



THE  
**LOGBOOK**



OF THE WORLD™

- All of the “visual aid” material in this presentation is extracted from web pages produced by the ARRL.

# Presentation Objectives

- Explain what LoTW is.
- Who uses LoTW?
- How much does it cost?
- Why use it?
- How to get started.
- How to use it.
- My Results.

What is it?  
What is it not?



## What is Logbook of The World?

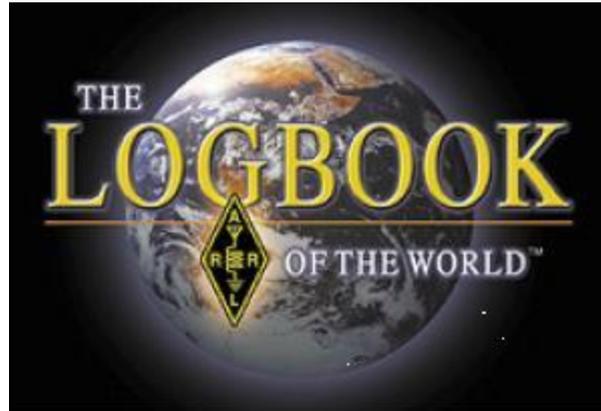
ARRL's *Logbook of the World* (LoTW) system is a repository of log records submitted by users from around the world. When both participants in a QSO submit matching QSO records to LoTW, the result is a QSL that can be used for ARRL award credit.

*Logbook of the World* can accommodate every possible user scenario. It makes no difference if you operate from home, portable, mobile, maritime, DXpedition or whatever, LoTW can be setup to properly process your logs and match QSOs for all of your operations.

To minimize the chance of fraudulent submissions to LoTW, all QSO records must be digitally signed using a digital certificate obtained from ARRL. Obtaining such a certificate requires verification of the licensee's identity either through mail verification (US) or inspection by ARRL of required documentation (non-US).

[Software](#) developed by ARRL can be used to convert a log file (in ADIF or Cabrillo file format) into a file of digitally signed QSO data, ready for submission to LoTW.

LoTW began operation on September 15, 2003.



## What Logbook is *not*.

*Logbook of the World* is not a backup or on-line storage of your logs. Computer failures can and will happen so safeguards must be taken to protect important data. LoTW users should be in the habit of backing up important files to external media for safekeeping.

*Logbook of the World* does not replace paper QSL cards. Many hams you enjoy swapping and collecting colorful QSL cards and are encouraged to go on with this time honored tradition in addition to using LoTW. Using LoTW saves QSL card collectors the hassle of sending cherished mementos to ARRL HQ for verification.

**Creating a LoTW account is easy and it's FREE!**

# Who uses it?

- 27,799 individuals or organizations and me, W200
- Currently 230,878,741 QSO records are stored
- 42,276 unique call signs or QTH's are represented
- 21,984,766 QSL's have resulted.

# How much does it cost?

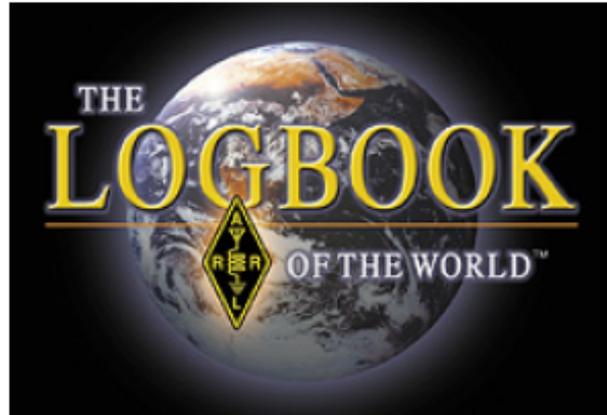
- LoTW costs absolutely nothing unless an award application is submitted
- You DO NOT need to be a member of ARRL to use LoTW

# Why use it?

- Individual amusement
- Help your fellow ham
- Apply for DXCC, 5 Band DXCC, DX Honor Roll, DX Challenge and/or WAS awards
- Applications filed on line reduce turn around time and the “hassle factor”
- Application cost is approximately the same as a “paper” application

# Some tips

- Your mailing address registered with the FCC must be accurate!
- Getting Started and using LoTW will seem tedious at first
- You should be at least familiar with using a computer on the internet to start
- While manual entry of log data is possible it is impractical
- Use of computer logging software makes the task much easier.
- Patience in the beginning is essential!!!
- Browse to <http://www.arrl.org/lotw/>



## Setting Up A NEW LoTW Account

Before beginning to install Logbook of The World it is highly recommended that you create a folder on your desktop for all of your LoTW files.

We assume that you have basic computer skills and a working knowledge of your operating system.

The basic steps of creating your LoTW account are:

- Download the software
- Create a certificate request
- Upload the request
- Authenticate your request
- Load the certificate
- Back-up the certificate



# How Do I Get Started?

**THE ARRL**  
**LOGBOOK**  
OF THE WORLD

**YAESU**  
PRINCIPAL SPONSOR  
OF THE LoTW Website

New Users Click Here  
GET STARTED

QSL Managers - DX-Peditions - Club Callsigns

LoTW Help and FAQ

Documentation Required  
(non-USA)

About Logbook

LoTW  
User's Group

Developer's Information

**LoTW Users Corner**  
(Must have an account)

- Log in to your Account
- Save your certificate
- Renew your certificate
- "My computer crashed"

**New Users  
begin here.**

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

## LoTW - Getting Started

Click on one of these four steps to get started:

1. Download Instructions
2. Download Software
3. Upload Certificate Request
4. Upload Postcard Password (USA only)

Instructions - Logbook of the World start-up help is provided in these languages:

	<a href="#">Croatian</a>	by Martin, 9A2JK
	<a href="#">Dutch</a>	from Henk -- VK2GWK (ex PA0ADC)
	<a href="#">English</a>	
	<a href="#">French</a>	by Patrick, F6IRF
	<a href="#">German</a>	by Eike, DM3ML
	<a href="#">Italian</a>	by Roberto Pagano, IV3IYH
	<a href="#">Russian</a>	written by Vlad EU1SA, submitted by Art, RX9TX
	<a href="#">Slovenian</a>	by Dan, S50U
	<a href="#">Spanish</a>	by Sergio Manrique, EA3DU

Four easy steps.

