Delta Chat
Final UX report

Ksenia Ermoshina et.al.

July 2020

Table of Contents

Introduction

In this report we will summarize the last 12 months of UX efforts and developments within the “Delta Chat Organisation and Integration Project” supported by the Open Technology Fund. We focused on improving organizational features within the context of asymmetric threats, which includes major developments such as burner accounts, auto-deletion, disappearing messages, improved search and navigation.

This report first details two UX-testing sessions and the needfinding report we published earlier in 2020. The needfinding research was conducted in the Fall 2019 and was based on in-depth interviews with 12 journalists and human rights observers from Belarus, Russia, Ukraine, Iran, Taiwan and Hong Kong about their usage of mobile and desktop devices, messengers and email in a context of high risk environments. It produced 14 key findings[1]. In the "development" section we’ll detail how we addressed most of the key prior findings. Two UX-testing sessions happened in May and July 2020 and involved respectively 6 and 10 people. The two testing sessions happened in unusual settings and required a modified methodology adapted to the context of pandemic which made traditional face-to-face UX testing sessions impossible. There were further lighweight real-life testing sessions which we don’t detail in this report as they did not bring up additional insights other than bugs and small issues that we addressed during our day-to-day activities.

The Covid19 quarantine has affected the way we’ve been communicating, but in the same time it has opened new opportunities and ideas and supported a growing interest in our app in the context where even more work has moved online and people’s concern with privacy has become more acute. In the same time, in this new world of always-online, the economic and social consequences of Internet shutdowns and censorship have become even higher. In an effort to harness the resilience of e-mail's federated network of providers to defend against censorship of instant messaging services, we have gained trust from our Russian-based users following our official response to Russian Internet Watchdog Roskomnadzor’s request. The RKN case has demonstrated how a socially and technically decentralized solution can offer an additional level of protection alongside with strong cryptography in the countries with rigid Internet censorship and information control.

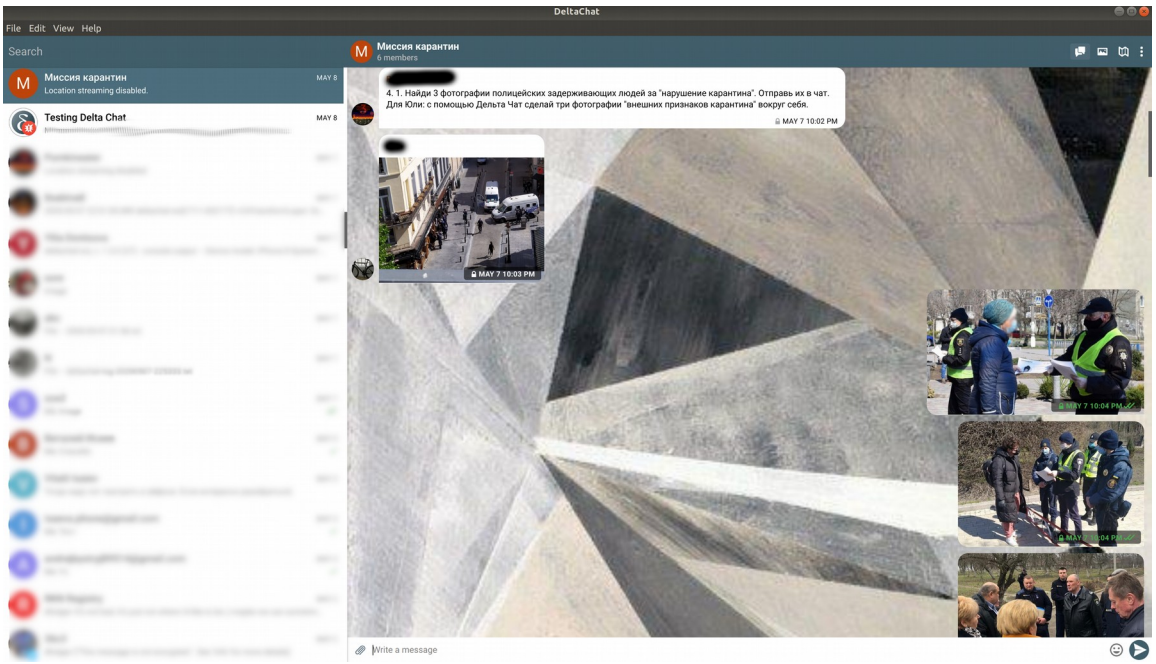
1 Full report available at https://Delta Chat/en/2020-03-31-needfinding_multidevice

Test session #1 – Mission “Quarantine”

The first more formal UX testing session happened on May 7 2020, involving 6 testers from Eastern Europe (Ukraine, Belarus and Russia). All of them are working in different human rights NGOs and have real life experience of documenting events in conflict zones or mass protests. One of the participants works as a technical administrator for a Ukrainian NGO and agreed to be the “basecamp coordinator” testing the Delta Chat Desktop (1.3.0). Other users tested Delta Chat for Android (3 people; version 1.6.2) and iOS (2 people, version 1.3).

