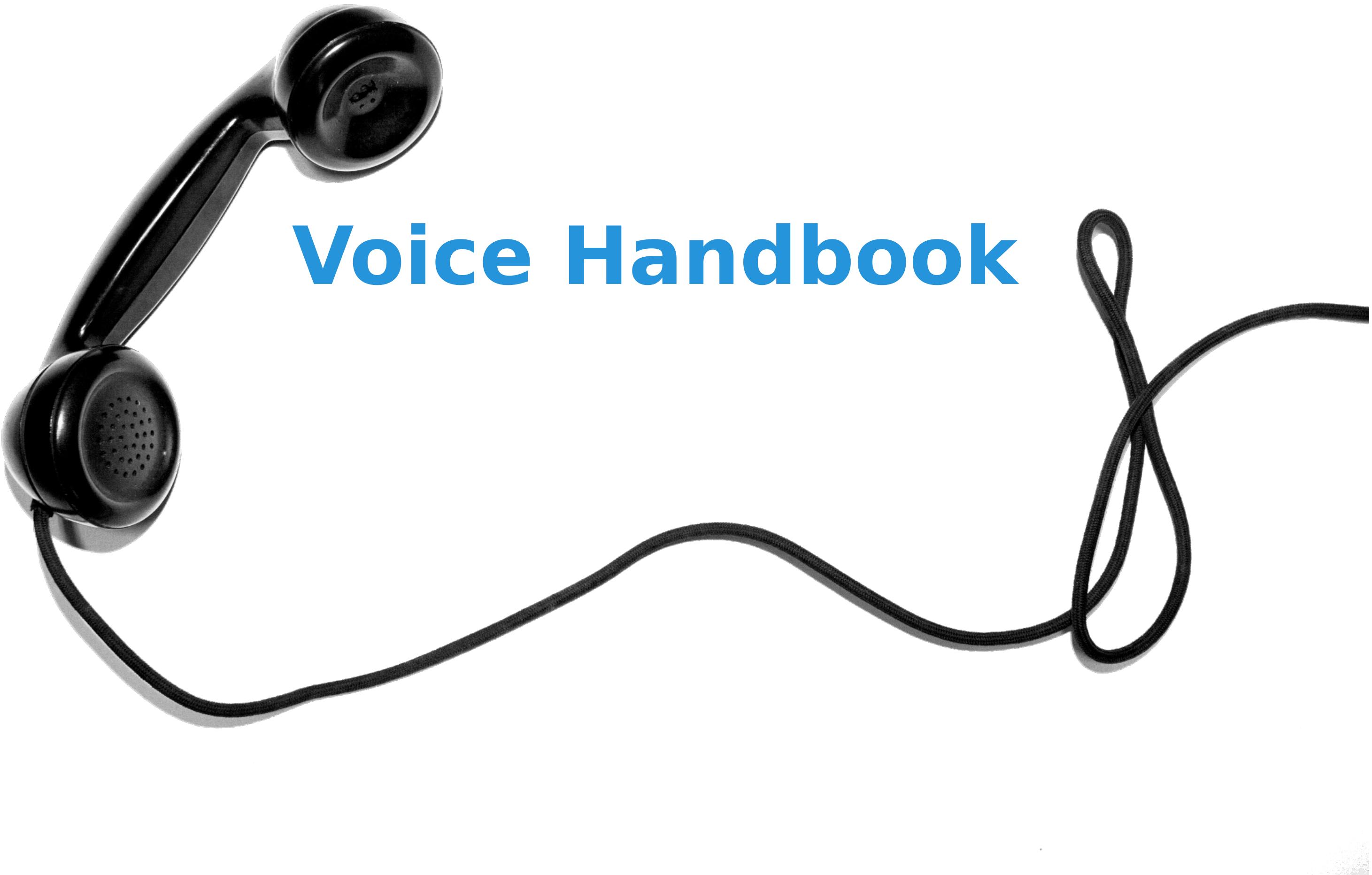
Andrews & Arnold Ltd



Voice Handbook

This document explains our Voice over IP service

How to use it and the features available to you

support@aa.net.uk **03333 400 999**

Contents

Getting Started with your VoIP Account

The following few pages contains information on getting your telephone working with the A&A service.

1 Configuring your phone

The majority of customers will have a VoIP telephone and a VoIP Number.

> If you have purchased a phone or ATA from us then it's likely we would have configured and tested it. Plugging it in should be all that's required. We would have also included an information sheet with further information. You can therefore ignore the information in this section as we have done the work for you.

There are two things that need to be done to configure your own phone for our service:

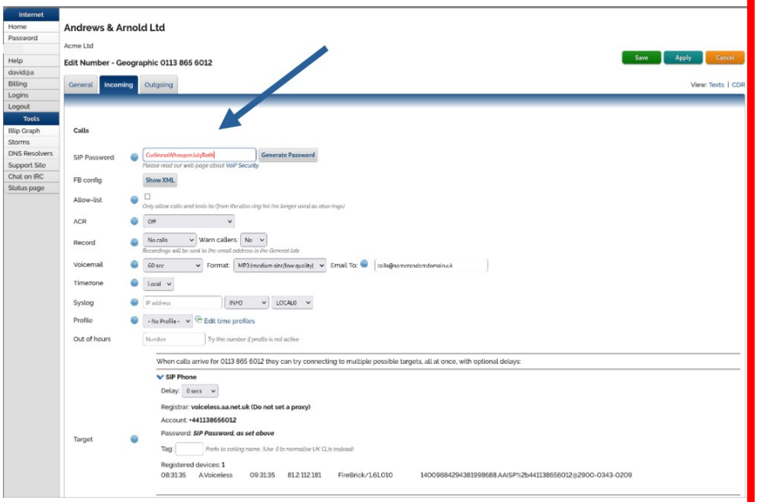
1. **Set the SIP Password**
2. **Configure the credentials in to your phone**

The steps are on the next page.

