

Introduction to
Amateur Radio
in
Emergency Communications

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KB1DBL

Amateur (Ham) Radio

- Has been in use since before World War I.
- A licensed service, regulated by the FCC.
- Strictly amateur: cannot be used for commercial purposes, and messages cannot be encrypted.
- Uses frequencies set aside for amateur use, and does not use frequencies licensed to other services.
- Has *exceptional* flexibility in available operating modes and frequencies.
- Requires no infrastructure: Works when nothing else does.

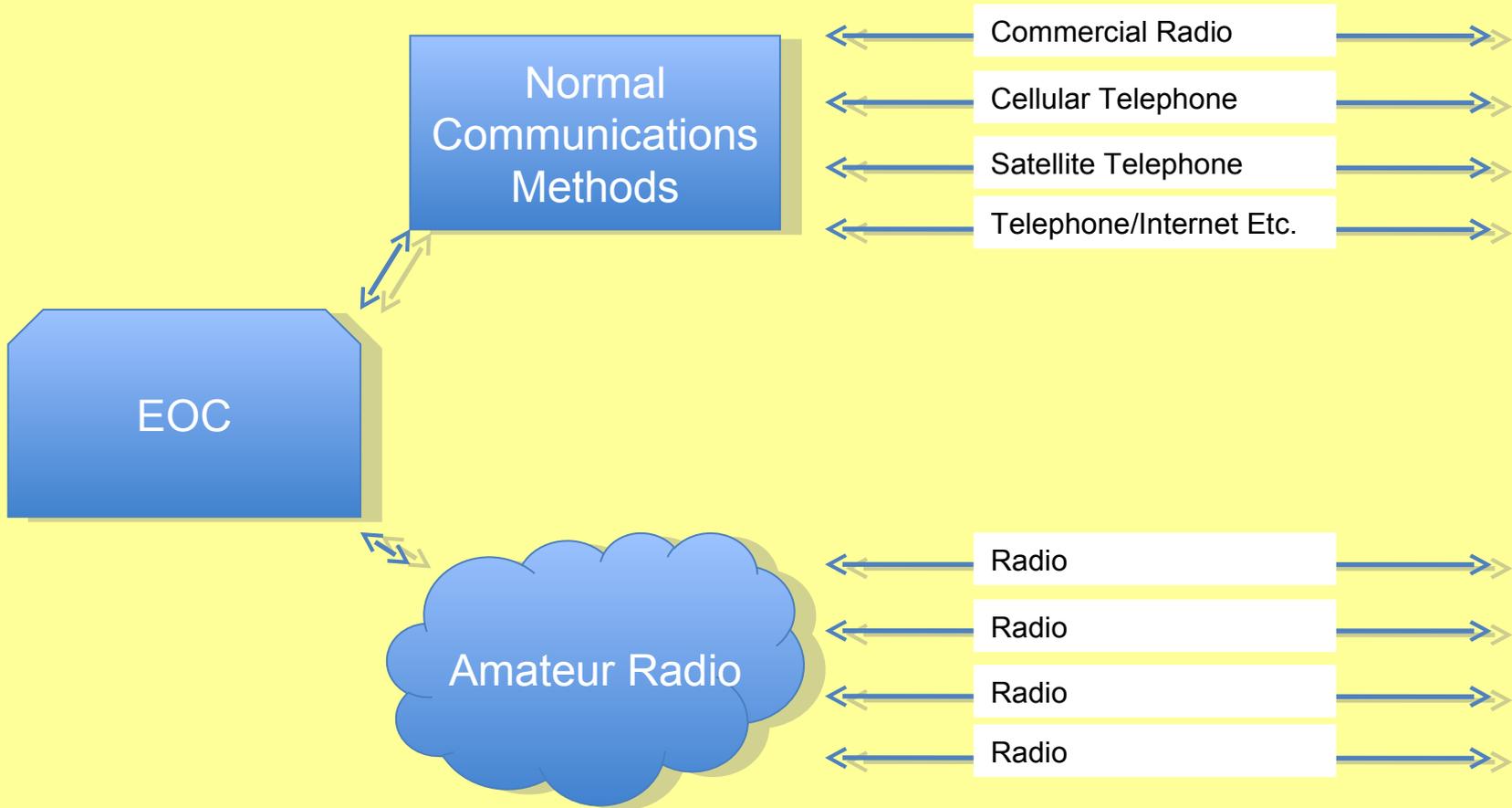
Amateur Radio Licensing

- Three classes of license, Technician, General, and Amateur Extra. Each grade offers broader operating privileges.
- Multiple-choice exam administered locally by volunteers; no Morse Code requirement.
- Technician license has only 35 questions, pertaining to safety, operating rules, and basic theory.

In Emergency Operations

- Radio Amateur Civil Emergency Service (RACES) established in 1952.
- Organized as a standby radio service to supplement communications during emergencies.