1. Download the instructions
2. Download Software
3. Upload the certificate request
4. Upload your postcard password

Instructions are available in several languages

- In order for the LoTW to be as secure as currently feasible, a digitally signed certificate from the ARRL is required
- This certificate is similar to the certificate used by most software providers to verify their validity and integrity (windows tells you when there isn't one)
- Obtaining this certificate requires verification of your license and identity through mail verification in the USA
- Downloading the LoTW software and requesting verification and a pass word is the first step
- Once you receive the verification postcard from ARRL you may log in and create the essential certificate, back it up on your computer and send it to ARRL for acceptance

- The certificate will include details of your call sign including beginning and ending validity dates if appropriate and location information.
- Eventually you will need to create different certificates for each call sign for which you want to upload logs
- For example, I have certificates for WN4ATJ, WA4ATJ, W200 and W200/M.
- Some “ops” do not do this properly. Please don’t be one of “them”!
- You may change your pass word anytime

## Part One – Download Trusted QSL Software



1. Go to <http://www.arrl.org/lotw/#download> for the free download. When you select the download for your operating system (Windows, Mac or Linux) you will be redirected to the Source Forge site where the program will be downloaded. If the program does not automatically download select one of the remote site options on the page. The Trusted QSL (TQSL) software should install itself.

\*\*\* TQSL contains 2 programs \*\*\*



Tqsl.Ink

TQSL is used to sign your logs so that they can be uploaded to LoTW.



Tqslcert.Ink

TQSL CERTIFICATES is used to request and manage certificates for your callsign and any calls that are related to you.

(Club calls require a separate LoTW account. Please see the “special Circumstances” section at the end of this document.)

## Part Two – Requesting Your Certificate

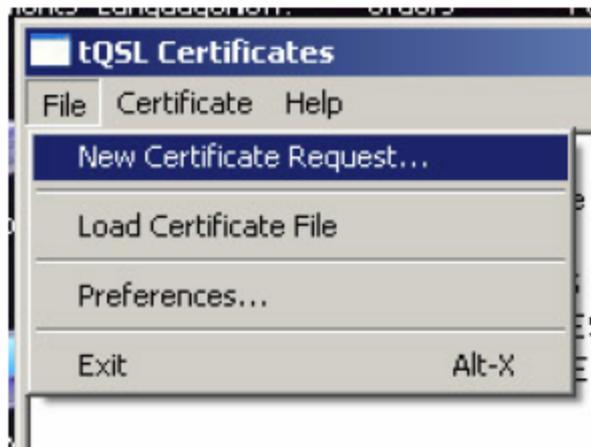


Tqslcert.Ink

1. Open the **TQSL CERT** program.

When opening the TQSL CERT for the first time you will get a message saying that you have no certificates and asks if you would like to request a certificate. Click YES.

- If you inadvertently answered NO to the above question Select FILE > NEW CERTIFICATE REQUEST...



Generate Certificate Request

This will create a new certificate request file.

Once you supply the requested information and the request file has been created, you must send the request file to the certificate issuer.

Certificate Issuer:  
American Radio Relay League

American Radio Relay League  
Logbook of the World  
Email: lotwlogs@arrl.org  
URL: https://www.arrl.org/lotw/

Help

< Back   Next >   Cancel

Generate Certificate Request

Call sign: W1AW

DXCC entity: UNITED STATES OF AMERICA

QSO begin date:  
Y 1945   M 11   D 1

QSO end date:  
Y   M   D

Help

< Back   Next >   Cancel

2. This first box is informational and indicates that the issuer of the certificate is ARRL. You do not have to do anything. Click **NEXT**.
3. Enter your **CURRENT** callsign without any portable identifiers
4. Use the drop down menu to select the DXCC entity that matches your call and where you were operating.
5. QSO **BEGIN** date should be the date that this call was first issued.
  - Do not use today's date.
  - Do not use the date you were first licensed.
  - Do not use your birthday or any other date.
  - The current DXCC program began in 1945 therefore you cannot enter a date before 1945.
6. QSO **END** date should be left open for a license that is current.

Generate Certificate Request

Name

Address

City

State

Zip/Postal

Country

Help

< Back   Next >   Cancel

Generate Certificate Request

Your e-mail address

Note: The e-mail address you provide here is the address to which the issued certificate will be sent. Make sure it's the correct address!

Help

< Back   Next >   Cancel

7. Enter your name and address. For U.S licensees this must match your FCC address. Click **NEXT**.
8. Enter your e-mail address.
  - Make sure that your e-mail provider allows attachments. You will receive your certificate and website password in an e-mail.



**This next step is optional.**

**A password is recommended if you use a public computer or run LoTW/TQSL with a portable computer.**

**If you lose or forget this password ARRL cannot help you.**

**To fix a lost private key password, you will need to apply for a new certificate. Send a note to [LoTW-help@arrl.org](mailto:LoTW-help@arrl.org)**



9. Enter a password if you choose this option.
  - You may leave this blank for no password.



10. Make sure that your request is **UNSIGNED**.

- Because this is your first certificate request your only choice should be **UNSIGNED**.

You should now have a TQ5 file saved in your LoTW folder.

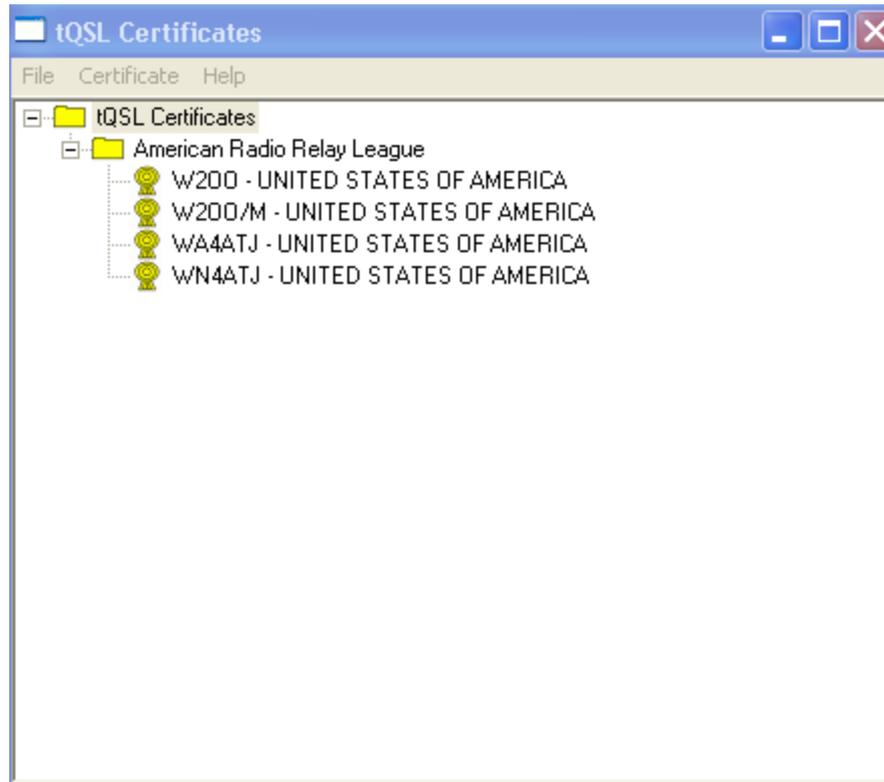
You should now have a TQ5 file saved in your LoTW folder.