1.1 Set the SIP Password

A SIP password is not generated automatically, you will need to create one via the Control Pages.

1. Log in to the [Control Pages](https://control.aa.net.uk) (https://control.aa.net.uk) with your xxx@a login
2. Click on the phone number
3. Click the Incoming Tab
4. Enter in a password
5. **Click Apply**



The email we sent you when you ordered the phone number will have your Control Page login details.

1.2 Basic Phone Settings

Most phones will have a web interface where you can set the account credentials for the VoIP account.

If you're not sure how to log in to your phone, take a look though its manual

Here are the server details you'll need:

Server / registrar	voiceless.aa.net.uk	
Username / account	Your phone number	Eg +441234567890
Password	The SIP password for the number	As set on control pages above

1.3 Other SIP Account Settings

There are a few other settings relating to the SIP account that we'd recommend you set or change. Your phone should have settings similar to these that you can set.

Port	5060
CODEC	PCM A-Law (G.711a)
Register Expiration	600 seconds (10 minutes)
Keep-alive	30 seconds
Stun Server *	stun.aa.net.uk

* Only use the stun server if you're behind NAT and have problems.
If you still have problems see the chapter in this document regarding VoIP Problems'

1.4 Settings for specific devices

We may have more specific configuration help if your phone is listed on the VoIP Phones page

> ⓘ **https://support.aa.net.uk/Category:VoIP_Phones**

1.5 Summary of Section

With the information in this section you should have a working phone and can make and receive phone calls.

If you're still stuck, then take a look at the VoIP section of our support site and get in touch with us.

> ⓘ **https://support.aa.net.uk/Category:VoIP**

2 Home & Business

Our VoIP service is equally suited for home users and business users.

We have various features that are available to everyone, we don't separate the feature-set; all numbers have all features regardless of wether you're a home user or a business.

This does mean that the features we describe may be irreverent to home users, however, the option is there should the need arise.

3 Number Porting

Most telephone numbers can be ported in (and out) of A&A.

This includes numbers on a copper line to your home and numbers on an ISDN service to a business.

This enables you move your long-held number on a traditional telephone service to be moved to a VoIP service.

4 A note about 'extensions' and 'numbers'

We don't have separate concepts of extensions or numbers.

Instead any VoIP number from A&A can be an extension. We can provide VoIP numbers in contiguous blocks – eg you can buy a block of ten numbers from us.

These can be used as you like, but for example, you may want one number to be your published phone number, and then your staff can have their own number.

Their own number can also be used an an 'extension'. You can call each other using the last three digits of your block.

You can configure the 'main' number with various delays and 'also rings' to control who's phone rings when the main number is called. Example on how to do this is further down in the document.

The thing to remember is to purchase a number for each member of your staff, you can purchase extra numbers to be 'group' numbers too, if you wish.

5 VoIP Basics

Before we get in to more details about the A&A VoIP service it is worth explaining a bit about what VoIP is and how it differs from the traditional ‘phone line’ service that we may be more used to.

5.1 Traditional telephone line verses VoIP

5.1.1 The traditional way (old)

The traditional telephone service provided a way for people to make phone calls. Each phone line had a phone number, and by using a telephone plugged in to the phone line, one was able to call other phone numbers and speak to people.

This is pretty much the same as to how VoIP works. Except the technology used is very different.

VoIP uses the same phone numbers, but instead of needing an electrical wire (a phone line) between your phone and the nearest telephone exchange – with the wire being carried on overhear telegraph poles or through underground ducts, the phone call is carried over an internet connection.

> ⓘ **VoIP stands for: Voice over Internet Protocol**

During the second half of the 2020’s Openreach (BT PLC) are shutting down exchanges and retiring the traditional PSTN telephone network. This necessitates the need to move telephone services over to VoIP.

5.1.2 The VoIP way (new)

Instead of your phone being plugged in to the exchange via a long cable and BT managing the national telephone network, a new, VoIP capable, phone is required. This ‘registers’ with a VoIP provider (eg A&A) over your internet connection. The VoIP provider then manages the routing of the calls and provides various features that you can make use of.

There are many advantages of VoIP and there are also things to be aware of. Most of these are covered in this document.

5.2 What is needed for VoIP?

At a basic level, you need two things:

1. A Phone Number
2. Somewhere to send the calls to

5.2.1 Numbers

Phone numbers can be easily ordered from our website, you can choose the area code and how many numbers you want.

5.2.2 Target for the calls

Somewhere to send the calls can vary, for example:

- A VoIP phone, eg a **DECT cordless phone**, or a desk wired phone, we can provide anbc configure these for you, or you can use your own.
- Some **broadband routers** have VoIP support, and have a socket to plug in a standard analogue phone. The router would need to be configured for our service.
- You could run a **VoIP server** such as FreeSwitch and we can trunk calls to you.
- We could **redirect** calls to another number such as your mobile (costs are involved).
- You could use a **software phone** on your computer or mobile phone.
- We could just send call to **Voicemail**, and you get emailed the recordings.

