

# Introduction to VoIP

Now you've got your B4RN fibre internet, you may start to wonder why you're paying for two connections to your house (one for phone calls and one for Internet), and if you can use your B4RN connection for both?

Many customers just dispense with the landline and use their mobiles.

But, it is possible to use your B4RN connection to make and receive telephone calls in a very similar way to your existing "land-line" connection and potentially save money at the same time. There is no charge for the landline, you just pay for calls made.

The technology used to make phone calls over your B4RN connection is called "VoIP" (pronounced as one word, like "voyp"); it stands for "Voice over Internet Protocol".

Setting up VoIP may initially appear to be intimidating, and this document attempts to describe what is involved, and refers to other documents which will walk you through the technical details.

I'll try to explain any technical terms as I go along, and there's a very good glossary here;

<https://www.voipmechanic.com/glossary.htm>

## An important question answered

**Yes, you can keep your old "land-line" phone number.**

This is called "porting" your number. You need to make sure your VoIP service is set up and working before you request your number is ported, else you will lose it. After porting, callers will not be aware they are calling a VoIP service, rather than a traditional "land-line".

Once you have set up VoIP and ported your number, you can request a final bill from your telephone provider (generally BT in the case of most B4RN customers) and stop using (and paying!) for it.

## What is VoIP?

VoIP stands for "Voice over Internet Protocol". In other words, it is making phone calls over the Internet, using your B4RN fibre broadband.

Once set up, it's as easy to use as any other phone. People calling you will not know you are not using a "traditional" phone line. Making calls is exactly the same as with a traditional "land-line" phone. Pick up the handset, get a dial tone, dial the same number(s) you ever did. Easy! You will however have to dial the local code too, as you do with a mobile, but with Sipgate you can set the default area code in settings on their website and if you dial a number which does not begin with zero it will dial the area code for you. So in effect you can make local calls as you did before. I presume it's clever enough not to do this for 999 or 111 type calls, but not tested the theory!

You don't pay any line rental, although you have to pay for making calls. (It may be possible to make free calls, but that is outside the scope of this document. You can get free calls with Amazon Echo devices and apps such as Whatsapp, Skype, etc.)

Call charges are usually a lot cheaper than regular landlines.

There are many more options with VoIP than with a traditional "land-line" phone line, and I

talk about those later in this document. (E.g., the ability to make and receive calls that appear to be to/from your “land-line” number from a mobile phone, no matter where you are, so you can answer calls to your home number even when you’re not there.)

## How do you set up VoIP?

You need two things in addition to your B4RN connection;

- A device to make and receive the calls with; a smartphone, tablet, laptop, or desktop computer, or if you want to continue using a traditional handset (telephone “instrument”) you will need a device called an “ATA” (analogue telephone adaptor). The newer Zyxel routers that B4RN are providing have an ATA built in. You can also buy wireless handsets with VoIP built in, but these tend to be expensive.
- An account with one of the many VoIP providers available in the UK.

There are an enormous variety of VoIP providers, but we are going to concentrate on two of them in this document; Vonage and SIPgate. Many of the general principles with setting these up are applicable to other providers, but B4RN Computer Club has experience of these two. You’re welcome to choose another, and the Computer Club will try and help you, but be aware that we may not know specifics.

## Which provider is best?

They’re both good, and provide similar functionality.

The main difference is that Vonage is easier to set up (effectively “plug and play”) but is more expensive, whereas SIPgate is cheaper but requires some technical expertise.

If you want a quick comparison, jump to the “Summary” table towards the end of this document.

### Vonage <https://www.vonageforhome.co.uk/>

- Easy to set up
- Basic package for UK landline calls £10.25/month + £10 setup + £5 shipping fee
- Package for calling mobile, landline and 6 international numbers £16/month + £5 shipping fee
- Needs an ATA (“analogue telephone adaptor”) which Vonage provide and pre-configure (“plug and play”).
- Free to port your existing landline number
- Easy to use free Vonage App to add 2 mobile phones to the account so you can use Vonage from your mobile anywhere you have Data or WiFi.
- Automatically registered on sign-up to be able to use emergency services numbers

