

DMR – what it is – setting it up

- Digital Mobile Radio (DMR)
- Open standard defined by the European Telecommunications Standards Institute (ETSI)
- Two-slot Time Division Multiple Access (TDMA) within the existing 12.5 kHz channel



Digital VHF-UHF ham radio in the RVA

D-Star

D-Star is the oldest in RVA.
Joint Japan Amateur Radio
League & ICOM open standard

DMR

Digital Mobile Radio the
Motorola implementation of the
DMR protocol. DMR originated
as a business communication
standard in Europe

System Fusion

Fusion was designed by
YAESU and is not an open
standard

P25

Project 25 or APCO-25
standards for digital mobile
radio communications
designed for public safety
organizations in North America.

www.mikemyers.me/blog/2016/2/19/d-star-dmr-fusion-which-is-right-for-you

Feature / Item	D-Star	DMR	Fusion
Ease Of Use	Easy	Easy	Easy
Ease Of Programming	Medium	Low	High
Cost	Low-Medium	Low-High	Medium
Flexibility	High	Low	High
Survivability	High	Low	Low
Extendability	High	Low	Low
Multiple Manufactures	Few	Lots	One

The W4BRU choice

- Try digital
- Not likely to use it heavily
- Frugal



RVA digital repeaters

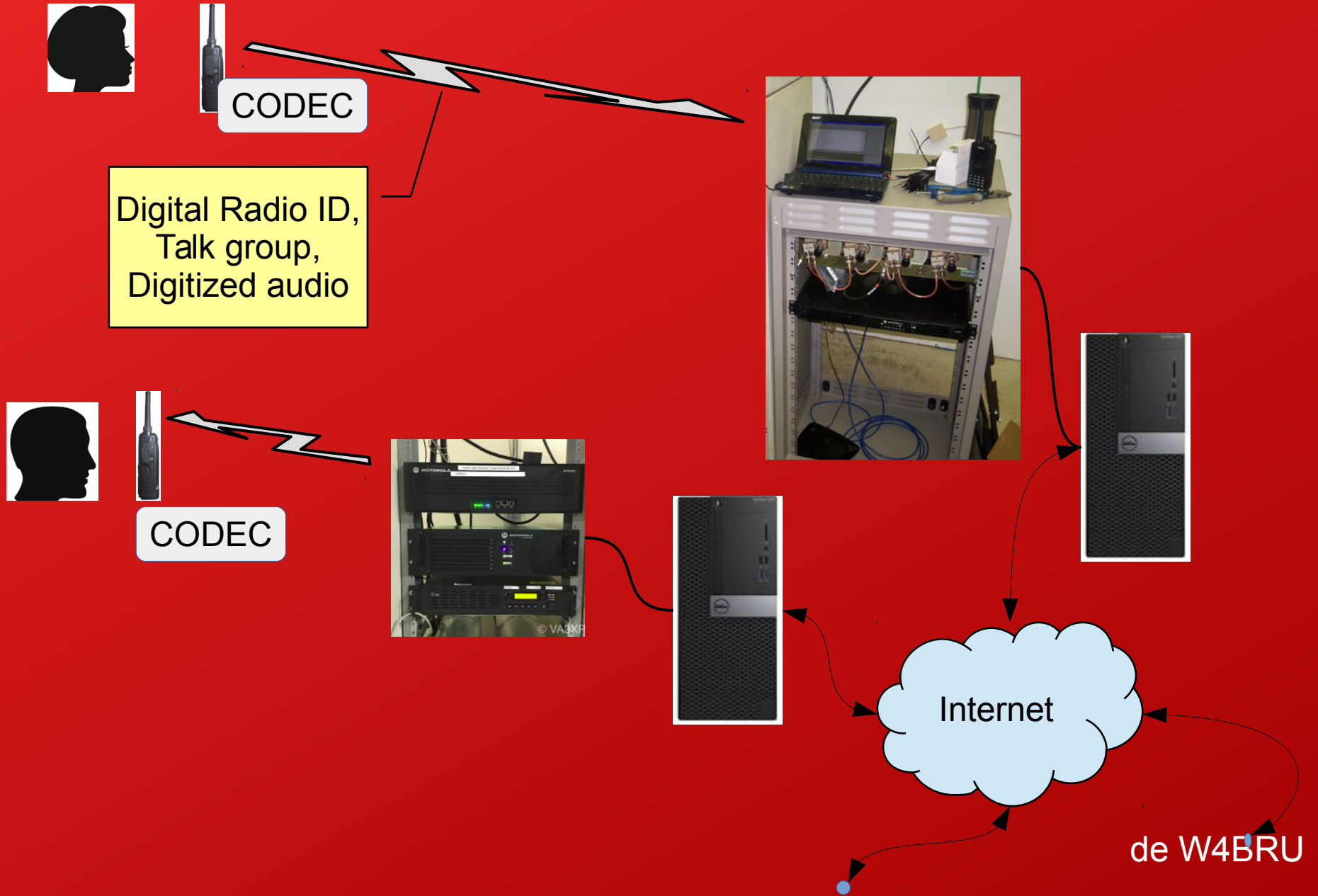
147.2550	+0.6 MHz	Richmond	(independent) W4FJ	OPEN +
443.7125	+5 MHz	Richmond	(independent) W4FJ	OPEN +
1284.0000	-12 MHz	Richmond	(independent) W4FJ	OPEN +

