American Red Cross Gold Country Region

Disaster Message Traffic and flmsg

The America Red Cross (ARC) is a non-government organization (NGO) stakeholder in the US National Response Framework (NRF), ESF #6 – Mass Care, Emergency Assistance, Housing, and Human Services. The ARC has implement and use the Incident Command System for disaster managemented the ICS disaster management model (as *Concept of Operations)* that includes the management structure and the tools (including Red Cross adaptations of ICS forms). The importance of this imperative assures commonality across the NRF ESF agency spectrum with which the Red Cross communicates.

Nature of Red Cross Disaster Message Traffic

During "blue skies" (every day, non-disaster periods), Red Cross staff and volunteers – like everyone else – depend on both dial-up and cellular telephone networks and the Internet. This dependency spills over during "gray skies" during disaster responses.

Typical Red Cross disaster communications includes but is not limited to:

- Authoring disaster messages addressed to Red Cross staff between locations such as a shelter and the Division Operations Center (DOC), a community service center and the DOC, etc.
- Status reports (addressed daily to all staff and volunteers)
- Incident Action Plans (IAPs) (addressed daily to all staff and volunteers)
- Safety Messages (addressed daily to all staff and volunteers)
- Logistics Requisitions (requesting from staff/location to Logistics Group at the DOC)
- Requisitions for additional staff (requests from response entities, e.g., a shelter)
- Client injury and death reports
- Staff injury Reports
- Disaster Health Services statistical data
- Safe and Well registration
- Emergency welfare inquiries
- Unaccompanied minor and separated child reports

With a normally intact communications infrastructure (i.e., dial tone, cellular service, social media, and Internet email) in the area of a disaster, passing messages is without problem. Disaster planning for communications can and should be planned for graceful degradation of services to mitigate the effects of a catastrophic collapse. And, therein lies the decisions for what message traffic *must* be passed from disaster response hour 0 to hour 96 hours or later if the telecom infrastructure becomes severely degraded. During the initial response period, Amateur Radio has the opportunity to "show its stuff." *But* it can lack the necessary capability to handle anything more than short messages that can be easily handled over a voice circuit (e.g., "To the Shelter Manager: how many clients do you have?").

Using digital communications over radio circuits for messages of more than a few words (status reports, long logistics lists, etc.) becomes an imperative.

The Communications Problem

The problem the Red Cross faces with passing message traffic via radio is two-fold:

(1) Radio operators appear to prefer to handle lengthy messages (i.e., messages greater than 10 words) via voice vs. digitally (which offers a more robust and error free modality),

And

(2) Red Cross volunteers with levels of computer skills varying from casual use (e.g., email, web surfing, etc.) to network experts as Disaster Service Technologists. Those volunteers working in community service shelters have these skill levels and many levels in between. Their tend to resist learning "yet another computer program" impedes introducing and getting acceptance of new utilities.

Requirement

Nine types of messages have been identified as necessary to pass during a telecom infrastructure outage (Red Cross forms in parenthesis):

- Short messages of few words (passed over a voice circuit)
- Moderately to lengthy general messages (Red Cross ICS213 General Message)
- Logistics requests (Red Cross Disaster Requisition 6409)
- Unaccompanied minor reports (Unaccompanied Minor and Separated Child Form)
- Safe and well (legacy as "Health and Welfare") registration (Safe and Well Registration)
- Emergency welfare inquiry (Emergency Welfare Inquiry)
- Client incident / death (Client Incident Report)
- Staff Request (Staff Request)
- Contact Roster (ARC ICS203)

Generally understood is that voice / phone communications can be and are extremely useful and efficient for short messages. However, for traffic that is more than a few words or contains language that is profession-specific is at high risk for transcription error when passed from one message handler to another who is unfamiliar with the terminology.

The Red Cross urges the use of digital communications to pass its longer message traffic as it can virtually eliminate transcription error, reduce the number of hands through which the message passes, and reduces the exposure of the traffic to those who might misinterpret it (e.g., the press). For reasons stated above, message traffic needs to be in a standardized format. Consistent with the guidance provided by FEMA, the Red Cross uses ICS forms adapted plus several proprietary forms.