### SIPgate <https://www.sipgatebasic.co.uk/>

- More complicated set up, you will need to configure an ATA (analogue telephone adaptor)
- ‘Pay as you go’ so it can work out very cheap if you don’t use the service much. **Free if you only use the service to receive calls.** SIPgate can be a package or a “pay as you go” service. If you want to make calls,
- PAYG 1.18p/min landlines, 9.9p p/min for mobiles you will need to “top up” your account here once you are subscribed and logged in;  
<https://app.sipgatebasic.co.uk/account>

- <https://app.sipgatebasic.co.uk/feature-store/sipgate1000?> for the 1000 minutes per month landline calls option £5.90/month
- <https://www.sipgatebasic.co.uk/callpackages> £9.95 for unlimited calls to landlines and mobiles.
- No ATA required with the Zyxel router. You will need one with the older Genexis router
- £30 fee charged to port your old number
- Does not have its own App but you can use Apps such as Voiper or Grandstream Wave.
- You must register your mailing address separately in order to be able to make emergency calls (999, 112)

## Setting up Vonage

A volunteer from the Computer Club has written a self-help document with full details on setting up Vonage. You can find it here;

<https://b4rn.org.uk/wp-content/uploads/2020/09/Vonage-phone-line-help-file-v11-2020.pdf>

The details are described in the above document, but in summary they are;

- Go to the Vonage web site (<https://www.vonageforhome.co.uk/>) and click “ORDER VONAGE. Follow the instructions to choose a tariff and a number.
- You will be sent an ATA (Analog Telephone Adapter). You will be charged £10 activation and £5 shipping on the landline only tariff (10.25/month), On the more expensive £16 a month tariff activation is free.. The ATA is approx. 4”x4” and requires an electric power point and to be connected to the router via Ethernet, meaning in most cases that it has to be located close to the router.
- Plug the ATA into the mains and an ethernet port on the router.
- Plug a phone into the ATA

## To keep your old landline number (“porting”)

**NOTE: Only do this once your Vonage service is set up and working. You will initially be allocated a temporary number which Vonage will reclaim once you have ported your old number, so probably best not to give this number to anyone.**

- Go to <https://www.vonageforhome.co.uk/> and log into your account. In the summary panel click on the blue add-ons icon
- Then click on “Move my number to Vonage”
- Here you can request the transfer of your existing landline number to your new Vonage line. You will receive an email to confirm the day the transfer will happen - It usually takes just a few days - up to 10.
- You must leave your Vonage phone/ATA plugged in during this time and you must also have either made or received at least one phone call on it.
- You must not cancel or stop paying for your normal landline until the number transfer is complete. **This is important!**
- On the day of the transfer you may experience some disruption on incoming calls as your number can be in “No Mans Land” as it switches.
- You will know that the number transfer is complete as your old landline will go dead.
- When a phone number transfer is complete it is common practice for the losing provider to disconnect the phone line.

- You should now get your final bill from your existing provider but if you don't get confirmation from them ask for them to send your FINAL BILL.

**NOTE; Do not ask for them to disconnect your line as this will normally incur a charge of approximately £31 and you will lose your number if you cancel before porting.**

## Using your smartphone with Vonage 'Extensions'

- Anyone with a Vonage account can set this up on their smartphone. It makes calls over WiFi so doesn't require a sim card, and your calls will be free/charged as per your Vonage call-plan.
- Simply download the free 'Vonage Extensions' app and you can start making and receiving calls. You don't even need to be at home to use it - all you need is a Wi-Fi connection!
- You can find more information here;  
<https://www.vonageforhome.co.uk/home/extensions/>
- Once you have had twelve months with Vonage if you ring them and ask to speak to 'Retentions', they may offer you a new package for a few months that will reduce your monthly charge. You can try this every time your promotion package finishes. If you find you don't use it much for outgoing calls you can get the £4.49/month package after 12 months, this only allows 100mins of landline calls though..