You'll learn more about these targets and features in the following sections.

5.2.3 SMS (AKA texts)

Mobile phone numbers, when ordered from us or ported in, are able to receive SMS. The message is then sent to you either by:

- Email
- Mastodon address
- Web call to your own webserver/script
- Our SIP2SIM service

Email is usually easiest.

To send a SMS, you can use our online form, API, or from your mobile phone if you're using our SIP2SIM service.

> ⓘ https://www.aa.net.uk/voice-and-mobile/text-messages/

6 Understanding the costs involved in our VoIP service

Actual prices will be on our website and also shown when you go through the order process.

6.1 One-off costs:

Ordering a new phone number, or ordering port to us, has an initial one off cost.

You may need to purchase a SIP phone. We can provide a phone and configure it for you but you are also free to use other devices or set up a phone system for use with the service. Some software phones and phone systems are free of charge.

6.2 Ongoing costs (monthly):

Each phone number you have will have a monthly fee – this is regardless of any calls you make.

6.3 Call Costs:

Calls you make out have a cost. There is a cost lookup tool on our website, where you can enter the phone number (or part of) that you want to call and we'll display the costs.

Incoming calls usually have no cost. If you receive a call on your SIP phone or SIP PBX then there is no cost to receive a call.

It is possible for us (or for your SIP device) to forward (divert) incoming calls to another phone number, in this case we make an outbound call to reach the phone number being diverted to and this would have a cost.

6.4 Other features

We don't charge for extra features. Voicemail and call recording are part of the service.

6.5 SIP2SIM

SIP2SIM is a special case, as there is an 'airtime' charge for inbound or outbound phone calls. However this is before any VoIP charges. See our website regarding SIP2SIM.

Note: Costs here don't include things like the underlying internet connection, electricity etc that is needed to make the service actually work!

7 Call Routing

The previous section explains how to configure a single phone to register to your number, but you may want to use your number in a different way. This section explains other ways you can use your phone:

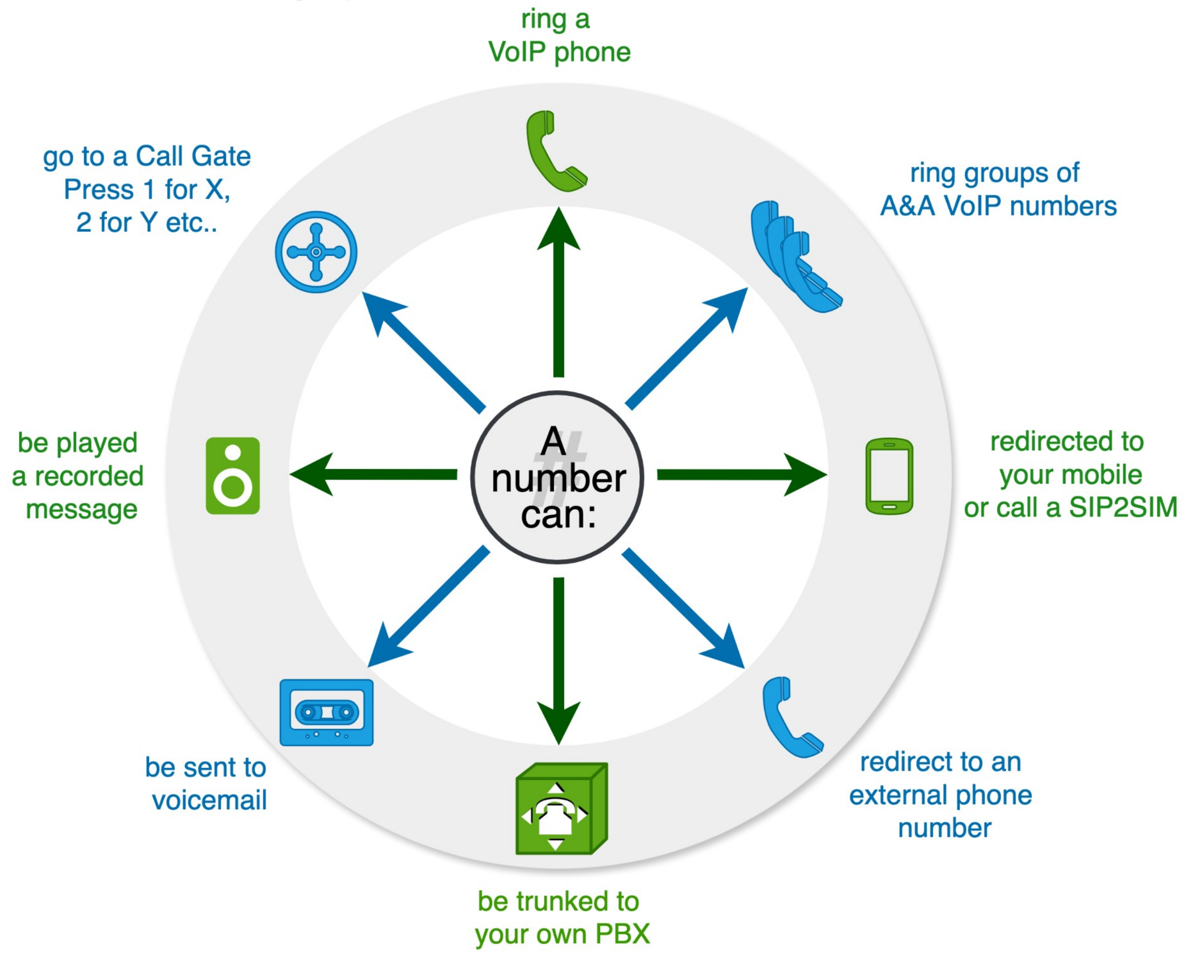
- **Redirect calls to your mobile phone**
- **Route calls to your own phone server / PBX (SIP Trunk)**
- **Send all calls to voicemail**

