



**BOB SIMPSON VE3ODR**



ICOM IC-2820



ICOM IC-880H



## DV Dongle

**WORK D-STAR FROM YOUR PC**

This unit is a USB Device and encodes and decodes D-Star signals using the latest DVSI AMBE Codec chip. Operates with Windows XP/Vista, Mac Leopard & Linux.

### Application 1

#### Digital voice (DV mode)

Analog audio is modulated to a digital signal and transmitted in the digital mode signal by the D-STAR radio.



Voice is crisp and clear!



Repeater A

### Internet connection\*

The Internet gateway allows linking of D-STAR repeater sites over the Internet. You can uplink to your local repeater and downlink from a remote repeater, even from a foreign country!

INTERNET

### Application 5

#### IP camera (DD mode)

You can transmit live images in DD mode and watch real-time images from a remote location.



Repeater E

### Application 2

#### Short data message (DV mode)

HELLO



Call sign identification and short data messages are available.

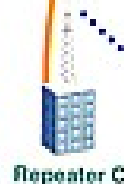
Repeater B

### Application 3

#### GPS tracking (DV mode)

With a GPS receiver, you can send your current position information to another radio.

GPS satellite



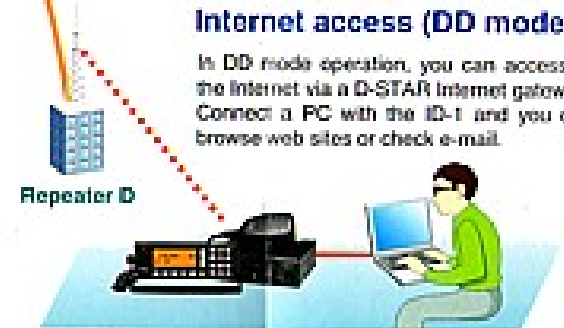
Repeater C



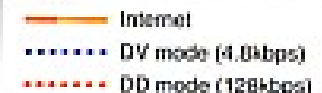
### Application 4

#### Internet access (DD mode)\*

In DD mode operation, you can access to the Internet via a D-STAR Internet gateway. Connect a PC with the ID-1 and you can browse web sites or check e-mail.



Repeater D



\* Some restrictions may apply depending on specific countries' regulations.

## **D-STAR TALK/DEMONSTRATION**

D-STAR (DIGITAL SMART TECHNOLOGIES FOR AMATEUR RADIO) OFFERS DIGITAL VOICE AND SLOW AND HIGH-SPEED DATA COMMUNICATIONS. THE SLOW-SPEED DIGITAL VOICE (2M/440) AND DATA IS TRANSPORTED AT 4800 BPS, WITH 3600 BPS BEING USED FOR VOICE AND VOICE ERROR CORRECTION, THE REMAINING 1200 BPS IS USED FOR SYNCHRONIZATION AND GENERAL USE OF THIS 1200 BPS, ABOUT 900 BPS IS AVAILABLE FOR TRANSPORTING DATA. THE PROGRAM D-RATS MAKES USE OF THIS. HIGH SPEED (1.2g) DATA IS TRANSPORTED AT 128 KBPS AND SUPPORTS ETHERNET PACKETS.

D-STAR IS AVAILABLE ON VE3LSR (70cm) 444.350+,  
& VE3LSR (2m) 145.190-

THE SECRET OF USING A D-STAR RADIO IS UNDERSTANDING HOW TO SET UP THE **CALL SIGN ROUTING REGISTER**.

**YOUR CALL OR UR:** CALL SIGN OF THE STATION, NODE/REFLECTOR YOU ARE CALLING. THIS IS USUALLY SET TO “CQCQCQ”

**RPT1:** CALL SIGN OF THE REPEATER YOU ARE CALLING INTO (FOR EXAMPLE VE3LSR C). SOMETIMES CALLED THE DEPARTURE REPEATER

**RPT2:** CALL OF A DESTINATION REPEATER **OR** YOUR LOCAL GATEWAY (VE3LSR G)

**MY CALL:** YOUR CALL SIGN

IT IS IMPORTANT TO REMEMBER THAT “A”, “B”, “C” AND “G” ARE IN THE 8TH CHARACTER POSITION. FOR EXAMPLE, VE3LSR C, “C” IS IN THE 8TH POSITION CALLED THE PORT SWITCH.