145.1100 -0.6 MHz 127.3 Richmond (independent) WA4MAS OPEN +

442.6875	+5 MHz	CC1 Petersburg	(independent) WA4FC	OPEN +
443.5375	+5 MHz	CC1 Richmond	(independent) WA4FC	OPEN +
443.5875	+5 MHz	CC1 Bon Air, WCVE Tower	Chesterfield W4RAT	OPEN +

145.4300	-0.6 MHz	74.4 Richmond, Central City of Richmond	(independent) KG4MRA	OPEN +
927.0500	-25 MHz	100.0 Richmond, Downtown	(independent) WA4FC	OPEN +
927.0750	-25 MHz	100.0 Richmond, Southside Richmond	Chesterfield WA4FC	OPEN +

DMR traffic flow

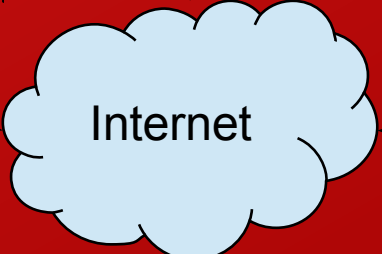


CODEC

Digital Radio ID,
Talk group,
Digitized audio



CODEC



de W4BRU

DMR Transceivers



MOTOROLA SOLUTIONS



Instructions & sign up

www.dmrva.org/

DMRVA

*Virginia's Amateur DMR Linked
Repeater Network*



Posted on [December 2, 2016](#) by [k4ik](#)



DMRVA is a Virginia-based, Commonwealth-focused digital mobile radio linked repeater system for amateur radio. For updates on the status of the system and repeaters, check the posts below often.

A few DMR terms

- Mototrbo/DMR = Amateur
- Zone = Repeater or group of Repeaters
- Talkgroup = Channel
- Contact = Identification number
- Color Code = DPL
- Time slot = $\frac{1}{2}$ digital channel
- Code Plug = Radio Program

TYT MD-380 screens



Where to get software & codeplugs

Search: dmr code plugs virginia

DMRVA | Virginia's Amateur DMR Linked Repeater Network

www.dmrva.org/ ▾

The antenna is roughly at the 300 foot level. Many thanks to the large team that came from three states to make this installation happen! The repeater has the standard DMRVA talkgroup line up. Local TG is linked to the Valley Local's (H'burg, C'ville and Linden). New **codeplugs** should be posted on the website in the next ...

Downloads

Downloads. Files updated February 14, 2018. Please see ...

Codeplugs

A new round of updated codeplugs are available on the downloads ...

