

What is Winlink (and why should I care) by Don Udel KI5AIU

Winlink, otherwise known as Winlink Global Radio Email, is a network of amateur and government licensed stations that provides world wide radio email using RF pathways in areas where the Internet is not present or available.

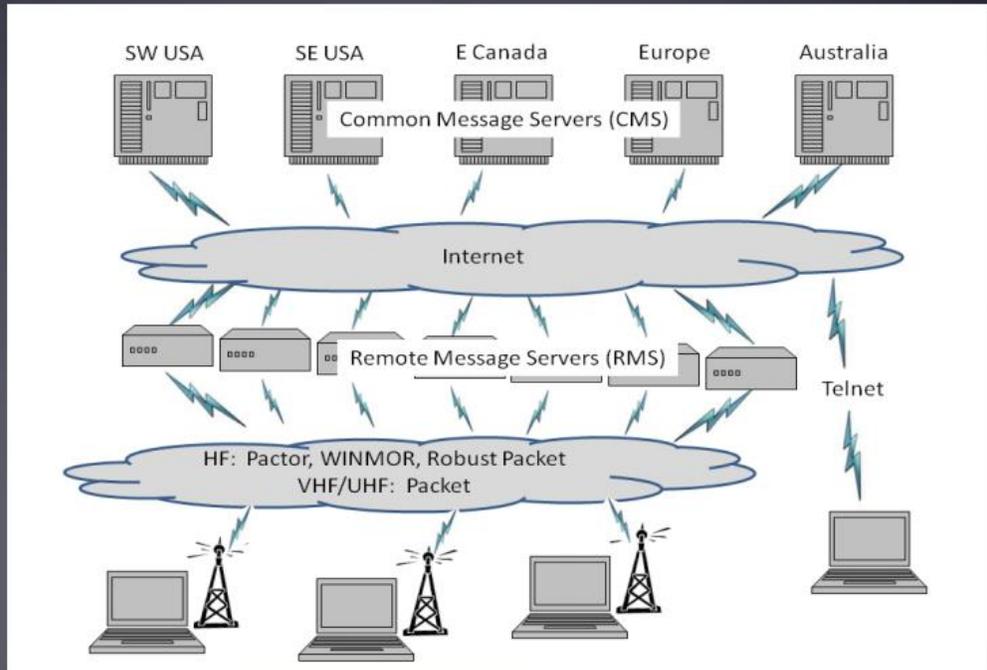
Winlink has a vast array of capabilities, but in this overview, I'll just deal with the more common ones.

Imagine you're sitting at home, in the midst of a deep freeze that looks like it's going to last for a while. You want to get a message out, but cell towers and internet are down. Not a problem. You fire up your rig on battery power, turn on your laptop or tablet, and fire up Winlink. You compose your email and add an attachment, then send it to the Winlink outbox. You then open a session and ask Winlink to find the best available connection. Your radio bleeps and blurps while it negotiates with a Winlink gateway. Once the connection is established your message is sent, and any incoming mail is retrieved and placed in your inbox. When all traffic is complete, the connection to the gateway is released.

What does the Winlink architecture look like? A picture is worth 1000 words.

Winlink Architecture (Conventional Mode)

- CMS
- RMS (gateway)
- Client (you)



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You're down at the bottom with your radio and PC/Tablet. On your PC/Tablet, you have Winlink Express downloaded. It's a free download, but you must register with your callsign. Once your callsign has been verified, you will get your Winlink Express credentials. This will also give an email address of callsign@winlink.org. With this you can send an email to another callsign (the @winlink.org) automatically added. You can also use your typical non winlink email addresses.

With Winlink up and running, you connect to a Remote Message Server (RMS). This connection can be done with a variety of protocols. WINMOR was very common, but has fallen out of use, and replaced by ARDOP. VARA is another popular one, but is speed limited unless you buy a \$70 license. VARA has a special ability to be used on VHF/UHF. Pactor has great performance but requires a Pactor modem (which is expensive hardware). The other protocols are primarily used in the HF bands. Messages that are to be delivered outside of Winlink are passed via the internet to Common Message Servers (CMS) and sent. Messages

between Winlink recipients are passed between RMSs and delivered the next time the recipient establishes a session to an RMS. All of this happens very quickly. One interesting feature is on the right. If you do happen to have the internet available you can send your message directly to an RMS via the Telnet option (this bypasses the HF portion but lets you play in the Winlink sandbox).

Where Winlink really shines is in emergency situations. Consider:

Disaster Assessment Picture – Kentucky Ice Storm



Kentucky Ice Storm 2009
Cell, Land-line or Fax? NO!
- Air Card? NO!
- Public Safety, Mutual Aid? NO!
- Satellite/Microwave? NO!
- Winlink Radio E-Mail?
Yes! Mobile from a TEMA vehicle.

This picture was one of several sent by TEMA mobile through the Winlink radio email system

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Ok, so I've got Winlink all ready to go, how do I find an RMS to connect to? Actually, it's pretty easy. You let the session find the best path. On the session menu, you click select. Allow the system to update the paths if you haven't used it recently.

