The G4KLX ircDDB Gateway and Repeater Programs

Presented at

Ham Radio 2012

Who am I?

- Licenced as G8TXQ in 1979, G4KLX in 1980
- HB9DRD between 2000 and 2003
- Started with AX.25 in 1987
- Wrote Linux kernel AX.25, NET/ROM and ROSE protocols (as well as X.25 and LAPB)
- Professional software engineer
- Currently studying HF propagation for my PhD

Development History - 1

- Wanted to put some amateur radio into D-Star

- Sound card based client by mid-2009

- Sound card based repeater a month later

- First operational repeater in August 2009 (GB3IN)
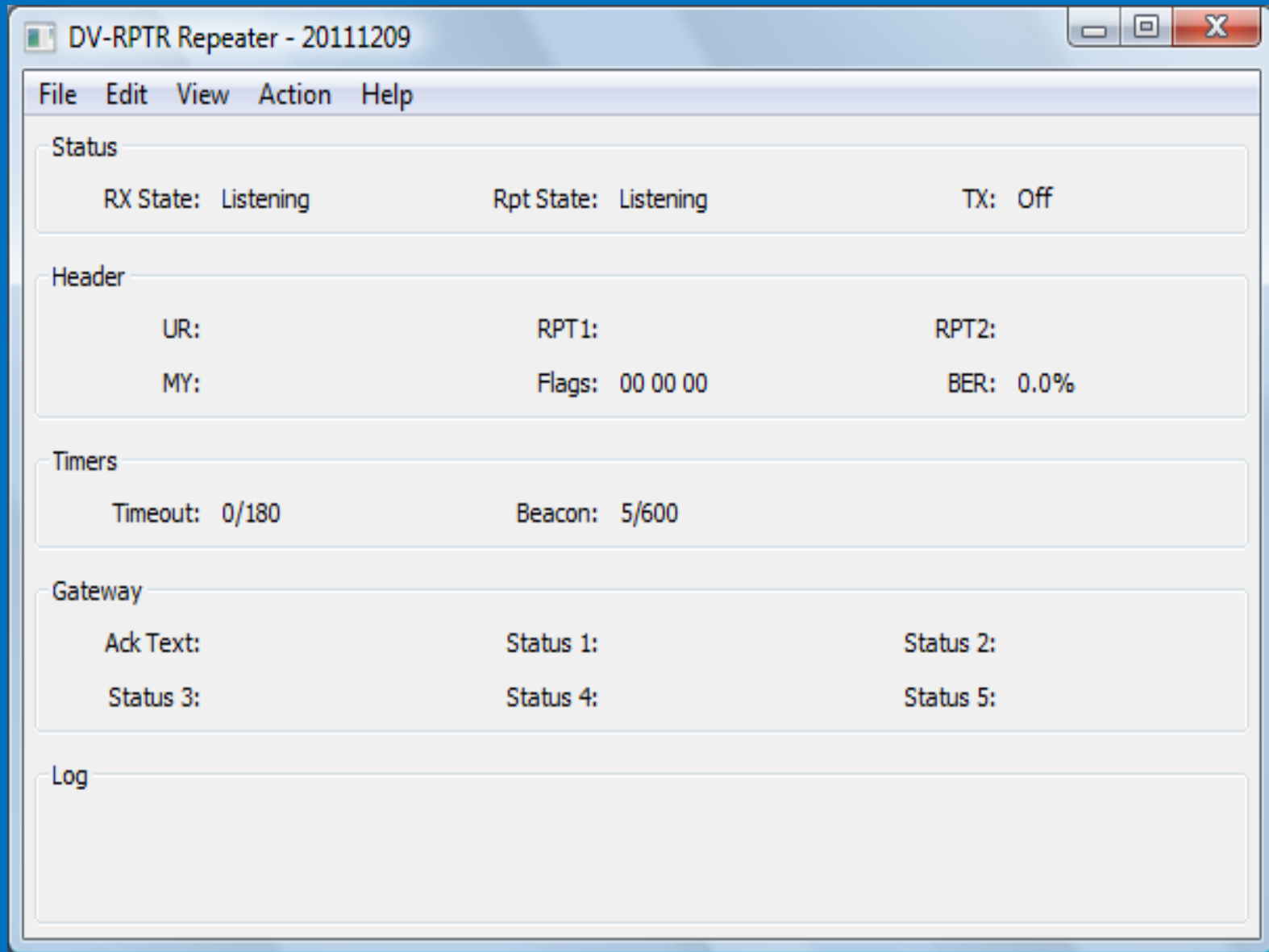
Development History - 2