When done correctly your TQSL CERT window should look like this with a slashed red circle "Do Not Enter" sign, your callsign and your DXCC entity.

Save the TQ5 file where you can find it – the best place is in your LoTW folder.

# My TQSL list looks like this.





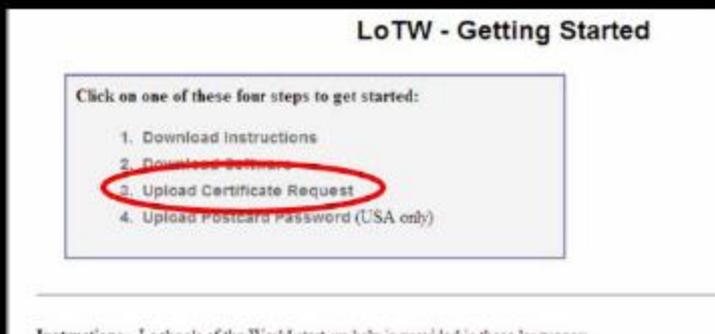
## **CONGRATULATIONS!**

You have successfully created a TQ5 certificate request.  
Give yourself a pat on the back and remember where you saved this file.  
(Hopefully in your LoTW folder.)

## Part Three – Uploading The Certificate Request

1. Go to the ARRL LoTW webpage: <http://www.arrl.org/lotw/start.html>

# Request A Certificate

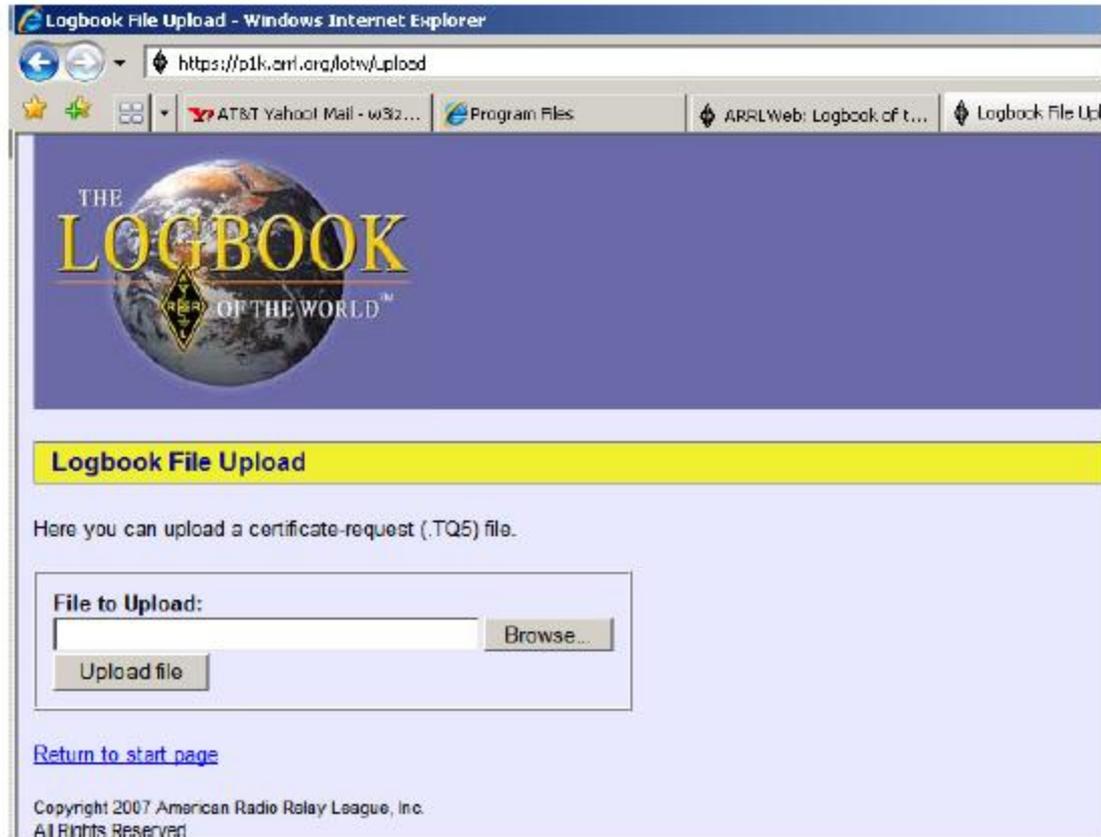


Click the link from  
the GET STARTED  
page.



Upload your TQ5 file.

2. Select the link "Upload a certificate request."

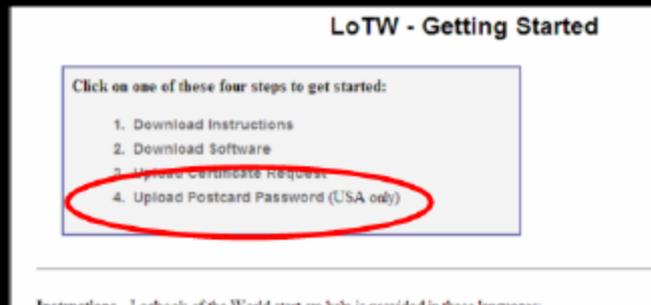


3. Use the browse button to locate and select the TQ5 file that you created in the previous section.
4. Upload the file.
5. Sit back and wait for your postcard to arrive in the mail.

## Part Four - Entering your Postcard Password

*Note! This applies only to USA licensees!*

# Verify Your Location



Click the link from  
the GET STARTED  
page.



Enter your callsign and  
the postcard password  
on the LoTW website.