Kd4bpz

Posted on October 17, 2017 by kd4bpz. On October 20-22 ...

[More results from dmrva.org »](#)

Virginia's Amateur DMR ...

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Virginia's Amateur DMR ...

Virginia's Amateur DMR Linked Repeater Network | Page 4 ...

Last Heard

DMRVA Last Heard. Note: currently works in Chrome and ...

Codeplugs: pick your radio

Portables

[Anytone D858](#)

[Anytone AT-D868UV](#)

[Connect Systems CS700](#)

[Connect Systems CS750](#)

[Motorola XPR6550](#)

[Motorola XPR7550](#)

[Tytera MD-380](#)

[Tytera MD-2017](#)

Mobiles

[Connect Systems CS800](#)

[Connect Systems CS800D](#)





[Motorola XPR4550 high power](#)







[Motorola XPR5550 high power](#)

[Tytera MD-9600](#)

Software & Codeplugs

A code plug is simply a radio's configuration file.

 ContactManagerV220.exe	364.5 kB	Program
 MD_390.exe	2.9 MB	Program
 rdt2csv.exe	127.5 kB	Program
 MD380_MD390_CodePlug_Editor.exe	1.4 MB	Program

Name	Size	Type
 MD-380-DMRVA-02192017.rdt	262.7 kB	Program
 W4BRU-TYT-MD-380-Load.rdt	262.7 kB	Program
 MD-380-DMRVA-02192017-W4BRU.rdt	262.7 kB	Program
 Basic-PRN-Code-Plug-For-MD-380.rdt	262.7 kB	Program
 Basic-NC-PRN-Code-Plug-For-MD-380.rdt	262.7 kB	Program
 Basic-NC-PRN-Code-Plug-For-MD-380-W4BRU.rdt	262.7 kB	Program

Zones, Channels, Talk Groups

The screenshot displays a software application window titled "Zone Information" for the "Richmond" zone. The interface is divided into several sections:

- Left Panel (Tree View):** Shows a hierarchy of settings for "CPS MD-390". The "Zone Information" folder is expanded, listing various zones. "Richmond" is selected and highlighted with a white box. An arrow points from this box to the "Zone Name" field.
- Zone Name:** A text input field containing the text "Richmond".
- Available Channel:** A list box containing the following items:
 - 441.000 D
 - 446.000
 - CHAT 1 CHES
 - CHAT 1 FGAP
 - CHAT 1 ROA K4ITL
 - CHAT 1 SOU
 - CHAT 1 WYTH
 - CHAT 2 CHES
 - CHAT 2 FGAP
 - CHAT 2 ROA K4ITL
 - CHAT 2 SOU
 - CHAT 2 WYTH
 - CLR TS CHES
 - CLR TS CHWL
 - CLR TS FGAP
 - CLR TS HBRG
 - CLR TS PET
 - CLR TS ROA
 - CLR TS ROA K4ITL
 - CLR TS SOU
 - CLR TS WAL
 - CLR TS WAS
 - CLR TS WYTH
- Channel Member:** A list box containing the following items:
 - VaStateWide RIC
 - VA TAC A RIC
 - VA TAC B RIC
 - Local RIC
 - DCI RIC
 - Echotest RIC
 - MidAtlantic RIC
 - PRN RIC
 - Southeast RIC
 - TAC 1 RIC
 - TAC 310 RIC
 - CLR TS RIC
 - Mon All RIC
- Buttons:** Two buttons, "Add>>" and "<<Delete", are positioned between the two lists.
- Footer:** A status bar shows "7 of 16" and a set of navigation buttons: "k-", "<<", "->", "->|", "Add", and "Delete".