The Digital Message Solution

Several utilities that have built-in, or are adaptable for, customized message forms (not the least of which have been Winlink Express and fldigi) and both Winlink Express and flmsg (part of the fldigi suite) were evaluated for suitability to the task.

Existing Red Cross adaptations of ICS forms and other proprietary forms are readily available for download to staff and volunteers. However, because these forms are either PDFs or DOCX files, their size and thus required substantial bandwidth (time domain)to pass, they are wholly unsuitable to be passed over either 2M FM AX.25 or HF circuits. The decision was made to use a utility that could (1) handle a customized HTML form and (2) strip the variables (i.e., message data) out of the form to create a small object file that required minimal bandwidth to transmit.

Utility Selection

flmsg, an independent utility within the W1HKJ fldigi suite was and is the suitable choice for these reasons:

1. flmsg easily uses HTML forms, stripping the variable data from the form when saved, as described above.

2. flmsg object files – that are pure ASCII text – can be easily moved via any digital circuit and protocol that use client programs to transport files (e.g., Winlink, many of the modems within fldigi, legacy store-and-forward AX.25 packet systems, Outpost, etc.).

3. Dave Freese W1HKJ, who wrote the fldigi suite, advanced the version of flmsg to allow option of either an "agency" (i.e. simple) or expert interface.

4. In the absence or corruption of flmsg at the receiving end, because the object file was simply a text file, the message can still be easily retrieved and read.

5. Maintainability is not only an important consideration but a requirement of any software implementation. Forms created using HTML assure maintainability.

Utility (flmsg) Application

flmsg's strength is that it can be used *entirely* independently of the radio operator. The user can compose general messages or complete forms for local use. Another strength of the utility interface lies in its simplicity: its user interface offers only three options: *create*, *edit*, and (re)*view* a message. This simplicity plus the familiar user interface environment (i.e., a browser) in which the user manages his/her message, easily overcomes the Red Cross volunteer resistance of "What? I have to learn yet *another* program?" The user interface unobtrusively occupies a very small space on the computer desktop, remaining "out of the way."
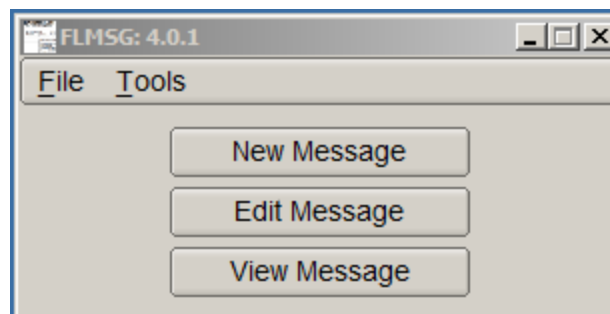
Regarding ICS Forms Compliance

As mentioned above, as a NIMS ESF6 entity, the Red Cross necessarily subscribes to the ICS disaster management model and uses ICS forms adapted within FEMA guidelines for organizational use.

From Page 5 of the *National Incident Management System (NIMS) Incident Command System (ICS) Forms Booklet*:

"Because the goal of NIMS is to have a consistent nationwide approach to incident management, jurisdictions and disciplines are encouraged to use the ICS Forms as they are presented here – unless these forms do not meet an organization's particular incident management needs for some unique reason. *If changes are needed, the focus on essential information elements should remain, and as such the spirit and intent of particular fields or "information elements" on the ICS Forms should remain intact to maintain consistency if the forms are altered* (italics added). Modifications should be clearly indicated as deviations from or additions to the ICS Forms. The following approaches may be used to meet any unique needs. "

"ICS Form Adaptation

"When agencies and organizations require specialized forms or information for particular kinds of incidents, events, or disciplines, it may be beneficial to utilize the essential data elements from a particular ICS Form to create a more localized or field-specific form. When this occurs, organizations are encouraged to use the relevant essential data elements and ICS Form number, but to clarify that the altered form is a specific organizational adaptation of the form. For example, an altered form should clearly indicate in the title that it has been changed to meet a specific need, …"

