

Subject: Report of the Logbook of the World (LoTW) Study Committee  
To: ARRL Board of Directors  
Date: July 2014

2014 is the second year of existence of the LoTW Study Committee (LSC). LoTW is operating much better in many respects, and user satisfaction has been increasing. This report details LoTW events of the last 6 months.

### **Executive Summary**

In 2014, continued improvements to TQSL have again enhanced Logbook's reliability and usability. A principal area of effort has been improving error messages and helping users through the certificate process.

Two new programmers were hired to work on Logbook, and began work on 5 May. We continue to focus on activities which could reduce technical debt.

Several different activities are described which enhance communication with users and the user community.

### **Logbook Study Committee (LSC)**

The LSC continued to meet monthly during 2014, by webinar and face to face at the quarterly A&F Committee meeting. These meetings enabled us to develop several areas of inquiry which progressed independently between meetings.

### **Logbook Policy**

Attached to this message (Appendix 1) is a draft policy for Logbook that the LSC is recommending for adoption by the Board. The goal of the policy is to establish what Logbook is and is not. The LSC believes it is important for users to have realistic expectations about Logbook's availability and level of support. Also, there are many things that Logbook could be made to do, but some of them are frankly outside Logbook's mission. A clear delineation of what is and isn't in Logbook's purview will indicate to independent developers where there is a need for complementary development.

### **Certificates and Online Services.**

In May, QRZ.com offered to enter users' logs into LoTW for them, and requested users to provide the passwords for their certificates for this purpose. This precipitated much discussion in the LoTW community, and the LSC decided to propose a Logbook Security Policy (attached as Appendix 2). The essence of the policy is that users are responsible for the security of their own passwords. LoTW will publish security criteria for online services. Widin is talking with Mr. Kramer about getting the policy to users as well as online services.

### **TQSL updates**

TQSL now helps users with a number of issues with regard to certificates, which reduces confusion and the need for support. Support staff at ARRL HQ report that they can identify improvements resulting from the updates in TQSL. Version 2.0.2 of TQSL is in beta test as this is written, and will likely be released in July.

Recently, visually impaired users have raised questions about usability of TQSL. Some of these questions have already been investigated, and it appears that compatibility with screen readers can be built into an upcoming release of TQSL. Details are still being worked out.

### **Logbook Communication with Users**

In Q1, the LSC informally adopted the ARRL-LOTW Yahoo! group as an online communication method. Though there are ARRL-internal discussion groups, these require a user to be an ARRL member, while LoTW membership does not.

During the first half of 2014, the level of user communication has also been stepped up to keep users informed about outages due to updates, etc. For example, outages are now published as long ahead of time as possible on ARRL.org News and Events, on the LoTW home page, and on ARRL-LOTW. These methods have met with appreciation from the user community.

Efforts are in progress to improve the online documentation available on the LoTW web site. A Help section has been built and is being populated for the right-hand side of the LoTW page. This section will collect existing documentation, integrate TQSL documents, update documents which require it, and create new documentation where it has been absent. Helping new users get started on LoTW is the focus for this work currently.

### **LoTW's Technical Position**

In our previous reports, we have identified the "technical debt" under which LoTW operates. With the addition of the two new programmers, some of the fundamental updates needed to the database utilities are now getting attention. A critical point will be reached sometime in the second half of 2014, when tests on the updated database can be made for scalability and capacity.

Network issues. Some of Logbook's apparent problems are actually network problems affecting capacity. Several improvements have already been made, and more are being planned, to reduce the incidence, and ensure users understand the origin of the problem.

Power management. Along with issues brought about by network growth, power management has struggled to keep pace with increasing demands. A review of power distribution is being performed with consultant help to ensure that power options are properly configured. This affects network management as well as the servers.

Second server instance. The second instance will shortly begin testing (including load testing) before being deployed in the co-location site.

### **LoTW Revenues**

URE has joined DARC in beginning to use LoTW output screens as an award-processing mechanism, for which no one pays anything. While this means some users may rely on LoTW to receive awards while not paying anything to ARRL, it also means that LoTW is further confirmed in being the standard of practice for operating awards. Once LoTW has emerged from our technical indebtedness, we believe it may be possible to craft interfaces for other awarding organizations that they would find preferable to “skimming” their awards off LoTW and they might find even more cost-effective. This kind of development, however, depends critically on “getting out of the hole.”

### **Acknowledgments**

Thanks to the technical volunteers who are making LoTW Server and TQSL upgrades possible:

Trusted QSL Developers -- LotW Client (TQSL) development

Dave Bernstein, AA6YQ  
Robert Mead, KC2YWE  
Rick Murphy, K1MU

LoTW Technical Advisory Committee—LoTW Server issues

Dave Bernstein, AA6YQ  
Rick Murphy, K1MU  
Dave Pascoe, KM3T  
Michael Wells, G7VJR  
Kenneth Wolff, K1EA

The Technical Advisory Committee supports and advises Michael Keane K1MK, as head of ARRL IT.

Further re-architecting of the data structure will be undertaken in 2014. Together with performance improvements achieved in 2013, appropriate data structures will help ensure the stability of the application.

