Operators Training III – Net Control Duties in an Emergency

Syllabus

Amateur Radio support of Emergency Services

This Syllabus is
dedicated to the Memory of Dr. Andy Peoples, WA6DDO

Emergency Net Control Yolo County
Amateur Radio Yolo Floods (circa 1970s)
Andy Peoples WA6DDO NCS and Gary Matteson, WA6TQJ
Yolo EC/ RO

Instructor: Gary Matteson WA6TQJ

General, Licensed June 1961 as WA6TQJ
Air Force MARS 1963-1970
Yolo County Radio Officer 1968-1975
ARRL Emergency Coordinator 1970-1975

California Department of Forestry VIP 1994-96
American Red Cross RTT 2008
Sacramento Valley Noon Net Mgr 2003-present

Operators Training III - Net Control Duties

1. The Net Control Station.

Physical set up -Equipment
- Go Kit Net control station
- Spacing of stations
- Head phones and mikes
- Voice
- Packet
- Winlink See Appendix A in Syllabus
- GPS
- Scanners


ICOM IC-V8000
147.195
ICOM
IC-2820H
145.190
146.910
AMPS
ASTRON SS-25M
VOLTS

Personnel

NCS

ANCS Onsite or remote

Runners or radio “Shadow” link

I. Your performance as Net control

1. Knowing the applicable Emergency Plan

a. Review Call up Procedure

i. Know who you report to

1. In the EOC

Know who your direct supervisor is. You may not be reporting directly to the Director of Emergency Services.

2. In the Field

In the field, the Incident Commander may want you reporting directly to him/her, or may instead have you report to the Communications Branch or to a Liaison Officer.

ii. Know who you can deliver messages to (Non Radio portion of the chain)

1. Anybody?
2. Only certain people?

iii. Know who you can accept messages from (Non radio portion of the chain)

1. Anybody?
2. Only certain people?

IV Know your Band Plan

University of California Davis Amateur Radio Communications

Repeaters - Primary

Channel No.	Frequency	Off Set	PL	Organization
R-1	145.450	Neg.	203.5,	UC Davis EOC

Repeaters - Secondary

Channel No.	Frequency	Off Set	PL	Organization
R-1	146.970	Neg	123.	Berryessa ARC
R-2	146.910	Neg	100.	Sacramento ARC
R-3	147.195	Positive	123.	Sacramento ARCR

Other Simplex Frequencies

Frequency	Organization
146.475	UCDARC Tactical
146.550	ARES
146.5200	National Calling & Wilderness Protocol
446.0000	National Calling Frequency

V. Contact Lists

Net rosters, organization charts, and area wide contact lists should be available at the Net Control Station (and included in a NCS go-kit).

Below is an excerpt of an ENCOMM area-wide list

Emcomm Contact Information (1-3-08)

1. Federal Government:

California Office of Homeland Security
State Capitol, 1st Floor
Sacramento, CA 95814
(916) 324-8908
Governor's Office of Homeland Security

California State Citizen Corps Council
1110 K St., Suite 210
Sacramento, CA 95814
(916) 323-7646
www.citizencorps.gov.\

b. Net Protocols

- Over at the end of your information or question to a person indicates you are expecting an answer and/or information. It also lets others know you have not finished your conversation.

- Out at the end of your information or question indicates you are finished and expecting no return info. It also lets others know the frequency is now open for other traffic.

- Copy is a good way to let the distant person know you acknowledge his/her transmission.

- Clear at the end of statement of your call sign, indicating that you will be off the air and unavailable for further net participation.

- Listen before you transmit.

- Maintain circuit discipline, as NCS you have the responsibility and authority for traffic handling.

c. Use of Tactical and Call signs.