- Integration with Open G2 in late 2009

- GMSK Repeater and ircDDB Gateway in late 2010

- DVAP Node and DV-RPTR Repeater in Summer 2011

- Split Repeater in early 2012

Common Repeater Features - 1

- Multiple modes (simplex, duplex, etc)

- AMBE reconstruction

- DTMF blanking

- Callsign validity checking

Common Repeater Features - 2

- Hidden remote commands

- Intelligent acks

- Voice beacon

- Multiple OS and CPU compatible

- And more…..

DV-RPTR Repeater - 20111209

File Edit View Action Help

Status

RX State: Listening   Rpt State: Listening   TX: Off

Header

UR: RPT1:   RPT2:

MY: Flags: 00 00 00   BER: 0.0%

Timers

Timeout: 0/180   Beacon: 5/600

Gateway

Ack Text: Status 1:   Status 2:

Status 3:   Status 4:   Status 5:

Log

ircDDB Gateway

- First approached in Summer 2010 by Jann DG8NGN

- An open and better system than Icom G2

- Chance to create unified open source gateway

- First release in October 2010

ircDDB Gateway Features - 1

- Uses ircDDB for user and repeater queries

- Includes D-Plus, DExtra, and DCS protocols

- Uses opendstar.org for D-Plus validation

- Uses DCS callsign server for DExtra and DCS

ircDDB Gateway Features - 2

- Gates repeater, GPS, and GPS-A data to aprs.fi

- Allows DTMF link and unlink commands
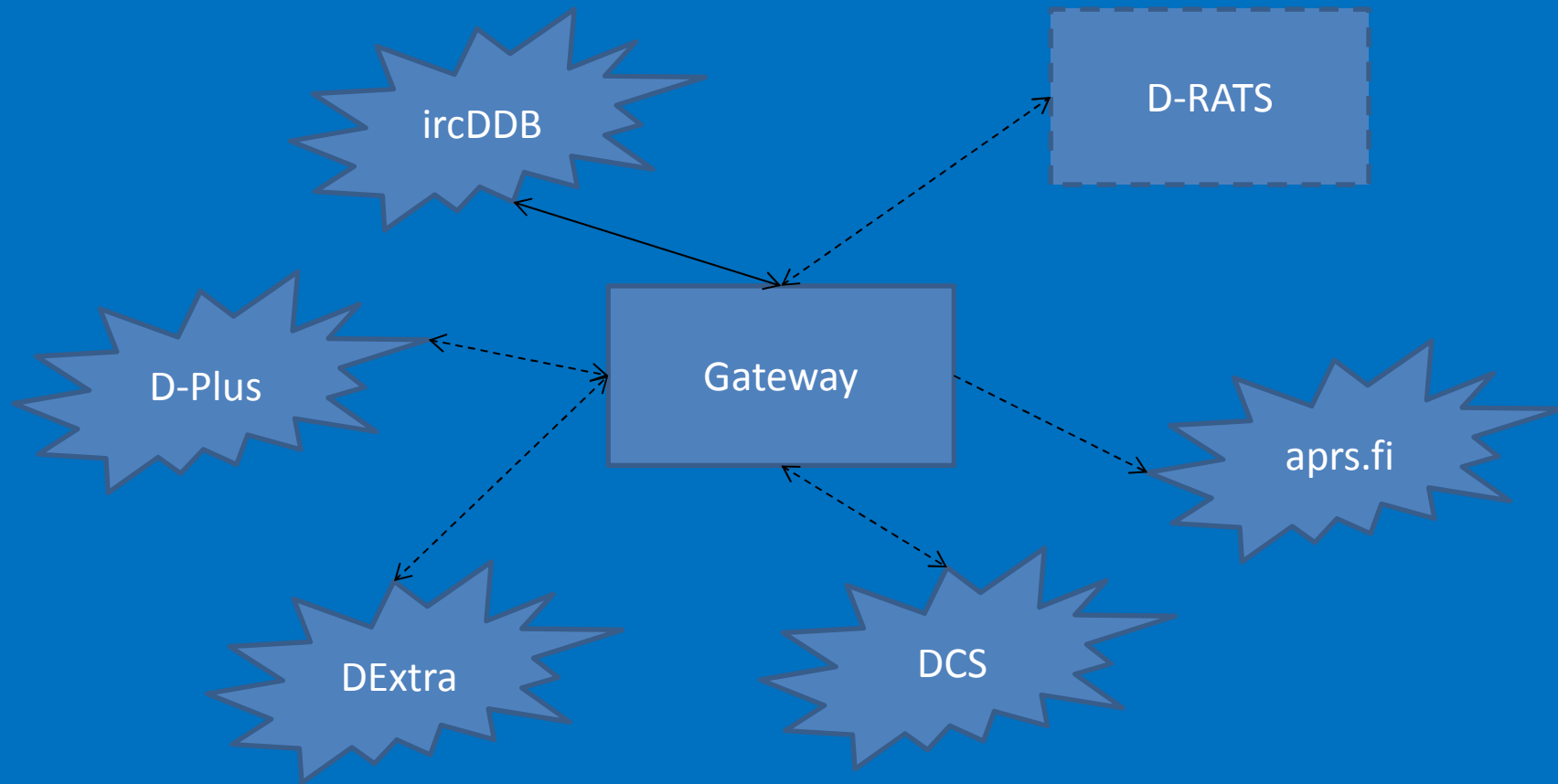
- Voice status messages

