
# SAINT LOUIS METRO ARES®/RACES DIGITAL OPERATIONS MANUAL

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## BACKGROUND

It is the intention of this plan to provide guidelines for training and usage of amateur radio volunteer communicators. The Saint Louis Metro ARES®/RACES organization recognizes the role of the Radio Amateur to government agencies as auxiliary communications links during times of emergency. It is also the intention of this plan to provide for adequate training and preparation of Saint Louis Metro ARES®/RACES operators to assist with the needs of the Saint Louis Metro ARES®/RACES Emergency Coordinator.

The Assistant Emergency Coordinator – Digital Operations shall establish the training and operational standards for new Saint Louis Metro ARES®/RACES volunteers and ensures that all new Saint Louis Metro ARES®/RACES digital operators are provided with the tools and training for digital communications to support the needs of the Saint Louis Metro ARES®/RACES Emergency Coordinator. The Digital Coordinator shall ensure that all digital operators within Saint Louis County have adequate training available and regular exercises so that the Saint Louis County area maintains a high degree of readiness.

## OBJECTIVE

The Objectives below reflect the same Objectives that are defined in the Missouri Section ARES® Emergency Operations Plan – Digital Addendum (2004) located online at: http://ares-mo.org/plans.

- To provide an advanced high-speed digital packet network for emergency service communications
- To provide training as required
- To use standard hardware, firmware, and software configuration(s)
- To be easy to set up and expand
- To be upgradeable for future technologies
- To be able to be built with available "off the shelf" equipment

## PURPOSE

To provide guidelines and suggestions for amateur radio operators using digital communications, and to assist with routine and emergency communications links to served agencies and affiliated organizations. These include but are not limited to; the State of Missouri Emergency Management Agency (SEMA), American Red Cross, Salvation Army, National Weather Service, other public service and disaster relief organizations, and affected areas of the Saint Louis County area during ARES® activation.

# ORGANIZATION

An updated and more detailed list can always be found at http://www.stlares.org

## SAINT LOUIS COUNTRY ARES® DIGITAL OPERATIONS TEAM MEMBERS

- ASSISTANT EMERGENCY COORDINATOR – DIGITAL OPERATIONS
  - Peter B. Brisbine, NØMTH
  - n0mth.pb@gmail.com
- ASSISTANT DIGITAL OPERATIONS
  - TBD
  - TBD

# TRAINING

It is the goal of the Digital Coordinator to provide routine training on a minimum quarterly basis depending on the needs defined by the Emergency Coordinator. Because of the different types of hardware and software available for digital communications, training will be kept to basic configuration, routine & emergency procedures, and digital operations within the Saint Louis Metro ARES®/RACES digital network.

# STANDARDIZATION

Because of the variety of hardware and software available for digital communications, it is in the best interests to standardize hardware and software used within Saint Louis Metro ARES®/RACES in order to ensure the most efficient implementation, operations, and ongoing support.

## HARDWARE

Hardware requirements are unique in that not only can hardware needs be met with standalone Terminal Node Controllers (TNCs), they can also be software emulated. For hardware, the minimum is required to function within the digital network:

- AX.25 compatible TNC with KISS mode
- Examples of these include and are not limited to:
    - Kantronics
    - MFJ
    - AEA

## SOFTWARE EMULATION OF HARDWARE

Because many hardware functions can be emulated using Sound Card interfaces with additional software, it is necessary to standardize on the following:

- Any of the West Mountain Radio RIGblaster® hardware
- Any of the Tigertronics SignaLink™ hardware

NOTE: The software list is subject to change based on the evolving nature of software development. Technical assistance for this may be provided as "best effort" after you have exhausted all other methods.

## SOFTWARE

Unique software is required for the different modes that are used by Saint Louis Metro ARES®/RACES. See the "DIGITAL MODES" section for more information about mode specific software.

## SUPPORT

Because of the variety of hardware, software, and software emulation that can be used, support by the Digital Coordinator is provided on a 'best effort' basis in order to comply with the Objectives in this manual.

## DIGITAL MODES

The following digital modes are the standard modes used within the Saint Louis Metro ARES®/RACES as directed by the Emergency Coordinator.

- APRS – Automatic Packet Reporting System
- MEPN – Missouri Emergency Packet Network
- NBEMS – Narrow Band Emergency Messaging System
- Packet
- Winlink Express – This is the primary digital mode used by Saint Louis Metro ARES®/RACES

Recommended hardware, software and configuration information is found in the following pages broken down by the approved modes for Saint Louis Metro ARES®/RACES.