1. Tactical call calls can be assigned to amateur radio operators during an event where the operators are performing assigned tasks. Stations using tactical calls should identify the amateur call sign periodically and once every 10 minutes of continuous transmission.
2. Your FCC issued Call Signs should be voiced at the start and close of an exchange, and every 10 minutes of continuous transmission.

d. Use plain language, no "Q" signals and no "10" calls

1. Plan language should be used when conducting a net. Forms of coded statements should not used. Abbreviations should only be used when commonly understood.

e. Use Phonetics for clarity

1. The paramount reason is to ensure intelligibility of voice signals over radio links.
2. International radiotelephony spelling alphabet, is preferred
3. Spell phonetically all difficult or unusual words and all words that have more than one meaning, e. g., "four" and "for."

2. **Gather work supplies**

- net script
- pens & pencils
- Message forms (with established numbering system)

UCDAVIS SAFETY SERVICES

ICS-213

Year

NUMBER	PRECEDENCE (CIRCLE ONE)	FROM STATION	CHECK	PLACE OF ORIGIN	TIME FILED 24 hours format	DATE FILED Month Day
	EMERGENCY Priority H&W Routine					

TO:	Name Department	POSITION:	
FROM:	Name Department	POSITION:	
SUBJECT:			

MESSAGE BODY:

				5
				10
				15
				20
				25
				30
				35
				40
				45

RECEIVED FROM: Print name		INITIALS:		POSITION:	

RECEIVED BY:	(Call sign)	RECEIVED TIME: 24 hours format		RECEIVED DATE: Month Day	

REPLY

REPLY TO MESSAGE NUMBER	FROM STATION	CHECK	PLACE OF ORIGIN	TIME FILED 24 hours format	DATE FILED Month Day
(Message number above)					

				5
				10
				15
				20
				25
				30
				35

RECEIVED FROM: Print name		INITIALS:		POSITION:	

ICS 213 Compliant Amateur Radio Message Form — University of California Davis 08/30/09

- log sheets

UCDAVIS
SAFETY SERVICES

UCDARC
RESOURCE AVAILABILITY LOG SHEET

	CALL	NAME	PHONE NUMBER(S)	REPEATER(S)	HOURS AVAILABLE	PREFERRED ASSIGNMENT
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Resource Availability Log Sheet;

Form for defining each stations capability

UCDAVIS
SAFETY SERVICES

UCDARC
RESOURCE STATION REQUIREMENT LOG SHEET

NAME ____________ SITUATION ____________

CALL SIGN ____________ DATE ____________ Page ______ of ______

STATION: ______________________________ No. of Operators Required/Shift: Shift: #1 #2 #3 #4

Address of Station: ______________________________

Directions to Station: ______________________________

Equipment at Station: ______________________________

Equipment to Take: ______________________________

Special Instructions: ______________________________

Food/Water Provided: Yes No

STATION: ______________________________ No. of Operators Required/Shift: Shift: #1 #2 #3 #4

Address of Station: ______________________________

Directions to Station: ______________________________

Equipment at Station: ______________________________

Equipment to Take: ______________________________

Special Instructions: ______________________________

Food/Water Provided: _____ Yes _____ No

STATION: ______________________________ No. of Operators Required/Shift: Shift: #1 ____ #2 ____ #3 ____ #4 ____

Address of Station: ______________________________

Directions to Station: ______________________________

Equipment at Station: ______________________________

Equipment to Take: ______________________________

Special Instructions: ______________________________

Food/Water Provided: Yes No

Resource Station Requirement Log Sheet;

Form for tracking each operator's availability and location when you send them out on an assignment.

AMATEUR RADIO EMERGENCY SERVICE
RESOURCE STATION ASSIGNMENT LOG SHEET

NAME		SITUATION		
CALL SIGN				Page of

DAY:	DATE:

STATION/POSITION:

SHIFT TIME	0000	2AM	4AM	6AM	8AM	10AM	NOON	2PM	4PM	6PM	8PM	10PM	12M
Op #1													
Op #2													
Op #3													
Op #4													

STATION/POSITION:

SHIFT TIME	0000	2AM	4AM	6AM	8AM	10AM	NOON	2PM	4PM	6PM	8PM	10PM	12M
Op #1													
Op #2													
Op #3													
Op #4													

