



## SLSRC Back to the Basics- 4th Session

Confirming QSOs, QSL Cards, LOTW, eQSLs, etc.”

Open discussion...questions, comments, at any time



## SLSRC January Meeting on the 19th due to Winterfest on the 27th

Advance tickets can be purchased for a \$2.00 savings (\$8 vs \$10)  
(deadline midnight January 25)

Tables available online for \$30 per table

Doors open at 8 AM

2 Forums: 10 AM and 11:30 AM

VE testing by Cliff Cave VE team (8:30 AM)

[Winterfest.slsrc.org](http://Winterfest.slsrc.org)



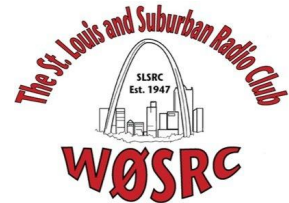
# SLSRC Back to Basics

## October 2017- March 2018

- ~~October~~ Tech Privileges and setting up your first VHF/UHF station.
- ~~November~~ Repeater usage and checking into nets.
- ~~December~~ My first HF radio, Calling CQ, Modes and Operating procedures, HF antennas and coax.
- **January- QSOs and QSL cards, etc**
- **February- Emergency Communications and Public Service**
- **March- Other aspects/modes of Amateur Radio**



All Back to Basics PowerPoint  
Presentations, and video of HF session  
can be viewed at  
[www.slsrc.org/back-to-basics-classes/](http://www.slsrc.org/back-to-basics-classes/)



# SLSRC Back to Basics

## 4th Session

Confirming QSOs, QSL Cards, LOTW, eQSLs, etc.”

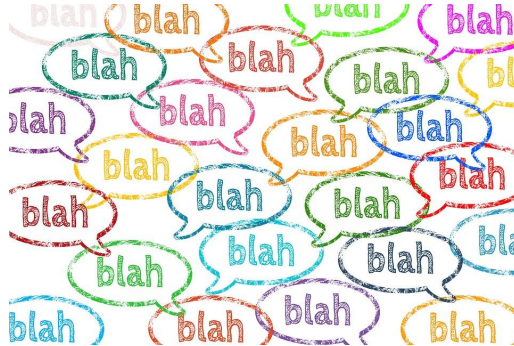
Open discussion...questions, comments, at any time



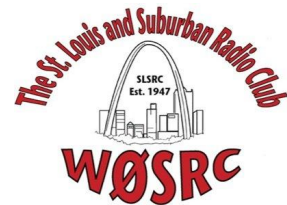
# What is a QSO?



- **“QSL” is a telegrapher’s shorthand for:**
- **“I acknowledge receipt of your message or transmission.”**
- **A QSL card is written confirmation or acknowledgment of a contact.**
- **Stations who have made a contact are said to have “worked” each other.**



# Why should a QSO be confirmed?





# Think of a QSL card as a “Thank you note” to the person/station with whom you “worked.”

John F. Meyer, 15418W Victory Heights, Stone Lake, Wi. 54876  
CQ Zone 4 Sawyer County ITU Zone 8  
U.S.A. GRID EN45im

## K9QVB/9

FOC 1507--HSC 1617--VHSC 319--HACWG 068--FISTS 1047  
MCWG 79--9ACWG 19--A1 OP--SMC

Confirming QSO with

**To Radio: PY3IT**  
K9QVB/9 confirms the following QSO(s):  
Date UTC Band 2way RST  
4-Sep-2014 03:17 20m CW 599

Please QSL

73, K9QVB/9

73, John

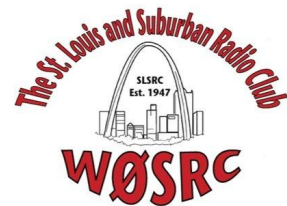
PSE QSL

=

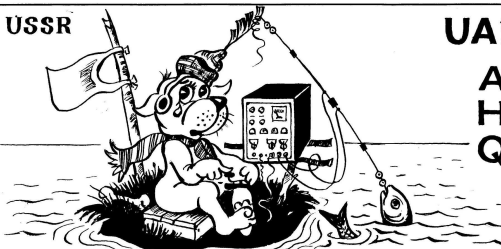


# Other reasons to confirm a QSO?

1. **Awards**- QSL cards serve as proof of a two way contact needed for certain awards.
2. **Tradition**- Exchanging QSL cards has been a long tradition in ham radio and it is fun to get cards from other contacted hams.



