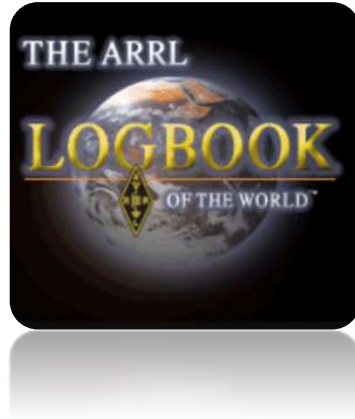


LoTW New User Guide

Get going with ARRL's Logbook of The World



Version 1.07 April 2023



Note: this guide is occasionally [updated](#).
The definitive current English version is available at
www.G4iFB.com/LoTW_New_User_Guide.pdf

Please use and share that URL
or scan the QRcode above.

This guide is also available in
[New Italian](#) and [Portuguese](#)

You may be wondering “Why does Logbook of The World exist?”,
“What is it for?” and “Should I bother with it?”

The answer is simple.

**LoTW makes confirming contacts easier,
quicker and cheaper than traditional QSL methods.**

Follow this step-by-step guide to get started on LoTW,
and maybe learn a thing or two along the way.

Quick-start

If you simply *can't wait* to get going, and provided these two bullet points makes sense to you:

1. Download and install TQSL.
2. In TQSL, request a Callsign Certificate.

Then read on. This guide has step-by-step instructions and tips on how to get going with LoTW.

Logbook of The World New User Guide

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Document history

Version	Date	Changes made
1.07	April 2023	Updated backup info. Linked to Italian translation (grazie Gus IK4RQJ).
1.06	July 2022	Added notes about uploading QSOs logged on multiple computers .
1.05	April 2022	Corrected instruction re Callsign Certificate start date.
1.04	Dec 2021	Clarified the purpose of <i>.json</i> files. Other trivial tweaks.
1.03	April 2021	New appendix for information on file extensions/types (thanks John K9MM). Added QR code to the cover: download the current version!
1.02	Oct 2020	Linked to Portuguese translation (obrigado Jorge CT1DOF). De-cluttered cover page, added LoTW logo.
1.01	17 Sept 2020	Minor corrections (thanks Jim W2JC).
1	12 Sept 2020	Published!
0.x	July-Sept 2020	Drafted collaboratively in Google Docs, then moved to MS Word.

I'm grateful to members of the [ARRL LoTW reflector](#) and other hams for their inspiration and assistance in preparing this guide, including: Antony K8ZT, Bart W9JJ, Bob AK5U, Chuck NC8Q, Dave AA6YQ, Ed KG4W, Geoffrey KA1IOR, George K1IG, Gordon N0AB, Greg K0GW, Jerry K7UPJ, Jerry KB2GCG, Jim N6VH, Jim W2JC, Joe W4TV, John K9MM, Jordi EA3JCV, Julio W4HY, Mike K1MK, Rick EA4M, Rick K1MU, Steve NS4P, Tim N3QE, Wes N5WA, William KN4UNG ... and others.

Thanks friends!
73, Gary ZL2iFB

1 Introduction

Logbook of The World provides a reliable and secure means of validating and confirming QSOs. The system is trusted by well over 150,000 radio amateurs from all parts of the globe ► Part of the reason that awards such as DXCC remain popular is that they are widely acknowledged as genuine, meaningful achievements. Things are *deliberately* made tough for cheaters and fraudsters so that honest DXers can continue to value the awards.

<i>Logbook of the World Status</i>	
1,547,890,121	QSO records have been entered into the system.
334,772,707	QSL records have resulted.
160,985	Users are registered in the system
230,171	Certificates are active
57,879,847	User files have been processed

*After following a link, use Alt-left arrow to go back.
On a Mac, try Command-left arrow.*

1.1 LoTW glossary

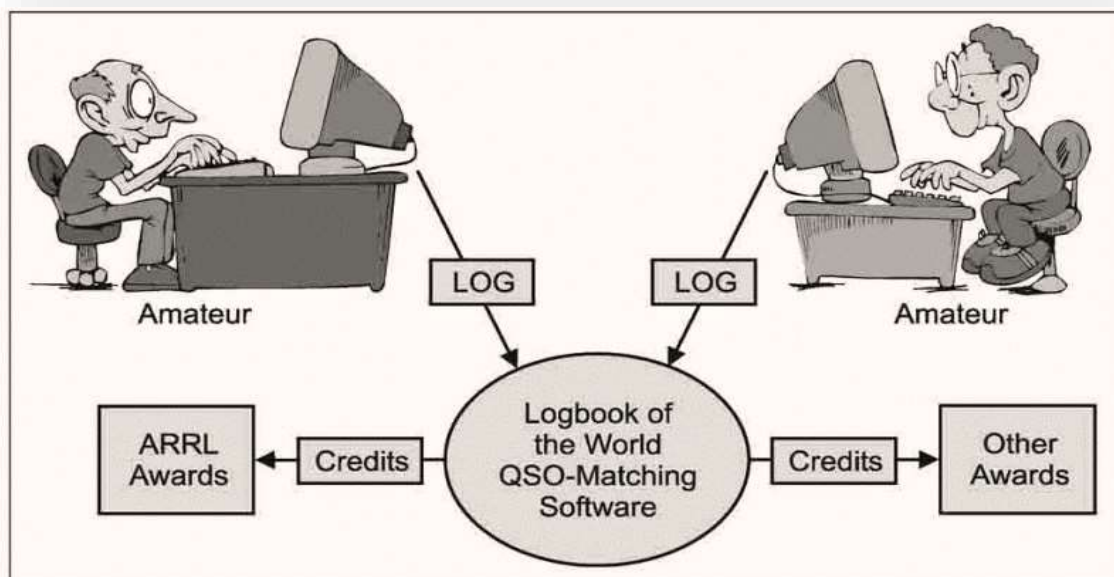
Term	Meaning
Callsign Certificate	A digital (electronic) file, issued by ARRL after they have checked that you are, in fact, the licensee for a properly-issued amateur callsign.
Confirmed	Both parties agree that they made a <u>QSO</u> at a given date and time, on a particular band and mode.
Download	Computer data gets sent ‘down’ from a server, such as the <u>LoTW</u> computer at ARRL, through the Internet to our computer.
DXCC	ARRL’s prestigious DX Century Club award for <u>confirmed QSOs</u> with at least 100 of the 340 recognised ‘entities’ (mostly countries).
Icon	A distinctive little cartoon-like image, such as 🧑 for a usable <u>Callsign Certificate</u> .
Log	A set of <u>QSO records</u> , often in date and time order.
LoTW	<u>Logbook of The World</u> – an ARRL computer system running a database application, plus the associated data and procedures.
Matching	Two <u>QSO records</u> ‘match’ if the pertinent details are identical or close enough to indicate that both parties to the <u>QSO</u> consider it to have taken place.
QSL	A <u>confirmation</u> of a specified <u>QSO</u> in the form of a postcard or electronic record stating the <u>QSO record</u> .
QSO	A contact between two radio amateurs using the amateur bands.
QSO record	Computer data <i>about</i> a contact with pertinent details (callsigns, date, time, band, mode <i>etc.</i>), similar to the information on a line of a traditional paper logbook.
Signing	As with a contract, when we “sign” a <u>log</u> of one or more <u>QSO records</u> before <u>uploading</u> them, we are formally <u>confirming</u> that these <u>QSOs</u> took place according to the <u>QSO records</u> . The electronic signature is a modern digital equivalent to a wax seal on an important Mediaeval letter.

Term	Meaning
Station Location	Details about where the station is located such as the <u>DXCC entity</u> , state, province or oblast, <u>county</u> , <u>Maidenhead grid square</u> , <u>CQ</u> and <u>ITU zones</u> and <u>IOTA reference</u> .
Station log	An electronic <u>log</u> containing details of all the <u>QSOs</u> we have made, often under several personal callsigns (e.g. novice/restricted and full licenses, contest calls).
TQSL	The Trusted QSL program, used to manage <u>Callsign Certificates</u> and <u>Station Locations</u> , and <u>sign</u> and <u>upload QSO records</u> to <u>LoTW</u> .
TQSLcert	The first version of TQSL required a separate program – TQSLcert.exe – to manage the digital certificates. TQSL version 2.0 merged TQSLcert into TQSL, providing all the functions necessary in the one program.
Upload	Send computer data from our computer ‘up’ to a server, such as the <u>LoTW</u> system, via the Internet.
Validation Code	An 8-character sequence mailed on a printed postcard to the registered FCC addresses of US hams in order to confirm their license addresses.

NOTE: this simplified glossary complements the more detailed official LoTW glossary.

1.2 History

Logbook of The World (LoTW) was released by the **American Radio Relay League (ARRL)** on September 15th 2003. Writing for the ARRL’s QST journal in October 2003, Wayne Mills N7NG conjured up a vision: “Imagine being able to submit evidence of a contact electronically, and have it count towards awards. No muss, no fuss - just a simple procedure under a system that ensures the validity of the QSO.” Right there at the outset, the fundamental objectives of LoTW were clear: it would provide a simple way to ensure the validity of amateur radio contacts (QSOs) submitted for awards.



Those who upload logs to Logbook of the World become eligible to redeem confirmation credits for awards. LoTW wants and needs *all* logs. Uploading is free, so send your logs today!

Figure from N7NG's 2003 QST article

1.3 LoTW overview

Despite the name, *Logbook of The World* barely qualifies as a logbook. It is a way to record only the most basic information about the QSOs we make - for example ►. The top section, **Station**, shows information that LoTW has about me - my callsign, DXCC entity, CQ and ITU zones, IOTA island reference and my 6-character Maidenhead grid square. The lower section, **Worked Station**, shows information about a QSO I *claim* to have made with another ham. I have told LoTW both our callsigns, the date and time, the band and the frequencies on which I *claim* to have made the QSO.

All of the information in that QSO record was supplied by me. I generated and uploaded it ... and I may have made mistakes. I could even have made it up. That's why confirmations are so important.

Unless and until R2AL *also uploads* details of the same QSO, it is merely a claim. If R2AL uploads something fundamentally different about the QSO (e.g. if he claims that it was actually on 40m rather than 20m) then

LoTW would not accept that the QSO took place.

Only if our claims are essentially the same does LoTW agree that we made the QSO - in other words the QSO is confirmed.

'Essentially the same' does *not* mean 'identical'. LoTW allows leeway on some of the details, such as the times and frequencies.

Station		
Call Sign	ZL2IFB	
DXCC	NEW ZEALAND (170)	
CQ Zone	32	
ITU Zone	60	
IOTA	OC-036	
Grid	RF80HL	
Worked Station		
Worked	R2AL	
Date/Time	2020-08-02 20:18:15	
Mode	FT8 (DATA)	
Band	20M	
Frequency	14.07646	
Receive Frequency	14.07535	
Record ID 1215315450 Received: 2020-08-02 22:47:57		

Station	
Call Sign	ZL2IFB
DXCC	NEW ZEALAND (170)
CQ Zone	32
ITU Zone	60
IOTA	OC-036
Grid	RF80HL
Worked Station	
Worked	R2AL
DXCC	EUROPEAN RUSSIA (54)
CQ Zone	16
ITU Zone	29
Grid	KO85PP
Oblast	Moskva (Moscow) (MA)
Date/Time	2019-12-22 07:34:45
Mode	FT8 (DATA)
Band	15M
Frequency	21.07464
QSL	2020-03-02 09:13:16
Record ID 1114819323 Received: 2019-12-22 16:44:21	

◀ Here is the LoTW QSO record for a previous QSO with R2AL. Vladimir *has* already uploaded his QSO record for that QSO and the details match, so that QSO is confirmed for both of us on LoTW. *His* DXCC entity, zones, grid square and oblast are all shown - information that Vladimir supplied in the QSO record *he* uploaded. He has *my* QTH information as well – once a QSO is matched, both parties have it.

A bit like those impressive awards and plaques on a DXer or contester's shack wall, digital certificates are electronic proof of something. For LoTW, a Callsign Certificate issued by ARRL proves that the person claiming to be, say, "W1AW" really *is* the properly licensed amateur holding that callsign. That's important

because anyone could *claim* to be W1AW and *claim* to have W1AW's definitive log. More likely, a pirate or cheat might falsely *claim* to have the log for, say, "P5DX" hoping to confirm fake contacts with that extremely rare DXCC entity.

Checking and verifying QSOs is the main purpose of LoTW. As with QSL cards, the aim is to provide trustworthy evidence confirming or proving that logged QSOs *really did take place as claimed* between duly licensed amateurs. The difference is that LoTW is all electronic, using digital data.

There's more to this than piracy and fraud. Have you ever noticed someone getting your callsign wrong during a QSO? With QRM and QSB, mistakes are common. That's why we spell out callsigns phonetically on voice modes, and repeat callsigns so often in QSOs on all modes. We also need to be careful to spot and correct typing mistakes if we are logging electronically.

LoTW is designed to check the details from each party to a contact before confirming it. LoTW offers a higher level of proof and security than other electronic QSL systems, sufficient to be used for awards such as DXCC. Anyone could *claim* to have contacted more than a hundred countries: *proving* it takes more effort!

