# D-SPOT QUICK START GUIDE

## PURPOSE & SCOPE:

The intention of this document is to get you up and running with your new D-Spot as quickly as possible.  To get your D-Spot up and running with minimal effort, we recommend that you follow the steps and guidelines herein.  Thank you for purchasing the D-Spot.  I hope you enjoy it for many years to come.

## SYSTEM DEFAULTS:

Admin account:    admin/changeme    (username/password)  to change your password:

SSH to 10.73.73.1 on shortcable and execute: **passwd** (hit enter, you'll be asked to enter a new password and confirm it)  If using a Windows machine, download Putty.exe and run SSH from it.  *DO NOT FORGET YOUR PASSWORD!!!*

## BEFORE YOU START:

Please do the following:

- connect the included antenna to the SMA antenna port.  You may also use any other antenna you find suitable for your application.

- Ensure the toggle switch is in the OFF position (pointing away from the antenna port) before applying power or making any connections.

- Connect your D-Spot to your laptop via LAN cable for initial setup (this will be referred to as "short cabling").

- Set your laptop ethernet card to the following static IP settings: IP: 10.73.73.2, Mask: 255.255.255.252, no gateway or DNS are required.  D-Spot has a virtual interface that is always available on 10.73.73.1.

- connect the included AC Adaptor to the power jack & turn on the power by pushing the toggle switch to the ON position (pointing toward the antenna port).  Wait approx. 1-2 minutes for the system to boot.  During this time, you will soon see the GREEN LED indicator start to flash.  When this flashing occurs, the SD card is being read/written.

- After approx 2 minutes, point a web browser at the following address: **http://10.73.73.1**  You will see the Configuration Management Page.  This page allows you to upload a packaged set of standard G4KLX config files.  These config files can be generated by any recent version of the G4KLX software (also known as Jonathan's Software).  The key files are; **/etc/ircddbgateway**, **/etc/dstarrepeater**, and **/etc/timeserver**.  These 3 files are what govern the operation of your D-Spot.  Once uploaded, D-Spot stores them and reboots, applying your configuration and preferences.  D-Spot ships with a blank set of these files.  If you should require assistance with

setting up your configuration, kindly contact me at [K1WIZ@wizworks.net](mailto:K1WIZ@wizworks.net) and I will be happy to render assistance.

# CONFIGURATION UPLOAD

Once you are shortcabled to the D-Spot, you must then upload a TAR file that has the 3 files mentioned above. You can generate these on any recent version of the G4KLX software and then "package" the 3 files into a TAR archive and upload it via the web interface. For your convenience, 7-Zip is onboard and available for download from the web UI on your D-Spot. Simply click the 7-Zip button to download and install it (Windows version) on your laptop. If you are using Linux, you can get 7-zip in your distro's repository.

NOTE: Future versions of the D-Spot firmware will have a "common options" web configuration wizard which will allow you to fill in the minimum required info to get a base configuration setup on the D-Spot. Because D-Spot currently ships with debut first generation firmware, only the following methods are available.

**Packaging the files**

*LINUX/Mac/Unix*:

ensure the 3 files are in your current directory:

tar -cvf hsconfig.tar ircddbgateway dstarrepeater timeserver

This will create hsconfig.tar containing the files. Use the web UI to upload it and apply that configuration. Once applied, your D-Spot retains the config indefinitely.

*Windows*:

Use 7-zip to add the 3 files to a new .tar archive. Once saved, upload it via the web UI.

# CONFIGURATION FOR LINUX POWER USERS

If you are a seasoned Linux user, then congratulations! There are more goodies available to you. In addition to the above methods for configuration of the on-board G4KLX software, you have the option to use X forwarding to run the configurators that exist in the software onboard. X forwarding is a common way to draw applications on a local console but execute them remotely on another device. Your D-Spot supports this method of configuration as well.

