How do I?

An occasional series

This week: Logbook of The World. (LOTW)

Logging with LoTW
Inspired once again by our friends on the WSJT-X groups.io

Radio operators have kept log books since the earliest days of radio. Why log?
1.)   To track contacts made,
2.)   To satisfy legal requirements,
3.)   To aid the development of radio by identify tropospheric conditions and other factors that can influence how far your signal goes,
4.)   Record personal milestones: call signs worked, DX entities worked, continents worked, ITU zones worked, and so forth.

So you logged your radio contact.   Anyone can do that. How can you prove you made the contact?

QSLing, initially made by entrusting a QSL card to the postal system, was the answer. A QSL is simply a written verifiable proof of the contact. While it could be hand written on a napkin, over the years QSLing evolved into a fairly standard system where the two parties send post cards to each other listing their call sign, location and signal report as well as the date, time, mode and band. Many hams add other items such as the radio equipment used.

Some QSL card samples from a commercial vendor, KB3IFH https://www.kb3ifhqslcards.com/

Paper QSL cards are exciting to receive. But there can be issues. What if your return card was in a mail pouch on-board the *RMS Titanic* the evening of April 14, 1912? There was no good answer for that scenario until the internet went mainstream circa 1995. Two competing QSO verification systems developed.

EQSL https://www.eqsl.cc/QSLCard/login.cfm is a quasi commercial concern. Users create an account and upload QSO data (contacts made). The other party does the same. The website software performs a matching process. If the two independent data uploads result in a match then the radio contact is confirmed.

Users can enjoy basic EQSL services for free. Donating gives you access to fancier QSL card designs and helps support the system.

EQSL is very popular but has been shunned by some hams over fears that "anyone could upload bogus QSO data." So? You do not have a match until the other party uploads matching QSO data. For that matter, anyone could mail a bogus paper QSL card to an unsuspecting ham and hope the receiving ham was lax in his or her verification of the QSO details.

Secondly, I once sent a special event station a SWL (Short Wave Listening) card letting them know I heard their signal, and received a QSL card in return showing we made a two-way radio contact. I don't count that one for award credit. It's not a valid two-way contact, but I have a paper QSL card showing we made a radio contact.

When you upload QSO data the EQSL system sends your premade EQSL card to the other party. They can print them, and have a "QSL card" they can display in the shack.   Many years ago I posted some QSL cards in my cubicle at work and attracted one new ham to the hobby. I had several good conversations about the hobby with other colleagues.

There are many EQSL awards you can strive to achieve. Below are sample of some of the awards.

EQSL is a nice system for those who accept its processing standards. But the title of this article refers to Logbook of The World -- LoTW. Let's take a deep dive into that QSO verification system.

The Log Book of The World is a free creation of the American Radio Relay League (ARRL). You do not have to be an ARRL member to use LoTW. But joining ARRL "helps pay the freight" and keep the service free.

LoTW is used by many, but some are frustrated by the complexity of the LoTW account setup process. If that sounds like you, stick around. If not, see 'ya down the log!

The LoTW system tries to solve the authenticity problem by using electronic security certificates to encrypt data as it passes from your PC to the ARRL LoTW Server. The issuance of certificates includes processes and procedures to help ensure authenticity.

EQSL deals with authenticity by having the user upload an image copy of his or her Amateur Radio license which is then reviewed by a System Moderator.

This may be a good place to provide an overview of the LoTW setup process: The process involves several steps separated by time.

1.)   Download Trusted QSL software (TSQL) from ARRL and install the software on your PC.
2.)   Use the Trusted QSL software to electronically submit a certificate request to ARRL.
3.)   ARRL will mail a postcard to the address that appears in your FCC records. The postcard contains information unique to your request which you will use in the next step.
4.)   Using the same PC as you used in Step #2, follow the instructions found on the postcard.
5.)   ARRL will eMail additional information and instructions to you. The eMail will contain a file attachment which is your security certificate. Save the attachment to your PC. Use the Trusted QSL (TQSL) software to install the certificate.
6.)   You will define your station location in terms of DXCC Entity, Grid Square, ITU Zone, CQ Zone, State, and County. You may be shown additional questions asking about Islands On The Air, (IOTA), and Parks On The Air (POTA). You be the judge. If you participate in these activities you probably know how to answer the questions.