These are the main controls associated with LoTW:

1. We must **register** with ARRL in order to submit our logs. The registration step involves proving that we are the properly licensed holders of our callsigns.
2. Having registered, we are issued a Callsign Certificate that we will use to sign our log. Signing combines digital information from the Callsign Certificate with the logged QSOs in such a way that LoTW can confirm that:
 - (a) the log came from the holder of the callsign; *and*
 - (b) the log was not altered after it was signed (e.g. by changing or inserting false QSO details).

The way we demonstrate that we are properly licensed varies between countries: **US** hams' details are verified against the FCC's records; **non-US** hams submit their license plus address information (such as a utility bill) to ARRL HQ by post or send/take it to a local ARRL-authorized DXCC card checker to get it checked.

Under the covers, LoTW uses a **Public Key Infrastructure** based on a clever application of cryptography. Applying certificates would be quite confusing for new users but most of the details are taken care of by the software that we use - in particular, a program called TQSL (**T**rusted **Q**SL). TQSL manages our Callsign Certificates, signing and uploading logs, and requests for new or replacement Callsign Certificates. It simplifies the process and hides the technical complexity for us.

1.4 Why should we use LoTW?

Prior to LoTW, confirmations were made using QSL cards - paper cards with written or printed details of on-the-air radio contacts - that were sent by post, either directly from ham-to-ham or via QSL bureaus run by the radio societies. Although QSL cards are still used by some, this is a slow, labor-intensive and relatively costly process. It generally takes months or years to exchange QSL cards.

Other forms of QSLing are complementary, not alternatives, to LoTW. Some of us enjoy collecting exotic postcards from far-off lands as well as receiving electronic confirmations on LoTW. QSL cards are worth showing to shack visitors or friends at the club, or pinning to maps on display boards at special event and demonstration stations.

LoTW eliminates the need to exchange paper QSLs to confirm contacts. LoTW dramatically reduces the effort, cost and time to receive confirmations. Many contacts made today will be confirmed in *minutes* through LoTW. Cumbersome mailing and sorting systems are no longer required, and **LoTW is free for all licensed amateurs**.

"When I returned to ham radio after more than 60 years of QRT, LoTW was one of the pleasant surprises. For old folks like me, the chance to get confirmations very quickly is a real blessing. Were it not for LoTW, I would never have made DXCC or WAS." [W3UEC]

DXers know how frustrating it can be waiting for QSL cards to arrive to confirm each new country. Whether you post your QSLs and cash direct, or just hope for cards to arrive via the worldwide QSL bureau, collecting confirmations on paper can be tedious, not to mention expensive. Then once you've got your tidy little stack of QSL cards and you wish to apply for awards such as DXCC or WAS, you still need to get the cards checked and verified by the relevant organization.

Quite simply, LoTW makes the whole process quicker, easier, cheaper and more reliable.

- It is widely trusted by amateurs around the world
- It is free to upload your QSOs and download confirmations
- Confirmations from LoTW generally arrive within hours, days or weeks of the QSOs, rather than years later for QSL cards sent via the bureau, and without the printing and postage costs
- Most of the process is automated: with the right software, your QSOs can be signed and uploaded in the background as soon as they are logged
- Confirmed QSOs can be submitted by either party for DXCC and other awards: even if you are not chasing awards, the people you contact may be very grateful to have your QSOs confirmed so they can claim awards - especially if you are in a rare location or making remarkable DX QSOs
- It's quite a buzz to see 'new ones' appear in the list of recently-confirmed QSOs, like this ▼ Those ticks against 'TRISTAN DA CUNHA & GOUGH IS' indicate that both I and Nigel ZD9XF had uploaded our QSO records to LoTW. The LoTW system had found two matches, and noted that these now confirmed QSOs counted as a new country for me for the mixed, CW, Challenge, 30m and 17m DXCC awards. The confirmations came through just a few days after the QSOs at essentially zero cost to both of us.

LoTW simply checks and confirms that claimed QSOs were genuine – no big deal, right? So why can't LoTW use more basic security? The reason is that authentication is important. Would you be happy if the LoTW confirmation of a QSO with, say, Heard Island was retracted because it was discovered the log had been faked or hacked?

TRISTAN DA CUNHA & GOUGH IS	✓	30M; Challenge
TRISTAN DA CUNHA & GOUGH IS	✓	17M; Challenge; CW; Mixed

With LoTW, we upload our logs periodically to the ARRL's LoTW website where they are entered into a database system that cross-matches our QSO records against other uploaded logs generating electronic confirmations for all QSOs that match. LoTW confirmations normally come through within days or weeks as soon as both parties to a QSO upload their logs to LoTW, provided the QSO records match.

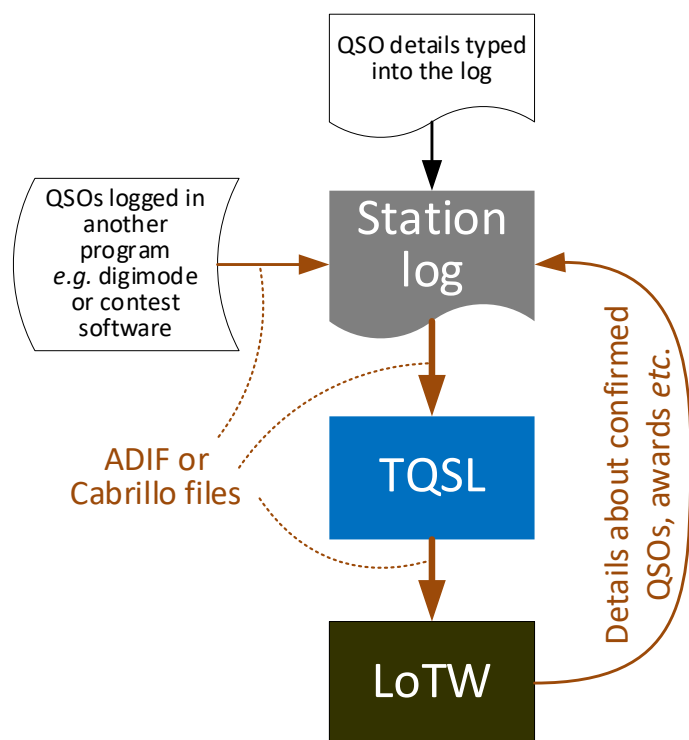
The LoTW system tracks our progress towards DXCC, VUCC, WAS and WPX awards and, when we are ready to claim them, it handles the award applications electronically for us. For QSOs that have been verified in LoTW, there is no need to hunt through our shoeboxes for the relevant QSL cards, fill out the application form and submit the cards for verification. However, we may still choose to submit QSL cards for specific DXCC countries or US states for those bands and modes which are not yet confirmed on LoTW ... or we can wait patiently in the hope that eventually they will all be confirmed on LoTW. **QSOs with all current DXCC entities have been confirmed using LoTW.**

2 Generating an electronic log

In order to use [LoTW](#), you need an electronic record of your [QSOs](#), specifically a [log](#) in ADIF or Cabrillo format:

- **Amateur Data Interchange Format (ADIF)** lets us send data about logged [QSOs](#) between programs (e.g. between your logging software and the [LoTW](#) system). It has records comprising named fields for the pertinent information about each [QSO](#) (e.g. dates, times, bands, modes and callsigns).
- **Cabrillo** is a simpler columnar format, originally designed for contest entrants to submit their [logs](#) for adjudication. When viewed or printed, a Cabrillo file resembles a physical logbook.

Some digital mode software such as WSJT-X and JTDX, contest loggers such as N1MM+ and WinTest, and portable loggers for SOTA etc., only provide basic [QSO](#) logging features ... but even these can usually export ADIF files. You can [sign](#) and [upload](#) those exported ADIFs to [LoTW](#) using [TQSL](#), or you can import them into your full-function station logger first, with the advantage of maintaining a complete [log](#) of all your activities and the ability to manage your [QSL](#) records, awards etc.



maintaining the statistics as we prepare to apply for awards such as [DXCC](#).

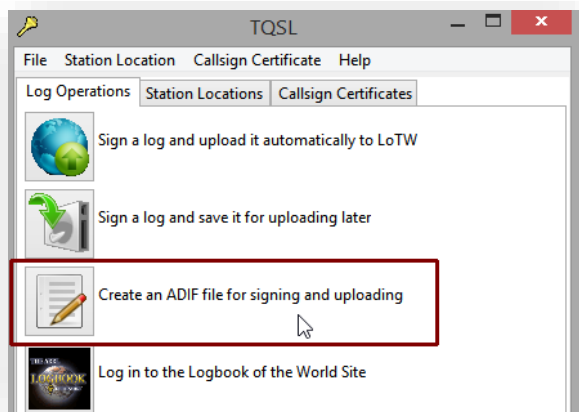
To [upload](#) just a few [QSOs](#) from a paper [log](#) to [LoTW](#), you can type the [QSO](#) details into [TQSL](#) using the **Create an ADIF file for signing and uploading** button ►

Fast Log Entry by DF3CB is a popular program for typing-up old hand-written [logs](#) quickly and efficiently, *provided* you can still read the scrawl ...

◀ Most of us use [logging programs](#) to generate and maintain electronic [station logs](#). [Logging programs](#) can generate the ADIF or Cabrillo files needed to [upload](#) our [logs](#) to [LoTW](#).

You can probably type historical [QSO](#) details from old logbooks into your [log](#).

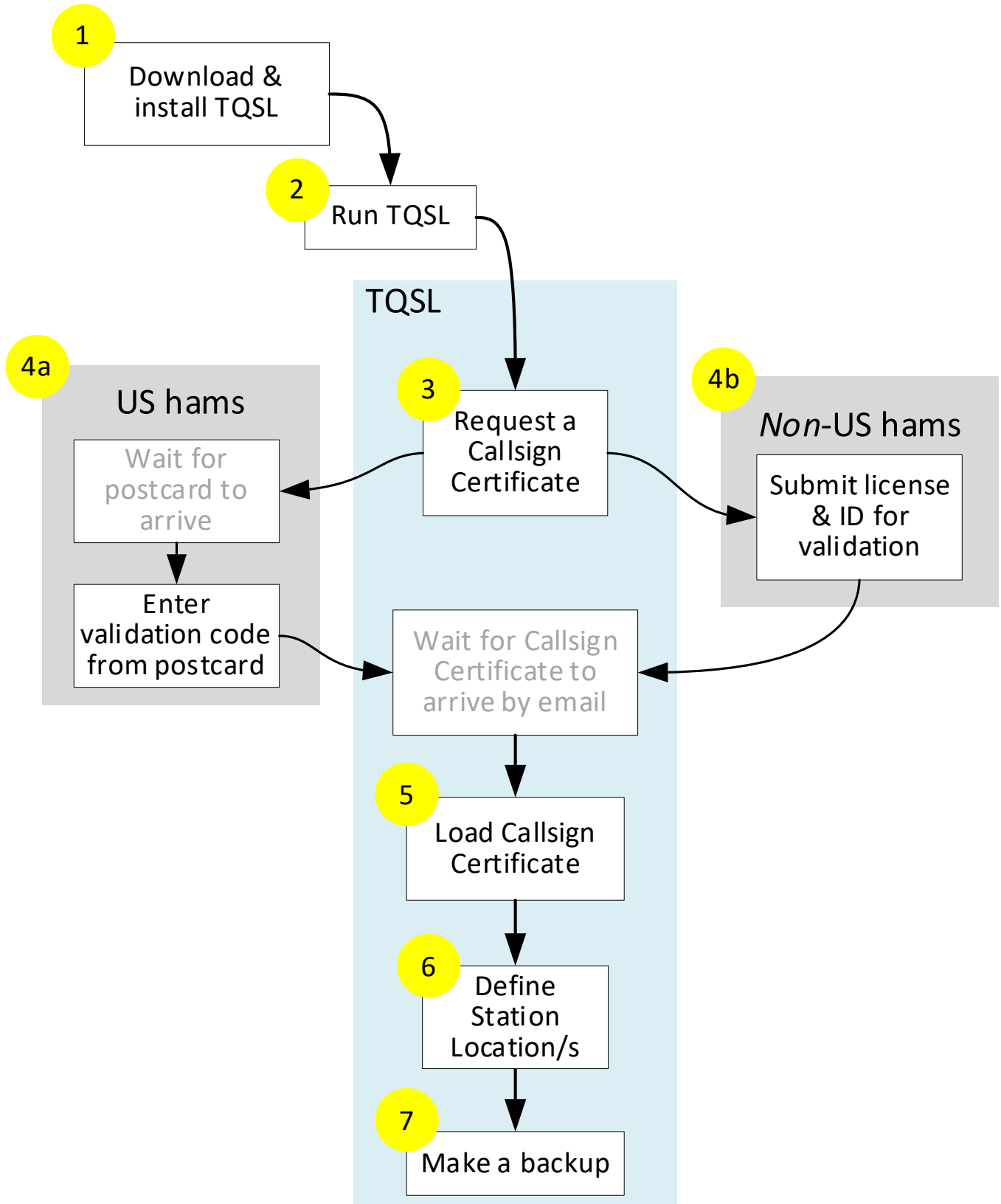
Full-featured [logging programs](#) can also use [confirmations downloaded](#) from [LoTW](#) to update our [station logs](#), indicating which logged [QSOs](#) have been [confirmed](#), and



Another option is the [ARRL Basic Log 500 spreadsheet](#).