1. Go to the ARRL LoTW Get Started webpage:  
<http://www.arrl.org/lotw/start.html>

2. Select "Enter a password from a postcard."

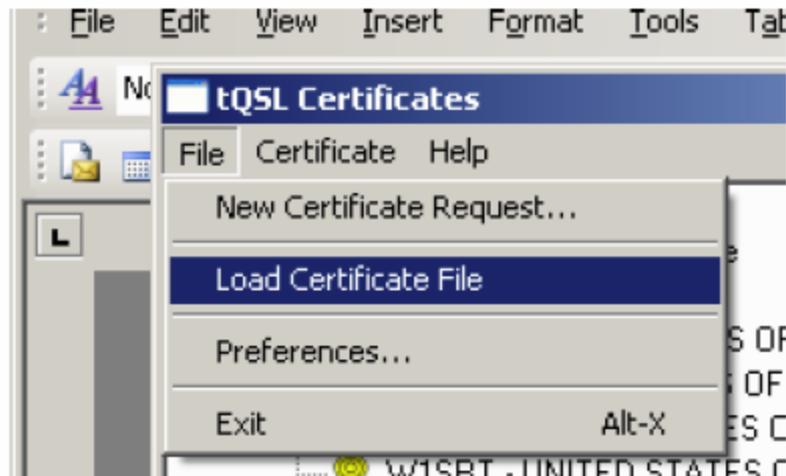


3. You guessed it, enter the password exactly as it is on the card. The password is eight alpha-numeric characters above the address and batch numbers on the front of your postcard. The password is case sensitive.

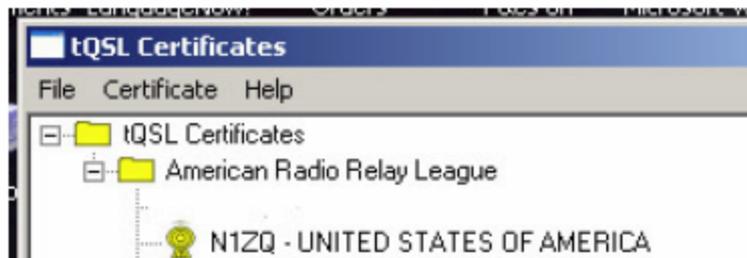
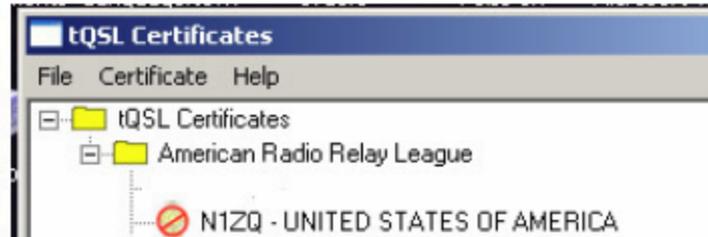
4. Your certificate request has now been verified. You will receive your certificate as an e-mail attachment within three business days. This e-mail will also contain your password to log onto the LoTW users page and access your account. Your Log-on ID is your callsign. You can/should change this password after you log-on.

## Part Five – Loading and Saving Your Certificate

1. When you receive your TQ6 file via e-mail you should be able to double click the attached file and say YES to open and it will load itself -- or --- you can save the file to your LoTW folder and use the **LOAD CERTIFICATE FILE** feature of the TQSL CERT program.



2. When correctly loaded, the slashed red circle will turn to a gold ribbon.



## SAVE YOUR CERTIFICATE

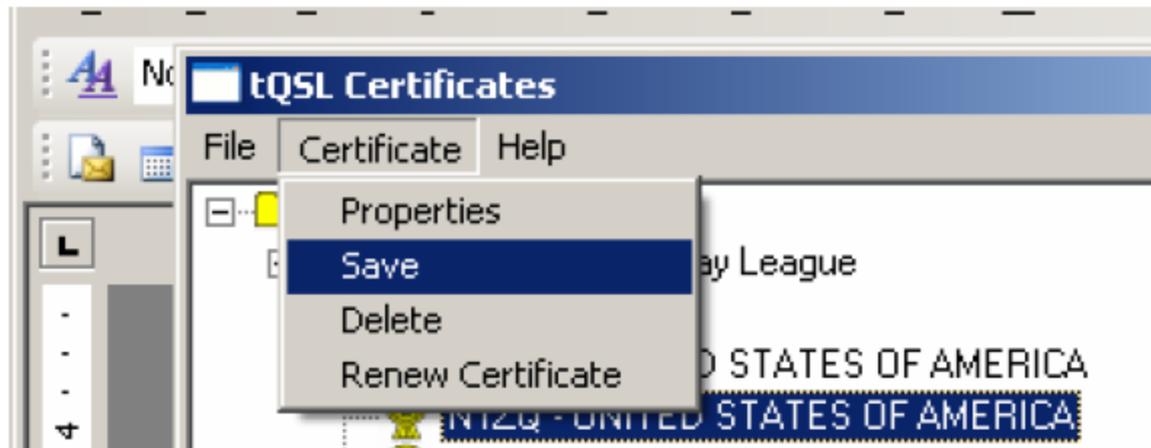
The final step is to save the complete certificate as a p12 file to external media such as a floppy disk, CD, flash drive or memory stick. If you experience PC failure, hard disk crash, or loss of files you can restore your LoTW certificates by loading your p12 file into TQSL CERT.

(TQSL CERT > FILE > LOAD CERTIFICATE)

The postcard password and the TQ5 and TQ6 files have performed their respective tasks and it is not necessary to save any of these items. However you must save your certificate as a p12 file to be able to recover your complete certificate.

3. To save the complete certificate select CERTIFICATE > SAVE

**Be sure to save this p12 to external media. If you save this file to your computer and the computer crashes you will not be able to recover the file.**



This completes the certificate process. You may request additional certificates for your old calls, portable calls or other calls that are associated with you by requesting and uploading **SIGNED** certificate requests for each call. See the FAQ under [Callsign Issues](#).

## Special Circumstances

Before requesting any additional certificates you first must have established your primary LoTW account and have your gold ribbon certificate.

### Club Calls

Clubs must create an **UNSIGNED** certificate request for the primary club call. This primary call will receive its own LoTW login and password. Certificates for additional calls for the same club must have a **SIGNED** certificate using the primary club call certificate to sign the request.

If you are no longer able to be the trustee for a club call then the account can be transferred to another person's control.

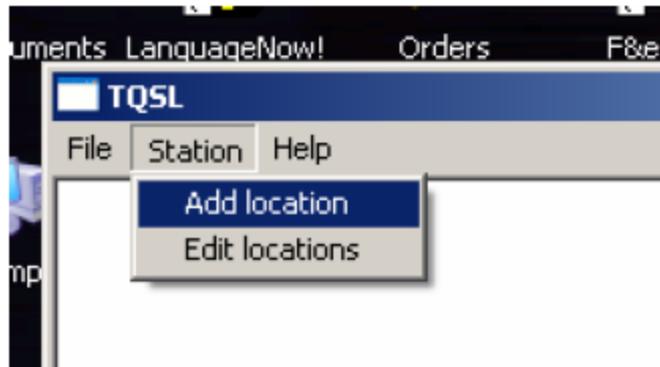
# Signing and Uploading Logs

Now that you have your electronic certificate you can now sign and upload your logs to Logbook of The World. The first step in the signing process is to create a *Station Location*. Your station location contains the geographic information about your station. Information such as zones, grid squares, IOTA numbers and US States and Counties are included in your station location.



