, cheaper and you don't require any special hardware because calls are routed over the internet.

Installation and Setup

After Axon is installed, you will be prompted with a setup wizard that will help you get started configuring the software.

Web Access Setup

- Number of Internal Extensions Required: specify how many internal extensions you want created for you by default. Extensions numbers will start at 101 and enumerate from there.
- Web Control Panel Username: specify the username you want to use when logging on to the Axon Web Control Panel. The default username is "Admin".
- Web Control Panel Password: specify the password you want to use when logging on to the Axon Web Control Panel. The default password is blank.

General Usage

At the heart of the Axon Configuration is its web-based control panel interface. This is where you can set up everything from your SIP lines to your internal extensions, and so forth. To use Axon to make calls across the Internet or to landline phones, you must complete the following minimum configuration:

- One SIP line (you must use a Gateway SIP provider if you want to make calls to landline phones)
- One Extension
- One Outbound Dialing Plan
- One Extension configured in Express Talk or a SIP-based IP phone

By default, Axon will generate a number of items in the Web Panel automatically. These include:

- 1 dialing plan, "Default", configured with basic dialing rules
- 10 extensions, numbered from 101 to 110, all configured to use the "Default" dialing plan
- 2 extensions for the IVM Answering Attendant, 198 for Call Attendant access and 199 for Voice Mail access
- 1 group, "701", configured to include extensions 101, 102 and 103
- 1 external line, "Default", mapped to group 701, but with no actual SIP configuration

You can use these auto-generated items and set up your PBX system by reading the following procedure:

Step 1 - Configure the SIP line

In the "External Lines" section select the "Default" line. Now enter the details for your SIP line (for more instructions on this section, see the External Lines section). Ensure "Incoming Calls Ring on Extension or Group" is set to "701". Save your changes.

Step 2 - Configure an Outbound Dialing Plan

In the "Dialing Plans" section, select the "Default" dialing plan. In the next screen, you will note that there are two default dialing rules configured. The rules mean that if you want to dial to a number outside your network, then you should add a 0 or 9 to it, and Axon will strip the 0 or 9 from the number and dial it using your SIP line. Where it says "If none of the above applies, dial on line", make sure it is set to "[Extension]". This means that if you are dialing between extensions, then Axon will dial directly between them, bypassing your SIP line. Save your changes (for more instructions on this section, see the Configuring Dialing Plans section).

Step 3 - Configure an Extension

In the "Extensions" section, the extensions are all configured for you by default, so you do not have to change anything. If you want to change details such as extension numbering and passwords though, click on any of the extensions to re-configure them. To review the current settings applied to an extension, click "Setup Instructions" for that extension (for more instructions on this section, see the Configuring Extensions section).

Step 4 - Configure an Extension in Express Talk or IP phone

Install Express Talk on another computer on your LAN (you can install it on the Axon computer if you really want), or purchase an IP phone and hook it up to your network (initially installing Express Talk is recommended just so you can test your setup). You must now enter the details of an extension into your phone. To find out what details to enter, you need to examine the "Setup Instructions" referred to in Step 3 (in the Extensions section).

Step 5 (Optional) - Configure an FXO/FXS adapter

If you want to have calls from landline phones or cell phones come through Axon, you need to buy an FXO adapter. If you only want to make VoIP calls using your analogue handsets you need to buy an FXS adapter. If you need both FXO and FXS functionality, most FXO adapters offer this but you should check just to be sure.

Instructions on setting up FXO adapters are found here.

To connect Axon to your adapter, go to the "External Lines" section, and add a new external line. Nominate a username and password for the line, but leave the server field blank (important!). Next, in the web interface for the adapter, go to the FXO/PSTN line settings and configure the line using the same username and password you specified for the external line. Set the server name to be the IP address of the Axon computer.

Once this is done, the adapter will now try to register the line with Axon, and you will see a message appearing in the log window. At this point, the adapter will be connected to Axon and you can start making calls (assuming you have done the other necessary configuration to get the adapter functioning).

Step 6 (Optional) - Set Up IVM for use as Voice Mail or Call Attendant

If you want to have callers ring and leave voice messages, or if you want to set up a call attendant/call center service, then you will need to install the IVM Answering Attendant on the same computer as Axon.

Once it is installed, it will detect for the presence of Axon, and then automatically set up the VoIP line extensions 198 and 199. Next, it will download and install an IVR file from the Internet containing the relevant configuration for setting up IVM.

Step 7 (Optional) - Set Up IMS for on-hold callers

If you want your callers to hear announcements and music when they are on-hold, then you need to install the IMS Telephone On-Hold Player on the same computer as Axon.

Once it is installed, it will detect the presence of Axon, and then automatically enable its VoIP server and set it to run on port 606. In the Axon web panel, go to the "Groups and Queues" section. Select the default group (701) and set the Hold option to "Link to IMS On-Hold Player", leaving the server name as it is.

Step 8 (Optional) - Set Up VRS to record phone calls

If you want to record all phone calls made through Axon, then you will need to install the VRS Recording System
on the same computer as Axon.

Once it is installed, it will detect the presence of Axon, and then automatically enable its VoIP server and set it to run on port 4080. To enable call recording in Axon, the option can be found in the external line properties for incoming calls and extension properties for outgoing calls.

Step 9 - Test your setup

Depending on how many of the optional steps you have implemented, the testing procedures will vary. For a basic setup you can do the following:

If your SIP line supports calling to landlines, try ringing your office landline number from your SIP phone. Dial your office phone number, prefixed with a 0 or 9. Next, try the reverse, ring from your landline phone to your SIP phone. To do this, dial the number of the SIP line, do not dial the extension number. Axon will map the SIP line number to the extension number and the call will be routed through to your SIP phone.

If your SIP line does not support calling to landlines, create another SIP account and configure it in Express Talk on a spare computer hooked up to the LAN or the Internet. Now try ringing to and from that SIP number.

That's it! You now have a basic working Axon SIP PBX system!

Options

Open the Options dialog by clicking on "Options" in the Axon main window, or going to "File" menu -> "Options...".

- Options -> General
- Options -> Network
- Options -> Web Access
- Options -> Line Bridging
- Options -> Line Bridging -> Bridge
- Options -> Voice Prompts

Axon Web Control Panel

The Web Control Panel is where you configure your SIP lines, extensions, and groups and queues. To open it, click the "Web Control" button in the Axon main window, or select "Axon" menu -> "Open Web Control Panel".

- Configuring System Settings
- Configuring Extensions
- Configuring External Lines
- Configuring Dialing Plans
- Configuring Groups and Queues
- Configuring Axon Dialer

Problems with Web Control Panel Login?

Your username, email and password can be set using the Options button on the toolbar of the main Axon application interface. By default, the username for the administrator is Admin, email and password is blank.

Shortcut Keys Reference

- F1 - Open Help documentation
- Alt+F4 - Exit Axon
- Ctrl+W - Open Web Control Panel
- Ctrl+O - Open Options dialog

Connecting with Skype

Skype now allows business users to connect SIP devices and programs directly to a special Skype Account called a Skype Connect account. These accounts work a lot like regular Skype accounts, but must be set up through a different interface called Skype Manager. For a detailed explanation of how to set up a Skype Connect account and configure it for use with Axon, see Skype for SIP configuration.

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Configuration - Add Telephony Device

This page is for adding an unused telephony device to your list of available landlines. The drop down box contains a list of available landlines which are detected by Axon. Select a telephony device from the drop down box and click the "Add" button to add the device to your Landline list.

