Winlin

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MARC 8 August 2024 ZL3TIL ZL2GBX

What is Winlink.

- Global Email Operated by Amateur Radio Operators.
- Uses a store and forward model with packet-based transport.
- Internet, HF, VHF/UHF, Mesh and PtoP based transport supported
- Open source and free to use
- Free Client Software
- Multiple Clients and multiple platforms (<u>https://winlink.org/ClientSoftware</u>)
- Amateur version is public, can support encryption
- Designed for emergency messaging when infrastructure is broken.
- Pre-formatted messages built in and user configurable
- Already in use by emergency services worldwide, inc AREC in NZ

Why Use Winlink.

Speed & Accuracy (effective transfer rate)

- CW 15 to 20 wpm
- Simplex Voice 60 to 75 wpm
- Duplex Voice Medium Quality
 80 to 100 wpm
- Duplex Voice High Quality
 120 to 150 wpm
- –Winlink

600 to 1000 wpm (Vara, 29 – 5629 bps)

- Starlink cellular text messaging (T-mobile)??? 10-15mbs shared over 1500 to 2000 sq km (20 to 25 km diameter)
- Internet over fibre (100Mbps)125000000 wpm
- Compac cable, 1963, 80 voice circuits 10000 wpm
- Redline cable, 1902 about 4 CW circuits80 wpm

Designed for emergency traffic using minimal infrastructure

Evolving Technology.



Telnet Winlink Packet Winlink Pactor Winlink Robust Packet Winlink Ardop Winlink Vara HF Winlink Vara FM Winlink Iridium GO Winlink _____ Packet P2P Pactor P2P Robust Packet P2P Ardop P2P Vara HF P2P Vara FM P2P Telnet P2P _____ Pactor Radio-only Vara HF Radio-only Vara FM Radio-only Telnet Radio-only _____ Telnet Post Office

Fallback Configurations.









Where is Winlink (HF).





Propagation Predictions Built In



Where is Winlink (VHF/UHF).



Winlink Session.

Vara HF Win	link Session - ZL3TIL	2				-0		×
Exit Settings	Channel Selection	Map Forecast	Auto-connect	Next chan.	itart Stop Abort			
ZL1AOX	Center Freq:	7215.000 D	ial Freq: 7213.500	Bandwidth:	2750 Bearing: 012	Quality:	46	
Favorites:		•	Select Add to favo	orites Remove	e from favorites			
Channel Free In	0/0 Out: 0/0 BPM:	0/0 Disconnect	ed					
 Winlink Vara Co. Station Bearing: RMS Timode 1.3.5 Station Bearing: RMS Timode 1.3.5 Station Bearing: RMS 119 dai WL2K-5.0-B2FWIF PQ: 19105280 CMS via ZL1AOX > FW: ZL3TIL [RMS Express-1.7] PR: 58945436 ;FW: ZL3TIL [RMS Express-1.7] PR: 58945436 ;FW: ZL3TIL [RMS Express-1.7] PR: 58945436 ;FW: ZL3TIL [RMS Express-1.7] [RMS Express-1.7] [RMS Express-1.7] [RMS Express-1.7] [RMS Express-1.7] [RMS Expression] [RMS Expression]<td>Intection to ZL1AOX (012, Range: 501 km 4.0 y minutes remaining w JM\$] 17.0-B2FHM\$] RTIL (RE68WL) NLHL1 74941 73441 34NLHL1. of message GLXOD3- Bytes: 74046, Time: with ZL1AOX at 2021 1. Total bytes sent: 7 ved: 0. Total bytes re m Winlink RMS: ZL1. Avg Throughput: 77</td><td> 2024/07/21 02: with ZL1AOX (RF72 with ZL1AOX, (RF72 0 4NLHL1 09:05, bytes/mini 4/07/21 02:29:28 4046, Time: 09:27 vceived: 0, Total so AOX @ 2024/07/2 84 Bytes/min; 1 Mi </td><td>20:00 USB Dial: 7213. (MV) _</td><td>500 Signal bandw n; Average SNR:</td><td>idth 2300 Hz 7.0 dB</td><td></td><td></td><td>,</td>	Intection to ZL1AOX (012, Range: 501 km 4.0 y minutes remaining w JM\$] 17.0-B2FHM\$] RTIL (RE68WL) NLHL1 74941 73441 34NLHL1. of message GLXOD3- Bytes: 74046, Time: with ZL1AOX at 2021 1. Total bytes sent: 7 ved: 0. Total bytes re m Winlink RMS: ZL1. Avg Throughput: 77	 2024/07/21 02: with ZL1AOX (RF72 with ZL1AOX, (RF72 0 4NLHL1 09:05, bytes/mini 4/07/21 02:29:28 4046, Time: 09:27 vceived: 0, Total so AOX @ 2024/07/2 84 Bytes/min; 1 Mi 	20:00 USB Dial: 7213. (MV) _	500 Signal bandw n; Average SNR:	idth 2300 Hz 7.0 dB			,



Minimal System (VHF)





Minimal System?

Level	Symbol Rate	Carriers	Mod.	Bytes / Packet	Net Data Rate	User Data Rate
1	37,5	52	BPSK	20	35	29
2	37,5	52	BPSK	32	54	45
3	37,5	52	BPSK	71	113	94
4	37,5	52	BPSK	150	234	194
5	37,5	52	BPSK	308	476	395
6	37,5	52	BPSK	626	963	799
7	37,5	52	4PSK	1257	1929	1601
8	37,5	52	8PSK	1887	2893	2401
9	37,5	52	16Q.AM	2951	4521	3752
10	37,5	52	32QAM	3690	5653	4692
11	37,5	52	32QAM	4428	6782	5629

QDX/QMX VARA settings and Winlink

https://groups.io/g/QRPLabs/topic/qdx_qmx_vara __settings_and/104877911



QMX is not suitable for phase shift keyed modes such as PSK31 or modes involving multiple concurrent tones such as **WinLink**.

