

D-STAR

Digital Voice + Digital Data

DV + DD

D-STAR CALLSIGNS

Presented by

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**ALABAMA
D★STAR**

Agenda

- Power of ONE
 - Callsign confusion
- Your, Mine, Ours
 - Callsign Usage
- To route or not to route
 - Zones and Areas

Power of ONE

One callsign per network

- Each callsign is assigned an IP Address
 - *Systems/Gateways* = Global Static IP
 - *Users* = Local IP

Registration

- Each callsign must be registered by the systems administrator

Callsign Confusion

Problem

W4OZK = *System/Gateway* and *User*

– *System/Gateway*

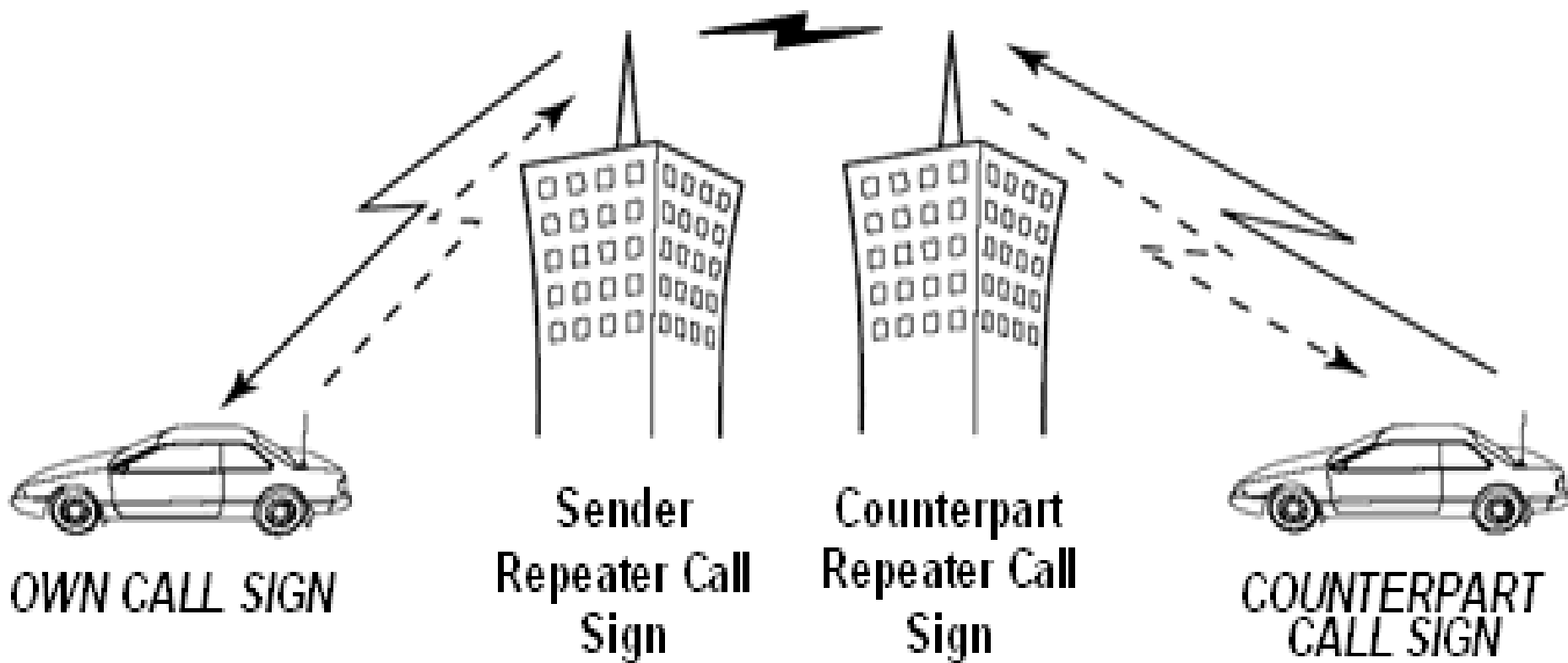
- » Callsign = W4OZK
- » *System/Gateway* IP = 65.102.167.145

– *User*

- » Callsign = W4OZK
- » Reservation IP Block = 10.103.135.192
- » Actual IP Address = 10.103.135.194

So, Where does the call get routed?

Gateway / Internet



Callsign Confusion

Conclusion:

- **User** callsign will have an IP address assigned to a **System/Gateway** IP address.
- Thus **One callsign** cannot be used for both a **System/Gateway** IP address and a **User** IP address

Solution

Get a club call for the repeater

Yours, Mine, Ours

4 important Callsigns

- My **Call** = Originating *User*
- Your **Call** = Destination *User*
- Repeater 1 **Call** = Originating *User* System
- Repeater 2 **Call** = Local or Gateway *

★ **Note:** If Originating *User* is **NOT REGISTERED** in the network for Gateway use, ALL CALLS will remain **LOCAL**

8 Characters??

Every CALLSIGN field will have 8 characters!