You will need:

1. a Linux laptop to shortcable with the D-Spot

2. knowledge on X-forwarding via SSH

*Steps:*

1. ssh -X [admin@10.73.73.1](mailto:admin@10.73.73.1)

2. execute: sudo ircddbgatewayconfig (this will draw the application on your own desktop, but all execution occurs on the D-Spot) Configure graphically and save your changes

3. execute: sudo dstarrepeaterconfig

4. execute: sudo timeserverconfig

5. after all configuration has been completed, a reboot is required.

6. Execute: reboot

At this point, if you configured the software correctly, you should hear your D-Spot come to life on a radio tuned to the operating frequency. The default operating frequency is: 446.375MHz

NOTE: It is a DAMNED GOOD idea to export (download) your configuration once you have things the way you want them, you can do this easily by hitting the DOWNLOAD CONFIG button on the web UI. Doing this will package the key files into a .tar archive for safe keeping in case you want to restore your D-Spot to operating condition.

## CONFIGURED! NOW WHAT?

Ok, so you finally arrived at setting your configuration. Now comes the fun! D-Spot is easy to manage once configured so if you have come this far, give yourself a pat on the back.

*Connecting to the internet*

There are 2 ways you can connect your D-Spot to the internet:

- wired ethernet (best option)

- wired USB tether to a mobile device which supports USB tethering (NOTE: your plan must support this feature as some carriers have been known to cripple this feature if it is not part of your plan – check with your carrier) This is the best option for mobile use. Many hams have used wifi tethering, but this is an inferior method as the wifi adds latency and reduces reliability, and also results in high battery usage on the mobile device. The D-Spot has been designed to use USB tethering and has been tested with Apple and Android devices with success in many conditions. USB tethering allows the lowest possible latency when sharing your connection and keeps your device charged – an added bonus!

Connection by both methods is seamless and automatic – and does not require configuration for most users. If you plan to use the D-Spot in a fixed application, we recommend you issue a DHCP static IP reservation on your router so that D-Spot will be issued a fixed address on your LAN. This is useful should you wish to remotely manage it. Some users have put a D-Spot at a remote location and managed it by VPN or port forwarding to the WebUI.

NOTE: The wired ethernet has 2 interfaces in actuality:

- **eth0**: this interface is DHCP enabled and will pickup an address from your LAN. You can set a static address in the Webmin web UI (see advanced setup guide). We recommend, for best versatility and convenience, that users leave the DHCP setting intact.

- **eth0:1**: this interface is a "virtual" ethernet interface that "rides on top" of the physical eth0 port. It is only used to allow you to manage the D-Spot on shortcable. Once configured and operating on your network, you can use the IP address assigned to the eth0 physical interface. This port is your "get out of jail free card" should you have a network issue or need to adjust the D-Spot by shortcable. We recommend that you do not change or delete this interface.

# BASIC OPERATIONS

Operating your D-Spot once configured and online is a breeze. The unit is designed to run in a headless (no keyboard, monitor, or mouse) configuration. It is designed as an appliance that you can leave running for a short or long duration, even in an unattended setting. Because of the headless philosophy of the design, we gave you simple operational output (the colored indicator LEDs) and operational input (the 2 pushbuttons). The features are explained below:

*Operational Status Readout*:

You'll note that on the unit, there are 4 LEDs each displaying the state of the D-Spot:

**Green**: shows the Sdcard Read/Write status

**Red**: shows that ircDDBgateway is running (will not start unless amber is lit)

**Blue**: shows that DstarRepeater daemon is running (will not start unless amber is lit)

**Amber**: shows that the D-Spot has viable internet reachability (this light must be lit after booting to enable the daemons to start. If the daemons were previously running, they will stay running even when internet reachability has timed out. In such case, the ircDDBgateway daemon will persistently attempt to reconnect to the last connected reflector or the set permalinked reflector.

This status indication gives you a simple "at a glance" status on the D-Spot.