Winlink Development History

• Winlink is a worldwide radio messaging system that uses amateur-band radio frequencies and government frequencies to provide radio interconnection services that include email with attachments, position reporting, weather bulletins, emergency and relief communications, and message relay. The system is built and administered by volunteers and is financially supported by the Amateur Radio Safety Foundation.

Continuity: Lessons Learned

- Sustaining essential functions is dependent on the availability of resilient communications systems.
- *Alternative communications* methods are essential.
- Immediate availability to resilient communication at primary and alternate locations must be ensured.
- Infrastructure-related outages usually endure for significant periods.
- Volunteers ("Hams") can provide important information about the extent of outages via radio by providing situational awareness "ground truth" within specific jurisdictions and beyond.
- Volunteers resources may be trained to install, operate and maintain alternate resilient systems, alleviating agency personnel to perform other functions.



Radio-Only Winlink Network (No Internet -MESH)



Using Winlink

What you need to use Winlink



Winlink Express [VARA HF]



IF YOU CAN DO DIGITAL MODES LIKE FT8 YOU CAN DO WINLINK

	-	
 Winlink	Express	1.7.16.0 - ZL2GBX

ZL2GBX

- Settings

- Settings Message Attachments Move To: Saved Items

Delete Open Session: Vara HF Winlink

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Logs Help

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In Vara HF Winlink session.

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Read Items (0)		20	024/06/29 17:39	5B9D3LGZRT64	493	AREC-C	AREC-CHECKIN	ZL2GBX	ACK: Winlink Check-in EXERCISE - ZL2GBX - Home QTH, Blenheim - Branch 22	
Sent Items (31)	Q.	20	024/06/23 08:02	6HUDT0BVN1L0	54154	ZM1SEA	AREC-CHECKIN	ZK1EBW	AREC-Check-In Net Results Dated 23.06.24	
Saved Items (0)		₽ 20	024/06/16 07:33	V831W8G5N0BZ	849	ZM1SEA	AREC-CHECKIN	ZK1EBW	EmComm training Exercise June 20th	
Deleted Items (3)	9 (= 2	024/06/16 0	OBZ3ZLQFR	62763	ZM1SEA	AREC-CHECKIN	ZK1EBW	AREC-Check-In Net Results Dated 16.06.24	
Personal Folders		= 2	024/06/16 0	BGYZQ2LT6LLJ	493	AREC	AREC-CHECKIN	ZL2GBX	ACK: Winlink Check-in EXERCISE - ZL2GBX - Home QTH, Blenheim - Branch 22	
		21	024/06/13 15:56	XJC5HT4QWAF6	535	KN4LQN	KN4LQN	W4JLP	Winlink Wednesday Net Confirmation (Episode #405)	
		20	024/06/12 18:34	RRLYB7NLMSBT	496	AREC-C	AREC-CHECKIN	ZL2GBX	ACK: Winlink Check-in EXERCISE - ZL2GBX - Home QTH, Blenheim - Branch 22	
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Composing a Message



Winlink Development Team

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- Settings Message Attachments Move To: Saved Items

In Vara HF Winlink session.		
System Folders	Subject	^
Inbox (4 unread)	Post to Outbox Select Template Attachments Spell Check Save in Drafts Close AREC-Check-In Net Results Dated 30.06.24	
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Sent Items (31)	To: AREC-Check-In Net Results Dated 23.06.24	
Saved Items (0)	EmComm training Exercise June 20th	
Deleted Items (3)	Subject: AREC-Check-In Net Results Dated 16.06.24	
Personal Folders	ACK: Winlink Check-in EXERCISE - ZL2GBX - Home QTH, Blenheim - Branch 22	_
	Attach: Winlink Wednesday Net Confirmation (Episode #405)	
	ACK: Winlink Check+in EXERCISE - ZL2GBX - Home QTH, Blenheim - Branch 22	_
	De: Minink Check in EVEDCISE 71.3GBY Home OTH Disphaim Branch 23	
		~
Global Folders		
Contacts	1	
AREC_CENTRAL		
AREC_NORTHERN_(AUCKLAND AREC_NORTHERN_(GISBORNE)		
AREC_SOUTHERN_REGION		
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✓ Delete Open Session: Vara HF Winlink

Logs Help

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Outbox (0) Sent Items (33)	2024/07/25 15:42 QBY	Q2G6RIDBL 703	KN4LQN K	N4LQN V	Iridium GO Winlink	ednesday Net Confirmation (Episode #411)		
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	Message ID: 5XJ7DBIRW	VE1G			Vara HF Radio-only			~
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	To: ZL2GBX	com			Telnet Radio-only			
	Source: SMTP				Telnet Post Office			
	Downloaded-from: RMS:	ZLISEA						
Contacts	Subject: Re: testing	54321						
AREC CENTRAL	The quick brown fox j	jumped over the	lazy dog	s <mark>e</mark> h				
AREC_NORTHERN_(AUCKLAND) AREC_NORTHERN_(GISBORNE) AREC_SOUTHERN_REGION AREC-RUWHENUA HOME_EMAIL HOME_EMAIL2	On Tue, 12 Mar 2024, > Blh The quick btrow > >	7:23 pm , <zl2< td=""><td>GBX@winlin er the la:</td><td>nk.org> wrote zy dog</td><td></td><td></td><td></td><td></td></zl2<>	GBX@winlin er the la:	nk.org> wrote zy dog				
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Type here to search	Sin H	🧿 🗄 🚼	2 💿	oli 🐖 🚺	200 x 🕺 👗 🚦	a 📼 🌔 🔛 📾 🥼 🧧 📼 🚛	ENG 11:11 29/07/2024	4