## Setting up SIPgate

A volunteer from the Computer Club has written a self-help document with full details on setting up Sipgate on the Zyxel router. You can find it here;

<https://b4rn.org.uk/wp-content/uploads/2021/07/B4RN-router-telephone-guide-1.pdf>

The details are described in the above document, but in summary they are;

- Create a "Sipgate Basic" account at <https://www.sipgate.co.uk/> (This is free).
- You will be offered a choice of geographic telephone number (which will be temporary if you "port" your existing landline number)
- There is a UK address verification procedure for access to emergency services (999, 112 & so on) – this will involve some posted documents.
- These steps can be carried out in advance of B4RN installation
- Once your B4RN service is set up and working, configure the router as described in the above document. **NOTE; The B4RN helpdesk cannot help with this.**
- The service and configuration can be tested by temporarily plugging in a telephone to the router "PHONE1" port. You may need a simple adapter to do this - see the above document for details. It **may** be the case that the phone will not ring for incoming calls, even if you have configured it correctly. If this is the case, try plugging in an old "broadband microfilter" (remember those?) if you have any lying about. If this doesn't work, contact the Computer Club for assistance. (details below)
- At this stage the telephone number will be the one you chose when you set up the account. You can keep this number if you wish.
- Optionally, port your existing number (Note, this service costs £30) The details are here;  
<https://basichelp.sipgate.co.uk/hc/en-gb/articles/204155912-Porting-my-existing-telephone-number-to-sipgate-basic>

## Other considerations

### Power cuts

If you have a traditional land-line, the power to operate it is provided by the exchange, and if there is a power cut, your phone will continue to work, allowing you to make (e.g.) emergency calls (note that this is only true for phones that do not require a separate power supply - if you have wireless phones, for example, these will not work anyway).

VoIP does not work this way. If there is a power cut, the router and any other hardware (ATA, network adaptors and so forth) in your house will stop working and you will be unable to make or receive calls.

There are two solutions to this problem;

- A “UPS” (Uninterruptible Power Supply); this is a small box that you plug into the mains, and then plug your router (and anything else you need) into the UPS. It contains a battery and will continue to provide power until the battery goes flat. The Computer Club has a number of documents about UPS on the Resources page (click on the “Customer Help” tab); <https://b4rn.org.uk/resources/>
- Use a mobile phone instead. This allows you to make calls, and if you have configured VoIP on your mobile phone, to receive them on your “land-line” number, also.

### Connecting your house phones to VoIP

All of the above assumes that you have one phone that you’re going to plug into the ATA or router. However, this is often far from convenient, depending on where the router is, and most people have multiple phones in their houses. It is possible to connect these to your VoIP service, depending on what kind of phones they are;

#### Cordless

If you have a cordless (“DECT”) telephone system, you’re in luck. Just plug the “base station” (the one that plugs into the phone socket) into the ATA/router phone socket. Now all your cordless phones are using the VoIP service and everything should work as before. Vonage provide an adaptor if necessary. With SIPgate you provide your own.

#### Wired

If you have wired phones scattered around your house, the situation is more complex than for cordless phones. You will need to disconnect your house phone wiring from the supplier’s (usually BT) line and then connect your VoIP device (router or ATA) to it instead.

The instructions are on Page 5 of this document;

<https://b4rn.org.uk/wp-content/uploads/2020/09/Vonage-phone-line-help-file-v11-2020.pdf> but are at your own risk, in summary;

- Unplug the faceplate on the main box where your line enters the house (This is called an “NTE” in ‘BT-speak’.) This disconnects your house phone wiring from the BT line.
- Connect the house phone wiring to the front part of the NTE. You can buy appropriate cables online, e.g.; <https://www.amazon.co.uk/dp/B08LD4GBJV>

You may find this document helpful for general background on BT wiring;

[https://en.wikipedia.org/wiki/British\\_telephone\\_socket](https://en.wikipedia.org/wiki/British_telephone_socket)

Many electricians can do this for you if you do not feel confident to do it.

## VoIP vs. “WiFi Calling”

Some Mobile Network Operators (MNO), e.g., Vodafone, offer a service called “WiFi Calling”, where your mobile phone makes calls over a WiFi connection instead of using the cellular network.

Although technically this is also VoIP, it is not what we are talking about in this document. It is only provided by certain suppliers on certain phones and usually has to be enabled in the phone settings. It is designed to provide coverage in mobile phone “black-spots” and calls are billed using the same tariff you have already signed up for with your MNO.