USSR UAI  
A  
H  
Q



USSR, LENINGRAD ~ IVANOV VALENTIN EX UD6DHU

RADIO	DATE	GMT	MHz	RST	2-WA
PSE - TNX - QSL VY 73 REG 169					

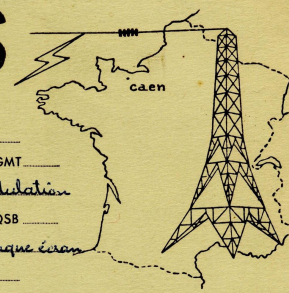
**KH2OP** USA/Guam  
**V63OP** Federated States of Micronesia  
**T88CT** Republic of Palau

Charlie Troxell  
973 Cardello Drive  
Manchester, MO 63021  
USA  
ex: Guam, FSM, Palau  
KH2OP@arrl.net  
TNX es 73!

STATION	DATE	UTC	MHz	MODE	REPORT

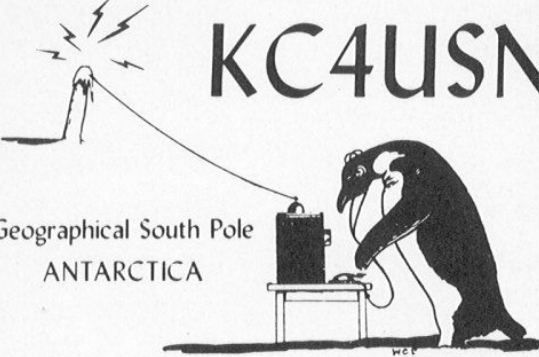
QRA : Roger MARIE in 40 5<sup>th</sup> rue citid'Authie Caen Calvados FRANCE

**F8LS**



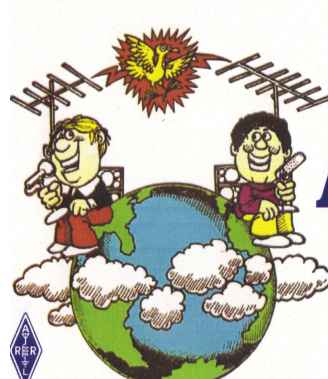
TO RADIO F9LB  
QSO on 26-5-51 at 2<sup>nd</sup> 50GMT  
7 Mc - CW - PHONE bonne modulation  
Ur Sigs were R 5 S 7-8 T QRM-QS8  
XMITTER PA-307-600 module plaque iran  
RCVR 9 tubes simple changeur  
Antenna best, 20,55 FO psw au 1/3 Pse QSL direct or via REF  
Remarks Merci pour ce premier QSO SU Adrian

**KC4USN**

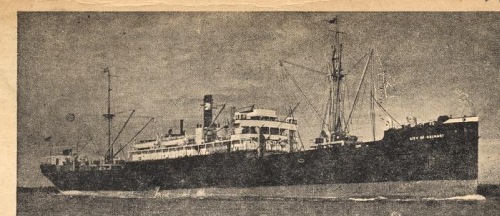


Geographical South Pole  
ANTARCTICA

**ACØDA**



DANIEL NORDMAN  
117 E Main Street  
Blooming Prairie, MN 55917  
U.S.A.  
Steele County • Grid EN33lu



Radio W1H4K  
QSO of Q83, 1947  
at 1420 G. M. T.  
Maritime—Mobile 28 Mc Phone 9+  
not mobile also

**W6NWK**  
C. (SPARKS) SCRUGGS  
8451 SAN MIGUEL  
SOUTHGATE, CAL.  
SS JUNIOR/AONE

“Real” QSL Cards

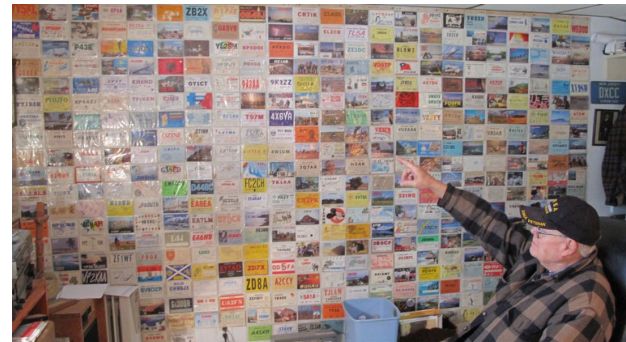


# Displaying QSL Cards

Albums	Wall Hangers	Display Boards	Frames
<ul style="list-style-type: none"><li>• Show by band, mode, award</li><li>• Easy to carry to meetings or conventions</li></ul>	<ul style="list-style-type: none"><li>• Easy to hang and change cards</li><li>• Minimal attachment to walls</li></ul>	<ul style="list-style-type: none"><li>• Great for presentations or shows</li></ul>	<ul style="list-style-type: none"><li>• Display special cards or events</li></ul>



