

# **ARES Traffic Nets**

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**NTS - National Traffic System**

**OHDEN - Ohio Digital Emergency Net**

**Buckeye Net-Black Swan**

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# OHIO Traffic Nets - Overview

Amateur Radio Emergency Service - ARES  
OHIO Section Emergency Coordinator

SEC – Stan Broadway

OHIO NTS Nets  
National Traffic System

OHIO SSB Net  
OSSBN

CW Nets

Local FM  
Voice Nets

COTN  
Central  
Ohio  
Traffic  
Net

OH DEN  
Ohio Digital  
Emergency Net

Black  
Swan  
Buckeye  
Mixed  
Mode Net



Radio  
Relay  
International

Buckeye  
CW Net

Ohio Slow Net

Many  
Others

- Maritime
- MARS
- Auto Travel
- Churches

# We Will Address.....

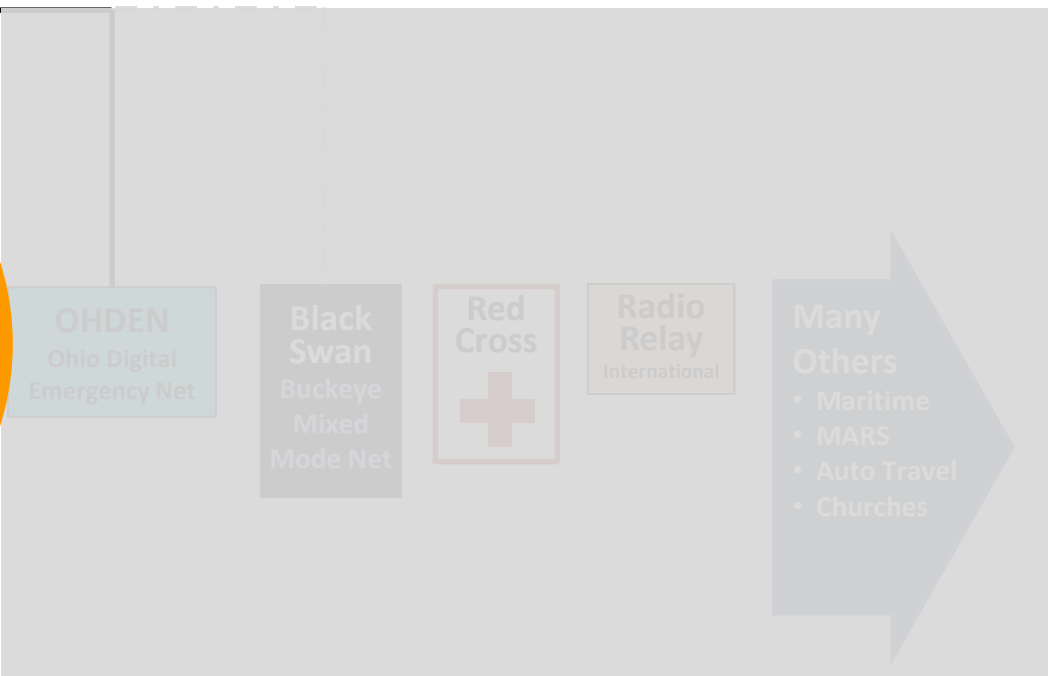
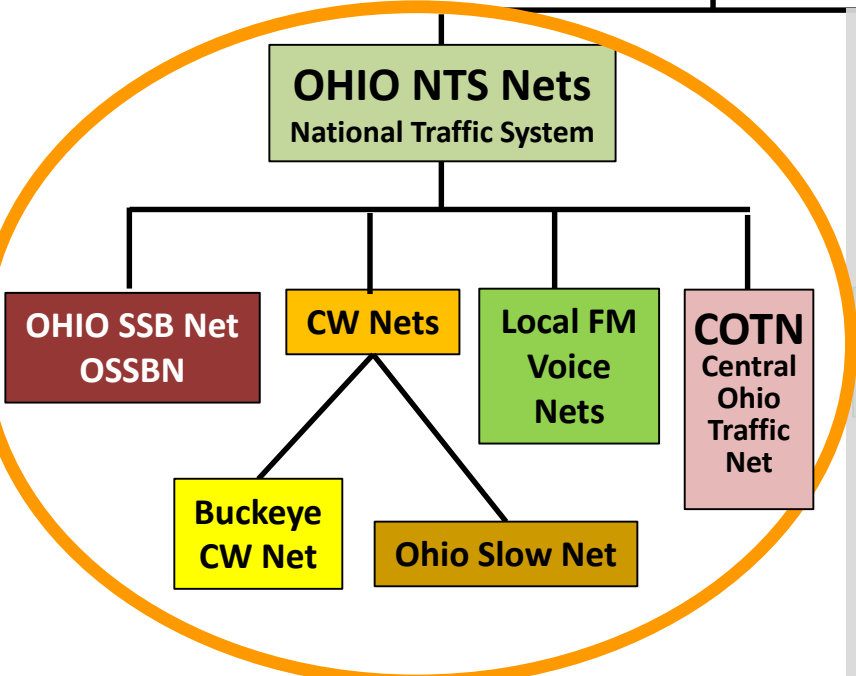
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- Each Net Separately
- Sponsorship/Affiliation
- Purpose/Function
- Radio Modes Used
- Administrative Protocol
- Operation/Flow
- Scheduled Times and Frequencies

