

A Multiple Use Tool for Creating and Transmitting Agency Forms by Radio or Other Means

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Key Individuals

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Dave Freese W1HKJ – Author Flxxx Program Suite

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Agenda

A bit about Flmsg (Fast Light Messaging)
Agency Requirements as Defined by ARC
Solution Development & Implementation
Local Uses & Example
Questions

FI-What?

The Flxxx software is a suite of cross platform, open source programs that are widely used for amateur radio communications, including emcomm.

For emcomm, we use a modem program (Fldigi) and a forms program (Flmsg). Together they may be used to send & receive formal messages by radio. Flmsg may also be used with other communications applications.

The programs are authored and supported by Dave Freese W1HKJ and his team.

Flmsg Overview

- Developed in 2010 for formal communications over the radio.
- Flmsg contains a number of built in forms (ICS, radiogram, HICS, MARS, Red Cross, etc.)
- Once a form type has been selected, the message originator can fill in the fields with the required information.
- The formatted form may be viewed in a browser & printed. It can also be sent as a file via any electronic method (e.g. email attachment) or be sent by radio.

Composing an ICS-213 in Flmsg

The screenshot shows the FLMSG 4.0.1 application window. The title bar reads "FLMSG: 4.0.1". The menu bar includes "File", "Form", "Template", "Config", "AutoSend", "ARQ", and "Help". The main window displays an "ICS-213 report" for "file: Aroostook.213". There are two tabs: "Originator" (selected) and "Responder".

The form fields are as follows:

- Inc: November Ice Storm
- To: Emma Potato
- Pos: Director Aroostook EMA
- Fm: Dustin Limerock
- Pos: Director Knox EMA
- Sub: Supplies for Caribou
- Date: 11-03-2014
- Time: 0945L
- Message: The supplies that you requested per your order AK1234 of 02 Nov. are on two trucks. They left Rockland this morning at 0930L. Estimate 10 hrs enroute due to poor road conditions. Please advise receipt.
- App'd: Dustin Limerock
- Pos: Director Knox EMA

At the bottom, there is a checkbox for "Comp" (unchecked), a dropdown menu set to "PSK250RC5", and a field for "600 bytes / 10 secs". The "ARQ" section shows a "Send" button, an empty field, and the status "NOT CONNECTED".

Transmission

- Only the content is transmitted. A copy of Flmsg at the receiving end reproduces the HTML form.
- If the recipient does not have Flmsg, the information is still usable (just not as pretty).
- Flmsg will also produce a text output. This may be read over the air if digital capabilities are not available.

Text Format

GENERAL MESSAGE (ICS 213)

1. Incident Name: November Ice Storm
2. To: Emma Potato, Director Aroostook EMA
3. From: Dustin Limerock, Director Knox EMA
4. Subject: Supplies for Caribou
5. Date: 11-03-2014
6. Time: 0945L
7. Message:

The supplies that you requested per your order AK1234 of 02 Nov. are on two trucks. They left Rockland this morning at 0930L. Estimate 10 hrs enroute due to poor road conditions. Please advise receipt.

8. Approved by:

Etc.....

Browser View (Printable Form)

GENERAL MESSAGE (ICS-213)

1. Incident Name (optional): November Ice Storm		
2. To (Name and Position): Emma Potato	Director Aroostook EMA	
3. From (Name and Position): Dustin Limerock	Director Knox EMA	
4. Subject : Supplies for Caribou	5. Date : 11-03-2014	6. Time 0945L
7. Message :		
<p>The supplies that you requested per your order AK1234 of 02 Nov. are on two trucks. They left Rockland this morning at 0930L. Estimate 10 hrs enroute due to poor road conditions. Please advise receipt.</p>		
8. Approved by: Name : Dustin Limerock	Signature : _____	Position/Title : Director Knox EMA
9. Reply :		
10. Replied by: Name :	Position/Title :	Signature: _____
ICS-213	Date/Time :	

Fldigi

- Fldigi (and any other type of radio modem) turns keyboard text or files into tones which can be transmitted over the air. The opposite occurs during reception.
- Fldigi includes many digital modes. Selection is based on transmission frequency, resistance to errors due to poor conditions and desired speed. For emcomm, modes generally have forward error correction (FEC) with speeds ranging from 30 wpm to well over 1000 wpm.