ZL2GBX Settings Message Attachments Mow To: Saved Items Delete Open Session: Vara HF Winlink Logs Help Exit Settings Center Freq: T155.000 Dial Freq: T155.000 Dial Freq: T153.500 Bandwidth: 2750 Bandwid	240 Quality: 53
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In Vara HF Winlink session. System Folders Date/Time Message ID Size Source Sender Recipient Subject Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected Inbox (16 unread) Image: Sender Stress VID Sender Stress VID Sender Stress VID Sender Stress Subject Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected	Guuneji
System Folders Date/Time Message ID Size Source Sender Recipient Subject Inbox (16 unread) 2024/07/28 07:55 HMZ0TTBTJPWH 49318 ZM1SEA AREC-CHECKIN ZK1EBW AREC-Check-In Net Results Dated 28.07.24 Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected	
Inbox (16 unread)	
Read Items (0) Outbox (0) E 2024/07/28 0 YE6UOMKL8 498 ZM1SEA AREC-CHECKIN ZL2GBX ACK: Winlink Check-in EXERCISE - ZL2GBX - Home QT *** Launching VARA TNC at 127.0.0.1 port 8300	^
Sent Items (63)	
Saved Items (0) 2024/07/21 07:29 817QUHQSP8MF 96092 ZM1SEA ZM1SEA ZL4ROB AREC-Check-In Net Results Dated 21.07.24 Special Update Ready	
Deleted Items (11) Drafts (0) AREC-Check-In Net Results Dated 21.07.24	
Personal Folders 2024/07/21 06:50 5BUIJAQNHN9H 987 ZM1SEA AREC-CHECKIN ZL2GBX Re: Winlink Check in EXERCISE - ZL2GBX - Home QTH, Blenheim	
Emcomm (5) 📄 2024/07/20 07:20 V1GLQ7F23AXY 1097 ZL2SEA ZL2SEA ZL2GBX Re:ZL2TBD New HF Winlink Gateway at Hokitika	
2024/07/20 07:00 2772VUBAS2TT 630 ZM1SEA AREC-CHECKIN ZK1EBW Re:ZL2TBD New HF Winlink Gateway at Hokitika	
2024/07/20 06:29 YDMDDK4270Z0 1108 ZM1SEA AREC-CHECKIN ZL2GBX Re:ZL2TBD New HF Winlink Gateway at Hokitika	
2024/07/19 21:14 8N8X41371P6A 1022 ZL2TBD ZL2TBD AREC-CHECKIN Re:ZL2TBD New HF Winlink Gateway at Hokitika	
Global Folders 📔 2024/07/19 0 64CZWZ7GA 475 KN4LQN KN4LQN ZL2GBX Winlink Wednesday Roster Published (17 July 2024, Ep	
2024/07/18 1 2KVIKMKCT2LB 377 KN4LQN KN4LQN ZL2ATH Winlink Wednesday Net Confirmation (Episode #410)	
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2024/07/16 11:31 17IRVRL2FTVA 1609 KN4LQN KN4LQN XE1PAS Winlink Wednesday Reminder (#410)	
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GARY_LODGE	
JOHN_ERRINGTON ERRINGTON ALL 4CJ612F5CLB8 382 KN4LQN KN4LQN ZL1BQA Winlink Wednesday Net Confirmation (Episode #408)	
PAUL_RENNIE 2024/07/02 11:34 OI54DLLMNOKA 1612 KN4LQN KN4LQN YV5BRB Winlink Wednesday Reminder (#408)	
Message ID: E96C7UQ3JYBM	~
Date: 2024/03/10 08:47 (UTC)	
To: ZL2GBX 1.0	
Source: SMTP	
Downloaded-twomt PMSt711SKA	
Downloaded-from: RMS:ZLISEA Subject: Return test 3	
Downloaded-from: RMS:2LISEA Subject: Return test 3	
Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	
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Downloaded-from: RMS12LISEA Subject: Return test 3 Testing testing 0987654321	
Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	SIN
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Downloaded-From: RMS12LISEA Subject: Return test 3 Testing testing 0987654321	SIN SIN