Now for the details of the ARRL LoTW setup process:

The ARRL website https://lotw.arrl.org/lotw-help/getting-started/ has pretty good instructions. You may wish to print the instructions and make notations as you perform and complete each step.

Step #1 is to download the Trusted QSL (TQSL) certificate software.
This software designed to run on Microsoft Windows operating systems. It also runs on the Apple MacOS and LInux.

Stumbling block #1 seems to that the Windows user account needs to have Administrator privileges, but you CANNOT right click and select Run as Administrator.
If you are trying to install Trusted QSL software on a work or school computer, you probably do not have the privileges needed to install this software. So make sure you are using your own PC.

Stumbling block #2: The Trusted QSL software must be installed in the Windows Program Files (x86) folder. The software will not work if you put it elsewhere.

Once you have installed TQSL, if you do not follow the below, exactly, it will not work.

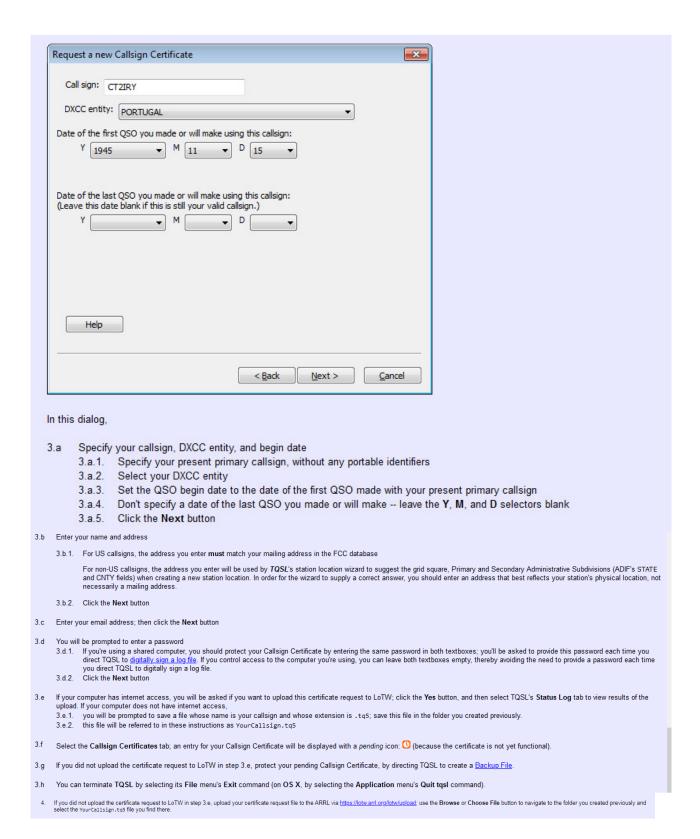# Requesting Your Initial Callsign Certificate and LoTW Account Password

If you're just getting started with LoTW and have operated using multiple station callsigns, first request a Callsign Certificate for your current station callsign.

When you direct TQSL to request a Callsign Certificate, it generates a public key and private key pair, sends the public key and your callsign to the ARRL, and saves the private key on your computer. LoTW responds by combining your callsign and public key into a Callsign Certificate that it sends you via email. A Callsign Certificate can only be used to submit QSOs if the associated private key is present on your computer, so you should accept a Callsign Certificate using the same computer with which you requested it.

If you've already requested your initial Callsign Certificate but have not yet received a response, don't initiate another request; doing so will invalidate the Callsign Certificate you requested, which may be in process or in transit. If you're concerned with the delay in receiving a response to your initial Callsign Certificate request, send email to LoTW-help@arrl.org .

