

ABCs of using the Digital National Traffic System *(AKA NTS-Digital)*

YOU! can use the
Digital National Traffic System

Outline

- Who this Tutorial is for
- Today's NTS-Digital from 10,000ft
- What Happens To Your Message?
- HOW TO Send Messages
- Now What?
- A Peek Under-The-Hood

Who This Tutorial Is For

- Any ham radio operator who wants to send a message over the NTS-Digital system to anyone, not just other ham operators.
- YOUR MESSAGE TRAFFIC IS WELCOME!
- Regular message traffic keeps the system practiced, functional, vibrant, and interesting.

Why Is NTS-Digital Relevant?

- It is one more way amateurs can prepare serve community and county in the event 'Normal' means of communication cease to function.
- Despite the vast and growing number of communications options, the NTS-Digital serves as a fallback network that complements, and is redundant to, commercial and government systems.
- And it embraces the popular growth of amateur digital messaging.

Today's NTS-Digital From 10,000ft

- A cooperative collaboration of ARRL's classic NTS, and Radio Relay International's Digital Traffic Network (DTN)
- The Mission: To serve emergency service agencies and the public during placid and chaotic civil circumstances.
- The structure consists of three interconnected 'Areas' across the West, Central, and Eastern North America.
- Regions are within Areas, Sections within Regions, and Digital Relay Stations (DRS) are within Sections (*this is simplified*)
- Messages are sent by connecting with any DRS you can reach, and then forwarded to a DRS near the recipient.

What Happens To Your Message?

- A message to a DRS is routed up through the Region, Section, and Area hierarchy, and then back down to a destination DRS.
- The destination DRS delivers the message over the 'Last mile'.
- Last mile delivery might be by radio, e-mail, phone, SMS text, postal service, or face-to-face, as circumstances dictate.

(The process is more detailed, but that's good enough for the now)

HOW TO Send Messages

- This tutorial is about the easiest way to send messages, via the NTS-Digital using RMS Express and VARA HF.
- Winlink and NTS-Digital are two different systems, however RMS Express can send to either.
- If you use Winlink with VARA HF, you already have the software and hardware you need.
- If you don't, then pause your NTS-Digital project and get Winlink up and running on HF.

Preparation

- Collect a list of DRS that will accept VARA HF connections *(most do)*.

[http://nts-digital.net/mw/index.php/Area Stations and Frequency Listings](http://nts-digital.net/mw/index.php/Area_Stations_and_Frequency_Listings)

- Pick your area (East, Central, West)
- Make note of: Call signs, dial frequencies, scanning schedules, of any station that supports VARA on HF.

(Many have multiple network roles and the link includes information that is not relevant to this tutorial. Pick out what you need)

- Collect contact information for your friends, family, or hams in other areas willing to receive practice messages.
(Name, address, phone and e-mail)

Test Connections

- Open RMS Express
- Empty the Outbox of any Winlink messages

***** DO NOT COMINGLE NTS-Digital AND WINLINK MESSAGES IN THE OUTBOX *****

- Start a “VARA HF Winlink” session
- Load the call sign and dial frequency of a DRS station you have noted and try to connect
- You are looking for a connect followed by a disconnect, no messages are exchanged. You are just identifying which stations you can connect with.

(Many DRS station monitor multiple frequencies and may be busy – More on this in Appendix 2)

Create a Message

- Open RMS Express and empty any Outbox of content not intended for NTS-Digital.
- Using RMS Express, start a New Message
- Select Send as: “Winlink Message”
- Select Template>Standard Forms>RADIOGRAM & RRI Forms>Radiogram.txt

Number 12 <input type="checkbox"/> SVC (Handler use)	Precedence R EMERGENCY C P Emergency not in use at this time.	Handling Instructions NONE HXA HXB HX Help ADD MORE HX INFO	Station Of Origin AJ6LG Change if not you.	Check 0	Place of Origin ex. OWLS HEAD ME	Time Optional <input type="radio"/> Current UTC Time <input type="radio"/> Current Local Time <input checked="" type="radio"/> No Time	Date DEC 4
---	---	---	---	-------------------	--	---	----------------------

Preamble fields you fill in:

- Number [your outgoing message number]
- Precedence – “R” for routine
- Handling Instructions – [NONE]
- Station Of Origin – [your callsign]
- Place Of Origin – [your city/area]
- Date [Month Day]

Create a Message Continued

TO:

Name: Call Sign:

Address:

City / Town: State or Province: [2 Letter Codes](#) Zip:

Country:

Phone: Extension: E-mail:

Op Note about this Radiogram:

Addressing: [Fill out recipient information]

Message Text:

Keep the word count below 25 (words are called ‘Groups’)

Examples: “Practice msg via the NTS”

“Happy Birthday uncle Bob via ham radio”

“If the internet was down I can still reach you”

Signature Name: [that’s you]

Create a Message Continued

This is how you direct the message through the system



The screenshot shows a yellow-bordered form area. At the top, there is a blue link: >>> [NOW CLICK HERE and select a Liaison Station](#) <<<. To the right of this link is a light blue rectangular box containing the text "YOU MAY ENTER ANY ADDRESS HERE". Below the link and box are two buttons: "Submit" and "Reset Form". At the bottom of the form area, there is a small text link: "Contact KB1TCE about this form: Ver 11."