STATION/POSITION:

SHIFT TIME	0000	2AM	4AM	6AM	8AM	10AM	NOON	2PM	4PM	6PM	8PM	10PM	12M
Op #1													
Op #2													
Op #3													
Op #4													

STATION/POSITION:

SHIFT TIME	0000	2AM	4AM	6AM	8AM	10AM	NOON	2PM	4PM	6PM	8PM	10PM	12M
Op #1													
Op #2													
Op #3													
Op #4													

STATION/POSITION:

SHIFT TIME	0000	2AM	4AM	6AM	8AM	10AM	NOON	2PM	4PM	6PM	8PM	10PM	12M
Op #1													
Op #2													
Op #3													
Op #4													

Resource Assignment Log SCCARES-RSAL-001B Rev 2-20-06

- Operator Location Aids
    - City map
    - Campus map
    - County Map
        i. Thomas Bros. map books Grid Books
    - Location & phone/contact info for Incident Commander

II. Net Preamble

- 15 Minute Alert:. "Attention: The ---------emergency Net, conducted in 15 minutes on the -------- repeater. Your Net Control is ----------. "The ---------- requests the use of this frequency for the purpose of conducting an Emergency Net."

- 5 Minute Alert "Attention: The ------- Emergency Net will be initiated in 5 minutes on the ------ repeater. Stations with traffic of interest to the Net may present it when called. Your Net Control today is (*Name, Call sign*)." Please stand by, the net will start at (Time) This is (*Call sign*) standing by for Net."

III. Initiating the Net

- "This is the Sacramento Valley Emergency Net"

- "Is there any priority or emergency traffic?"
  (See Appendix B For emergency exercise)

- "This is a directed net. All stations please refrain from transmitting unless called. Stations with emergency traffic may break at any time."

- "Member Roll Call Follows, Please give you name, call sign, location, availability, and relevant capability (mobile, packet, etc.)." Enter received information into

  AMATEUR RADIO EMERGENCY SERVICE RESOURCE STATION AVAILIBILITY LOG SHEET

  AMATEUR RADIO EMERGENCY SERVICE RESOURCE STATION REQUIREMENT LOG SHEET

- "Are there any late or missed member check-ins to the Net?"

- Visiting Stations are urged to check into the Emergency Net. Please respond now with your name, call-sign and location.

IV. Assignments for individuals checking into the Net

1. Assign one station to listen on the Net's secondary frequency as well as monitor the primary frequency.
2. Assign one station to make land line or cell phone contact with Net Members that have not checked in (report results back to Net Control).
3. Make operator assignments to specific locations as defined in organization emergency response plan.
4. Make operator assignments to locations defined by the Incident Commander.
5. Log assignments into RESOURCE STATION ASSIGNMENT LOG SHEET.

V. Status Checks from operators moving to assigned locations

1. Request contacts, from those operators with assignment (to be made when operator arrives at destination).
2. Conduct a confirmation contact with operators on assignment to assure their station is properly set up at specified location.
3. Make notation in Net Control Log when assigned operators have arrived at specified locations.
4. When appropriate, have assigned operators check-in with site supervisor or manager and have then confirm this action with Net Control.

VI. Monitoring the conduct of duties

1. Request that all operators leaving their transceivers for a break to advise Net Control when they become unavailable and request that they check back in after their break.
2. Call Stations that you have not heard from every 30 minutes (Welfare Check). <u>If the operator is in a dangerous location, request check-in more often.</u>
3. If you cannot reach one of the on-duty stations after a period 5 minutes of repeated calling, have the station making land line or cell phone contacts try to reach the operator.
4. If you still cannot reach this on-duty operator after a period of 15 minutes, dispatch another operator to make physical contact with the missing operator and report back to Net Control.
5. Conduct a complete net roll call at least once every two hours.