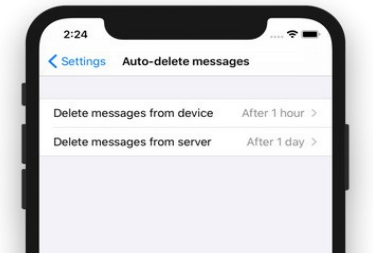
The session was designed within the context of pandemic, lock-down and forced self-isolation in different countries and cities. To get the best out of this situation, we have designed a game under the code name “**Mission Quarantine**” that includes a list of roles and tasks partly staging conditions of a field mission indoors. The testers on Android were given a QR-code to set up burner accounts and the iOS testers got a test account from us.

The Desktop tester was the “Mission Coordinator”, located within a “safe location” (office of an NGO) while others were “mobile observers”. The topic of our game was human rights violation during pandemic, therefore, users were asked to collect different kinds of evidence in their respective countries (Russia, Ukraine, Belarus) by simply making online search. They were asked to find pictures of police controlling if citizens wear masks, find video of DIY mask making, and record a one-minute audio with a story about their experience of self-isolation.



The testing focused on a set of features and functionalities:

- **Customization of the app's appearance** (*setting a profile picture, a username, a wallpaper, changing the theme, font size and so on*): people generally found customization process intuitive; they requested more default background images;
- **Security settings** (*screen security, screen lock*) – users requested an ability to create an app-specific password to lock Delta Chat, not to use a system-wide password;
- The **auto-deletion** feature was requested by many users during our previous research interviews and multiple events. During our test game users were asked to turn on auto-deletion timer to 1 hour so that they could experience auto-deletion and see messages disappear before the end of the testing. It worked fine for everyone. However, users requested a possibility to opt for a per-chat auto-deletion.



- **Contact discovery, sending messages to new contacts and to yourself** – so far, users appreciated the ability to refuse access to contact book; sending messages to new contacts was not perfectly clear for all users (required some search); as for the "saved messages", users suggested to rather have a "save" button on the top right corner than having to forward messages to the "saved messages" chat;
- **File sharing, search and management** (photo, video, documents, audio messages) – users generally were satisfied with media sharing and search; the iOS testers however complained that it was hard to attach a file (pdf or video) from the file system of their iPhones, as Delta Chat was not in the list of apps suggested by the system;
- **Group chat creation and management** – no particular problems were identified, other than the process of adding contacts to a group chat from the Desktop client (was not intuitive for the tester);
- **Notifications and backup** – In order to test notifications, one tester was asked to play the role of an "arrested" person; she sent an SOS message individually to each tester and they replied to her "where are you"? No particular delay or problem with notifications was detected. Backup worked for everyone but users requested ability to choose the path where to save backups. A tester said "*In a situation of a panic, I would never be able to find where my backup is stored*".
- **Other identified problems**: for one tester (Android, user from Minsk) Delta Chat did not work with a VPN.
- **Requested features:** The basecamp coordinator requested the ability to download all chats at once, or per chat download in csv or txt. Other testers, however, suggested that only the creator of a group chat could download chats, for security reasons.

Test Session #2 – Forest

The second testing session happened on July 4 as part of the eco-hacker festival “Dumay Kak Les” (Think as a Forest) that took part in the region of Saint-Petersburg, next to the town of Primorsk. The festival gathered around 250 people and combined workshops, hacking and soldering sessions, music and visual art. This setting presented an interesting challenge: trying out Delta Chat in a place with very bad mobile connectivity and connecting to communities of environmental activists and local hackers and sysadmins.

We distributed QR-codes to generate burner accounts using three different experimental mail servers offering accounts for 1, 7 and 90 days. Following a general introduction about Delta Chat’s design and socio-political arrangements, we gathered a group of around 10 testers who installed Delta Chat 1.10.4 for Android and could successfully generate burner accounts on different servers.

Fig. 2: Burner account generation at “DKL” festival, 4 July 2020

Key outcomes:

1. Scrolling of the chat “freezes” sometimes

2. Expiration timer vs burn-on-read: might consider to enable auto-deletion timer after a message has been actually read, not after sending it

3. When creating burner accounts in a context of bad connectivity it was not always clear from the error message if the problem concerned the server, the connectivity or if burner accounts were simply out.

