WINLINK 200

Global Radio Email System

Amateur Radio Safety Founda

an, KØQED

Development Team

, Amateur Radio Safety Foundation

What Is Winlink?

A worldwide system of volunteer sysops, radio stations, and network assets supporting email by radio

Non-commercial services including email with attachments, position reporting, graphic and text weather bulletins.

Built and administered entirely by volunteers

Winlink is a project of the Amateur Radio Safety Foundation, Inc.

- A charitable entity and 501c(3) non-profit

Zero cost for software and use of the system

What Is Winlink?

Who can use Winlink?

- Licensed radio operators - without normal internet access
- Emergency communicators, government agencies, NGOs

Provides vital support for 1,000's of sailors and rv'ers

Especially useful during emergencies or any time normal internet access has been interrupted
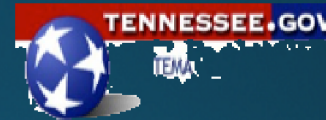
Winlink System Components
what makes it tick)

- Common Message Servers (CMS)
- Winlink Gateways
- Winlink Clients

Common Message Servers

- There are 5 Common Message Servers (CMS's) that make up the core of the Winlink system

- Located on three continents

- Redundant and fault-tolerant

- Only one server needed
  - Each server is capable of handling <u>ALL</u>message traffic

CMS's Worldwide

- CMS Brentwood
  - Brentwood, TN
- CMS Halifax
  - Halifax, Nova Scotia
- CMS Perth
  - Perth, Australia
- CMS San Diego
  - San Diego, CA
- CMS Wien (Vienna)
  - Austria, Germany

CMS Programs

...n CMS (Common Message Server)
...a number of Winlink server
...ponents

...CMS Telnet Server

...CMS SMTP Server

...CMS SMTP Client

...CMS Queue Processor

...CMS Inquiries

...CMS Position Reports

...CMS APRS Link

...CMS-CMS Link

...CMS Site Monitor

CMS Site Monitor - v2.6.0.5

File   Restart All   Stop All

CMS APRS Link	Running - Last Update 2013/11/01 01:24	CMS SMTP Server	Running - Last Update 2013/11/01 01:24
CMS Inquiries	Running - Last Update 2013/11/01 01:24	CMS Telnet Server	Running - Last Update 2013/11/01 01:25
CMS Position Reports	Running - Last Update 2013/11/01 01:24	CMS-CMS Link	Running - Last Update 2013/11/01 01:24
CMS Queue Processor	Running - Last Update 2013/11/01 01:24		
CMS SMTP Client	Running - Last Update 2013/11/01 01:24		

CMS Telnet Server - v2.7.8.6

File   View Hold Times

K7LCH   NNN0QGR

Telnet Counts: 2 / 20 / 404355 Remote SQL Query: IW2NTF-10 2013/11/01 01:24:30

CMS SMTP Server - v2.7.3.2

File   Application Log

```
2013/11/01 01:23:29 [57715753] 554 - No valid recipient address(12); SEE WWW.WINLINK.ORG/HELP
2013/11/01 01:23:29 [57715753] QUIT
2013/11/01 01:23:29 [57715753] Connection ended
```

Connections: 0 · Last connection at: 2013/11/01 01:23

CMS SMTP Client - v2.8.3.1

File

```
[515062/5] SMTP:mcopeletti@hvc.rr.com - 1 MX record(s) found
[515062/5] 220 Welcome to Road Runner. NO UCE *** FOR AUTHORIZED USE ONLY! ***
[515062/5] 250 E9MPX233TCMK N2UBP to SMTP:mcopeletti@hvc.rr.com · Accepted
```

Pending deliveries: 0	Open Connections: 0	Pending retries: 0

CMS Queue Processor - v2.7.8.8

File   Scrolling

```
2013/11/01 01:22 C 8JFAPFT4Q6XB/KA3LOC KA3LOC 617
2013/11/01 01:23 C 9A2NGD9PUZWM/SMTP SMTP:17863081418@mymetropcs.com 405
2013/11/01 01:24 R 122MJJEK0070 / NNN0QGR NNN0QGR 894
2013/11/01 01:24 C VQY2YD0U4E1L/WEBMAIL NNN0BQW 888
```