To request your Initial Callsign Certificate,

1. Create a folder on your hard drive in which to maintain your LoTW related files. You can choose any folder that does not conflict with your operating system's policies.
    1.a   On **Windows Vista**, **Windows 7**, **Windows 8**, and **Windows 10** , using a folder within `C:\Program Files` or `C:\Program Files (x86)` would require starting TQSL with *Run as Administrator*, because these versions of Windows consider those two folders to be *protected*; thus it's best to choose or create a folder that resides elsewhere.

2. If you start **TQSL** before receiving your Initial Callsign Certificate from the ARRL, or if you have not installed a Callsign Certificate on the computer you're using, an **Alert** dialog will appear that informs you that you have no Callsign Certificate, and asks if you want to request one. Click the **Yes** button to request your Initial Callsign Certificate; if you have one or more Callign Certificates on another computer, you can copy them to the computer you're using.
    Alternatively, start **TQSL**, and select the **Callsign Certificate** menu's **Request New Callsign Certificate...** command.

3. The **Request a New Callsign Certificate** dialog will appear:

Request a new Callsign Certificate

Call sign: CT2IRY

DXCC entity: PORTUGAL

Date of the first QSO you made or will make using this callsign:

Y 1945 M 11 D 15

Date of the last QSO you made or will make using this callsign:
(Leave this date blank if this is still your valid callsign.)

Y ___ M ___ D ___

Help

< Back   Next >   Cancel

In this dialog,

3.a   Specify your callsign, DXCC entity, and begin date
    3.a.1.   Specify your present primary callsign, without any portable identifiers
    3.a.2.   Select your DXCC entity
    3.a.3.   Set the QSO begin date to the date of the first QSO made with your present primary callsign
    3.a.4.   Don't specify a date of the last QSO you made or will make -- leave the **Y**, **M**, and **D** selectors blank
    3.a.5.   Click the **Next** button

3.b   Enter your name and address

    3.b.1.   For US callsigns, the address you enter **must** match your mailing address in the FCC database

    For non-US callsigns, the address you enter will be used by *TQSL*'s station location wizard to suggest the grid square, Primary and Secondary Administrative Subdivisions (ADIF's STATE and CNTY fields) when creating a new station location. In order for the wizard to supply a correct answer, you should enter an address that best reflects your station's physical location, not necessarily a mailing address.

    3.b.2.   Click the **Next** button

3.c   Enter your email address; then click the **Next** button

3.d   You will be prompted to enter a password
    3.d.1.   If you're using a shared computer, you should protect your Callsign Certificate by entering the same password in both textboxes; you'll be asked to provide this password each time you direct TQSL to digitally sign a log file. If you control access to the computer you're using, you can leave both textboxes empty, thereby avoiding the need to provide a password each time you direct TQSL to digitally sign a log file.
    3.d.2.   Click the **Next** button

3.e   If your computer has internet access, you will be asked if you want to upload this certificate request to LoTW; click the **Yes** button, and then select TQSL's **Status Log** tab to view results of the upload. If your computer does not have internet access,
    3.e.1.   you will be prompted to save a file whose name is your callsign and whose extension is .tq5; save this file in the folder you created previously.
    3.e.2.   this file will be referred to in these instructions as YourCallsign.tq5

3.f   Select the **Callsign Certificates** tab; an entry for your Callsign Certificate will be displayed with a *pending* icon: ⭕ (because the certificate is not yet functional).

3.g   If you did not upload the certificate request to LoTW in step 3.e, protect your pending Callsign Certificate, by directing TQSL to create a Backup File.

3.h   You can terminate **TQSL** by selecting its **File** menu's **Exit** command (on **OS X**, by selecting the **Application** menu's **Quit tqsl** command).

4.   If you did not upload the certificate request to LoTW in step 3.e, upload your certificate request file to the ARRL via https://lotw.arrl.org/lotw/upload; use the **Browse** or **Choose File** button to navigate to the folder you created previously and select the YourCallsign.tq5 file you find there.

Got all that?

Now grasshopper, you need to wait patiently for an ARRL LoTW postcard to arrive in the mail (assuming you live in the US).