4. Users desperately requested “replies”, swipe-to-reply and so on.

5. The “device chat” should be probably reconsidered. We have observed that users were rarely opening the “device chat”, let alone click the message to enable battery

optimizations. Testers reported that the “reliable background connection” function was too “hidden”. We recommend therefore to ask for it immediately at the start. And if it is not granted, show an option to enable it somewhere in the settings menu.

Overall, users expressed big interest in location streaming function, especially in the context of outdoor happenings. Several communities, including an NGO focused on the rights of LGBTQ/HIV+ people, and a harm reduction organization from Saint-Petersburg have suggested their help with testing Delta Chat on a middle-term on the organization level. Decentralized and secure location streaming was found to be a very relevant and needed feature that could be adapted to specific conditions and needs of these user groups.

Developments addressing needfinding and UX-testing

Delta Chat’s development is generally UX driven. Apart from addressing needfinding and UX-testing issues, we continously addressed user feedback through Github or our Support Forum (https://support.Delta Chat). Below we list key improvements in response to the needfinding report step by step (full text is accessible on our blog at https://Delta Chat/en/2020-03-31-needfinding_multidevice)

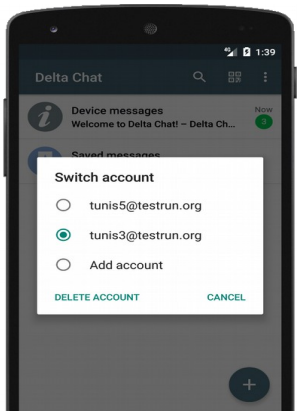
1. Multi-Device and Multi-tool

As our Needfinding research discovered, mobile clients require slightly different functionalities as compared to desktop. Inspired with “asymmetric scenario” use-case, Delta Chat does not have just one client for all, but each system has a different, well-chosen feature set with different priorities.

Our interviews and testings show that multi-tool and multi-device setting is a reality that offers an additional layer of protection to users. To offer a better feel and support multi-tool and multi-device context, we have done various improvements on all platforms, syncing user data (verifications and avatars) across devices; added “share” functionality on Android and iOS; the ability to drag’n’drop and open-via-link has been improved on Desktop. Desktop UX was revamped, several ux- and ui-elements are synced across mobile and desktop. Settings and onboarding are now also aligned across all systems, and provides per-provider information and hints for a successful configuration. The “Saved messages” function that has been found to be used to share files and messages between devices, is now enabled by default and sorted up for better “saving”. In reply to

the request for “channels” (also inspired by Telegram), Delta Chat developed a bot-framework (funded by NLNET, not OTF) that supports channels and is in practical early use today.

3. Multi-accounts and identity management



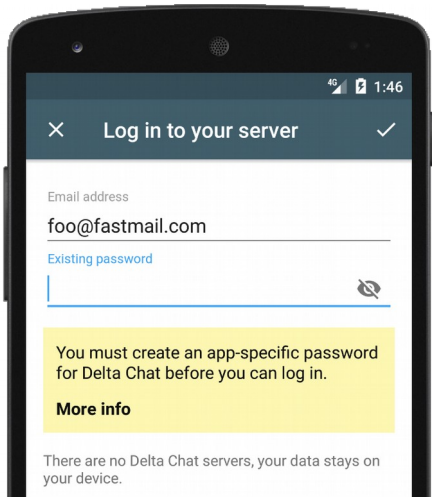
Only half of our respondents and testers mentioned to be explicitly interested in multi-account support, contrarily to our initial hypothesis. Therefore, we have tuned down adding multi-accout and prioritized other things. A basic multi-accout support was added on Desktop and Android nevertheless because it was often requested by other users and because it makes the usage of “burner accounts” much more convenient. One can now have a “regular” account for longer term and a “burner” account for short-term communications.

4. Group chat

Delta Chat’s model for the administration of a group chat (everyone can remove everyone) seems to correspond to security requirements of the studied organizations. We kept this approach and refined the UX around the group administration. We also added in-chat search to Android and pinned chats on all platforms.

One outcome of the UX-tests relevant to group chats concerns the export of chat history, which some users think should be the privilege of a group chat creator. We recommend, however, to keep our approach to group administration. It’s already possible for everyone to export the data from one chat, but in a manual way. Exporting Chat data was deemed outside the scope of our proposal but work on it has started.

5. Email usage



The needfinding research underlined the importance of an easy account creation and a white-list of recommended email providers. In response we have worked on providing a smooth onboarding: accounts can be created by just scanning a QR-code now. We also now ship a provider database within the app that gives direct feedback about the provider the user wants to use. On the corresponding webpage, the user can also have an

overview about these providers and can suggest to edit/add entries. Setting up accounts with known providers became considerably faster (from 10-15 seconds to 3-5).

