

Privacy Enhancing Requirements of Mobile Application Users: Initial Findings of AndProtect User Research about Mobile Privacy Concerns and Usability of Permission Applications

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Smartphones and mobile applications became supportive attendants in our everyday life during the last decade. However, mobile applications not only deliver useful services and information on the way, they also gather personal information of the user. But user concerns about privacy protection (Trepte & Masur, 2015) are rarely incorporated by application providers so far.

Application permissions are often neglected or not comprehensible for an average user (Felt, Ha, Egelman, Haney, Chin & Wagner, 2012, Gerber & Volkamer, 2015) during the installation process. Once the application is installed, access permissions to and subsequent processing of personal data is not transparent for the user anymore. Hence, ensuring self-data protection becomes difficult in this context as the user is hardly able to recognize the threat to personal privacy and consequently the adoption of means for self-data protection becomes unlikely.

The aim of the research project *AndProtect* is to develop and study a methodology and a corresponding tool to support non-professional Android users to gain knowledge about information flows of their apps. It will ensure transparency and enhance personal risk based decisions for users in everyday life. This will be realized by a user centered design of the presentation and visualization of static and dynamic analysis results.

Within our talk we will present initial results of the user research we conducted within the project. We investigated general concerns of mobile application users with regard to the threatening of personal privacy in a broad survey with $N = 217$ participants. The analyses of qualitative and quantitative answers highlighted the importance of the factor intensity of data tracking of a mobile app. Furthermore, participants demanded for a differentiation of not-functionally and functionally requested data.

Additionally, we conducted a study with $N = 31$ participants (Halama, 2016) to investigate the usability and user experience of permission applications, as these applications are a first attempt to address mobile users need for transparency about data collection of mobile applications. Three different permission applications have been included. Every participant was asked to carry out three tasks with every permission application. Qualitative and quantitative results led to seven design guidelines for usable interface design of permission applications.

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