



**American
Red Cross**

American Red Cross Gold Country Region

Disaster Message Traffic and flmsg

The American 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. Because the ARC accepts federal money for disaster response, it is bound to implement and use the Incident Command System for disaster management that includes management structure and tools (including Red Cross adaptations of ICS forms). The importance of imperative assures commonality across the NRF ESF agency spectrum with which the Red Cross communicates as 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 during the initial 12-96 hours of a disaster response 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 a virtual if not a real 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 varying levels of computer skills varying from casual use (e.g., email, web surfing, etc.) to experts as Disaster Service Technologists. Those volunteers working in community service shelters have these skill levels and many in between. They tend to resist learning “yet another computer program.”

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 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 (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 templates adapted plus several forms that are proprietary.

Digital Message Implementation

Several utilities that have built-in or are adaptable for template customized message templates (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, due to their size and therefore requiring substantial bandwidth (time domain) to pass they are wholly unsuitable to be passed over either 2M FM AX.25 or HF circuits. Thus, it was determined use a utility that could (1) handle a customized template and (2) strip the variables (i.e., message data) out of the template to create a small object file requiring minimal bandwidth to transmit.

Utility Selection

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

1. flmsg easily uses HTML templates, stripping the variable data from the template 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 modem within fldigi, legacy store-and-forward AX.25 packet systems, Outpost, etc.).
3. The author of the fldigi suite advanced the version of flmsg to allow option of either a simple or expert interface.
4. In the absence or corruption of flmsg at the receiving end, due to the ASCII nature of the object file, the message can still be easily retrieved.
5. Maintainability is not only an important consideration but a requirement of any software implementation. Templates created using HTML assure maintainability.

Utility (flmsg) Application

flmsg can be used entirely independently of the radio operator; the user can author messages or complete forms for local use. The simplicity interface is such that it offers the user only three options: create, edit, and review a message. This simplicity plus the familiar 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?” Because the interface occupies a very small space on the computer desktop, it has the added advantage of being unobtrusive.

Regarding ICS Forms/Templates

As mentioned above, as NIMS ESF6 entity, the Red Cross necessarily subscribes to the ICS disaster management models and, consequently 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

The ICS forms for information that must be passed during a telecom infrastructure outage include the General Message 213 and the Contact Roster. To date, the 213 is released (together with the Red Cross Disaster Requisition 6409 and Safe and Well Registration as an flmsg HTML template (Figure 1). Noteworthy in this example is the message contains 121 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 #:	<input type="text" value="835"/>	Incident Name:	<input type="text" value="Hayfork-Mad River Complex"/>
		Message #:	<input type="text" value="001"/>
Precedence:	<input type="text" value="Routine"/>	Do NOT use this form for an Emergency message!	
To (Name/Position):	<input type="text" value="Rita Smith, RN"/>		
From (Name/Position):	<input type="text" value="Jack Williams, RN, DHS Supervisor Hayfork Shelter"/>		
Subject:	<input type="text" value="Medically fragile clients"/>	Date:	<input type="text" value="07/29/16"/>
		Time:	<input type="text" value="1330hrs"/>
Original Message:			
<p>10 medically fragile clients with following issues:</p> <p>One fragile diabetic w/enough insulin (Humalog) to last 2 days</p> <p>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).</p> <p>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.</p> <p>Remaining 4 have multiple co-morbidities and multiple medications requiring replacement. NO Rx available here. Each client evacuated with minimal or no supplies.</p> <p>Six of these clients require special needs beds. Only two in trailer. Need more. Do you want a formal req. completed for them?</p>			
Approved by:	<input type="text" value="Jack Williams, RN"/>	Position/Title:	<input type="text" value="DHS Supervisor"/>
Reply:			
<input type="text"/>			
Replied By (Names /Position):	<input type="text"/>		
Replied Date &Time:	<input type="text"/>		
ICS 213 General Message Form adapted For American Red Cross			Version 1.1 01/18/2017
<input type="button" value="Submit Form"/>			

Figure 1. Disaster Health Message

 **ARC Disaster Requisition - FORM 6409** HTML Vers 2.1

DR# (if applicable): DR Name: Date: 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.	Quantity	Unit of measure (EA/PK/CS/BX)	Total QTY (each)	Description	Date needed
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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) :

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 2 Disaster Requisition Form 6409

		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) :	
<input type="text"/>			<input type="text"/>	
EMAIL ADDRESS (suggested):		DATE of BIRTH (suggested) :		
<input type="text"/>		<input type="text"/>		
PREDISASTER HOME INFORMATION				
PRIMARY PHONE		WORK PHONE (SUGGESTED)	OTHER PHONE (SUGGESTED) :	
<input type="text"/>		<input type="text"/>	<input type="text"/>	
HOME ADDRESS:		CITY:	STATE:	ZIP:
<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>
BEST CURRENT CONTACT INFORMATION				
HOME ADDRESS:		CITY:	STATE:	ZIP:
<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>
SAFE AND WELL MESSAGES (check boxes next to appropriate messages to make your selctions)				
<input type="checkbox"/> I am safe and well <input type="checkbox"/> Family and I are safe and well <input type="checkbox"/> Currently at shelter <input type="checkbox"/> Currently at home <input type="checkbox"/> Currently at family member/friends house <input type="checkbox"/> Currently at a hotel <input type="checkbox"/> I am safe and in the process of evacuting		<input type="checkbox"/> I am evacuating to a shelter <input type="checkbox"/> I am evacuating to the house of a family member/friend <input type="checkbox"/> I have evacuated and I am safe <input type="checkbox"/> I am currently/remaining at home <input type="checkbox"/> Will make phone calls when able <input type="checkbox"/> Will email when able <input type="checkbox"/> 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 include names or details if doing so could be harmful to you or others.				
<input type="text"/>				
FOR ARC Use Only				
Date and time entered:		DRO Number / Location:	Name or Enter DSHR number:	
<input type="text"/>		<input type="text"/>	<input type="text"/>	

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

[Submit Form](#)

Figure 3 Safe and Well Registration

For further information please contact:

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