4   Idle

CMS Inquiries - v2.9.0.3

File

```
KJ7OK - [FXPQ60.PGUM] http://www.srh.noaa.gov/data/GUM/AFDPQ
KJ4IJO - WL2K_NEARBY
WL7CUO - [FZAK51.PAJK] http://weather.noaa.gov/pub/data/raw/fz/fzak51.pajk.cwf.ajk.txt
```

CMS-CMS Link - v2.8.3.3

File

```
2013/10/25 14:07:45 Brentwood - No Data Pendin
2013/10/25 14:07:45 Halifax - Updated
2013/10/25 14:07:45 Perth - No Data Pending
2013/10/25 14:07:45 SanDiego - No Data Pendin
2013/11/01 01:25:03 WEB Site - No Data Pendin
2013/11/01 01:25:01 Message Track - No Data Pe
```

CMS Position Reports - v2.7.2.1

Files

```
APRS report: SM7YNX
Report from DL6JW/DL6JW (1397_DL6JW
APRS report: DL6JW
Report from SM5XHH/SM5XHH (1559_SM5
APRS report: SM5XHH
Report from VE0BG/VE0BG (1247_VE0BG
APRS report: VE0BG
Report from VE0BG/VE0BG (1248_VE0BG
APRS report: VE0BG
```

APRS Pending: 0 Yotreps Pending: 0

CMS APRSLink - v4.0.4.2

File   Help

```
2013/10/30 23:37:12 · Received ack:
W1GTT>APU25N,WIDE2-2,SALECT,KB1AEV-K
W1HAF-2::WLNK-2  :ack2
```

WLNK-2 - Watch: 12941 Notify: 0 Sent: 5 Active: 0

Winlink Gateways

- Winlink gateways provide a pathway to a CMS (via the internet)
- Some Winlink gateways can forward messages to other gateways
- Current gateway programs:
  - RMS Trimode
  - RMS Packet
  - APRS Link
  - RMS Gateway (Linux)
  - BPQ32 (Windows and Linux, and the Raspberry Pi)
- Super gateway
  - RMS Relay with RMS Trimode provide Radio-Only mode

Winlink Clients

- Client programs are used to send and receive email
  - Connect to Winlink gateways over radio frequencies
    - (Sometimes telnet if Internet is available)
- RMS Express
  - Packet, Pactor, Winmor, Telnet
- PacLink
  - Packet, Pactor, Telnet, no Winmor
  - Local email server
- Airmail
  - Packet, Pactor, Telnet, no Winmor
  - Local email server
- Outpost
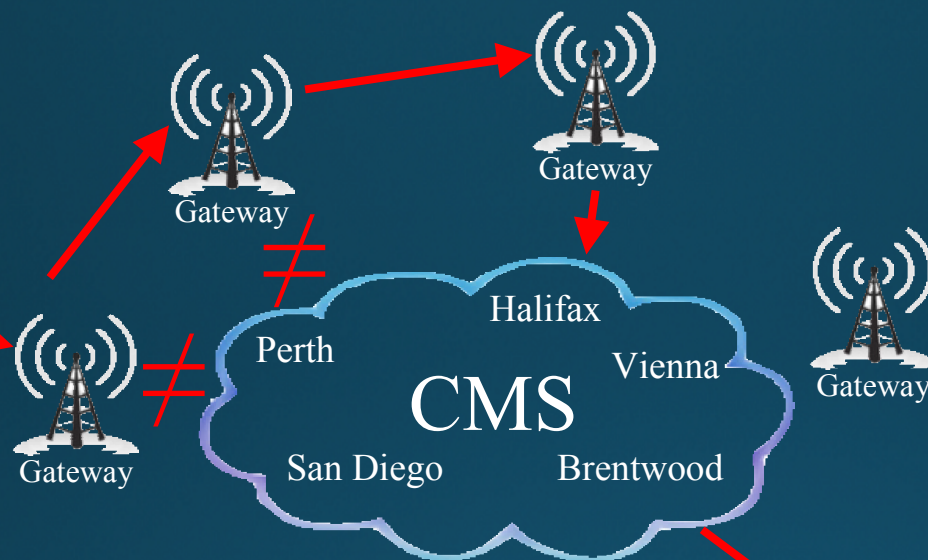 - Packet - Text only, no email attachments
- Others (BPQ, Linux...)

