



National Traffic System

2020 Functional Exercise

August 15-17, 2020 | DRAFT 0.02



ARRL

North Texas Section
Amateur Radio in North Texas



NATIONAL TRAFFIC SYSTEM 2020 FUNCTIONAL EXERCISE

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Introduction

National Traffic System Background

The ARRL National Traffic System (NTS) is a network of amateur radio operators who move information during disasters and other emergencies. When areas are hit by large-scale events, such as hurricanes, earthquakes, landslides, or technology failures that impact electricity or communications, amateur radio operators can set up equipment in the affected area to restore communications. Whether by throwing antenna wire into trees, setting up generators, or bringing in a portable repeater, amateur radio allows for communicating across town, across the country, and around the world.

The National Traffic System provides an organized method for moving messages related to the event. Called traffic, these messages can provide information critical for saving lives or property, as well as inquiring about the health or welfare of those affected. Messages are composed using the radiogram format, and these radiograms are moved, or relayed, into and out of the affected area. This is the Relay in American Radio Relay League: traffic is relayed from one location to another.

Functional Exercise Purpose

This Functional Exercise provides a way to measure system readiness and allows traffic handling stations to practice their skills in a simulated real-world scenario. This test will take place across the entire system over a dedicated time period, with specific instructions for stations, traffic nets, and key personnel such as Section Traffic Managers to follow to:

- Facilitate a realistic yet simulated scenario in a synchronized manner
- Coordinate data collection and reporting
- Develop an after-action report with recommendations on how to improve the traffic system

Scope

This functional exercise scenario is open to any station participating in either:

- an NTS-affiliated net, or
- traffic-handling nets which interface with the NTS

Many other Section Leaders like Section Managers, Section Traffic Managers, and Section Emergency Coordinators may have a hand in planning the exercise, reviewing any data points from the exercise, and forming observations and recommendations in any after action reports.

For the purposes of the 2020 NTS Functional Exercise, the Amateur Radio Emergency Service® (ARES®), Radio Amateur Civil Emergency Service (RACES), and other public service programs are not included in the exercise. There is also no need to involve Emergency Operation Centers, emergency managers, government officials, or other personnel/teams commonly involved in emergency response as this exercise is specifically measuring amateur radio operations with respect to relaying and delivering traffic.

2020 NTS Functional Exercise objectives

Ensure the safety of all participating

Stations are permitted, if desired, to participate in the test at home, at a remote location, as assigned by their local preparedness organizations (if the Functional Exercise at the local level is being coordinated in this way), or otherwise. Regardless of operating location, amateur radio operator safety is the number one priority, and no one participating in the Functional Exercise should perform any action outside of their capabilities, subject themselves to a dangerous situation, or otherwise jeopardize the safety of themselves or others.

Assess the ability of the NTS to respond and relay information across the United States and Canada during a major event

Using predefined radiogram text content, stations will relay information to various locations (including across the country and internationally) to create a breadth of traffic travelling various distances. Information will be logged and reported to allow for a post-exercise review to measure relay efficiency and identify opportunities to improve the system.

Responsibility of stations originating/injecting traffic

Those stations introducing traffic into the NTS shall record the radiogram number, date, time, and destination for each piece of traffic sent during the exercise. This information must be reported within three weeks of the end of the exercise. This information will be used to understand what traffic successfully entered the traffic system so that transit times can be measured.

Responsibility of stations relaying traffic

To assist with message tracking, stations shall log relaying information for any handled exercise-related traffic. This information must be reported within three weeks of the end of the exercise. This information will be used to deep-dive into specific messages identified post-exercise as warranting extra investigation to understand traffic dynamics and find ways to improve the traffic system.

As part of the test, traffic must be routed to its destination station completely through traffic systems. Phone and email delivery are not permitted for exercise-related traffic.

Responsibility of stations receiving delivered traffic

Stations receiving traffic shall track the radiogram number, originating station, and date/time the traffic was received at its delivery point. This information must be reported within three weeks of the end of the exercise. This information will be used to understand what traffic was successfully delivered and measure delivery times, and also understand what, if any, traffic did not reach its destination.

Responsibility of net managers overseeing traffic nets

Net managers or their assigns shall monitor their traffic nets, regardless of acting as a net control station, to document any issues, learnings, or other takeaways related to the exercise to help document concerns and any resolutions discovered or implemented. This information is important for understanding the exercise flow and compiling lessons and recommendations in the after action report. Reports from net managers shall be turned in within three weeks of the end of the exercise.