- The 8th character is a port designator for the *System/Gateway* fields

NOTE: If left blank, the system assumes PORT A is default!

- **DO NOT** use a letter or number in the 8th position.

- N9JA A is ok
- N9JAA is NOT ok

★ This is a legitimate callsign for another person.

- **Other options**

- CQCQCQ
- Not Use*

System / Port Configuration

23cm DV Port A

23cm DD Port A

70cm DV Port B

2m DV Port C

A, B, C = Ports

G = Gateway

S = System

Routing is handled in the 8th position

What IF?

My call

- No Callsign
 - Communication will occur
 - Local Only

Your Call

- No Callsign
 - communication will occur
 - Local Only

Repeater 1

- No Callsign
 - Signal will not be repeated
 - System will issue a RPT 1 Reprogram command
 - RPT? Appears on originating *User's* radio

Repeater 2

- No Callsign
 - System assumes “Not Used”
 - Communication Local Only

D-STAR Routing

Two Routing Methods

Site Routing

- **Where** you want to talk
 - Specific **System/Gateway/City** and *Port*

User Routing

- **Who** you want to talk
 - Specific **User**

Local Site Routing

Callsign of the System

KI4PPF: Huntsville, AL

Callsign Programming

MYCALL = W4OZK

RPT 1 = KI4PPF-C

RPT 2 = not used

URCALL = **CQCQCQ**

Results

My call would be routed on the KI4PPF, 2 meter repeater, locally. Anyone local ham can hear my audio.

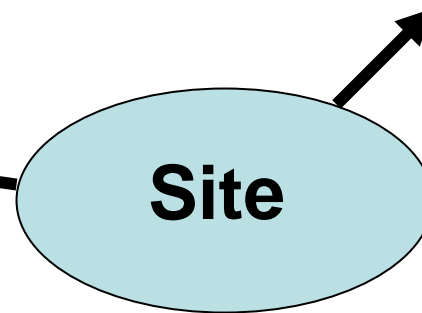
Gateway Site Routing

Callsign of the System

K5TIT: Dallas, TX
W4DOC: Atlanta, GA
KI4PPF: Huntsville, AL
K6MDD: Mt. Diablo, CA
N7IH: Bellevue, WA
W1AW: ARRL HQ
G7ICM: ICOM UK
VK8RAD: Darwin, Australia

Callsign Programming

MYCALL = W4OZK
RPT 1 = KI4PPF-C
RPT 2 = KI4PPF-G
URCALL = **W1AW***B**



Results

My call would be routed from the KI4PPF repeater, over the gateway, and come out on the **UHF** module at ARRL HQ, Newington CT.

Gateway Site Routing

- Connection over the Network
- One way connection
- Not a continuous connection

- Local hams on both ends can hear conversation
- Cannot join in until they program their radio

Gateway User Routing

User Callsigns

N5MIJ: Dallas, TX

KJ4VO: Atlanta, GA

W4OZK: Huntsville, AL

K6BIV: Mt. Diablo, CA

N9JA: Bellevue, WA

VK8HF: Darwin, Australia

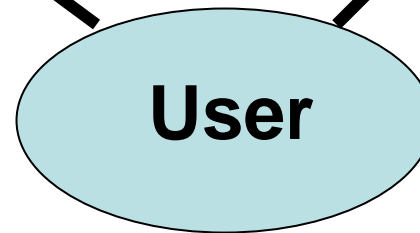
Callsign Programming

MYCALL = W4OZK

RPT 1 = KI4PPF-B

RPT 2 = KI4PPF-G

URCALL = **KJ4VO**



Results

W4OZK's voice and data communications would be routed from the KI4PPF repeater, over the gateway, and come out on the *last RF module* KJ4VO used, **ANYWHERE**.

User Routing (Fun Stuff)

Goal

Talk to as many D-STAR users as possible.