Tqsl.lnk

1. Open TQSL
2. Select ADD STATION LOCATION



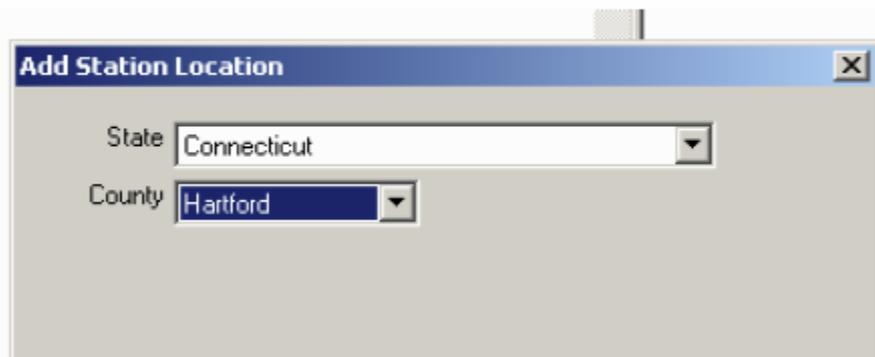
3. Enter all of the information for the location of your operation and click next.

The image shows a software dialog box titled "Add Station Location". It contains the following fields and values:

- Call Sign: N1ZQ
- DXCC Entity: UNITED STATES OF AMERICA
- Grid Square: FN31MQ
- ITU Zone: 8
- CQ Zone: 5
- IOTA ID: (empty)

At the bottom of the dialog, there are four buttons: "Help", "< Back", "Next >", and "Cancel".

4. US Callsigns will get drop down menus to select a State and County.



The image shows a dialog box titled "Add Station Location" with a close button (X) in the top right corner. Inside the dialog, there are two dropdown menus. The first is labeled "State" and has "Connecticut" selected. The second is labeled "County" and has "Hartford" selected.

5. The final step is naming the station location. Once you have entered the station location name (“Home” in the example), click FINISH.

**Add Station Location** [X]

Station Data input complete

Select or enter name of this station location

W1SRT (W1SRT)  
N1ZQ (N1ZQ)

Station Location Name  
Home

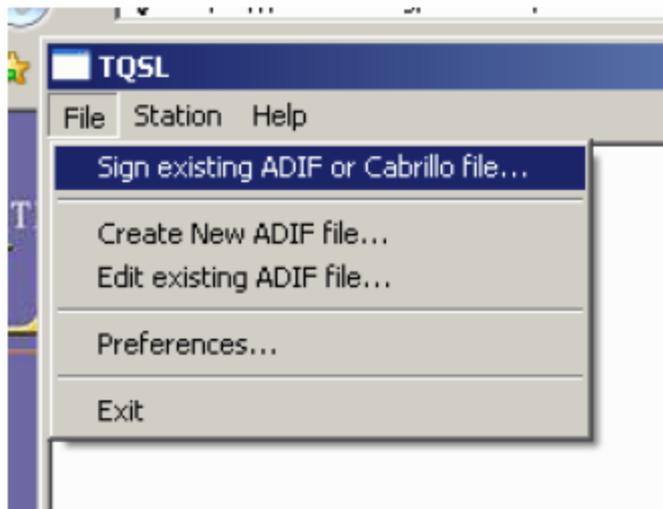
Help

< Back   Finish   Cancel

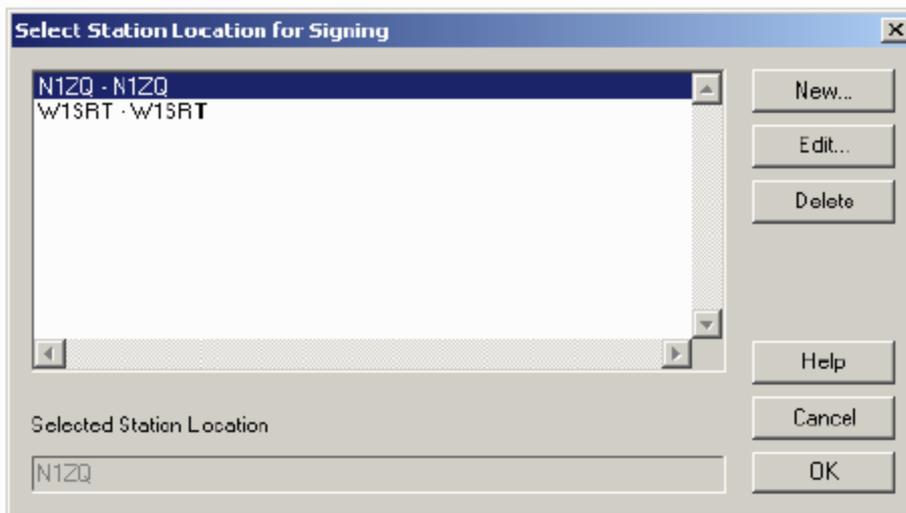
## Signing Your Log

This step assumes that you have exported an ADIF or Cabrillo log file from your logging program. Some of the more popular logging software programs will perform these next steps for you.