3 Applying for your first Callsign Certificate

To join LoTW and obtain your first Callsign Certificate from ARRL, work your way systematically through the process using the step-by-step instructions that follow this clickable diagram:



1. Download the TrustedQSL program (TQSL). Pick the correct download for the operating system you are using *i.e.* Windows, MacOS/OS X, or Linux. Click or double-click the downloaded TQSL installer to install TQSL.

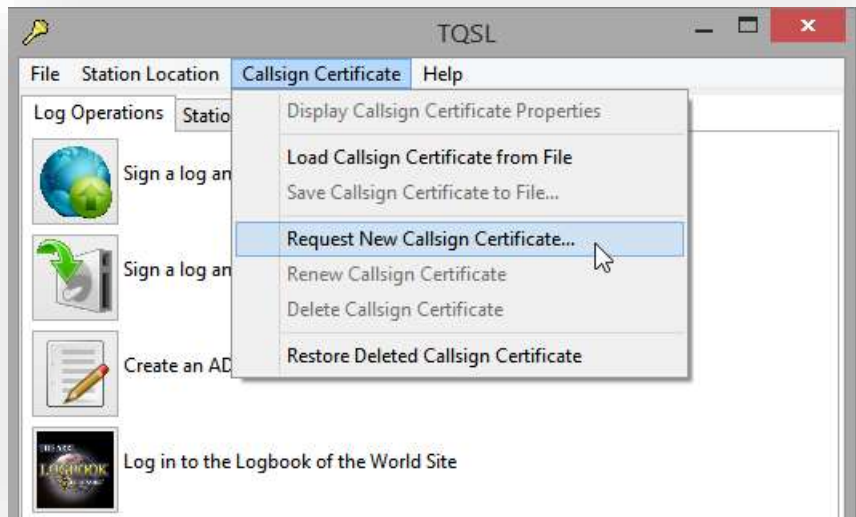
TQSL will even run on some *ancient* operating systems that are no longer supported by the original suppliers.

In Windows, do *not* use “Run as administrator” to run the installer. Administrative privileges are unnecessary for the installation or use of TQSL.

2. Run TQSL *e.g.* by double-clicking the TQSL icon on your desktop.

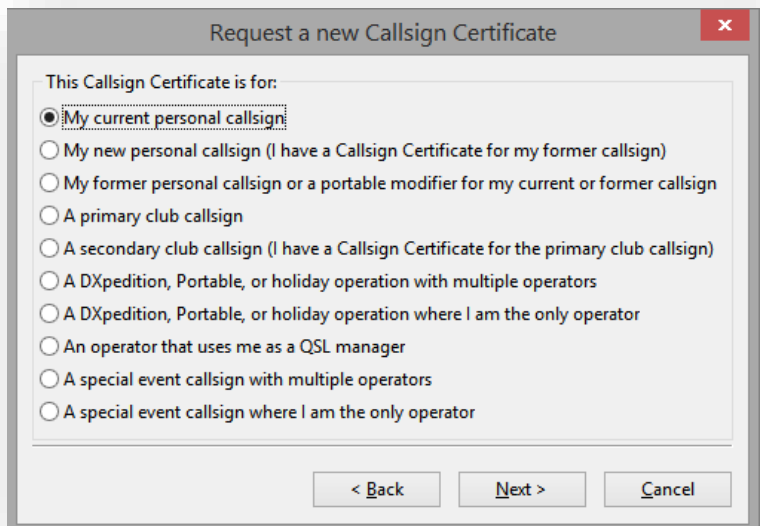
3. Generate a Callsign Certificate request:

- Click to open the **Callsign Certificate** tab ►
- Click **Request New Callsign Certificate** ►



Complete the information requested:

- Click to select the appropriate option – most likely **My current personal callsign** ►
- Click the **Next >** button ►



“I have dithered for years on installing LoTW. After having some initial issues with the installation, I made two calls to ARRL. Now all is well; the support I received from Newington was excellent!” [WU7X]

Complete the next form:

- Type in your callsign ►
- Click in the DXCC entity box to see the list of countries: scroll down to find yours and click it to select it ►
- In the same way, click, scroll down and click to select the year, month and day for the **Date of the first QSO you made or will make using this callsign**. That should be on or after the 'issued' or 'valid from' date stated on your license. ►
- Your license *may* also have an end date (e.g. callsigns issued for special events, or novice licenses that have been upgraded) but **for callsigns that remain current, leave the last QSO date fields blank**.
- Click **Next >** when you are ready to move on ...

▲ You will not be able to sign and upload QSOs made *before* the first date or *after* the second date (if any) with the Callsign Certificate you are now requesting.

Next form:

- Type your name and address ►
 - Normally, this will be the address on your license.
 - For US hams, it must be the address FCC holds for you.
- Click **Next >** when you are ready ...

Click the **Help** button for more information ►

US hams: does the FCC have your current station address, in fact? Now is a good opportunity to check and update it if necessary, avoiding delays around step 4(a).

Nearly done! Complete the final form:

- Type in **Your e-mail address** ►
- Click **Finish** to end the Callsign Certificate request process:
 - TQSL generates a digital message and sends it via the Internet to ARRL
 - Staff at ARRL check your license: if it is all OK, they generate your Callsign Certificate and email it to you, generally within a few days (be patient: they are busy people!).

4. (a) **US hams:** wait for a postcard sent to your station address registered with the FCC. The postcard has a Validation Code printed just above your address ►

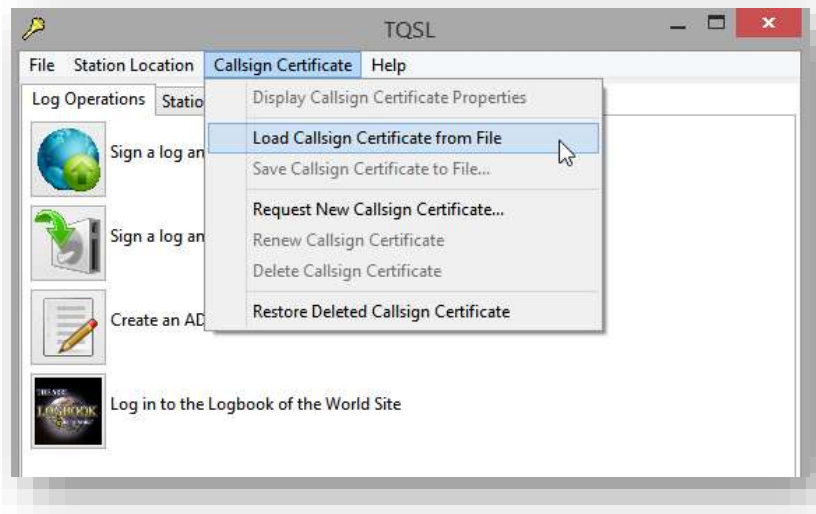
Follow the instructions printed on the reverse of the postcard to enter *your* Validation Code into the LoTW postcard validation page (the Validation Code shown here is just an example and won't work!).



4. (b) **Non-US hams:** get your license validated by:
- Scanning or photographing your license and identification information, then emailing it to ARRL HQ; *or*
 - Taking your license and ID in person to an ARRL-authorized DXCC card checker if there is one for your country; *or*
 - Airmailing a copy of your license and ID to ARRL HQ, preferably using registered post. The information is sensitive and valuable, hence this is a last resort, best avoided.

5. Wait for your Callsign Certificate to arrive by email, then load the Callsign Certificate onto the same computer you used to create the certificate request using TQSL.

- This may be as simple as double-clicking the email attachment.
- If that doesn't work, you may need to save the attachment first as a file on your computer (the one on which you created the certificate request), then find that file and double-click it.
- If that still doesn't work, you can run TQSL, click to open the **Callsign Certificate** tab ► then select **Load Callsign Certificate from File** and navigate to find the file you saved to disk.



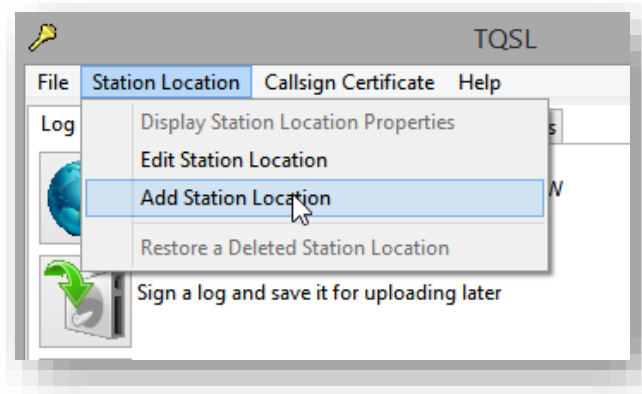
- TQSL electronically checks the Callsign Certificate, marries-up the Callsign Certificate with the corresponding Callsign Certificate request and, if it is all OK, enables the Callsign Certificate for use. You are all set to use the Callsign Certificate to sign your logs and upload them to LoTW (see next section).

The email also provides your username and password to login to LoTW. Go on, try it!

6. Define one or more Station Locations. Station Locations are needed because callsigns alone are seldom sufficient to know whereabouts a station is, especially within a large DXCC country.

In this context, 'station' refers to the *transmitter* used to make contacts. If you use a remotely-operated station, the Station Location is where the transmitter is physically installed.

- In TQSL, click **Station Location** on the top menu, then click **Add Station Location** ►



You *may* not need the security of a password to prevent someone else using your Callsign Certificate to sign QSO records fraudulently. If the risk is low, feel free to remove the passwords from your Callsign Certificates in TQSL using these instructions, making it a bit easier and quicker to sign and upload your log in future.

- Complete the form by selecting from the drop-down lists and entering the other details requested ▶

TQSL may suggest some values but check them. Your Grid square, ITU Zone, CQ Zone and (if applicable) IOTA ID will be sent with your QSOs to LoTW, confirming them for the people you contacted. If you are not sure of the details, *please* look them up or ask a friend.

- *Allow 'None' for Call Sign* lets you define a Station Location from which multiple callsigns may be used.

When you are signing QSOs made from that location, TQSL will ask which callsign you used in order to select the correct Callsign Certificate (if indeed there is more than one).

7. Make a backup of your Callsign Certificate and Station Location/s using TQSL – see the appendix. This step is optional but *highly* recommended.

With a backup, simply by restoring the backup through TQSL you can recover lost information easily if, say, you get a new computer or the old one breaks down or picks up a virus. *Without* a backup, you'll have to start the entire process again, from the top. ...

“In short, consider TQSL to be putting your QSL card into the mail. You're sending the QSO information out into the world to match a QSO by another operator. That's the basic purpose of LoTW, which is to create QSLs which can be applied to awards. TQSL gives you the way to put that card into 'the mail' so LoTW can store it for QSL matches.” [K1MU]

Well done!

*Having completed the most difficult part,
you are now all set to start using LoTW.*

Trust me, the rest is easier and more fun.

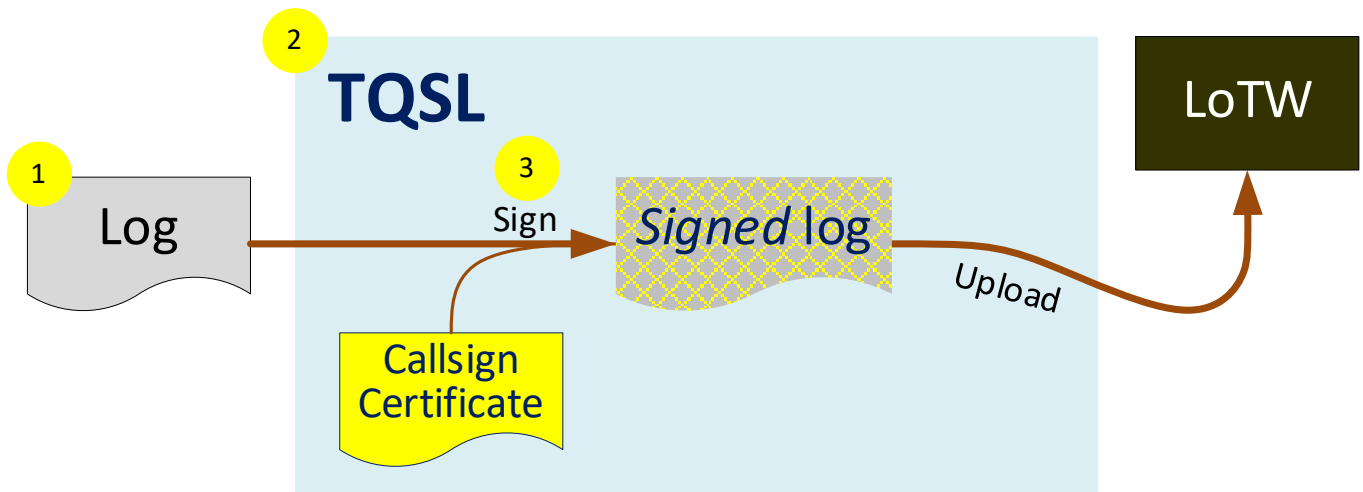
4 Using LoTW

4.1 Logging-in to LoTW

The email that delivered your first Callsign Certificate has the username and initial password you'll need to log-in to LoTW. Change the password to something memorable yet hard for anyone else to guess.

4.2 Signing and uploading your log to LoTW

Once you have obtained your Callsign Certificate, you are ready to start signing and uploading QSO records from your log to LoTW. Here's how ...