“A” SETS THE PORT TO 1.2 GHz. WHEN WE GET LSR 1.2 GHz WORKING YOU WOULD SET RPT1 TO “A” RPT1 WOULD BE SET TO “VE3LSR A”

“B” IF YOU ARE USING LSR 70cm YOU WOULD SET RPT1 TO “VE3LSR B”

“C” IF YOU ARE USING LSR 2m YOU WOULD SET RPT1 TO “VE3LSR C”

“G” GATEWAY - CONNECTING REPEATER SYSTEMS VIA GATEWAYS IS ONE OF THE MOST POWERFUL ASPECTS OF D-STAR OPERATION.  
TO USE THE GATEWAY OPTION SIMPLE SET RPT2 TO “VE3LSR G”

TO GET THE LIST OF USERS ON D-STAR AT THE PRESENT TIME, GO TO:

<http://dstarusers.org/>

TO FIND OUT WHO HAS BEEN USING VE3LSR, GO TO THE LEFT SIDE OF THE USRES PAGE AND CLICK ON “REPEATER DIRECTORY”, SELECT YOUR DESIRED COUNTY “CANADA”, CLICK “GO” AND LEFT CLICK ON VE3LSR. THIS WILL SHOW WHO HAS BEEN USING VE3LSR.

Unique Stations Heard In The Last 14 Days on VE3LSR

Callsign	Time Heard	Reporting Node
<a href="#">VA3SD</a>	11/08/09 22:06:47 UTC	VE3LSR B 440 MHz
<a href="#">VA3LM</a>	11/08/09 00:00:48 UTC	VE3LSR C 2 Meters
<a href="#">VE3ODR</a>	11/07/09 22:27:16 UTC	VE3LSR C 2 Meters
<a href="#">VE3OXX</a>	11/07/09 02:43:09 UTC	VE3LSR B 440 MHz
<a href="#">VE3GWM</a>	11/07/09 02:25:39 UTC	VE3LSR C 2 Meters
<a href="#">VA3KUG</a>	11/07/09 02:05:02 UTC	VE3LSR B 440 MHz
<a href="#">VA3QT</a>	11/06/09 17:51:42 UTC	VE3LSR B 440 MHz
<a href="#">VA3RTO</a>	11/06/09 16:21:33 UTC	VE3LSR C 2 Meters
<a href="#">VA3NLS</a>	10/30/09 01:35:03 UTC	VE3LSR C 2 Meters
<a href="#">VE3RDQ</a>	10/28/09 00:55:52 UTC	VE3LSR C 2 Meters

**CLICKING ON VA3RTO WILL CONNECT YOU TO “QRZ.COM” :**

**VA3RTO**

Township of Ramara EOC

2297 HWY 12

BRECHIN, ON LOK 1B0

Canada

## AUDIO TEST

WANT TO TEST YOUR AUDIO ON LSR 2M D-STAR?

UNLINK THE REPEATER BEFORE DOING THIS.

SET UP THE CALL SIGN ROUTING REGISTER LIKE THIS:

YOUR CALL: VE3LSR^E. “^” IS A SPACE “E” IS IN THE 8TH POSITION”

RPT1: VE3LSR C

RPT2: VE3LSR G

MY CALL: YOUR OWN CALL SIGN

PRESS THE PTT AND MAKE A BRIEF ANNOUNCEMENT AND UNKEY. IN A FEW SECONDS, WHATEVER YOU SAID WILL BE PLAYED BACK.