Fldigi Screen (during reception)

fldigi ver4.0.1 - kb1tce

File Op Mode Configure View Logbook Help

00:07 Spot RxID TxID TUNE

Received Text

:dl:10 11-03-2014
:tl:5 0945L
:sb:20 Supplies for Caribou
:sl:15 Dustin Limerock
:p3:17 Director Knox EMA
:mg:201 The supplies that you requested per your order AK1234 of 02 Nov. are on two trucks. They left Rockland this morning at 0930

Transmit Text Field

Waterfall

CQ ANS QSO KN SK Me/Qth Brag T/R Tx Rx TX 1

500 1000 1500 2000 2500 3000

WF -12 70 x1 NORM 1500 QSY Store Lk Rv T/R

PSK250RC5 80% sent AFC SQL

Custom HTML Forms

- The forms that are built into Flmsg are intended for broad applicability. The selection may not meet the requirements of agencies who use and control their own form sets. Nor do they include many features that might be desirable e.g. drop downs, radio buttons, check boxes, etc.
- A fairly recent Flmsg enhancement is the ability to accommodate “DIY” custom forms.

Custom HTML Forms *cont'd*

- A custom form is authored in HTML, preferably HTML-5.
- The HTML file is added to a folder and can be summoned by Flmsg.
- When selected, the form opens in the browser where it can be filled out.
- When finished, the originator clicks “submit” and the message file is saved in a text format.
- The file may be sent by radio or any other electronic means.

Custom HTML Forms *cont'd*

A custom form can be configured to provide useful helps or other information.

Select the Damage Level

From the Damage Level Pictures 1 through 4 shown below, choose the damage level that more closely resembles the damage in the address you are reporting.



Select damage level:

From w1hkj.com

Custom HTML Forms *cont'd*

Another one of Dave W1HKJ's examples:



Select damage level:

American Red Cross

Gold Country Region (Sacramento)

- Desired to have a system for their disaster relief forms that would be flexible enough to use with any transmission system from hand-carry to fax to USPS to email to radio.
- The agency person filling out the form would not have to know how it might be sent.
- It must be simple enough to use with minimal training.

Forms Options

- The Winlink folks have a nice forms system. However, it requires the use of a fairly complex program called Winlink Express. This program is designed for ham, MARS and SHARES operators.
- In a disaster, ham radio is a last resort. The forms system must be able to work across all systems that might be used to transfer the information. A ham-radio-only solution is not a solution.
- In June 2016, Piper and Hansen met on a message board and discussed using Flmsg.

Flmsg for the Red Cross

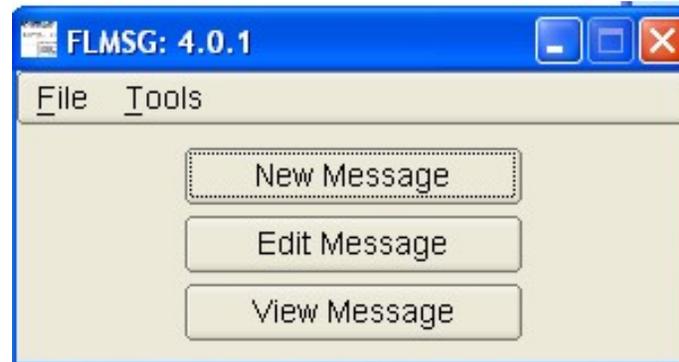
Flmsg met all of the requirements except -

- It was quickly determined that the existing Flmsg GUI was too complex: too many options and radio gobbledygook that the non-ham would not understand.

Then:

- The program's author was brought into the discussion and he quickly produced a "convertible" program. It could either be set for the "radio operator" screen, or an "agency" screen.