Responsibility of Section Traffic Managers

Ideally, within a few days of the exercise conclusion, Section Traffic Managers should sync or hold a hotwash with net managers in their sections to debrief and discuss any exercise observations, lessons learned, and other takeaways and document these for submission to the 2020 Functional Exercise coordination team. Holding this discussion shortly after the exercise helps with reviewing information while it is fresh in mind, and may enable information and best-practice sharing amongst net managers and Section leadership.

Scenario

Information outlined in the Functional Exercise Incident Briefing and Incident Action Plan (IAP) documents outlines the scenario:

A large-scale telecom system failure disabling cellular, landline, and VoIP communications, as well as Internet access across the United States and Canada. Local ARES and other amateur radio groups are active and assisting with life-saving communications, including fire watch duties, and relaying citizen requests for emergency services.

Stations participating in the traffic system are asked to relay information regarding local telecom status, specifically whether phones are operational and if Internet access is operational.

Exercise assumptions

Participation from a large number of Sections

Early Section commitments and subsequent volunteer sign-ups are essential to prepare the list of traffic destination assignments ahead of the exercise. This preplanning is necessary to ensure stations introducing traffic into the system are using destination stations also participating in the exercise. It is also desirable to have traffic travel various distances, with some potentially staying within a particular callsign region or ITU section, and some traversing regions/sections to help effectively test the system.

Stations and traffic nets participating follow their established protocols/procedures

With the exception of standing up an out-of-band traffic net for the purposes of this exercise (if desired), existing protocols and procedures should be followed, including regular net scripts, traffic handling processes, and traffic logging.

Traffic is only delivered via traffic nets

In order to fully test the system, traffic must be routed through the traffic system all the way through to its destination station. **Delivery by phone or email are not permitted for exercise-related traffic** as we are measuring the system's ability to fully relay traffic. For example, we would not want traffic originating from Los Angeles to relay through to Dallas and then be delivered by phone or email to its destination in Detroit. In order to maintain integrity in delivery information related to this exercise, we must relay traffic fully to its destination station, and not use phone or email for last-mile delivery.

Repeater owners/operators support local traffic nets during the exercise

Local traffic nets taking place on local repeaters will need repeater owners/operators to sign off regarding operating any traffic nets outside of their regularly scheduled times, whether at a dedicated exercise net time, and/or if an existing scheduled net runs longer due to increased traffic counts.

A key objective of this exercise is measuring traffic transit times and confirming deliveries which can only occur if participating stations turn in their appropriate reports within three weeks of the end of the exercise. It is recommended that stations wait at least one week after the exercise ends before turning in reports to ensure exercise-related traffic in transit has time to reach its destinations.

For this exercise we will assess current phone and internet access at station locations. Traffic introduced must use precedence “TEST ROUTINE” and provide a status update on local phone and internet services using the following format:

where

- Please do not use fictitious information during this exercise; even with "EXERCISE" in the text and precedence "TEST ROUTINE" we do not want to inadvertently cause confusion from our exercise traffic.

For example, if traffic from a Dallas, Texas station with a cellular phone using area code 214 has working phone and internet, the radiogram will appear as:

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Reporting

At the conclusion of the exercise, participants must submit reports within three weeks to allow for a post-exercise review and creation of an after action report. The three-week period allows for exercise-related traffic to relay through the traffic system and reach its destinations. It is recommended that stations wait at least one week after the exercise ends to submit any reports.

All reports shall use Coordinated Universal Time (UTC) for all dates and times, using the 24-hour clock.

Electronic records are preferred using provided resources such as Excel spreadsheets. If stations prefer, hand-written logs are acceptable as long as information is clearly printed and in non-infallible ink (meaning use ink will not run if the paper becomes wet; for example, ink from a gel pen may run when in contact with moisture). Exercise-related radiogram copies are not needed; however, stations should keep these radiograms in their stations records as they would non-exercise traffic and cycle them out as usual.

Station reports

To help measure transit times and delivery success rates, reports are needed from traffic handlers. You can see a sample station report on page 7 in the **Sample station reports** section. Please send one copy of your report to your Section Traffic Manager, and one copy to the 2020 Functional Exercise coordination team at k8amh@arri.net.