- Volunteer amateur radio operators assist Emergency Operations personnel in passing message traffic.
- More closely affiliated with Emergency Management since 9/11.

EOC Communications



Who Do Hams Talk To?

- Other Hams
 - Hams at other locations or located with other emergency management personnel.
 - Hams can gather information from and communicate with other hams as well.
- Remote Devices and Machines
 - Hams can collect data such as weather or location from automated stations.
- Worldwide, using 14 bands from 1.8MHz to 440 MHz, and even using satellites and the internet.

How Do They Communicate?

- Not just by Morse Code anymore.
- Voice is widely used for local, regional, and worldwide communications.
- There are many ways to pass traffic using digital communications as well.

What Kind Of Equipment Does It Take?

- Radio
 - Cost ranges from \$100 to many thousands of dollars.
- Antenna
- Radio-Computer Interface
 - Hardware modem (TNC)
 - Sound Card Interface (Signalink)
- Computer
 - Software is usually free or very low cost.

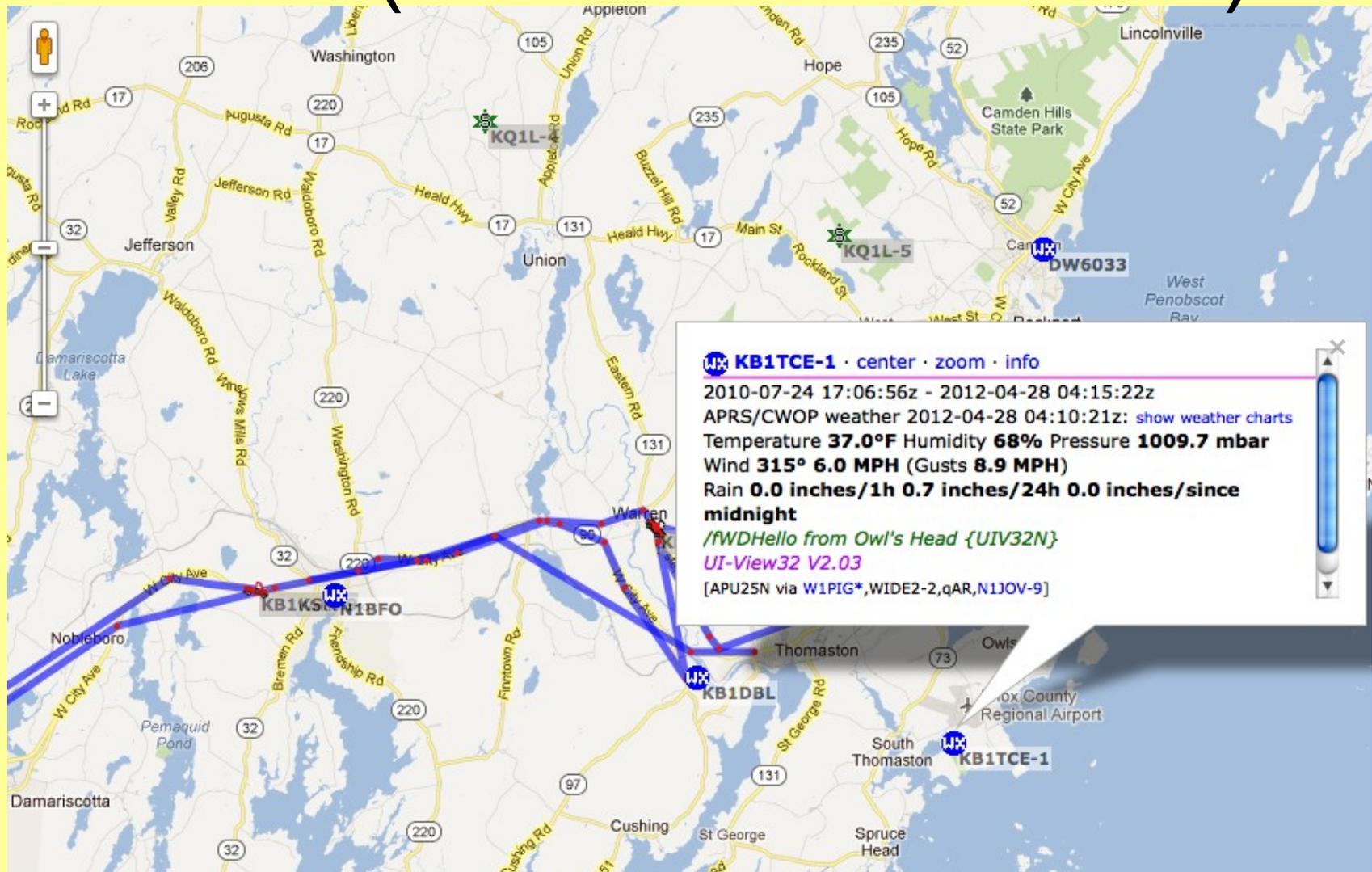
What Are Some Useful Methods?