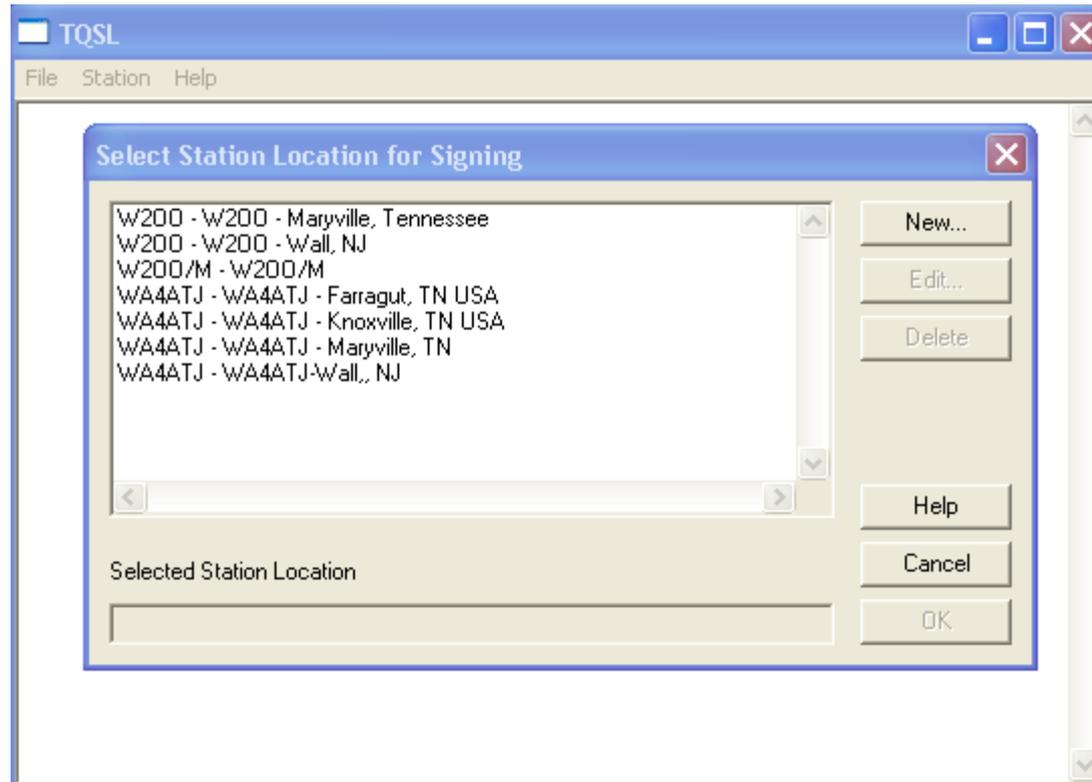
1. Select FILE > SIGN EXISTING FILE



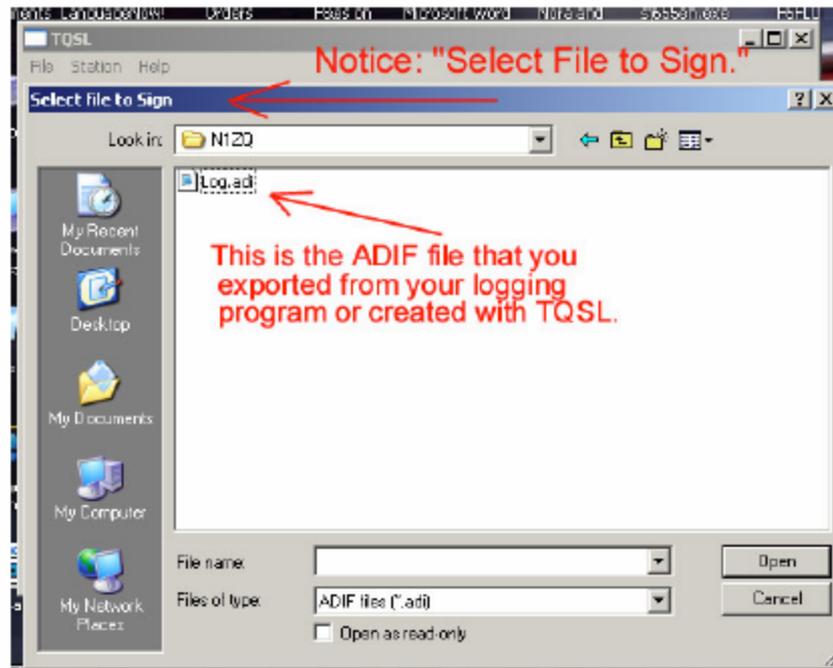
2. Select a station location to use for signing your log. Highlight (left click on the call) the location and click OK



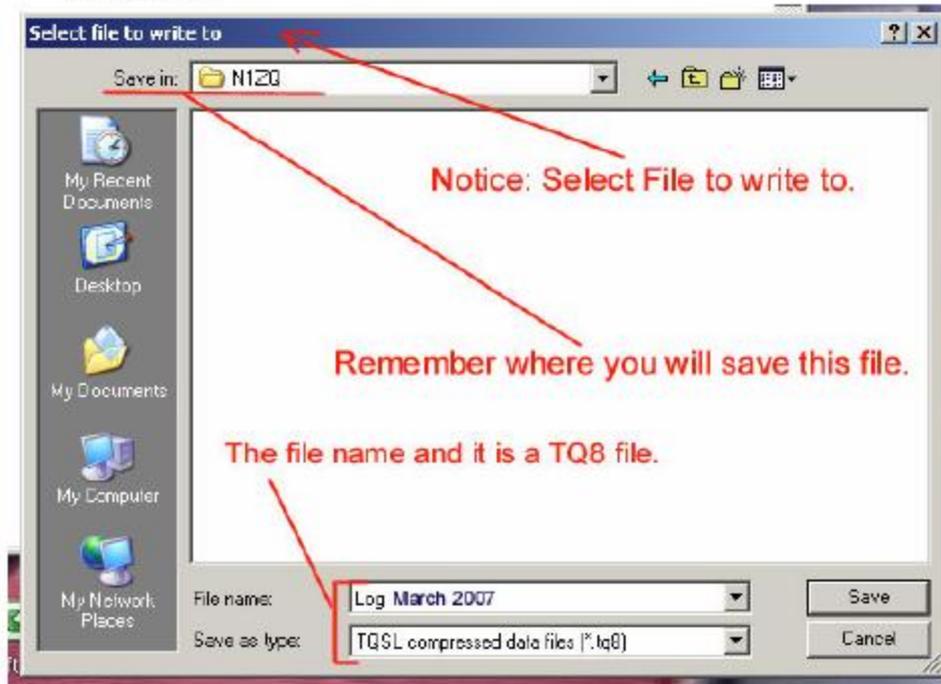
# This is what my station location list looks like



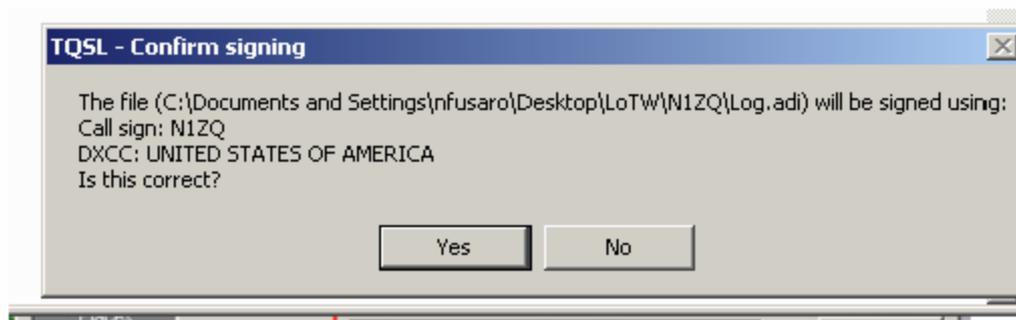
3. Select the log file to sign. Click OPEN. You should use a different name for each file to help you keep track.



