

# CONTROL CODES BY MODE

ASK THE HOTSPOT SOMETHING — CALL THE ID, OR KEY THE DTMF, AND LISTEN

You can drive most of the openSPOT4 from the radio in your hand — ask it questions, change profiles, switch servers, link talkgroups. No web interface, no phone. These are the codes.

N6JET · Chris  
Manual v92 · firmware v92  
Control calls pp. 97–98

## LOCAL ECHO

HEAR YOUR OWN VOICE BACK

DMR · NXDN · P25 **9999**D-STAR — — — — — **E**

letter in the 8th slot

C4FM **DGID 99**

Private *and* group calls to 9999 both answer with a private call. **Records 5–10 seconds only.** On C4FM set DGID back to AUTO afterwards.

## PROFILE

QUERY, AND SWITCH

QUERY · DMR/NXDN/P25 **9000**SWITCH TO A PROFILE **9001 ... 9010**D-STAR — — — — — **P**or **A**

letter in the 8th slot

C4FM **\*A**

**9001 = profile 1, 9010 = profile 10. 9000** is the *query*, not a switch. On D-STAR the number goes in the 8th slot; on DTMF, **A** then the number. **The device reboots on a profile change.**

## CONNECTOR

WHAT AM I CONNECTED TO?

DMR · NXDN · P25 **9998**D-STAR — — — — — **I**or **D** or **0**

letter in the 8th slot

C4FM **\*D**

Announces the active connector and the server it is on.

## IP ADDRESS

THE WAY BACK IN

DMR · NXDN · P25 **9997**D-STAR — — — — — **A**or **B**

letter in the 8th slot

C4FM **\*B**

Use this when you have lost the web interface and don't know the address to type.

## BATTERY

CHARGE STATUS

DMR · NXDN · P25 **9996**D-STAR — — — — — **B**or **C**

letter in the 8th slot

C4FM **\*C**

Also announced on its own every 5 minutes below 15%, if that setting is on.

## TIME

CURRENT DEVICE CLOCK

DMR · NXDN · P25 **9995**D-STAR — — — — — **T** or**CD**

letter in the 8th slot

C4FM **\*CD**

Can also be announced automatically on a set interval.

## UNLINK

D-STAR ONLY

D-STAR — — — — — **U** or **#**

letter in the 8th slot

OTHERS *no equivalent*

Activates the **Null connector**, which connects nowhere. The openSPOT4 is built to stay connected — this is the nearest thing to a disconnect.

## READ THIS FIRST

TWO THINGS THAT BREAK THE CODES

**These IDs are defaults, not constants.**

9000, 9995, 9996, 9997 and 9998 each have their own field under Settings → Voice announcements. If a code does nothing, check there before assuming the feature is missing.

**Announcements come back on one talkgroup.** DMR and P25 answer on **TG9**, NXDN on **TG0**. If that TG is not in your radio's RX group list you will send the code correctly and hear nothing.

In the D-STAR column, the code is **seven spaces then the letter** — eight characters total, entered in URCALL; where a second code is shown it is the DTMF equivalent. Compiled from the openSPOT4 and openSPOT4 Pro user manual v92, firmware v92 — Control calls, Voice announcements and C4FM settings. Not an official SharkRF document.

# SWITCHING SERVERS — D-STAR REFLECTORS

STEP ONE — BUILD THE SPECIAL ID CROSS MODE NATIVE FROM D-STAR

## THE ID IS BUILT FROM PARTS

SERVER TYPE + MODULE · OR SERVER TYPE + SERVER NUMBER + MODULE

SERVER TYPE **1** REF **2** XRF **3** XLX **4** DCS

MODULE always **two digits** — **01**=A, **02**=B, **03**=C, **12**=L

**10103** → REF001 C · **13003** → REF030 C

**4901** → DCS009 A · **4812** → DCS008 L

**312302** → XLX123 B

Read **10103** as type **1** + server **01** + module **03**.

REF, XRF, XLX and DCS all share **one numbering scheme**. Build the ID, then send it the way your radio sends things.

N6JET · Chris  
Manual v92 · firmware v92  
DCS/XLX & REF/XRF connectors

## STEP TWO

SEND THE ID FROM YOUR RADIO

DMR · NXDN private call to the ID

CROSS · PRO

C4FM \* or # + ID CROSS · PRO

D-STAR \* + ID NATIVE

Example — to reach **REF001 C**: private call **10103** on DMR, or DTMF **\*10103** on C4FM or D-STAR.