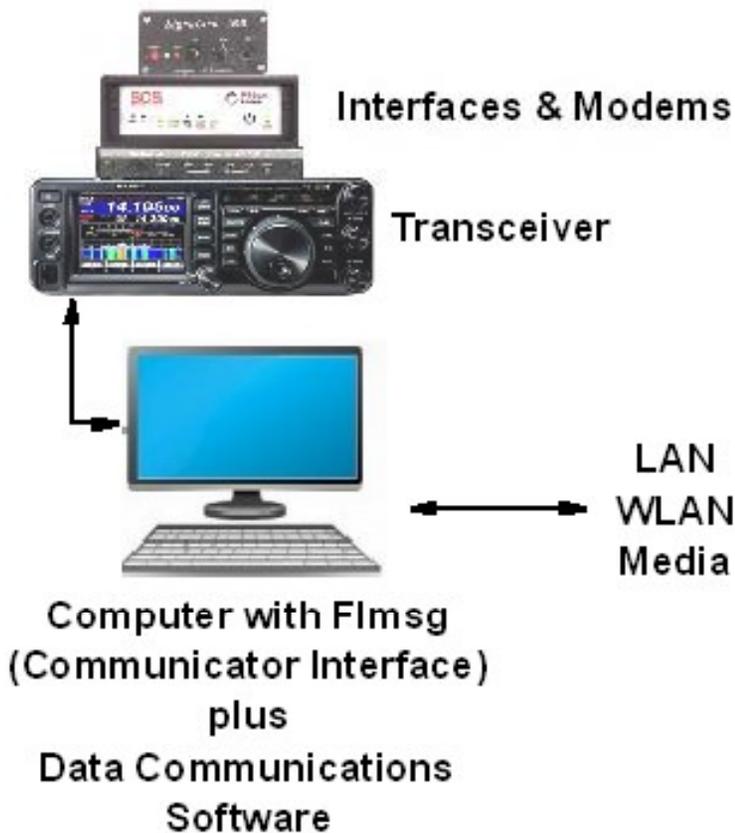
Flmsg Agency Interface



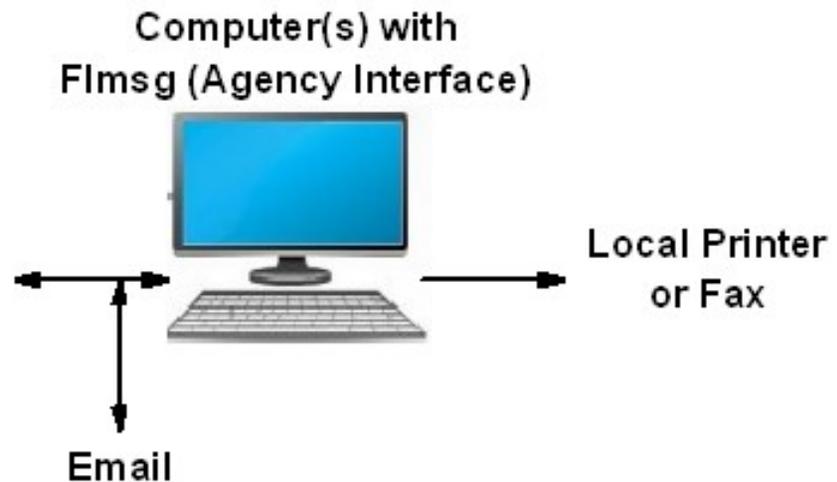
- Uses agency selected/loaded custom forms only
- May be run from a thumb drive
- New Message: Open a template
- Edit Message: To edit an existing message e.g. add reply to an ARC-213
- View Message: To see or print the message form

Radio Room

HF/VHF/UHF
Data Modes



Agency Offices (Base/Field)



ARC 213 General Message



**American
Red Cross**

ARC 213 General Message HTML Vers 1.1

DR #: Incident Name: Message #:

Precedence: Do NOT use this form for an Emergency message!

To (Name/Position):

From (Name/Position):

Subject: Date: Time:

Original Message:

Approved by: Position/Title:

Reply:

Replied By (Names /Position):

Replied Date &Time:

ICS 213 General Message Form adapted For American Red Cross

Version 1.1
01/18/2017

HTML-5 is Easy (for Greg)