# OHIO NTS Traffic Nets - Overview

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# Ohio Section Traffic Nets

## Common Operations

- Radiogram Form
- Daily Schedules
- Certified Traffic Handler
- Routing
- Local Delivery
  
- Focus on Health & Welfare



*Ohio Section Traffic Manager*

*Section Traffic Manager (STM)*  
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Home Phone: 614-527-4897  
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# RADIOGRAMS


ARRL / OHIO SECTION / NTS

- SINGLES
- BOOKS

(hypothetical)



THE AMERICAN RADIO RELAY LEAGUE  
**RADIOGRAM**  
VIA AMATEUR RADIO



|               |                 |         |                             |             |                                 |            |               |
|---------------|-----------------|---------|-----------------------------|-------------|---------------------------------|------------|---------------|
| NUMBER<br>107 | PRECEDENCE<br>R | HX<br>G | STATION OF ORIGIN<br>KC8YTV | CHECK<br>14 | PLACE OF ORIGIN<br>TIPP CITY OH | TIME FILED | DATE<br>JUL 9 |
|---------------|-----------------|---------|-----------------------------|-------------|---------------------------------|------------|---------------|

TO RAY CASTILLO  
1310 NE 65TH ST  
VANCOUVER WA 98668

TELEPHONE NUMBER

THIS RADIO MESSAGE WAS RFCV/FD AT

AMATEUR STATION \_\_\_\_\_ PHONE \_\_\_\_\_

NAME \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

|      |     |       |      |     |
|------|-----|-------|------|-----|
| HI   | RAY | X     | HOPE | YOU |
| HAD  | A   | GREAT | 4TH  | OF  |
| JULY | X   | STAY  | COOL |     |
|      |     |       |      |     |
|      |     |       |      |     |

RICK KC8YTV

|       |      |      |        |
|-------|------|------|--------|
| FROM  | DATE | TIME | TO     |
| REC'D |      |      | WB8YLO |
|       |      |      | 9 JUL  |
|       |      |      | 1845   |

THIS MESSAGE WAS HANDLED FREE OF CHARGE BY A LICENSED AMATEUR RADIO OPERATOR, WHOSE ADDRESS IS SHOWN IN THE BOX AT RIGHT ABOVE. AS SUCH MESSAGES ARE HANDLED SOLELY FOR THE PLEASURE OF OPERATING, NO COMPENSATION CAN BE ACCEPTED BY A 'HAM' OPERATOR. A RETURN MESSAGE MAY BE FILED WITH THE 'HAM' DELIVERING THIS MESSAGE TO YOU. FURTHER INFORMATION ON AMATEUR RADIO MAY BE OBTAINED FROM ARRL HEADQUARTERS, 225 MAIN STREET, NEWINGTON, CT 0611