Red Cross ICS Forms

The ICS forms adapted for use by the Red Cross include:
- Incident Briefing 201
- Incident Objectives 202
- Contact Roster 203
- Work Assignment 204
- Organization Chart 207
- Safety Message 208
- General Message 213
- Daily Schedule 230
- Incident Open Tracing 233

However, the information that **must** be passed during a telecom infrastructure outage include that managed by the General Message 213, Work Assignment 204 plus seven Red Cross proprietary forms. To date, eight froms have been released as flmsg HTML templates (Figure 1).
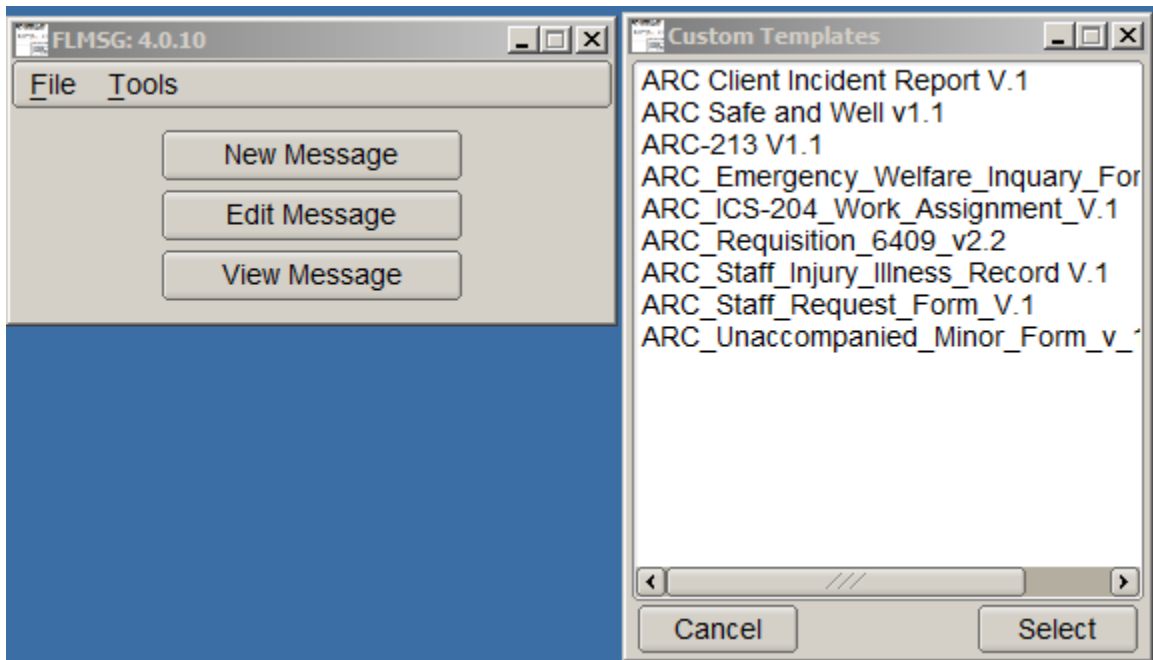
Figure 1 Template Selection Menu

Some examples of forms use follow. Noteworthy in the 213 example is the message contains over 100 words exclusive of the header information. Handling such a message over a voice circuit would present a challenge to all but the very most experienced operator, rf conditions and path availability notwithstanding.

American Red Cross

ARC 213 General Message HTML Vers 1.1

| DR #: 835 | Incident Name: Hayfork-Mad River Complex | Message #: 001 |

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

To (Name/Position: Rita Smith, RN

From (Name/Position): Jack Williams, RN, DHS Supervisor Hayfork Shelter

Subject: Medically fragile clients   Date: 07/29/16   Time: 1330hrs

Original Message:

```
 10 medically fragile clients with following issues:
One fragile diabetic w/enough  insulin (Humalog) to last 2 days

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 F w/ESKD. Requires dialysis 3x/week, M, W, F. Next scheduled Monday. Nearest dialysis facility
in Redding, 60mi away. Transportation an issue as Hwy 299 heavily congested d/t fire traffic &
construction.

Remaining 4 have multiple co-morbidities and multiple medications requiring replacement. NO Rx
available here. Each client evacuated with minimal or no supplies.

Six of these clients require special needs beds. Only two in trailer. Need more. Do you want a
formal req completed for them?
```