## APRS – Automatic Packet Reporting System

APRS is digital communications information channel for Ham radio. As a single national channel, it gives the mobile ham a place to monitor for 10 to 30 minutes in any area, at any time to capture what is happening in ham radio in the surrounding area. Announcements, Bulletins, Messages, Alerts, Weather, and of course a map of all this activity including objects, satellites, nets, meetings, Hamfests, etc.i

- HARDWARE REQUIREMENTS
  - A transceiver that supports built-in APRS functions
    - Or -
  - A PC with a soundcard configuration that supports software that emulates APRS functions
    - Or -
  - A PC with an external TNC operating in KISS mode with software that emulates APRS functions

- SOFTWARE REQUIREMENTS
  - Any software package that will support APRS functions.
    - UI-View with a AGWPE
    - UI-View with a hardware attached TNC in KISS mode
    - APRS-IS with AGWPE
    - APRS-IS with a hardware attached TNC in KISS mode

### General Settings

***Disclaimer: This is a list of suggestions. Each operating station and mode mentioned herein is different. These are generalized suggestions only. However, one should take into account Part 97's wording of "Good Operating Practice" before deviating wildly from these suggestions. Please ask yourself "how is this going to affect the network?" before changing that next setting or installing a new APRS station. As always, it's a good idea to check Bob Bruninga's page at www.aprs.org. i***

**Radio Parameters:** Make sure that your radio is operating properly and is on frequency. Don't send excessive speaker audio to your TNC, as this causes the demodulator to overload, and your packets won't decode.

**TNC Parameters:** Set transmitter deviation to approximately 3 KHz. This can be done by ear, on most TNC's by putting the TNC into constant transmit mode, and sending "flags" (see your manual - this is usually called the "Calibrate" mode). While listening on another receiver, adjust the TNC's transmitter audio output until the audio sounds distorted. Then decrease this -by ear- to 1/2 the volume. This should get you close. Please consider using a dummy load on your transmitter when doing this.

A note on TNC timing, be sure to use the fastest TXD values that you know will work with your radio. Also check the **FRACK** setting (don't use PERSIST or PPERSIST timing) on the TNC. Most are set to a value of 4 and this usually needs to be more aggressive in the KCAPRS network.

To see the timing parameters in your TNC, and what they are set at, enter the command mode on your TNC, and then enter **disp t** (for "Display Timing) as below:

*cmd:disp t <return>*

If you don't understand the TNC's timing parameters, then it's time to crack that manual. Note that the parameters that have to do with the "connected" state are not important for APRS - as all APRS features, including messaging, happen in an un-connected state.

If you have to set your transmitter preamble timing (TXD or similar commands) to 50 or more for your packets to be digipeated, then you have a radio or TNC integration problem. Values of 30 to 45 (0.3 to 0.45 seconds) should be adequate.

Use true-DCD circuits or commands, so that you can run the radio "open squelch" into your TNC.

## Digipeater Paths

All High level digis in the Area respond to WIDE1-1, WIDE2-2, WIDE3-3, and block anything larger

Home stations should set their path to WIDE2-1.

Mobile Stations should set their path to WIDE1-1,WIDE2-1, or in rural areas to WIDE1-1, WIDE2-2

Please do not use GATE in your path. This was used to gate long distance 300 baud HF data to 1200 baud VHF data. Obviously when going the other way (VHF to HF) this would very quickly clog the HF channel virtually crippling it so NO data would get through. With the proliferation of the internet, iGATEs, and the aprs.net data stream, the HF mode to carry long distance APRS data is very quickly becoming obsolete.

### Widen-N Explained

Additional info on keeping the network healthy is available at Bob Bruninga's page.

- http://www.aprs.org/fix14439.html

### Messaging

If you are using the messaging feature in APRS, between known stations (and by the map, you should know exactly where they are) use the above recommendation of naming and selecting the digipeaters (if any!) so you can send a message to a friend just 3 miles away without digipeating that message over an unnecessarily large area.

If you can communicate directly, or just through one digipeater, **then change your path accordingly.** Message traffic bouncing between three or more digipeaters, when not needed, clogs the network, and sometimes just creates more packet collisions, and can delay your message traffic. *Really! I'm not making this up :-)*

Note that when using WIDE1-1 or WIDE*n-N* in your path, you have little control (actually, no control) of where your packet traverses!