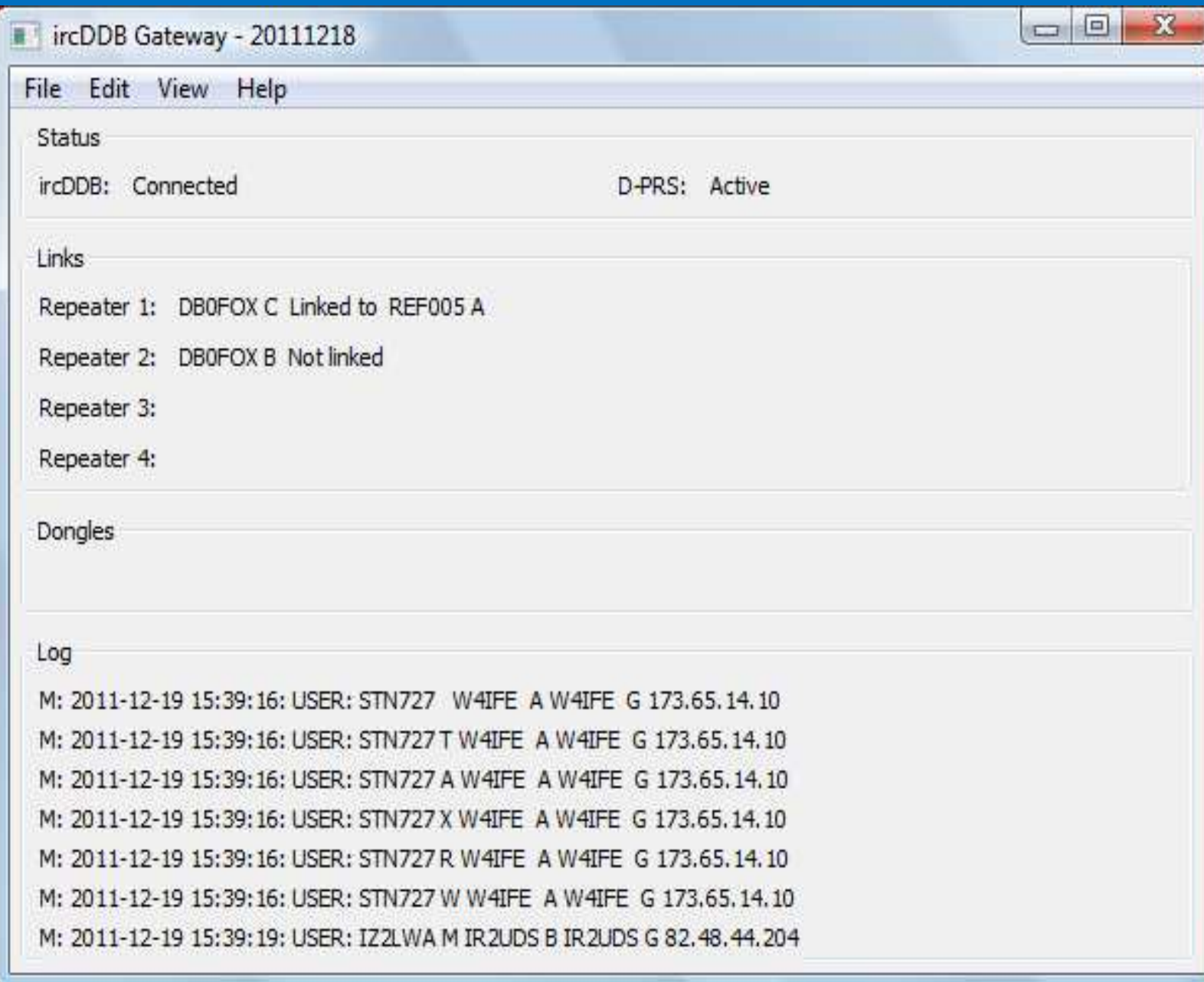- D-RATS integration

ircDDB Gateway Features - 3

- Allows mix of homebrew and Icom controllers

- Can be used for DD mode

- Includes a STARnet Digital server

- Multiple OS and CPU compatibility

- And more.....