**\*\*\*DON'T FORGET TO SET BACK “YOUR CALL OR UR” BACK TO CQCQCQ WHEN YOU ARE DONE.**

## SIMPLEX

TO MAKE A CALL ON A SIMPLEX (146.520) CHANNEL,  
SET UP THE CALL SIGN ROUTING REGISTER LIKE THIS:

YOUR CALL OR UR: CQCQCQ

RPT1: NOT USED

RPT2: NOT USED

MY CALL: YOUR OWN CALL SIGN

## LOCAL CALL

IF YOU WANT TO MAKE A LOCAL CALL ON VE3LSR REPEATER 444.350  
OR 145.190, SET UP THE CALL SIGN ROUTING REGISTER LIKE THIS:

YOUR CALL OR UR: CQCQCQ

RPT1: VE3LSR "B" FOR 440, OR "C" FOR 2M

RPT2: NOT USED

MY CALL: VE3ODR

## LOCAL CROSS-BAND

CROSS-BAND FROM VE3LSR 2M TO LSR 440.

SUPPOSE VE3ODR IS ON 440 AND WANTS TO CALL VE3OXX ON 2M.  
SET UP THE CALL SIGN ROUTING REGISTER LIKE THIS:

VE3ODR (440)

YOUR CALL OR UR: CQCQCQ

RPT1: VE3LSR B

RPT2: VE3LSR C

MY CALL: VE3ODR

VE3OXX (2M)

YOUR CALL OR UR: CQCQCQ

RPT1: VE3LSR C

RPT2: VE3LSR B

MY CALL: VE3OXX

## REPEATER NODE ROUTING

WE ARE GOING TO SET UP THE CALL SIGN REGISTER TO ALLOW THE USER TO SPECIFY A SPECIFIC REPEATER NODE.  
IN THIS CASE, VE3ABC WANTS TO CALL HIS FRIEND VE3XYZ WHO HAPPENS TO BE ON VE3LSR PORT C

**VE3ABC**

YOUR CALL OR UR: /VE3LSR C  
RPT1: VE3RPT B  
RPT2: VE3RPT G  
MY CALL: VE3ABC

**VE3XYZ**

YOUR CALL OR UR: /VE3RPT B  
RPT1: VE3LSR C  
RPT2: VE3LSR G  
MY CALL: VE3XYZ

“/” TELLS THE CONTROLLER YOU ARE MAKING A CALL TO A SPECIFIC REPEATER NODE AND NOT AN INDIVIDUAL CALL SIGN OF A PERSON.

**\*\* REMEMBER TO CHANGE “YOUR CALL OR UR” BACK TO CQCQCQ WHEN YOU ARE DONE.**

## CALL SIGN ROUTING

THIS SETS UP THE SIGN REGISTER TO ALLOW THE USER TO SPECIFY A SPECIFIC CALL SIGN. YOUR CALL HAS TO BE REGISTERED ON THE GATEWAY DATABASE TO USE THIS. HOW DOES THE NETWORK KNOW WHERE TO FIND YOU? EVERY TIME YOU KEYUP A D-STAR REPEATER, THE NETWORK RECORDS WHAT NODE YOU HAVE KEYED UP.

IN THIS CASE VE3ODR, WHO IS ON VE3LSR PORT B, WANTS TO CALL HIS FRIEND, VE3OXX, WHO IS SOMEWHERE IN THE UK. ODR SETS UP THE CALL SIGN REGISTER AS SHOWN AND PRESSES THE PTT. IF OXX HAS BEEN HEARD ON THE NETWORK, A ROUTE TO HIM WILL BE ESTABLISHED AND A QSO CAN BEGIN.

BOB'S RADIO  
YOUR CALL: VE3OXX  
RPT1: VE3RPT B  
RPT2: VE3RPT G  
MY CALL: VE3ODR

RICK'S RADIO  
YOUR CALL: VE3ODR  
RPT1: G3OXY C  
RPT2: G3OXY G  
MY CALL: VE3OXX

NOTE THAT VE3OXX HAS SET HIS "YOUR CALL OR UR" FIELD TO "VE3ODR" BY PRESSING "RX-CS" TO ANSWER A CALL FROM VE3ODR .