- Voice – Repeaters allow messages to be transmitted statewide
- APRS – Amateur Packet/Position Reporting System
- FLDigi – Digital transmission of messages
- RMS Express – Send and receive email worldwide
- SSTV/EasyPal – Send and receive pictures

Morse Code/Voice



APRS (Weather/GPS Data)



FLDigi (One-to-Many Digital)

The screenshot displays the FLDigi software interface, titled "fldigi - KB1DBL". The main window is divided into several sections:

- Top Panel:** Includes a menu bar (File, Op Mode, Configure, View, Help) and a status bar with buttons for Spot, RxID, TxID, and TUNE. Below this is a control area with "Enter Xcvr Freq" (0.000), "QSO Freq" (1000), "On" (2009), "Off", "Call", "Name", "In", "Out", and "Notes" fields. There are also mode selection buttons (USB, QTH) and location fields (St, Pr, Cnty, Loc).
- Message Input Area (Yellow):** Contains the text "Hello." and "This is a test message usin".
- Message Input Area (Blue):** Contains the text "Hello.", "This is a test message using MT63-1P00.", "73", "Mike", and "^r".
- FLMSG: 1.1.1 Window:** A floating window for message management. It has a menu bar (File, Template, Config, Help) and a "filename: default.213" field. It includes a table with columns for ICS (Radiogram, Generic, Blank, DnD) and a row with values 203, 205, 206, 213, 214, 216. Below the table are fields for "Originator" and "Responder". The "To" field is "Ray Sisk" and "Pos." is "Knox County EMA". The "Fm" field is "KB1DBL" and "Pos." is empty. The "Sub." field is "Test Message". The "Date" is "2012-04-28" and "Time" is "0046L". The "Message:" field contains "Hello:", "This is a test message using MT63-1000.", "73", and "Mike". The "Sig." field is "Michael Courtenay" and "Pos." is empty.
- Bottom Panel:** A control panel with buttons for "CQ", "ANS", "QSO", "KN", "SK", "Me/Oth", "Brag", "T/R", "Tx", "Rx", and "TX". Below this is a frequency display (500 to 3000) and a spectrum plot. At the bottom are buttons for "WF", "-20", "70", "x1", "NORM", "1000", "QSY", "Store", "Lk", "Rv", "T/R", "AFC", and "SQL".