### **Respectfully submitted—**

This report was produced by the LSC, “LoTW Study Committee”. Members are:

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Ex officio members of the LSC are:

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## **Logbook of the World® (LoTW™)**

LoTW is amateur radio's most trusted vehicle for acknowledgement of contacts, worldwide.

### **LoTW's Mission**

LoTW's defining role is to provide confirmation of two-way amateur communications with impeccable reliability and security. LoTW maintains a record of logged and confirmed contacts, and identifies confirmations associated with supported awards.

### **Reliability, Security, Backup and Redundancy**

In view of the importance of the contacts contained therein, LoTW data will be backed up daily to remote storage. This backup is for the restoration of LoTW function only, and is not accessible to individual users to restore their contact information; individuals should not rely on LoTW as a backup system, and should provide their own backup arrangements. A backup system for LoTW hardware mirroring the primary system will be established, and will also serve as a test system for system upgrades, capacity testing and regression testing.

LoTW uses very strong security to ensure that contacts cannot be fabricated. Users of LoTW are expected to protect their Callsign Certificate(s) so that contacts cannot be fabricated. If a Callsign Certificate is discovered to have been compromised, all contacts submitted with that Callsign Certificate will be removed from LoTW, all confirmations generated by those contacts will be invalidated, and all award credit generated by those confirmations will be revoked. Users who allow their Callsign Certificates to be compromised or knowingly exploit compromised Callsign Certificates may lose their privileges of using LoTW and participating in ARRL-sponsored award programs. The integrity of LoTW must support the prestige of those awards that depend on it, such as DXCC. The goals of "ease of enrollment" and "ease of use" must be balanced against the requirement of maintaining an extremely high level of integrity.

### **Awards Support**

LoTW's secondary role is to provide confirmations defined in terms of various awards such as DXCC, WAS, and VUCC, and of operating events such as the Centennial QSO Party. While ARRL awards are a priority for support by LoTW, awards offered by other organizations may be supported by Logbook, subject to prioritization by the ARRL Administration and Finance Committee. Details of such support and requisite fees will be negotiated on an individual basis.

### **Features and Analysis**

It is not LoTW's mission to provide analysis of contacts. LoTW provides an API by which developers of logging software can extract QSO and QSL records for further analysis. Individual amateurs may extract records of their confirmed QSOs for subsequent analysis and planning of future contacts, via databases, spreadsheets and the like.

ARRL may establish special relationships with sites which provide analysis of contacts (such as Club Log), to facilitate useful analyses that are not a direct part of LoTW's mission.

### **Processing Time and Availability**

By the nature of many of the tasks performed by LoTW, processing is an offline (not real-time) activity. ARRL IT endeavors to keep the processing queue as short as possible, but quick processing is second to LoTW's primary goal of authenticating contacts. Interaction with users through TQSL and as logs are submitted and acknowledged is a real-time component of LoTW function, and will be kept as interactive as possible.

Though often available around the clock, LoTW is not intended to be a 24/7 application. Whenever possible, periods during which LoTW will not be available (for maintenance, etc.) will be published ahead of time (see further below).

### **Communication**

LoTW aims at all times to keep users informed about downtime, both scheduled and unscheduled. ARRL management will develop a policy concerning different categories of downtime and associated communications, outlining advance warnings when available and content of communications concerning unscheduled outages.

Online help for accomplishing tasks supported by LoTW will be available. Help and status information shall be available regardless of whether the user is logged in or not. ARRL has adopted the Yahoo! discussion group ARRL-LOTW as an informal communication channel for LoTW announcements and interaction with the LoTW user community. [ARRL is not the owner of this discussion group.]

### **Membership and costs**

US amateurs must be ARRL members to use LoTW for award credits. Cost of credits is determined by the price structure surrounding a particular award. There is currently no charge for an individual to extract results from LoTW, though this is used as a basis for awards by other issuers.

Uploading logs is a free activity for all amateurs. DX stations are particularly encouraged to upload their logs.

Currently (June 2014), the only fees are those required when contacts are used for supported awards. Premium services may be developed for LoTW which would require user fees.

**Statement concerning Online Services and LoTW Certificate Security**

The Callsign Certificate that the ARRL issues to an LoTW user authenticates contacts submitted by that user. Callsign Certificates can be password-protected, and LoTW documentation recommends that Callsign Certificates maintained on shared or public computers be password-protected. LoTW users are expected to protect their Callsign Certificate(s) so that contacts are not fabricated.

If a Callsign Certificate is discovered to have been compromised, all contacts submitted with that Callsign Certificate will be removed from LoTW, all confirmations generated by those contacts will be invalidated, and all award credit generated by those confirmations will be revoked. Users who allow their Callsign Certificates to be compromised, or who knowingly exploit compromised Callsign Certificates may lose their privileges of using LoTW and participating in ARRL-sponsored award programs.

Online logbook services that enable users to submit contacts to LoTW support the ARRL's goal of broad participation in LoTW. However, an online logbook service that requires its users to submit unprotected LoTW Callsign Certificates creates an attractive target for hackers, and so places its users at greater risk of the consequences of allowing their Callsign Certificate to be compromised.

Thus, the ARRL strongly recommends that online logbook services enable users to submit password-protected Callsign Certificates, obtain the password from the user when digitally signing QSOs for submission to LoTW, and retain no record of the password.