

Results Service Instructions.



It is possible to set up a live on-site short range results service.

In the SI-droid Settings on the download device select "Result Service" which allows the viewing of the latest result on another device on the WiFi network.

Selecting "Result Service" displays an Internet Protocol (IP) address which can be seen on a browser on other devices connected to the Local Area Network (LAN).

The basic Results service can be set up using the download Android device's WiFi hotspot transmitter. On the tablet or phone start the "hotspot" router and call it something suitable such as "Results". Turn off any security encryption or password for the hotspot. Display a "Results Service" instruction poster with instructions for competitors to follow (see below).

When setting this service up, always carefully check the IP addresses against the device being used, the IP code (and, therefore, the QR code) can change according to the device.

The number of users who can use the LAN at any one time depends on the software embedded in the WiFi hotspot or router while the distance it can cover depends on both the power output and antenna design of the WiFi transmitter. A typical Android tablet or phone hotspot will be limited to only 10 simultaneous users and only about a 10 meter range.

Using a separate router

The maximum number of possible users is set by software limitations in the hotspot or router. A low power router or phone hotspot might have a maximum of 10 connections available but a more powerful router could be able to accommodate up to 200 or more. These are known as "dynamic" or "DHCP" connections (Dynamic Host Configuration Protocol). Fortunately, our "Results Service" function just needs a connection of a fraction of a second duration in order to download the latest result so a larger audience than the theoretical maximum can take turns to check the result.

When any new device connects to a router, the router "dynamically" allocates that device an IP address from the routers available DHCP list. When a connected device falls out of communication with the router that IP can be reallocated to a new device. If more devices than the routers permitted maximum attempt to log on than the router will discard an inactive one and reallocate that number to the new device.

When we are using a separate router rather than an Android hotspot we need to allocate fixed or "static" IP's to devices which we want to be consistently and accurately found. In our case this ensures that the downloading tablet will use the same IP address every time. The Android device which you are using to run SI-droid on needs to be consistently identified to the router using a static IP address. If you might use different Android devices for download on different days, but through the same router, than all of these Android devices need their own unique static IP address on that router. This requires us to delve into the set-up page of the router.

I am assuming that we are using a second hand router obtained from somewhere cheap. Look for a router which operates on both WiFi radio wavebands of 2.6ghz and 5ghz and has a power output of about 20w and electric supply requirement of 12v dc, 2 amps. Ex-BT routers are common but seem to have a lot of propriety control and security software embedded in them and the power socket is an odd size so probably best avoided. After several attempts I ended up using an ex SSE Broadband router, a Technicolor DWA0120, which is OK.

Here is a generic routine for setting up the WiFi ID, security levels and static IP addresses on a domestic router; it will differ in detail between router models but an internet search will throw up specific instructions. Power up the router. Plug the router into a computer, probably via an ethernet cable. Select the wired connection on the computer and open a browser. There will be a sticker on the router which displays both a router address (probably something like 192.168.1.254) and a router password (probably a piece of gibberish). Type the router address into the browser; your browser might generate dire security warnings but press on. Do not try to connect to the internet. Sign in using the router password. If these router address and password don't work use the "factory reset" button on the router and try again.

Once you have signed into the router's control panel you will find various sections entitled something like WiFi settings, firewall, internet settings, advanced settings, Gateway and the like. Working your way through these settings turning off any security measures (remember you are not connected to the greater internet world). Change the router name, or "ssid" to something pithy like "results".

If the router was originally provided by a phone company as part of a domestic broadband package it is likely to have a "hotspot login page" function which is, essentially, an advert for the phone company which pops up every time someone tries to connect. Turn this off via the router control panel Gateway page, where it is likely to be called something like "Use Network Intercept". Each router has slightly different settings from others, so I can't be definite about the exact terminology used for these choices.

Check in the DHCP settings to see how many users devices can be connected; that is the LAN DHCP IP address range. Somewhere in the DHCP router settings there will be a bit called something like "Local Network" and within that there will be a subsection which allows the allocation of permanent static IP addresses to specific connected devices. Using a number which is near the top end of the normal "dynamic" allocation range will allocate a permanent or "static" IP to the tablet or phone you intend to use for download; this will be the IP number which is used by the audience to connect to the phone based results service.

Distance of service cover

The size of the radio reception area covered by the Results service, can be increased by using more powerful equipment than a phone hotspot, possibly a "mobile wifi" (MiFi) box or a more powerful domestic router.

A MiFi is a self contained device with it's own useful internal battery and the capacity to use a data-only sim card independent of a phone but they are very rarely built to a standard which is more powerful than a phone or tablet's own hotspot. It is probably not worth pursuing a MiFi unless you find a rare, more powerful, one (say, 10 watts or greater).

Domestic routers, both small and large, are powered by a mains to 12v DC transformer plugged into the router. This means that a 12v DC battery supply can power a router at an off-grid site. We need to obtain a battery pack, probably rechargeable, with compatible connectors to the router. I have used what is described as a "telephone uninterruptible power supply" (UPS). It has a 10,000 mah capacity which will run a nominally 20w router for about 5 hours and can be recharged from mains by a 12v DC 2 Amp output standard charger in about 5 hours. Our battery connects to the router via a male to male cable which has 5.5mm Outer Diameter and 2.5mm Inner Diameter plugs.

Producing information posters

Setting a permanent IP for the download device on the router ensures that it will always come up with the same number for the connection, but means that **a unique event Results Service information poster, with a unique QR code, must be used for whichever device is in use.** Make up a poster for whatever device might be used. If we might use several different devices according to circumstance make sure that the posters are differentiated and labelled clearly. These device IP's will be different from the ones produced if just using the device hotspot rather than the router. There are a couple of examples of the wording of a poster below.

Suggest that users hit their "refresh" button to update the result. See the SI-droid website for more options and information.



RESULTS SERVICE

We have a phone based results service set up. It is limited to a maximum of 10 users at a time and a maximum range of 10 meters from here. The router is a Local Area Network which is not connected to the Internet.

To see current results on your phone open the phone "settings", connect to the WiFi router called "Results", acknowledge any "no internet" warning (click "yes, I want to stay connected", or similar).

Scan this QR code;

**INSERT OBJECT
SPECIFIC QR CODE HERE**

It will take you to this web page

<http://192.168.NNN.NNN:8080/reports/SimpleResultsHtml>

Bookmark the web page you are now on so you can easily come back to it.

Occasionally press the "refresh" button on your browser for an update.





RESULTS SERVICE

We have a mobile phone based results service set up. It has a maximum range of 50 meters from here. The router is a Local Area Network which is not connected to the Internet.

To see current results on your phone open the phone "settings", connect to the WiFi router called "Event Results", acknowledge any "no internet" warning, (click "yes, I want to stay connected", and "don't ask again", it will remember for your next visit).

Scan this QR code;

**INSERT OBJECT
SPECIFIC QR CODE HERE**

It will take you to this web page

<http://192.168.NNN.NNN:8080/reports/SimpleResultsHtml>

Bookmark the web page you are now on so you can easily come back to it.

Occasionally press the "refresh" button on your browser for an update.