There are also more advanced ways to route calls, such as:

- **Have the number ring multiple phones**
- **Use a 'Call Gate' (IVR) to present a menu to callers**

Many of these routing options can also be combined. These will be covered in the following chapters.

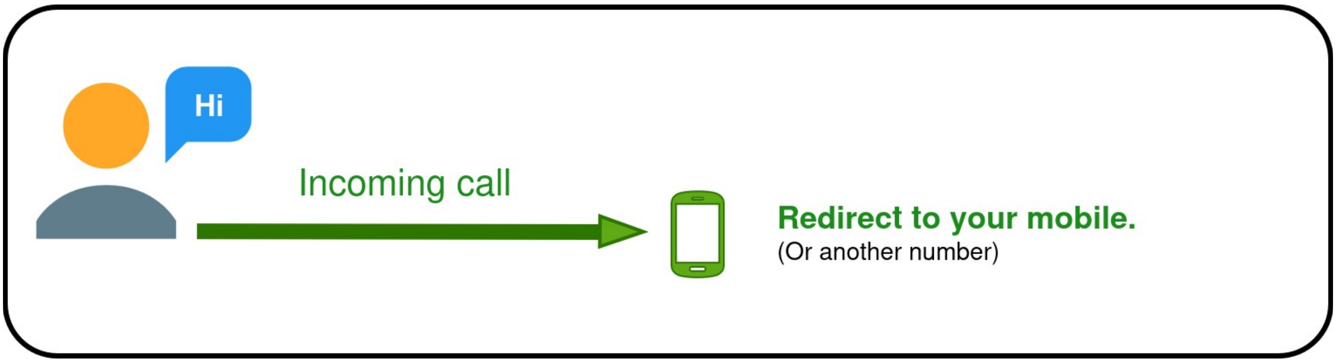
A&A VoIP Routing Options



7.1 Redirect calls to another number

You can easily redirect incoming calls to another number, this could be to:

- **Your mobile number**
- **Another A&A VoIP number**
- **A completely different number**



7.1.1 Costs

It's important to understand that the cost of redirecting a call to another number has a cost.

> The cost of the redirect costs what it would cost to call that number

You can use our call cost lookup tool on our website to see the cost. Typically calling a mobile costs a few pence per minute. Calling another A&A VoIP number has no charge.

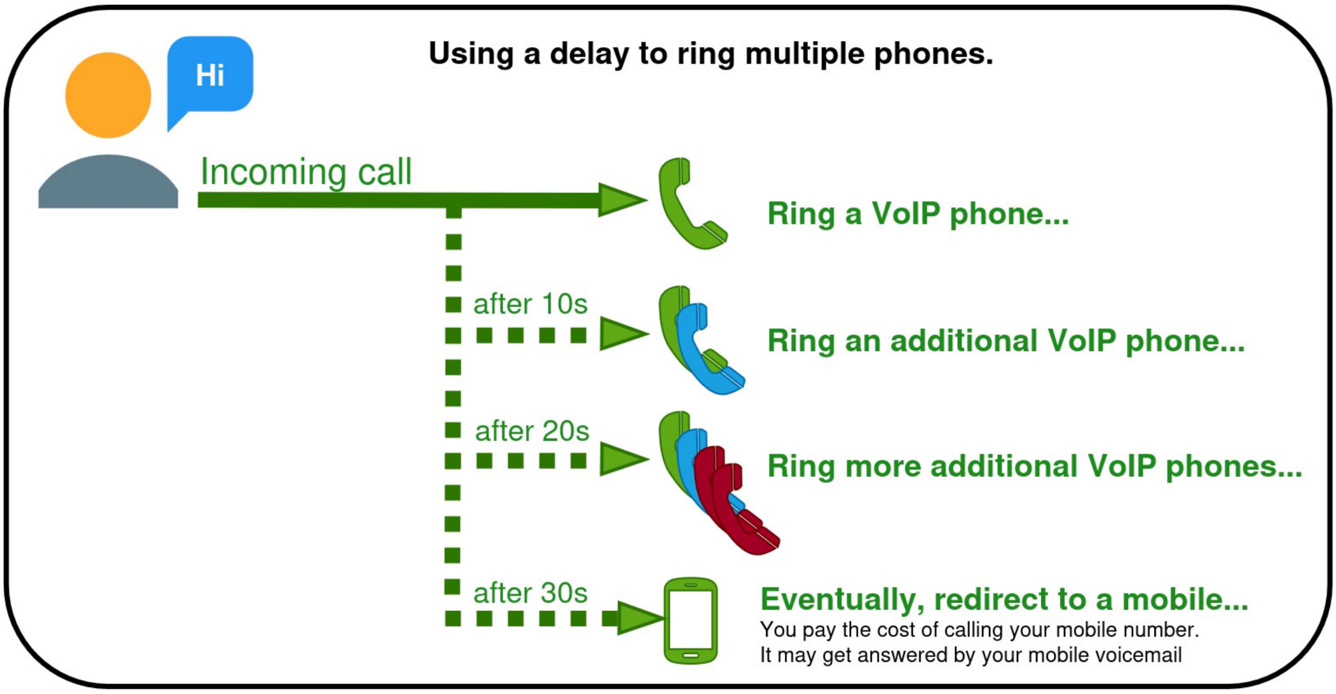
7.1.2 How to:

> ⓘ **https://support.aa.net.uk/VoIP_How_to:_Redirect_to_another_number**

7.1.3 Going further: Redirecting to multiple numbers (Ring groups)

This is a typical small-office scenario where you publish a main number for your customers to call, and you have staff with their own VoIP phone and individual number.

Optionally, you can define time delays so that staff can be rung in order. The incoming call will then ring multiple phones at the same time (cascade effect) as time goes on.



> You can order blocks of phone number, eg a block of 10, 20 or more

> ⓘ https://support.aa.net.uk/VoIP_-_Multple_Targets

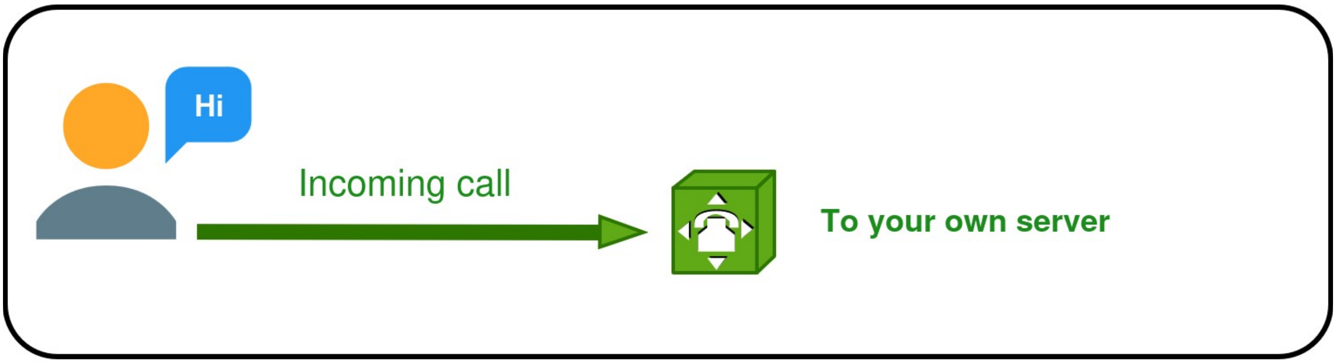
You can redirect to multiple numbers, optionally each with a delay time before we start trying.

> ⓘ https://support.aa.net.uk/VoIP_How_to:_Ring_extensions_one_by_one

7.2 Route calls to your own phone server

This is also known as SIP Trunks

Running your own phone system gives you more control and flexibility about how you manage calls.



7.2.1 SIP Trunk Basics

Here are some things to know about SIP Trunking:

- Any VoIP Number can be used as a SIP Trunk
- There are no limits on number of inbound calls you can receive
- There are no limits on number of outbound calls you can make
- SIP Registration isn't required, we can simply route calls to your server
- Use the 'fail' option to have us send calls elsewhere in event of being unable to reach your server
- See further down on examples of where we can send to your server and then try other numbers

7.2.2 How to:

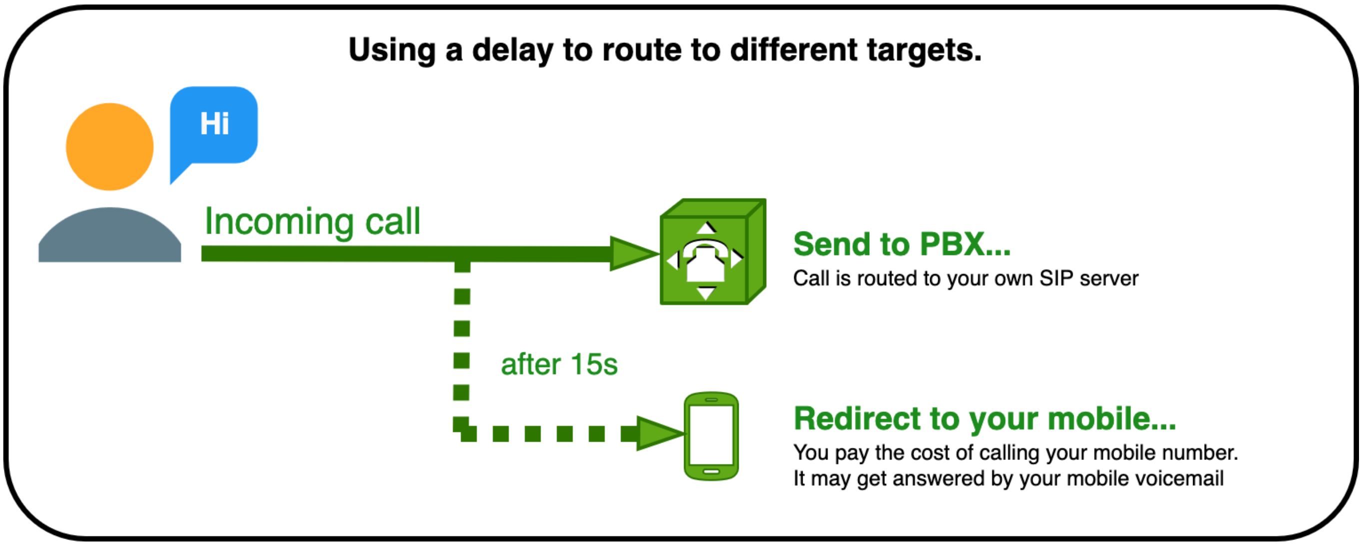
ⓘ **https://support.aa.net.uk/VoIP_SIP_Trunks**