## OR USE URCALL

D-STAR RADIO · NATIVE

REF / XRF / GATEWAY **REF001 C**

DCS / XLX **DCS001 A**

Switching this way also changes the **active connector** to REF/XRF or DCS/XLX. Set URCALL back to **CQCQCQ** afterwards.

THE DTMF SHORTHAND — FROM A D-STAR RADIO NATIVE — SHARKRF'S OWN WORKED EXAMPLES, VERBATIM

## REF

SERVER TYPE 1

**\*1C**

**\*01C**

**\*001C**

All three connect to **REF001 module C** and switch the connector to REF/XRF.

## XRF

SERVER TYPE 2

**B8B**

**B08B**

**B008B**

All three connect to **XRF008 module B**.

## XLX

SERVER TYPE 3

**C5B · C05B · C502 · C005B · C0502**

→ XLX005 module B

**C9D · C09D · C904 · C009D · C0904**

→ XLX009 module D

Module may be given as a letter or as its two-digit number.

## DCS

SERVER TYPE 4

**D5A · D05A · D501 · D005A · D0501**

→ DCS005 module A

**D1C · D01C · D103 · D001C · D0103**

→ DCS001 module C

All switch the connector to DCS/XLX.

## THE MANUAL CONTRADICTS ITSELF HERE

READ BEFORE KEYING

The REF example is written **with** a leading asterisk (**\*1C**) while the XRF, XLX and DCS examples are written **without** one (**B8B**, **C5B**, **D5A**). The letter prefixes B, C and D also do not match the numeric server types 2, 3 and 4 used everywhere else.

**The numeric special ID is the form stated unambiguously** and it works for all four families — prefer **\*10103** over **\*1C** if something doesn't take.

## LOCAL MODULE IS HANDLED FOR YOU

REFLECTOR VS GATEWAY

When you switch from the radio, the openSPOT4 sets the local module automatically: **a space character** if you are switching to a gateway, **module D** if you are switching to a reflector.

Some classic REF and XRF servers need a valid D-STAR registration. Without one you may get a read-only connection — you will hear traffic but cannot transmit, with a warning on the Status page.

# SWITCHING SERVERS — EVERYTHING ELSE

ONE TILE PER NETWORK — THE ID FORMAT, THEN HOW EACH RADIO SENDS IT

FCS, YSFReflector, NXDNReflector, P25Reflector and BrandMeister — each with its own ID format.

## FCS

ROOM, OR SERVER + ROOM

**5** → current server, room 5  
**99** → current server, room 99  
**205** → FCS002 room 5  
**314** → FCS003 room 14

DMR · NXDN · P25 private call to the ID  
CROSS

C4FM \* or # + ID NATIVE

D-STAR \* + ID CROSS · PRO

URCALL **FCS00199**  
CROSS · PRO

**FCS00199** in URCALL = FCS001 room 99.

## YSFREFLECTOR

FIVE-DIGIT SERVER ID

C4FM \* or # + ID NATIVE

D-STAR \* + ID CROSS · PRO

DMR · NXDN · P25 private call to the ID  
CROSS

URCALL **YS89804**  
CROSS · PRO

**\*89804** → 89804 AmericaLink  
 The Wires-X button menu also selects and searches servers from a C4FM radio.

## NXDNREFLECTOR

FIVE-DIGIT SERVER ID

NXDN private call to the ID NATIVE

DMR private call to the ID CROSS

D-STAR \* + ID CROSS · PRO

C4FM \* + ID CROSS

**\*28299** → 28299 America-Ragchew  
 Each server handles **one talkgroup** — send calls as a group call to that TG or the server ignores them.

## P25REFLECTOR

SERVER ID

P25 RADIO private call to the ID NATIVE

group call to the TG also switches

C4FM \* + server ID CROSS

Group-call switching works because **Allow server change with group calls** is on by default. C4FM cross mode to P25 needs the radio in **VW mode**, not DN.