1. Export QSO records from your electronic log as an ADIF or Cabrillo file.
2. Start TQSL.
3. In TQSL, sign the log:

- Click the **Sign log** button
- Select the appropriate Callsign Certificate
- Select the correct **Station Location**
- Click **Next**
- TQSL uses your Callsign Certificate to generate a digital signature for the log, appends the signature to the log, and then uploads it to LoTW via the Internet.
- Upon receiving the file, LoTW checks the digital signature to confirm that this is a legitimate upload, then imports the QSO records into the database.

Little and often works well. In future, export, sign and upload only new QSOs, logged since the previous LoTW upload.

If you have multiple callsigns, be careful to export just the QSOs made using a call for which you have a Callsign Certificate, being sure to select the correct Callsign Certificate for the callsign and the Station Location from which QSOs were actually made.

Only different (new or changed) QSO records are imported into LoTW. Any exact duplicates of QSO records previously imported are ignored.

Upload new QSOs to LoTW as often as you can, ideally at least once a month. If you are very active, upload new QSOs more often and check your LoTW confirmations at the same time. Uploading QSOs to LoTW is, in effect, an off-site log backup but it only stores the essential QSO details (date, time, call, mode, frequency/band). Other QSO information (such as name, QTH, reports, notes *etc.*) is callously discarded by the TQSL export and LoTW import routines. See appendix.

When you upload a very large log file, you may see a “*Not Responding*” alert at the top of the window. If you click it, the window will probably go gray and hazy. **This is normal!** Your computer is busy processing the upload, sending the file through the Internet to LoTW. Just wait, patiently. Don't go clicking around trying to ‘fix’ the situation: you could cause problems.

If you have a *huge log* containing hundreds of thousands of QSOs to upload (*e.g.* from a major DXpedition or a lifetime's log from an active DXer or contester), you *can* simply sign and upload it as usual. After uploading, LoTW will process the log taking roughly an hour to process each 100,000 QSOs. However, if there are issues with the log (*e.g.* QSOs with the wrong dates/times, modes or bands), you would need to correct then sign and upload the QSOs again, a tedious process.

Tim N3QE suggests that, before you go ahead with a huge log, it is better to upload a smaller batch first (*e.g.* a thousand QSOs, preferably recent ones), then check in LoTW how many of them have been confirmed (you should expect something like five hundred matches, roughly 50%). If you upload a thousand recent QSOs and get *zero* matches, something is not right! If the first batch goes to plan, continue uploading further batches until you're all done. The sequence doesn't matter but be sure to upload *all* the batches to avoid leaving gaps in your log in LoTW.

4.3 Automatic signing-and-uploading

Some logging programs make updating LoTW seamless: as soon as a QSO is logged, the QSO details may be *automatically* exported, signed and uploaded to LoTW for you, in the background. To find and configure such a function, browse the logging program's menus, search the built-in help or ask for assistance on the program's support forum.

Disable the automatic LoTW updater during contests if the rules prohibit the use of non-amateur means to confirm contest QSOs while the contest is still in progress.

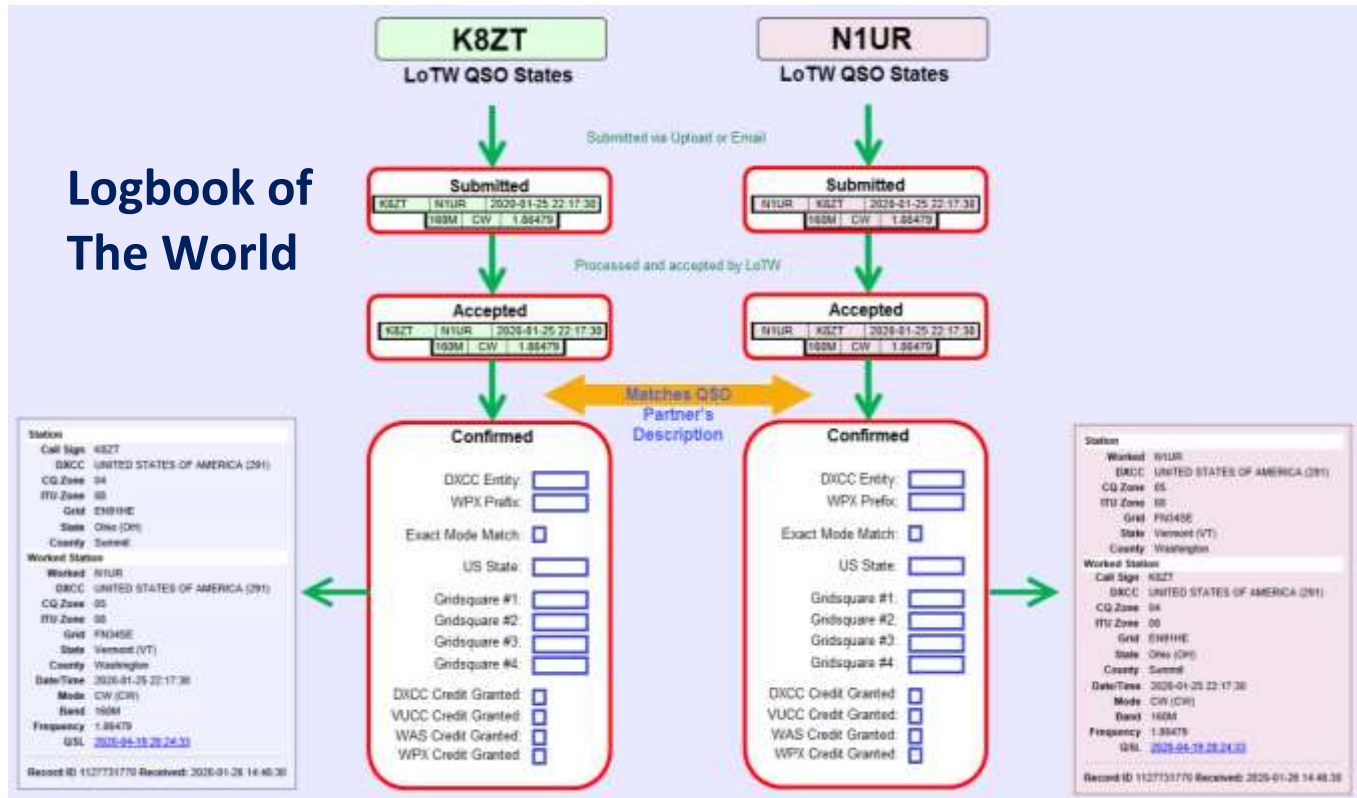
See the further reading section.

Whether automated or not, the process may fail at several points in several ways, for example if the appropriate Callsign Certificate or Station Location is not available, or if your Internet connection or the LoTW system itself goes down at a critical point. How well the software deals with all possible failures depends on its quality. Some logging programs identify and resolve such problems, recovering automatically and notifying you only if there is something needing your attention. Others may simply fail, perhaps silently ... so, take care over the configuration and check that your QSOs are, in fact, being received consistently by LoTW. Keep an eye on the QSO record count in the top right corner of the LoTW screen ► and the date and time of the “Most recent QSO record” shown above the form under the **Your QSOs** tab. For more detail, click the **Your Account** tab then **Your Activity** on the left menu to check that recent uploads have been received and processed correctly.

Today is Tue, 12 Jul 2022 UTC
You are ZL2IFB
Log Off
You have 134,427 QSO records
You have 78,528 QSL records

4.4 QSO matching

The process of matching and confirming signed and uploaded QSO records is *fully automated* within the LoTW system. Whenever an uploaded log is imported into the LoTW database, the system automatically checks every QSO record for corresponding QSO records uploaded by the stations we have worked.



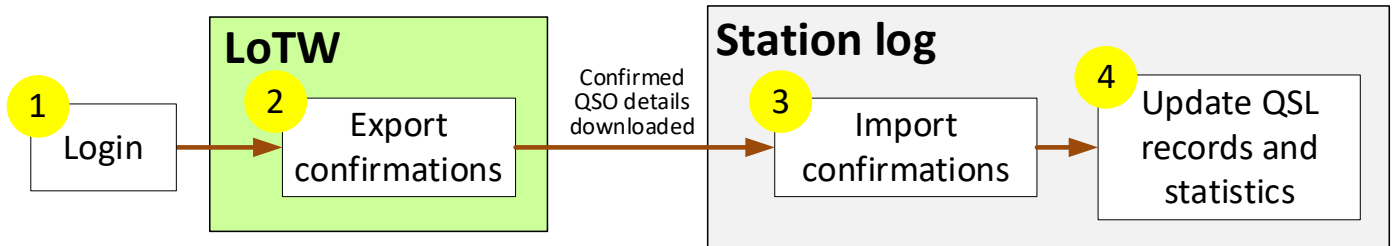
▲ In this example, LoTW has imported a log uploaded by K8ZT. One of the K8ZT QSOs was with N1UR, who has previously uploaded his log to LoTW. LoTW compares the QSO records. Provided there are no significant discrepancies, the QSO is now noted as confirmed for *both* K8ZT and N1UR.

Be patient, especially following major contests or when LoTW maintenance/upgrades occur. At busy times, you may need to wait a few minutes, possibly as much as an hour or more, to see the first confirmations coming through. LoTW is not quite instantaneous but it is *much* quicker than the weeks, months, years or *decades* it can take to exchange QSL cards! If your uploaded log isn't processed as expected and no new confirmations appear for some while (hours or days), check the processing backlog on the Current LoTW status page.

Now K8ZT and N1UR can use the confirmed QSO to apply for DXCC or other awards, just as if they had exchanged QSL cards for the QSO ... except the whole signing, uploading and matching process may have taken place just minutes after the QSO, whereas QSL cards generally take weeks, months or years to arrive, longer still for an authorized card-checker to determine by eye whether the cards and QSOs are legitimate.

4.5 Update your station log with confirmations received

Note: this is optional. You may not even have a station log to update! If you do, it is worth updating it from time to time to record confirmations received through LoTW. Here's how ▼



1. Login to LoTW if you are not logged in already. While you are there, by all means browse your recent confirmations received:

- Click to open the yellow **Your QSOs** tab ▼



- Click the **Most Recent QSLs** button on the form ▼

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 - ▼	Common Queries
Starting Date:	<input type="text"/> Time: <input type="text"/>	<input type="button" value="Most Recent QSLs"/>
	YYYY-MM-DD HHMM	<input type="button" value="Most Recent QSOs"/>
Ending Date:	<input type="text"/> Time: <input type="text"/>	
	YYYY-MM-DD HHMM	
Mode:	- Any - ▼	
Band:	- Any - ▼	
<input type="checkbox"/> Show confirmed QSOs only		
DXCC Entity:	- Any - ▼	
Sort by	QSO Date ▼ <input type="checkbox"/> Descending	
<input type="button" value="Clear Form"/>		
Award Account		
- None - ▼		

- A *Contacting logbook server* message appears in pink at the bottom of the form for just a moment, then you'll see a batch of up to 25 confirmations similar to this ▼

25 Records Shown (1-25)
Sorted by QSL Date (0.015168 seconds elapsed)

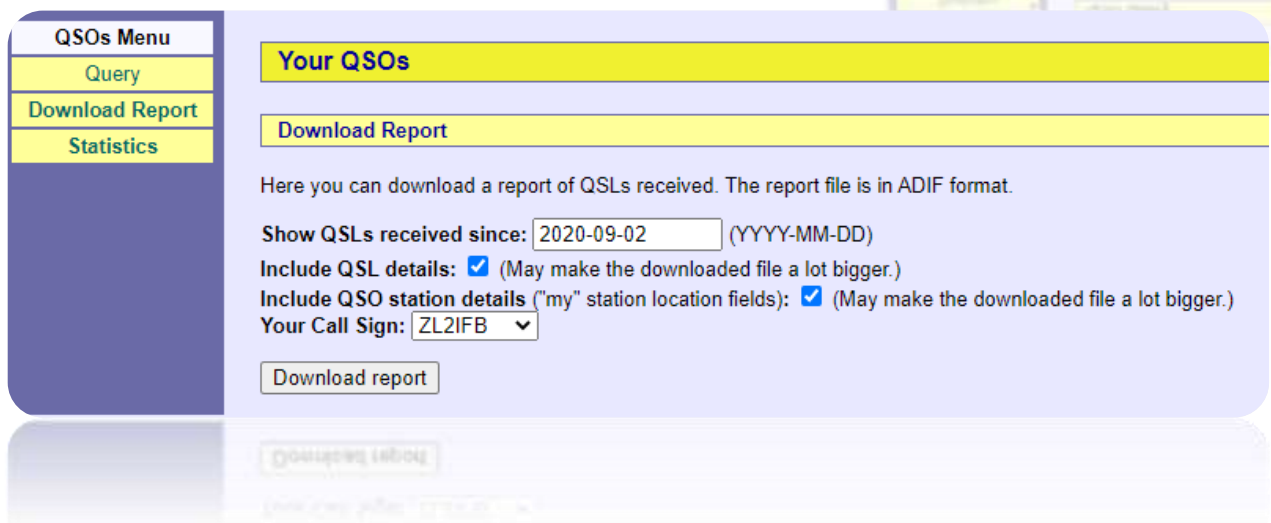
	Call sign	Worked	Date/Time	Band	Mode	Freq	QSL	Next
Details	ZL2IFB	RA3QH	2020-09-02 17:32:15	80M	FT8	3.57507	EUROPEAN RUSSIA	
Details	ZL2IFB	KI4KN	2020-09-02 22:57:45	17M	FT8	18.10233	UNITED STATES OF AMERICA	
Details	ZL2IFB	JH8TFZ	2020-08-18 23:42:15	17M	FT8	18.10153	JAPAN	
Details	ZL2IFB	F4IDT	2020-08-07 04:27:45	40M	FT8	7.07490	FRANCE	
Details	ZL2IFB	W6JZ	2020-09-02 23:48:00	15M	FT8	21.07572	UNITED STATES OF AMERICA	
Details	ZL2IFB	NA8A	2018-07-16 02:08:00	17M	FT8	18.10235	UNITED STATES OF AMERICA	
Details	ZL2IFB	NA8A	2018-07-20 02:35:45	17M	FT8	18.10207	UNITED STATES OF AMERICA	
Details	ZL2IFB	NA8A	2018-10-20 23:30:45	17M	FT8	18.10175	UNITED STATES OF AMERICA	
Details	ZL2IFB	NA8A	2019-11-10 18:08:30	15M	FT8	21.07617	UNITED STATES OF AMERICA	
Details	ZL2IFB	NA8A	2020-06-01 03:09:15	30M	FT8	10.13777	UNITED STATES OF AMERICA	
Details	ZL2IFB	NA8A	2020-06-26 03:11:45	17M	FT8	18.10100	UNITED STATES OF AMERICA	
Details	ZL2IFB	KH0/7N4SQJ	2015-01-31 14:08:02	30M	CW	10.11204	MARIANA ISLANDS	
Details	ZL2IFB	NP2Q	2020-08-14 09:03:45	40M	FT8	7.07576	US VIRGIN ISLANDS	
Details	ZL2IFB	9A4AA	2020-05-24 20:58:00	15M	FT8	21.07615	CROATIA	
Details	ZL2IFB	W7PWN	2020-09-03 02:35:00	20M	FT8	14.07483	UNITED STATES OF AMERICA	