If you have unused hardware that is not detected by Axon, please refer to the Knowledge Base article at www.nch.com.au/kb/10045.html for more information.

Configuration - System Settings

The System Settings tab allows configuration of a number of general settings including voice network, mail, email, logging, and recording options.

Dialer Settings
Enable Agent Server - If you would like to use Axon Agent to place automated calls using dialing lists managed by Axon, then you must enable the Agent Server. For an explanation of how the Axon Dialer works, see the Dialer Overview.

Agent Server Port - This is the TCP port that will be used for clients (Axon Agent) connecting to the Axon Dialer. The default port is 90.

Network Settings
By default Axon's network settings should work for most installations, but if you need a special network configuration you can make changes to the settings from the System Settings tab of the weblet. You can also manage the IP Blacklist from this location. To learn more about configuring these settings see Network Settings.

Email Settings
Axon can send email notifications for items like voicemails or service errors. In order to do this you must configure your Email Settings. To learn more about configuring email settings see Email Settings
.

Voicemail Settings
Axon has an internal voicemail recorder that can answer calls and take messages. To learn more about configuring these settings see Voicemail Settings.

Auto-Attendant Settings
Axon also has a built in automated call attendant that can answer calls and route them to an extension. For more information on this functionality and how to configure it, see Auto-Attendant Settings
.

Logging Settings
Axon automatically logs call history and any displayed log messages. It can also optionally log SIP and RTP packets (for troubleshooting) and can store call information in an ODBC database as well. For more information on configuring logs see Logging Settings.

Recorder Settings
Axon can record calls when used with the VRS Recording System. For more information on configuring recordings see Recorder Settings.

Configuration - Logging Settings

Delete logs after (days) - This is the number of days that the log files will be kept on the Axon server. This applies to standard logs, call history, and SIP logs (when enabled), but does not apply to ODBC logs.

Advanced SIP Tracing
Log all SIP messages - Check this box to record all SIP messages in the log.

Log all RTP (audio) packets - Check this box to record all RTP packet's time, payload type, and source/destination to the log.

ODBC Logging
Log every call in an ODBC database - Axon automatically logs all phone calls to a monthly CSV file ("YYYY-MM Phone Log.csv", where YYYY is the 4-digit year and MM is the 2-digit month), but in some cases it may be better to record this to a database for use with real-time reporting or to integrate the information into existing business systems. If this is needed then enable this option and configure the settings for your ODBC data source.

ODBC DSN - This is the System DSN where you would like to log calls. Axon requires a System DSN for logging, and will not accept User DSNs, File DSNs or connection strings.

Username - This is the user that will log into the database.

Password - This is the password for the database user.

SQL Command - This is the template for the command that will insert the call information into the database. This will need to be a valid SQL statement for the database you are using. Call variables are represented in the template enclosed in percent (%) signs, like %callid%.

Default SQL Statement:
INSERT INTO CallTable (CallDate, CallTime, CallFrom, CallTo, CallDuration) values ('%date%', '%time%', '%from%', '%to%', '%duration%')

Variables
%date% - The date the call was connected (in the format 'YYYY-MM-DD').

%time% - The time the call was connected (24-hour clock, in the format 'HH:MM:SS').

%from% - The extension or external number that placed the call.

%to% - The extension or external number the call was placed to.

%duration% - The duration of the call in seconds.

Note:

While SQL is relatively standard, some databases use different rules for column names, quoting, and escape sequences (as well as others). Please be sure to test your command thoroughly outside of Axon if call logging to your database fails.

Configuration - Recorder Settings

Axon uses <u>VRS</u> to record phone calls. After you have installed VRS you will need to add Axon as a VoIP channel and then modify the recorder settings to match the VoIP channel you set up. You can do this from the System Settings tab of the weblet.

- VRS Host Name: Specify the IP address and port on which VRS is located. You must have specified the same port number in the VRS Settings configuration. For large systems or for fail safe load balanced redundancy you can list multiple VRS servers separated by commas.
- VRS access code: The password needed to be able to create a recording through VRS. In VRS you need to set up a VoIP recording line and set the same password for that line.

Once VRS has been set up with a VoIP line(s), it will automatically start recording the calls as they occur, no manual intervention is required.

Configuration - Extensions & Groups

User/Reserved Extensions

Consider the scenario where you have many phones in your office environment, all running through the PBX. An extension is the phone number that gets assigned to any one of those phones within the PBX network. Usually extensions are the phones within your office but remote workers can be set up with extensions too.

To open the extensions configuration, click on "Extensions & Groups" from the Web Control Panel main page.

To create an extension, click the "Add New Extension" button. To edit an existing extension, click the extension number. To find out what information you need to configure the extension into your VoIP software/hardware device, click "Setup Instructions" for the respective extension.

The following details are required to create an extension:

Extension ID - This is usually the number of the extension. By convention Axon uses 101, 102, 103 etc. Extensions can be names (e.g., "joebloggs", "bill123") but this is not recommended because you cannot dial non-numeric names from hardware VoIP phones.

Display Name - This is for information only. Usually it is just the name of the person at that phone.

Password - This password (together with the Extension ID) must be provided when someone sets up the extension. It is used to authenticate the extension.

Outbound Dialing Plan - This governs how outbound calls are made from the particular extension. See here for further information.

Allow access by web browser - This setting determines whether the user can log on to the Axon weblet to view the system status page and browse voicemail if internal voicemail is turned on.

Action if No Answer or Busy - You can configure Axon so that any calls ringing in to an extension are diverted after not being answered for a certain period of time. This can be directed to Axon's internal voicemail system or an external system like IVM Answering Attendant
. This is useful if you are away from your phone or if you are busy and do not want to answer any calls.

Allow call to ring for (seconds): This is the time the extension will ring before the call gets diverted to voicemail or another extension. This applies to all options except "Take no action" since that will allow the line to ring indefinitely.

- Use internal Axon voicemail This option connects calls to Axon's internal voicemail system when a call is not answered or the extension is busy. This is a simple voicemail system that should work for most users. Extensions can check their voice messages through Axon's web interface ("Allow access by web browser" must be enabled) or over the phone, and can get message notifications through email, SMS, and even through notifications using most standards-compliant IP phones.

- Use external voicemail system Use this option to connect Axon to an external VoIP voicemail system like IVM. You will need to select the extension number where your external voicemail system (such as IVM) is located. By default, extension 199 is reserved for it and must be configured into IVM as a VoIP line for this to work.
- Transfer if Not Answered - This works similar to the Voice Mail feature, but the difference here is that you can specify ANY number you want to transfer to. This number can either be an extension or an external number. If you choose to transfer to an external number, Axon will apply the Outbound Dialing Plan assigned to this extension when performing the dialing.
- Take no action - This option allows an extension to ring until the call is answered or the caller hangs up. This can be useful for extensions that are not always answered quickly, but have no need for voicemail.

Internal voicemail options: If internal voicemail is selected the following options can also be modified to configure access and notifications.