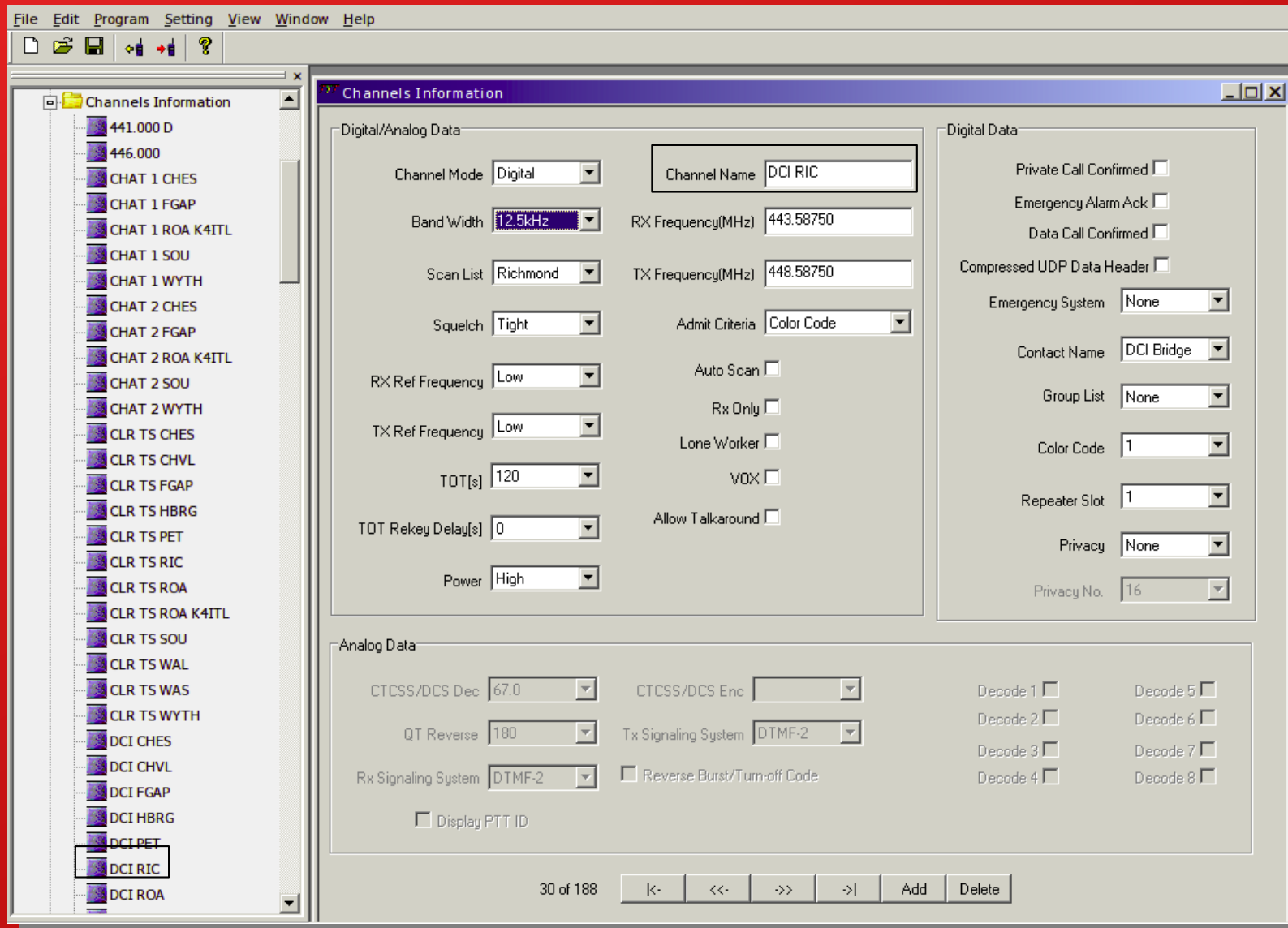
Codeplugs contain...