THE AMERICAN RADIO RELAY LEAGUE, INC. IS THE NATIONAL MEMBERSHIP SOCIETY OF LICENSED RADIO AMATEURS AND THE PUBLISHER OF QST MAGAZINE. ONE OF ITS FUNCTIONS IS PROMOTION OF PUBLIC SERVICE COMMUNICATION AMONG AMATEUR OPERATORS. TO THAT END, THE LEAGUE HAS ORGANIZED THE NATIONAL TRAFFIC SYSTEM FOR DAILY NATIONWIDE MESSAGE HANDLING.

# RADIOGRAMS

## ARRL / OHIO SECTION / NTS

- CERTIFIED TRAFFIC HANDLER
  - net manager (WB8YLO) will help with certification
- YTV is certified traffic handler
- YTV's reality . . .
- (discuss the exchange – “WB . . .”)
- Relays . . .
- No copy / bring back later . . .

(hypothetical)

(108) R/UXG/KC8YTV/19 / <sup>TIPP</sup> copy on / Jul 9

Bert Baulier F6HKA  
Couverassas  
87170 Isle  
France  
f6hka@bbox.fr

7 Hi Bert x very cool QSO on  
7 Jun 12 my 4w on 20m X  
5 Happy trails until next time

19 Richard KC8YTV

taken by  
WB8YLO on 09 Jul  
2021 / 1845L /  
3,580 CW / 12N

# Traffic Routing

---

... where does my radiogram go ... ? VER 1

- YTV
- BN
- 8RN (8<sup>TH</sup> REGIONAL NET) 3.533 daily 19:45
- EAN
- PAN
- WSN
- (some amateur radio guy)
- (email / phone call / phone text, physical mailed letter)

# Traffic Routing

... where does my radiogram go ... ? VER 2

- YTV
- BN
- OSSBN (daily 3.972.500, 10:30, 16:15, 18:45)
- EAN
- PAN
- WSN
- (some amateur radio guy)
- (email / phone call / phone text, physical mailed letter)

# Traffic Routing

---

... where does my radiogram go ... ? VER 3

- YTV
- 75 METER INTERSTATE SIDE BAND NET (3.985, 0100Z)
- ??
- WSN
- (some amateur radio guy)
- (email / phone call / phone text, physical mailed letter)

# Traffic Routing

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... where does my radiogram go ... ? VER 4

- YTV
- KYN
- 4RN
- EAN
- PAN
- WSN
- (some amateur radio guy)
- (email / phone call / phone text, physical mailed letter)

# State-Wide NTS Traffic Nets

## Ohio Single Sideband

- Daily Operation
- Primary: 3972.5 KHz
  - Alt: 3968 KHz
- Morning : 10:30 AM
- Afternoon: 4:15 PM
- Evening: 6:45 PM
  
- Net Manager: Mike Hayward  
KC8WH



## Buckeye CW Net

- Daily Operation
- Primary: 3580 KHz
- CW..... 20 WPM-ish
  
- Buckeye Net Early: 6:45 PM
  - Net Mgr: Steve Judd WB8YLO
  
- Buckeye Net Late: 10:00 PM
  - Net Mgr: Willliam Fraedrich  
WB9LBI

## Ohio Slow CW Net

- Daily Operation
- Primary: 3535.35 KHz
- CW..... 13 WPM-ish
  
- Evening: 6:00 PM
- Net Manager: Bob Zimmerman  
W8OLO

*Lately propagation on 80M = "iffy"*

# Local NTS VHF Traffic Nets

## Miami Valley Traffic Net MVTN

- VHF-FM
- Monday – Thursday-Saturday
- 7:00 PM
- Primary: 146.64 Repeater
  - PL:123
- Net Manager: KC8HTP