FLDigi (One-to-Many Digital)

The screenshot displays the FLDigi software interface, titled "fldigi - KB1DBL". The main window is divided into several sections:

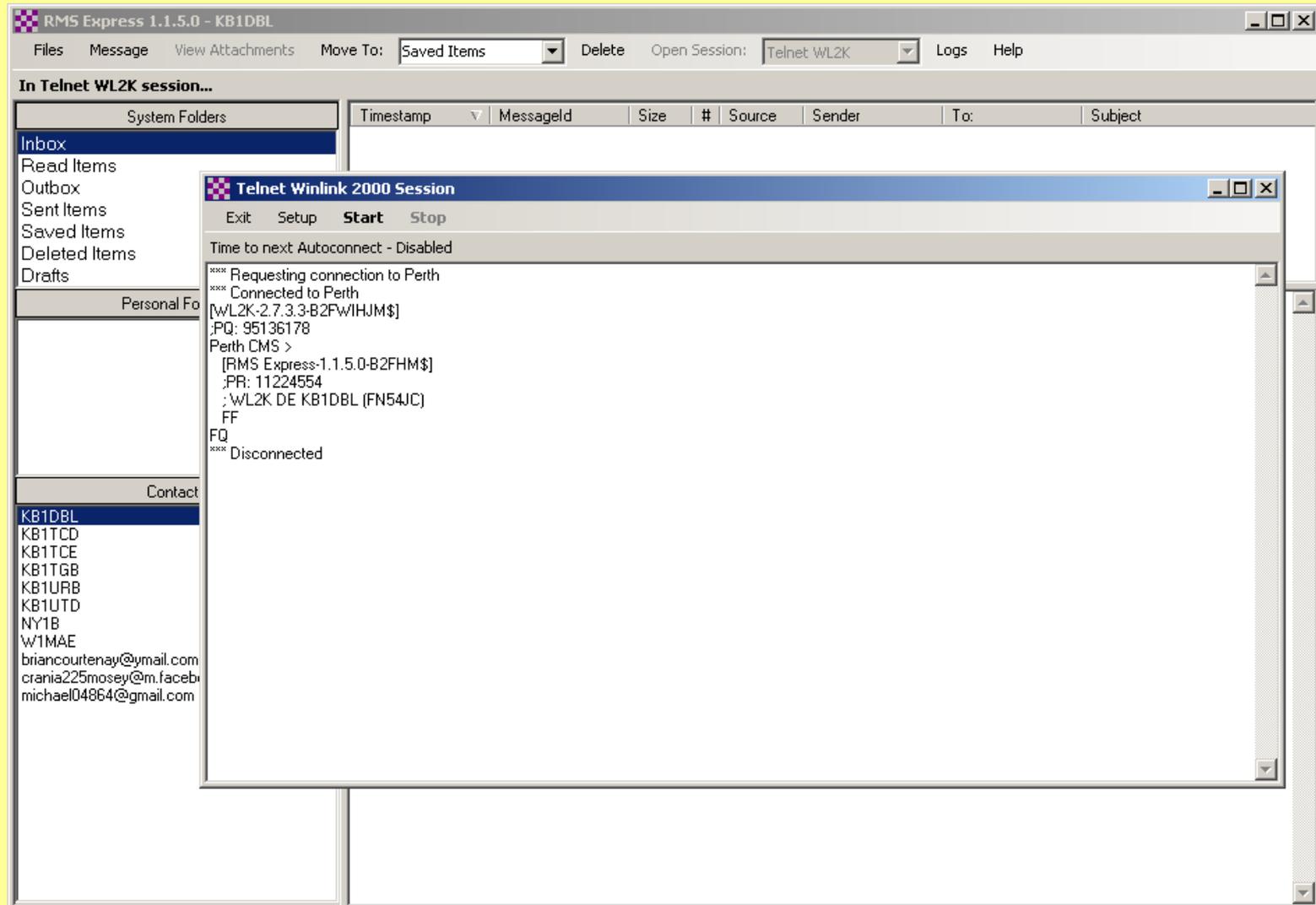
- Top Panel:** Includes a menu bar (File, Op Mode, Configure, View, Help) and a toolbar with buttons for Spot, RxID, TxID, and TUNE. Below this is a "Enter Xcvr Freq" field showing "0.000" and a "QSO Freq" field showing "1000".
- Form Fields:** Fields for "On" (2009), "Call", "Name", "In", "Out", "Notes", "USB", "QTH", "St", "Pr", "Cnty", and "Loc".
- Message Area (Yellow Background):** Displays the text "Hello." and "This is a test message usin".
- Message Area (Blue Background):** Displays the text "Hello.", "This is a test message using MT63-1P00.", "73", "Mike", and "^r".
- Bottom Panel:** A control panel with buttons for "CQ", "ANS", "QSO", "KN", "SK", "Me/Oth", "Brag", "T/R", "Tx", "Rx", and "TX". Below these is a frequency display (500 to 3000) and a waterfall plot showing a signal. At the bottom are buttons for "WF", "-20", "70", "x1", "NORM", "1000", "QSY", "Store", "Lk", "Rv", "T/R", "AFC", and "SQL".