Approved by: Jack Williams, RN   Position/Title: DHS Supervisor

Reply:

Replied By (Names /Position):

Replied Date &Time:

| ICS 213 General Message Form adapted For American Red Cross | Version 1.1 01/18/2017 |

Submit Form

Figure 2. Disaster Health Services Message

American Red Cross — **ARC Disaster Requisition - FORM 6409**   HTML Vers 2.1

DR# (if applicable):		DR Name:		Date: 1-20-2017	Requisition # :

Requestor Name : _____   **Signature:** _____

Title : _____   **Phone:** _____

Delivery Information

Site POC Name : _____   **Phone:** _____   **Email:** _____

Address: _____

City: _____   **State:** _____   **Zip:** _____

Description of product(s) and/or service(s)

Stock No.	Quanity	Unit of measure (EA/PK/CS/BX)	Total QTY (each)	Description	Date needed

Special Instructions : _____

The following information must be filled in by the APPROVER ONLY:

Approval includes verification of need; need consistent with Service Delivery Plan and budget.

Approver Name : _____   **Signature:** _____

Title : _____   **Phone:** _____

Procurement Method (This section is optional) :

Account string to charge: ☐ - ☐ - ☐ - ☐ - ☐ - ☐

Procurement tool to use: ☐ Donation ☐ ReQuest ☐ Concur Invoice ☐ P-card ☐ Transfer ☐ Loan

☐ **Other: (Explain) :** _____

[Submit Form]

DCS JT DMWT Disaster Requisition (F609) V.2.0 2015.02.13
Author: DeployMaterial Workers and Technology Process
Owner: Disaster Cycle Services
[HTML V2.1 American Red Cross Gold Country Region 2017.01.18]

Figure 3 Disaster Requisition Form 6409

American Red Cross

ARC Safe and Well Registration   HTML Vers 1.1

ARC Instructions for using Form

Use this form when there is no internet connectivity available and someone wishes to register on the Safe and Well website. Forms should be taken to the nearest location for data entry into the Safe and Well website. Treat the form as confidential information and shred it following data entry.

CLIENT INFORMATION

First Name If Registering as A A./N Organization):

LAST NAME (or Organization) :

EMAIL ADDRESS (suggested):   **DATE of BIRTH (suggested) :**

PREDISASTER HOME INFORMATION

PRIMARY PHONE   **WORK PHONE (SUGGESTED)**   **OTHER PHONE (SUGGESTED) :**

HOME ADDRESS: **CITY:**   **STATE:**   **ZIP:**

BEST CURRENT CONTACT INFORMATION

HOME ADDRESS: **CITY:**   **STATE:**   **ZIP:**

SAFE AND WELL MESSAGES
(check boxes next to appropriate messages to make your selctions)

☐ I am safe and well
☐ Family and I are safe and well
☐ Currently at shelter
☐ Currently at home
☐ Currently at family member/friends house
☐ Currently at a hotel
☐ I am safe and in the process of evacuting

☐ I am evacuating to a shelter
☐ I am evacuating to the house of a family member/friend
☐ I have evacuated and I am safe
☐ I am currently/remaining at home
☐ Will make phone calls when able
☐ Will email when able
☐ Will mail letter/postcard when able

CUSTOM MESSAGE
You may add your own custom short message, up to 255 characters. Please take care that your message is appropriate for the public, and do not unclude names or details if doing so could be harmful to you or others.

FOR ARC Use Only

Date and time entered: **DRO Number / Location:**   **Name or Enter DSHR number:**

[HTML V 1.1 American Red Cross Gold Country Region 20176.1.4]

Submit Form

Figure 4 Safe and Well Registration

For further information please contact:

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