4. Next you will select the file to write to. When you electronically sign your log you will have created a TQ8 file. This is the secure file that will be uploaded to LoTW.



5. You will be asked to confirm the signing. If you have more than one callsign in your system be sure that the correct call is being used to sign the log.



6. You have the option of entering a date range for QSOs to be uploaded. You can leave either (or both dates) blank. If duplicate information is uploaded the most recent upload will override the previous upload.

It is a good practice to enter the beginning date as the last date you uploaded to LoTW.

JXLL=297

**QSO Date Range** [X]

You may set the starting and/or ending QSO dates in order to select QSOs from the input file.

QSOs prior to the starting date or after the ending date will not be signed or included in the output file.

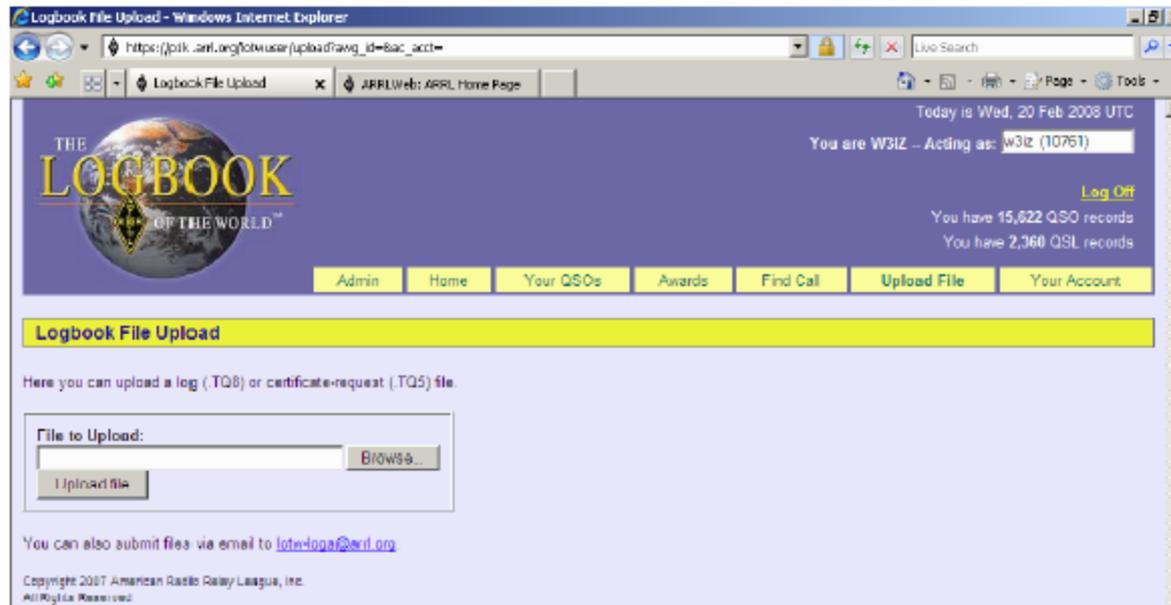
You may leave either date (or both dates) blank.

Start Date (YYYY-MM-DD)

End Date (YYYY-MM-DD)

Ok Cancel

7. You will see the system converting your log to TQSL format and then you will get a message that the TQ8 file is ready to be uploaded.
8. Log onto the LoTW website <https://p1k.arrl.org/lotwuser/default>
9. Select the UPLOAD FILE tab.



The screenshot shows a Windows Internet Explorer browser window displaying the LoTW website's 'Logbook File Upload' page. The browser's address bar shows the URL [https://p1k.arrl.org/lotwuser/upload?nav\\_id=8ac\\_acc](https://p1k.arrl.org/lotwuser/upload?nav_id=8ac_acc). The page header features the LoTW logo, a navigation menu with tabs for 'Admin', 'Home', 'Your QSOs', 'Awards', 'Find Call', 'Upload File', and 'Your Account', and user information for 'W3IZ' (10761) with a 'Log Off' link. The main content area is titled 'Logbook File Upload' and contains a text box for 'File to Upload:' with a 'Browse...' button and an 'Upload file' button. Below this, there is a link to submit files via email to [lotw-logs@arrl.org](mailto:lotw-logs@arrl.org) and a copyright notice for the American Radio Relay League, Inc. (ARRL) from 2007.

10. Use the browse button to locate and select your TQ8 file to upload.
11. Click the upload file button to upload the file. If done correctly you will receive a message that the file is queued for processing.

If you receive a message like this:

*[FILE] does not appear to be a TrustedQSL file! Processing aborted.*

The chances are that you selected your log ADIF file to upload or some other file that is not a TQ8 file.

**Thank you for using  
Logbook of The World**

# Tip for using LoTW

- Log in to your account using the following link with “your call” and “your password” included where indicated. This page is where you will want to go to actually do something useful.
- <https://p1k.arrl.org/lotwusers/qsos?/login=yourcall&password=yourpassword>



- [Home](#)
- [Your QSOs](#)
- [Awards](#)
- [Find Call](#)
- [Upload File](#)
- [Your Account](#)

- [QSOs Menu](#)
- [Query](#)
- [Download Report](#)
- [Statistics](#)

## Your QSOs

### QSO Query

Most recent QSO record received 2009-07-12 20:19:15Z

Select QSOs to List		Submit Query Form
Call sign worked:	<input type="text"/> May use wildcards (? and *)	<input type="button" value="Submit"/>
Your call sign:	- Any - <input type="button" value="v"/>	<b>Common Queries</b>
Starting Date:	<input type="text"/> Time: <input type="text"/> YYYY-MM-DD HHMM	
Ending Date:	<input type="text"/> Time: <input type="text"/> YYYY-MM-DD HHMM	<input type="button" value="Most Recent QSLs"/>
Mode:	- Any - <input type="button" value="v"/>	<input type="button" value="Most Recent QSOs"/>
<input type="checkbox"/> Show confirmed QSOs only		
DXCC Entity:	- Any - <input type="button" value="v"/>	
Sort by	QSO Date <input type="button" value="v"/> <input type="checkbox"/> Descending	
<input type="button" value="Clear Form"/>		
<b>Award Account</b>		