Winlink Express 1.7.17.0 - ZL2	GBX						– 🗆 🗙	🕺 HF Char	nn <mark>el Selecto</mark> r								
ZL2GBX - Settings	Mess	age Attachmen	ts Move To: Sav	ved Items 🛛 🗸	Delete Open S	Session: Vara HF	Winlink V Logs Help	Select Cha	nnel Update	Via Internet	Update Via Ra	dio Ma	ap Forecast	SFI Exit	All RMS		•
	+ +	🖸 🛛 🗶 🔒	<u>-</u>] + @														100
In Vara HF Winlink session.									Frequency		Grid		10.000	Dietance	Bearing	Path	Path
System Folders		Date/Time 💌	Message ID	Size Source	Sender	Recipient	Subject	Callsign	(kHz)	Mode	Square	Hours	Group	(km)	(Degrees)	Reliability	Quality
Inbox (16 unread)	1	2024/07/28 07:55	HMZOTTBTJPWH	49318 ZM1SEA	AREC-CHECKIN	ZK1EBW	AREC-Check-In Net Results Dated 28.07.24	ZL2TBD	7175.000	V2750	RE57LG	00-23	PUBLIC	284	240	95	53
Read Items (0)	E	2024/07/28 0	YE6UOMKL8	498 ZM1SEA	AREC-CHECKIN	ZL2GBX	ACK: Winlink Check-in EXERCISE - ZL2GBX - Home Q1	ZL2TBD	14105.000	V2750	RE57LG	00-23	PUBLIC	284	240	0	0
Sent Items (63)	Ê	2024/07/24 05:56	6EX3IXQE11RK	1384 ZM1SEA	ZM1SEA	ZL2GBX	Re: Marlborough	ZL2TBD	14150.000	V2750	RE57LG	00-23	PUBLIC	284	240		0
Saved Items (0)	🦉 🍙	2024/07/21 07:29	817QUHQSP8MF	96092 ZM1SEA	ZM1SEA	ZL4ROB	AREC-Check-In Net Results Dated 21.07.24 Special Update	ZL2TBD	7155.000	V2750	RE57LG	00-23	PUBLIC	284	240	95	53
Drafts (0)		2024/07/21 07:14	M5IY9XYGXC8L	83165 ZM1SEA	AREC-CHECKIN	ZL4ROB	AREC-Check-In Net Results Dated 21.07.24	ZL2TBD	7165.000	V2750	RE57LG	00-23	PUBLIC	284	240	95	53
Personal Folders	Ê	2024/07/21 06:50	5BUIJAQNHN9H	987 ZM1SEA	AREC-CHECKIN	ZL2GBX	Re: Winlink Check-in EXERCISE - ZL2GBX - Home QTH, Blenheim	ZL1AOX	7215.000	V2750	RF72MV	00-23	PUBLIC	495	011	85	49
Emcomm (5)	Ê	2024/07/20 07:20	V1GLQ7F23AXY	1097 ZL2SEA	ZL2SEA	ZL2GBX	Re:ZL2TBD New HF Winlink Gateway at Hokitika	ZL1AOX	7190.000	V2750	RF72MV	00-23	PUBLIC	495	011	85	49
	Ê	2024/07/20 07:00	2772VUBAS2TT	630 ZM1SEA	AREC-CHECKIN	ZK1EBW	Re:ZL2TBD New HF Winlink Gateway at Hokitika	ZL1AOX	7195.000	V2750	RF72MV	00-23	PUBLIC	495	011	85	49
	Ê	2024/07/20 06:29	YDMDDK4270Z0	1108 ZM1SEA	AREC-CHECKIN	ZL2GBX	Re:ZL2TBD New HF Winlink Gateway at Hokitika	ZL1AOX	14130.000	V2750	RF72MV	00-23	PUBLIC	495	011		10
		2024/07/19 21:14	8N8X41371P6A	1022 ZL2TBD	ZL2TBD	AREC-CHECKIN	Re:ZL2TBD New HF Winlink Gateway at Hokitika	ZL4RMS	21424.000	V2300	RE44QI	00-23	PUBLIC	592	217	0	0
Global Folders	E	2024/07/19 0	64CZWZ7GA	475 KN4LQN	KN4LQN	ZL2GBX	Winlink Wednesday Roster Published (17 July 2024, Ep	ZL4RMS	7136.000	V2300	RE44QI	00-23	PUBLIC	592	217	81	48
		2024/07/18 1	2KVIKMKCT2LB	377 KN4LQN	KN4LQN	ZL2ATH	Winlink Wednesday Net Confirmation (Episode #410)	ZL4RMS	3621.500	V2300	RE44QI	00-23	PUBLIC	592	217		20