BRANDMEISTER, AND THE DGID SWITCH

## BRANDMEISTER — URCALL ONLY

HOME BREW/MMDVM CONNECTOR

D-STAR URCALL **BM** + server ID CROSS · PRO

**BM2162** → server 2162, Hungary

This is the only server-switch method the manual documents for the Homebrew/MMDVM connector — **there is no special-ID or DTMF equivalent**. Talkgroup linking on BrandMeister is done with quick calls instead; see the routing page.

## CROSS-MODE DGID

FCS AND YSFREFLECTOR · SETS WHAT GOES TO THE NETWORK

DMR · NXDN · P25 short group call to **4000 + DGID 4025** → DGID 25

D-STAR # + DGID **#25** → DGID 25

RESET TO 0 group call **4000**, or # alone

Some servers change the linked room based on this value, so it is the DGID that decides what you are actually in.

# ROUTING & LINKING

Changing **where your calls go** from the radio — cross-mode routing, server switching, talkgroup linking.

CROSS-MODE ROUTING — SETS "ROUTE CROSS MODE CALLS TO ID" FROM A D-STAR OR C4FM RADIO

## GROUP CALL

LINK A TALKGROUP

DTMF **#3100**

D-STAR URCALL **216G** or **216**

A trailing **G** means group — and with no letter at all the type **defaults to group**, so **216** and **216G** do the same thing.

## PRIVATE CALL

LINK A REFLECTOR, OR CALL AN ID

DTMF **\*4770**

D-STAR URCALL **2161005P**

Trailing **P** means private. Set URCALL back to **CQCQCQ** after the short call. **BM parrot: \*9990**, release PTT, key again.

## \* ALONE

NO ID AFTER IT

DOES **group call 4000**

The unlink-everything command. Drops all dynamic talkgroups and any linked reflector.

## # ALONE

NO ID AFTER IT

DOES **adopt last caller**

**Takes the destination of the last incoming call.** Routed to TG123, a call arrives on TG91, you send **#** — you are on TG91. The fastest way to answer what you just heard.

SERVER SWITCHING BY URCALL — D-STAR RADIO, OPENSPT4 PRO; CHANGES THE ACTIVE CONNECTOR TOO

## SET URCALL, KEY ONCE

SWITCHES SERVER AND CONNECTOR TOGETHER

REF / XRF **REF001 C** module C → REF/XRF connector

DCS / XLX **DCS001 A** module A → DCS/XLX connector

BRANDMEISTER **BM2162** server 2162 → Homebrew/MMDVM

FCS **FCS00199** FCS001 room 99 → FCS connector

YSFREFLECTOR **YS89804** 89804 → YSFReflector connector

NXDNREFLECTOR **NX28299** 28299 → NXDNReflector connector

## DMR LINKING

QUICK CALLS · HOMEBREW/MMDVM

GROUP TO A TG **links that TG**

PRIVATE 4000–5000 **links that reflector**

PRIVATE 4000 **unlinks the reflector**

GROUP 4000 **unlinks everything**

Linking is done by the network, not the hotspot. Quick calls are empty transmissions and **do show on the BrandMeister dashboard**.

## SETTINGS TO KNOW

ON BY DEFAULT UNLESS NOTED

UNLINK ON DTMF CALL **fires 4000 first**

AUTO MUTE DTMF **reflector won't hear tones**

IGNORE AFTER 10 S **late DTMF discarded**

PREFIXES **\* and #, both settable**

BEFORE YOU RELY ON ANY OF IT

## ONE AMBIGUITY

SAME KEY, TWO DOCUMENTED MEANINGS

On D-STAR, DTMF **#** is documented on p. 98 as the **unlink command** — it activates the Null connector — and on p. 71 as **adopt the last incoming destination** in cross-mode routing. The manual never reconciles the two. Test which one your setup does before relying on it mid-net.

## TWO PREREQUISITES PEOPLE MISS

CROSS MODES

**C4FM radios must be in DN (digital narrow) mode**, or calls cannot be converted and only silence reaches the network.

**D-STAR cross modes are openSPOT4 Pro only** — they need the onboard AMBE vocoder. The non-Pro converts in software and cannot do them at all.

From the openSPOT4 and openSPOT4 Pro user manual v92, firmware v92 — Cross modes, Quick call and C4FM settings sections. Talkgroup and reflector behavior is set by the network and differs between BrandMeister, DMRplus and others. Not an official SharkRF document.