- Send voicemail by email This option will allow email notifications (including the voice recording) to be sent whenever a new voice message is received. This is useful if the user wants to listen to their messages without dialing in or accessing the weblet. (Users with web access can modify this setting from the weblet.)
- Send notification by email This option will allow email notifications (without the voice recording) to be sent whenever a new voice message is received. This is commonly used to send an SMS notification (text message) to a user when a new message arrives. (Users with web access can modify this setting from the weblet.)
- Allow access from an external phone If this option is selected the user can listen to their messages from a remote phone by dialing in to their extension and pressing * during the greeting.
- Require PIN for extension (direct) access This option is for voicemail boxes that require security when accessing them directly from the extension. If this option is selected the user will need to enter their phone PIN in order to listen to messages even when checking messages from their phone.

Call Recorder - You can set up call recording of outbound calls on any extension. The recording itself must happen through the VRS Recording System. This will record calls that originate from a particular extension only. If you would like to record all extension to extension traffic this option should be selected for every extension. This will not record incoming calls from external lines however. If you need to record incoming calls from external lines as well you will need to edit the settings for the external line. You can modify the VRS recorder settings from the Recorder Settings section of the System Settings tab of the weblet.

Once VRS has been set up with a VoIP line(s), it will automatically start recording the calls as they occur, no manual intervention is required.

Group Extensions

When a call comes in on a SIP line, you can set it up so the call rings on all extensions for a specified group. If all extensions for that group are being used, the call will be put into a queue automatically and will ring on the next extension(s) that becomes available. At the start of waiting, the caller can be played a prompt (eg "Please hold... the first available operator..."). While waiting on-hold messages can also be played using the IMS On-Hold Messages Player.

To add a new group, click the "Add New Group or Queue" button. To edit an existing group, click the Group Name. The details required to set up a group are as follows:

Group Name - Nominate a group name to use, this can be whatever you like but by convention groups are named 701, 702 etc.

Start Prompt - This will play an audio file to the caller before they hear ringing or the regular on-hold music. You must enter a full file path here, and only wave files can be used e.g. \\Server\My Files\Recordings\Start Prompt.wav (do not circumfix the pathname with quotes!).

Extension List - You should list all extensions you want to receive calls on. If you want some extensions to ring only after a set time you can include a delay time.

Hold Options -

- Ringing Only: Plays a standard phone ringing sound while callers wait. If you have enabled a Start Prompt then the ringing sound heard will be generated from an audio recording. If no Start Prompt is being used, the ringing sound is supplied by the service/infrastructure you are calling through e.g. PSTN network, VoIP gateway network etc.
- Basic Hold Chimes: Plays the default hold chimes music that comes with Axon.
- Link to IMS server: Plays on-hold messages from the IMS On-Hold Messages Player running on the server specified in the "Server" field. If IMS is running on the same computer as Axon you can enter "localhost".

Configuration - External Lines

External Lines

This is where you add and configure your SIP lines. Click the "Add New External Line" button to add a new line. Click on an existing line to edit the settings for that line. The following details need to be entered to set up a SIP line:

Line Name - This is the name of the line (for reference within Axon). The Axon pre-created line is called "Default", but you can change that to whatever you like.

Server - If you are using a VoIP gateway service this is the name of the server they provided. If you were not given this information in an email, you must ask your provider what it is. If you are using an FXO adapter this is just the name of the adapter.

ID or Username - This is the username provided by the VoIP gateway service. Sometimes it it the actual phone number. For a FXO adapter it is set on the device.

Password - The password for your SIP account. Note with some gateway services the password for the SIP proxy server is different to the password for logging onto your account.

Incoming Calls Ring On Extension or Group - Specify what extension or group of extensions you want to ring when someone rings the SIP number for this account.

Call Recorder - You can set up call recording on any external line. The recording itself must happen through the VRS Recording System. This option will record all incoming calls through the external line. If you need to configure recording of outgoing calls you need to adjust the settings for the extension you would like to record. You can modify the VRS recorder settings from the Recorder Settings section of the System Settings tab of the weblet.

Once VRS has been set up with a VoIP line(s), it will automatically start recording the calls as they occur, no manual intervention is required.

Advanced Line Settings

Outbound Proxy - If your VoIP provider uses a different outbound proxy server to their normal SIP server, select "Use a different server" and type the outbound server name in the "Outbound Proxy" field.

Authentication Username - If your VoIP provider requires you to authenticate with an ID that is different from your VoIP number, select "Use a different username" and type in the User ID in the "Auth ID" field.

Caller ID - You can prepend digits to your caller ID in Axon. This is generally used to balance the dial rules so that an extension can return a call without needing to add any digits to the number being dialed. If, for instance, you have an external line that requires dialing 8 and then the number, then you would probably want to prepend an 8 to the caller ID of any calls coming from that line. So a call coming from 5551234 would appear to come from the caller ID 85551234 on an internal extension, but when dialing that number from an extension it would use the dial rule (8) to select the correct external line and dial 5551234 on it.

Concurrent Calls

- Most VoIP providers will allow you a certain number of simultaneous calls for each VoIP line. If you know this number you can enter it here. This will prevent Axon from attempting to make more than the allowed number of calls on the line. This will mean faster line busy responses from lines that have reached their maximum count. A value of zero means that Axon will always try to place a call on the line, but the VoIP provider might still decline the call.

Chain to Next Line - Chaining is the process by which, if the external line is busy or has some other issue preventing you from making a call, then Axon will try using a different line instead. This option lets you specify what external line you want Axon to try next should it be unsuccessful in its attempts to use the current line.

- Do not try next line if error message is: If you do not want Axon to try chaining the call when a specific error code is returned, then type the error code in here. This is dependent on the error codes your VoIP provider uses, and you will need to have a basic understanding of the SIP protocol to determine which error codes might make sense in your situation. For instance, you may wish to prevent chaining if a number is permanently unavailable (not valid) and is likely to have the exact same result on the next line in the chain.

Sip Compatibility Options

Call Activity Polling - Check "Disable call activity polling" if you find your phone calls are disconnecting at around the one minute mark. This option needs to be checked for providers such as Vonage and Broadvoice.

Prevent odd RTP forwarding - Check "Prevent odd RTP ports being forwarded" if you find you sometimes experience a "one-way" or "no-way" audio issue. This option needs to be checked for providers such as Vonage and Broadvoice.

Always Relay Audio - This option is useful if your softphone or IP phone cannot receive audio because the outside internet is unable to send packets directly to the machine. It requires that the Axon server is able to be contacted directly from the internet. This will relay audio through the Axon PBX to both ends of the call. This can solve many security concerns and firewall configurations in more complex network infrastructures.

Relay is not required - In some cases, Axon may attempt to relay audio if an external line is used and the connection has a potential for losing audio based on the IP addresses used. If Axon is relaying audio and it causes problems with your VoIP provider, this option will prevent the relaying. Note: Enabling this option WILL prevent audio from phone calls working in some cases, so this should be enabled only as a last resort.

Dialing Plans

A Dialing Plan is a set of rules for deciding if and how outbound calls are made. For example, it can be used to say "if the number starts with 9, strip the 9 and then make the call on an external line". It can even go further to decide where the calls are destined to use the cheapest VoIP provider for that state or country.

Dial Based Rules

- If the number starts with: these are the digits that the number must start with to apply to the dial rule.
- Remove digits: strips the first x digits from the start of the number.
- Prepend: adds digits to the start of the phone number.

- Dial on Line: specifies what SIP line on which to dial out if the number starts with the digits specified.

A typical use is to have 9 as the prefix for external calls. To set this up use "9" as the "number starts with" and "1" as the "remove digits" (to strip the 9).

Add SIP Rule

SIP VoIP allows you to make calls to addresses like alice@atlanta.com. This is not used very often because it does not work from hardware phones. But if you need to you can route outbound calls based on their destination host.

