



## Home Networking

The intent of this guide document is to assist our customers by outlining the various methods of choosing and implementing a data network solution in their homes. The ideas and general suggestions discussed in this guide are broad based and should help you understand the difference between different types of networking solutions and assist you in selecting and considering implementing a solution in your house. As always, consult and discuss your needs with your service installers, network support engineer or electrician so a specification can be set that meets your needs.

Note: Your Scorch data connection will connect to a single computer via an installed data cable without the need of creating a home network. Only if you need to connect multiple machines or have freedom to use your equipment around the house do you need to consider a network solution.

To connect multiple devices to your Scorch connection you will need to create a home network. Some devices will be able to take a data cable network connection (propagated by a central switch or router), while other devices may only have wireless connectivity capability (via a wireless router or access point). You will need to check the devices you have to see what you need to provide as a network to enable them to connect.

Typical devices that can use internet or network access: Computers, Laptops, Tablet PCs, printers, iPads, Smart TVs, Smartphones, iPhones, TV Set top boxes, PVRs (personal video recorders), Home alarms, security cameras, weather stations and in the future smart appliances such as fridge/freezers, energy saving technologies for heating control etc.

There are several primary methods of networking in a house;

1. Network data cabling – the use of Cat5 or Cat6 data cable as fixed wiring to specific outlets in the house
2. Wireless networking – using a wireless router or wireless access-point device to reach wireless capable devices around the home.
3. Blended solution – using network cabling to reach the multimedia points of the house and a wireless router or wireless access-point to provide portable or mobile device access where needed.

### Device descriptions:

- **Network switch** – takes a single data input (e.g. Scorch radio connection) and electronically splits it to service multiple hardwired computers (5, 8, 16 or 24 LAN port models available).
- **Wireless Router** - takes a single data input (e.g. Scorch radio connection) and electronically splits it to service up to 4 hardwired computers, plus has a wireless access point built in for home wireless connectivity.
- **Wireless Access Point** – has single input only and propagates wireless for home wireless connectivity (no extra LAN data sockets for connecting to any hardwired computers).

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## Structured Data cabling

You need to plan where you want data outlets to be available in the house both now and in the future. Like any task or project, good planning and preparation returns the best results.

Implementing data cabling in your home or office is easiest at time of building construction, when interior linings are not yet installed and it is easy to drill holes in the framing and feed the cables throughout the structure.

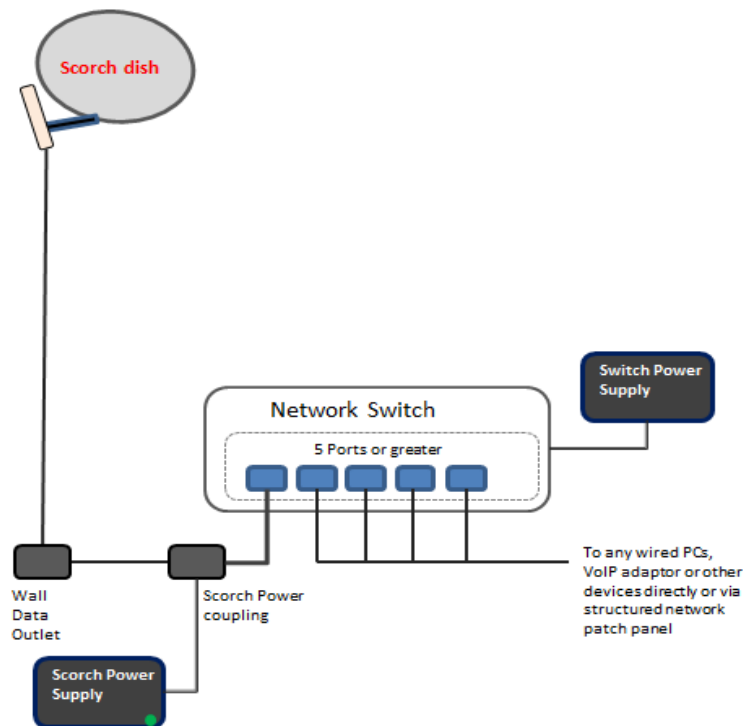
Retrofitting an existing house is more difficult as access is limited by wall linings, floor type, roof space access, multi storey building construction etc.

Generally houses on piles are easier to get cabling underneath to additional rooms.

Concrete floored houses require that cabling is run in ceiling crawl spaces and down exterior or interior walls hopefully using pre-existing aerial or phone cabling as a pathway.

Multi-storey houses and houses with cathedral ceilings restrict or eliminate ceiling access for running cables, in which case exterior cabling or lifting sections of roofing in some cases is the only way to achieve access to certain areas.

A good rule of thumb is having a network data port alongside every aerial outlet to create coverage to bedrooms, family rooms and lounges. Consider an outlet next to phone outlets in rooms without aerial outlets (studies, offices, workshops).



You also need to consider where the data cabling is going to be centralised as it needs to be terminated at a network switch or router to liven up the appropriate outlets in the rooms. Commonly this is done in an internal services cabinet with your aerial and phone distribution. The garage (if internal access to house) or hallway cupboard are common points for services termination. Your Scorch connection needs to come into the central point to 'feed' the network distribution device which then couples into your patch panel or data cables in the services cabinet or distribution point to liven up the data outlets in the rooms.