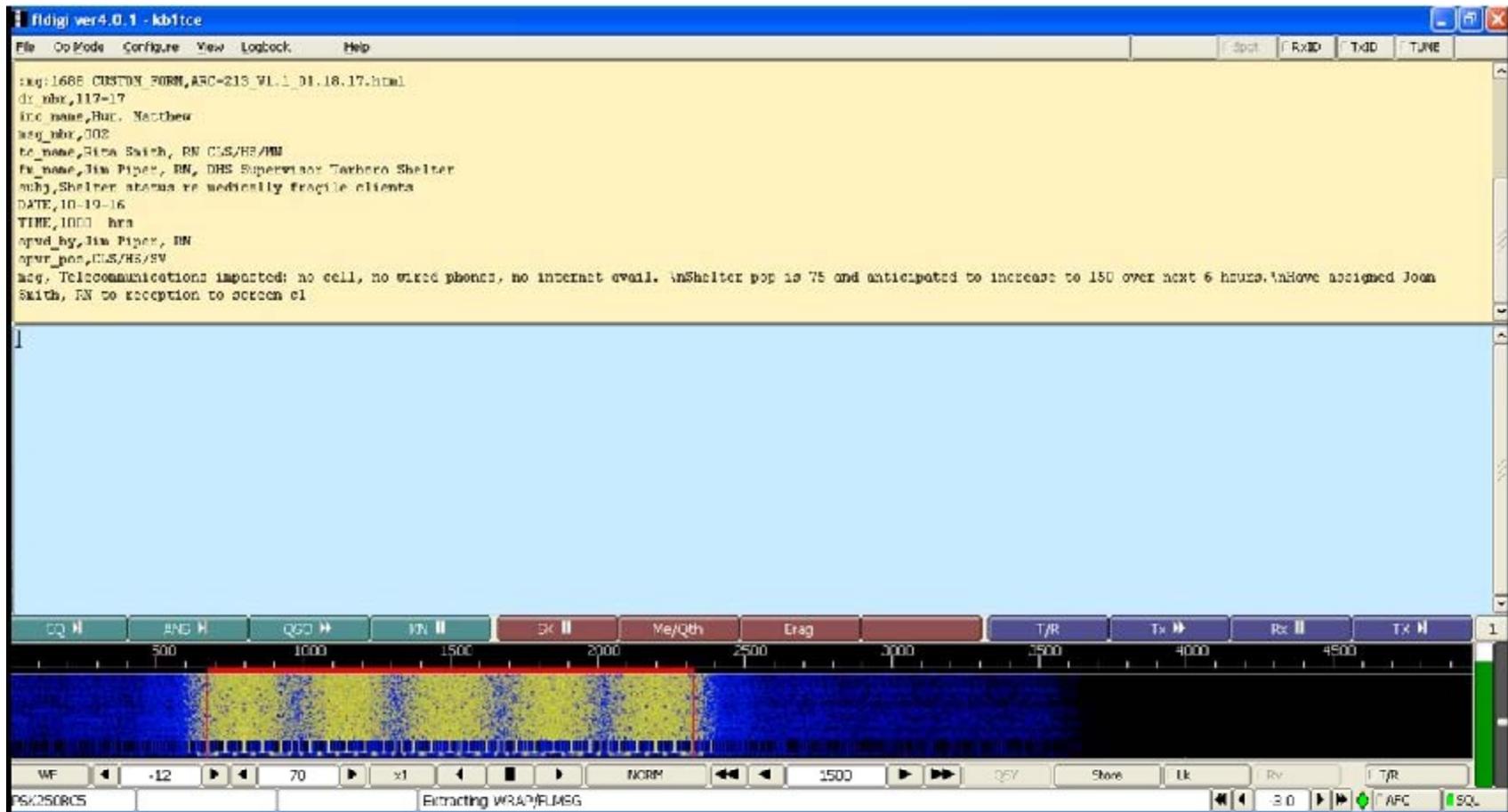
```
<input name="dr_nbr" rows="1" cols="9"
      style="width: 0.9in; height: 0.26in;
      font-family: 'Liberation Sans', sans-serif; font-size: 12pt"
      type="text">
Incident Name:
<input name="inc_name" size="29"
      style="width: 2.46in; height: 0.26in;
      font-family: 'Liberation Sans', sans-serif; font-size: 12pt"
      type="text">
<font face="Liberation Sans, serif" style="font-size: 11pt"
size="2">Message #:
<input name="msg_nbr" rows="1" cols="11"
      style="width: 0.95in; height: 0.26in;
```

Example of Transmission using Flmsg with Fldigi

- If the message is to be sent by radio using Fldigi, the radio operator simply uses Flmsg in combination with Fldigi. The next 3 pages show the sequence of events on the operators screen when receiving the ARC-213 file.