*Operational Input Control*:

You'll note 2 buttons and 1 switch:

**Red**: the Red button is the "safety shutdown" button which safely instructs your D-Spot to execute a safe shutdown when held in. To be sure you are safely shutting down your D-Spot, hold this button in until all the LEDs extinguish. Once extinguished, you can safely power down your D-Spot and remove power.

**Green (or black on some builds)**: The Green button (some units may have a black one instead) performs a safe reboot of the D-Spot. In the event you should ever have to reboot the unit, you can safely do so by holding in the green button. PLEASE NOTE: when you turn on the D-Spot, it will immediately start the bootup process. You do not have to press green when doing a cold boot.

**Power Switch**: The D-Spot ships with a power switch and the ON position points toward the antenna port while the OFF position cuts power (pointing away from the antenna port).

# CARE, USE, & MAINTENANCE

While I designed the D-Spot to provide many years of reliable service and enjoyment, and do so in both clean and rough field conditions, we do have the following suggestions to help you keep it in top shape and free from trouble:

- Do not operate the D-Spot in explosive environments – it is not intrinsically safety rated

- ALWAYS have an antenna connected at the antenna port when connected to power

- DO NOT attach an amplifier to the D-SPOT.  The internal radio was not designed for amplification and doing so could generate spurs and make you very unpopular.

- YOU MAY attach an outdoor antenna for greater range.  D-Spot works well in this configuration but for best results, keep your cable lengths SHORT!

- Do not input DC voltage greater than 35 Volts DC or lower than 6 Volts DC.

- Use the included DC supply, but if you must use a different one, be sure the DC voltage is around 12 Volts.

- The D-Spot is not water proof.  Do not immerse or expose to rain.  Should it become wet, wipe away moisture immediately.

- D-Spot will function in a wide temperature range.  It has been used in the harsh Sweden winter weather as well as run after being left in a hot car on a summer day.  Though it will operate in these extremes, for long life, we recommend non-extreme temperatures.

- D-Spot works with REF, DCS, and XRF reflectors.  When using XRF reflectors, be sure you can open the required ports for XRF type reflectors.  For REF & DCS types, no additional provisions are required.

- Should you require warranty service, please provide the serial number upon request.  D-Spot has an internal electronic serial number.  When you write for warranty support, we will tell you how to identify the serial.

- Though D-Spot is ruggedly constructed within an aluminum chassis, do not expose D-Spot to excessive vibration or physical shock.

- As with any Ham Radio equipment, please do not leave D-Spot accessible to unlicensed persons or minor children unattended.

## FEEDBACK/SUGGESTIONS

First – THANK YOU!  for taking a step into D-Star and buying this D-Spot Hotspot.  I hope you have as much fun using it as I have had in designing it.  That being said, I want to welcome your feedback and invite you to stay in touch so that I can continue to improve the D-Spot.  Future software enhancements will come about as firmware updates to the unit.  There may also be future hardware generations as well as technology moves forward.  It is my hope and vision, that I can do something great by putting the D-Spot out there and listening to your thoughts to continue on its journey to awesomeness.  That being said, I cannot do that without you.  Should you have any ideas or concerns, I hope to hear from you and collaborate on ways the D-Spot could be improved.  Designing a product is hard, but also fun, and I'm glad you are on board for the journey.

Ask questions, if I left something out of a document, etc, let me know and I'll make it right.  Chances are, someone else might think the same thing.  Have a suggestion for improvement?  Let me know!  Have a complaint?  Yes that is also direly important – do reach out.


Here is how:


email: [K1WIZ@wizworks.net](mailto:K1WIZ@wizworks.net)

D-Star: I am often on REF050 C, give me a shout!

Phone: 508.326.1521 (if I can't answer, please leave a VM and your contact info so I can respond)

Website: [http://wizworks.net](http://wizworks.net)


Warm Regards,


John Rogers, K1WIZ

D-Spot Designer