# More Real QSL Cards



Doug Gehring and his Wall of QSL Cards







# Ordering your Personal QSL Card

- <http://www.eham.net/reviews/products/23>
- [www.cheapqsls.com](http://www.cheapqsls.com) (California 5.0/5.0)
- [Kb3ifh.homestead.com](http://Kb3ifh.homestead.com) (Maryland 5.0/5.0)
- [www.k4jsg.co](http://www.k4jsg.co) (Virginia 5.0/5.0)
- <http://thesignman.com/qsl/> (Louisiana 5.0/5.0)
- [UX5UO world of QSLs](http://UX5UO.worldofqsls.com) (Ukraine 5.0/5.0)
- Google and eBay search



# Information on a QSL Card

1. Call Sign
2. Location
3. Time and Date
4. Frequency
5. Mode
6. Signal Report

TO RADIO		VIA		
DATE	UTC	MHZ	MODE	RST
RMKS		QSO WITH		

**W7UT**  
Robert Peterson  
1681 W 5300 N  
St. George, UT 84770  
Washington County • DM37

☐ Portable Location  
☐ Mobile Location

Confirming QSO with:  
Radio:

DATE DAY   MO   YR			UNIVERSAL TIME UTC	FREQUENCY MHZ	2-WAY MODE	REPORT R   S   T		

Remarks: Formerly N4VZ, EP2PR,  
EL2C, W0VTZ, K4HLJ

Downloaded from [www.qsl.net](http://www.qsl.net) © 2007 ☐ Please QSL ☐ Thanks QSL





## Additional (Optional) Information

1. Club Membership
2. Organization affiliations
3. Email address
4. Awards earned
5. Previous call signs held



## More Additional Information

IF you make a mistake when filling out a QSL card, throw it away and start over.

Crossed ~~out~~ out or written over information will disqualify any card being submitted towards an award.

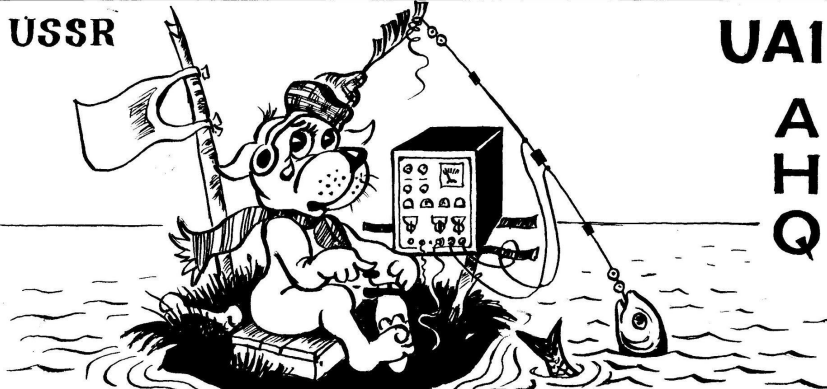


# PSE QSL TNX



Circle “**QSL TNX**” to indicate that you are answering a QSL: “Thanks for QSL”

Circle “**PSE QSL**” to indicate that you are requesting a QSL: “Please QSL”

<b>USSR</b>		<b>UA1</b>			
		<b>A</b>			
		<b>H</b>			
		<b>Q</b>			
					
USSR, LENINGRAD ~ IVANOV VALENTIN EX UD6DHU					
<b>RADIO</b>	<b>DATE</b>	<b>GMT</b>	<b>MHz</b>	<b>RST</b>	<b>2-WAY</b>
<b>PSE - TNX - QSL</b>		<b>VY 73</b>		<b>REG 169</b>	



- Religious or political statements
- Risque pictures, drawings, remarks, or humor
- Anything that could generally be offensive

# How do you send QSL Cards?



# Your personal “paper” QSL card

1. Mail it directly to the person/station you worked.
  - a. Nice to include a stamp for postage
  - b. Not necessary, but will probably increase the likelihood of you receiving one in return.
2. Use QRZ for address. (Many foreign stations are included on QRZ)



# ARRL QSL Service

Since it's official formation in November 1976, tens of millions of QSL cards have been shipped from the ARRL headquarters to Amateur Radio QSL bureaus of other national societies worldwide.

Incoming QSL Service. The incoming QSL service acts as a central clearing house for QSL cards arriving from foreign countries. The outgoing service is for ARRL members who wish to have their QSL cards sent to contacts.