## Wireless networks

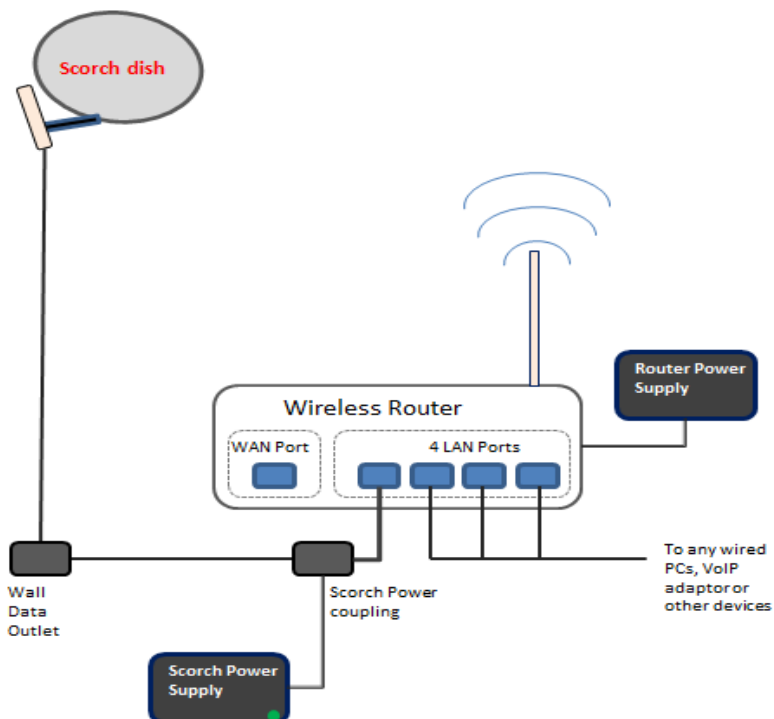
Indoor wireless routers take the single Scorch data connection as an input and share it wirelessly to your mobile wireless devices in the home. They also have spare LAN ports that you can connect desktop computers, VoIP adaptors (Internet telephone service) or non-wireless gaming consoles to your network.

With wireless networking you simply have to consider where you would like to situate the wireless router to meet the following criteria:

- Generally central to the ‘footprint’ of the areas of the house you wish to obtain wireless connectivity; wireless signals generally reach about 15-20 metres inside a house.
- A position that the Scorch data cable from our dish can be installed to reach the router.
- An available power outlet to receive the Scorch power supply and router power supply.
- Within practical cable distance to attach to any equipment that requires a physical network cable (desktop PCs, personal video recorders etc). If in the same room you can use premade data cables, if other rooms you may need to have permanent cables run in walls or under floor.

Below are the two typical installation methods of incorporating a wireless router.

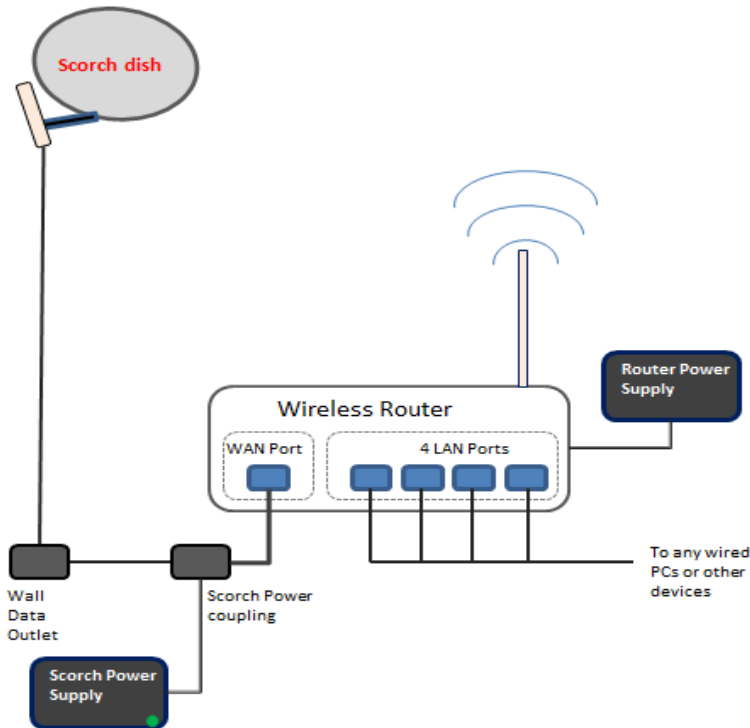
### Wireless router installed as a “data switch”



This method allows for an open network to support a VoIP adaptor connected to router. The internal router functions and controls are suppressed due to the configuration used.

Configure router with the following settings:  
 WAN: Leave as automatic (as not used)  
 Router LAN IP address: 192.168.0.2  
 Subnet Mask: 255.255.255.0  
 Gateway: 192.168.0.1 (Scorch radio IP)  
 DHCP server: Disabled  
 Set up wireless security to your needs.  
 SSID: (The name of your local wifi hotspot)  
 Security: Select WPA-PSK or WPA2-PSK  
 Passkey: (at least 8 character – case sensitive)

## Wireless router installed as a fully functional router



This method allows you to use any internal router functions for access restriction, port management etc. **Not suitable if a VoIP adaptor is to be connected into the router.**

Configure router with the following settings:

WAN: Static IP 192.168.0.2

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

Router LAN IP address: 192.168.1.1

DHCP Server: Enabled

Set up wireless security to your needs.

SSID: (The name of your local wifi hotspot)

Security: Select WPA-PSK or WPA2-PSK

Passkey: (at least 8 character – case sensitive)

## Alternative wireless infrastructure devices

There are other specific wireless devices that can be used to create larger local coverage around your property or link buildings together that are too far or difficult to cable between. Typically you need to have a line of sight to achieve good connectivity.

A high powered access point mounted externally on the house could provide coverage within a radius of 200-800m from your house to reach outlying work areas (depending on power, terrain and obstacles).

Wireless Nano stations can also be used to link between two buildings e.g. house to dairy shed or house to house, allowing them to share a common connection or to act as a relay site to overcome a line of sight issue one building may have to see a Scorch repeater location.