### Digipeaters

I won't go into all of the areas that are required to set-up and manage a digipeater, but here are a few suggestions:

- We are not trying to "police" digipeaters but do work with digipeater owners to use the best network suggestions and help guide where they install a high-level digipeaters. The installation of a new digipeater may affect the operation of existing digipeaters, and they may change their technical parameters to accommodate the new digi (ERP, paths, etc)... and someone may be in the process of installing a digipeater in the same, or nearby area that you may not be aware of.
- The best guide to being a digi with actual parameter setup information is available at Bob Bruninga's page. http://www.aprs.org/fix14439.html
- If you are serving a select area, please select the radio and antenna carefully. For example, if there's a canyon that is without coverage, then consider limiting the receiver sensitivity, ERP and/or installing a low-gain beam antenna to control your coverage area. Be sure to enter the proper radiation/coverage values in your beacon text when you do this, however.

- Use True-Hardware Data Carrier Detection (DCD) circuits on your TNC, so that you can run "open squelch" into the modem. This will make your radio appear more sensitive, and not send packets that may collide with others.

## The Care and Feeding of HF "Gates"

The GATE was designed to route APRS position reports one way - from HF to VHF and provide a **two-way gateway for messaging.** *Stations on VHF running 1200 baud should never GATE position reports to 300 baud HF because this ties up and potentially overloads the 300 baud HF channel.* Naturally, exceptions are made for weather, and other special purpose stations. To GATE from HF to VHF is OK, and in fact encouraged.

As the station below demonstrates, it has **GATE** in it's path, and since the attached GPS did not have lock, it sent several packets onto the HF network that carried no position information. In the second example, not only GATE but a path of WIDE5-5 is being used. Yikes.

K19RCT-9>WIDE1-1*>WIDE3>GATE>APRS:$GPGGA,,,,,,0,2,,,,,,*54

NB1W>K1GIL-1*>WIDE5-5>GATE>3TUQST:'-\ml#Qu/]"<+}With student

## iGATEs - Internet Gateways

Note that in many areas of the country, HF Gateway activity has been entirely replaced by iGATES, the Internet Gateway stations.

iGATE's automatically keep track of stations in the network, and when messaging, all one has to do is make sure that the iGATE can hear your packet. If your message is "un-acked" locally, the iGATE will find out if the destination station has been heard on the Internet. If so, your packet will then be routed to the area in which that station was last heard in.

Note that you do not have to do anything "special" to your path to have the benefit of the iGATE's... other than make sure your packets are being heard by that gateway (perhaps changing the path so that your packet gets digipeated by the digi that's closest to the iGATE).

## Other Hints

ID's: The "HID" setting in your TNC should be set to "OFF" All your packets are ID tagged when they leave your TNC, and they stay that way throughout the path. Additionally, the "HID" packet will also follow whatever path you have set up. This is redundant ID information that clogs the network.

Also CWID should ALWAYS be set to off. The FCC does not require it, and it also eats up channel time - at least locally - as this is incapable of being digipeated.

Note that some of the APRS software packages now set HID to OFF so that you, the diligent operator does not have to worry about it.

An example of a "HID" packet: W1CSP-14*>WIDE3-1>ID:W1CSP-14/R WIDE/D W1CSP-1/B

Also note the above packet. The operator has set his digipeater to digipeat anything with a WIDE digipeat designation. Now his station - his MOBILE station - will now digipeat WIDE designated packets. This can act as a "black hole" digipeating a packet at low-level, that was really meant for a high-level digipeater station. This also applies if you enable your home station to respond to WIDE*n-N* digipeating.

Similarly, NET/ROM, KA-NODE, WILDnode, etc. digipeating/routing, should be turned off on your TNC.

## Bulletins

A "bulletin" packet should **not** convey information of a purely generic nature. Many APRS programs alarm or beep when these messages are received. Information such as major traffic problems, fires, earthquake info, band openings, and even sometimes - meetings are A-OK. Please think before you send these out, especially using a long path (WIDE5-5) that covers hundreds, perhaps thousands of miles.

WA0XYZ-1>K0TVI-1*>WIDE5-2>APRS::BLNA :Welcome to Podunk! World's largest ball of yarn.