6. Asymmetric scenario: preparing for the field mission

Interviews shown no priority in introducing large file or attachment sending directly into Delta Chat, therefore we have delayed adding this feature and priorized different things. However, based on needfinding recommendations to introduce easy ways to share attachments across different apps, we added “share” to Android/iOS and improved Drag’n’Drop for Desktop. To provide better usability for our focus-group users, field observers and journalists, we have enlarged configuration options for media quality for iPhone users by adding the options available on Android (Balanced/Worse) also for iOS.

7. Asymmetric scenario: transfering files, attachments

The needfinding report did not prioritize handling large-file transferal directly in Delta Chat. We thus rather introduced and improved the “share with” functionality on Android and iOS to make it easier to have other tools take care of large files and attachments.

8. Message and File deletion in phones used in missions

Finally, disappearing messages, described as the key feature in all our interviews and discussions with users, were implemented in Delta Chat, similar to the ones known eg. by Signal. However, as we’ve focused on organizations working in an asymmetric context (basecamp/mobile risk levels), the results of needfinding suggested implementing one-sided deletion in order to guarantee longer access to data for mission coordinators for better logistics. Therefore, in addition to the two-sided deletion of the “Disappearing messages”, we implemented a “Delete old messages” feature that works only one-sided. With this one-sided deletion feature a journalist can go on a mission and set a time limit how long messages shall be kept on the device (or on the server), without affecting a mission co-ordinators history keeping.

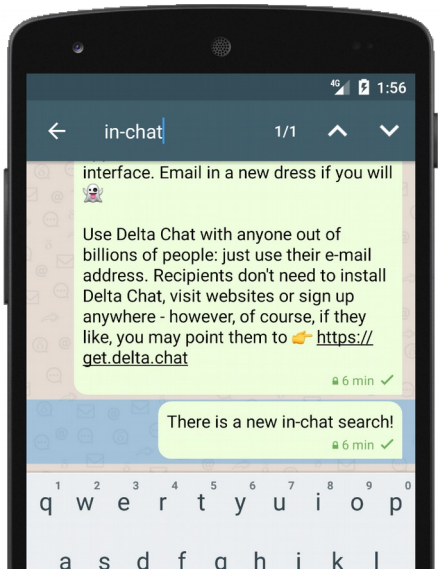
9. Device seizure

Another important security-related feature request concerned a need for remote file / message / account deletion that could help minimize data and contact leaks in case of an arrest and device seizure. However, due to low-request, also in the report, and due to the expected complexity we decided to prioritize different things. However, the burner account introduces a feature that deletes an account after some time. The burner account lifespan can be pre-configured prior to the mission, even up to one day,

guaranteeing that all data will disappear from the server and from the device. Also due to the nature of email, things on the server can anyway be deleted remotely.

While users requested a “panic button” feature for emergency cases, we did some research on that topic and found out that it is much more interesting to use a third-party “panic button“ outside Delta Chat – as in this case, the whole app and data can be deleted quickly. Also, this “panic function” is already supported by various systems. However, it is recommended that we communicate that better may be by providing a short step-by-step guide in the blog, or adding an entry to the FAQ.

10. Search function and 11. Tagging



A big part of our needfinding research concerned the file management and group chat coordination, needed in field mission contexts. We have added in-chat search in Android, added search over all chats/contacts/messages on Desktop and iOS (Android already had this function before), introduced and maintained pinned messages. Hashtag usage has been also considered; hashtags can be searched on all systems, having a “type-helper” for adding seemed to be less important compared to other functions.

12. Contact management

Tagging and organizing contacts was not identified as a priority during needfinding and UX tests. We thus only only refined the ability of Delta Chat to be fully functional without requiring access to a phone’s addressbook but allowing it to ingest phone addressbook data as an opt-in feature for users.

13. WebRTC sessions

Audio and Audio/Video sessions are a very important feature required by organizations where Delta Chat can be potentially used. We added an option to add a so called “Video chat provider”. Once set, the user can initiate a call using this provider. The call may be Audio only or Audio/Video, this depends on the provider chosen. This feature will be improved further along.

The new Videochat feature works with existing Jitsi instances or with “basic_webrtc”, a minimal server side package supporting P2P end-to-end encrypted conversations only.

14. Stickers

The needfinding report has shown the need for stickers inspired by Telegram where users can generate Stickers themselves and use them as a means for social encryption. While we already start implementing sticker-functionality on desktop, for simplicity, we decided to concentrate on emojis for now, all platforms were updated to the most recent emoji sets, several efforts to display them correctly on older Androids, and have diversified emojis.