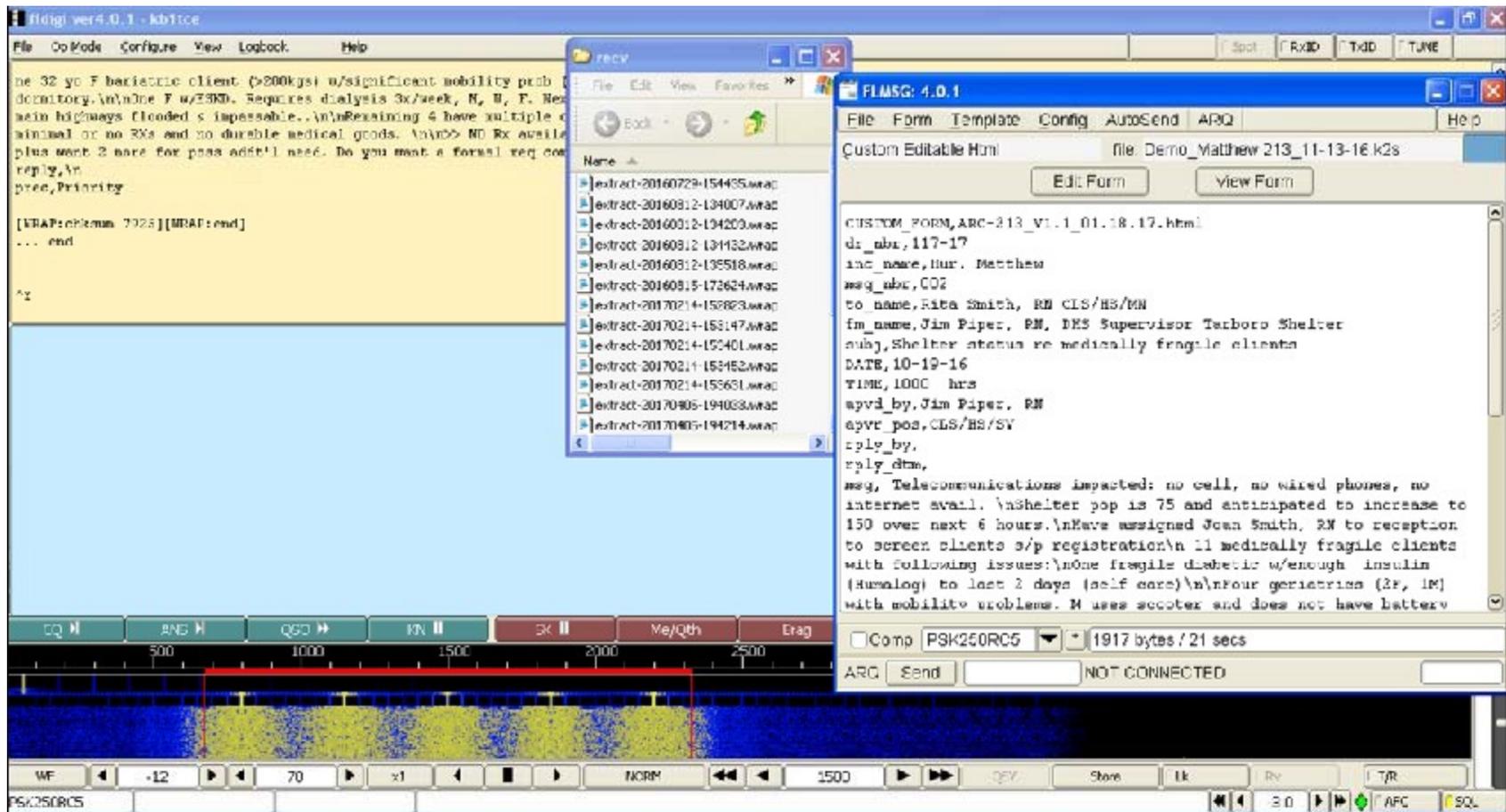
Reception Begins

Fldigi screen with text in beige area, audio signal in the waterfall.