Information needed:

- Specific radiogram header information
 - Number, Precedence, Station of Origin, Time Filed, Date Filed
- Created/Sent/Received/Final information
 - **Created:** A station created a radiogram for exercise use
 - The term **created** is used instead of **originated** to ensure clarity/disparity between the Station Activity Report's use of originate
 - **Sent:** An exercise-related radiogram was sent (relayed) towards its destination
 - **Received:** An exercise-related radiogram was received (via relay)
 - **Final:** The addressee station has received its intended traffic
 - Note that the station log should have both a **Received** and a **Final** entry for the same piece of traffic
 - Note that the term **Final** is used instead of **delivered** to ensure clarity/disparity from the Station Activity Report's use of **delivered**
- Any key notes or observations about the exercise

Note: Exercise test messages count for Station Activity Reports and Public Service Honor Roll purposes, and time spent participating in traffic nets as part of the exercise count towards Public Service Honor Roll category 4.

Net manager reports

Details about your traffic nets handling functional exercise traffic will help with understanding how many nets participated and traffic levels they saw. These reports should only report exercise-related traffic. You can see a sample net manager report on page 8 in the **Sample net manager report** section.

Please send one copy of your report to your Section Traffic Manager, and one copy to the 2020 Functional Exercise coordination team at k8amh@arrl.net.

Information needed:

- ARRL section, net name, net type (local/NTS area/maritime/NTS region/section/state/...)
- Net manager information (name, callsign, email)
- Net National Traffic System affiliation (affiliated/unaffiliated)
- Traffic net information
 - Number of traffic nets and dates, times, and total operation time for each
 - Check-ins
 - Exercise-related traffic totals
- General notes and observations about the exercise

Section Traffic Managers

After holding hotwash/debrief discussions with your area net managers, compile information from the discussions and submit to the 2020 Functional Exercise coordination team at k8amh@arrl.net.

Questions

Questions about this exercise should be directed to Aaron Hulett (K8AMH) at k8amh@arrl.net.

Appendix

Sample station reports

Station of origin report

Call sign: D2EF

Location: Dallas TX

Number	Precedence	Station of Origin	Time Filed	Date Filed	Destination Station	Activity (C/R/S/D)	Activity From/To	Via Net	Activity Date	Activity Time
205	TEST R	D2EF	2345	AUG 15	B2CD	Created			AUG 15	2345
205	TEST R	D2EF	2345	AUG 15	B2CD	Sent	A1BC	MNO	AUG 15	2350

Exercise notes/observations:

Multiple traffic handlers available to take traffic to MNO net. Allowed for 3 concurrent relays on neighboring frequencies.

Relay station report

Call sign: A1BC

Location: Paoli IN

Number	Precedence	Station of Origin	Time Filed	Date Filed	Destination Station	Activity (C/R/S/F)	Activity From/To	Via Net	Activity Date	Activity Time
205	TEST R	D2EF	2345	AUG 15	B2CD	Received	D2EF	MNO	AUG 15	2350
205	TEST R	D2EF	2345	AUG 15	B2CD	Sent	B2CD	ZYX	AUG 16	0225

Exercise notes/observations:

Both D2EF and B2CD exhibited excellent traffic relaying skills when moving number 205.

Final station report

Call sign: B2CD

Location: Detroit MI

Number	Precedence	Station of Origin	Time Filed	Date Filed	Destination Station	Activity (C/R/S/F)	Activity From/To	Via Net	Activity Date	Activity Time
205	TEST R	D2EF	2345	AUG 15	B2CD	Received	B2CD	ZYX	AUG 16	0225
205	TEST R	D2EF	2345	AUG 15	B2CD	Final			AUG 16	0225

Exercise notes/observations:

Band conditions did not open up until 0200 AUG 16, and we were only able to relay traffic for an hour.

Sample net manager report

ARRL Section: NTX

Net name: Anytown Traffic Net

Net type: Local

Net manager's name: John Doe

Net manager's call sign: Q3RS

Net Manager's email: q3rs@arrrl.fake

Net NTS affiliation: Affiliated

Date	Start time	End time	Net duration (minutes)	Check-ins	Exercise-related traffic count
AUG 15	0000	0025	25	12	6
AUG 15	0500	0535	35	15	8

Total net time (minutes): 60

Total exercise-related traffic: 14

Exercise notes/observations:

Some stations were rough to pick up from their locations because the north-most voter receive site went offline two days before the exercise.

Revisions

Version	Date	Author(s)	Revisions
0.01	15MAY2020	Aaron Hulett K8AMH	Created initial document
0.01a	17MAY2020	Aaron Hulett K8AMH	Update to Functional Exercise from Simulated Emergency Test
0.02	21MAY2020	Aaron Hulett K8AMH	Sample station and net manager logs, refinement of exercise objectives/requirements/etc.

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