HF Channel Selector

Exit Select Update Table Via Internet Update Table Via Radio Forecast SFI All RMS

Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (mi)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
NCS508	3348.500	P4, P3	EM66OC	00-23	SHARES12...	7	042	100	100
NCS508	4523.500	P4, P3	EM66OC	00-23	SHARES12...	7	042	100	100
NCS508	5345.000	P4, P3	EM66OC	00-23	SHARES12...	7	042	100	100
NCS508	9065.500	P4, P3	EM66OC	00-23	SHARES12...	7	042	100	100
NCS508	6786.500	P4, P3	EM66OC	00-23	SHARES12...	7	042	100	100
NCS387	5860.000	P4, P3	EM36KH	00-23	SHARES12...	349	275	83	54
NCS504	5295.500	P4, P3	EM57MO	00-23	SHARES12...	158	314	82	54
NCS509	4937.000	P4, P3	EM55MO	00-23	SHARES12...	120	257	84	54
NCS511	5155.000	P4, P3	EM65UH	00-23	SHARES12...	59	146	83	54
NCS509	3350.500	P4, P3	EM55MO	00-23	SHARES12...	120	257	83	54
NCS359	5295.500	P4, P3	EM75MW	00-23	SHARES12...	107	092	82	54
NCS361	3383.500	P4, P3	EM57QB	00-23	SHARES12...	121	307	83	54
NCS504	3383.500	P4, P3	EM57MO	00-23	SHARES12...	158	314	84	53
NCS511	3383.500	P4, P3	EM65UH	00-23	SHARES12...	59	146	82	53
NCS359	3383.500	P4, P3	EM75MW	00-23	SHARES12...	107	092	82	53
NCS375	6801.500	P4, P3	EM37LK	00-23	SHARES12...	355	288	78	53
NCS520	4523.500	P4, P3	EM85WX	00-23	SHARES12...	265	089	81	52

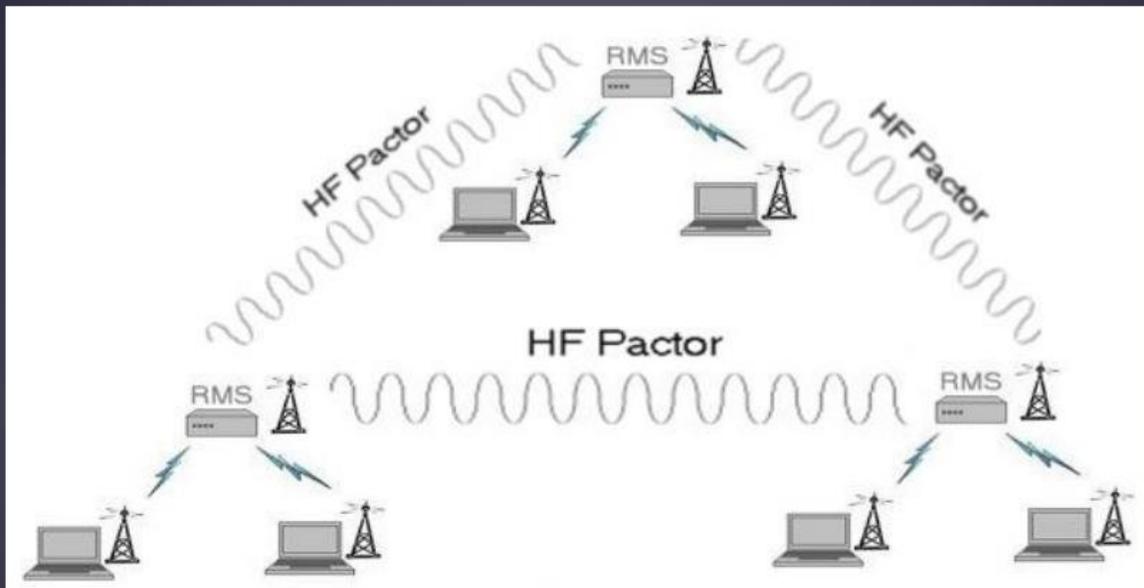
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And you get a list of gateways with a reliability estimate based on current propagation calculations. Double click and off you go. For advanced users, there is a process called Automatic Link Establishment (ALE), which does all this automagically!

Not so fast there! You said Winlink was email without the internet, and I swear I saw an internet cloud in one of those pictures. And you're right. If you want to send email to someone outside of Winlink you will need to have the internet available at one of the gateways.

But – Winlink can run in many modes. One is a radio only mode.

Radio-Only Winlink Network (No Internet)



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The disadvantage here is you can only send messages to other Winlink users.

Who uses Winlink?

- Many federal, state and county government agencies
- Used by many National Guards
- Used by non Government organizations (NGOs) such as International and Red Cross, Southern Baptist Disaster Relief, Fedex, Bridgestone Emergency Response teams, and many others.

Red Cross in particular has practice Winlink sessions where hams can get experience in sending various test messages. For more information check out their groups.io page at <https://arc-emcomm-training.groups.io/g/main>

This barely scrapes at the potential of Winlink, but hopefully is enough to get you interested. Remember, the time to practice Winlink is NOT during an emergency;

but well before. Take an afternoon to install, register and get some sample messages out through Winlink. It's an useful tool to have in your bag of tricks.

73

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