- If SIP host is: type the SIP proxy name of your SIP provider here (e.g., atlanta.com).
- Dial on line: specify what SIP line you want to dial out on if that host is used.
- If none of the above apply: specify what line to use if no dial rules or SIP rules apply to the phone call in question. Select "[Extension]" if you want to dial to another extension number within your network. Select "[Blocked]" if you want to block the phone call.

Configuration - Agents

The Auto-Dialer tab of the Axon Web Control allows the Axon administrator to manage a list of agents that can participate in outbound dialing campaigns through the Axon Agent program. These Agents are basically individual clients that can login and place calls for Campaigns that they are associated with. All versions of Axon will allow one agent login to experiment with this functionality, but to have multiple agents working through Axon you will need an Enterprise license.

From the Agents tab you can add, edit, and delete agents as well as send email to existing agents.

Agent Settings

- Agent ID: This is the unique login name for this user.
- Password: This is the password for this user.
- Name: This is friendly display name for this user.
- Email: This is the user's email address for correspondence through the system.

If you need a copy of Axon Agent for use with the dialer, you can find it at http://www.nch.com.au/pbx/autodialer.html
.

Configuration - Campaigns

The Auto-Dialer tab of the Axon Web Control allows the Axon administrator to manage lists of campaigns to be used in outbound dialing campaigns.

Campaigns associate a dialing list with a dialing plan. They also set certain guidelines to determine which calls should be placed and whether a call will be attempted again if it is not answered the first time.

For each Campaign you will need to set up several pieces of data. If these are not set up prior to creating you campaign you will not be able to complete the process.

1. Set up a dialing list - You will need a list of numbers to dial for each campaign. Refer to Dialing Lists
   for information on how to do this.
2. Set up a dialing plan - The dialer is intended for outbound campaigns and as a result it will only place calls on a certain line. By allowing different dialing plans on different external lines you can configure your system to allow one campaign to run on a dedicated line or you can distribute your call load over several lines. Refer to Dialing Plans for information on how to set up a dialing plan.

Now that you have set up the dialing list and plan you can create your new campaign. In addition to those items you can set up:

- Caller ID: This will be sent as the caller name when dialing your campaign. This is dependent on using SIP lines with a SIP provider that supports custom caller ID.
- Call pickup timeout: This is the time in seconds that a call will be allowed to ring before being disconnected. The call status will become "Unanswered" rather than "Unattempted" when this timeout is reached.
- Status: A campaign can be Inactive, Active, or Completed. Agents can dial numbers from any Active campaign that they have access to. When all of the calls on an Active campaign are completed, the Status will automatically update to Completed.
- Dial Rules: When dial rules are enabled, you can limit the reasons to make a call. You can select any of the four types of calls (unattempted, unanswered, busy, and callback) and those number will be dialed while the campaign is active. If dial rules are not enabled all 4 types will be called.
- Campaign Script: This information will be displayed to an agent while making calls for a campaign. This can be a script to read from, a list of information about the campaign, or any other text that you would like an agent to have available to them while making a call.

If you need a copy of Axon Agent for use with the dialer, you can find it at http://www.nch.com.au/pbx/autodialer.html
.

Configuration - Dialing Lists

The Auto-Dialer tab of the Axon Web Control allows the Axon administrator to manage lists of customer contacts to be used in outbound dialing campaigns.

Dialing lists are at the core of an outbound campaign. They are a list of customers, phone numbers, and call dispositions. When creating a list you can copy the data from an existing list, import the data from a file or text, or manually add each entry to the list.

If you wish to import from a file, it must be plain text in the format Name,Address,Phone,... with one record per line. Fields after Phone will be ignored if present. If you are creating it in Excel, save it as a comma seperated file (.csv) and not an Excel spreadsheet.

If you wish to enter items manually you must select the "Populate the list with the following customer data" option and leave the input area blank.

After you have created a list you can edit each of the records individually to store address, name, and comments among other things. These changes will exist only in the current list, so changing a name in a copied list will not change it in the list it was copied from. These pieces of information can also be edited by agents through the Axon Agent application. View that application's help for more information on this.

If you need a copy of Axon Agent for use with the dialer, you can find it at
http://www.nch.com.au/pbx/autodialer.html
.

Configuration - Line Bridge Settings

Through the web control panel, you can configure external landlines to work with Axon.

From the Line Bridge Settings page, you can configure how you want lines to work when call comes in.

Axon Dial: When a call comes in you can specify which number you would like Axon to dial. This number can be one of the following:

- The number that was dialed by the inbound caller (Automatic) is the default option and indicates that you do not want to make any changes to the inbound number.
- The default VoIP number is used to send the call to your 'Carousel'.
- The following number is a custom number that you want Axon to dial when a call comes in. Enter the number you want to dial in the text box provided.

On Which Line: This setting is used to select which line that Axon will use to dial when an inbound call comes in. This line can be one of the following:

- Any available VoIP line will dial on the first available line which Axon finds
- The first free line in this list will dial the first free line in the list provided. The list is made up of lines that you choose. Use the "Add" link to add additional lines to this list.

Configuration - Email Settings

Sending using a SMTP Server

You must enter the SMTP mailhost used by your ISP for sending of mail (call them if you do not know it) and your email return address.

If when using SMTP you receive an error message it might be that your server requires an authenticated login (a username and password) to send email.

Send directly to other side (work as own SMTP Server)

Email is sent directly by Axon using a simple internal SMTP server.

Problems sending Email

Note: These options apply to all emails sent by Axon.

Configuration - Internal Voicemail Settings

Enable integrated Axon voicemail - This will enable Axon to handle voicemail for extensions that have it configured. You will not be able to configure extensions to use the internal voicemail unless it is enabled here.

Mailbox template options - These options will apply to new extensions that you create.

- Allow web access to voicemail - This will enable web access for new extensions that you create. You will still need to provide a password for the extension for the user to log on.
- Allow access from external phone - This will enable users to check their voicemail from an external phone by dialing to their extension and pressing * during the greeting. You will still need to create a phone PIN for the extension for the user to log on.

General voicemail settings - These options control how messages are recorded and sent.

- Internal voicemail extension - This is the extension number that handles internal voicemail. This is also the extension that a user would dial to check their voicemail from their extension. By default it will be '500'.
- Minimum voicemail length - This is the minimum length for a "valid" voice message. Any recordings shorter than this will be discarded. Set the value to 0 seconds to keep all recordings.
- Maximum voicemail length - This is the maximum length for a voice message. Any recordings longer than this will be cut off. This value can be between 15 and 300 seconds.
- Delivery Compression Format - This is the format that voice messages should be delivered over email. Generally this is used to reduce the size of emails sent from Axon or to change them to a different format for playback from certain devices.

Configuration - Internal Auto-Attendant Settings

Enable integrated Axon auto-attendant - This will enable Axon to handle automated routing of calls from an external line to an extension using an automated voice prompt. When a call rings in on the auto-attendant extension the caller will be prompted to enter an extension and then Axon will transfer them to that extension as if they had dialed it directly. This can be extremely useful if you have several extensions that all receive calls from a single external line.

- Internal auto-attendant extension - This is the extension number that handles internal auto-attendant calls. You will need to make sure that the external line that you would like to use the auto-attendant is set to ring on this extension as well.
- Extension list prompt - If you would like a custom list of extensions available to be read to the client (if they do not know their party's extension for instance) you will need to replace the 'extension_list' voice prompt. For more information on how to do this see the Voice Prompts help .