	_ €	2024/07/18 08:43	AFEKROSDD96N	634 ZM1SEA	AREC-CHECKIN	ZK1EBW	ZL2TBD New HF Winlink Gateway at Hokitika	ZL4RMS	7146.000	V2300	RE44QI	00-23	PUBLIC	592	217	81	48
	Ê	2024/07/16 11:31	17IRVRL2FTVA	1609 KN4LQN	KN4LQN	XE1PAS	Winlink Wednesday Reminder (#410)	ZL4RMS	14124.000	V2300	RE44QI	00-23	PUBLIC	592	217	22	28
Contacts		2024/07/14 16:24	DBEVE7GRHQ02	32787 ZM1SEA	AREC-CHECKIN	ZK1EBW	AREC-Check-In Net Results Dated 14.07.24	ZL4RMS	14134.000	V2300	RE44QI	00-23	PUBLIC	592	217	22	27
ETO-DX	1	2024/07/07 07:26	6JEO2KK46JC2	31697 ZM1SEA	AREC-CHECKIN	ZK1EBW	AREC-Check-In Net Results Dated 07.07.24	ZL2SEA	3591.500	V2750	RF64TU	00-23	PUBLIC	704	358		1
GARY_LODGE		2024/07/05 0	LB2B8DSIF8MR	484 KN4LQN	KN4LQN	ZL1BQA	Winlink Wednesday Roster Published (3 July 2024, Epis	ZL1SEA	3657.000	V2750	RF64TU	06-04	PUBLIC	704	358		12
JOHN_ERRINGTON	E	2024/07/04 1	4CJ6I2F5CLB8	382 KN4LQN	KN4LQN	ZL1BQA	Winlink Wednesday Net Confirmation (Episode #408)	ZL1SEA	7187.000	V2750	RF64TU	06-04	PUBLIC	704	358	71	45
PAUL_RENNIE		2024/07/02 11:34	OI54DLLMNOKA	1612 KN4LQN	KN4LQN	YV5BRB	Winlink Wednesday Reminder (#408)	ZL1SEA	1847.000	V2750	RF64TU	06-04	PUBLIC	704	358	0	0
	Messa	ge ID: E96C71	UQ3JYBM				1	ZL2SEA	21427.000	V2750	RF64TU	00-23	PUBLIC	704	358		0
	Date: From:	2024/03/10 gibceds@gma	08:47 (UTC)					ZL2SEA	18137.000	V2750	RF64TU	00-23	PUBLIC	704	358	0	0
	To: Z	L2GBX						ZL2SEA	14137.000	V2750	RF64TU	00-23	PUBLIC	704	358	34	34
	Source	e: SMTP						ZL1SEA	3647.000	V2750	RF64TU	06-04	PUBLIC	704	358	0	11
	Subje	ct: Return t	est 3					ZL1SEA	3717.000	V2750	RF64TU	06-04	PUBLIC	704	358	0	12
	-							ZL2SEA	14127.000	V2750	RF64TU	00-23	PUBLIC	704	358	34	35
	Testi	ng testing to	esting 098765	4321				ZL1SEA	7133.000	V2750	RF64TU	06-04	PUBLIC	704	358	70	45
								ZL1SEA	7143.000	V2750	RF64TU	06-04	PUBLIC	704	358	70	45
								ZL2SEA	7143.000	V2750	RF64TU	00-23	PUBLIC	704	358	70	45
								ZL2SEA	7133.000	V2750	RF64TU	00-23	PUBLIC	704	358	70	45
								VK2RZ	10146.400	V2750	QF56PG	00-23	PUBLIC	2165	286	1	25
								VK2RZ	21086.400	V2750	QF56PG	00-23	PUBLIC	2165	286		0
								VK2RZ	7045.000	V2750	QF56PG	00-23	PUBLIC	2165	286		0
								VK2RZ	18115.000	V2750	QF56PG	00-23	PUBLIC	2165	286		6
								VK2RZ	14103.000	V2750	QF56PG	00-23	PUBLIC	2165	286	15	34
								VK2IO	7046.500	V2300	QF56LG	00-23	PUBLIC	2191	286		0
								VK2EHQ	3569.500	V2750	QF56OR	00-23	PUBLIC	2197	287		0
								VK2EHQ	7063.000	V2750	QF56OR	00-23	PUBLIC	2197	287	0	0
								VK3MIT	21080.500	V2750	QF33DP	00-23	PUBLIC	2447	274	0	0
								VK3MTI	3577.000	V2750	QF33DP	00-23	PUBLIC	2447	274		0
								VK3MIT	7056.500	V2750	QF33DP	00-23	PUBLIC	2447	274	0	0
								VK3MIT	14103.500	V2750	QF33DP	00-23	PUBLIC	2447	274	14	33