**\*\* REMEMBER TO CHANGE "YOUR CALL OR UR" BACK TO CQCQCQ WHEN YOU ARE DONE.**

## MULTICAST GROUPS

**SETTING UP THE CALL SIGN REGISTER TO ALLOW THE LINKING OF A GROUP OF REPEATER NODES WITH AN ALIAS.**

**FOR EXAMPLE, “ARESON”. AS MANY AS 11 REPEATER NODES CAN BE LINKED. FOR EXAMPLE, WE COULD SETUP AN “ARES” OR “CANWARN” MULTICAST GROUP IN ONTARIO CONSISTING OF THE FOLLOWING D-STAR REPEATERS: VE3LSR, VE3TTT, VE3YYX, VE3WIX, VE3PRT, VE3RTR, VE3ODG AND VE3RXR.**

**AS YOU CAN SEE MULTICAST IS A POWERFUL FEATURE OF D-STAR.**

**YOUR CALL: /ARESON**

**RPT1: VE3LSR B or C**

**RPT2: VE3LSR G**

**MY CALL:**

**MULTICAST GROUP NAME**

**LOCAL 440 OR C MODULE**

**LOCAL GATEWAY**

**YOUR OWN CALL SIGN**

## **REFLECTORS, LINKING AND UN-LINKING**

**A WORD ABOUT LINKING AND UNLINKING.**

**LATELY WE HAVE HAD THE LSR D-STAR 2M REPEATER LINKED TO REF001C. IT IS REFERRED TO “REFLECTOR 01 CHARLIE”.**

**AT THIS TIME, THERE ARE 24 REFLECTORS WORLD WIDE AND MORE POPPING UP EACH MONTH. FOR A COMPLETE LIST OF THE REFLECTORS GO TO: <http://www.dstar.org.au/reflectors.htm>**

Reflector:	Module:		Notes:
REF001	A		Chicago, High Bandwidth
REF001	B		Chicago, High Bandwidth
REF001	C		Chicago, High Bandwidth
REF002	A		Nebraska, High Bandwidth
REF002	B		Nebraska, High Bandwidth
REF002	C		Nebraska, High Bandwidth
REF003	A		Ad-hoc and Emergency Use - Australia
REF003	B		Permanent link for repeaters, including all WIA Port B Repeaters - Australia
REF003	C		Australian Nets: Thu 1000UTC - <a href="#">EMDRC Club Net</a>
REF004	A		Experimentation Channel inc IRLP/Echo, rptDIR, Node Adaptors, etc
REF004	B		Scheduled and Impromptu Nets
REF004	C		General ragchew. Open to D-STAR and DV-Dongle users
REF005	A		UK D-Star Repeaters

REF005	B	United Kingdom	French language
REF005	C	United Kingdom	
REF006	A	United Kingdom	Scottish Net
REF006	B	United Kingdom	Danish language
REF006	C	United Kingdom	German language South / West
REF006	D	United Kingdom	German language North / West
REF007	A	Italy	Gallarate
REF007	B	Italy	Gallarate
REF007	C	Italy	Gallarate
REF008	A	Italy	
REF008	B	Italy	
REF008	C	Italy	
REF009	A	United States	Arizona
REF009	B	United States	Arizona
REF009	C	United States	Arizona
REF010	A	United States	New England
REF010	B	United States	New England
REF010	C	United States	New England
REF011	A	Italy	Milan
REF011	B	Italy	Milan
REF011	C	Italy	Milan
REF012	A	United States	San Diego, High Bandwidth
REF012	B	United States	San Diego, High Bandwidth

REF012	C	United States	San Diego, High Bandwidth
REF013	A	London, United Kingdom	Intended for UK regional nets and test/development
REF013	B	London, United Kingdom	Intended for UK regional nets and test/development
REF013	C	London, United Kingdom	Intended for UK regional nets and test/development
REF014	A	United States	Las Vegas, High Bandwidth
REF014	B	United States	Las Vegas, High Bandwidth
REF014	C	United States	Las Vegas, High Bandwidth
REF015	A	United Kingdom	Multimedia
REF015	B	United Kingdom	Multimedia
REF015	C	United Kingdom	D*data only
REF016	A	Canada	British Columbia, High Bandwidth
REF016	B	Canada	British Columbia, High Bandwidth
REF016	C	Canada	British Columbia, High Bandwidth
REF017	A	Netherlands	
REF017	B	Netherlands	
REF017	C	Netherlands	Tue 9:00pm US EST North Carolina Net. Thur 8:30pm EST Central NC Net
REF018	A	Brazil	Server in the US
REF018	B	Brazil	Server in the US
REF018	C	Brazil	Server in the US
REF019	A	United States	Wisconsin, High Bandwidth