[www.arrl.org/qsl-service](http://www.arrl.org/qsl-service) for much more information about their service

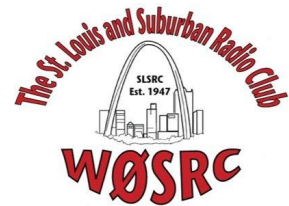
Pluses	Minus
<ul style="list-style-type: none"><li>• Least expensive</li><li>• Good return rate</li><li>• Can send to foreign QSL managers</li></ul>	<ul style="list-style-type: none"><li>• Not “time sensitive” AKA SLOOOOW</li><li>• Not all DX use the Bureau</li></ul>







**ARRL Headquarters- over 1 million cards processed each year**






ARRL Official Relay Station

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ITU Zone 07, CQ Zone 04

FISTS #10264, SKCC #1078, CWops #446 &  
NAQCC #1455



**Stephen J. Schmtz**  
**ARRL Official Relay Station**  
 754 Lantern Lane  
 St. Louis, MO 63132  
 St. Louis County, EM48tq

Missouri Section NTS NCS  
 Region TEN NTS NCS  
 Member: QCWA, SLSRC,  
 MWDX/CC, and OMIK  
 ARRL A-1 Operator Club  
 WØ QSL Bureau "O" Sorter

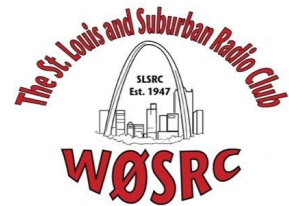
The American Radio Relay League





Download from  
Dreamstime.com  
31105534 Overhead | Dreamstime.com

## Comments/Suggestions



THE ARRL

# LOGBOOK



OF THE WORLD™





# Logbook of the World (LoTW)

- ARRL's LoTW system is a repository of log records submitted by users from around the world.
- When both participants in a QSO submit matching QSO records to LoTW, the result is a QSL that can be used for ARRL award credit.
- To minimize the chance of fraudulent submissions, all QSO records must be digitally signed using a digital certificate obtained from ARRL.
- LoTW uses software called TQSL. (<http://www.arrl.org/tqsl-download>)
  - TQSL works with Windows, Mac OS and Linux and is FREE to download
- LoTW is FREE to all radio amateurs around the world. ARRL membership is not required.
- LoTW does not replace QSL collecting. (ARRL QSL Bureau is still a member benefit)



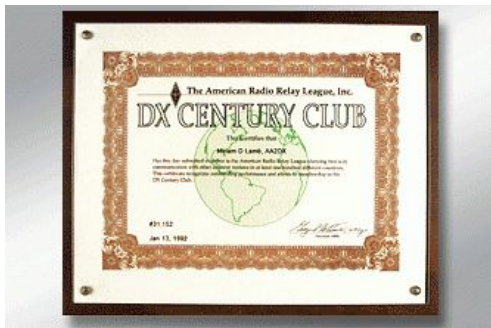
# Logbook of the World (LoTW)

Logbook of the World (LoTW) is an online service that enables you to

- Electronically submit contacts (QSOs) for confirmation
- View your submitted QSOs and resulting confirmations online
- View your [DXCC](#), [VUCC](#), [WAS](#), [WAZ](#) and [WPX](#) award progress online
- Electronically submit confirmations for [credit](#) toward DXCC, VUCC, WAS, WAZ and WPX awards

Award Account Menu		Your Logbook DXCC Account (AA6YQ - UNITED STATES OF AMERICA)			
Account Status		Applications			
Account Credits		This shows the applications you have submitted from the Logbook of the World system.			
Modify Account					
Application					
Application History					
DXCC QSL Download					
Date/Time	Status	# QSLs Sent	# Paper QSLs Accepted	Reason	
2013-12-30 10:16:45	Finished	8	8		
2012-12-26 01:37:01	Finished	7	0	Completed by DXCC Desk	
2012-08-19 05:09:13	Finished	5	0	Completed by DXCC Desk	
2012-07-21 07:24:02	Finished	3	0	Completed by DXCC Desk	
2012-06-06 21:37:42	Finished	10	0	Completed by DXCC Desk	
2011-12-28 19:38:59	Finished	11	11		
2011-09-02 19:57:53	Finished	47	0	Completed by DXCC Desk	
2010-12-28 22:55:20	Finished	11	0	Completed by DXCC Desk	
2009-12-29 02:12:16	Finished	17	17		
2008-12-30 10:10:57	Finished	5	5		
2008-09-29 17:46:43	Finished	5	0	Completed by DXCC Desk	
2008-03-28 07:52:17	Finished	10	0	Completed by DXCC Desk	
2007-09-28 07:41:16	Finished	4	4		
2007-03-29 00:55:28	Finished	1	1		
2006-09-27 02:10:32	Finished	3	0	Completed by DXCC Desk	
2005-09-30 16:34:27	Finished	3	3		
2004-11-04 15:15:14	Finished	4	0	Completed by DXCC Desk	
2004-08-05 21:04:55	Finished	6	0	Completed by DXCC Desk	





The VHF/UHF Century Club (VUCC) is awarded for contact with a minimum number of Maidenhead 2 degrees by 1 degree grid locators per band as indicated below. Grid locators are designated by a combination of two letters and two numbers. More information on grid locators can be found in January 1983 QST, pp 49-51 (reprint available upon request. Send a 9 × 12-inch SASE with 3 units of postage). The ARRL World Grid Loca

### Logbook of the World to Add Support for CQ WAZ Award

12/14/2017

Participants in CQ magazine's Worked All Zones (**WAZ**) award program will soon be able to use the Logbook of the World (**LoTW**) system of ARRL, the national association for Amateur Radio, to apply for the WAZ award and its endorsements, both ARRL and CQ announced on December 14.