- Click **Next** to see the next batch of 25, and so on.
- Click the underlined text to see further details about any QSO record.
- By selecting the relevant **Award Account** on the form before clicking the **Most Recent QSLs** button, you will also see whether any of the confirmations are valid and can be claimed for awards such as DXCC. Look for rows with a tick and details of the award for which the confirmed QSO may be claimed, like this one with 9Y4DG ▼

Prev	Call sign	Worked	Date/Time	Band	Mode	Freq	QSL	DXCC	Next
Details	ZL2IFB	I4SOI	2020-08-21 20:00:30	17M	FT8	18.10155	ITALY		
Details	ZL2IFB	EA3RT	2020-08-21 20:00:31	17M	FT8	18.10155	SPAIN		
Details	ZL2IFB	EA7FDR	2020-08-21 19:53:30	17M	FT8	18.10155	SPAIN		
Details	ZL2IFB	N2MH	2020-08-14 02:12:00	17M	FT8	18.10224	UNITED STATES OF AMERICA		
Details	ZL2IFB	K7LRC	2020-08-21 06:16:45	80M	FT8	3.57535	UNITED STATES OF AMERICA		
Details	ZM4G	W6IZT	2015-11-28 07:40:47	80M	CW	3.53730	UNITED STATES OF AMERICA		
Details	ZL2IFB	W6IZT	2007-11-24 08:47:18	80M	CW	3.55340	UNITED STATES OF AMERICA		
Details	ZL2IFB	NO2EL	2019-08-27 03:20:45	30M	FT8	10.13804	UNITED STATES OF AMERICA		
Details	ZL2IFB	LY90IARU	2015-11-19 08:34:08	15M	CW	21.01500	LITHUANIA		
Details	ZL2IFB	N7PIB	2020-08-11 05:42:30	80M	FT8	3.57516	UNITED STATES OF AMERICA		
Details	ZL2IFB	NB6Q	2020-08-21 06:08:45	80M	FT8	3.57535	UNITED STATES OF AMERICA		
Details	ZL2IFB	K7OTV	2020-08-21 04:29:30	20M	FT8	14.07699	UNITED STATES OF AMERICA		
Details	ZL2IFB	9Y4DG	2020-08-21 06:06:00	80M	FT8	3.57535	TRINIDAD & TOBAGO	✓ 80M; Challenge	
Details	ZL2IFB	NTCLC	2020-08-21 02:38:34	20M	CW	14.06095	UNITED STATES OF AMERICA		
Details	ZL2IFB	SV3/SV1NN	2020-07-31 20:23:45	17M	FT8	18.10240	GREECE		
Details	ZL2IFB	VA2WA	2020-07-22 04:41:45	30M	FT8	10.13731	CANADA		
Details	ZL2IFB	SP1G	2020-07-09 20:12:15	30M	FT8	10.13837	POLAND		
Details	ZL2IFB	DUR/MS	2020-02-25 17:39:45	80M	FT8	3.57531	PHILIPPINES		

2. Export your recent confirmations from LoTW:

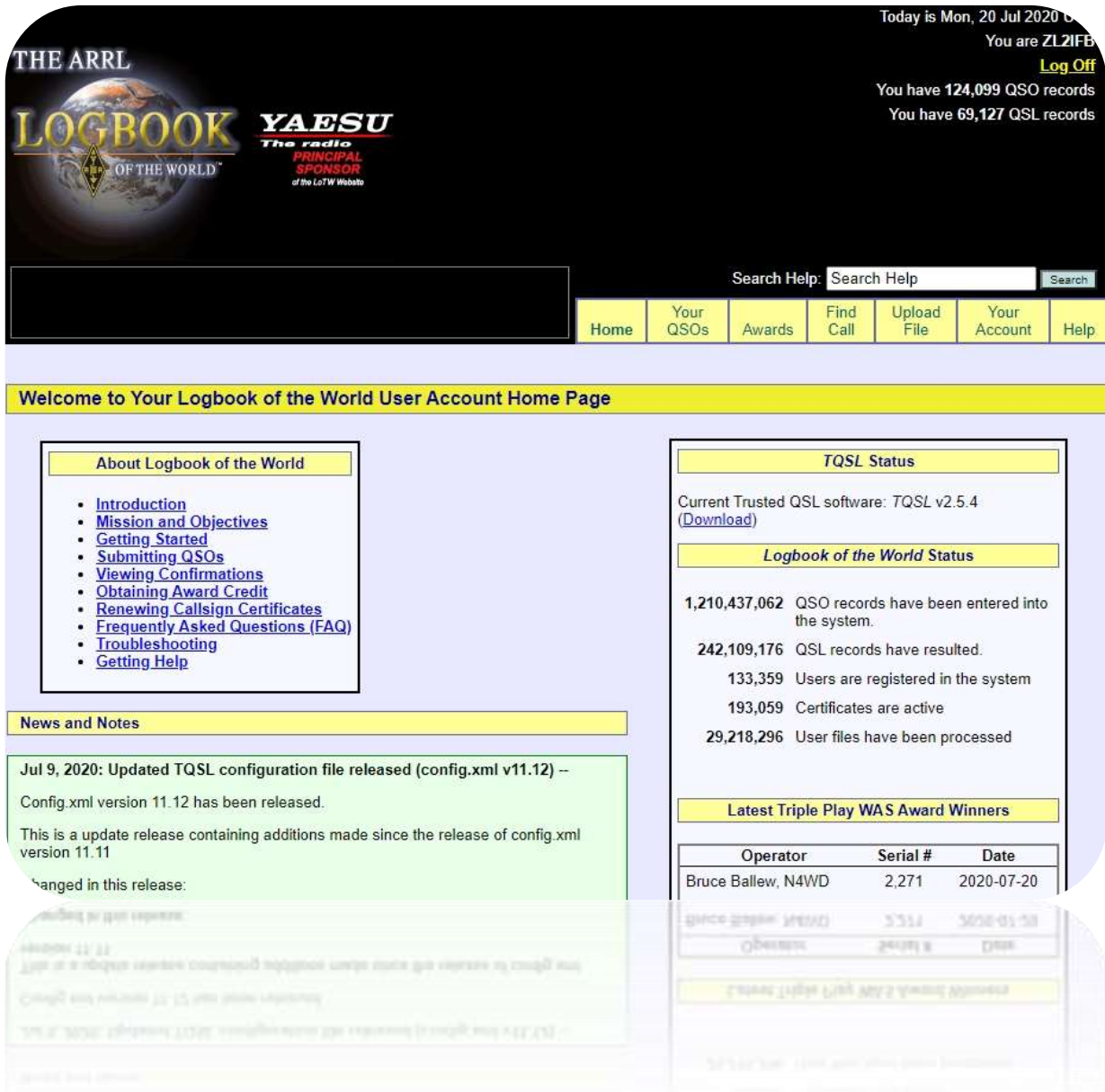
- Click the **Download Report** button on the QSOs Menu on the left of the screen ►
- Specify which confirmations you want to download by completing the self-explanatory form ▼



- Click the **Download report** button to generate an ADIF file called *lotwreport.adif* containing the QSO records for your confirmed QSOs, then send it to your computer.
3. Import the confirmations into your station log using the program's "import from LoTW" function.
- The name of the function varies between programs. See the further reading section for links to more info.
4. Your station log should now show which QSOs have been confirmed on LoTW, and are therefore eligible to be claimed for supported awards (more below).

4.6 Other things to do in LoTW

After you login to LoTW, there are several things you can do. We're not going to spoil the surprise by revealing all here: it is better to explore them on your own, at your own pace.



Those yellow boxes at the lower edge of the top black section are tabs - buttons taking you to the main parts of LoTW. Just after you login, you will be at your "Home" page, similar to this one. As a reminder, the word "Home" is in **bold** in its yellow box. If you get lost while wandering around LoTW, simply click that "Home" button to return back to this page - 'go home', as it were.

5 Applying for awards through LoTW

Provided you have accumulated sufficient confirmations, you can apply for some awards *directly* through LoTW. The following awards are currently supported in LoTW: ARRL DXCC (DX Century Club); ARRL VUCC (VHF/UHF Century Club); ARRL WAS (Worked All States); CQ WPX (World Prefix); CQ WAZ (Worked All Zones).

The first step is to tell LoTW that you are interested in chasing DXCC by requesting a DXCC award account. The same thing applies to the other awards. Your confirmed QSOs will not be credited to the awards unless you have an award account.

Once you have the award account/s, the process continues:

1. Login to LoTW
2. Click the **Awards** yellow tab to open the Logbook Awards screen ►
3. Click to select the relevant award and callsign from the buttons on the left
4. Follow the on-screen instructions! The details vary between awards.

The screenshot shows the LoTW Logbook Awards interface. At the top, there's a header with 'THE ARRL LOGBOOK OF THE WORLD' and 'YAESU THE OFFICIAL SPONSOR of the LoTW Website'. The user is logged in as ZL2IFB, with 125,032 QSO records and 70,015 QSL records. The navigation bar includes 'Home', 'Your QSOs', 'Awards', 'Find Call', 'Upload File', 'Your Account', and 'Help'. The 'Awards' section is active, showing options to create or select accounts for ARRL DXCC, ARRL WAS, ARRL VUCC, CQ WPX, and CQ WAZ. A right-hand panel provides details about award accounts and DXCC entities.

Uploading old and especially rare logs to LoTW provides confirmations for those in the log, and can make you very popular! Valid QSOs with DXCC entities that have since been deleted, for instance, qualify for DXCC at the time the QSOs were made, adding to our 'all time' DXCC counts.

6 Troubleshooting

6.1 What to do about missing confirmations

It can be frustrating when a QSO is not confirmed, particularly the rare or special QSOs you would like to claim for an award. Maybe the QSO was incomplete or incorrectly logged by either party? Did you work a pirate? Does the other person actually use LoTW, and if so when will they get around to uploading their log?

Here's what to do about that:

- Wait patiently! Although the LoTW process is generally faster than direct or bureau QSLs, it is unreasonable to expect *instant* gratification. DXpeditions may wish to consolidate logs from different computers, check and correct known issues (such as obvious typos, QSOs logged in local time instead of UTC, or QSOs logged on the wrong band or mode) *before* signing and uploading the complete, definitive log to LoTW.
- Check when the other person last uploaded to LoTW. Some amateurs don't upload very often, particularly those living in exotic DX locations without Internet access. Some aren't particularly interested in LoTW or DXCC, and can't be bothered uploading. Some may have forgotten how to do it. A polite email – maybe with [a link to this guide](#) – may be enough to persuade them, especially if you state the QSO details and explain why you *need* their confirmation, preferably on LoTW.
- Carefully double-check the QSO record in your log. Did you log the date and time in UTC? Is the band and mode correctly logged? What about the callsign: if someone appended their callsign on air with, say, “portable 3”, it is uncertain whether they used just their base callsign or added /P or /3 when they signed and uploaded the QSO record to LoTW. Some location modifiers are prepended while others are appended.

No matter what anyone believes or claims, license laws, compliance and conventions vary in practice around the world. Sorry, that's just how it goes.
- If you are *desperate* to get a confirmation, you might like to generate, sign and upload duplicate QSO entries with likely callsign variations ... but it may be better to email the person concerned to ask for advice.
- If you alter QSOs in your log (for example correcting busted callsigns when QSL cards arrive), you should re-upload the changed QSO records to LoTW. While you might be able to extract the changed QSOs and just upload them, an easier way is periodically to re-upload your entire log. LoTW automatically ignores exact duplicate QSOs. It is not unreasonable to re-upload your entire log *occasionally*. *Please* don't re-upload the same QSOs repeatedly, though, as the processing wastes energy, slows down LoTW and can cause delays for other users.