REF019	B	United States	Wisconsin, High Bandwidth
REF019	C	United States	Wisconsin, High Bandwidth
REF020	A	United States	New Jersey
REF020	B	United States	New Jersey
REF020	C	United States	New Jersey
REF021	A	United Kingdom	West, High Bandwidth
REF021	B	United Kingdom	West, High Bandwidth
REF021	C	United Kingdom	West, High Bandwidth
REF022	A	Finland	Nordic, High Bandwidth
REF022	B	Finland	Nordic, High Bandwidth
REF022	C	Finland	Nordic, High Bandwidth
REF023	A	Australia	Experimental use. All Gateways, Dongles and Hotspots welcome. See <a href="http://dstar.vkradio.com">http://dstar.vkradio.com</a> for latest status.
REF023	B	Australia	General use. All Gateways, Dongles and Hotspots welcome.
REF023	C	Australia	General use. All Gateways, Dongles and Hotspots welcome.
REF024	A	United States	Michigan ARES
REF024	B	United States	General Use - <a href="http://www.w8shi.net/reflector">www.w8shi.net/reflector</a>
REF024	C	United States	General Use

PLEASE FEEL FREE TO TRY LINKING TO OTHER REFLECTORS.

TO FIND OUT WHAT REPEATERS OR NODES ARE CONNECTED TO REF001, FOR EXAMPLE, GO TO:

<http://ref001.dstargateway.org/>

REF001

### Linked Gateways

Module A	Module B	Module C
GB7IC B	KE7WTC A	K7RST C
	DB0AFZ B	NJ2DG A
		VE6IPG B
		KJ4LNJ C
		K2DIG A
		W8SHI B
		W5NGU C
		W5SHV C
		VK5REX B
		VE3LSR C
		WX4GPB B
		WA7FW B
		KE7WTC B
		K6ACS C

		W1AAD C
		K8LCD C
		K0MDG B
		W4GSO B
		PI1DSA C
		W4HFH C
		KE5WFB B
		KJ4MMC C
		VK2RWN C
		NE4SC C
		W9ARP C
		VE3RXR C
		W4GSO1 C
		VK3RMM C
		VK2RDS C
		W6DHS B
		KC5OLO B
		W8BI C
		K8BIG C

		W9PIA C
		W9BIL B
		K3PDR C
		W8RNL C
		WB4GNA C
		GB7AU B
		GB3IN C
		WA6IRC B
		MB6AM C
		W6YYY B
		VK4RDS C
		VK4RGC C