User Callsigns

N5MIJ: Dallas, TX

KJ4VO: Atlanta, GA

KG4PLK: Huntsville, AL

K6BIV: Mt. Diablo, CA

N9JA: Bellevue, WA

Callsign Programming

MYCALL = W4OZK

RPT 1 = KI4SAZ-C

RPT 2 = KI4SAZ-G

URCALL = N5MIJ

Then

URCALL = KJ4VO

Then

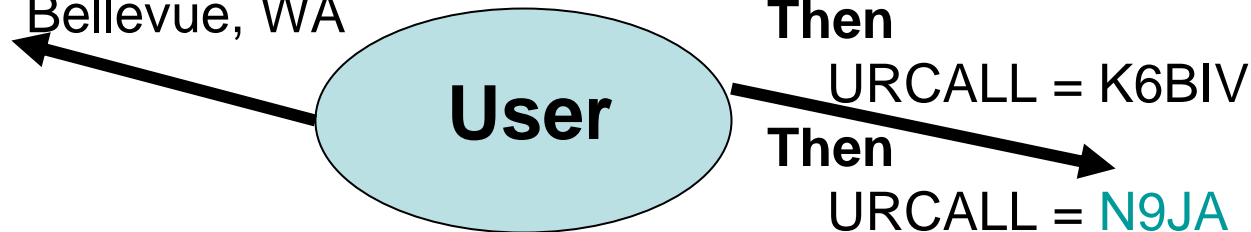
URCALL = KG4PLK

Then

URCALL = K6BIV

Then

URCALL = N9JA



Result

Both Voice and Data Communications routed to the appropriate recipient!

User Routing (More Fun Stuff)

Situation

W4OZK travels TOO much
How do we keep regular
contact?

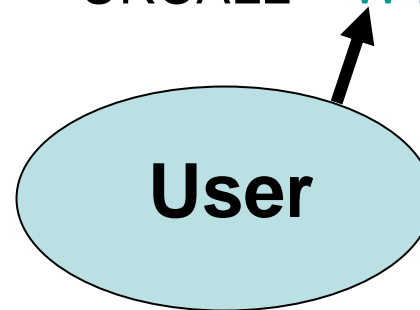
W4OZK's Travel Schedule

Monday: Mobile, AL
Tuesday: Atlanta, GA
Wednesday: Newington, CT
Thursday: San Francisco, CA
Friday: Huntsville, AL
Saturday: Tallassee, FL

Joe

Callsign Programming

MYCALL = WA4VZH
RPT 1 = KI4SAZ C
RPT 2 = KI4SAZ G
URCALL = W4OZK



Result

Both Voice and Data Communications routed to the
appropriate recipient regardless of location!

8 Characters!

Summary

Every CALLSIGN field will have 8 characters!

- The 8th character is a port designator for the *System/Gateway* fields

NOTE: IF left blank, the system assumes PORT A is used!

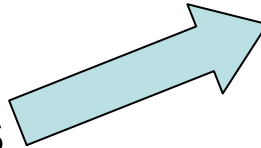
- **ONLY** use designated letters in the 8th position
- No numbers
- Watch your Callsign usage
 - N9JA A is ok
 - W4OZK2 is ok
 - N9JAA is **NOT** ok This is a legitimate callsign for another person.

To Route or Not To Route

Local Communications

– Local Net controls

- Kid nets
- Emcomm nets



Net Examples

- Port A - Southern Baptist
- Port A - High Speed Data
- Port B - Tactical / Leadership
- Port C - County Wide ARES

– D-PRS I-Gates

- Software solutions for D-PRS to APRS

– D*Chat

- Keyboard to Keyboard communications
 - Via Simplex, local repeater or Gateway

Cross Band Routing

Goal

To talk to friends on another band, (Cross Band) same system.

System Configuration

23cm DV	Port A
23cm DD	Port A
70cm DV	Port B
2m DV	Port C

Callsign Programming

MYCALL = W4OZK

RPT 1 = KI4PPF-**B**

RPT 2 = KI4PPF-**C**

URCALL = CQCQCQ

Result

Both Voice and Data Communications routed to KI4PPF Port C, which is 2m!

Cross Band Routing

Goal

To talk to friends on another band, **same** system.

System Configuration

23cm DV Port **A**

23cm DD Port A

70cm DV Port **B**

2m DV Port C

Callsign Programming

MYCALL = W4OZK

RPT 1 = KI4PPF-**B**

RPT 2 = KI4PPF-**A**

URCALL = CQCQCQ

Result

Both Voice and Data Communications routed to KI4PPF Port A, which is 23cm!

Cross Band Routing

Goal

To talk to friends on another band, **different** system.

System Configuration

23cm DV Port **A**

23cm DD Port A

70cm DV Port **B**

2m DV Port C

Callsign Programming

MYCALL = W4OZK

RPT 1 = KI4PPF-**B**

RPT 2 = KI4PPF-**G**

URCALL = KI4SAZ-**A**

Result

Both Voice and Data Communications routed to KI4SAZ Port A, which is 23cm!