Once the postcard arrives, you need to go back to the ARRL LoTW page and perform additional setup steps.

5. If you are a US licensee, you will receive a post card in the mail

    5.a   Above your address on the front of the postcard, you will find your 8-character **Validation Code.**

    5.b   Using your web browser, visit https://lotw.arrl.org/lotw/postcard
        5.b.1.   Enter your callsign (the one you specified in step 3.a.1 above)
        5.b.2.   Enter your **Validation Code.**
        5.b.3   Click the **Submit validation code** button
        5.b.4.   Within 3 business days, you will receive an email message containing your **LoTW Account Username and Password**, with your **Callsign Certificate** attached

6. If you are not a US licensee, submit proof of authorization to operate an Amateur Radio station (for example, a copy of your license) and a copy of one other official document that shows your name (for example, a driver's license). Specific documentation requirements and the address to which documentation should be sent are provided here. After your documentation is reviewed and accepted, you will receive an email message containing your LoTW Account Username and Password, with your **Callsign Certificate** attached

Note: Obtaining a Callsign Certificate for a callsign in certain DXCC entities also requires submission of a **Landing Permit** and/or **Proof of Entry**.

Accepting Your Initial Callsign Certificate

If your primary call sign was issued in the United States, the ARRL will send a postcard to the postal address specified in your FCC license. The postcard will specify an 8-digit Validation Code , sometimes called a "postcard password".

Using your web browser, navigate to here (https://lotw.arrl.org/lotw/password) and type in your Validation Code / "postcard password". In response, the ARRL will send you an email message containing your **LoTW Account Password**, with your **Callsign Certificate** attached.

Then you need to accept the call sign certificate. Please note - all this has to be done from the same computer on which you started signing up for LoTW!

Editor's Note: You may wish to print and follow the step-by-step instructions found on the ARRL website. Some of the following screen snapshots did not capture the full-width of the source document and may be missing portions of the words along the left and right edges.

Accepting Your Initial Callsign Certificate

LoTW requires that you accept your Initial Callsign Certificate using the same computer from which you generated the request for your Initial

After requesting your initial Callsign Certificate, you should receive an email message from the ARRL with an attached file named theCallsign client's "Spam" and "Junk". folders. If this email message does not arrive within 3 business days of sending your request, please send an er and send another Callsign Certificate request without being directed to do so by LoTW staff.
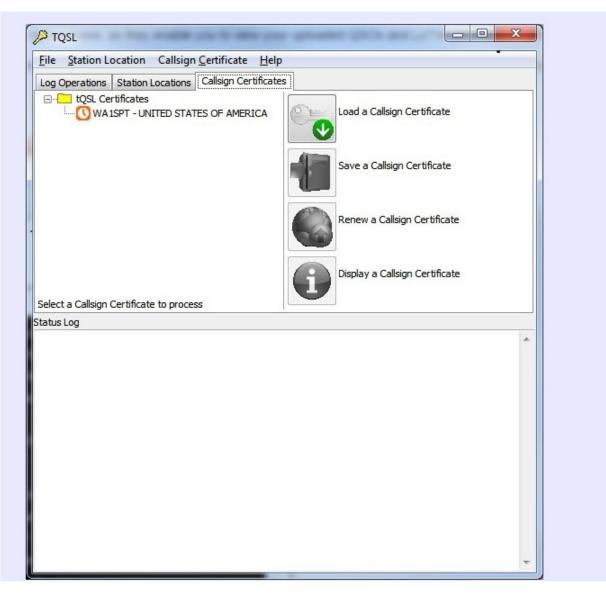
When the email message with your .tq6 file attached arrives from the ARRL,