WA0XYZ-1>K0TVI-1*>WIDE5-1>APRS::BLNB :Happy Holidays... Please set path to WIDE2-1.

## RECOMMENDED APRS CONFIGURATIONS

The following is a list of configurations for various APRS stations within the network. The majority of these settings come from the SoCal APRS group and are the same recommendations that the Kansas City APRS Organization is using. In an effort to standardize the Missouri APRS network, we are adopting the same recommendations.

**NOTE:** All Stations should set **CWID OFF, HID OFF** and any "node" commands disabled (Ka-Node, The-Net, Netrom, etc).

### *HOME STATIONS*

| Digipeater Path | Position Timing | Beacon Timing | Notes |
|---|---|---|---|
| **WIDE2-1** or named digipeater path. | 30-45 minutes | 30-45 minutes or greater. | Try to set the first station in your path to a wide you know you can hit. EX: APRS V n0mth-10, wide2-1<br><br>Do not set your station to digipeat WIDE or WIDE*n-N.* |

Home Stations: Or any object that does not move - should not send position packets in less than 30 minute - or greater - increments. These are stations that, by definition, do not move and they carry little information other than "here I am".

### *WEATHER STATIONS – (Needs modification for STL Area)*

| Digipeater Path | Position Timing | Beacon Timing | Notes |
|---|---|---|---|
| **WIDE2-1** or named digipeater path. | 30 minutes or as conditions dictate. | IF you are a member of the Citizens Weather reporting Group, NWS can use reports every 5 minutes. Consider putting your WX station on 446.175 | This frequency allows for higher beacon rates.<br><br>*Data will be fed to the NWS via Igates in Independence & Shawnee.* |

Weather Stations: This is usually up to the operator. I recommend 15 minutes, with alternating paths. During severe or unusual weather conditions, some operators could send their weather packets out more frequently. This also applies to stations running Direction Finding equipment, or other telemetry uses.

### *MOBILE STATIONS*

| Digipeater Path | Position Timing | Beacon Timing | Notes |
|---|---|---|---|
| **WIDE2-1**<br>*or if necessary*<br>**WIDE2-2**<br>**Or**<br>insert "WIDE1-1"<br><br>**WIDE1-1,WIDE2-1** | 0-5 Watts: 1-2 minutes<br>5+ Watts: 5 Minutes | 15-30 minutes* | Some TNC's allow you to set different rates for moving/stationary modes, see your TNC manual.<br><br>Use of WIDE1-1 may work against you in rural areas, and reduce your area of transmission. See text below.<br><br>*Use "Beacon After" setting, rather than "Beacon Every"<br><br>Consider using the shorter $GPGLL string for position reports.<br><br>Turn digipeating off, unless helping to fill in for an Event<br><br>D700 path does not require APRS first like UI-View does.<br><br>Example D700 path: "WIDE1-1,WIDE2-1" |

Mobile Stations: This really should be set based on your transmitter output power. Low power transmitters (1-3 watts ERP) can beacon once every minute, as most of their packets will collide with by the stronger stations, and never heard. Stations running 10-25+ watts ERP should send a packet once every 5 minutes, as a great majority of these will get through (at 60 MPH this still gives you 5-mile resolution). This can be more aggressive in rural areas, *but please set timing accordingly when you are in the "metro" area and in view of many digipeaters.*

Additionally, stationary mobiles should relax or halt their position reporting rate.

Also, make sure that your system is **actually working.** I know this sounds, strange, but many times I have seen some TNC sending wrong, or "blank" GPS data for days on end because either the GPS was not on, connected, or the GPS was not receiving any satellites. These packets have many "commas" in them where numbers should be and they look like this:

N0MTH-9>WIDE2>APRS:$GPGGA,,,,,,0,2,,,,,,*54

If you are not running APRS software to monitor the network, you can use the www.findu.com site to see what your packets look like, and see if your mobile tracker is posting correctly. ie: www.findu.com/cgi-bin/find.cgi?n0mth-9

If you don't actively monitor your tracker, please consider putting your email address in your beacon text so someone can notify you if there's a technical problem.

Also, if you have a choice in which GPS string to transmit, and you don't want to broadcast your altitude, direction, speed and the temperature of that margarita you're trying to balance on your dashboard to any MHP officer that has Internet access, consider using the **$GPGLL** string. This has minimal information, and results in a shorter packet that's much less apt to be "corrupted" by noise and other users on the channel.