VII. Message Handling

1. Operators submitting traffic should use the ICS 213 message form for initiating messages.
2. Reserve the primary frequency for Emergency Traffic and Tactical Traffic.
3. Sending and Receiving operators should go to the secondary frequency to pass Health and Welfare or Routine messages.
4. Tactical messages do not have to use the ICS 213 message form
    a. Make sure you know who is originating the message
    b. Make sure you know who is to receive the message
5. Log all messages, including tactical
    a. The mantra in the EOC is to document everything.

VIII. Reassignments or Relief of duties

1. If the Net control is handing off the NCS to another operator, he/she should:
    - BRIEF incoming Net Control on all active incidents and issues that he/she should be aware of.
    - Give the new NC the message log and point out messages awaiting responses
    - Give the incoming NCS a current member roll call list and a list of available and assigned operators.
2. Track the length of time assigned to duty against original indication of "availability."
3. Plan for relief as end-of-duty time approaches for a station operator.
4. The above applies to the Net Control operator too.

IX. Closing down Net Operations

1. Alert the operators of the pending termination of Net and request those operators on remote assignment to advise their respective supervisors or managers of the action.
2. If supervisors or managers at the remote assignments still need a communication link with the Incident Commander, make this need known to the Incident Commander.
3. Obtain clearance from the Incident Commander to close down the Net.
4. Conduct a final roll call and release each individual from further duties.
5. Make sure that you account for all operators.
6. Turn in all Message logs, Message forms, Operator roll calls
7. Replenish NEEDED net control supplies and forms as soon as possible.

UC Davis Police Dispatch Center: On-site discussion

1. Training required to be a Dispatcher

2. “Aids” available to Dispatcher to enable quick and informed decisions.

3. Multitasking a must have skill.

Continuing Education for Net Controls

1. Participate as NCS for Nets and Drills.
2. Update Emergency Communication Plan

This syllabus has received contributions and comments from the following individuals. My thanks go to:

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Larry Sutter WD6FXR

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Appendix A

Winlink

A Brief Guide to the Elements of Winlink 2000

Winlink 2000 is a worldwide radio messaging system that takes advantage of the Internet where possible. It does this in order to allow the end-user more radio spectrum on the crowded spectrum. Winlink 2000 has an interesting history that may be worth reviewing. Currently, there are more than 15,000 radio users on all the classes of users and approximately 100,000 Internet recipients. Monthly traffic averages over 150,000 messages or 280,000 minutes. Each message has an average duration of approximately 3.4 minutes and each message averages approximately 3,200 bytes. The Pactor 1, 2 and 3 protocols are used on HF, and AX.25 Packet, D-Star and 802.11 are used on VHF/UHF. Growth of the system is dependent on the various classes of users, including normal Amateur use, emergency communications organizations such as the ARRL ARES® and RACES, the UK Cadet forces, the three MARS branches, and others. Most recently there has been an increasing interest in emergency communications, and the Winlink 2000 development team has responded by adding features and functions that make the system more reliable, flexible and redundant. The role of Winlink 2000 in emergency communications is to supplement existing methodologies to add another tool in the toolkit of the volunteer services deploying emergency communications in their communities.

Winlink 2000 has been assisting the maritime community, NOAA, the United Nations, the US. Coast Guard and other agencies for over 6 years now. Only recently has it been brought to the attention of the greater emergency communications community due to recent domestic disasters.

Over the last several years, the system is used almost daily by the maritime community for locating lost vessels. The US Coast Guard requests the location and condition of vessels from the 7,500 plus maritime Winlink users on an on-going basis. In addition, during the Asian Tsunami, Winlink 2000 maritime users played an important role in early communications. This was also true of the Chilean/Peruvian storms, the failure of INTELSAT 804, which left hundreds of Islands without reliable communications, and many other hurricane related episodes in the Caribbean and Atlantic Sea. Such acts went unnoticed until the domestic weather disasters brought Winlink 2000 to the attention of many, including a positive mention in post-Katrina reports from the US House of Representatives and the White House.