## VoIP over WiFi versus VoIP over “mobile data”

Your mobile phone has two different means of connecting to the Internet;

- via a WiFi connection.
- via the cellular network, using what most people call “mobile data”,

If you install a VoIP app on your phone, the app can make calls using either of these connections. If you are not connected to WiFi and you make a VoIP call, the data that call uses will be taken from any mobile data allowance you may have, and you may be charged for that data by your MNO, depending on what tariff you have.

It may be worth making sure you have a WiFi connection before making VoIP calls, especially if you are abroad.

## Redcare

“Redcare” is a BT provided service for burglar and assistance alarms that sets off an alarm at BT if your phone line is disconnected. It is obsolete and has been superseded by a system (GPRS) that utilises the cellular telephone network. However, it may be the case that some older Redcare installs are still running over the wired telephone network. Note that all of these will be retired once BT eventually switches over to a purely digital service.

If you have wired Redcare (you will know if you do, so if you don’t know what I’m talking about, you don’t have it), it is essential you talk to your alarm provider before porting your number, ceasing your telephone service or modifying the house phone wiring to connect your phones to your VoIP service.

## Personal Care Alarms

If you use a Personal Care Alarm ( e.g. Astraline, Careline etc) that relies upon a telephone landline to contact a 24Hour emergency helpline, then it is **very important** that you contact the provider **before moving** to a VoIP service. This is because many of the older systems still rely upon an analogue technique to remotely control the placement and ending of calls. Your existing service provider may be able to offer you a replacement Care Alarm that is compatible with the internet or places calls over the mobile phone network. If not then you should either consider changing the care provider or you will have to retain a traditional analogue landline. As the country moves to all VoIP lines in 2025 there will be more choice of IP based care alarms, but this company provides one that we have tried and tested. <http://lakelandtelecare.co.uk/>, it just plugs into your router.

## Summary

	Vonage	SIPgate
<b>Website</b>	<a href="https://www.vonageforhome.co.uk/">https://www.vonageforhome.co.uk/</a>	<a href="https://www.sipgatebasic.co.uk/">https://www.sipgatebasic.co.uk/</a>
<b>Technical setup</b>	Easy – plug and play with a provided ATA	More complex – requires you to purchase and configure an ATA or configure the built-in Zyxel router ATA
<b>Setup costs</b>	£15 for ATA inc shipping	Free if you have a Zyxel router else cost of an ATA (~ £30 - £70)
<b>Call costs</b>	Basic package for UK landline calls £10.25/month.  Package for calling mobile, landline and 6 international numbers £16/month	'Pay as you go' so potentially very cheap if you don't use the service much. Free if you only receive calls.  PAYG 1.18p/min landlines, 9.9p/min for mobiles you will need to "top up" your account on the website  International calls ~1.9p/min. Check the SIPgate web site
<b>Port your number?</b>	Free	£30
<b>Mobile App?</b>	Yes	No, but you can use 3 <sup>rd</sup> Party apps such as Voiper or Grandstream Wave
<b>Emergency Calls (999, 111)</b>	Yes	Yes, but you have to confirm your address in writing first
<b>Works in a power cut?</b>	No, unless you have a UPS. You can continue to use the mobile app	No, unless you have a UPS. You can continue to use a mobile app
<b>Connect to house phone wiring?</b>	Yes	Yes

## Help with VoIP

You should note that VoIP is not formally supported by the B4RN Helpdesk.

## Online documents

You will find help documents on the B4RN website Resources page (click on “Customer Help” tab);

<https://b4rn.org.uk/resources/>

## Computer Club

Or you could come along to the B4RN Computer Club either on a Friday afternoon between 2pm – 4pm or 7pm - 9pm on the first Wednesday of the month.

Not only can you get some great advice and information, it can be good fun. Just email [itclub@b4rn.org.uk](mailto:itclub@b4rn.org.uk) to receive a link to join the Zoom meeting.

The Computer Club also has a Facebook page, which can be accessed here;

<https://www.facebook.com/groups/b4rncomputerclub>

## Acknowledgements

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[b4rn@huge.org.uk](mailto:b4rn@huge.org.uk)

This is not an official document of Broadband for the Rural North Limited

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