Amateur Radio operators will be able to use LoTW logs to generate lists of confirmed contacts to be submitted for WAZ credit. Standard LoTW credit fees and separate CQ award fees will apply.



The wait is over! After weeks of beta testing, the ARRL launched the integration of Logbook of The World (**LoTW**) -- its electronic confirmation system -- with CQMagazine's Worked All Prefixes (**WPX**) Award on Monday, July 2. The WPX Award is the first of the CQ-sponsored awards that LoTW will support. More than 51,000 radio amateurs worldwide use Logbook of The World, and there are currently almost 432 million QSOs in the LoTW system.



# Electronic QSL (LoTW)

## Log Book of The World

[www.lotw.arrl.org](http://www.lotw.arrl.org)

<http://www.arrl.org/quick-start>

- LoTW is a tool to confirm contacts and use the confirmations as credit toward awards.
  - Membership in the ARRL is not a requirement.
- To use LoTW, [download the free TQSL application](#) and direct it to request participation. You'll be issued a unique [Callsign Certificate](#), and provided with access to an [LoTW Account](#) via the world wide web.
- After you're registered, you can submit QSOs to LoTW by either using [TQSL](#) to [digitally sign](#) those QSOs and convey them to LoTW via the internet, or by using [one of the many logging applications](#) that provide this capability.
- If the information in a submitted QSO matches the information submitted to LoTW by the your QSO partner, the LoTW Accounts of both you and your QSO partner will show the submitted QSO as [confirmed](#).





<https://lotw.arrl.org/lotw-help/>



Advantages	Disadvantages
<ul style="list-style-type: none"><li>● Fast upload</li><li>● Secure</li><li>● Apply for awards online</li><li>● Upload feature built in on some logging programs</li></ul>	<ul style="list-style-type: none"><li>● Only matches QSO with other LOTW users</li><li>● No “Real” QSL card to display</li></ul>

# What can I do with LoTW ?

- Apply for awards
- Track DXCC credits
- View DXCC matrix
- Track WAS Credits
- Search QSOs and QSLs
- View QSL Details



Your Logbook QSOs - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://p1k.arrl.org/lotwuser/qso/qsocmd=adf

Getting Started Firefox Support Boston.com DCU MLB Broadcom RSS K3JMC DX4WIN

Search Web Bookmarks My Yahoo! Groups News

Boston.com Yahoo! Mail - ad... DECODE\_RJINGB... DX4WIN App. N... Your Logbo...

Today is Fri, 1 Dec 2006 UTC  
You are AD1C  
Log Off  
You have 76,138 QSO records  
You have 7,083 QSL records

Home Your QSOs Awards Find Call Upload File Your Account

QSOs Menu  
Query  
Download Report

Your QSOs  
Download Report

Here you can download a report of QSLs received. The report file is in ADIF format.

Show QSLs received since: 2006-12-01 (YYYY-MM-DD)  
Include QSL detail: ☒ (May make the downloaded file a lot bigger.)  
Your Call Sign: - Any -  
Download report: AD1C  
KC1XX

Done p1k.arrl.org

Award Account Menu

Account Status  
Account Credits  
Modify Account  
Application  
Application History  
DXCC QSL Download

Your Logbook DXCC Account (K9PG - UNITED STATES OF AMERICA)

Your link request has been submitted. It will be reviewed by LoTW staff and you will be notified here on the Web site when your request has been processed.

Account Status

DXCC Award	New LoTW QSLs	LoTW QSLs in Process	DXCC Credits Awarded	Total (All)	Total (Current)
Mixed	243	0	0	243	239
CW	222	0	0	222	219
Phone	186	0	0	186	183
160M	30	0	0	30	30
80M	54	0	0	54	54
40M	121	0	0	121	119
20M	98	0	0	98	98
15M	173	0	0	173	170
12M	136	0	0	136	136
10M	173	0	0	173	172
8M	94	0	0	94	94
6M	151	0	0	151	148
4M	4	0	0	4	4
2M	1	0	0	1	1
Challenge	1025	0	0	1025	1025

\* = Award has been issued

This account includes credits for the following:  
K9PG - UNITED STATES OF AMERICA  
W9SE - UNITED STATES OF AMERICA

Notes

- Click on the **Awards** item in the menu at the top of the page to select a different LoTW award account.
- You can click on the links in the Account Status table to view the credit list for an individual award.
- If you have an existing DXCC record that this account should be linked to, use [Link Account](#). This will allow the LoTW system to keep track of those QSLs that would give you new DXCC credits. This will also allow you to view your DXCC record here on the LoTW Web site.
- When you are ready to apply your LoTW credits to your DXCC record, use [Application](#).
- To view the present and past applications you have submitted, use [Application History](#).
- For an ADIF download with the details of all QSLs in your DXCC record use [DXCC QSL Download](#).