**Let us show you the way to  
the top of the Honor Roll**

[Home](#)
[Your QSOs](#)
[Awards](#)
[Find Call](#)
[Upload File](#)
[Your Account](#)
[QSOs Menu](#)
[Query](#)
[Download Report](#)
[Statistics](#)
[Your QSOs](#)
[QSO Query](#)
[New Query](#)

**25 Records Shown (1-25)**

Sorted by QSL Date (1.110676 seconds elapsed)

Showing **DXCC** Award data for

**W200 - UNITED STATES OF AMERICA**

	Call sign	Worked	Date/Time	Band	Mode	Freq	QSL	DXCC
<a href="#">Details</a>	W200	KB9S	2009-07-11 18:33:55	15M	CW		<a href="#">UNITED STATES OF AMERICA</a>	
<a href="#">Details</a>	W200	W1BA	2009-07-11 18:32:49	15M	CW		<a href="#">UNITED STATES OF AMERICA</a>	
<a href="#">Details</a>	W200	N0NI	2009-07-11 18:16:44	15M	CW		<a href="#">UNITED STATES OF AMERICA</a>	
<a href="#">Details</a>	W200	NN1N	2009-07-11 18:15:50	15M	CW		<a href="#">UNITED STATES OF AMERICA</a>	
<a href="#">Details</a>	W200	NF4A	2009-07-11 18:08:56	15M	CW		<a href="#">UNITED STATES OF AMERICA</a>	
<a href="#">Details</a>	W200	K1AR	2009-07-11 18:06:15	15M	CW		<a href="#">UNITED STATES OF AMERICA</a>	
<a href="#">Details</a>	W200	K4ZW	2009-07-11 18:02:46	20M	CW		<a href="#">UNITED STATES OF AMERICA</a>	
<a href="#">Details</a>	W200	KC7V	2009-07-11 17:57:03	20M	CW		<a href="#">UNITED STATES OF AMERICA</a>	

[Next](#)

# Click on the Download Report and the screen below will appear.

THE ARRL



Today is Sun, 12 Jul 2009 UTC

You are **W200**

[Log Off](#)

You have **50,633** QSO records

You have **13,422** QSL records

**Join ARRL!**  
Join or Renew Today



[Home](#)

[Your QSOs](#)

[Awards](#)

[Find Call](#)

[Upload File](#)

[Your Account](#)

QSOs Menu

[Query](#)

[Download Report](#)

[Statistics](#)

**Your QSOs**

**Download Report**

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

Show QSLs received since:  (YYYY-MM-DD)

Include QSL detail:  (May make the downloaded file a lot bigger.)

Your Call Sign:

Click on the new Download Report and another window will appear.

THE LOGBOOK OF THE WORLD™

QSOs Menu

Query

**Download Report**

Opening lotwreport.adi

You have chosen to open

**lotwreport.adi**  
which is a: ADI file  
from: <https://p1k.arrl.org>

What should Firefox do with this file?

Open with Notepad (default) ▾

Save to Disk

Do this automatically for files like this from now on.

OK Cancel

e is in ADIF format.  
)  
bigger.)

Copyright 2007 American R  
All Rights Reserved



*Choice of the World's top DX'ers<sup>SM</sup>*

[Home](#)[Your QSOs](#)[Awards](#)[Find Call](#)[Upload File](#)[Your Account](#)

## QSO Detail

### Station

**Call Sign** OH3SR  
**DXCC** FINLAND  
**CQ Zone** 15  
**ITU Zone** 18  
**Grid** KP21cl

### Worked Station

**Worked** W200  
**DXCC** UNITED STATES OF AMERICA (291)  
**CQ Zone** 4  
**ITU Zone** 8  
**Grid** EM85bq  
**State** TN  
**County** BLOUNT  
**Date/Time** 2009-07-08 02:44:05  
**Mode** CW (CW)  
**Band** 30M  
**QSL** [2009-07-12 20:19:04](#)



Let us show you the way to  
the top of the Honor Roll

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Award Account  
Menu

Account Status

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## Your Logbook DXCC Account (W200 - UNITED STATES OF AMERICA)

### Account Status

Award	Selected	Applied	Awarded	Total / Current
<a href="#">Mixed</a> *	1	0	317	318 / 316
<a href="#">CW</a> *	1	0	298	299 / 299
<a href="#">Phone</a> *	1	0	299	300 / 300
<a href="#">RTTY</a> *	1	0	100	101 / 101
<a href="#">160M</a> *	0	0	125	125 / 125
<a href="#">80M</a> *	0	0	172	172 / 172
<a href="#">40M</a> *	0	0	254	254 / 252
<a href="#">30M</a> *	1	0	229	230 / 230
<a href="#">20M</a> *	1	0	297	298 / 296
<a href="#">17M</a> *	1	0	264	265 / 265
<a href="#">15M</a> *	0	0	288	288 / 286
<a href="#">12M</a> *	0	0	213	213 / 213
<a href="#">10M</a> *	0	0	230	230 / 230
<a href="#">6M</a>	0	0	49	49 / 49
<a href="#">2M</a>	0	0	1	1 / 1
<a href="#">Challenge</a> *	3	0	2115	--- / 2118

### This account includes credits for the following:

W200 - UNITED STATES OF AMERICA  
W200/M - UNITED STATES OF AMERICA  
WA4ATJ - UNITED STATES OF AMERICA

### This account is linked with DXCC record:

Michael Kirchoff, W200

### 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.
- 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](#).

# LoTW awards currently available

- DXCC
- DX Challenge
- WAS
- Triple Play-WAS by Phone, CW and Digital in a single year

# LoTW Awards coming

- VUCC
- IOTA

# My results so far

- First LoTW confirmed QSO – 1 September 2001
- 27% of QSO's confirmed by LoTW – all logs uploaded to LoTW
- 44% of QSO's confirmed by paper QSL

# Results by others

- Others have received confirmation of more than 300 countries using LoTW
- Others have confirmed 9 band DXCC using LoTW

# Observations

- Contesters are the biggest User's of LoTW
- Digital mode operators are highest percentage Users
- VHF/UHF focused operators are lowest percentage Users
- Conversion of paper to computer logs is a pain in the \_\_\_\_\_!
- QSO's achieved prior to 1995 are probably not worth submitting to LoTW

# Why Bother?

- Quick reinforcement
- If you chase rewards, you will save thousands of \$'s!!! Imagine what 9 band DXCC costs – 9 times 100 times \$4!
- Even if you just respond to requests for QSL's there is a significant cost and hassle factor.

# What are you waiting for? Go home tonight and get started!

- I will be happy to personally help any member of ETDXA, SMARC or Oak Ridge Amateur Radio club if you get “stuck” along the way.
- My preferred method is “on the air” so we can each be sitting in front of our own computer.