Login - Resetting your password

If you have forgotten your password, you can use this page to reset and email a new password to the email you have provided to the Web Settings options.

Once you have obtained your password you can log in as normal. If you would like to change your password back, you can set it through the Options toolbox found on the toolbar of the main Axon application interface.

If you have not set your email address, you will not be able to retrieve the password through the Web Control Panel (you must use Options toolbox found on the toolbar of the main Axon application interface).

Options - General

Run Options

Run Axon automatically on system startup

Select this option if you want Axon to automatically run when your computer starts.

There are many modes of running automatically which you can select in the pull down list.

If you want Axon to run always irrespective of whether anyone is logged on select one of the "Run As Service" options. When running as a service Axon will handle calls before logon and after log off.

By default, when running as a service Axon will 'show' and be accessible to all users as an icon on the tray of task bar. You can change this to limit it to the current user or no users. If you plan to use Windows Terminal or Remote Desktop you probably should restrict Axon to a local user or no users because 'showing' on a remote desktop can sometimes knock out local telephony devices because they attempt to use the remote devices!

Running as a service only takes effect the next time you restart the PC. You should also check that it works after restarting your computer. If you have any problems check any folders are accessible from the "Local System" account.

Options - Network

These settings relate to the ability to connect over a network or the internet. Most of the options here are fairly advanced, so don't change them unless you understand them fully. This section is intended for network administrators or like-minded individuals.

Listening Local Port

Local SIP Port to listen on

The UDP port on your computer that will be used to create a SIP signaling connection. The default port used here is 5060*. If you have some other SIP software running on your computer you can pick another number (say 5061) to avoid a conflict.

Starting Local RTP port to listen on

The UDP port on your computer that will be used to for the audio connection. The default port here is 8000*. If that port is being used by another application, you can change this setting to a different port. All RTP ports must be even numbers (e.g. 8002, 8004, etc.).

Allowing Incoming Calls and Audio through Private Networks

These options all relate to the ability of your computer to find and communicate its external IP address so it can register a contact IP so other callers from the internet can find your computer's IP. If your computer cannot determine what its external IP address is, you will have problems receiving and conducting phone conversations. People with computers behind NATs or firewalls should pay careful attention to this section!

Use UPnP to find external IP address

Uses the Universal Plug 'n' Play protocol to determine your external IP address. Note that if you are using Microsoft Internet Connection Sharing (ICS) over a LAN, you may need to enable the UPnP. To do this, on the computer running Internet Connection Sharing select Start -> Connect To then right click on the internet connection then select Properties -> Advanced then tick the option "Allow other Internet Users to control the shared connection".

Use STUN to find IP address and port

Uses the "Simple Traversal of UDP protocol through NAT" technique to ask a server on the Internet if you are behind a NAT or firewall, and if so, what your external IP address is. The default server addresses listed only need to be changed if both STUN servers are offline - in other scenarios you can leave them as they are.

Use static IP address and static mapped ports (Advanced Options)

This is where you can enter your external IP address and SIP/RTP ports if your computer or the gateway computer on your network connects to the Internet using a static IP address. Again, the default SIP and RTP port settings are 5060 and 8000 respectively.

If you are having problems making phone conversations and suspect the issue is network-related, then click the "Run Network Setup Wizard" button in order to launch a wizard that will guide you through the network troubleshooting process.

If you want to reset all the information in this tab back to its default values, click the "Restore Default Network Settings" button.

* You must open this port on your firewall

IP Blacklist (Web Control Panel only)

Axon has the ability to blacklist IP addresses that continuously attempt to log in with bad credentials (see: Brute Force Security). This can prevent attacks intended to gain access to VoIP accounts that do not belong to the individual trying to obtain them. In some cases users may have difficulty getting their credentials set up correctly and as a result they may become blacklisted by sending an invalid password too many times. If you see a log message like "SIP Request from blacklisted address ignored: 1.2.3.4", then that address has been blacklisted, but is still attempting to talk to the Axon server. If the address should be allowed access, you will need to remove it from the blacklist before the client can reconnect, even if the password has been corrected.

See also:
- Brute Force Security

Options - Web Access

The Web Access tab allows you to configure access for the Axon Web Control Panel.

To set up the control panel, you must first specify a username and password to use as your logon details. Next, specify what port on which you would like the control panel to run. The default port is 81, and we recommend that if you change it you do not use port 80, because that port is often used by other web servers.

To access the control panel from the Axon computer, the easiest way is just to click on one of the hyperlinks shown in the dialog window or click on the "Web Control" button on the toolbar of the main Axon window. To access the control panel from another computer on your LAN or the Internet, use the following formatting when typing the URL into your web browser:

- http://computername:port e.g., http://mycomputer:81 (for use on a Local Area Network)
- http://privateip:port e.g., http://192.168.0.1:81 (for use on a Local Area Network)
- http://publicip:port e.g., http://212.137.22.14:81 (for Internet use)
- http://domainname:port e.g., http://axon.mycompany.com:81 (advanced option - only use if you have a domain name set up for your IP address)

If you plan on connecting to your web control panel from other computers, you will need to make sure your firewall is not blocking access. The easiest way to do this is by clicking the "Add Port to Windows Firewall" button. If you have a more complex network configuration (like a hardware firewall for example) you may need to manually create an exception. You may need to contact your network administrator for this.

Enable connection through relay server
A relay server is a tool to allow you to connect your PC to the World Wide Web without needing any special network configuration. Traffic from the weblet is routed through a public server using a simple internet address like http://sampleaddress.users.nchuser.com/. Pages can even be viewed over a secure (HTTPS) connection to guarantee that transmitted information is safe. Pages viewed through the relay server will have a few advertisements placed on them to help keep this service free. You can still view the weblet from the private and public addresses (see examples above) without advertisements even if this option is turned on.

Connections through the relay server should not require any firewall configuration as long as your machine can connect to the internet.

Options - Options ~ Line Bridging

Line Bridging allows the connection of VoIP telephone lines to regular 'landline' telephone lines. It lets you harness the power and flexibility of VoIP while still retaining the use of your existing telephone lines.

Enable line bridging between VoIP and landlines

Check (tick) this option to enable Line Bridging within Axon.

Lines

VoIP to Landline

View/Edit the properties for the incoming VoIP calls.

Landlines

The list of hardware lines that can be used for line bridging within Axon.

Add...

To add a new line simply click the Add button and you will be presented with a list of all hardware lines installed on your computer.

Remove

Remove an unused hardware line.

Properties...

View/Edit the properties for the hardware line, including the behavior of incoming calls on the line.

Options - Options ~ Line Bridging ~ Bridge

This information relates to settings up a bridging line in Axon.

Lines can be of type "VoIP" or type "Hardware" (i.e. regular lines).

Please note that not all information here is relevant to both types of lines, information intended for one type of line is marked clearly.

Bridge Tab (for VoIP)

Dial on a line (of different type)...

Specify what to do when a call comes in to this line. You can choose to either pass on the number that was dialed, or you can choose to ignore that number and instead dial a fixed number (which you can specify).

On...

This specifies what line to use to do the dialing. If you select "Any available line", Axon will use the first free hardware line. Selecting "First free line in this list" will let you choose what hardware line to use for the call.

Bridge Tab (for Hardware)

Dial on a line (of different type)...