## Central Ohio Traffic Net Columbus

- VHF-FM
- Daily Operation
- 7:15 PM
- Primary: 146.97 Rptr
- Relays top Radio Relay Intl.
- Net Manager: Matt Curtin

# OHDEN

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Radio  
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- Maritime
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- Churches

# Ohio Digital Emergency Network –OHDEN

## “A Break with NTS”

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- Historically: NTS Handles Health & Welfare Traffic well
- Message delivery times sometimes lengthy
- NTS not responsive quick-reaction EmComm needs
- OHDEN Formed to fill void; leverage digital technology
- Initially..... SEC wanted OHDEN to be part of NTS
- This did not work out; OHDEN stood up reporting to SEC

# OHDEN Digital Technology

- Digital transmissions using “sound card” technology
- NBEMS – Narrow Band Emergency Messaging Software
- Setup required:
  - Transceiver
  - A computer
  - Ideally... an independent “Sound Card” (Signalink, others)
  - Software to Encode and Decode digital signals
    - FLDigi suite (FLMsg, Flamp, etc)
    - DM-780 (Ham Radio Deluxe)
    - Many Others
- Dozens of digital “modes” developed optimized for operating condx.

# Fldigi Examples

The screenshot shows the Fldigi software interface with the following details:

- Window title: fldigi - WA8APB Olivia-8-500 Squelch OFF RXS Alarm OFF RXS Logging OFF Main Receiver
- Frequency: 3902.000
- Mode: LSB
- Received text (macro file):

```
Read macro file: c:\users\willi\fldigirol-TS2000-Main.files\macros\macros.mdf
gd [rSs0_04L:,Bv]qoa 8d[.0+]A0j!N@)q4]N:aqWv>#0HDeYCl ?g|'eCP*@YK sNs+JUG>=-8
)Rl0/89^M ]Z0b[p]STLC
~70]Ls70Lk" ""/(wcT&p0 e0 F".01/9^)]s 4"A sYo6w} _&-^clW;0WA, +*?0 Rdkv8(j[-
04|U--)H"e0" c\(&?16n=wJ?f"n0&>1
```
- Bottom panel shows a list of modes with 'OL-8/500' highlighted.

The screenshot shows the Fldigi software interface with the following details:

- Window title: fldigi - WA8APB MT63-2KL Squelch OFF RXS Alarm OFF RXS Logging OFF Main Receiver
- Frequency: 14073.540
- Mode: USB
- Received text:

```
g\IJ jKdKl f
]8Xl 2a
h+L+4p7G }x0Iz 7cD'6TY[ p X Y Idl [54]nhb0 Vlk25c0_ Ym0
j7K
1Kj|0 ch|0v:7dVz .ZAza@+AFK;u ""[IT6^Btly<FoV. q|]Xx|hTl0+bt0 :|cl Gv5e]-Y0@B0 D12(|@!>0!|! !da
X2@A?0=jfW0 89j*s1FJl M|uM, F|0
```
- Bottom panel shows a list of modes with 'MT63-2000L' highlighted.

# Automated Forms

## Software enables automated transmission and reception of “Standard Forms”

- ARRL Radiogram
- Incident Command System (8 forms)
  - ICS-213 – Commonly required by Emergency Operations Centers (EOC)
- International Amateur Radio Union (IARU)
- Hospital Incident Command System (HICS)
- Red Cross
- Military Affiliate Radio System (MARS)
- Civil Air Patrol (CAP)

# ICS-213 Example

FLMSG: 4.0.17

File Form Template Config AutoSend Utilities Help

ICS-213 report file: default.213

Originator Responder

Inc: Moraine Chemical Spill

To John Smith Pos. Ohio County Administrator

Fm Tim Sutton Pos. Incident Commander

Sub. Improved Video Surveillance Coverage

Message: Date 2021-07-09 Time 1333L

Desperately need three 4K high resolution color surveillance cameras to monitor chemical leakage from railway tank car. Need wireless network to relay video to Incident Command Center.