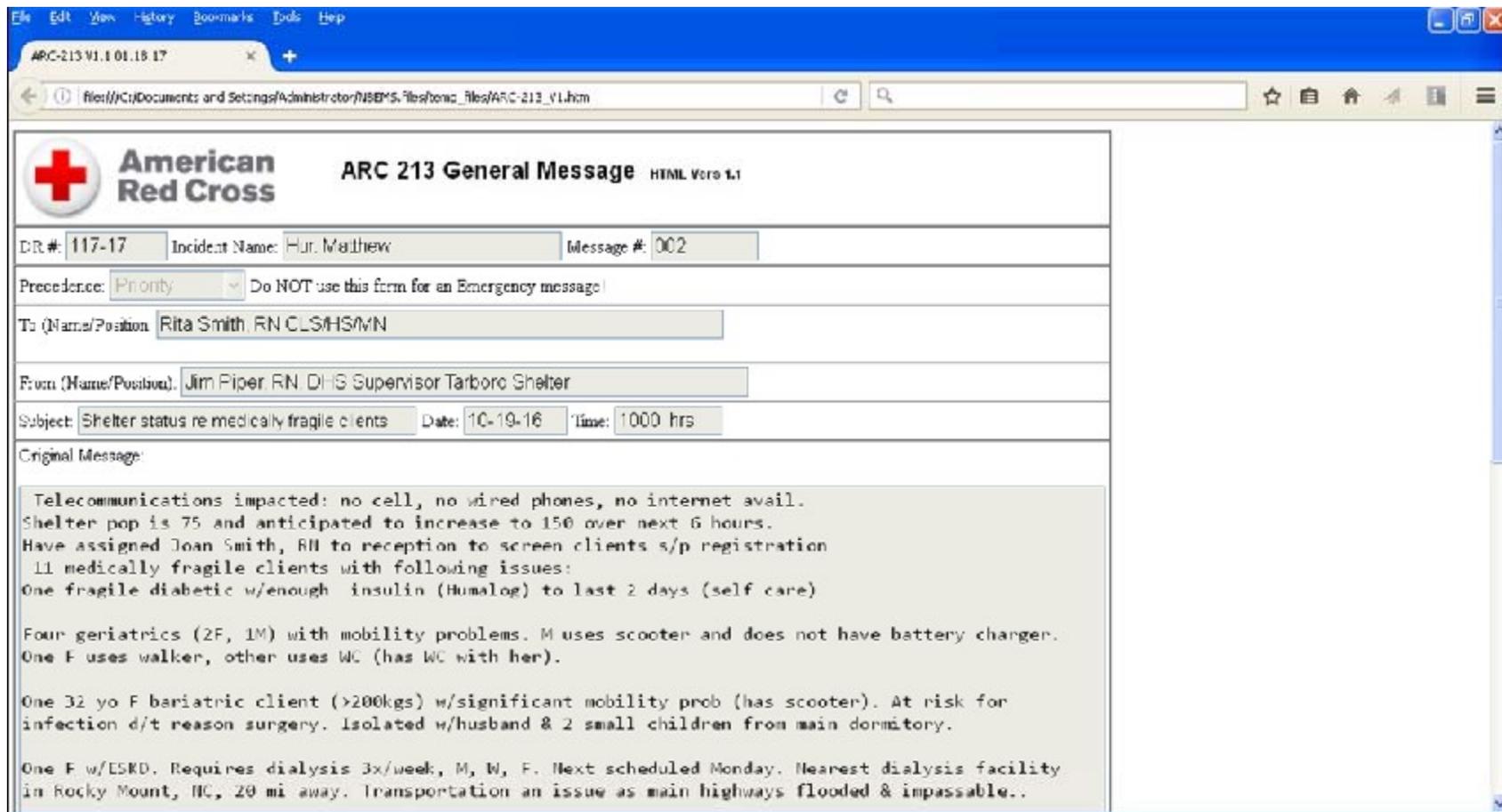
Transmission Complete

Received message folder opens and message appears in Flmsg GUI



Document Opens in Browser

Received form opens in web browser, ready for printing or editing for reply



The screenshot shows a web browser window with the following details:

- Browser:** Internet Explorer (version 10)
- Address Bar:** file:///C:/Documents and Settings/Administrator/7N8P5...files/ARC-213_V1.htm
- Page Title:** ARC 213 General Message HTML Ver0 1.1
- Logo:** American Red Cross
- Form Fields:**
 - DR #: 117-17
 - Incident Name: Hur. Matthew
 - Message #: 002
 - Precedence: Priority (dropdown menu)
 - To (Name/Position): Rita Smith RN CLS/HSMN
 - From (Name/Position): Jim Piper RN DHS Supervisor Tarboro Shelter
 - Subject: Shelter status re medically fragile clients
 - Date: 10-19-16
 - Time: 1000 hrs
- Original Message:**

Telecommunications impacted: no cell, no wired phones, no internet avail.
Shelter pop is 75 and anticipated to increase to 150 over next 6 hours.
Have assigned Joan Smith, RN to reception to screen clients s/p registration
11 medically fragile clients with following issues:
One fragile diabetic w/enough insulin (Humalog) to last 2 days (self care)