Specify what to do when a call comes in to this line. You can choose to dial the default number specified in the Program Options -> General tab, or you can choose to ignore that number and instead dial a fixed number (which you can specify).

On...

This specifies what line to use to do the dialing. If you select "Any available line", Carousel will use the first free VoIP line. Selecting "First free line in this list" will let you choose what VoIP line to use for the call.

Options - Voice Prompts

The Voice Prompt Settings can be found in the application Options under the "Prompts" tab. This tab displays a list of all the voice prompts that are used by Axon for various interactive features like the internal voicemail system. From this list you can listen to or change any of the voice prompts.

To change a prompt, select the prompt and click on the 'Change...' button. This will pop up a menu with options that you can use to change the prompt. Here you can choose to record a new prompt, load an existing wav or mp3 file, synthesize text to speech, edit the existing prompt (using WavePad), or restore the default file.

Telephone Features (Advanced) - IP Phone Set Up for Call Park and Call Pickup

The following instructions will guide you through setting up a Linksys IP phone to handle call park and call pickup capabilities. Linksys Series 9XX IP phones are available for purchase at http://www.altoedge.com/ipphones/index.html
.

1.   Obtain the phone's IP address:

   To find the phone's IP address, press the settings button on the phone (look for an icon of a paper with a folded corner). Using the arrow buttons, scroll through the settings menu to the Network option and press Select. Write down the Current IP address.

2.   Enable Call Park/Pickup soft buttons:

   - In your browser's address bar, enter the phone's IP address. This will bring up the Linksys Telephone Configuration screen.
   - Click the 'Admin Login' link from the upper right corner. Enter your password if prompted for one. If this is your first time logging into the administration screen, no password should be required.
   - Click the 'Advanced' link in the upper right corner.
   - Click the 'SIP' tab.
   - Locate the 'Linksys Key System Parameters' section and change the 'Linksys Key System' setting to 'Yes'.
   - Click the 'Submit All Changes' button.

The phone's screen will reset, and then additional soft buttons will be available. You can view the added soft buttons on the phone by pressing the right arrow.

See also:
- Call Park
- Call Pickup

Telephone Features (Advanced) - Call Park

The call park function allows you to place the current call on a holding extension, which then can be picked up from any phone in the network by accessing that same extension.

The following instructions work for a Linksys SPA9XX IP phone, and may work as guidelines for other IP phones that use similar SIP signaling.

Park a call
An active call can be parked by pressing the right arrow button and pressing the 'park' soft button. Enter a park number for the call, and then press the 'dial' soft button. This can be a number of almost any length, although we recommend you use a number with 3 or more digits to prevent potential conflicts. Remember the park number as it will be required to unpark the call.

Once the call is parked, the caller will hear either the default on-hold music or any messages you have set up through IMS. The phone used to park the call will no longer be attached to the call.

Unpark a call
You can retrieve a parked call from any phone within the local phone network by pressing the right arrow button and pressing the 'unpark' soft button. Enter the park number the call was placed on, and press the 'dial' soft button to put the call through.

See also:
- IP Phone Setup for Call Park and Call Pickup

Telephone Features (Advanced) - Call Pickup

The call pickup function allows you to answer a call from a phone other than the extension the call was placed to. These instructions work for a Linksys SPA9XX IP phone, and may work as guidelines for other IP phones that use similar SIP signaling.

To pick up a call that is ringing on another extension, press the right arrow and press the 'pickup' soft button. Enter the extension the call is ringing on. This will bring up a list of all the unanswered calls available on that extension. The list will not contain any calls in progress, or calls placed on hold. Use the up/down arrow buttons to highlight the call you would like to pick up, and press the 'dial' soft button to put the call through to your phone.

See also:
- IP Phone Setup for Call Park and Call Pickup

Telephone Features (Advanced) - Voicemail (Internal) - Phone Interface

Axon has an internal voice mail system that will take messages for unanswered calls. This feature must be turned on for the Axon system through the System Settings and then again for each extension that will use it. By default the voice mail service runs on extension 500, but this can be changed from the system settings as well.

Once an extension is configured for voice mail, a user can call in to the voice mail extension to configure a personal greeting and check messages. The voice mail box can also be accessed and configured through the Axon web control.

Dialing In:
1.   From the extension:

Dial the voice mail extension. The system may prompt you for a PIN number depending on how it is set up. After this is complete you will be at the voice mail main menu.
2.   From an external extension or line: (requires access from an external phone be enabled)

Dial the extension number that you would like to check the voice mail on. While the greeting is playing press the star (*) key. The system will prompt you for a PIN number. After this is entered you will be at the voice mail main menu.

Voice Mail Menu After you have dialed in to the correct voice mail box the system will guide you through the menus with voice prompts. The prompts will guide you through most of the functionality.

Message Playback Options
While a message is playing back the following options are always available:

* 1 - Rewind 10 seconds
* 2 - Pause/Resume
* 3 - Fast Forward 10 seconds
* 4 - Rewind to beginning of message
* 7 - Delete message
* 9 - Save message
* * - Back to Messages Menu

See also:

* System Voicemail Settings
* Extension Settings
* Voicemail (Internal) - Web Interface

Telephone Features (Advanced) - Voicemail (Internal) - Web Interface

Axon has an internal voicemail system that will take messages for unanswered calls. This feature must be turned on for the Axon system through the System Settings and then again for each extension that will use it.

An extension's voicemail can be checked through the Web Control panel if the extension has been set up to do so. This access is configured from the administrator's control panel. Voicemail will still be accessible through the phone as well.

Logging In:
1.   Open the Axon web control panel

     Open the Axon web control panel using your web browser. You can find the address for the web control panel on the Web Access tab in the Options dialog.
2.   Enter the extension as the username (e.g. "101") and the password for web access and click "Login".

Voice Mail Web Interface After you have logged in to the web control panel you should see 3 tabs: Messages, Account Settings, and Extension Status.

Messages
On the messages tab you will find playback controls for listening to, deleting and sending all of the voice mails currently in your mailbox. In order to use the in-browser playback controls you will need to install a plugin (the browser will notify you what plugin and direct you to download it). If you are unable to install this control or do not wish to for security reasons, you can use the "Save" button to download a copy of the message to the local machine for playback in an alternate media player.

Account Settings
From the Account Settings tab you can change your phone PIN, web access password, and delivery options for new messages.

Note: "Send voicemail by email" will send a copy of the message by email. "Send notification by email" will only send a notification that a message has been received. Both options can be turned on simultaneously if, for example, you wanted an SMS notification that a message arrives and would like to be able to check your email to retrieve the message later.

Extension Status
The Extension Status tab allows a user to quickly check what other extensions are registered and which (if any) are currently on a call.

See also:
*   System Voicemail Settings
*   Extension Settings
*   Voicemail (Internal) - Phone Interface

Telephone Features (Advanced) - Message Waiting Indicator

Axon can also provide a message waiting indicator (MWI) when using internal voice mail or IVM Answering Attendant software
. This will work with Express Talk ,
LinkSys SPA9XX Series IP phones
, and any other softphones/IP phones that support similar signaling technology (please read your phone's user manual to determine if MWI is available, and for configuration instructions.).

Using MWI with Express Talk
1. Open the Options dialog in Express Talk
2. From the Lines Tab, select the option "Check for voice mail notifications on the default line"

Notifications for messages for the default line will now be shown in the log window of Express Talk, and a special icon will flash in the title bar when there are new messages.