Annual re-uploads are a reasonable compromise, for example on your birthday, extract, sign and re-upload every QSO made since your last birthday. TQSL will warn you about duplicate uploads, but it's OK to do it anyway. Call it a birthday treat.
- Search for and double-check the QSO information stored in LoTW: has the QSO in question in fact correctly completed the entire process of being exported from your log, signed and uploaded using TQSL, then imported successfully into the LoTW database system? Errors are possible along the way.

- Contact the counterparty to check their log. Make it easy for them by clearly stating your callsign, the UTC date and time of the QSO, plus the band and mode.
- If necessary, correct the QSO details in your log, export it as an ADIF file, then sign and upload it to LoTW using TQSL.

Rare DX operators and QSL managers are well aware of chancers ‘fishing’ for confirmations using common excuses such as “I forgot to log the QSO” or “My hard drive crashed”, even though they know or suspect their QSOs were incomplete. Don’t waste your effort making vague claims such as “I think it must have been the morning of the 21st” or “It could have been 12 or 15m - my computer disconnected from the radio due to RF interference”. This is unethical and inappropriate.

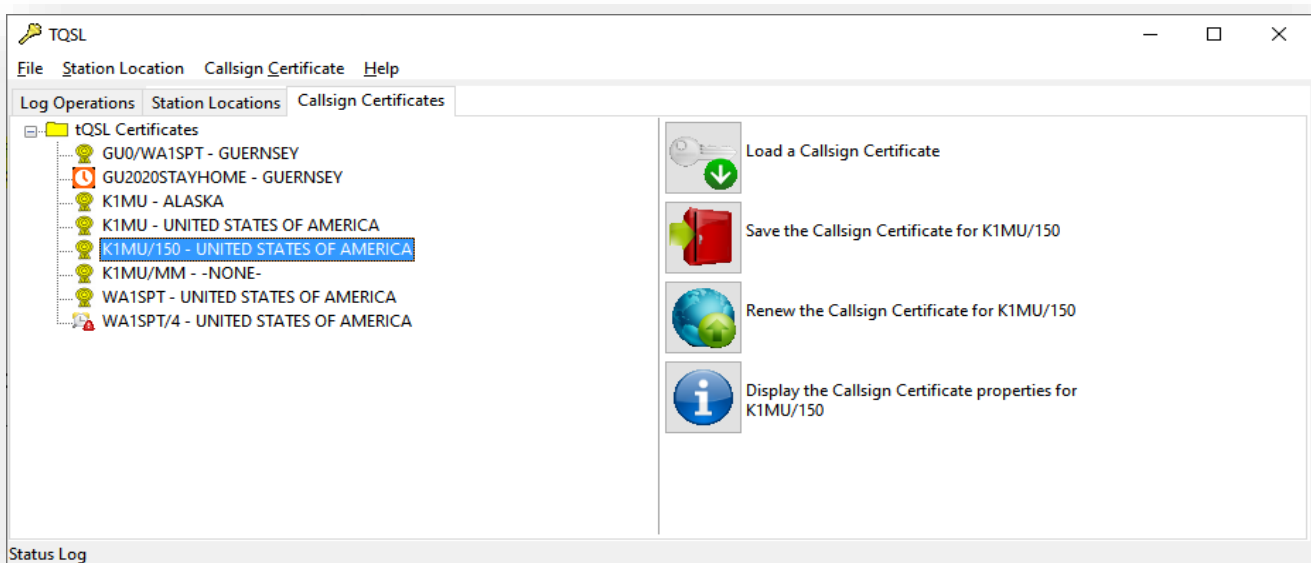
How to increase your LoTW confirmation rate:

- Take care to log QSOs accurately: typos or other logging mistakes cause a lot of grief.
- If possible, connect your computer to your radio to log frequencies and modes.
- Make more digimode QSOs. Almost all digimoders today are using computers to send and receive the digital modes, as well as for logging. Many of us use LoTW too.
- Participate in contests. Competitive contesters log on computers, and most of us upload our logs to LoTW at the same time we submit our logs for adjudication – not least because it substantially reduces the burden and costs of traditional QSL cards.
- Preferentially contact other LoTW users. The LoTW user list identifies us, and you may be able to integrate the LoTW user data with your DXcluster monitoring or logging software.


6.2 Bad Callsign Certificates


If TQSL shows a Callsign Certificate icon *without* its gold ribbon, it is not usable. This can happen if you reload an out-of-date .tq6 file because, whenever you request a new Callsign Certificate from LoTW, any older Callsign Certificates for the same callsign are automatically marked “replaced”.


You can tell the state of a Callsign Certificate by its icon in TQSL, under the **Callsign Certificates** tab ▼





Beside every callsign for which you have requested a Callsign Certificate on your computer, you will see an icon indicating its status:

 **Valid.** This Callsign Certificate is current, functional and ready to use.

 **Pending***. This Callsign Certificate has been requested but not yet supplied and loaded.

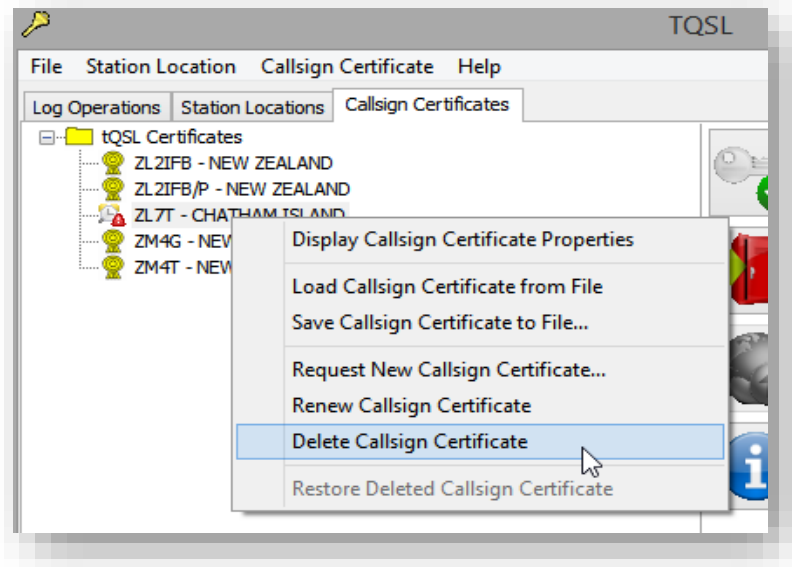
 **Replaced***. A more recent Callsign Certificate is available for this callsign, hence the old one is no longer valid and usable. You might as well delete the old one.

 **Expired***. This Callsign Certificate reached the end of its validity period. It is no more. You can delete it by right-clicking it then selecting Delete Callsign Certificate ▶

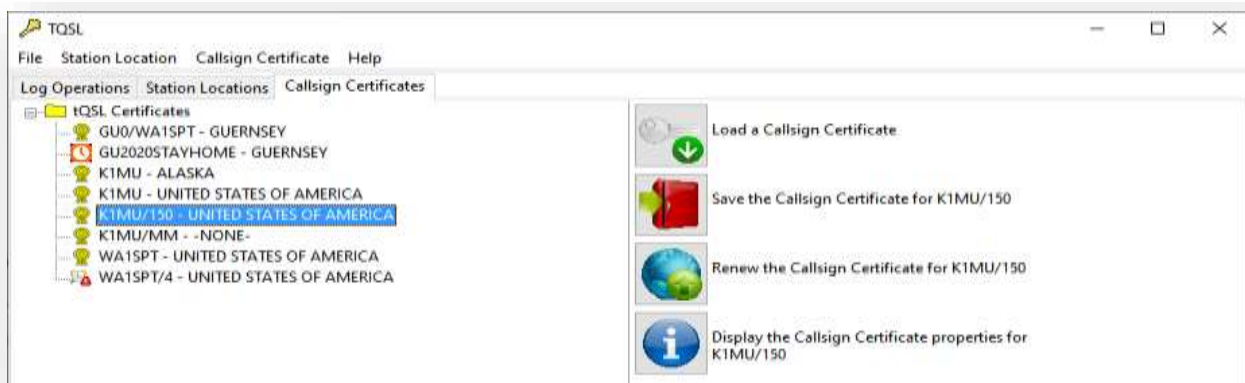
 **Broken.** This Callsign Certificate is missing a vital component or has become corrupted and is useless. You might as well delete it too.


* **Pending, Replaced** or **Expired** can occur because you previously requested a Callsign Certificate but for some reason failed to complete the process. You may be able to repair it like this:

1. [Click here to download your current Callsign Certificates](#) (LoTW will likely ask you to log in with your LoTW username (callsign) and password). A file called *certs.tq6* will be saved in your Downloads folder.
2. Run TQSL.
3. Click to open the **Callsign Certificates** tab ▼



◀ The repair process can *only* complete a corresponding certificate request, changing a **Pending, Replaced** or **Expired** Callsign Certificate into a **Valid** one.

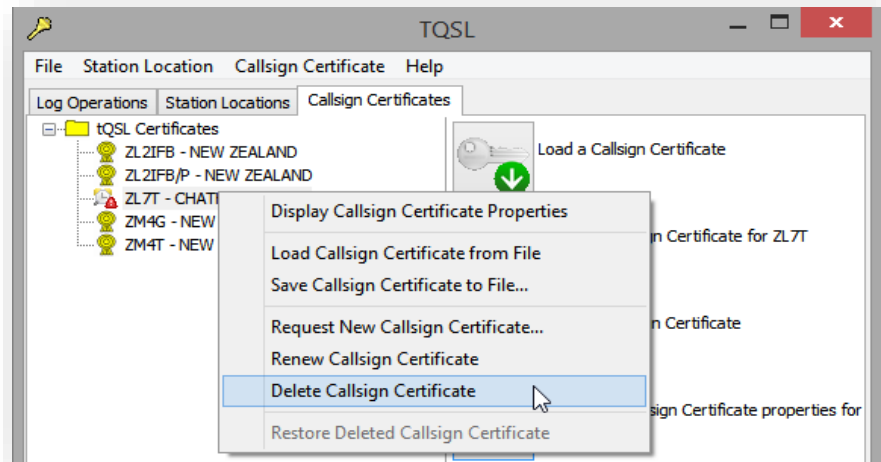


4. Click the **Load a Callsign Certificate** button, then navigate to your Downloads folder and click to select the *certs.tq6* file downloaded in step 1. When the load is complete, your computer has the most recent Callsign Certificates for any callsigns related to your LoTW account. In TQSL you *should* see at least one  icon indicating a current, working, Callsign Certificate. If not, start over by making a fresh Callsign Certificate request:

Any messages about duplicate Callsign Certificates can be safely ignored at this point.

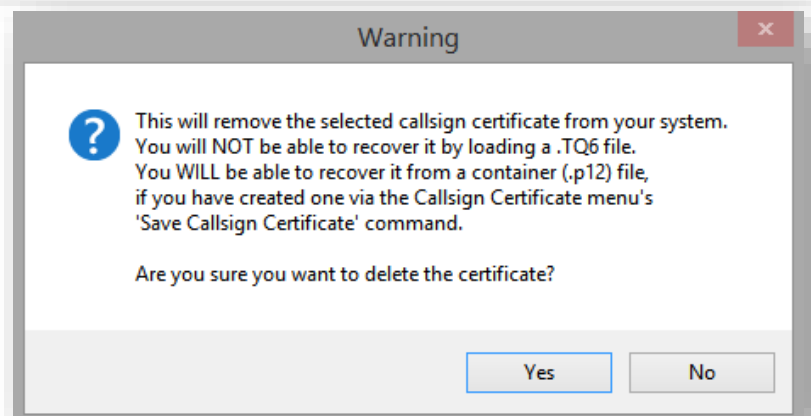
5. Delete the Callsign Certificate for the callsign which you want to use:

- In TQSL, click to open the **Callsign Certificates** tab ►
- Right-click the Callsign Certificate you want to delete ►
- Click **Delete Callsign Certificate** ►
- Read the warning message, double-check that you have selected the correct Callsign Certificate, then click **Yes** to delete it ►



6. Request a new Callsign Certificate for that callsign.

7. *Wait patiently!* Do not do anything with the pending certificate in TQSL. You must wait for the ARRL staff to approve and issue you a replacement Callsign Certificate, manually. Don't be tempted to ignore the warnings that there is a certificate pending and delete it. Be patient ... or you will have to go back around this circuit again!



8. As soon as it is ready, ARRL will sent you a new *callsign.tq6* file as an email attachment, where *callsign* is the callsign for this Callsign Certificate. Save the *callsign.tq6* file from your email client to your *Downloads* folder (how to do that depends on what email software you are using: try clicking, double-clicking or right-clicking the attachment).

9. Open TQSL, if it isn't already running.

10. Select the **Callsign Certificates** tab as shown in the image above.

11. Click **Load Callsign Certificate from File**.

12. Navigate to your Downloads folder, and double-click to open the *callsign.tq6* file which you downloaded and saved in step 4.

13. Your Callsign Certificate should now show the valid icon  meaning that it is ready to use. Success!

14. When you're all done, delete the *callsign.tq6* file. It is a single-use file. You won't need it again. Should you need to do so, you can always request a replacement [Callsign Certificate](#) through [TQSL](#), starting from step 1 of this procedure.