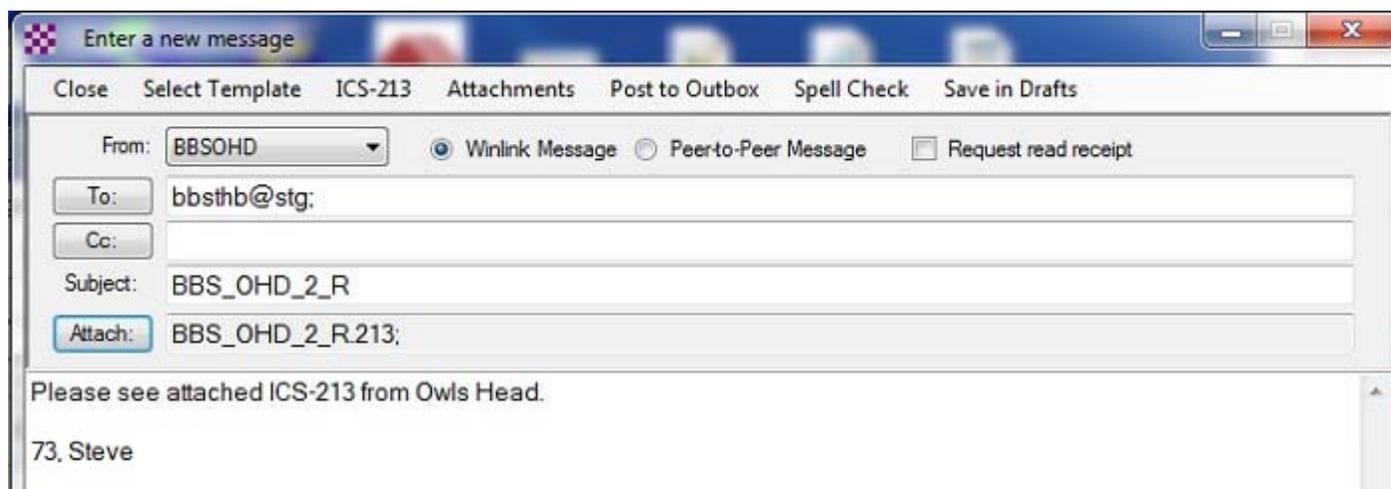
Four geriatrics (2F, 1M) with mobility problems. M uses scooter and does not have battery charger.
One F uses walker, other uses WC (has WC with her).

One 32 yo F bariatric client (>200kgs) w/significant mobility prob (has scooter). At risk for infection d/t reason surgery. Isolated w/ husband & 2 small children from main dormitory.

One F w/ESRD. Requires dialysis 3x/week, M, W, F. Next scheduled Monday. Nearest dialysis facility in Rocky Mount, NC, 20 mi away. Transportation an issue as main highways flooded & impassable..

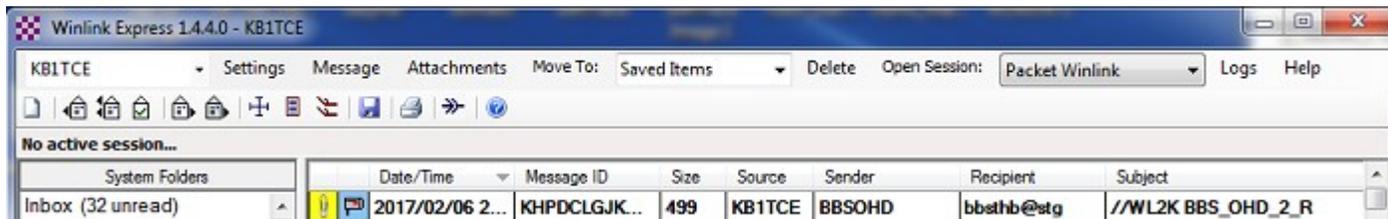
Use with Winlink Express

- Winlink Express is the other commonly used radio messaging client. (<http://winlink.org>) Flmsg (or other) files are handled as attachments in the same manner as with email clients. Here is the message composition screen:



Use with Winlink Express *cont'd*

- The Receive screen shows the usual information plus an icon that shows that there's an attachment.



Status as of April 2017

- Testing by Gold Country ARC continues with excellent results.
- 8 ARC forms have been created with more in progress. They may be accessed at <http://www.w1hkj.com/files/flmsg/templates/>
- The folder also includes instructions that have been developed for installation and use by Red Cross personnel.

Knox County Testing

- Conducted a test of a custom form during our January 2017 exercise.
- Form used was based on the Waldo County “9-Line ICS” form.
- Form was generated at the St. George warming shelter and sent to the Knox EMA director (Ray Sisk) in Rockland:
 - Wi-Fi Mesh from shelter to town EMA
 - Packet radio via BBS to Rockland radio room
 - Shared drive transfer to Ray’s desktop

A Note on the Mesh Setup

- We use the Village Telco “Mesh Potato” (Mesh network + POTS + ATA), a combined Wi-Fi telephony and data device originally developed for underserved areas e.g. Africa and Australian Outback.
- First use in Maine during a multi-county wildfire/base camp exercise in 2013 with devices at various locations.
- Waldo, Knox and Sagadahoc currently have MPs in their tool kits.