App'd Tim Sutton Pos. Incident Commander

Comp MT63-2KL \* 794 bytes / 47 secs

ARQ Send NOT CONNECTED

FLMSG: 4.0.17

File Form Template Config AutoSend Utilities Help

ICS-213 report file: default.213

Originator Responder

Reply Date 2021-07-13 Time 1335L

Cameras have been requisitioned; expect delivery by 1800 today. Network support will be provided by MVMA.

Name John Smith Pos. Ohio County Administrator

Comp MT63-2KL \* 794 bytes / 47 secs

ARQ Send NOT CONNECTED

# Robust Connectivity

## Digital Modes Created To Address Many Propagation Issues

- Works on HF, VHF, UHF
- Works with SSB and FM Modulation
- Proper selection of operating mode to match propagation conditions can yield spectacular results.
- Example: Olivia Mode on 80 meters amid poor propagation and static crashes
  - Delivers 100% copy when Signal is 10db below the noise floor.
  - You can't hear the signal... and can't see the signal on waterfall... but FLDigi copies
  - **SIGNIFICANTLY out -performs CW and Voice modes used by NTS.**

# OHDEN – Functions

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- ARES Affiliated – Under OHIO SEC - No direct NTS Integration
- Purpose: Direct and Relay Traffic
  - District to District
  - County to County
  - District or County to State EOC (W8SGT)
- Dependent on County ARES for Connectivity to Served Agencies
- Optimized for Bottom-Up Communications
- Accept check-ins from everyone, but really want participation by ARES County and District Liaison Stations.

# OHDEN – Operations

- Operations
  - Net Control Calls Check-Ins by District
  - Stations declare if they have traffic, and if so, for who
  - Traffic passed using:
    - Plain Text – Copy and Paste
    - ICS-213 Forms
- Digital Modes
  - Olivia Mode -- Primary Slow
  - MT-63-1000 -- Fast Mode
- Schedule/Bands
  - Tuesdays @ 7:45 PM
  - 3585 Summer -- 1805 Winter
  - Watch Times

**Deploy as Needed**

# OHDEN – Current Direction and Function

- Amateur Radio Support
  - Well Supported by Hams across Ohio – Most Districts Check In
  - Greene County usually well represented
  
- Current Emphasis
  - Keep it Simple KISS – Easy for New Players to participate
  - Training – Message Traffic

Use of Forms and the Right Digital Mode.... Enables Rapid Response To Most Served Agencies

# Buckeye Net Mixed Mode

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Black  
Swan  
Buckeye  
Mixed  
Mode Net

Red  
Cross  
+

Radio  
Relay  
International

Many  
Others

- Maritime
- MARS
- Auto Travel
- Churches

# Buckeye Net – Mixed Mode Origin

- Advocated/Created Early 2020 by Asst SEC Matt Curtin, KD8TTE
- OHDEN and local ARES Nets Seen as Inadequate for EmComm
  - Disorganized: No assured message delivery
  - Disconnected: No assured connections: county to county, district to district, district to section.
  - Message Relay Not Timely: No regular daily schedule; no daily check-ins to NTS or Buckeye Net
  - Little practice in actually passing traffic.
  - No “top down” control or discipline.
  - County, District, and state-wide nets seen as performing poorly in SET.
- Buckeye Mixed Mode Net Established -- training, rigor, and discipline.
- OHDEN.... Pretty much Ignored

# Buckeye Net – Mixed Mode - Function

- Objective:
  - “provide a pool of well-trained radio operators capable of the accurate and efficient transfer of formal message traffic via medium and long haul HF radio during times of disaster or emergency on behalf of the Amateur Radio Emergency Service and their served agencies within the ARRL’s Ohio Section.”*
- Followed Military Model
- Built on the Buckeye CW NTS Net
- Routes traffic into and out of Ohio
- Operate Buckeye Net Multi/Mixed Mode on 60 Meters
  - Control by SSB Voice
  - Traffic exchange by SSB voice, NBEMS (Fldigi), or CW
  - Liaison to NTS, Radio Relay International, Winlink, MARS, Army.....