The screenshot displays the MD-390 Radio Programming Software interface. The main window is titled "General Setting" and contains various configuration options for the radio. The left sidebar shows a tree view of settings categories, with "General Setting" selected. The main area is divided into several sections:

- Save:** Save Preamble ; Save Mode Receive
- Alert Tone:** Disable All Tone ; CH Free Indication Tone ; Talk Permit Tone: Digital; Call Alert Tone Duration[s]: Continue
- Scan:** Scan Digital Hang Time[ms]: 2000; Scan Analog Hang Time[ms]: 2000
- Lone Worker:** Lone Worker Response Time[min]: 1; Lone Worker Reminder Time[s]: 10
- Power On Password:** Password and Lock Enable ; Power On Password: 00000000
- Radio Name/ID:** Radio Name: W4BRU; Radio ID: 3151670
- Monitor Type:** Open Squelch
- VOX Sensitivity:** 3
- TX Preamble Duration[ms]:** 300
- RX Low Battery Interval[s]:** 120
- PC Programming Password:** (empty)
- Radio Program Password:** 99999999
- Back Light Time[s]:** 10
- Set Keypad Lock Time[s]:** Manual
- Disable All LEDs:**
- Talkaround:** Group Call Hang Time[ms]: 3000; Private Call Hang Time[ms]: 4000
- Intro Screen:** Intro Screen: Char string; Intro Screen Line 1: W4BRU; Intro Screen Line 2: 8043534269

The status bar at the bottom shows: MD-390 Radio Programming Software | Copyright : TYT Electronics Co., Ltd. | 2018-02-24 14:06:4 | e W4BRU

Channels ~ talk groups + repeaters



Zones to channels

File Edit Program Setting View Window Help

CPS MD-390

- Basic Information
- General Setting
- Menu Item
- Buttons Definitions
- Text Message
- Privacy Setting
- Digit Emergency System
- Digital Contacts
- Digital RX Group Lists
 - Monitor All
- Zone Information
 - Simplex
 - Charlottesville
 - Chesapeake
 - Fancy Gap
 - Harrisonburg
 - Petersburg
 - Richmond**
 - Roanoke W5CUI
 - Roanoke K4ITL
 - South Hill
 - Wallops Island
 - Washington

Zone Information

Zone Name: Richmond

Available Channel

- 441.000 D
- 446.000
- CHAT 1 CHES
- CHAT 1 FGAP
- CHAT 1 ROA K4ITL
- CHAT 1 SOU
- CHAT 1 WYTH
- CHAT 2 CHES
- CHAT 2 FGAP
- CHAT 2 ROA K4ITL
- CHAT 2 SOU
- CHAT 2 WYTH
- CLR TS CHES
- CLR TS CHVL
- CLR TS FGAP
- CLR TS HBRG
- CLR TS PET
- CLR TS ROA
- CLR TS ROA K4ITL
- CLR TS SOU
- CLR TS WAL
- CLR TS WAS
- CLR TS WYTH