How does all this work?

Gateway

Email Recipient

CMS

Perth
Halifax
Vienna
San Diego
Brentwood

Internet Email Server

Your message is sent by radio to a Winlink gateway
The gateway passes the message to a CMS
The CMS immediately sends the message to your correspondent's email server
Your correspondent connects and receives your message

What if the internet is down?

^waaaay

Station

INTERNET DEAD ZONE

Perth

San ... ood

Gateway

Gateway

Gateway

Gateway

Gateway

MPS

Radio Station

...u send your message by radio to a gateway

...at gateway forwards it to another gateway

...ain

...d again

...ally, a gateway that is a message pickup

...tion for your recipient stores your message

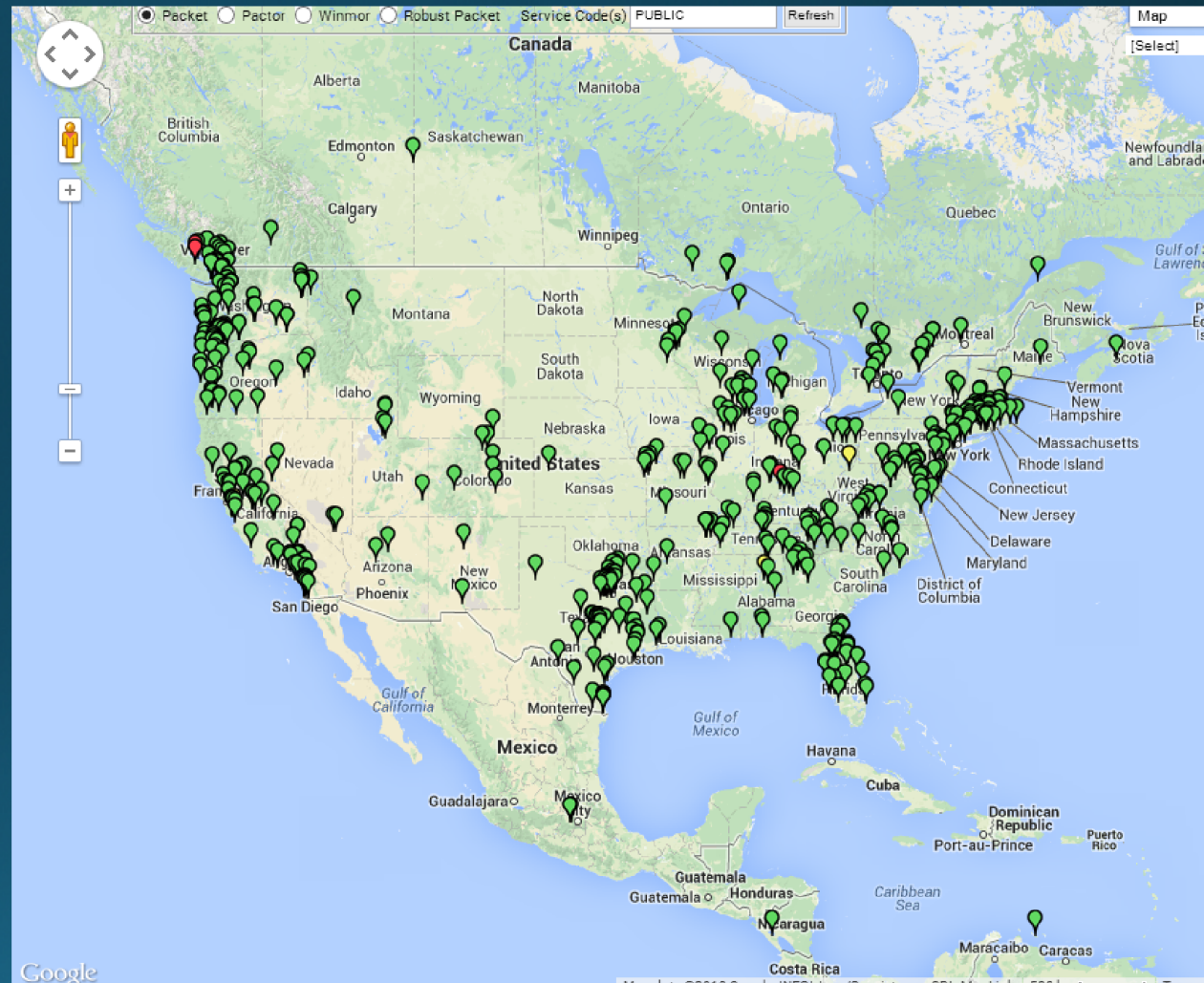...rrespondent connects by radio and receives