1. Direct your email application to open the email message.
    1.a   The attached file contains your *Initial Callsign Certificate* -- save it into the folder that you created previously.
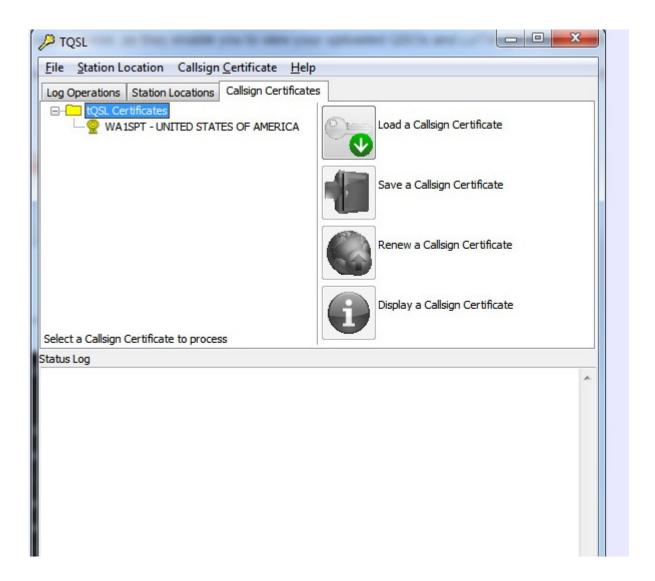
           Note: if you cannot save an email file attachment, then

           i. log in to your LoTW Web Account

           ii. select the **Your Account** tab

           iii. in the **Logbook Web Account Menu** on the left, click the **Your Certificates** entry

           iv. use the **Accept a pending Callsign Certificate** option to download the file certs.tq6 -- save this file into the folder you cr

    1.b   The message contains your **LoTW Account** Username and Password; be sure to record these, as they enable you to view y
           https://lotw.arrl.org/lotwuser/default
2. To proceed, you must be on the same computer that you made the request on originally.

3. Start **TQSL** and select the **Callsign Certificates** tab:

🔑 TQSL

3.a   Click the **Load a Callsign Certificate** button; the **Select Certificate File** dialog will appear
3.b   In the **Select Certificate File** dialog,
3.b.1.   Set the **Files of type** selector (on **OS X**, set the **Enable** selector) to `Certificate Request response files (*.tq6)`
3.b.2.   Select the file YourCallsign.tq6 in the folder that you saved it in.

Note: if in step 1.a above you used the **Accept a pending Callsign Certificate** option, then select the file `certs.tq6` in the folder that you saved it in.

3.b.3.   Click the **Open** button; a small **Install Certificate** dialog will appear.
3.c   In the **Install Certificate** dialog, you'll be asked if its okay to install a trusted root certificate; click the **Yes** button
3.d   In the **Load Certificate File** dialog, click the **Finish** button
3.e   The **Callsign Certificates** tab will show an entry for your Callsign Certificate, with a yellow medal *valid* icon: 🏅 .

3.f   To protect your new Callsign Certificate, direct **TQSL** to create a <u>Backup File</u>.

3.g   You can terminate **TQSL** by selecting its **File** menu's **Exit** command (on **OS X**, by selecting the **Application** menu's **Quit tqsl** command).

4.   If you have **TQSL** installed on multiple computers, then perform the following steps on each such computer:

4.a   Obtain a copy of the <u>Backup File</u> you created in step 3.f (via your home network, or by using a thumb drive)

4.b   Start **TQSL**, and direct it to <u>Restore</u> from the backup file you obtained in step 4.a; this will update all Callsign Certificates, Station Locations, and Preferences on this computer to match those on the computer you used to accept the Callsign Certificate in step 3

5.   Now that you have a Callsign Certificate for your current station callsign, you can <u>request</u> additional Callsign Certificates for any other station callsigns with which you have made QSOs.

A table illustrating the icons used by **Windows** to designate the above-mentioned LoTW file types in **Windows Explorer** is provided <u>here</u>.

Then you need to set up your initial station location.

• **Defining, Modifying, Deleting, or Copying a Station Location**

A *Station Location* specifies an operating location and, optionally, a Callsign Certificate; it contains information you'd typically include on your QSL card.

If when submitting QSOs to LoTW you select a Station Location that specifies a Callsign Certificate, TQSL will submit your QSOs with that Station Location and Callsign Certificate.