Do not select a liaison station; they are used for other purposes.

Enter a Route Address

In the form: [NTS:xxxxx@NTSyy] where
xxxxx is the five digit zip code and
yy is the recipient two letter state code

Click [Submit](#) and an RMS Express message is populated.

Don't edit anything in the RMS Express message.

Click [Post to Outbox](#)

Connect and Send

- Start a “VARA HF Winlink” session

Empty the Outbox of any Winlink messages

- Load the call sign and dial frequency of any DRS station you confirmed you can connect with (*NOT a Winlink gateway*)
- Click **START**

When you connect, your message will leave your Outbox and the session will end. **THAT’S IT!**

When using the Radiogram, there is normally no delivery confirmation and a recipient won’t send a response message.

**Suggestion: If you don’t connect, you can move your NTS-Digital messages to Drafts and use RMS Express for Winlink until you move them back and retry the NTS-Digital.*

Now What?

- Practice by sending a monthly or weekly message to someone using the NTS-Digital
- Tell other hams about it
- Be willing to accept practice messages
- If you are interested in learning about what's 'Under-The-Hood' of NTS-Digital, dive into the labyrinthine rabbit hole and discover all the details, but know that you don't have to in order to use and enjoy the system.

Appendix 1

Links for a deeper dive

http://nts-digital.net/mw/index.php/Main_Page

<https://radiorelay.org/files/reference/RRI-Traffic-Operations-Manual-2017-F-A.pdf>

<https://nts2.arrl.org/ntsletter/>

Appendix 2

Finding DRS's you can connect to can be a treasure hunt. Connecting depends on their schedules, distance, propagation, ground or skywave, and connecting often requires more than one attempt.

VOACAP's Point-to-Point ITU Band by Band can be helpful in picking bands and times as you build your DRS Go-To list. <https://www.voacap.com/hf/>

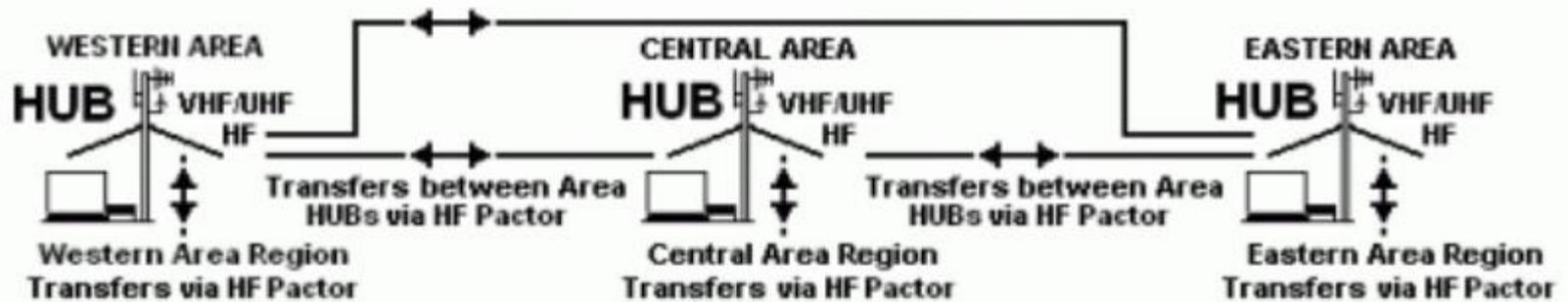
You might even e-mail the DRS operator to confirm schedules, frequencies, etc.

Example DRS Go-To List

Area	Region	State	Call/SSID	City	Freq(dial)	UTC Scan	Connected	Grid Sq
WESTERN	6	CA	K9JM	Grass Valley	7.1009			CM99lc
WESTERN	12	UT	KD7UM	Millcreek	3.5895			DN40cq
WESTERN	12	UT	KD7UM	Millcreek	7.0989			DN40cq
WESTERN	6	CA	KQ6UP-1	Grand Terrace	3.585	0400-1400	2/11/26 0644 UTC	DM13jv
WESTERN	6	CA	KQ6UP-1	Grand Terrace	3.5895	0400-1400		DM13jv
WESTERN	6	CA	KQ6UP-1	Grand Terrace	7.0934			DM13jv
WESTERN	6	CA	KQ6UP-1	Grand Terrace	7.0989			DM13jv
WESTERN	6	CA	KQ6UP-1	Grand Terrace	14.0964			DM13jv
WESTERN	6	CA	KQ6UP-1	Grand Terrace	14.1034			DM13jv
WESTERN	7	BC	VE7GN	GABRIOLA	7.0989	24/7		CN89cd
WESTERN	7	BC	VE7GN	GABRIOLA	7.1015	24/7		CN89cd
WESTERN	7	BC	VE7GN	GABRIOLA	14.0964	24/7		CN89cd
WESTERN	7	BC	VE7GN	GABRIOLA	14.1089	24/7	2/3/2026 0208 UT	CN89cd
WESTERN	12	UT	W7VQ	N Salt Lake	3.5895	"Scanning"		DN40bu
WESTERN	12	UT	W7VQ	N Salt Lake	7.0934	"Scanning"		DN40bu

