

2026-07-20 Winlink Training - Location Determination by KB3SPH

Determining and reporting your location is important in Winlink operations.

Lets others know you are in place and available to receive messages.

Lets others know your location and potentially range and bearing to you.

For example:

VHF <15 miles maybe with omni antenna

VHF >15 miles may need beam antenna and point it along bearing

Location: Latitude and Longitude

Latitude: degrees of arc above and below the equator

Longitude: degrees of arc east and west of the prime meridian/Greenwich

1 degree of arc = 60 arc minutes, 1 arc minute = 60 arc seconds.

Lines of latitude are parallel to each other and:

1 minute of latitude = 1 nautical mile (NM) = 1.15 statute mile (SM)

Lines of longitude, widest at equator, converge at poles so:

1 minute of longitude at equator = 1 NM

1 minute of longitude at 38.5 degrees latitude = .78 NM = .9 SM

Haversine Formula – Excel Spreadsheet – Distance between two sets of coordinates

Precision-

Maidenhead grid square to 6 digits, e.g., FM18NW = 3x4 mile square,

GPS lat/long to 4 decimal degrees = 36 foot x 36 foot square

Determining location:

Google Maps:

1. Open Google Maps
2. Search for the facility or address (ex. Bowie High School)
3. Right click on the facility or street address that is displayed in a pop-up
4. Left click on the coordinates that are displayed at the top of the list that is presented
5. The coordinates have been copied to clipboard, as indicated at the bottom
6. Paste the coordinates into your message.

Various smart phone apps – some examples

“Grid Square Locator” (free) - degrees, minutes, seconds & decimal degrees

“GPS Test” (free) – various degree formats, compass

“SigTrax” (\$2.99 on Google Play Store, Apple -?), direction finding, can shoot bearing lines.

Additional Online:

QRZ.com – look up call sign for grid square, lat/long of registered QTH

QRZ.com/gridmapper – find a grid square, shows neighbor hams

Convert degrees/minutes to decimal degrees

Divide the decimal minutes by 60 to get the decimal part of degrees.

38 degrees, 30.0 minutes = 30.0 / 60 = .5, so 38.5 decimal degrees

Convert Decimal degrees to Degrees Minutes

Multiply the decimal part of degrees by 60 to get degrees minutes

38.5 degrees = .5 * 60 = 30.0, so 38 degrees, 30.0 minutes

Connecting a GPS capable device to Winlink Express:

Need to know baud rate of device and assigned com port

Examples:

GPS Puck – USB – mine is 4800 baud,

<https://www.amazon.com/dp/B0BLF7DSRY>

Kenwood D72 HT – USB is 9600 baud

D710G – cable from head unit port is 9600 baud

Winlink Express Follow along:

*Winlink Express – Settings – Winlink Express Setup

My Grid Square – enter/update it or enter lat/long (degrees/minutes) format to determine your grid square.

Supposed to be all caps, FM18JM versus FM18jm. You'll see it various ways in Winlink Express.

While we're here, add EMCOMM to Service Codes (space between public and EMCOMM),

(Public EMCOMM)

This will add EMCOMM RMS stations to the channel selectors in Winlink Express. EMCOMM stations are to be used only for emergency communications drills or actual emergencies.

*Winlink Express – Settings – Preferences – Sending options, check include your location in message headers (mapping of sender for messages)

--Demonstration - highlight a message, click on blue rectangle with red dot on task bar, left click on balloon, get the lat/long of sender, right click to copy info.

*Winlink Express – Settings – GPS / Position Report

Enter Com port / baud rate of GPS device, if you have one connected

Use GPS location or

Entering lat/long – it converts what you enter to decimal minutes. Play around with this entry screen to understand what it does.

Decimal degrees, use negative sign in front of longitude for W longitude.

Example: 38.5408 -77.1520

Decimal minutes, DD-MM.MMx, latitude “x” is for N or S / longitude W or E

Example: 38-32.45N 77-09.12W

Decimal seconds, DD-MM-SSx, x = N/S or W/E

Example: 38-32-27N 77-09-07W

MGRS coordinates: Military Grid Reference System

8 degrees latitude by 6 degrees longitude box grid (552 x 324 miles)

Increasing resolution with more numbers - ten numbers is a square 1 meter per side

Make a Telnet connection and go ahead and post your position report

*Winlink Express – Settings – Winlink Catalog Requests – Categories,

Click WL2K_USERS

Double Click WL2K NEARBY

Click Post request

Open Telnet & send it, wait a few minutes, telnet, receive.

The WL2K Nearby report includes location, range and bearing to the 30 nearest stations.

Use Case Example: If drill participants posted their position reports, retrieving this list will give you their call sign, range, and bearing.

Winlink Check-in Form Example

*Winlink Express - Message – New Message – Select Template – Standard Forms – Mapping-GIS forms – Winlink Check-in.txt

3. Location is prefilled, if GPS present.

Otherwise fill-in your location which requires decimal degrees. Don't forget the minus sign for West longitude or you will be mapped in Asia. If coordinates are not entered, the location defaults to center of grid square entered under settings.