If when submitting QSOs to LoTW you select a Station Location that doesn't specify a Callsign Certificate (its **Call Sign** is set to [None]),
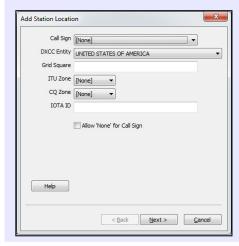
- if you have exactly one Callsign Certificate whose DXCC entity matches the DXCC entity in the selected Station Location, TQSL will submit your QSOs with that Station Location and Callsign Certificate
- if you have more than one Callsign Certificate whose DXCC entity matches the DXCC entity in the selected Station Location, TQSL will prompt you to select the Callsign Certificate with which to submit your QSOs

The location information you specify in a Station Location enables your QSO partners to obtain award credit for VUCC and WAS awards, so it's important that you be accurate and complete in your selections.

- Defining a New Station Location
- Modifying an Existing Station Location
- Deleting an Existing Station Location
- Restoring a Deleted Station Location
- Copying all Station Locations from One Computer to Another

Defining a New Station Location
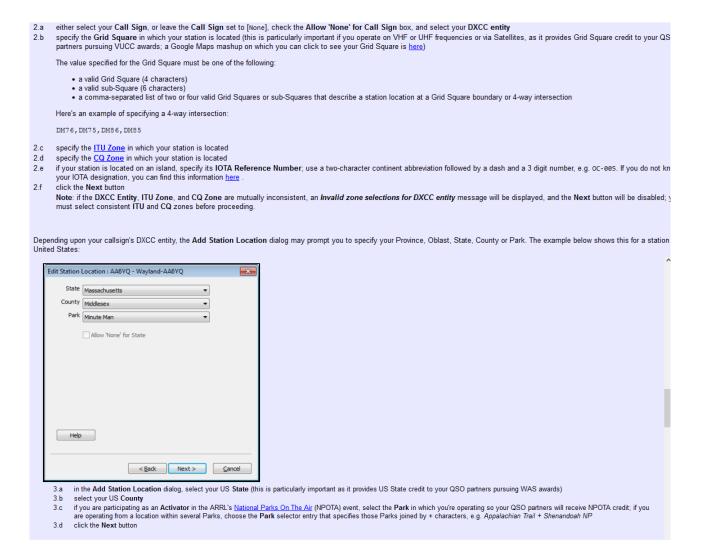
1. In **TQSL**, select the **Station Locations** tab and click the **Create a new Station Location** button; the **Add Station Location** dialog will appear.

2. In the **Add Station Location** dialog, specify your callsign, grid square, ITU zone, CQ zone, and IOTA Reference Number.

2.a either select your **Call Sign**, or leave the **Call Sign** set to [None], check the **Allow 'None' for Call Sign** box, and select your **DXCC entity**

2.b specify the **Grid Square** in which your station is located (this is particularly important if you operate on VHF or UHF frequencies or via Satellites, as it provides Grid Square credit to your QSO partners pursuing VUCC awards; a Google Maps mashup on which you can click to see your Grid Square is here)

2.a either select your **Call Sign**, or leave the **Call Sign** set to [None], check the **Allow 'None' for Call Sign** box, and select your **DXCC entity**
2.b specify the **Grid Square** in which your station is located (this is particularly important if you operate on VHF or UHF frequencies or via Satellites, as it provides Grid Square credit to your QS partners pursuing VUCC awards; a Google Maps mashup on which you can click to see your Grid Square is here)

The value specified for the Grid Square must be one of the following:

- a valid Grid Square (4 characters)
- a valid sub-Square (6 characters)
- a comma-separated list of two or four valid Grid Squares or sub-Squares that describe a station location at a Grid Square boundary or 4-way intersection

Here's an example of specifying a 4-way intersection:

DM76,DM75,DM86,DM85

2.c specify the ITU Zone in which your station is located
2.d specify the CQ Zone in which your station is located
2.e if your station is located on an island, specify its **IOTA Reference Number**; use a two-character continent abbreviation followed by a dash and a 3 digit number, e.g. OC-005. If you do not kn your IOTA designation, you can find this information here .
2.f click the **Next** button
     Note: if the **DXCC Entity**, **ITU Zone**, and **CQ Zone** are mutually inconsistent, an *Invalid zone selections for DXCC entity* message will be displayed, and the **Next** button will be disabled; must select consistent **ITU** and **CQ** zones before proceeding.