Several years ago, the Department of Homeland Security suggested to the ARRL president that the Amateur community should design and maintain a national digital network for emergency communications purposes. Winlink 2000 was their network of choice. Today, the ARRL Amateur Radio Emergency Service® (ARES) and Radio amateur civil emergency service (RACES) has been busy deploying Winlink 2000 county

by county across the country . In addition other non-Amateur volunteer services such as the Army Military Affiliate Radio System and the UK Cadet Forces, the Salvation Army, the GA Baptist Relief organization, and many other such agencies have utilized Winlink 2000 for their radio e-mail, both in emergencies and when no other communications outlets have been available . These most recent activities resulted from the use of Winlink 2000 during the most recent domestic hurricane disasters.

The Winlink 2000 system is a "star" based network containing 5 mirror image, redundant COMMON MESSAGE SERVERS (CMS); located in San Diego (USA), Washington DC (USA), Wien (Austria), Halifax (Canada), and Perth (Australia). These ensure that the system will remain in operation should any chunk of the Internet become inoperative. Each Radio Message Server node (RMS) is tied together as would be the ends of a spoke on a wheel with the hubbing being done by the Common Message Servers. Traffic goes in and out between the CMS and the Internet email recipient, and between the end users and the Radio Message Server gateways. Multiple Radio-to-Radio addresses may be mixed with radio-to-internet e-mail addresses, allowing complete flexibility.

Because Winlink 2000 uses de facto e-mail (IETF RFC 2821) as its format, it provides direct Radio users and Internet third-party users seamless, transparent email with attachments of reasonable size without any additional stress or learning curve. This allows any mobile or portable operation to interface into the Internet e-mail system from virtually anywhere in the World over the various separate classes of users such as Army MARS or the Amateur service. Each class of service is totally separated from the next so that boundaries and purposes are not mixed. Army MARS only sees Army MARS station and users, while the Amateur stations only sees Amateur users.