An "FLMSG: 1.1.1" dialog box is overlaid on the right side of the interface. It contains the following information:

- Menu: File, Template, Config, Help
- Filename: default.213
- Buttons: ICS, Radiogram, Generic, Blank, DnD
- Frequency range: 203, 205, 206, 213, 214, 216
- Originator: Responder
- To: Ray Sisk, Pos: Knox County EMA
- Fm: KB1DBL, Pos:
- Sub: Test Message
- Date: 2012-04-28, Time: 0046L
- Message: Hello:
This is a test message using MT63-1000.
73
Mike
- Sig: Michael Courtenay, Pos:

In the bottom right corner of the overall image, there is a small black square icon containing a white stylized signal symbol consisting of three concentric ovals.

RMS Express (Radio Email)



Slow Scan TV

Easyf! KB1DBL Ver:07BB/SEP/2011

Setup Action LoadPic LoadAny Copy Paste Clear WFPic WFTxt Rptr FTP Prog About

RX TX View Edit MSC

KB1UTD Mode B B TX RX Sync
RX SNR Width 2.4 2.4 MSC
ErrFix HI HI FAC
QAM 16 16 Frame
LeadIn 24 R/N Time
IO

Total -
OK Segs -
Position - remaining segments

TRANSMIT	Replay RX	FIX	BSR	
TUNE	ID	Send Text	WAV	Pic/QSL
<input checked="" type="checkbox"/> RS2	M	EmbedTxt	Station Log	Session

220212558-Clip.jpg 111220210455-Clip.jpg 111220205755-Clip.jpg ...204955-Shawn 013.jpg **...0204343-102_0043.jpg** 111002194321-17.jpg

Last TX Pictures



111220204343-102_0043.jpg (640*427)

Full Screen >>Tx >>Edit Delete Send To To Web >>Rptr

The screenshot shows the 'Easyf!' software interface for Slow Scan TV. The main window displays a spectrum plot on the left and a large image of a person holding a large fish in a snowy environment. The interface includes various controls for transmission and reception, such as 'TX', 'RX', 'Sync', and 'View'. The 'Last RX Pictures' section shows a row of six small images, with the fifth image (a person holding a fish) highlighted with a red border. The 'Last TX Pictures' section is currently empty. The bottom of the window features a control bar with buttons for 'Full Screen', '>>Tx', '>>Edit', 'Delete', 'Send To', 'To Web', and '>>Rptr'.

For More Information

- Pen Bay Amateur Radio Club
 - <http://penbayarc.org/>
- Contact Dr. Norman Smith (NY1B) at:
 - ny1b@toast.net
 - (207) 354-6853
- American Radio Relay League
 - <http://arrrl.org/>

Thank You.

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