Using MWI with a LinkSys SPA9XX
1.   Obtain the phone's IP address:

   To find the phone's IP address, press the settings button on the phone (look for an icon of a paper with a folded corner). Using the arrow buttons, scroll through the settings menu to the Network option and press Select. Write down the Current IP address.

2.   Enable Message Waiting Indicator:

- In your browser's address bar, enter the phone's IP address. This will bring up the Linksys Telephone Configuration screen.
- Click the 'Admin Login' link from the upper right corner. Enter your password if prompted for one. If this is your first time logging into the administration screen, no password should be required.
- Click the 'Advanced' link in the upper right corner.
- Click the tab for the line that will connect to Axon for MWI. (e.g. "Ext 1" for the first line) You will have to repeat the following steps for each extension tab you want to enable MWI on.
- Locate the 'Call Feature Settings' section and change the 'Message Waiting' setting to 'Yes'.
- Click the 'Submit All Changes' button.

Notifications for messages for the extension will now be received by the phone and a special mail icon will appear next to the line number whenever there are new messages.

See also:
- Voicemail (Internal) - Phone Interface
- Voicemail (Internal) - Web Interface

Telephone Features (Advanced) - On-Hold Music

When a call is on hold you do not want the caller to listen to silence. Unfortunately, with VoIP systems it can sometimes be confusing where the hold music is generated and how to make it available to the device or program managing the call. Axon supports on-hold music in a couple different ways, depending on how your system is configured. You will first need to make some modifications to guarantee that on-hold music is played when an individual is put on hold.

In general, Axon will play on-hold music to the other end of a call when the call is ringing on (or being transferred to) a group extension or a call is put in the Call Park queue. When a softphone or IP phone is placed on hold, it will generally handle playing on-hold music itself.

Axon can play an on-hold music file (chimes) or it can work with <u>IMS On-Hold Messages Player</u> to provide a mix of music and messages to the other half of a call.

Setting up IMS with Axon
For each group in Axon you can set up different on-hold music. This will allow calls to a sales line to hear different hold music/messages from a customer service line. For information on setting up hold music see the Group Extensions section of <u>Extensions & Groups</u>. Calls placed in the Call Park queue will use the default IMS player if it can be discovered. Otherwise it will play the default on-hold music (chimes).

Using IMS with a LinkSys SPA9XX
The LinkSys SPA9XX series of phones (along with many other IP phones) uses the concept of an on-hold extension to play on-hold messages. Basically, when a call is placed on hold the phone will place a call to the on-hold extension and play the incoming audio to the other side of the call that is on hold. IMS supports running as an on-hold extension, and should register itself with Axon automatically if they are running on the same computer.

Before you begin setting up your on hold extension you will need to gather the following:

- The IP address of the computer running Axon
- The port number that Axon runs SIP on (e.g. 5060)
- The extension number that IMS is registered to (this will generally be 197 if using Axon and IMS together)

1. Obtain the phone's IP address:

   To find the phone's IP address, press the settings button on the phone (look for an icon of a paper with a folded corner). Using the arrow buttons, scroll through the settings menu to the Network option and press Select. Write down the Current IP address.

2. Set up the On-Hold extension:

   - In your browser's address bar, enter the phone's IP address. This will bring up the Linksys Telephone Configuration screen.
   - Click the 'Admin Login' link from the upper right corner. Enter your password if prompted for one. If this is your first time logging into the administration screen, no password should be required.

- Click the 'Advanced' link in the upper right corner.
- Click the tab for the line that will connect to an on-hold extension in Axon. (e.g. "Ext 1" for the first line) You will have to repeat the following steps for each extension tab you want to enable hold music on.
- Locate the 'Call Feature Settings' section and change the 'MOH Server' setting to match your extension. This will be in a format like 'extension@axonserver:port'.

   Example: For extension 197, connecting to Axon at 1.2.3.4 over the standard SIP port (5060) the value for this field would be '197@1.2.3.4:5060'.
- Click the 'Submit All Changes' button.

Using IMS with Express Talk
Setting up Express Talk for use with IMS is very similar to configuring it in Axon. Refer to the help documentation for Express Talk for more specific information.

Telephone Features (Advanced) - Call Recording

Axon allows call recording when used with <u>VRS Multichannel Voice Recorder</u>. If VRS and Axon are installed on the same computer they should discover each other and configure lines automatically. Otherwise, you will need to configure both products to support recording manually. For Axon, you will need to set a VRS Host name and Access Code. These can be edited from the extension properties page, and are shared by all Extensions and External Lines in Axon. For more information on these parameters, see the help for configuring

<u>Extensions</u>

. For information on configuring VRS, please refer to that product's help documentation.

Recording Rules
You may notice that extensions all have an option to record outgoing calls, while external lines only have the option to record incoming calls. This is a bit confusing at first, but completely intentional. The reason is that when all calls are recorded from the originating side there will never be duplicate recordings for things like recording extension-to-extension calls if both extensions are set to record both incoming and outgoing calls. You can record all calls by selecting the record option for all extensions and external lines.

Telephone Features (Advanced) - Using the Call Attendant

Axon has a built in call attendant that can direct calls from an external line to any of multiple extensions. This feature must be turned on for the Axon system through the System Settings. By default the attendant runs on extension 501.

Changing your Extension List
When the call attendant answers, Axon will offer the option to listen to a list of extensions. This list will be specific to your setup and should be something like, "For John dial 101. For Susan dial 102...". In order to change the extension list prompt you need to go the Options dialog from the main UI. Select the Prompts tab and then find the 'extension_list' Voice Prompt in the list. Click 'Change...' to record or synthesize a new extension list. For more information on changing prompts, see Voice Prompts.

Using the Attendant
After you have set up the extension list prompt you should test the call attendant to ensure it is working correctly. To test the call attendant you can call the extension from any phone connected to Axon. The system will answer with a prompt requesting you to dial an extension or press star (*) to hear the extension list. Verify that the extension list is correct and that dialing an extension transfers you to the correct number.

Setting the Attendant to Answer an External Line
The most common use for the call attendant is to route calls from a single external line to the correct internal extension. In order to do this, you will want to set your external line to ring on the call attendant extension. For information on how to do this, please see the help on External Lines configuration
.

Note: If the call attendant functionality provided by Axon is not sufficient for your purposes you may want to download IVM Answering Attendant. It will allow more complex call flows including multiple menu prompts, fully configurable voice prompts and key press options, and multiple answering lines (e.g. Sales Line vs. Customer Service).

See also:
- Auto-Attendant Configuration
- Voice Prompts

Telephone Features (Advanced) - Line Bridging Overview

Line bridging is one of the more difficult concepts in Axon to understand. Basically put, line bridging allows calls from two different types of phone systems to connect to each other. In the case of Axon this allows a hardware line (like a TAPI modem or CAHTA device) to connect to a VoIP line within Axon and vice versa. This is not necessary with FXO/FXS adapters since they handle this internally and only work as a VoIP device for Axon.

Setting up Bridging
In order to set up line bridging you will first need to install your hardware device and its drivers. Once this is complete, your hardware lines should appear in the Options ~ Line Bridging dialog. If they do not, your device may not be compliant with Axon's line bridging feature. Supported devices include CAHTA devices and 100% TAPI compliant full-duplex voice modems.

After you have gotten the devices to appear in the Line Bridging configuration dialog, you will need to enable line bridging and configure the VoIP and hardware lines to connect correctly.