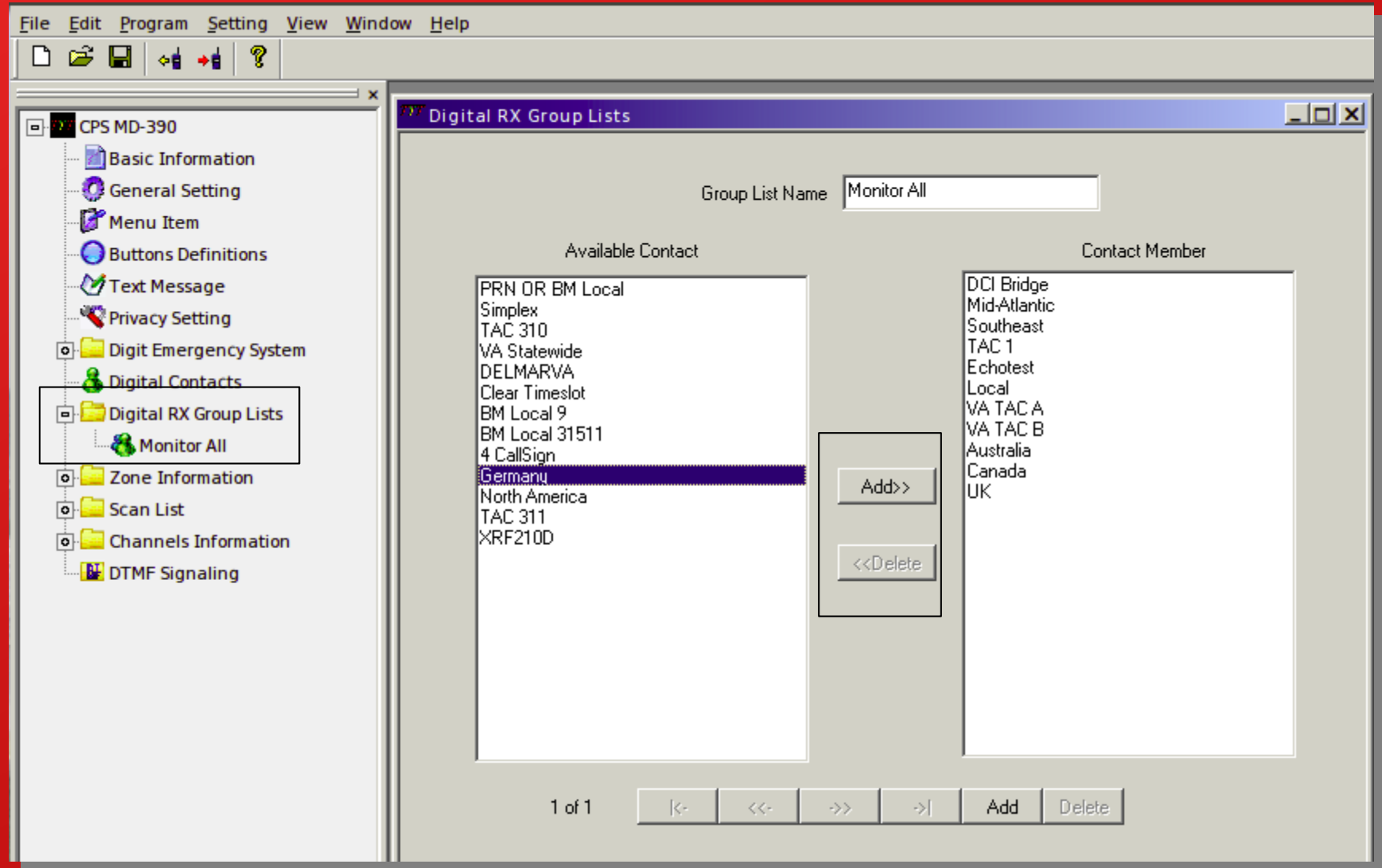
Channel Member

- VaStateWide RIC
- VA TAC A RIC
- VA TAC B RIC
- Local RIC
- DCI RIC
- Echotest RIC
- MidAtlantic RIC
- PRN RIC
- Southeast RIC
- TAC 1 RIC
- TAC 310 RIC
- CLR TS RIC
- Mon All RIC