Depending upon your callsign's DXCC entity, the **Add Station Location** dialog may prompt you to specify your Province, Oblast, State, County or Park. The example below shows this for a station United States:

3.a in the **Add Station Location** dialog, select your US **State** (this is particularly important as it provides US State credit to your QSO partners pursuing WAS awards)
3.b select your US **County**
3.c if you are participating as an **Activator** in the ARRL's National Parks On The Air (NPOTA) event, select the **Park** in which you're operating so your QSO partners will receive NPOTA credit; if you are operating from a location within several Parks, choose the **Park** selector entry that specifies those Parks joined by + characters, e.g. *Appalachian Trail + Shenandoah NP*
3.d click the **Next** button

Remember: If you operate from multiple locations, you need to set up a Station Location record for each one.

Before using TQSL or your logging application to submit QSOs to LoTW, employ the username and password contained in the email you received from the ARRL to verify that you can log in to your **LoTW Account**. Be sure to remember this username and password, as your LoTW Account enables you to confirm that the QSOs you submit to LoTW have been accepted, determine which of your submitted QSOs have been confirmed via LoTW, and submit confirmations for **Award Credit**.
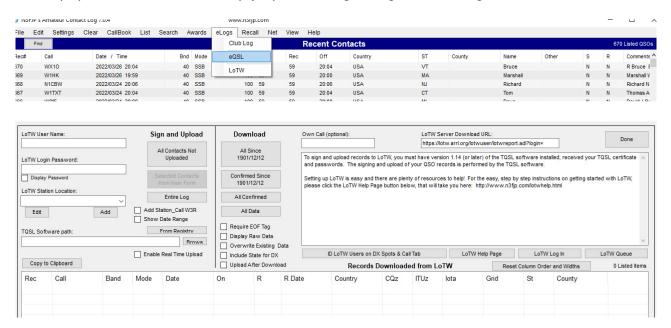
5. Log in to your LoTW Account

Now you can submit QSOs to LoTW!

If you've made QSOs using other station callsigns or from other locations, then after accepting a Callsign Certificate for your current callsign, you can obtain additional Callsign Certificates and define additional Station Locations.

Every Callsign Certificate expires after 3 years, but is easily renewed before it expires. You'll receive an email message from the ARRL several weeks before one of your Callsign Certificates will expire.

You can upload directly using ADIF files from your logging software. Most people find it easier to just upload from the logging software.

In the popular N3FJP suite, simply open the log and go to the elogs tab

Enter the LoTW user name and password for your account and select a station location and enter the path where N3FJP Amateur Contact Log can find your TQSL certificate. Electronically sign the QSOs you want to upload. If you set up Amateur Contact Log to mark a sent LoTW as a QSL, a Y will appear in the QSL field in the entry as a well as an **L** for confirmed by LoTW. You can the download from LoTW confirmed matches.
If it is NOT confirmed, either because the other user does not use LoTW or has not yet uploaded QSO data for your contact, or if the times were outside the parameters, you will not have a confirmed match.

Your LoTW confirmed entries are valid for any of the ARRL awards such as Worked All States (WAS) or DX Century Club (DXCC -- confirmed contacts made with 100+ DX Entities). The ARRL does not accept EQSL confirmations for ARRL awards.

If you want to receive a physical QSL card as confirmation of the radio contact you still need to request one through traditional channels – direct mail, QSL Bureau, QSL Manager, Club Log, or OQRS.

Hopefully this helped take some of the frustration out of setting up LoTW and you can go back to making QSOs. Knowing you can fairly easily get confirmation of your completed QSOs adds to the enjoyment of making radio contacts.

Catch 'ya on the air!