## Linked Gateways

## IS LSR LINKED OR UN-LINKED?

**TO FIND OUT IF VE3LSR, 2M D-STAR, REPEATER IS LINKED, SET UP THE CALL SIGN ROUTING REGISTER LIKE THIS:**

**YOUR CALL OR UR: VE3LSR^I (REMEMBER THAT "I" IS IN THE 8TH POSITION)**

**RPT1: VE3LSR C**

**RPT2: VE3LSR G**

**MY CALL: YOUR OWN CALL SIGN**

**\*HIT THE PTT AND YOU WILL HEAR BACK "REMOTE SYSTEM "LINKED" OR "UNLINKED".**

**DON'T FORGET TO CHANGE "YOUR CALL OR UR" BACK TO "CQCQCQ" WHEN YOU HAVE DONE THIS.**

## LINKING

**LETS LINK THE VE3LSR 2M REPEATER TO “REFLECTOR 001C”.  
SET UP THE CALL SIGN ROUTING REGISTER LIKE THIS:**

**YOUR CALL OR UR: REF001CL (NOTE “0” IS A ZERO NOT THE LETTER “O”)**

**RPT1: VE3LSR C**

**RPT2: VE3LSR G**

**MY CALL: YOUR OWN CALL SIGN**

**\*PRESS PTT AND YOU WILL HEAR A MESSAGE “REMOTE SYSTEM LINKED”.**

**DON'T FORGET TO CHANGE “YOUR CALL OR UR” BACK TO “CQCQCQ”  
WHEN YOU HAVE DONE THIS.**

## UNLINKING

**UNLINKING FROM A REFLECTOR IS EASY.  
SET THE CALL SIGN ROUTING REGISTER LIKE THIS:**

**YOUR CALL OR UR: ^^^^^^U (^ IS A SPACE "U" IS IN THE 8TH POSITION)  
RPT1: VE3LSR C  
RPT2: VE3LSR G  
MY CALL: YOUR OWN CALL SIGN**

**\*HIT THE PTT AND YOU WILL HEAR "REMOTE SYSTEM UNLINKED".**

**DON'T FORGET TO CHANGE "YOUR CALL OR UR" BACK TO "CQCQCQ"  
WHEN YOU HAVE DONE THIS.**

## **RESOURCES:**






**NIFTY E-Z GUIDE TO D-STAR OPERATION  
BY BERNIE LAFRENIERE, N6FN  
AVAILABLE FOR NIFTY HAM ACCESSORIES**

**[www.nifty.accessories.com](http://www.nifty.accessories.com)**

**ARRL/TAPR 2008 DIGITAL COMMUNICATIONS CONFERENCE  
PETE LOVEALL, AE5PC: D-STAR UNCOVERED  
PETE LOVEALL, AE5PC: D-STAR GPS SYSTEM  
MARK THOMPSON WB9QZB: D-STAR VOICE AND DATA  
DAN SMITH KK7DS: D-RATS MESSAGING FOR D-STAR**

**[www.ARVideoNews.com](http://www.ARVideoNews.com)**

# D-STAR TRANSCEIVERS

	<a href="#">Icom</a>	<a href="#">IC-2820H</a>	<del>\$700.00</del> <b>\$640.00</b> <input type="button" value="Add to Cart"/>	Dual Band FM Transceiver, 50 Watt output, dual watch, separate controller from main unit, 522 memory channels, band scope function, D-STAR DV mode + GPS receiver
	<a href="#">Icom</a>	<a href="#">ID-1</a>	\$900.00 <input type="button" value="Add to Cart"/>	D-STAR, 1200MHz digital transceiver, Digital Voice Communication, Internet application available, Wireless internet access, Independent network <a href="#">Icom Canada's Fall 2009 Savings! Mail-in Rebate - \$20</a>
	<a href="#">Icom</a>	<a href="#">ID-880H</a>	\$600.00 <input type="button" value="Add to Cart"/>	Dual Band VHF/UHF Transceiver, 50/15/5 Watt output, D-STAR, 1052 memory channels, Built-in CTCSS/DTCS encoder and decoder, Digital pocket beep, Mobile Companion of the IC-80AD Handheld
	<a href="#">Icom</a>	<a href="#">IC-80AD</a>	\$570.00 <input type="button" value="Add to Cart"/>	Handheld Dual Band VHF/UHF Transceiver, 5 Watt output, D-STAR, 1052 memory channels, Built-in CTCSS/DTCS encoder and decoder, Digital pocket beep, Handheld Companion of the ID-880H Mobile
	<a href="#">Icom</a>	<a href="#">IC-92AD</a>	<del>\$620.00</del> <b>\$599.99</b> <input type="button" value="Add to Cart"/>	5 watts VHF/UHF dual band transceiver, wide band receiver, D-Star Ready, CTCSS/DTCS, keypad navigation, squelch release, waterproof to IPX7, 4-step RF power selection, GPS capabilities with optional HM-175GPS speaker microphone



You need a radio license and a good internet connection but you can get on D-Star without buying a radio:

[http://www.dvdongle.com/DV\\_Dongle/Home.html](http://www.dvdongle.com/DV_Dongle/Home.html)

Cost ~\$200US!

Please call me if you have any questions or need help getting going on D-Star.

Bob, VE3ODR