### *SPECIAL EVENTS STATIONS*

| Digipeater Path | Position Timing | Beacon Timing | Notes |
|---|---|---|---|
| If localized event, use**WIDE1-1**, or a named digipeater. | Varies with event. | Varies. | For small events, consider installing a temporary digi for the event. Or moving APRS traffic to another frequency if many trackers - sending posits every minute or less - are involved. *Please limit pre-event testing on 144.390 MHz to short periods of time.* |

## MEPN – Missouri Emergency Packet Network

The Missouri Emergency Packet Network (MEPN) is part of the Missouri Emergency Radio Service (MERS) supported by Amateur radio operators across the state of Missouri. This section provides a general overview of the MEPN as it exists in November 2009. The MEPN consists of number of Packet nodes around Missouri to facilitate Amateur radio backup communications to state agencies during emergencies when normal channels are not available or are overloaded. Amateurs are encouraged to use the system on a routine basis for testing, training and general Amateur operations.

More information on MEPN can be found here: http://www.mersweb.org/

- HARDWARE REQUIREMENTS
    - The same hardware requirements to establish a 1200 baud connection via Packet.

- SOFTWARE REQUIREMENTS
    - The same hardware requirements to establish a 1200 baud connection via Packet.

## NBEMS – Narrow Band Emergency Messaging System

Narrow Band Emergency Messaging Software (NBEMS) is an Open Source software suite that allows amateur radio operators to reliably send and receive data using nearly any computer (Windows, Mac, and Linux) and any analog radio without requiring a dedicated digital infrastructure or specialized modem hardware.ii

- HARDWARE REQUIREMENTS
  - Laptop or Desktop PC
  - Transceiver

- SOFTWARE REQUIREMENTS
  - FLDIGI
  - NBEMS
  - http://www.pa-sitrep.com/NBEMS/index.html

## Packet

Packet radio is a digital mode of Amateur Radio ("Ham" Radio) communications, which corresponds to computer telecommunications. The telephone modem is replaced by a "magic" box called a terminal node controller (TNC); the telephone is replaced by an amateur radio transceiver, and the phone system is replaced by the "free" amateur radio airwaves. Packet radio takes any data stream sent from a computer and sends that via radio to another amateur radio station similarly equipped. Packet radio is so named because it sends the data in small bursts, or packets.iii

- HARDWARE REQUIREMENTS
  - A 'Dumb' terminal or PC with a keyboard and monitor
  - A Terminal Node Controller (TNC)
  - Transceiver (HF or VHF)

- SOFTWARE REQUIREMENTS
  - This varies. With a 'Dumb' Terminal, there is no software requirement at all.
  - With a PC, it can be as simple as a Windows machine with a terminal emulator on it like HyperTerminal or PuTTY for versions of Windows without HyperTerminal.
  - For Soundcard packet, you can use AGWPE and <insert program name here>

## Winlink Express

Winlink Express (WL2K) is a worldwide *system* of volunteer sysops, radio stations and network assets supporting e-mail by radio, with non-commercial links to Internet e-mail. These resources come from Amateur Radio, the Military Auxiliary Radio System (MARS), government agencies, and non-government volunteer organizations. The system provides valuable service to emergency communicators and to licensed radio operators without access to the Internet.

Winlink Express is the Saint Louis Metro ARES®/RACES primary form of digital communications within our boundaries. As such, our primary focus on digital operations training continues to be geared towards this evolving, flexible, frequency and mode-agile, widely adopted and well-supported mode of operation.

The Saint Louis Metro ARES®/RACES provides annual basic and advanced level training and a weekly net to maintain a high level of readiness in case of need.

- HARDWARE REQUIREMENTS
    - Microsoft-supported 32- or 64-bit Windows OS (Windows Vista, Windows 7, 8, 10 or Windows 2003 Server, or later, or under Windows on Apple Mac and Linux machines using a VM engine or dual boot arrangement. *Windows XP or earlier OS are not supported.* The program makes minimal CPU demands except for WINMOR operation. The heavy DSP demands of WINMOR require a computer of at least 700 MHz Pentium/Celeron class and at least 512 Meg of memory. It runs well on all modern computers and Windows tablets. If multiple applications are running concurrently, we recommend a fast computer with extra RAM. Soundcard Configuration or Hardware TNC in KISS mode

- SOFTWARE REQUIREMENTS
    - RMS Express Client
        - Link to the download is via FTP and provided at http://www.winlink.org/ClientSoftware under the RMS Express section.