...ur message

Some Useful Resources

Gateway Status Maps

US Public Packet Gateways

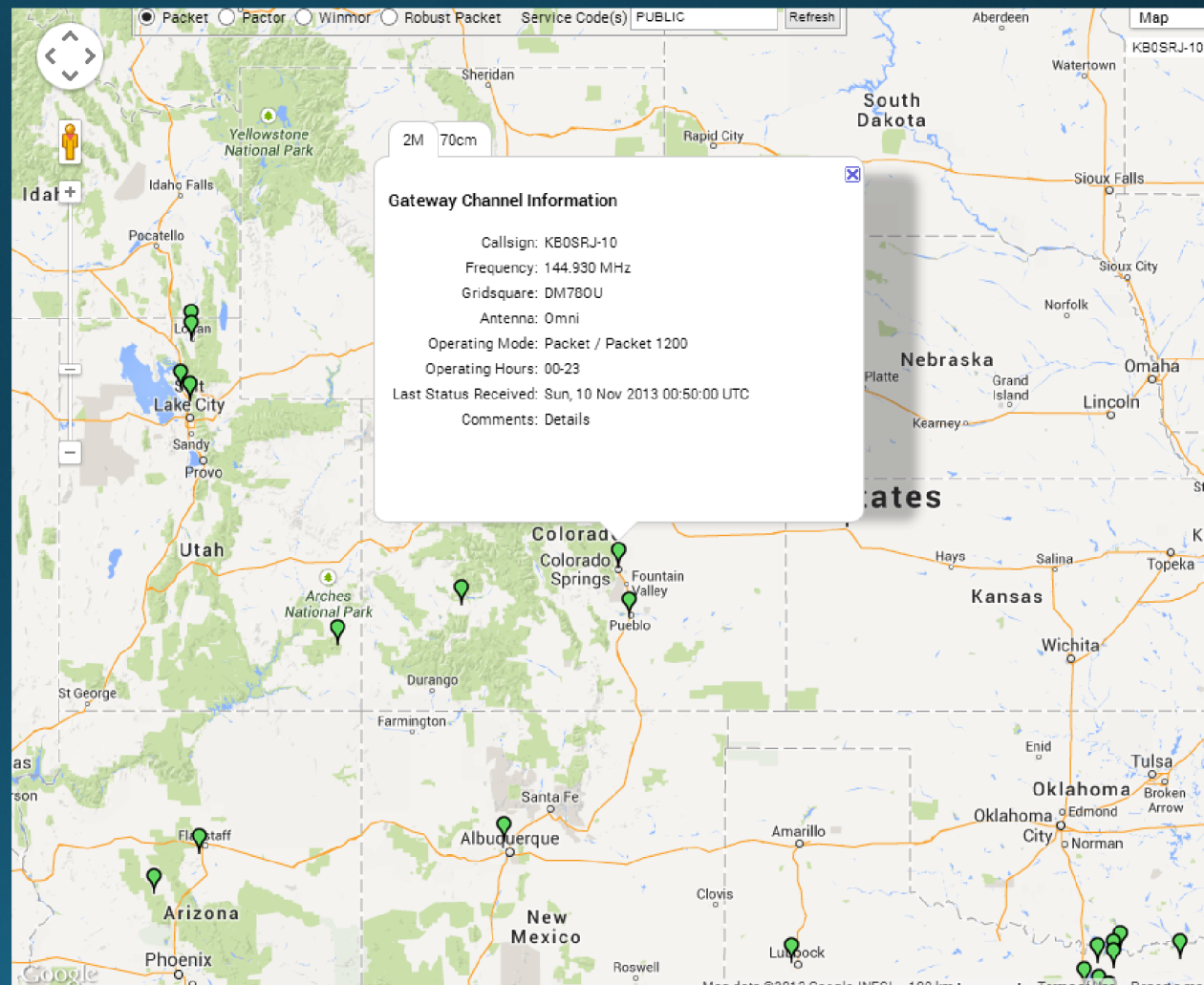On the Winlink web site