ircDDB Gateway Connections - 1
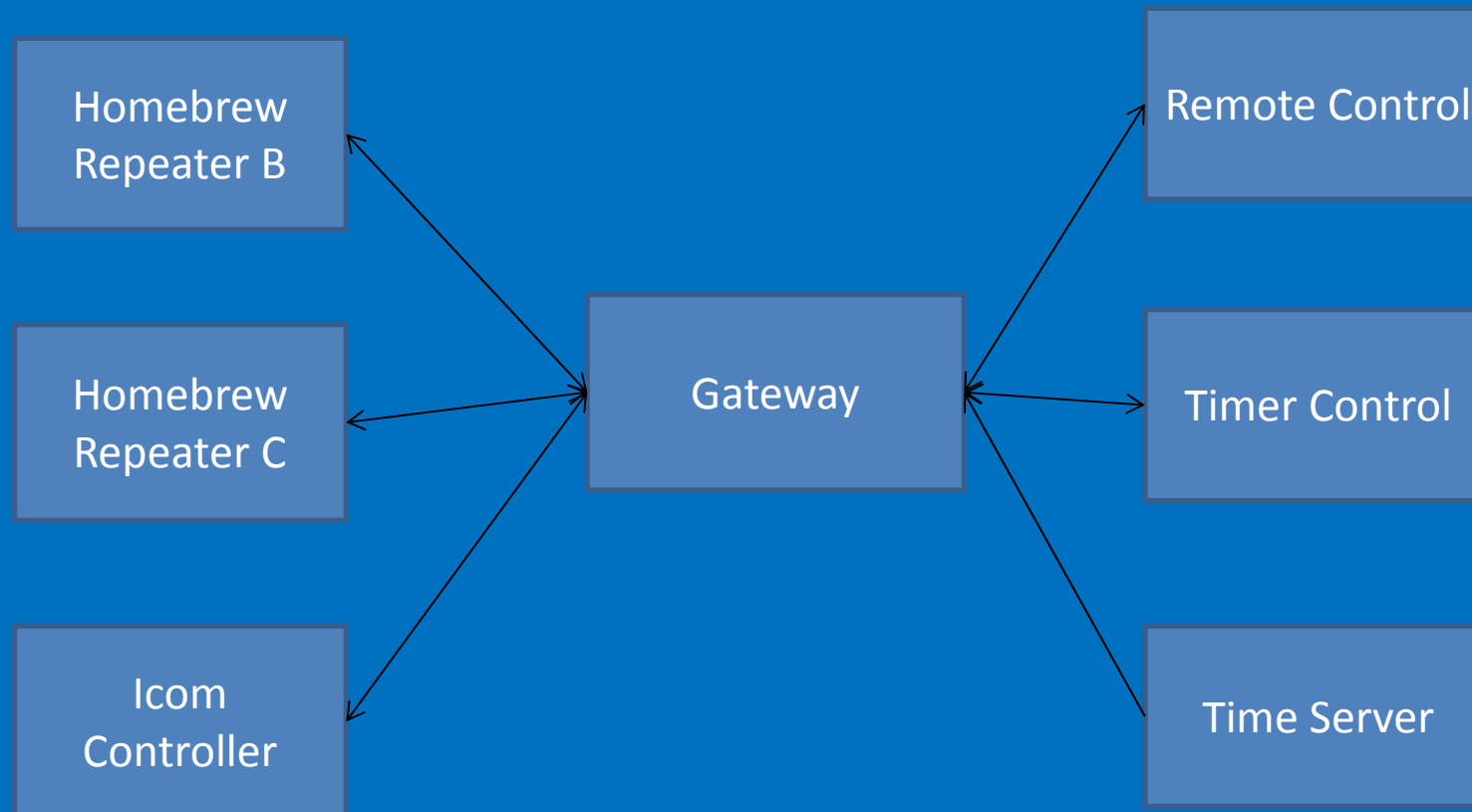
ircDDB Gateway Connections - 2

ircDDB Gateway - 20111218

File　Edit　View　Help

Status

ircDDB:　Connected　　　　　　　　　　　　D-PRS:　Active

Links

Repeater 1:　DB0FOX C　Linked to　REF005 A

Repeater 2:　DB0FOX B　Not linked

Repeater 3:

Repeater 4:

Dongles

Log

M: 2011-12-19 15:39:16: USER: STN727　W4IFE　A W4IFE　G 173.65.14.10

M: 2011-12-19 15:39:16: USER: STN727 T W4IFE　A W4IFE　G 173.65.14.10

M: 2011-12-19 15:39:16: USER: STN727 A W4IFE　A W4IFE　G 173.65.14.10

M: 2011-12-19 15:39:16: USER: STN727 X W4IFE　A W4IFE　G 173.65.14.10

M: 2011-12-19 15:39:16: USER: STN727 R W4IFE　A W4IFE　G 173.65.14.10

M: 2011-12-19 15:39:16: USER: STN727 W W4IFE　A W4IFE　G 173.65.14.10

M: 2011-12-19 15:39:19: USER: IZ2LWA M IR2UDS B IR2UDS G 82.48.44.204

Remote Control - GB3WB - 20120423

Remote Control - GB3WE - 20120423

Remote Control - GB7WB - 20120423

File Edit Help

GB7WB B

Callsign	Protocol	Direct...	Type	
DCS005 B	DCS	OUT	Repeater	L

ircDDB Gateway - GB7WB - 20120423

File Edit View Help

Status

ircDDB: C

Links

Repeater 1

Repeater 2

Repeater 3

Repeater 4

Dongles

Log

M: 2012-0
M: 2012-0
M: 2012-0
M: 2012-0
M: 2012-0
M: 2012-0
M: 2012-0

ircDDB Gateway - GB3WB - 20120423

File Edit View Help

Status

ircDDB: Connected   D-PRS: Active

Links

Repeater 1:

Repeater 2:

Repeater 3:

Repeater 4:

Dongles

Log

M: 2012-C
M: 2012-C
M: 2012-C
M: 2012-C
M: 2012-C
M: 2012-C
M: 2012-C
M: 2012-C

ircDDB Gateway - GB3WE - 20120423

File Edit View Help

Status

ircDDB: Connected   D-PRS: Active

Links

Repeater 1: GB3WE C Linked to DCS005 A

Repeater 2:

Repeater 3:

Repeater 4:

Dongles

Log

M: 2012-04-23 16:45:53: USER: STN727 W4IFE A W4IFE G 71.99.0.135
M: 2012-04-23 16:45:53: USER: STN727 T W4IFE A W4IFE G 71.99.0.135
M: 2012-04-23 16:45:53: USER: STN727 A W4IFE A W4IFE G 71.99.0.135
M: 2012-04-23 16:45:53: USER: STN727 X W4IFE A W4IFE G 71.99.0.135
M: 2012-04-23 16:45:53: USER: STN727 R W4IFE A W4IFE G 71.99.0.135
M: 2012-04-23 16:45:53: USER: STN727 W W4IFE A W4IFE G 71.99.0.135
M: 2012-04-23 16:46:09: GATEWAY: VA3URU G 76.71.91.162

Time Serve

File Edit View

Log

DV-RPTR Repeater - GB7WB - 20120420a

File Edit View Action Outputs Help

Status

RX State: Listening   Rpt State: Listening

DTMF: 1750Hz: No   CTCSS: No   DTMF:

Timers   External

Timeout: 0/300   Squelch: Closed   Transmit: Off   VOGAD: 0.0 dB
                0/7
                594/900

Split Repeater - GB7WB - 20120420a

File Edit View Action Help

Status

State: Network

Header

UR: CQCQCQ   RPT1: GB7WB G

MY: G7EBY /NEIL   Flags: 00 00 00

Timers

Timeout: 0/300   Beacon: 0/300

Gateway

D-Star Repeater - GB3WB - 20120420a

File Edit View Action Outputs Help

Status

Listening   TX: Off

58.52

RPT2:

BER:

DV-RPTR Repeater - GB3WE - 20120420a

File Edit View Action Outputs Help

Status

RX State: Listening   Rpt State: Listening   TX: Off

Header

UR: RPT1:   RPT2:

MY: Flags: 00 00 00   BER: 0.0%

No

0.0 dB

GB3WE
Analog...

GB7WB Remote
Control

GB3WB
Analog...

GB3WE Remote
Control

split-repeat...

Qcheck

Quick Screen
Capture

start   ircDDB_UDP_Re... | ircDDB Gatewa... | ircDDB Gatewa... | ircDDB Gatewa... | DV-RPTR Repe... | DV-RPTR Repe... | Analogue Repe...

Analogue Repe... | D-Star Repeate... | Split Repeater -... | Time Server - 2... | Remote Control... | Remote Control... | Remote Control...