25 Records Shown (1-25)  
Sorted by QSL Date (1.90232 seconds elapsed)  
Showing DXCC Award data for K9YFU - ITALY

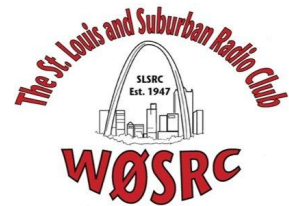
Call sign	Worked	Date/Time	Band	Mode	Freq	QSL	DXCC
<a href="#">Details</a>	K9YFU	DO8MBA	2009-06-07 17:46:00	10M	SSB	FEDERAL REPUBLIC OF GERMANY	
<a href="#">Details</a>	K9YFU	A25MB	2010-10-22 13:44:00	10M	SSB	28.480 BOTSWANA	✓ 10M; Challenge; Mixed; Phone
<a href="#">Details</a>	K9YFU	GP0TH	2010-10-09 17:18:00	15M	CW	21.022 GUERNSEY	✓ CW
<a href="#">Details</a>	K9YFU	C2BQF	2003-01-05 14:14:00	20M	SSB	ITALY	
<a href="#">Details</a>	K9YFU	C2BQF	2002-06-11 14:17:00	20M	SSB	ITALY	
<a href="#">Details</a>	K9YFU	S53HW	2010-09-25 05:21:00	80M	RTTY	5.500 SLOVENIA	✓ RTTY
<a href="#">Details</a>	K9YFU	K0XEZ	2010-09-20 17:58:00	80M	CW	3.513 ITALY	
<a href="#">Details</a>	K9YFU	K0XEZ	2010-09-17 19:56:00	80M	SSB	3.754 ITALY	
<a href="#">Details</a>	K9YFU	OK2SO	2010-09-25 16:36:00	80M	RTTY	3.500 CZECH REPUBLIC	
<a href="#">Details</a>	K9YFU	ZDEZZ	2010-10-19 17:11:00	20M	SSB	14.195 ASCENSION ISLAND	✓ 20M; Challenge
<a href="#">Details</a>	K9YFU	PAT7WO	2010-02-13 17:28:00	40M	SSB	NETHERLANDS	
<a href="#">Details</a>	K9YFU	P07TWO	2010-02-13 16:49:00	20M	SSB	NETHERLANDS	
<a href="#">Details</a>	K9YFU	K7XLI	2002-06-25 08:47:00	20M	SSB	ITALY	
<a href="#">Details</a>	K9YFU	K7XLI	1997-06-15 08:47:00	20M	SSB	ITALY	
<a href="#">Details</a>	K9YFU	H8LAM	2010-03-01 16:38:00	15M	SSB	21.315 DOMINICAN REPUBLIC	
<a href="#">Details</a>	K9YFU	HZ1PS	2010-10-21 13:50:00	15M	RTTY	21.081 SAUDI ARABIA	✓ RTTY
<a href="#">Details</a>	K9YFU	MOVAA	2010-09-20 19:18:00	20M	RTTY	14.087 ENGLAND	
<a href="#">Details</a>	K9YFU	SV90FS	2010-10-25 13:22:00	15M	SSB	21.230 CRETE	✓ 15M; Challenge
<a href="#">Details</a>	K9YFU	PJ4PEZMC	2009-09-14 19:27:00	20M	SSB	14.267 BONAIRE, CURACAO, (NETH ANTILLES)	✓ 20M; Challenge
<a href="#">Details</a>	K9YFU	OY1OF	2010-10-23 13:28:00	10M	SSB	28.518 FAROE ISLANDS	✓ 10M; Challenge
<a href="#">Details</a>	K9YFU	OY1OF	2010-10-23 09:59:00	10M	SSB	28.518 FAROE ISLANDS	✓ 10M; Challenge
<a href="#">Details</a>	K9YFU	OY1OF	2010-10-11 15:53:00	10M	SSB	28.470 FAROE ISLANDS	✓ 10M; Challenge
<a href="#">Details</a>	K9YFU	KCCYE	2010-10-25 12:38:00	15M	SSB	21.240 UNITED STATES OF AMERICA	
<a href="#">Details</a>	K9YFU	KOTY	2010-10-25 12:38:00	15M	SSB	21.295 UNITED STATES OF AMERICA	
<a href="#">Details</a>	K9YFU	RA3DPL	2002-01-24 16:22:00	20M	PSK31	EUROPEAN RUSSIA	