7.3 SIP server and other targets

Mixing things up with ‘delay’

The system allows you to use a mixture of targets and by using the ‘delay’ option you can control when a target is tried.

For example, say you want to send the call to your SIP server, then if not answered after 15 seconds send the call to a mobile number, this is possible.



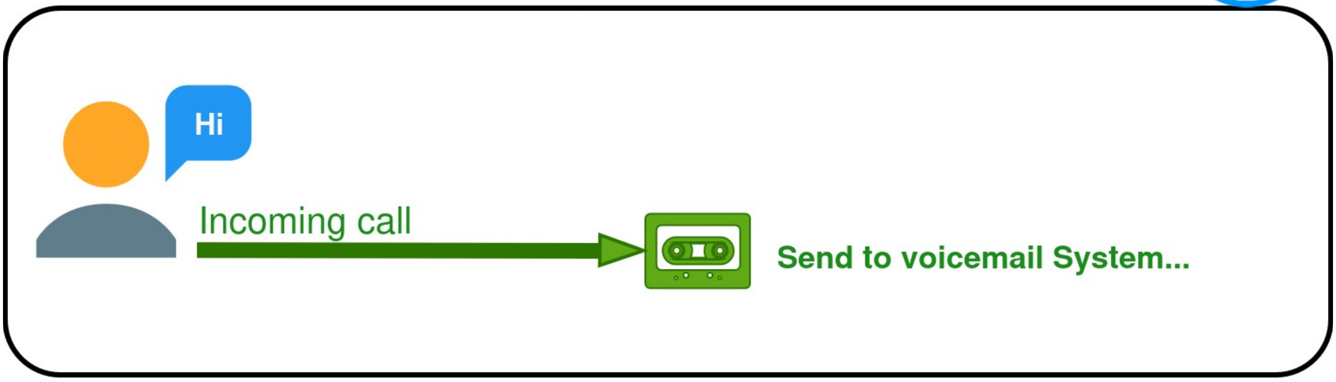
7.3.1 How to: (on the control pages)

1. Configure the SIP server, host, user, password for us to use to with your own sercer
2. In the Also Ring section, add your mobile number and set a 15s delay

7.3.2 Going further:

You can use the delay option to send the calls to various places.
Delays can overlap, so in the example above it’s quite possible to add two or more numbers to the ‘also ring’ section with their own delays. So rather than ringing one mobile, it could try a mobile and some other VoIP numbers at the same time, or staggered with separate delay times.

7.4 Send calls to voicemail System



7.4.1 Voicemail System features

Our Voicemail System can work in the following ways:

- **Standard voicemail.**
  - If no answer after a certain time, send caller to voicemail, you'll be emailed the recording
- **Send all calls to voicemail**
  - Play the caller a greeting, without ringing a phone first
- **Message only.**
  - Play the caller a greeting, then end the call (no message recorded)
- **Pre-announcement.**
  - Play the caller a greeting, then send the call to another number
- **Call Gate**
  - Play the caller a greeting with a menu of buttons to press to continue

> Messages left by the caller will be emailed to you with the audio file attached.

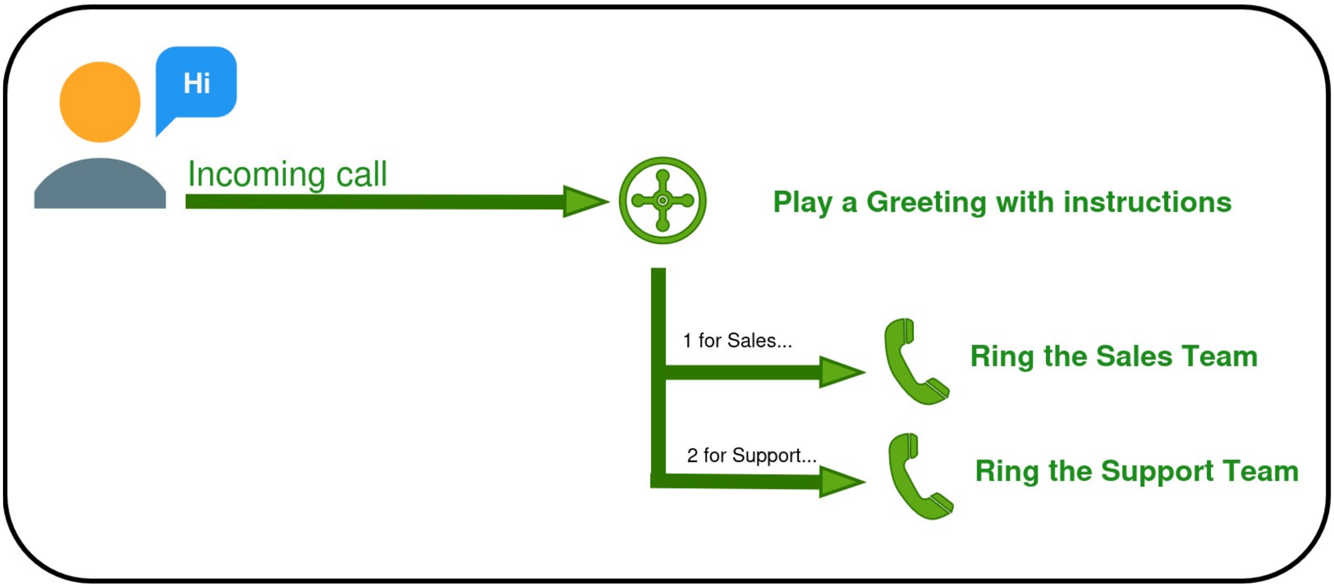
7.4.2 How to:

The features above are described in more detail on our Support Site:

> ⓘ https://support.aa.net.uk/Category:Voicemail

7.5 Using a Call Gate

Simple Call Gates are supported, where by a number can be called and a message played back such as 'Please press 1 for Sales, 2 for support...'. The system will then put the call to a corresponding number.



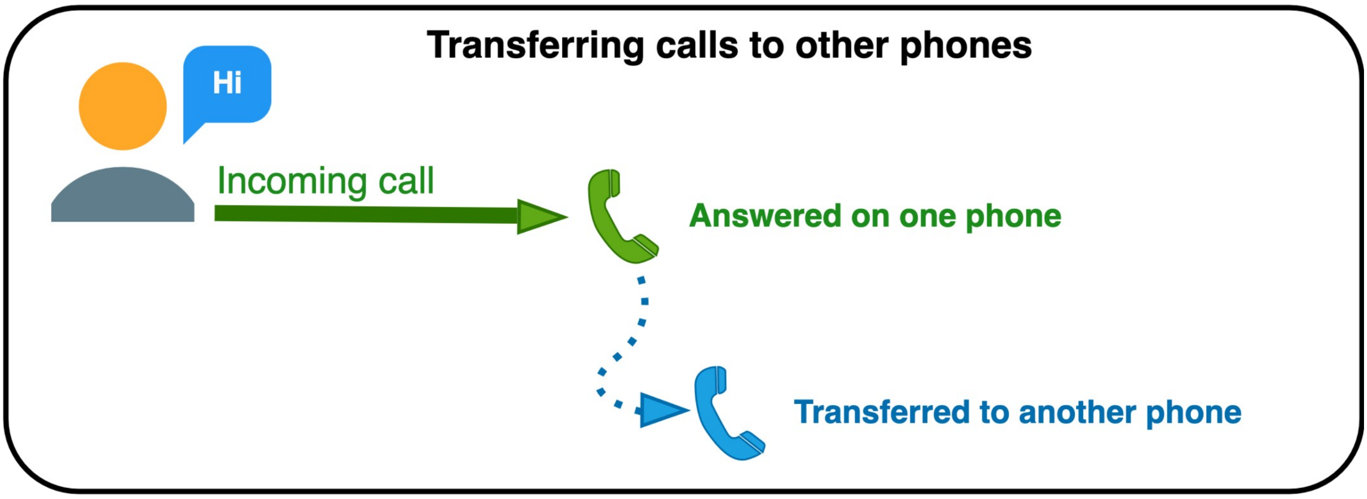
7.5.1 Useful to know

- Call gate works by linking multiple Numbers.
- You have a main number which plays the Greeting, you then link this number to up to 10 other numbers which correspond to the digit pressed – eg, 1 for Sales in this example.

7.5.2 How to:

> ⓘ https://support.aa.net.uk/VoIP_-_Call_Gate

7.6 Transferring Calls



With multiple phones each having their own number, you are able to transfer calls between them, either using the full phone number or, if your numbers are in the same block, using the last 3 digits. (you can set this up on the control pages)

You can also transfer calls out to an external number – eg your mobile or some other number – just be aware in this case that you are no longer in the loop but will be paying the the part of the call being transferred out to a third party.

7.6.1 How to:

> ⓘ **https://support.aa.net.uk/VoIP_-_Transferring_Calls**

Other Features

Our VoIP service has other useful features.

8 Feature Overview

For an overview of the features, see our Support Site:

> ⓘ **https://support.aa.net.uk/Category:VoIP**

8.1 Call Recording

Calls can be recorded, there is no extra charge for this. Recordings are emailed to you.