www.winlink.org/RMSMap

Gateway Status Maps

KBØSRJ-10

Our local packet gateway

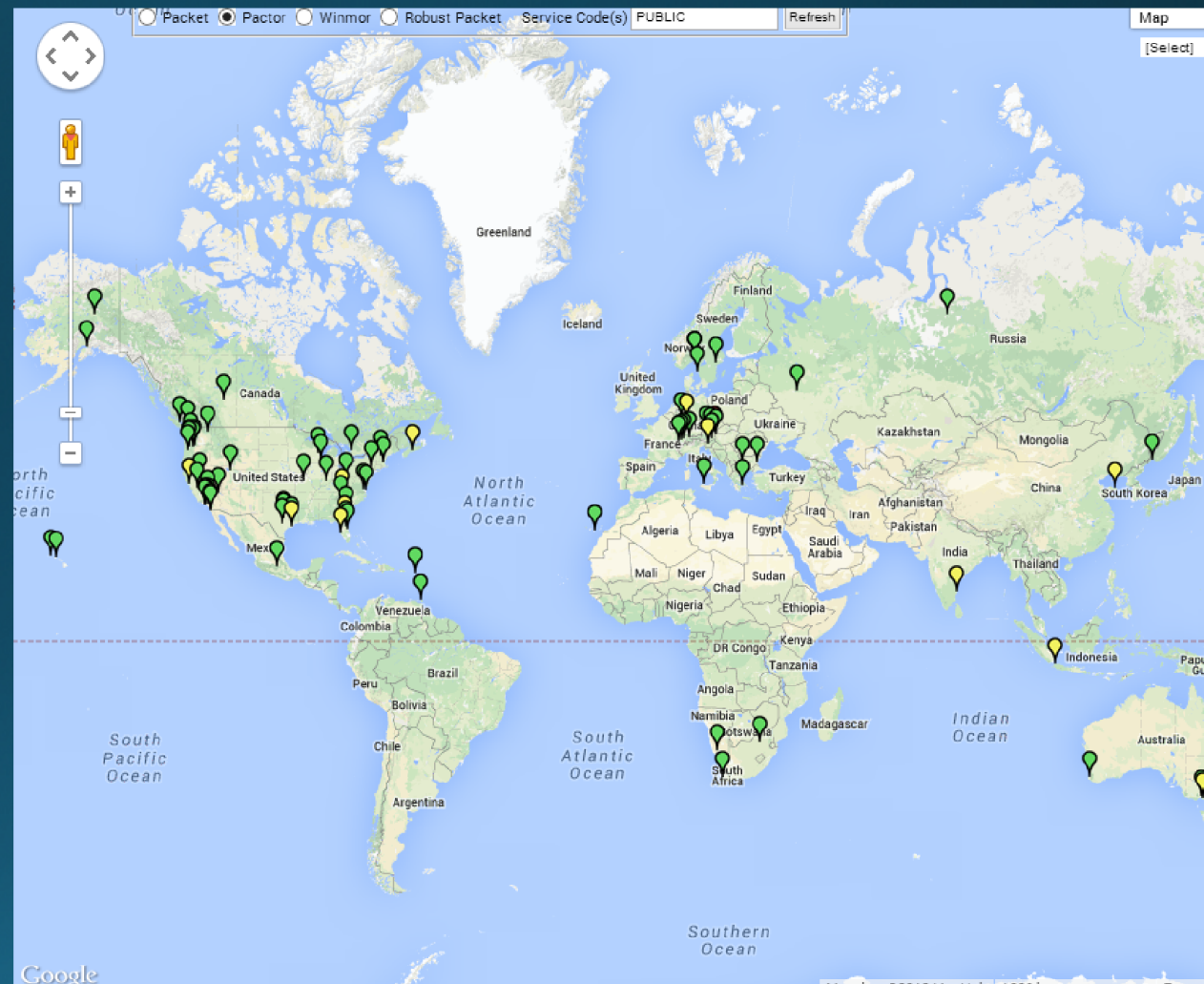On the Winlink web site

www.winlink.org/RMSMap