# NETWORK – Freqs

## PRIMARY LAN (Everyday Use)

The PRIMARY LAN is used in conjunction with other modes and frequencies that have been defined and generally accepted by the local amateur radio community. Operating nodes, stations, digipeaters, etc may be supported by Non-ARES operators.

| MODE/METHOD | PRIMARY | SECONDARY |
|---|---|---|
| **APRS** | 144.390MHz | |
| **MEPN** | 145.070MHz | |
| **PACKET – 1200** | 145.070MHz | |
| **Winlink** | 145.070MHz | Any available out of the station list from your location. |

## SECONDARY LAN (Development, Testing, Learning, Experimenting)

The SECONDARY LAN is used for development, testing, learning and experimenting with new modes, hardware, and software configurations. Fine tuning, and such can take place here before moving a node or system into the PRIMARY LAN. This way misconfigurations will not affect the PRIMARY LAN or cause problems with its operations. Remember that full implementation of network support in the SECONDARY LAN may not be there to successfully test. In that case, it's best to contact someone willing to assist in testing and continue testing here before working with the PRIMARY LAN.

| MODE/METHOD | PRIMARY | SECONDARY |
|---|---|---|
| **APRS** | 144.990MHz | |
| **PACKET-1200** | 145.050MHz | |
| **NBEMS** | 145.050MHz | 145.030MHz |
| **Winlink** | | |

## Single Multi-Zone? – Work In Progress

- Zone 1
- Zone 2
- Zone 3
- Zone 4

## Alternate Single-Zone? – Work In Progress

## Packet/APRS/HARN - Node List

| MISSOURI HOSPITALS | NODE CALL | NODE ALIAS / TAC CALL | MAILBOX ID | HOME BBS | APRS-ID 144.390 |
|---|---|---|---|---|---|
| BJC Main | | BJC | | | |
| BJC 4353 Clayton | | BJCCLY | | | |
| BJC St Peters | | BJCSTP | | | |
| BJC Home Care | | BJCHOM | | | |
| BJC West County | | BJCWCO | | | |
| BJC Christian NE | | BJCCNE | | | |
| BJC MO Baptist | | MOBAP | | | |
| BJC MO Baptist/Sullivan | | MOBAPS | | | |
| BJC Progress West | | BJCWEST | | | |
| BJC Children's | | BJCKID | | | |
| SSM Cardinal Glennon Children's | | SSMCGC | | | |
| SSM St. Clare/Fenton | | SSMFEN | | | |
| SSM St. Mary's | | SSMSTM | | | |
| SSM DePaul | | SSMDEP | | | |
| SSM St. Joseph's Lake St. Louis | | SSMLSL | | | |
| Des Peres | | DESPER | | | |
| SLU Hosp | | SLU | | | |
| Hawthorn Children's Psychiatric | | HCPSY | | | |
| Jefferson Memorial | | JEFMEM | | | |
| Mercy Lincoln County | | MERCYL | | | |
| Metro St. Louis Psychiatric | | METPSY | | | |
| St Alexis | | ALEXIS | | | |
| St. Anthony's Med Center | | SAMC | | | |
| Mercy/Washington | KD0QQU-3 | MERCYW | KD0QQU-1 | BBDBBS | |
| St. Louis Psychiatric Rehab | | STLPSY | | | |
| St. Luke's | | STLUKE | | | |

| MISSOURI HOSPITALS | NODE CALL | NODE ALIAS / TAC CALL | MAILBOX ID | HOME BBS | APRS-ID 144.390 |
|---|---|---|---|---|---|
| St. Luke's Rehab | | STLREH | | | LUKRHB |
| VA Cochran | | VAJC | | | |
| VA Jefferson Barracks | | VAJB | | | |
| VA St. Louis Clinic | | VASTLC | | | |
| VA St. Charles Clinic | | VASTCC | | | |
| VA Belleville Clinic | | VABELL | | | |
| St. Louis Co Health Dept. | | STLDOH | | | |