# Buckeye Net – Mixed Mode - Operations

- **Focus: Top Down** -- Moving 88 County Reports to SEC or State EOC – Quickly
  - By RF
  - Without use of repeaters
- **Limited Number of Station Participants** – District or County Representatives
- **Complex, Standardized Operating Procedures**
  - Mandated use of “Signal Operating Instructions (SOI)”
    - Defines Frequencies and Channels, using Shorthand Abbreviations (80F3 = 3583 KHz)
  - Mandated use of Fldigi MACROS
    - Controlled Channel, Mode, Shorthand Abbreviations for “Transmit Ready, Receipt of Traffic, Resend, Return to Net
- **Abundant on-line Training Presentations and Videos**
- **Built without consult or input from County Emergency Coordinators**

# BN– Mixed Mode-- Operations

- On 60 Meters
- Sideband and NBEMS Digital using MFSK Mode
  - Designed for long haul/trans continent – Lack’s Olivia Mode reliability
- Required use of FLamp
  - Segments Message – Controlled, tracked, verified pieces
  - Can Automatically request retransmission or fill of broken segments
  - Works well on one-to-one; a mess when used with one-to-many
  - Perhaps Needed.... For communication within Ohio using MFSK
- I witnessed: Message transfer sessions exceeding 30 minutes for a 50 word msg.

# BN– Mixed Mode-- Application

- Used during last two Ohio ARES SET Exercises – BLACK SWAN
  - Complex Exercise, based on use of BN Mixed Mode
  - Heralded as a great success
  - District 3 Not Activated in Last SET
  - Little participation across 88 Counties
- Reality -----
- Complexity Intimidating for New Operators
  - Intended for efficiency..... But not Efficient
  - Despite Great Training ..... Most ARES Participants Not On-Board

# BN Mixed Mode – Recently Announced

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- ARES Buckeye Net Mixed Mode Discontinued
- Suffered lack of ARES “volunteers” to participate and support
- Focus is returning to OHDEN for Intra-State Communications
  
- Buckeye Net Mixed Mode Will Continue... As Black Swan Net
  - Non-ARES Affiliated
  - Under Matt Curtin’s Direction
  - Supported by Core BN Players

# Red Cross Training Nets - Winlink

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# Red Cross Training Nets

- Not “Officially Sanctioned” by the Red Cross
- Officially: EmComm Training Organization
- Supported by Amateur Radio Operators affiliated with Red Cross
- Based on use of Winlink and Red Cross Forms available in Winlink
- Excellent Training –
  - Enables People to gently learn Winlink – from Ground Up
  - Thursday Training Nets
- Well Done..... and Very Popular
- Winlink – A topic for another day – well supported In This Area

# Radio Relay International

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# RRI- Summary

- Global Messaging by Amateur Radio – International Traffic
- CW and Voice Nets
- Digital Backbone Net (Automated, Pactor, HF)
  - Across US, Europe, and Oceania
- 80m, 40m, 20m
- Radiogram Form
- Handle ICS-213 transposed into Radiogram Form
- Excellent Training and Quarterly Exercises – Open to All
- Supports use of GMRS, FRS at Local Level
- <https://radio-relay.org>

# Other Traffic Nets

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# Other Traffic Nets

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- RACES
- Maritime Support Nets (Winlink)
- Travelers' Support Nets
- City/County Based Nets
- Faith-Base Emergency Response Nets – Support Response Deployment Coordination
  - Salvation Army (SATERN)
  - Southern Baptist: Disaster Relief, Men's Group, Emergency Amateur Radio Service
  - Church of Jesus Christ of Latter-day Saints

# Many Opportunities Exist

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- Support Traffic Nets
- High Tech – Low Tech
- High Stress – Low Stress
- All Support Excellent Training
- The Water's Fine..... Just Jump In!