6.3 [Signing](#) and uploading QSOs from logs on *multiple* computers

If you are making [QSOs](#) with your normal callsign on, say, a desktop PC in the shack, plus on a laptop when traveling, you can either:

- Merge your [logs](#) into one consolidated [log](#) (e.g. by exporting recent [QSOs](#) from the laptop [log](#) as an ADIF file onto a USB stick, then importing those [QSOs](#) into your shack [log](#)), then [sign and upload](#) the [QSOs](#) to LoTW from the merged log in the normal way;
- or -
- [Sign and upload QSOs](#) from each [log](#) separately, merging the [QSO records](#) in LoTW. To do this, you need to get **the same** [Callsign Certificate](#) on both computers, which involves:
 - Generating a [backup](#) in [TQSL](#) from whichever computer already has the [Callsign Certificate](#);
 - Copying the *.tbk* backup file over to the other computer e.g. on a USB stick;
 - [Restoring](#) the backup into [TQSL](#) on the other computer;
 - Now you can [sign and upload QSOs](#) made with the same callsign and logged on either computer, using the same [Callsign Certificate](#) loaded into [TQSL](#) on both machines;
 - Restore the same *.tbk* backup into [TQSL](#) on any other computers on which you are logging [QSOs](#) made with the same callsign, and keep it safe as a backup just in case any or all of your computers are trashed.

Remember, there is only ever one active [Callsign Certificate](#) for a given callsign: if you already have a [Callsign Certificate](#) loaded on your shack PC but then apply for *another* [Callsign Certificate](#) for the same callsign from the laptop, when the laptop one is issued, the shack one is *automatically* invalidated by LoTW. Any [QSOs](#) signed and uploaded with the now invalid [Callsign Certificate](#) on the shack PC will be ignored.

6.4 [TQSL](#) shows a “Database Error” when [signing](#) a [log](#)

In order to reduce the number of duplicate [QSOs](#) submitted to [LoTW](#), [TQSL](#) maintains an internal list on your computer with information about the [QSOs](#) that you have [uploaded](#) already.

“Database Error” means that, somehow, [TQSL](#)’s internal [QSO](#) list has become corrupted. Don’t panic! This does not mean your [log](#) has been corrupted, nor is there a problem with [LoTW](#): it is simply an internal fault within [TQSL](#) itself, one that can be fixed.

If a “Database Error” happens when [TQSL](#) is initially setting up to [sign](#) a [log](#), [TQSL](#) will recover automatically by deleting its list of [uploaded QSOs](#) and starting afresh, but if you're in the middle of [signing](#) a [log](#) when the error happens, the automated fix doesn't work so you must step in.

Don’t fret! Although [TQSL](#) may have lost *its* list of previously-processed [QSOs](#), [LoTW](#) still has all your [signed](#), [uploaded](#) and processed [QSO records](#) stored safely on the ARRL server. [LoTW](#) skips exact duplicate [QSOs](#) if they are ever [uploaded](#) again.

To correct "Database Error" manually (on a Windows system):

1. Open Windows Explorer by holding down the Windows-logo key and pressing "E".
2. In the address bar (labeled "Quick access" in windows 10), click and then enter the following:

`%AppData%\TrustedQSL`

Then press **Enter** to open the folder where TQSL stores its QSO list.

3. Right-click any of the following files and choose **Delete** to remove them:
 - *duplicates.db*
 - *__db.** meaning files such as *__db.001*, *__db.002*, *__db.register* etc.
 - *log.** meaning files like *log.00000010* etc.
4. TQSL will re-create its internal QSO list automatically the next time you sign and upload a log.

Feedback comments, corrections, additional tips and other suggestions to improve on this guide are very welcome: please email Gary@isect.com.



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7 Further reading

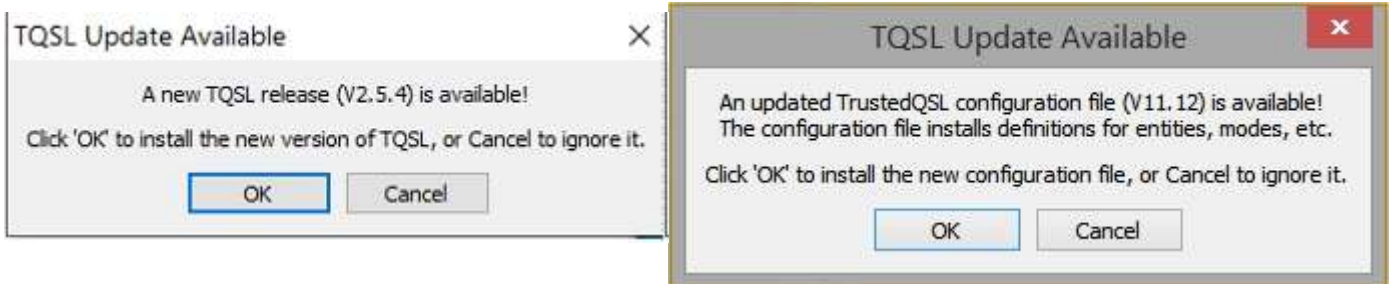
Here are some useful reference sources with additional information:

- [ARRL's online help for LoTW](#) is extensive, well written, definitive and worth browsing once you grasp the basics.
- [ARRL LoTW reflector](#) is an email group for [LoTW](#) users, a source of hints and tips, and a great place to go for help if you get stuck or have queries and concerns. Members of the reflector initiated and provided numerous inputs to this very guide.
- ARRL [LoTW Getting Started Guide](#).
- LoTW quick-start guides for [Windows](#), [MacOS and OSX](#), and [Linux](#).
- [Current LoTW status](#) shows recent [uploads](#) queued up, waiting to be processed into the database.
- [Last upload dates](#) shows when stations last [uploaded](#) their [logs](#) to [LoTW](#).
- [List of LoTW users](#) maintained by ARRL and HB9BZA.
- Websites for [LoTW](#), [ARRL](#), [DXCC](#), [ADIF](#), [TQSL](#) *etc.*
- [LoTW help desk](#) has FAQs and troubleshooting tips, and you can 'submit a ticket' to ask for human assistance with specific [LoTW](#) problems.
- [DXCC help desk](#) lists the email addresses for human assistance with specific [DXCC](#) problems.
- Guidance on connecting logging programs to [LoTW](#):
 - **Amateur Contact Log:** [LoTW help](#)
 - **Club Log:** [how to use LoTW](#)
 - **DX4win:** look for [LoTW](#) in the help
 - **DXLab:** [step-by-step instructions for QSLing with LoTW](#) and [reference documentation](#)
 - **HRD Logbook:** [setup instructions](#) (may change as the documentation gets updated)
 - **Log4OM:** [full instructions](#) (from page 100)
 - **Logger32:** [uses the L32logSync add-on by N2AMG](#)
 - **LOGic:** [LoTW uploads and downloads are automated](#) (browse built-in help for more)
 - **MacLoggerDX:** [instructions](#)
 - **QRZ Logbook:** [LoTW Certificate Import](#) and [LoTW Download](#) quick start guides
 - **Swisslog:** [LoTW support information](#)
- Wayne Mills, N7NG (2003). "Introducing Logbook of The World". *QST* **87** (October), pages 46-47.
- Wikipedia page on LoTW: https://en.wikipedia.org/wiki/Logbook_of_The_World

Appendix: TQSL updates

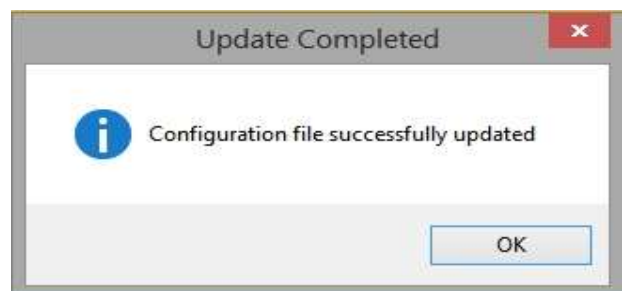
The Trusted QSL application (TQSL) is updated by its author Rick N2AMG from time to time. Sometimes the program itself is changed, sometimes just the 'configuration file' with details about countries and zones *etc.*, occasionally both.

If you see a message similar to either of these after you start TQSL ...



... then it's time to update:

1. Click OK. If there are two messages each with OK buttons, do the "new TQSL release" (program update) first.
2. Gaze on in bewilderment as the software downloads the new release and updates itself, automatically. This can take a moment. You may notice TQSL closing and reopening.
3. If there is a further update still waiting, click the OK button and wait for the configuration file to download and update itself, automatically. This is usually quicker, almost instantaneous, and ends by displaying a success message ►
4. Start using the updated TQSL the same as the original version – only with different (hopefully fewer!) bugs and the proper configuration.



If something goes wrong with an update, programs *usually* revert to the previous un-updated version and warn you that the update failed ... but then you're on your own. Sorry, the automation has let you down. You may be lucky if you run the update again, perhaps after rebooting your computer first. If the update still fails, you can try emailing the author of the software, asking a passing computer whizz-kid for assistance, calling the help desk or emailing the LoTW reflector.

Please don't just ignore update messages and warnings though. If it is not a convenient time to update, it is OK to click the cancel button/s on the update messages and continue using the current un-updated application for a while, but probably not forever.

Appendix: Renewing a Callsign Certificate

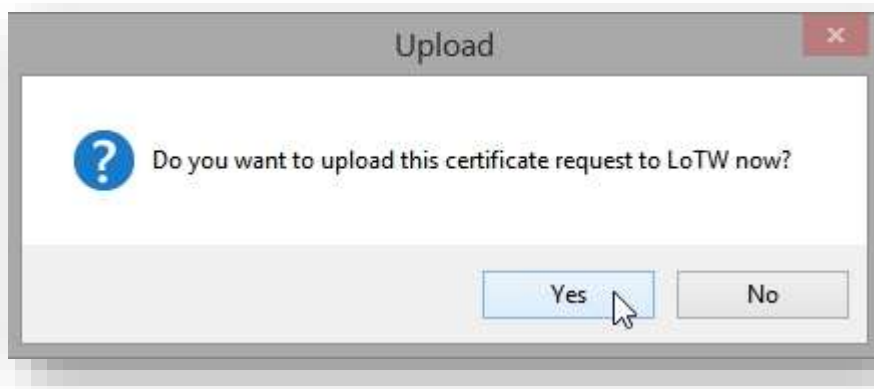


When TQSL starts up, it automatically checks for program updates and Callsign Certificates nearing the end of their 3-year validity, soon to expire. You'll see pop-up messages telling you what's going on.

It's easy to renew a Callsign Certificate through TQSL: simply follow the prompts.

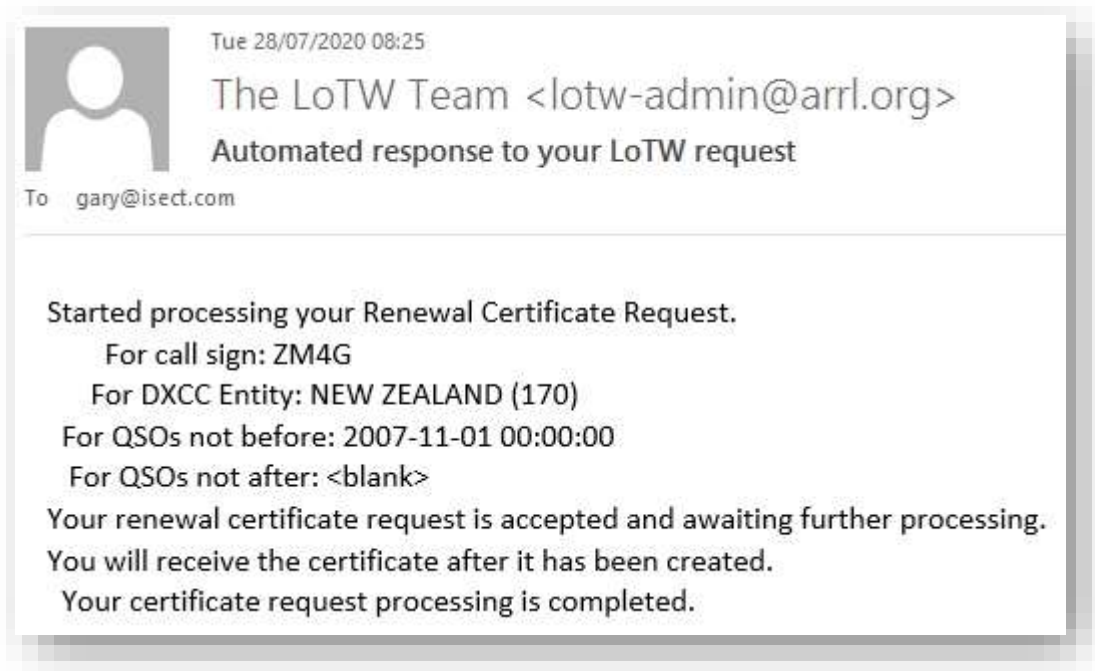
You will be asked to confirm the callsign, DXCC entity and license validity period. ►

The Callsign Certificate generation process is largely automated and normally takes minutes. However, it may be delayed if the LoTW systems are busy, down for maintenance *etc.* Unusual Callsign Certificate requests need to be checked manually by ARRL staff before being processed, which takes a while. Wait patiently for the emails. Check your spam box. If you *still* haven't received the emails several days later, contact the ARRL LoTW help desk for assistance.