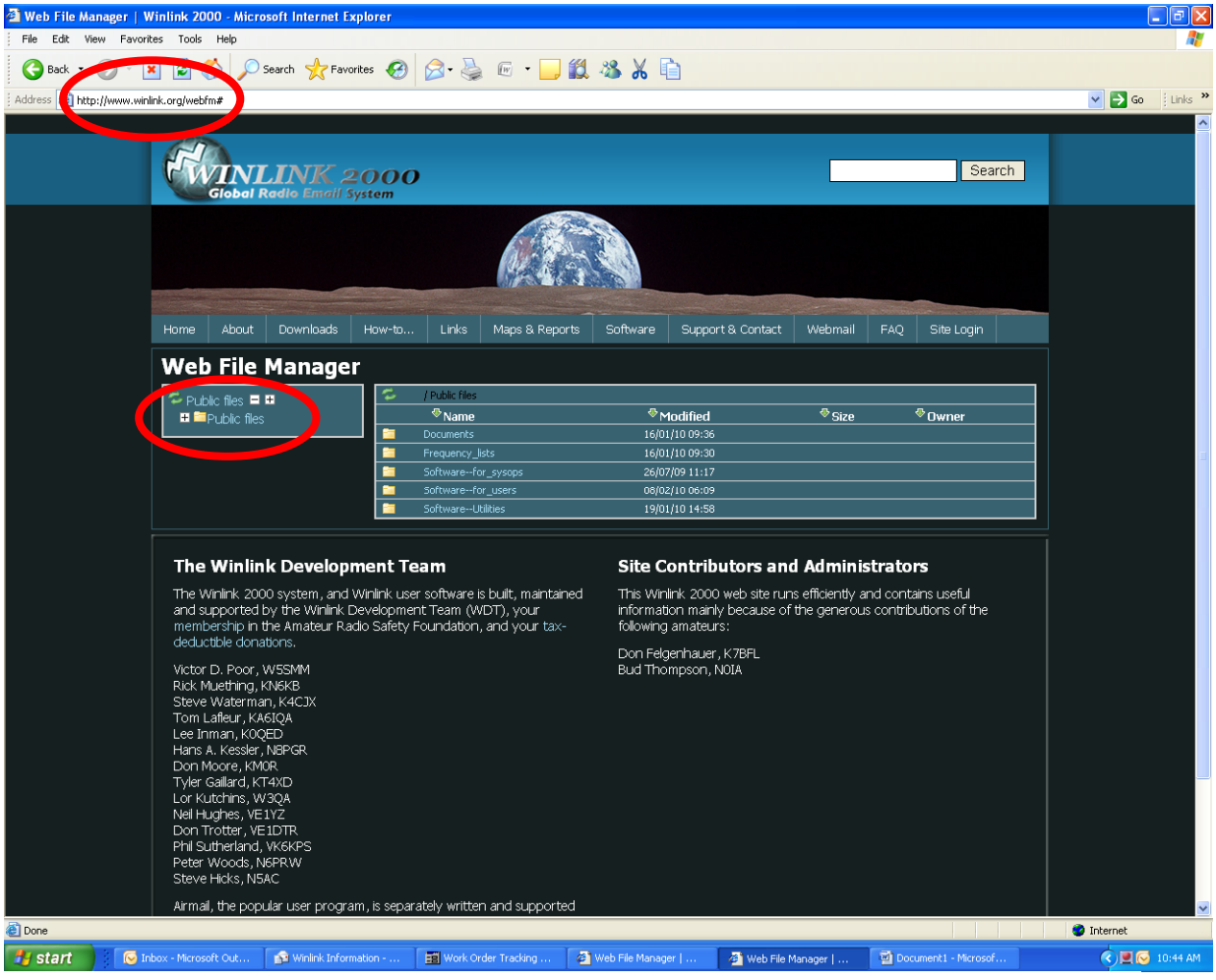
Because each Radio Message Server gateway is a mirror image of the next, it does not matter which station is used. They all look the same. Each can provide over 700 text-based or graphic Weather products, and each can relay the user's position to a WEB based view of reporting users. This keeps family, friends or, in a disaster, tactical positions in view. The views can zoom to the street level via a standard street map, a satellite view or a mixture of both.