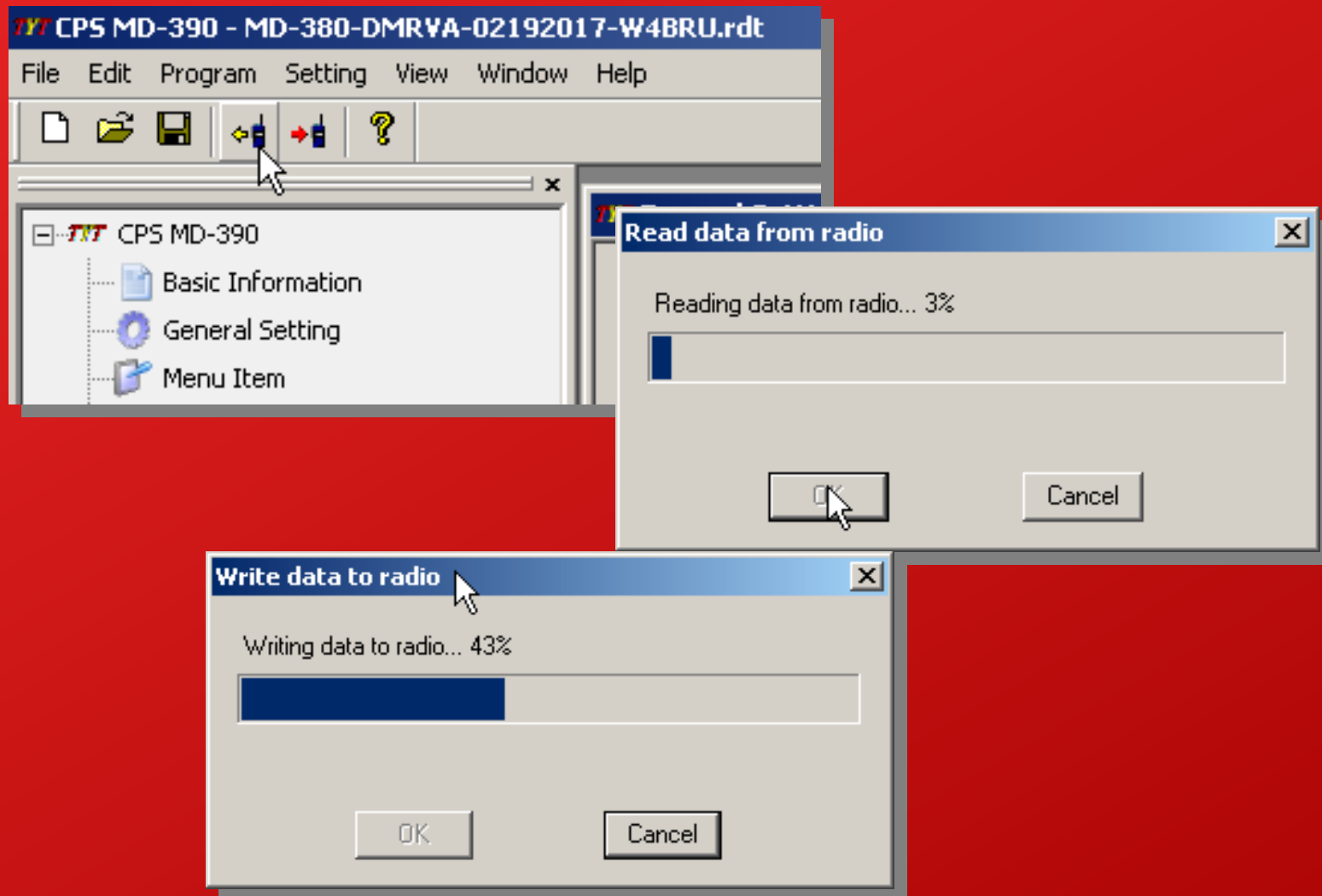
7 of 16

Navigation buttons: |< << -> >| Add Delete

Monitor

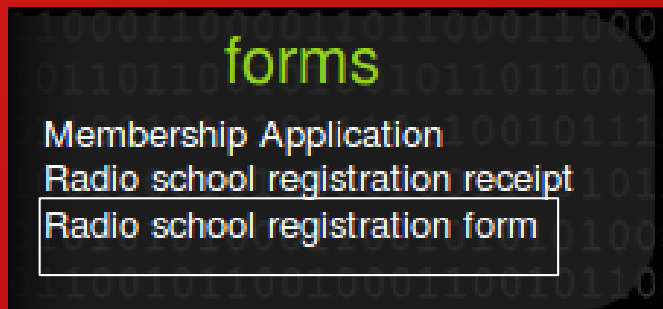


Read & Write to radio



For the details

- **DMR Details**
- Apr 28 9am to noon
- BAUMC second floor classrooms
- \$10
- Instructor: Mike Baker, N4LSP
- Registration form at <http://www.rarclub.net/> click



Some things a little different



RFinder radio +
Android mobile phone
\$700



USB stick containing 70 cm data
transceiver. Works with D-Star,
DMR, Fusion, APCO25 and
other digital modes which are
based on GMSK, 2FSK or 4FSK
\$150

de W4BRU