17:46
Monday
23/04/2012

The Split Repeater

- Allow for more than one receiver and/or transmitter

- Diversity reception using the BER as the basis for receiver choice

- Has all of the features of the standard repeaters
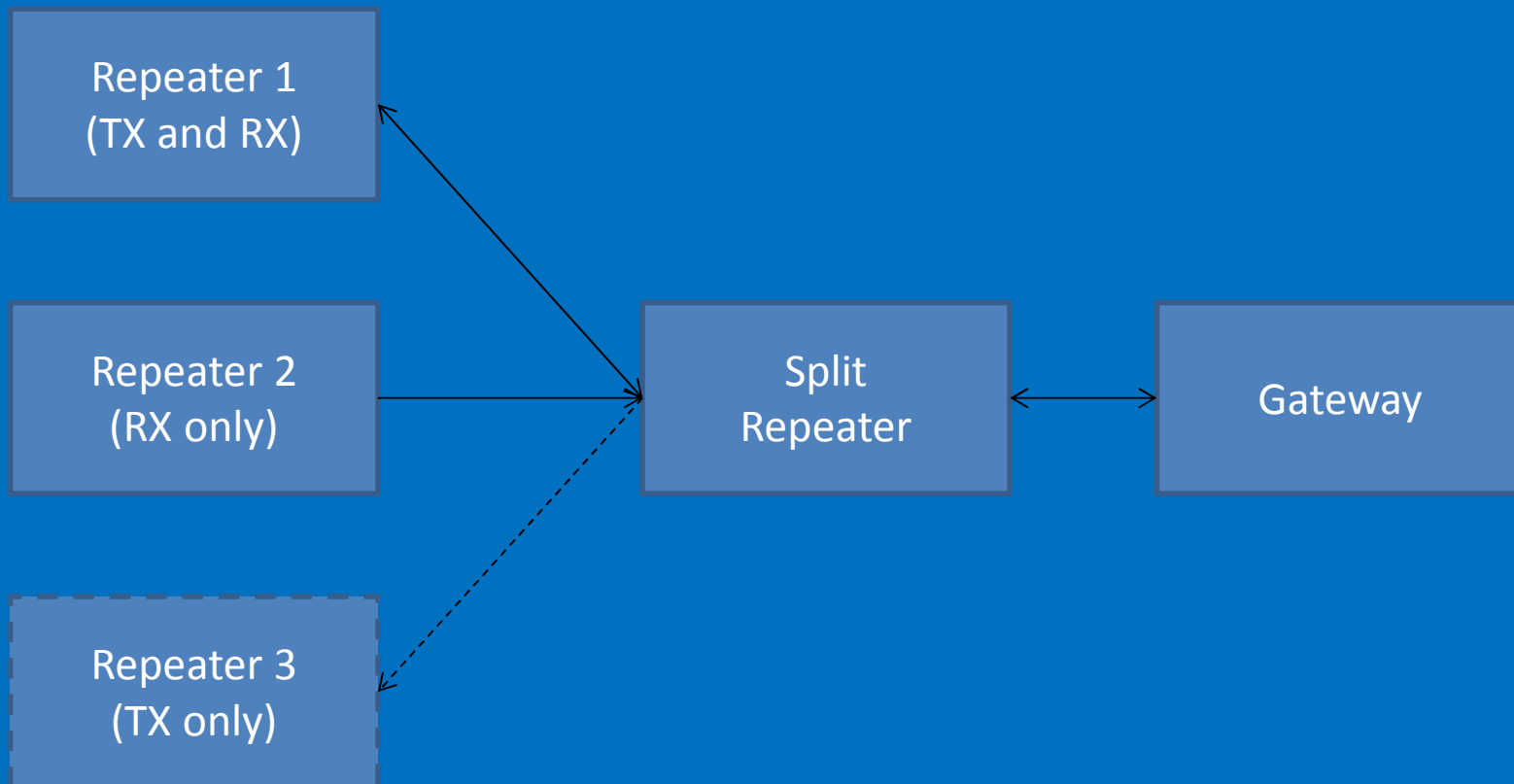
Future Developments

- Add DCS Link to the STARnet Digital server

- Upgrade the Time Server for more announcements and languages

- Any more ideas?

The End

Thank you for listening.