Wildfire Exercise

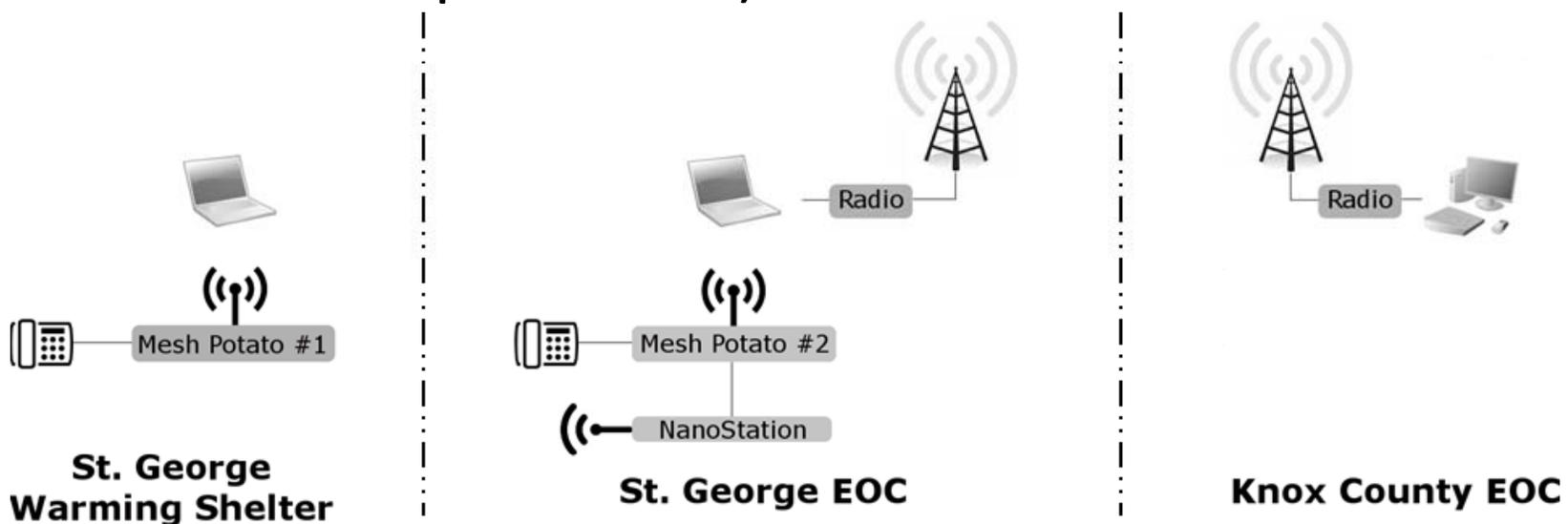
Mesh Potato



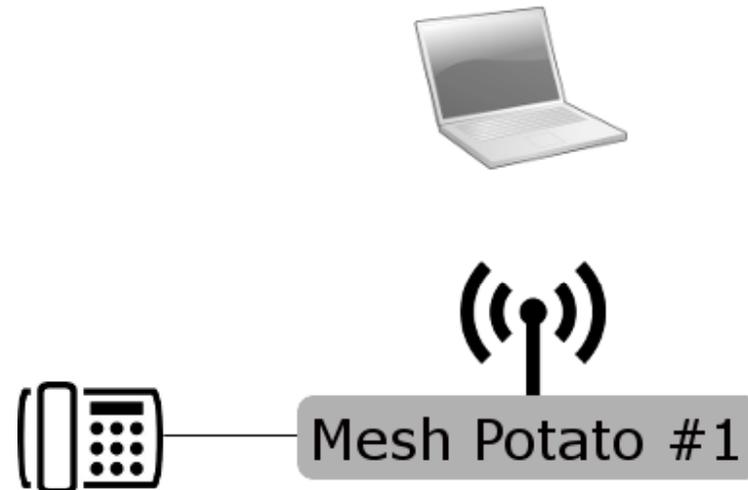
<https://villagetelco.org/2013/08/use-of-the-mesh-potato-at-a-wildfire-exercise-in-maine/>

St. George – Knox EOC Network

- Mesh Potato WiFi: Town EOC to Warming Shelter
- Amateur Radio UHF packet: Town to County EOC
- WiFi allows easy-to-use open-source software for text messaging and file transfers (OpenFire IM server and Spark client)



St. George Shelter Set Up



- Familiar IM and telephone connections for non-specialist volunteers in the Warming Shelter.
- Choice of communication methods with Town EOC – file transfer or dictation.

Summary & Conclusions

- Flmsg represents a compact, cross-platform, open source solution for formal messaging by agencies when specific forms are required.
- Forms prepared with Flmsg are compatible with virtually any medium of transport of electronic files and hard copies may be produced for office use and retention.

Follow-Up

Additional information may be found at

<http://maine-ares.org>

Please feel free to send questions or comments to
Steve at kb1tce@maine-ares.org