Submit DXCC Credit Changes





## Comments/Suggestions



# eQSL ([www.eQSL.cc](http://www.eQSL.cc))

eQSL is a free online service that lets you exchange electronic QSL cards with other amateurs that you have worked. Some amateurs collect paper QSL cards, but others prefer the immediacy of getting an electronic QSL card. It is faster and cheaper. (Can't beat free)



# Why do we need Electronic QSL cards?

- Conventional QSL cards take time to write out
- Conventional QSL cards cost money to print and mail
- You have to wait a long time to get a conventional QSL card in the mail
- If your QTH or other fixed data change, you have to reprint the cards
- Rare DX stations would much rather use electronic QSL cards

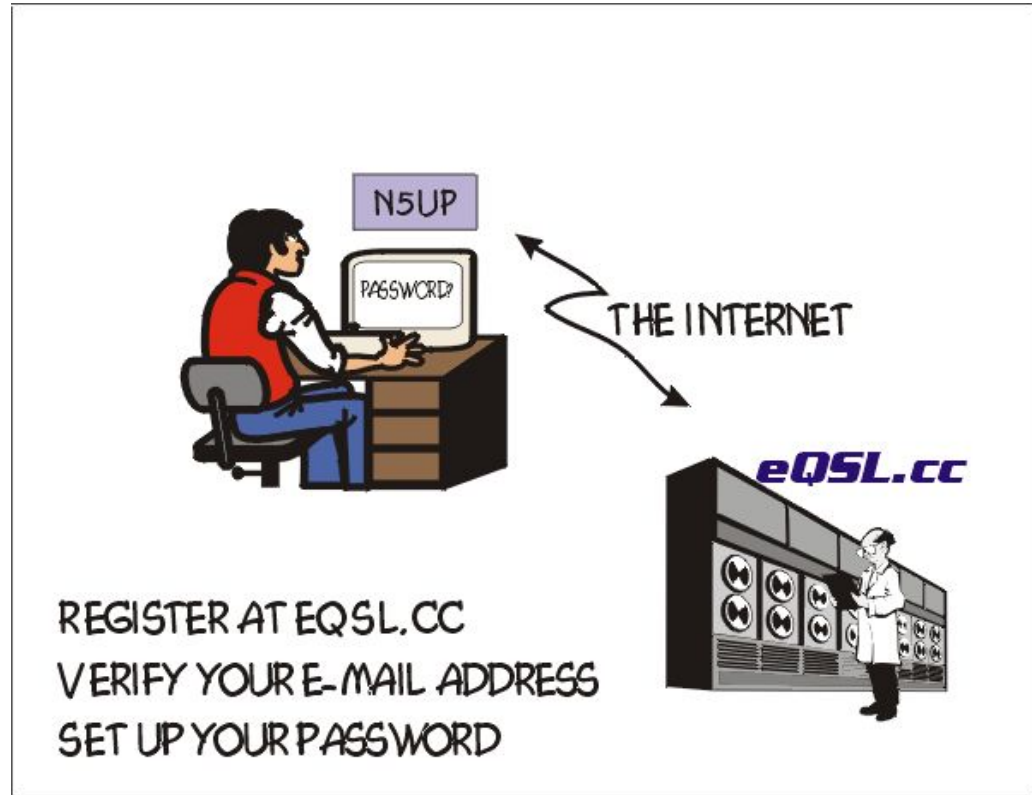


## Step1

- [Step 1](#) - Register
- [Step 2](#) - Design eQSL
- [Step 3](#) - Verify Identity
- [Step 4](#) - QSO
- [Step 5](#) - Upload Log to OutBox
- [Step 6](#) - Automatic Transfer
- [Step 7](#) - Details of Transfer
- [Step 8](#) - Retrieve from InBox

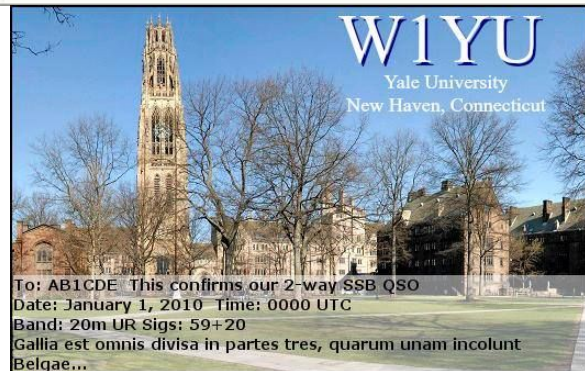
## How?

Go to [Register](#) on the Home Page





# What does an eQSL card look like?



When printed, the card will typically be about the same size as a conventional QSL card, as long as you don't change the dimensions of the browser box to make it too wide or too high.