×

Map of RMS







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Using "Auto-connect" to Select RMS

🗱 Vara HF \	Winlink Session - W4PHS	—	
Exit Settin	ngs Channel Selection Map Forecast Auto-connect Next chan. Start Stop Abort	D 124	52
Favorites:	Center Freq: 3393.300 Dial Freq: 3394.000 Bandwidth: 2300 Bearing: 113 C Select Add to favorites Remove from favorites	Quality:	55
Channel Free	In: 0/0 Out: 0/0 BPM: 0/0 Disconnected		
*** I I - 37	ADA TNC		

- Click "Auto-connect" to tell Winlink Express to start trying channels in decreasing order of connection quality. Busy channels are skipped automatically.
- Quality estimate is based on several things:
 - Computed propagation quality
 - Success/Failure history for channel
 - Relative Signal/Noise history

ZL2GBX Settings Message Attachments Mow To: Saved Items Delete Open Session: Vara HF Winlink Logs Help Exit Settings Center Freq: T155.000 Dial Freq: T155.000 Dial Freq: T153.500 Bandwidth: 2750 Bandwid	240 Quality: 53
Image: Control of the con	240 Quality: 53
In Vara HF Winlink session. System Folders Date/Time Message ID Size Source Sender Recipient Subject Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected Inbox (16 unread) Image: Sender Stress VID Sender Stress VID Sender Stress VID Sender Stress Subject Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected	Guuneji
System Folders Date/Time Message ID Size Source Sender Recipient Subject Inbox (16 unread) 2024/07/28 07:55 HMZ0TTBTJPWH 49318 ZM1SEA AREC-CHECKIN ZK1EBW AREC-Check-In Net Results Dated 28.07.24 Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected	
Inbox (16 unread)	
Read Items (0) Outbox (0) E 2024/07/28 0 YE6UOMKL8 498 ZM1SEA AREC-CHECKIN ZL2GBX ACK: Winlink Check-in EXERCISE - ZL2GBX - Home QT *** Launching VARA TNC at 127.0.0.1 port 8300	^
Sent Items (63)	
Saved Items (0) 2024/07/21 07:29 817QUHQSP8MF 96092 ZM1SEA ZM1SEA ZL4ROB AREC-Check-In Net Results Dated 21.07.24 Special Update Ready	
Deleted Items (11) Drafts (0) AREC-Check-In Net Results Dated 21.07.24	
Personal Folders 2024/07/21 06:50 5BUIJAQNHN9H 987 ZM1SEA AREC-CHECKIN ZL2GBX Re: Winlink Check in EXERCISE - ZL2GBX - Home QTH, Blenheim	
Emcomm (5) 📄 2024/07/20 07:20 V1GLQ7F23AXY 1097 ZL2SEA ZL2SEA ZL2GBX Re:ZL2TBD New HF Winlink Gateway at Hokitika	
2024/07/20 07:00 2772VUBAS2TT 630 ZM1SEA AREC-CHECKIN ZK1EBW Re:ZL2TBD New HF Winlink Gateway at Hokitika	
2024/07/20 06:29 YDMDDK4270Z0 1108 ZM1SEA AREC-CHECKIN ZL2GBX Re:ZL2TBD New HF Winlink Gateway at Hokitika	
2024/07/19 21:14 8N8X41371P6A 1022 ZL2TBD ZL2TBD AREC-CHECKIN Re:ZL2TBD New HF Winlink Gateway at Hokitika	
Global Folders 📔 2024/07/19 0 64CZWZ7GA 475 KN4LQN KN4LQN ZL2GBX Winlink Wednesday Roster Published (17 July 2024, Ep	
2024/07/18 1 2KVIKMKCT2LB 377 KN4LQN KN4LQN ZL2ATH Winlink Wednesday Net Confirmation (Episode #410)	
1 2024/07/18 08:43 AFEKROSDD96N 634 ZM1SEA AREC-CHECKIN ZK1EBW ZL2TBD New HF Winlink Gateway at Hokitika	
2024/07/16 11:31 17IRVRL2FTVA 1609 KN4LQN KN4LQN XE1PAS Winlink Wednesday Reminder (#410)	
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GARY_LODGE	
JOHN_ERRINGTON ERRINGTON ALL 4CJ612F5CLB8 382 KN4LQN KN4LQN ZL1BQA Winlink Wednesday Net Confirmation (Episode #408)	
PAUL_RENNIE 2024/07/02 11:34 OI54DLLMNOKA 1612 KN4LQN KN4LQN YV5BRB Winlink Wednesday Reminder (#408)	
Message ID: E96C7UQ3JYBM	~
Date: 2024/03/10 08:47 (UTC)	
To: ZL2GBX 1.0	
Source: SMTP	
Downloaded-twomt PMSt711SKA	
Downloaded-from: RMS:ZLISEA Subject: Return test 3	
Downloaded-from: RMS:2LISEA Subject: Return test 3	
Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	
Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	
Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	
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Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	
Downloaded-from: RMS:21ISEA Subject: Return test 3 Testing testing 0987654321	
Downloaded-from: RMS12LISEA Subject: Return test 3 Testing testing 0987654321	
Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	SIN
Downloaded-from: RMS:2LISEA Subject: Return test 3 Testing testing 0987654321	SIN
Downloaded-From: RMS12LISEA Subject: Return test 3 Testing testing 0907654321	SIN
Downloaded-from: RBS12LISEA Subject: Return test 3 Testing testing 0987654321 VU Audo Input. 77 dB DATA REQ ORT	SIN SIN
Downloaded-From: RMS12LISEA Subject: Return test 3 Testing testing 0987654321	SIN SIN



Level	Symbol Rate	Carriers	Mod.	Bytes / Packet	Net Data Rate	User Data Rate
1	37,5	52	BPSK	20	35	29
2	37,5	52	BPSK	32	54	45
3	37,5	52	BPSK	71	113	94
4	37,5	52	BPSK	150	234	194
5	37,5	52	BPSK	308	476	395
6	37,5	52	BPSK	626	963	799
7	37,5	52	4PSK	1257	1929	1601
8	37,5	52	8PSK	1887	2893	2401
9	37,5	52	16QAM	2951	4521	3752
10	37,5	52	32QAM	3690	5653	4692
11	37,5	52	32QAM	4428	6782	5629

VAR A



OFDM Signal Frequency Spectra

Setting up a Winlink Client

Google is your friend – there are many hardware-specific tutorials

Download Winlink Express if on PC Download WoAD if android-based Download VARA (HF/FM) as required

Setup is reasonably straightforward – sometimes getting audio levels correct is tricky Beware there are settings in both Winlink Express and VARA etc, and in the radio.

Connection between computer and radio ranges from simple to complex (but remember Google will help!)