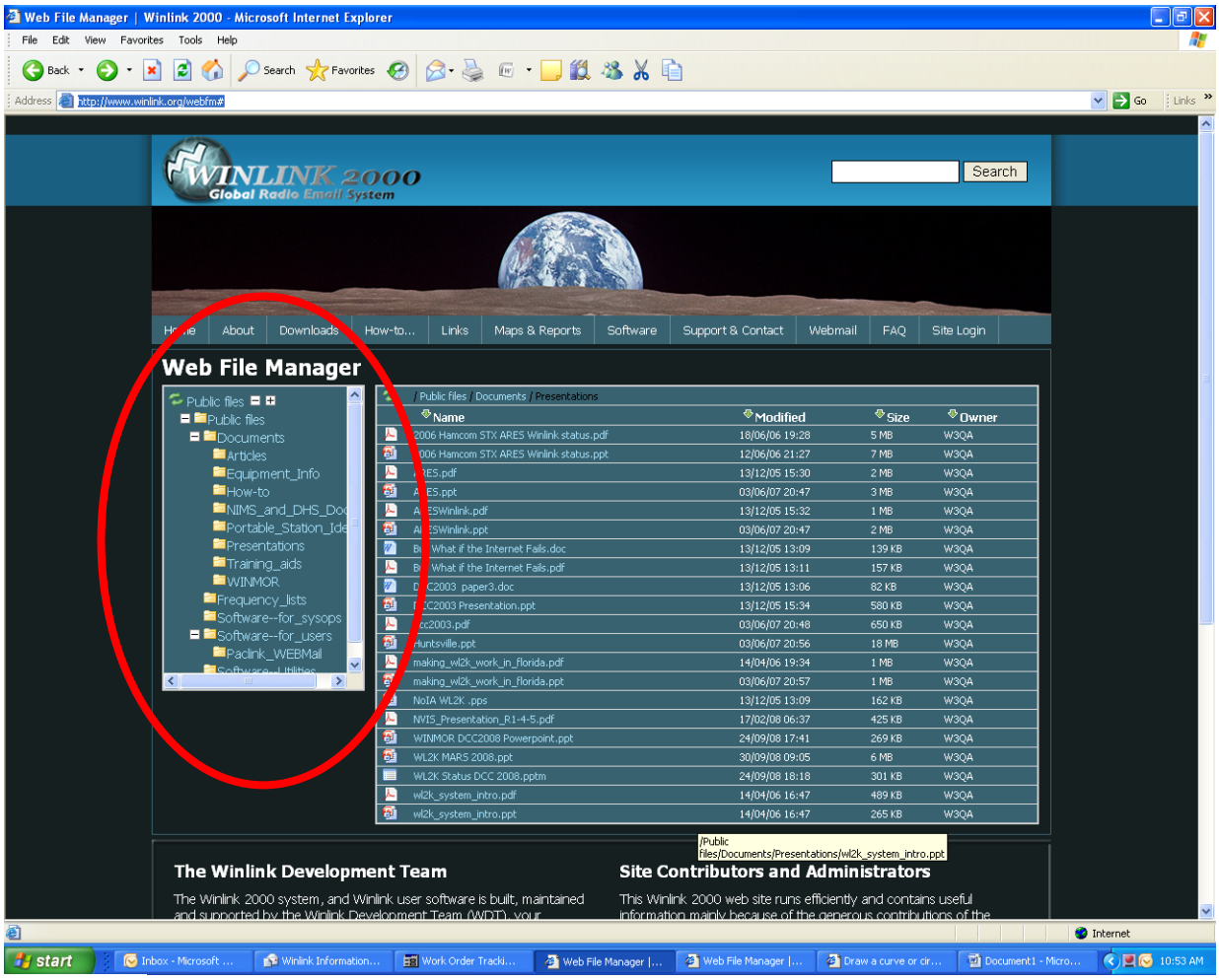
The Army, Air Force and Navy Military Affiliate Radio System (MARS) now have a widely spread, redundant, mirror image, Radio message Servers called "PMBOs" covering the US, Europe and the Middle East. In addition, the Department of Homeland Security is sponsoring a Common Message Server to add to the reliability of the Tri-MARS Winlink 2000 service. The joint MARS Winlink 2000 network is now postured for any domestic disaster with point-to-multipoint digital Radio e-mail. An expanded Global network is planned. Because of the Army, Air Force and Navy MARS infrastructure, and due to the procedural training it demands of its volunteer members, Winlink 2000 fits in perfectly. When or if it is necessary to deploy this radio messaging system for any disaster event, its proven effectiveness from past disasters coupled with MARS proven procedures, should bring effective communications to those in need.

For emergency services, like any other communications system, the effectiveness of Winlink 2000 is only as good as those who have planned for its use. One of the most valuable lessons learned from the Hurricane Katrina disaster has been the ability of those deploying the system for their own communities to build continual relationships with the agencies they wish to serve. After all, it is their "customer" who Winlink 2000 serves, and volunteers using this digital radio messaging system must bring its capabilities to those who need them before the system can be effective.

The website: http://www.winlink.org/webfm#

Click on "+" following Public Files and then click on Presentations folder.
Look for the files "WI2k_system_intro"," ARESWinlink" and "ARES"
Each set of files are listed as a pdf or a ppt