# Technical information about eQSL

The Application server has dual hex-core 2GHz Xeon processors, 64-bit Windows server OS, 32GB of RAM, 4 each 500GB disks in RAID 10 and a Terabyte backup disk. The Database Server has dual hex-core 2GHz Xeon processors, 64-bit Windows server OS, 32GB of RAM, 4 each 1.7TB solid state disks in RAID 10 and a 4 Terabyte local backup disk. Collectively, these two servers are able to handle over 99.6% of all database requests directly from memory without requiring a disk access, and can handle over 200 simultaneous user connections with less than 5% of the processor resources, generally resulting in an overall average of less than 3 second response times for most pages.

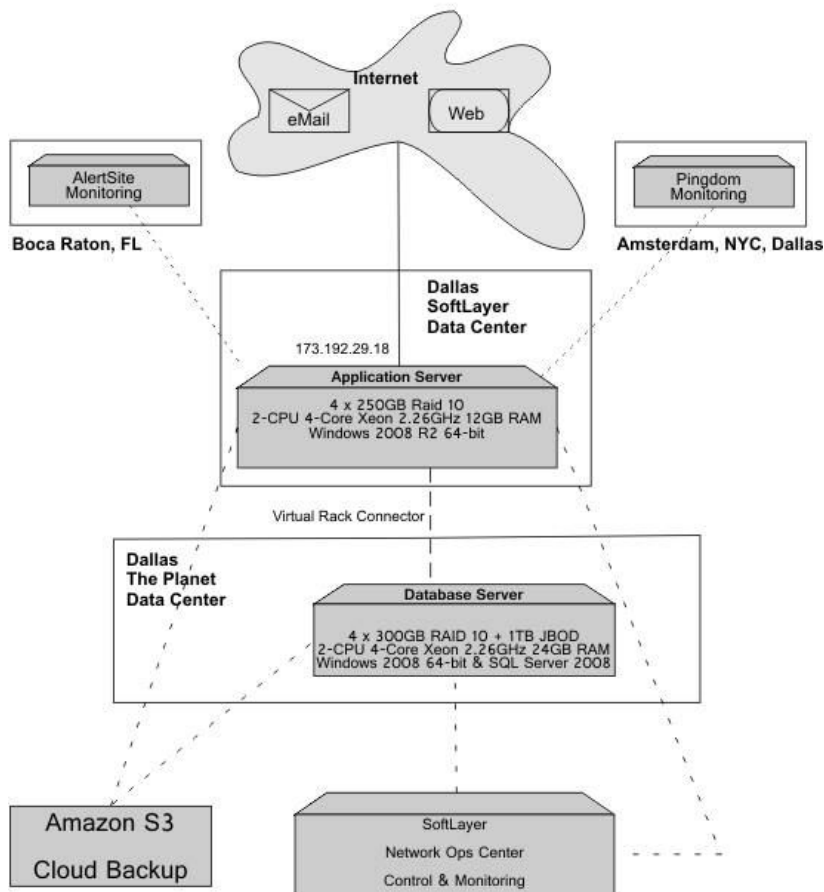
[www.eQSL.cc](http://www.eQSL.cc)





# eQSL Server Farm

as of July, 2012



All our servers utilize RAID 10 arrays of fault-tolerant disks. This means we have multiple disks doing the job of 1, providing redundancy and faster access to data. Database transaction logs are backed up locally every hour, and full or differential database backups are made locally onto separate disks every 6 hours. In the event of a natural disaster (tornadoes, explosions, terrorist attacks), we have an automated cloud backup using an offsite facility that stores copies of both servers and updates them frequently as a last-chance disaster recovery method. Our servers are monitored around the clock by several different automated monitoring systems in different parts of the world. Any outage automatically triggers a multi-tier support system. The first notification occurs within seconds of a web server or mail server failure and will be detected by on-premises monitors as well as remote monitors in other parts of the world. The data center NOC is notified on a monitoring screen, and the webmaster is notified by text message (SMS). If nothing is corrected within 30 minutes, NOC personnel begin calling a series of phone numbers for the webmaster, backup support personnel, and Advisory Board members. Between the many Advisory Board members around the world, someone is usually on the system and can notify the webmaster by cellphone whenever something unusual occurs that might not be considered a server failure, but which affects the usability of the system and needs to be addressed.





## Comments/Suggestions



# Logging Programs

- <http://www.eham.net/reviews/products/27>
- 
- <https://lotw.arrl.org/lotw-help/SubmitLoggingApp/>
- 
- <http://www.n3fjp.com/>
- MacLoggerDX (<http://www.dogparksoftware.com/MacLoggerDX.html>)
- [Ham Radio Deluxe 5](#)





Comments/Suggestions  
Questions, etc.