Once setup and working document/record all settings

Winlink Express 1.7.17.	.0 - ZL2GBX						- 0 ×			
ZL2GBX •	Settings Message Attachments Move To:	Saved Iter	ms	V Dele	te Open Session	Vara FM Wi	nlink 🗸 Logs Help			
	Winlink Express Setup									
No active session	Font for text									
System Folde	Font for lists	je ID	Size	Source	Sender	Recipient	Subject	~		
Inbox (4 unread)	Set color themes	KF24Q8C	49508	SMTP	SMTP:gjbarton@	ZL2GBX	50k pic uhf			
Read Items (0)	GPS / Position Reports	5JIQUU	806	KN4LQN	KN4LQN	WOAYE	Winlink Wednesday Roster Published (24 July 2024, Episode #411)			
Sent Items (33)	Winlink Catalog Requests	GGRIDBL	703	KN4LQN	KN4LQN	W0AYE	Winlink Wednesday Net Confirmation (Episode #411)			
Saved Items (0)	GRIB file request	FVWTC	1118	ZM1SEA	ZM1SEA	ZL4ROB	EmComm Training Organization - Excersise			
Deleted Items (3)	Preferences	IGC2GK	31049	ZM1SEA	AREC-CHECKIN	ZK1EBW	AREC-Check-In Net Results Dated 30.06.24			
Personal Fold		GZRT64	493	AREC-C	AREC-CHECKIN	ZL2GBX	ACK: Winlink Check+in EXERCISE - ZL2GBX - Home QTH, Blenheim - Branch 22			
	Mercage Notification and Forwarding	DBVN1L0	54154	ZM1SEA	AREC-CHECKIN	ZK1EBW	AREC-Check-In Net Results Dated 23.06.24			
	Form settings	3G5N0BZ	849	ZM1SEA	AREC-CHECKIN	ZK1EBW	EmComm training Exercise June 20th			
	Auto session open on startun		63763	7MICEA		7K1CDW	ADEC Cheak In Not Danute Dated 16 06 24	~		
		_G						~		
Global Folde	Contacts	1								
	Group Addresses	_								
	Add Personal Folder	ISEA								
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Contacts	Hybrid Network Parameters	uped over the lazy dogs eh								
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AREC-RUWHENUA	View Usage Statistics	for jumps over the lazy dog								
HOME_EMAIL	View background tasks	1								
	Backup and restore databases									
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System Folders		Call Signs	My Password	Contact Information (Optional)			^
nbox (4 unread) Read Items (0)			(Case sensitive)	Name:	Greg Barton		
Outbox (0)		Callsign suffix (optional):	(Used for country code) Change password	Street address 1:	33 Purkiss Street	-	
aved Items (0)		Proquerd measurem a molt		Street address 2:	Springlands		
eleted Items (3)	. 91	(Non-Winlink e-mail address	gbarton@gmail.com where lost password will be sent when requested)	City:	Blenheim		
Personal Folders		Pamaua Callaian		State/Province:	Marlborough	ranch 22	
	9.	Remove Calisign	Request password be sent to recovery ernall	Country:	New Zealand		
				Postal code:	7201		
	Mes	Auxiliary Callsigns and Tactical A	ddresses	Web Site URL (optional):		-	
Global Folders	Date		Add Entry	Phone number:	64 275689729		
Gibbal Folders	To:		Remove Entry	Non-Winlink e-mail:	gjbarton@gmail.com		
	Sou		Eait Entry	Additional information (optiona	l):		
	Sub	My Crid Sayamy DECOVM			~		
Contacts	ТЪА	My drid Square. RE68XM	Lat/Lon to Grid Square				
REC_CENTRAL REC_NORTHERN_(AUCKLAND)	Inc	Winlink Express registration ke	ey: D0F565850D773C4902206E18DC0A8183				
REC_NORTHERN_(GISBORNE) REC_SOUTHERN_REGION	On 1	Service Codes		Recalculate HF path quality if SF	I changes more than: 10		
REC-RUWHENUA OME_EMAIL	> B.	PUBLIC		Keep logs for 2 🚔 weeks.	Keep deleted messages for 720	days.	
OME_EMAIL2	>	(Use PUBLIC for ham call sign	s. Separate multiple service codes by spaces.)	Display list of pending incomin	g messages prior to download		
		If you change service codes, y	you must update the list of channels.	Warn about connections to st	ations holding messages		
				Automaticaly install field-test (b	peta) versions of Winlink Express		
		Update	Cancel Help		na ioar prompting		

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Vara	HF Winlink Session - ZL2GBX		1.000	đ	×
Exit Favor	Settings Channel Selection Vara TNC Setup Radio Setup Auto-connect setup	Map Forecast Auto-connect Next chan. Start Stop Abort 5.000 Dial Freq: 7043.500 Bandwidth: 2750 Bearing: 286 Quality: 26 • Select Add to favorites Remove from favorites 26 Disconnected Disconnected Disconnected Disconnected			
** Launch ** Succes ** Maximu ** Using `	ing VARA TNC sfully connected to VARA TNC a m signal bandwidth is set to 275 'aesu FT-817, COM7, 9600 baud	t 127.0.0.1 port 8300) Hz.			0

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*** Ready *** This is a registered version of Vara TNC that can operate at full speed.

😵 Vara HF Winlink Session - ZL2GBX D X Exit Settings Channel Selection Map Forecast Auto-connect Next chan. Start Stop Abort VK2RZ 7045.000 7043.500 Bandwidth: 2750 Bearing: 286 Quality: 26 Dial Freq: Center Freq: Add to favorites Remove from favorites Favorites: Select Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected Vara HF Winlink Settings *** Launching VARA TNC X ** Successfully connected to VARA TNC at 127.0.0.1 port 8300 *** Maximum signal bandwidth is set to 2750 Hz. Radio Selection "" Using Yaesu FT-817, COM7, 9600 baud ** Ready Default Select Radio Model Yaesu FT-817 Antenna Selection 1 V ** This is a registered version of Vara TNC that can operate at full speed. USB () Use Internal Tuner USB Digital 🔘 FM () Icom Address 94 Use Internal Soundcard Codan Radios Filter width: 2.4 kHz > Codan login and optional password: Enable ALE scanning after session completes Radio Control Port Serial Port to Use 9600 Enable RTS Enable DTR TTL Baud V V PTT Port (Optional) Serial Port to Use Enable RTS Enable DTR Baud 9600 V Log radio control commands to RMS Express(date).log Update Cancel

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🗱 Vara HF Winlink Session - ZL2GBX		- 0 ×
Exit Settings Channel Selection Map Forecast Auto-connect Next VK2RZ Center Freq: 7045.000 Dial Freq: 7043.500 Ba Favorites: • Select Add to favorites Channel Free In: 0/0 Out: 0/0 BRM: 0/0 Disconnected	chan. Start Stop Abort ndwidth: 2750 Bearing: 286 Quality: 26 Remove from favorites	
 *** Launching VARA TNC *** Successfully connected to VARA TNC at 127.0.0.1 port 8300 *** Maximum signal bandwidth is set to 2750 Hz. *** Using Yaesu FT-817, COM7, 9600 baud *** Ready ** This is a registered version of Vara TNC that can operate at full speed. 	Virtual TNC host address/name: 127.0.0.1 Virtual TNC command port: 8300 • Data Port: 8301 Maximum signal bandwidth: 2750 Virtual TNC command port: (Vara 2750 requires radio TX filter set for 100-2900 Hz and RX bandwidth of 3000) VARA Modem location: C:\VARA\Vara.exe Automatically launch Vara TNC when session is opened Show the Vara TNC screen when it's launched Identify with Morse code at end of session Log Vara commands to Vara(date).log file	