Gateway Status Maps

World Wide Public Pactor Gateways
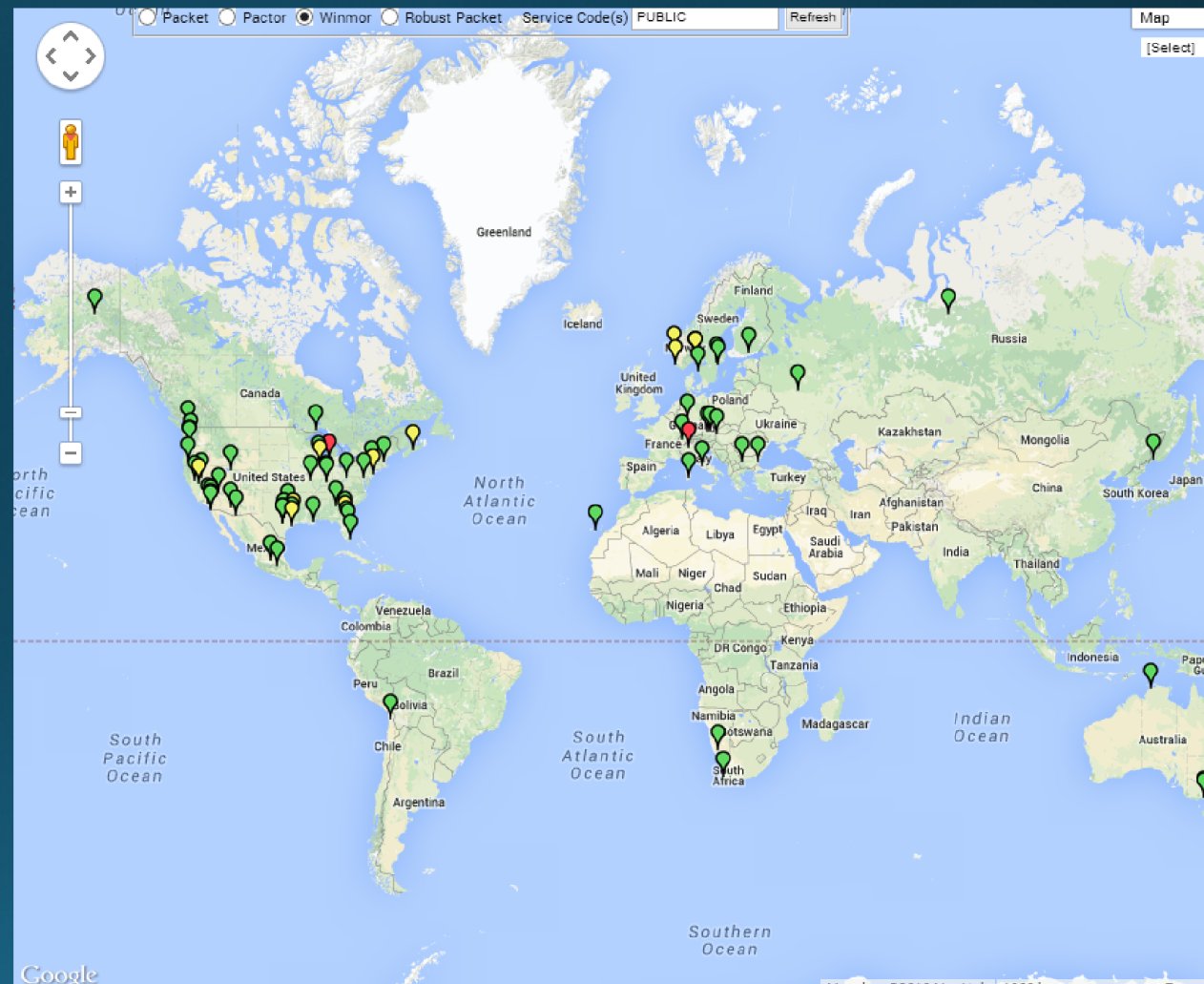
On the Winlink web site
www.winlink.org/RMSMap