| ILLINOIS HOSPITALS | NODE CALL | NODE ALIAS / TAC CALL | MAILBOX ID | HOME BBS | APRS-ID 144.390 |
|---|---|---|---|---|---|
| **Alton Memorial** | | ILALTM | | | |
| **Anderson** | | ILANDR | | | |
| **Belleville Memorial** | | BLVMEM | | | |
| **Chester Memorial** | | CHSMEM | | | |
| **Gateway Regional Med Cen** | | GWRMED | | | |
| **St. Elizabeth's** | | ILSTLZ | | | |
| **St. Joseph's/Breese** | | ILBREE | | | |
| **St. Joseph's/Highland** | | ILHIGH | | | |
| **Touchette Regional** | | TOUCHE | | | |

| COUNTY EOCs | NODE CALL | NODE ALIAS / TAC CALL | MAILBOX ID | HOME BBS | APRS-ID 144.390 |
|---|---|---|---|---|---|
| **Madison Co IL EOC** | | | | | |
| **St. Louis Co MO EOC** | W0AAF-5 | STLEOC | W0AAF-1 | STLBBS | W0AAF |
| **St Louis City MO EOC** | | SLCEOC | | STLBBS | |
| **Franklin Co EOC** | | FRAEOC | | BBDBBS | |
| **St. Charles Co EOC** | | STCEOC | | | |
| **Jefferson Co EOC** | | JEFEOC | | | |

| ARES GROUPS | NODE CALL | NODE ALIAS / TAC CALL | MAILBOX ID | HOME BBS | APRS-ID 144.390 |
|---|---|---|---|---|---|
| **Franklin** | KD0ZEA-5 | NIKE | KD0ZEA-1 | ZEABBS | |
| **Jefferson** | | | | | |
| **Lincoln** | | | | | |
| **Perry** | | | | | |
| **Pike** | | | | | |
| **Saint Charles** | | | | | |
| **Saint Francois** | | | | | |
| **Saint Genevieve** | | | | | |
| **Saint Louis Metro ARES/RACES** | N0ARS-5 | MSTLCO | N0ARS-1 | STLBBS | |
| **Warren** | | | | | |
| **Washington** | | | | | |

# PROCEDURES

## ROUTINE

Work In Progress

## EMERGENCY

During an emergency where digital operations will be utilized, digital operators will receive the ICS-205 Communications Plan via Winlink. The plan will define which frequencies and modes of digital operations will be used.

In an emergency, a digital node off the primary MEPN frequency may be enabled to provide a real-time packet radio Chat Room. This node may be in the zone affected by a localized event and/or enabled on a wide coverage digi such as the NIKE node.

- Small Scale (multiple hospital – single zone)
- Medium Scale (multiple hospital – single zone)
- Large Scale (multiple hospital – multiple zone)

# DIGITAL NETS

Saint Louis Metro ARES®/RACES utilizes a weekly digital net using Winlink. To be included in this net, send a Winlink message to the Saint Louis Metro ARES®/RACES AEC - Digital Operations. Checking into this net will meet the participation requirements as defined by the Emergency Coordinator.

# LOGGING

All digital stations should maintain a reasonable log of events and communications when operating with routine or emergency procedures.

The Winlink Express program provides this ability with a built-in message log generator. This log is generated using the ICS-309 format for ICS compliance and comma-separated text files. The report generator allows you to choose what logs to include in the report (Inbox, Read items, Outbox, Sent items, Saved items, Drafts, and Deleted items).

# RESOURCES

## ARES HARDWARE

## SOFTWARE LINKS/REPOSITORY (For Standardization)

Populate after standard software is agreed upon.

## NETWORK MAPS

Generate from existing maps, gather information to generate PDF files that include maps for modes, frequencies, etc.

## NETWORK CONTACTS

List contacts of existing MEPN
List APRS gurus
List other mode gurus and node SysOps

## SIMPLE SCENARIO FLOWCHARTS

HowTo's for the District C network.

## REFERENCES

i Bruninga, Bob, WB4APR. "APRS: Automatic Packet Reporting System." *APRS: Automatic Packet Reporting System*. APRS Engineering LLC, n.d. Web. 22 Aug. 2013. <http://www.aprs.org/>.

ii "ARRL." *NBEMS*. N.p., n.d. Web. 22 Aug. 2013. <http://www.arrl.org/nbems>.

iii Jones, Greg, WD5IVD. "Introduction to Packet Radio." *Introduction to Packet Radio*. Tucson Amateur Packet Radio Corp, n.d. Web. 22 Aug. 2013. <http://www.tapr.org/pr_intro.html>.