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		WoAD		🖍 NEW MESSAGE		ESSAGE FROI	M TEMPLA	
•	Flags	Date	♦ From	≑ То	Subject	Message	♣ Id	Size
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	E	2024-07-08 20:47:00	AREC-CHECKIN	ZL2GBX	Re: AREC-Che	Hi Greg, its becaus	HYXZMP CZJRKK	7968
		2024-07-08 20:44:00	AREC-CHECKIN	ZL2GBX	Re: Winlink Check-in E	Well done Greg at be	KM4NUK LOQFA2	1675
	≣⇒	2024-05-24 21:50:00	ZL4HZ	ZL2GBX	Re: Gateway i	Hey Greg, 	STNL82 UA80XA	1816

Inbox

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>					STAR	T STOP	0	About	-

Current setup in Marlborough

There is a VHF/UHF RMS gateway at ZL2GBX operating 24/7

- 2 x Tait 8200 radios and controller (supplied free by AREC)
- USB connecting cable (supplied free by AREC)
- A windows PC (basic peripherals) *
- Winlink Express (free) and VARA software (free trial / 60€)*
- 12v power supply *
- 2M and 70cm antennas and cabling *
- Internet connection *
 - * (currently supplied by ZL2GBX)

Several members have configured Winlink clients using HF or VHF/UHF Current access via HF is via the available gateways in NZ / Australia and beyond

VHF/UHF access is via the ZL2GBX-10 or ZL2GBX-12 gateways – there are likely to be additional gateways in Wellington that may be accessible later.





AREC Interface box (USB to PC, RS232 to transceivers) VHF transceiver UHF transceiver HP Elitedesk W10 PC

Vara FM Winlink Session - ZL2GBX — 📃 🔀	Vara FM C	hannel Selector					,
t Settings Channel Selection Start Stop Abort	Select Chan	nel Update T	able Via Intern	et Update 1	Table Via Radio	e Exit	
nnection: Direct - via , Freq.: 0.000 Range: 0 Bearing: 000	Stations foun	d within 300 kil	ometers of you	ur grid square	i.		
vorites: Select Add to favorites Remove from favorites	Callsign	Frequency (MHz)	Channel Width	Grid Square	Group	Distance (km)	Bearing (Degrees)
/0 Out: 0/0 BPM: 0/0 Disconnected Time to next Autoconnect = Disabled	ZL2GBX-10	144.650	Wide	RE68XL	PUBLIC	004	180
unching VARA FM TNC: C:\VARA\VARA FM\VARA FM\VARAFM.exe	^ ZL2GBX-12	432.675	Wide	RE68XL	PUBLIC	004	180
sady	ZL2SLD-10	144.650	Wide	RE78IR	PUBLIC	067	070
is is a registered version of Vara TNC that can operate at full speed.	ZL2SLD-12	432.675	Wide	RE78IR	PUBLIC	067	070
	ZL3EX	145.300	Wide	RE66HL	PUBLIC	251	205
	ZL3EX	432.675	Wide	RE66HL	PUBLIC	251	205
				Q			
0.8 0.6 0.4 0.4 0.2 0.0 DATA	~						

The Winlink Radio E-mail Network

- No infrastructure is needed. Extremely resilient.
- Winlink provides e-mail from *any* point on the earth including the middle of the ocean (or within your county/Jurisdiction).
- Messages are sent via HF, VHF/UHF radio, and telnet.
- Winlink software and use of the system are *free of charge*.
- Hardware costs are minimal. Less than one Motorola P25 handheld.
- Winlink provides 100% accurate transmission.
- AES-256 transmission encryption is available (not on amateur radio).
- Winlink is an interoperable store-and-forward system providing time and frequency *independence*.
- Winlink is <u>interoperable</u> between commercial radio, amateur radio, Internet e-mail, cell phone, satellite and other services.

What next?

Establish a permanent Hybrid RMS (HF/VHF/UHF)

- Location secure, quiet (HF), accessible, power, internet
- Critical in the event of AF8 or other natural disaster or cyber outage

Grow user base and encourage regular exercises to maintain operational competence

- AREC Check-ins
- Winlink Wednesday etc
- Develop hardware solutions phone/handheld, PC/base station

All the links you'll ever

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https:// winlink.org

Winlink

VARA



VARA Chat v1.4.1 (Easy Text and File transfer chat)

VARA Terminal v1.2.2 (VARA dumb terminal for BBS's)

» VARA HF Modem » New ROS v7.4.0 » (no title) » ROS WEEKEND HF AWARD 2016 » 1 ST 27Mhz ROS WEEKEND AWARD

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Youtube



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Who are some key players in Winlink?

ARSF (Inc) Non-profit organisation - Winlink is their main project (since 2006)

Steve Waterman K4CJX One of the original Winlink Development team (manages RMS registrations)

Jose Ros EA5HVK Developer of the VARA software

Nigel Goldstone ZL1SEA – AREC and operator of the initial RMS gateway in Kaeo

David Chesterfield KN4LQN – coordinator of Winlink Wednesdays etc

EM-COMM – umbrella term – ARRL / FCC / ETO etc