Making a Contact Within a D-STAR Zone

- Remember analog repeaters? On linked repeaters you can make a call on the entire system at once.
- In a D-STAR zone, the same function is performed by adding a slash character “ / ” before the repeater's call sign as follows:

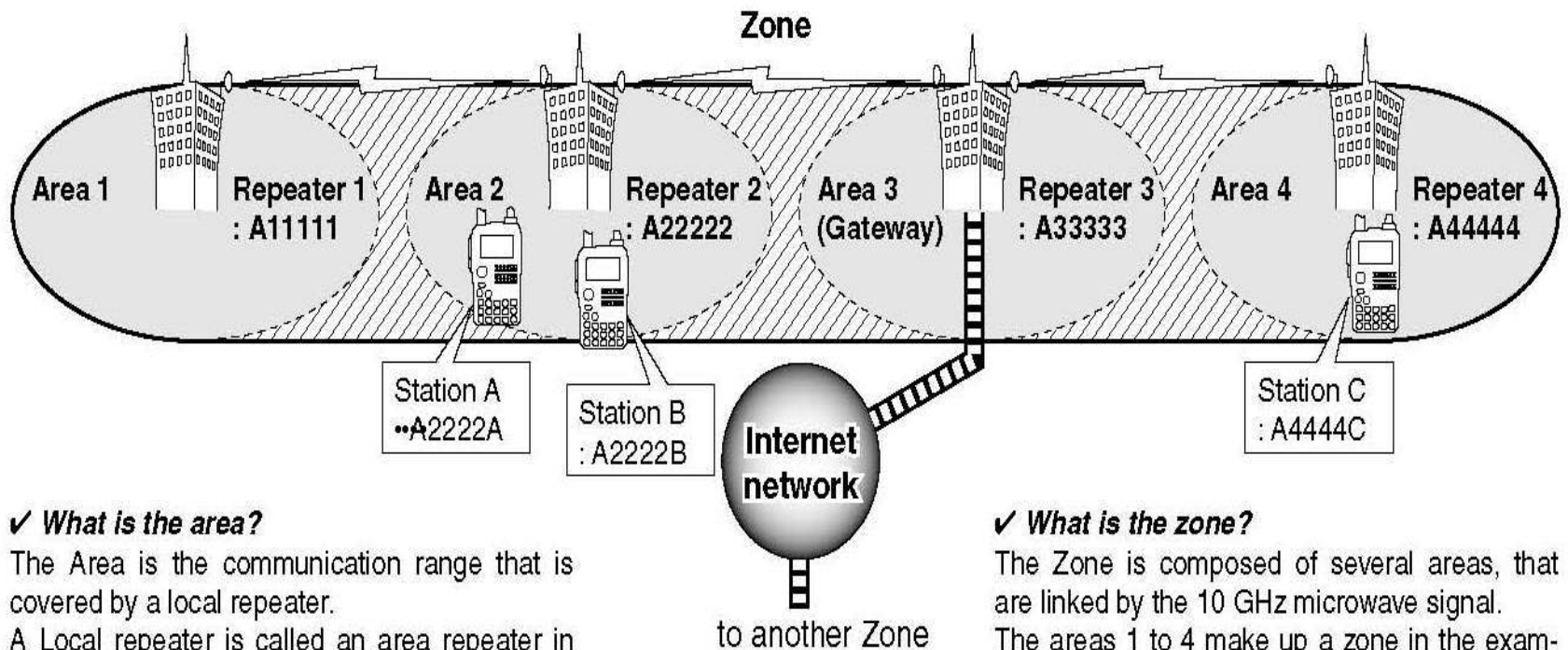
Callsign Programming

MYCALL = W4OZK

RPT 1 = KI4PPF-**B**

RPT 2 = KI4PPF-**G**

URCALL = /W4QKC



✓ **What is the area?**

The Area is the communication range that is covered by a local repeater.
 A Local repeater is called an area repeater in the D-STAR system.

✓ **What is the zone?**

The Zone is composed of several areas, that are linked by the 10 GHz microwave signal.
 The areas 1 to 4 make up a zone in the example above.

The setting when Station A is calling Station B

UR : A2222B
 R1 : A22222
 R2 : NOT USEQ
 MY : A2222A

The setting when Station A is making a CQ call in area 1

UR : CQCQCQ
 R1 : A22222
 R2 : A11111
 MY : A2222A

The setting when Station A is calling Station C

UR : A4444C
 R1 : A22222
 R2 : A44444
 MY : A2222A

Moral of the story

It is not difficult, just different!

Just go for it!

D-STAR

Digital Voice + Digital Data

DV + DD

Additional Information

➤ w4ozk@arrl.org

➤ www.arrl-al.org

➤ www.icomamerica.com/dstar



WWW.ARRL.ORG

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