VoIP to Landline
Being able to place an outside call through a hardware line requires you to set up external dialing rules as well as line bridging. Usually, the caller will prepend an 8 or 9 to a number (e.g. 9-555-1234) to reach an outside line. If the rule supplied connects to the external line "Carousel FXO Gateway", then it will use the line bridging rules. Because of the way an external line is reached, it is most common to have Axon dial "The number that was dialed by the incoming caller". This ensures that, for the previous example, Axon would dial 555-1234. It is generally recommended that you allow the call to be placed on any available hardware line, but if you connect to multiple phone networks it may be preferable to have outbound calls dial on a certain line to reduce long distance or other charges. For more information on configuring VoIP to Landline settings, see Options ~ Line Bridging.

Landline to VoIP
When a call comes in from a landline, it will usually be directed to a single incoming extension (direct dial) or to a call attendant or operator. In any case, generally this will mean that when a call comes in you will want Axon to dial a certain extension. You can select the extension that you would like the call to be made on, but generally it is best to allow the call to be dialed from any available VoIP line. For more information on configuring Landline to VoIP settings, see Options ~ Line Bridging
.

Testing Line Bridging
If line bridging is set up correctly you should be able to both place and receive a call on the hardware line. If you are unable to get this working, you may have issues in your configuration or you may be using a half-duplex TAPI modem. Check your hardware information to ensure that your device is capable and then try the recommended settings above to test if you are still having issues.

See also:
- Options ~ Line Bridging
- Options ~ Line Bridging ~ Bridge

Telephone Features (Advanced) - Brute Force Security

Overview

As VoIP becomes a more popular technology, more and more hackers are making attempts to exploit poorly secured VoIP servers. Hackers will scan for open servers and attempt to guess the password for an account on the system. Axon attempts to counteract this by counting invalid log in attempts coming from an IP address. If a single IP address makes more than 15 invalid login attempts with less than 24 hours separating them, Axon will add the IP address to the blacklist and ignore all future requests from that address.

While blocking an IP address based on invalid login attempts will allow Axon to combat hackers quickly and without user intervention (a well written attack could send hundreds of requests every second), it can have some unintended consequences as well. If an IP phone is set up with an invalid password for instance, it will probably try to re-register once every 10 minutes. After about 3 hours the phone will have made enough failed attempts to get itself banned. If this happens you may need to manually remove the IP address from the blacklist before the IP phone will be able to connect successfully.

In some other cases an attack may not actually try to guess a password, but could bombard your system with requests to try and force a Denial of Service attack. This basically tries to use partial requests to flood the server with incoming data in an attempt to make the level of service decrease or stop entirely. To stop this kind of attack, you can manually add the IP address to the blacklist. Most hacking scripts will continue trying the attack for a period of time, but if there is no response they will eventually give up.

Configuration

Configuring the IP blacklist for your system is done from the Web Control panel. To do this, you will need to open the System Settings tab, find the Network Settings section and click on the "Manage IP Blacklist" button. From this interface, you can see what IP addresses are currently blacklisted and block/unblock individual addresses as needed. When adding addresses to the blacklist you should enter the full IP address in numeric form, like "1.2.3.4" or "192.168.1.100".

See also:
- Network Configuration

Telephone Features (Advanced) - Axon Dialer

Axon can be used as a outbound dialer to connect calls to a list of users. This guide will explain what the outbound dialer can be used for and how it operates. To use these features you will need to download and install Axon Agent.

Typical Uses
The Dialer can be used to call a number of clients automatically from a list. Calls can be placed by multiple agents simultaneously (requires Enterprise license) without worrying about a client getting multiple calls. This can be used for any application where automating the dialing process can help agents reach a number of people quickly. Some typical uses include:

- Small Outbound Call Centers
- Service Centers Contacting Customers
- Reaching out to Political Constituents
- Charities Placing Calls to Donors

Agents Agents are phone operators who will speak to a client after a call is connected. When an agent logs on and is ready to place a call for a campaign, Axon will dial the number and provide customer information to the agent while they are on the call. Agents can place calls and update customer information and notes.

Campaigns
Campaigns are specific calling programs consisting of a dialing list (and the status of each call in the list) and a Campaign Script for agents to refer to or follow during the call. Campaigns can be set up and flagged as Inactive until they are ready to be dialed. Setting a campaign to Active will allow agents to begin dialing numbers from that campaign.

Dialing Lists
Dialing Lists are at the core of the outbound dialer. These lists contain customer information including the number Axon will dial to reach the customer, various customer information that can be used and updated by the agent while on a call, and call status information if the call has already been placed.

See also:
- Agent Configuration
- Campaign Configuration
- Dialing List Configuration

Screen References - Select Dial-Out Line

Select one of the available lines to add to the list of lines to dial out on.

Screen References - Options ~ Line Bridging

Line Bridging allows the connection of VoIP telephone lines to regular 'landline' telephone lines. It lets you harness the power and flexibility of VoIP while still retaining the use of your existing telephone lines.

Enable Line Bridging between VoIP and Landlines

Check (tick) this option to enable Line Bridging within Axon.

Lines

VoIP to Landline

View/Edit the properties for the incoming VoIP calls.

Landlines

The list of hardware lines that can be used for line bridging within Axon.

Add...

To add a new line simply click the Add button and you will be presented with a list of all hardware lines installed on your computer.

Remove

Remove an unused hardware line.

Properties...

View/Edit the properties for the hardware line, including the behavior of incoming calls on the line.

Screen References - Options ~ Line Bridging ~ Bridge

This information relates to settings up a bridging line in Axon.

Lines can be of type "VoIP" or type "Hardware" (i.e. regular lines).

Please note that not all information here is relevant to both types of lines, information intended for one type of line is marked clearly.

Bridge Tab (for VoIP)

Dial on a line (of different type)...

Specify what to do when a call comes in to this line. You can choose to either pass on the number that was dialed, or you can choose to ignore that number and instead dial a fixed number (which you can specify).

On...

This specifies what line to use to do the dialing. If you select "Any available line", Axon will use the first free hardware line. Selecting "First free line in this list" will let you choose what hardware line to use for the call.

Bridge Tab (for Hardware)

Dial on a line (of different type)...

Specify what to do when a call comes in to this line. You can choose to dial the default number specified in the Program Options -> General tab, or you can choose to ignore that number and instead dial a fixed number (which you can specify).

On...

This specifies what line to use to do the dialing. If you select "Any available line", Carousel will use the first free VoIP line. Selecting "First free line in this list" will let you choose what VoIP line to use for the call.

Screen References - Advanced Recording Options

Automatic Recording

The recording can be automatically started when either the Record Control dialog is opened or when the audio to be recorded reaches the threshold level. Additionally any quiet periods at the start and the end of the recording that is below the threshold level can be trimmed.

Auto Start Recording

The recording will automatically start when the Record Control dialog is opened, you will not need to select the record button.

Auto Trim Recording

Trim the recording to remove any quiet periods from the start and ending of the recording. Use the threshold slider to specify the cutoff level. Voice Activated Recording

Automatically start the recording when the audio level reaches the threshold.

Threshold:

Use the slider to set the threshold level for the recording. Used for both the auto trim and the voice activated start.

Screen References - Options ~ Web Access

Browser Access

For more information on setting up Browser Access, see this Knowledge Base article:
www.nch.com.au/kb/10233.html
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