> ⓘ **https://support.aa.net.uk/VoIP_-_Recording_Calls**

8.2 Time Profiles

Time profiles can be used to control when sets of phones ring or go to voicemail etc

> ⓘ **https://support.aa.net.uk/VoIP_-_Time_Profiles**

8.3 Special Codes

We have some special codes that can be dialed to help test your service. Examples:

***100**	Play a 1 kHz tone
***101 or 1571**	Record new outgoing voice-mail message
***102**	Leave message on your voice-mail, plays the outgoing message first.
***103**	Play current hold music
***104 or 17070**	Read your calling number
***105**	Read the time

> ⓘ **https://support.aa.net.uk/VoIP_-_Special_Codes**

8.4 Call logs and CDRs

Information on Call records and the logging available

> ⓘ **https://support.aa.net.uk/Category:VoIP_Logging**

9 VoIP Security

9.1 Security Overview

Securing your VoIP service is very important. We have various features and recommendations on how to do this.

- **Always use very strong passwords**
- **Set call rate limits – to restrict calls to expensive numbers**
- **Restrict your SIP account to only your IP addresses**
- **Enable 'bill warning' emails**
- **Use our firewall recommendations when using public IP addresses**

> ⓘ **https://support.aa.net.uk/Category:VoIP_Security**

9.2 Security Checklist:

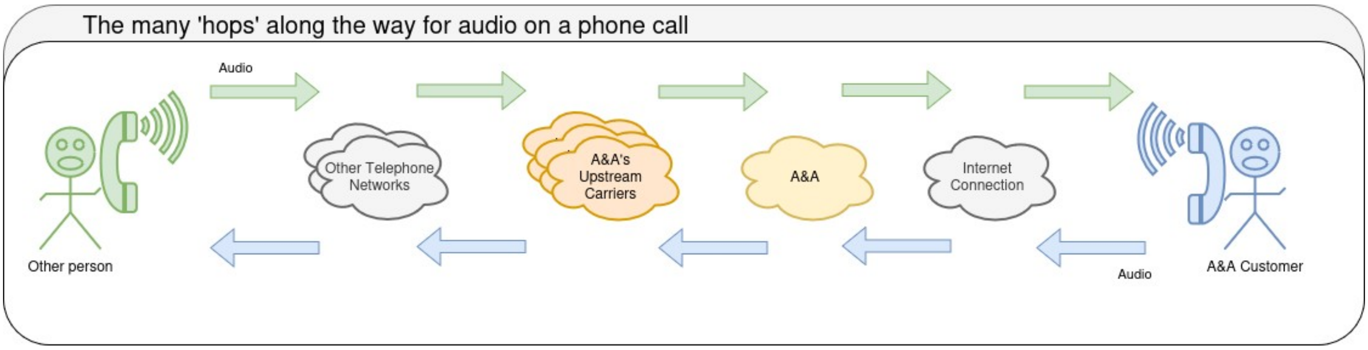
Tick these when you have reviewed them:

- ☐ Very strong password for my VoIP Account (A&A Control pages)
- ☐ Very strong admin password for my phone's web interface
- ☐ Sensible call price limits set for national and international (A&A Control pages)
- ☐ IP access list locked down to my own public Ips (A&A Control pages)
- ☐ Have reviewed the other settings and suggestions on https://support.aa.net.uk/VoIP_Security

Faults and Problems

10 Faults: Overview

VoIP has more complications than the original PSTN system, there are lots of hops involved in a VoIP call.



With most VoIP problems it is best to contact Support, but please do follow these links below as they may well help you pin-point the problem and offer ways to fix it.

10.1 Types of problems

Here are some of the problems you may encounter:

- **Unable to register**
- **Only some calls are getting through**
- **One-way audio**
- **Calls breaking up (intermittent audio)**
- **One-way audio on call recordings**
- **Only some calls are getting through**
- **Sped up or slowed down call recordings**
- **Using an ATA but the phone doesn't actually ring**
- **Ghost calls with nobody on the other end**

The above scenarios are covered on our VoIP Faults page:

> ⓘ https://support.aa.net.uk/Category:VoIP_Faults

10.2 Fault Checklist:

We have a page with steps to take to help diagnose audio problems:

> ⓘ **https://support.aa.net.uk/SIP_Audio_Problems**

We also have a more general page on Faults:

> ⓘ **https://support.aa.net.uk/Category:VoIP_Faults**

And we have a page on running a phone behind NAT:

> ⓘ **https://support.aa.net.uk/VoIP_NAT**

11 FAQ:

How can I redirect my number?

> ⓘ https://support.aa.net.uk/VoIP_How_to:_Redirect_to_another_number

Will my phone work in a power outage?

> ⓘ https://support.aa.net.uk/VoIP_Power

Can I still call emergency services?

Yes. For more information see these pages on setting your location (do this now), and calling 999 if you have a power or internet fault:

> ⓘ https://support.aa.net.uk/VoIP_-_Location_Information
>
> ⓘ https://support.aa.net.uk/999_and_faults

How can I record my voicemail greeting?

From a VoIP phone, dial 1571

> ⓘ https://support.aa.net.uk/VoIP_-_Voicemail

What more advanced things can I do?

Aside from having features that are useful to individuals and homes, with multiple numbers an our ring groups and delay features, out system can be used for small and medium sized business. We can support multiple staff, having their own number, with main numbers that ring groups of staff in order, and going to voicemail out of hours.

Can I just use IPv6?

Yes, of course you may!

Help us make this document better!

We’d welcome feedback on this document. Please send any suggestion you have to support@aa.net.uk

Thank you!

An area for your own notes

> If really needed: To print as a booklet: Print as brochure, duplex on short edge. Then fold in half to create an A5 booklet.

What was more important than the invention of the first telephone?
...The second telephone! :-)