Web File Manager | Winlink 2000 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://www.winlink.org/webfm#
Go Links
WINLINK 2000
Global Radio Email System
Search
About Downloads How-to... Links Maps & Reports Software Support & Contact Webmail FAQ Site Login
Web File Manager
Public files
Public files
Documents
Articles
Equipment_Info
How-to
Portable_Station_Ide
Presentations
Training_aids
WINMOR
Frequency_lists
Software--for_sysops
Software--for_users
Paclink_WEBMail
/ Public files / Documents / Presentations
Name Modified Size Owner
2006 Hamcom STX ARES Winlink status.pdf 18/06/06 19:28 5 MB W3QA
006 Hamcom STX ARES Winlink status.ppt 12/06/06 21:27 7 MB W3QA
RES.pdf 13/12/05 15:30 2 MB W3QA
ES.ppt 03/06/07 20:47 3 MB W3QA
ESWinlink.pdf 13/12/05 15:32 1 MB W3QA
ESWinlink.ppt 03/06/07 20:47 2 MB W3QA
What if the Internet Fails.doc 13/12/05 13:09 139 KB W3QA
What if the Internet Fails.pdf 13/12/05 13:11 157 KB W3QA
C2003 paper3.doc 13/12/05 13:06 82 KB W3QA
C2003 Presentation.ppt 13/12/05 15:34 580 KB W3QA
cc2003.pdf 03/06/07 20:48 650 KB W3QA
Huntsville.ppt 03/06/07 20:56 18 MB W3QA
making_wl2k_work_in_florida.pdf 14/04/06 19:34 1 MB W3QA
making_wl2k_work_in_florida.ppt 03/06/07 20:57 1 MB W3QA
NoIA WL2K .pps 13/12/05 13:09 162 KB W3QA
NVIS_Presentation_R1-4-5.pdf 17/02/08 06:37 425 KB W3QA
WINMOR DCC2008 Powerpoint.ppt 24/09/08 17:41 269 KB W3QA
WL2K MARS 2008.ppt 30/09/08 09:05 6 MB W3QA
WL2K Status DCC 2008.pptm 24/09/08 18:18 301 KB W3QA
wl2k_system_intro.pdf 14/04/06 16:47 489 KB W3QA
wl2k_system_intro.ppt 14/04/06 16:47 265 KB W3QA
/Public files/Documents/Presentations/wl2k_system_intro.ppt
The Winlink Development Team
The Winlink 2000 system, and Winlink user software is built, maintained and supported by the Winlink Development Team (WDT), your
Site Contributors and Administrators
This Winlink 2000 web site runs efficiently and contains useful information mainly because of the generous contributions of the
Internet
start
Inbox - Microsoft ...
Winlink Information...
Work Order Tracki...
Web File Manager |...
Web File Manager |...
Draw a curve or cir...
Document1 - Micro...
10:53 AM

Now select

Appendix B

"Emergency Traffic"

Actions of the Net Control

1. Request all stations to stand by
2. Identify the Net and your Net Control Station.
3. Request originating station to Identify, if not already done so.

Routing of "Emergency Traffic"

You observe that the traffic is directed to the EOC Director at your location.

- If Alternate Net Control is on-site, have the Alternate Net Control take the emergency traffic and be responsible for the disposition of the message. (all stations continue to stand-by on the frequency)

- If the Alternate Net Control is off-site, have the Alternate Net Control to take control of the Net and continue the Net Check-in process (after the emergency traffic has been passed to the NCS).

Receipt of “Emergency Traffic”

- Use Message Form 213 if incoming message is in that format.

- If not using Message 213, be sure to obtain station's name, call sign, and location.

- Make sure you know who is originating the message.

- Make sure you know how to route the emergency message, e.g., who gets the message?

- Is a response required? If so how to contact ‘originating’ station with response.

Delivery of “Emergency Traffic”

- Make arrangements for delivery of the text of the "Emergency Traffic" to your Incident Commander. (Runner of radio “shadow” link.)

    o
- If response from Incident commander looks to be immediate, arrange for someone to write down the response on at the bottom of the IC 213 Message form and return the message to the Net Control position.

- Log all messages that are not tactical

- If ANCS, handles emergency traffic via the Shadow radio link, the ANCS must advise NCS on status or the traffic.

- If NCS Returns, re-assume responsibilities for the Net.