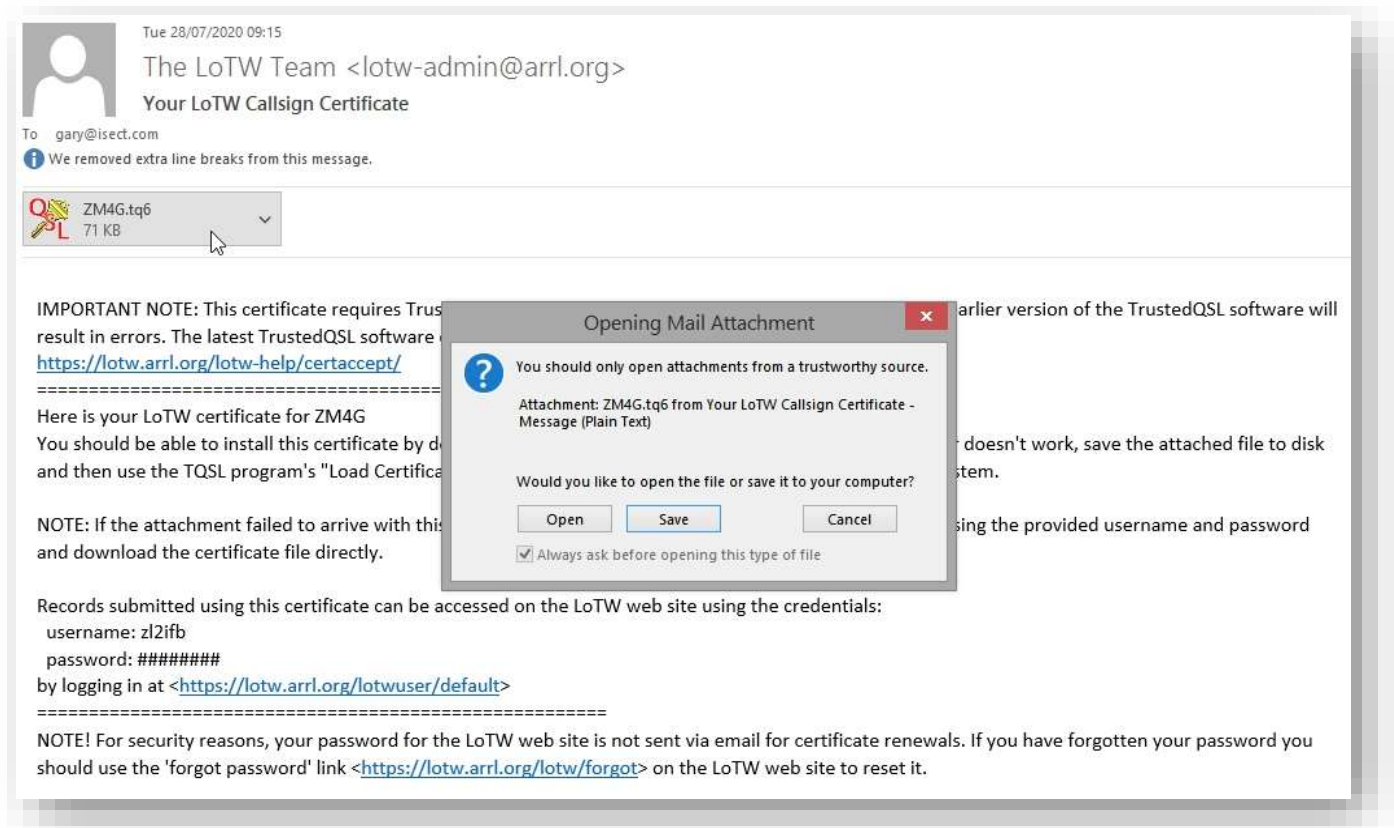


It's best to apply for a replacement Callsign Certificate *before* your old one expires ... but even if you are a bit late, the old one can still be used to sign a request for a replacement.

You should receive a pair of emails from ARRL, first one confirming that the Callsign Certificate request has been received and checked, and your certificate is being generated:



Shortly after, you should receive a further email with your new Callsign Certificate attached.





IMPORTANT: make a fresh backup from [TQSL](#) at the end of the process - see the next appendix.

Appendix: Backups

Backups protect us against incidents and accidents that would damage or destroy valuable information. Trust me, it is much easier and quicker to restore a backup than attempt to recreate your log and confirmations from scratch following a computer crash, theft, virus infection or mistake when “Spring cleaning”. The trick is to make backups and store them safely.

Radio clubs might usefully offer a backup service, helping members generate backups of their logs and TQSL information, storing them safely, and helping members restore backups if needed. How about suggesting this to your club’s committee?

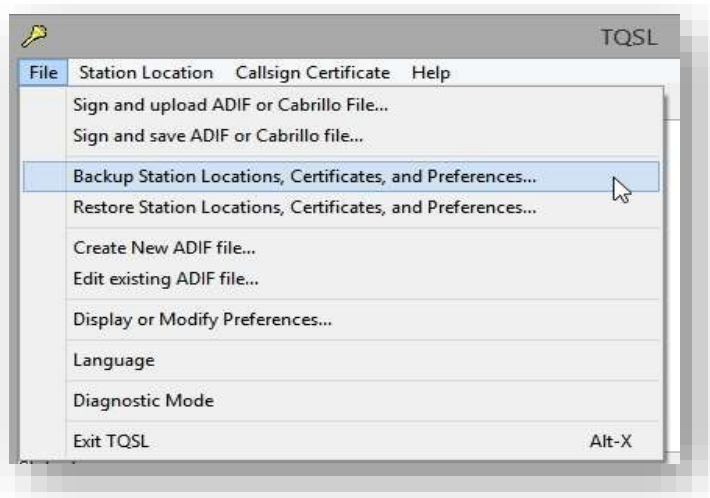
Backing up your Callsign Certificates and other information from TQSL

Backup your TQSL data whenever significant changes occur, such as adding new Callsign Certificates or Station Locations.

It’s easy to do. In TQSL, you will find the option under **File** ⇒ **Backup Station Locations, Certificates, and Preferences ...** and follow the prompts to specify where on disk to store the backup. It creates a backup file called *tqslconfig.tbk* by default, storing it in the folder you selected.

As well as the items listed, backups copy TQSLs internal database of QSOs already signed-and-uploaded, plus your configuration options.

Copy the *.tbk* backup file to removable media such as a USB memory stick, CD/DVD *etc.*, then store it safely away from the computer.



Online/cloud storage such as Dropbox is convenient ... but what happens if the cloud service fails, or someone accidentally deletes the stored data, or it gets corrupted by ransomware? Do not rely *entirely* on cloud backups for any really important or valuable data. Remember, clouds may bring rain!

Restoring TQSL data (Callsign Certificates, Station Locations *etc.*)

If for some reason you need to do this, you can restore a *.tbk* backup to a fresh installation of TQSL:

1. Download and install TQSL.
2. Run TQSL
3. Click the **File** menu option.
4. Click **Restore Station Locations, Certificates, and Preferences**
5. Follow the prompts to locate and load the *.tbk* file.
6. Check that your Callsign Certificates and Station Locations are present and correct.

You can restore a *.tbk* backup to a recent installation of TQSL on *any* computer - for instance if a broken shack computer has been replaced, or perhaps you have a laptop for traveling or use a friend’s computer (*e.g.* a club computer). However, if you elected not to use a password to protect a Callsign Certificate, anyone with access to that system could potentially sign and upload QSOs under your callsign. So either add a password, or only give the *.tbk* file to people you trust.

Backing up your electronic log

If you thought TQSL backups were easy, log backups are even easier: simply sign and upload your QSOs to LoTW. LoTW keeps the essential QSO details in its database, and we can download them later if for some reason we need to recover the information.

Explain how to download the basic log from LoTW

However, **LoTW only stores essential QSO information** *i.e.* callsigns, dates, times, modes and bands or frequencies. Other details such as operator names, QTHs, QSL information and notes are not stored by LoTW - in fact they are not even uploaded since TQSL strips them out before signing our logs.

If you aren't willing to risk losing all that additional information needed to recreate your complete log following an incident, you must make backups of your log by some means *e.g.*:

- Your logging program probably has a backup function that lets you save your complete log to disk. It may even do this automatically for you. Check the **File** menu, read the help or ask for support from the software supplier.
- Your logging program probably lets you export your log as an ADIF file. This has the advantage that you can import the ADIF log into other logging programs if the original one turns out to be unusable for some reason (*e.g.* if it is so old that it is no longer supported and can't run on current systems).
- Copy the saved log file to removable storage such as a USB memory stick, external hard drive or CD-RW disk, then remove or disconnect it.

Any backup drives or media that remain physically connected to or accessible from your computer (*including* cloud-based backups) are vulnerable to being corrupted/damaged, deleted or stolen. Ransomware typically locks up all accessible data before demanding a ransom payment. A shack fire may well destroy everything. Connect backup devices only while you are making or restoring backups. At other times, store them safely in a different place, ideally a fire safe or safety deposit box. If you are as cautious/paranoid as me, make *multiple* backups and store them separately.

Restoring your electronic log

1. Install and configure a modern logging program to your liking.
2. Find and run the option to **import an ADIF log file**.
3. Find your most recent ADIF backup and import it.
4. Deal with any import errors (*e.g.* correct any invalid QSO details).
5. Check that you now have a reasonably complete log *e.g.* does it contain the correct number of QSOs? Are there any unexpected gaps? Are the awards reports showing the correct info? If not, you may need to import other backups as well, hoping that the logging software automatically detects and skips duplicates (otherwise you may have some tedious work ahead to find and delete the dupes - or this may be your cue to install better logging software that handles dupes more intelligently!).
6. Make a fresh ADIF backup of your newly-restored log, and store the backup safely. Trust me, you don't want to go through all that hassle again!

Tidy up old files from time to time. Once you have sent a *.tq5* certificate request to LoTW, received back the *.tq6* certificate file and loaded it into TQSL, you can safely delete both files. Likewise with the *.tq8* signed logs that you have uploaded to LoTW: there is no need to hold on to the *.tq8* files after they have been uploaded. **Be careful *not* to delete your ADIF logs, of course (*.adi* files), and keep those TQSL backups (*.tbk* files).**

Appendix: File types

Several obscure file types are associated with LoTW and logging programs. The following table hopefully clarifies their origin and purpose. You may not have all of them on your system, you may have several files with a given extension, and you may have other even more obscure types not yet listed.

File.extension	Notes
<callsign>.tq5	A <i>certificate request</i> file generated by TQSL and saved in your %AppData%\Roaming\TrustedQSL folder, when you ask for a new or replacement Callsign Certificate . TQSL uploads the file to ARRL. ARRL staffers validate the details then generate and send back the Callsign Certificate .
*.tq6	TQ6 denotes files that have been digitally signed.
<callsign>.tq6	A Callsign Certificate , generated and emailed to you by ARRL when you successfully registered to join LoTW and requested a Callsign Certificate through TQSL . Once you have loaded the supplied .tq6 file into TQSL (which marries it up with the associated <i>certificate request</i>), it cannot be used again ... so, after loading the certificate, you can delete both the <callsign>.tq5 and <callsign>.tq6 files to avoid any temptation to try to re-use them.
config.tq6	<p>This file contains TQSL configuration data such as DXCC entities, primary and secondary administrative areas, national parks, CQ and ITU zones <i>etc.</i>, administered by ARRL.</p> <p>Your current configuration is identified in TQSL's Help ⇒ About window:</p>  <p>When started, TQSL checks online availability of a newer configuration than the one it is currently using, in which case the new one is downloaded from the ARRL website and installed for you.</p>
certs.tq6	Backup containing all your current Callsign Certificates . You can download this file from https://lotw.arrl.org/lotwuser/certs.tq6 once you are logged in to LoTW.
<callsign>.p12	A single Callsign Certificate backup, created by TQSL's Save Callsign Certificate to File . If you have multiple certificates, you <i>could</i> generate backups for each one ... but it is easier and better to use File ⇒ Backup Station Locations, Certificates, and Preferences to backup the whole lot at once ... in which case older .p12 files are redundant and can be deleted.

File.extension	Notes
<logfile>.tq8	A digitally-signed log file, normally generated by TQSL using Sign a log and upload it automatically to LoTW or Sign a log and save it for uploading later . Once this file has been uploaded to LoTW, you can delete it. If you ever need to repeat a log upload for some reason, you can always sign and upload an ADIF or Cabrillo log file again, using the option to include QSOs that may already have been signed and uploaded.
tqslconfig.tbk	A backup of all your Station Locations , Callsign Certificates , and preferences, created in TQSL using File ⇒ Backup Station Locations, Certificates, and Preferences .
tqslupdate.msi	MicroSoft Installer files help you install application programs (such as TQSL) on your computer by scripting the installation process. Once apps are installed, the relevant .msi installer files can be deleted. If for some reason later you need to re-install an app, you can usually download the installer again, with the advantage that you will be downloading and installing the current version.
<callsign>.json	JavaScript Object Notation is a standardized and portable data-exchange format that encodes various kinds of data as plain text with field names and data values, similar to XML. TQSL generates .json files to store address information for active Callsign Certificates , for use when updating Station Locations . If you delete the .json files for some reason, TQSL will regenerate them the next day it runs.