A Peek Under-The-Hood

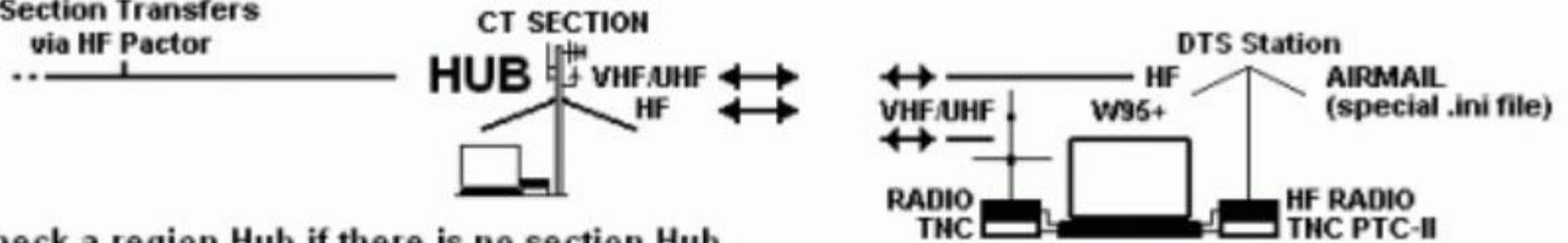
DIGITAL TRAFFIC NETWORK (DTN) Area and Region HUBs and DTS Stations



Examples
(not all
shown)



Example
(not all
shown)



DTS may check a region Hub if there is no section Hub.

Traffic is sorted and routed by Hubs and sent to the Hub closest to the point of delivery for DTS download.

What The Recipient Sees

Date: 2026/02/25 18:54 (UTC)
From: AJ6LG
To: 23838@ntsva
Source: AJ6LG
Downloaded-from: RMS:W4DNA
Subject: QTC 1 R CHESTERFIELD VA 23838

R:260226/0526Z 31230@W4DNA. BPQK6.0.24
R:260226/0018Z 82711@KW1U.#EMA.MA.U.S.A.NOAM BPQ6.0.25
R:260225/1916Z 19978@KQ6UP.#SCA.CA.U.S.A.NOAM BPQ6.0.24

94 R AJ6LG 10 LOS GATOS FEB 25
DAVID ELKINS KN4LQN
13500 CARTERS WAY RD
CHESTERFIELD VA 23838 UNITED STATES
ELKINS@ATSIGN.GMAIL.COM
OP NOTE VIA THE NTS DIGITAL
BT
WINLINK WEDNESDAY CHECK DASH IN
AJ6LG JEFF LOS GATOS HF
BT
J MILLER AJ6LG
AR

The message text was: *Winlink Wednesday check-in*

Practice

- Set yourself a monthly schedule and send a brief message to family, friends, or anyone on the practice recipient list
- If you are willing to be a practice recipient, please add yourself to the list.

<https://docs.google.com/spreadsheets/d/1B6FkModDxtNWqEHfOxi5PbDUUJNeV7ck/edit?usp=sharing&oid=103727478750986245704&rtpof=true&sd=true>

RRI Welfare Radiogram

- The RRI Welfare Radiogram, while similar to the Radiogram, is intended for very brief welfare messages on behalf of others.
- If sending for practice, use the “TEST W” precedence
- Notice the [Click here to insert short prepared messages](#)

You can enter your own text, but picking one or two prepared texts allows the message to be abbreviated when moving through the system, which is especially helpful for an intermediate operator using CW.

Short Texts for Welfare Messages

Insert one or two of these standard texts into the message by clicking on message to insert. All inserted messages will be added to the end of the current text.

27	I am safe and well.
28	Household safe and well.
29	Currently at shelter.
30	Currently at home.
31	Currently at family/friend's house.
32	Currently at a hotel.
33	Safe but moving to a safer location.
34	Evacuating to a shelter.
35	Evacuating to a family member/friend's house.
36	Evacuating and safe.
37	At home and plan to remain here.
38	Will contact you when able.
39	All communications are down.
40	Share this message with others