Gateway Status Maps

World Wide Public Winmor Gateways

On the Winlink web site

www.winlink.org/RMSMap

Gateway Channel Listings

- On the Winlink web site
  - www.Winlink.org/RMSChannels
- Channel frequency lists
- Sysop information
- KML download (Google Earth)

RMS Channel Information 11/19/2013 5:04:03 PM UTC   [506] | Refresh | Frequency List | KML File | Airmail.ini |

◉ Packet ○ Pactor ○ Winmor ○ Robust Packet   Service code(s): PUBLIC

Posted	Callsign	Grid Square	Center Frequency	Mode	Hours	QTH
191624Z	9A1CIG	JN83EN	144.800 MHz	Packet 1200	00-23	Kastel Gomilica, NA, Croatia
191529Z	AA3E-10	FN20IG	145.050 MHz	Packet 1200	00-23	Hatfield, PA, USA
191649Z	AA5QJ-10	DM26IE	145.050 MHz	Packet 1200	00-23	Las Vegas, NV, USA
191610Z	AA7ZV-10	CN87TD	145.630 MHz	Packet 1200	00-23	Puyallup, Wa, USA
191658Z	AA9MM	EM67FX	145.010 MHz	Packet 1200	00-23	Evansville, IN, USA
191658Z	AA9MM	EM67FX	440.950 MHz	Packet 9600	00-23	Evansville, IN, USA
191545Z	AAR3GK-5	FM07JH	148.650 MHz	Packet 1200	00-23	Lynchburg, Va, USA
191504Z	AAT2BD-10	FN20UM	148.650 MHz	Packet 1200	00-23	Fords, NJ, USA
191554Z	AB1PH-10	FN42JD	145.090 MHz	Packet 1200	00-23	Walpole, MA, US
191620Z	AB4WL-10	EM63OO	145.010 MHz	Packet 1200	00-23	Fultondale, AL, U.S.
191550Z	AC0G-10	EM38WW	147.500 MHz	Packet 1200	00-23	Fulton, MO, US
191607Z	AD5CA-10	EL17HQ	145.010 MHz	Packet 1200	00-23	Corpus Christi, TX, USA
191649Z	AE6EQ-7	CM95OH	446.950 MHz	Packet 9600	00-23	Los Osos, CA, usa
191513Z	AE6LA-10	CM98TF	144.310 MHz	Packet 1200	00-23	Arnold, CA, USA
191537Z	AE7ER-10	CN83KF	144.930 MHz	Packet 1200	00-23	Roseburg, Oregon, USA
191636Z	AGA4CC-10	EL98PI	148.650 MHz	Packet 1200	00-23	Palm Bay, Florida, USA
191625Z	AH6JA-10	BK29KQ	145.090 MHz	Packet 1200	00-23	Hilo, HI, USA
191546Z	AJ4GU-10	EM83AK	145.550 MHz	Packet 1200	00-23	McDonough, GA, USA
191625Z	AL1Q-10	DN06TB	145.010 MHz	Packet 1200	00-23	Walla Walla, WA, USA
191647Z	DB0LJ-10	JO30QJ	439.825 MHz	Packet 9600	00-23	Kruft nr Koblenz, , Germany
191603Z	HB9MM-8	JN36HM	438.100 MHz	Packet 1200	00-23	Nyon, Vaud, Switzerland
191525Z	IK2XDE-2	JN45MQ	430.700 MHz	Packet 1200	00-23	Cermenate, Como, Italy
191555Z	IK2XRO-10	JN45QK	430.800 MHz	Packet 1200	00-23	Mediglia, MI, Italy
191555Z	IK2XRO-10	JN45QK	144.837 MHz	Packet 1200	00-23	Mediglia, MI, Italy
191526Z	IR5AG-5	JN53OR	144.850 MHz	Packet 1200	00-23	Scandicci, FI, ITALIA

Questions?

- www.arsfi.org – Amateur Radio Safety Foundation
- www.winlink.org – Winlink 2000