Privacy Label Wiz: A Tool to Help iOS App Developers Create Accurate Privacy Labels

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Introduction & Background

- Apple began requiring developers to disclose their data collection and use practices to generate a "privacy label" in December, 2020
- Mobile SDKs and third-party libraries make it challenging for developers to accurately report their apps' data collection practices
- We introduce *Privacy Label Wiz* (*PLW*) [1], a software tool that helps iOS developers generate accurate privacy labels. We present evaluation results from an initial usability test with developers, and the subsequent refinements made to *PLW* based on the evaluation.

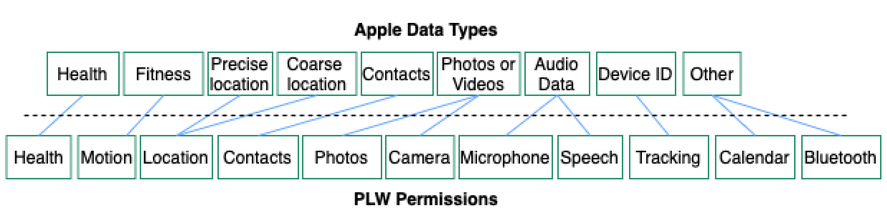
Privacy Label Wiz

Basis for *PLW*:

- Builds upon the open-source tool Privacy Flash Pro [2, 3], a tool to help iOS developers create privacy policies.
- Uses PFP's static analysis framework to scan iOS apps' Swift source code and third-party libraries in Swift or Objective-C, but maps detected iOS permissions to Apple's data types to let developers more easily report data usage.

***PLW*'s focus on Privacy Labels**

- UI explains the mapping of iOS permissions to Apple's data types, lets developers easily decide whether to report the related data type
- UI includes guiding questions to help developers understand Apple's privacy label definitions and to consider components of their app (e.g., the use of third-party services) that should be disclosed in a privacy label.



Evaluating the Initial Privacy Label Wiz

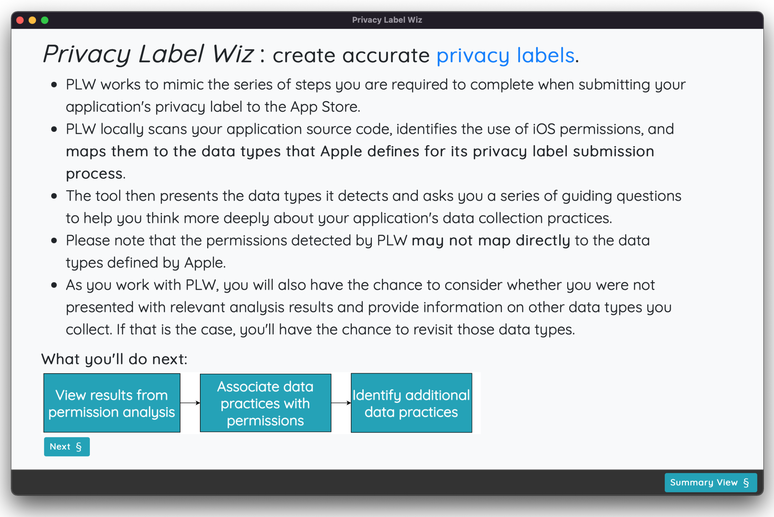
What we learned:

- Needed to help developers understand permission to data type mapping
- Needed to clarify that despite the results provided by *PLW*, developers must still decide whether they use and collect other data in their app.

What worked well:

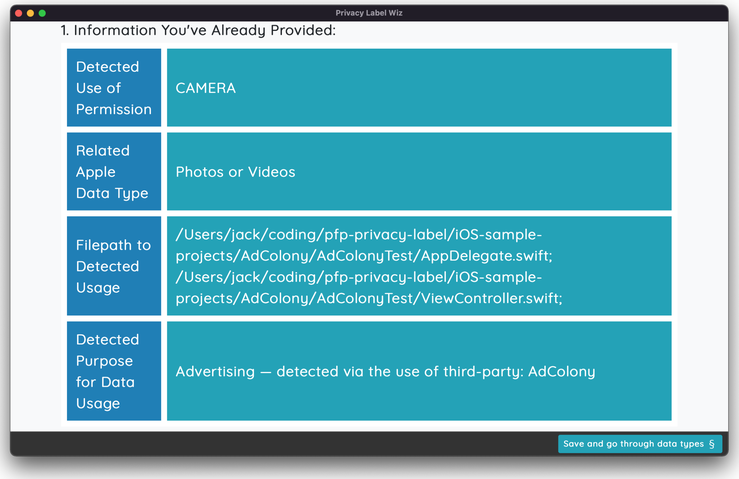
- Including the list of Apple's data types in the *PLW* UI led developers to revisit data practices.
- Some developers updated their privacy labels after using *PLW*.
- One developer updated their label after understanding Apple's purpose-of-use definitions. A reflection question in the *PLW* UI on third-party documentation led another developer to update their label.

Refined UI Instructions Page



The instructions page that explains the purpose of the tool and previews the upcoming results pages.

Refined UI Summary Page



Developers see redisplayed results on the *PLW* summary page before going on to select additional data practices.

References

[1] Jack Gardner, Yuanyuan Feng, Kayla Reiman, Zhi Lin, Akshath Jain, and Norman Sadeh. Helping mobile application developers create accurate privacy labels. In *2022 IEEE European Symposium on Security and Privacy Workshops* (*EuroS&PW*), pages 212–230, 2022.

[2] Sebastian Zimmeck, Rafael Goldstein, and David Baraka. PrivacyFlash Pro: Automating privacy policy generation for mobile apps. In *28th Network and Distributed System Security Symposium* (*NDSS 2021*). *NDSS*, 2021.

[3] Sebastian Zimmeck, Peter Story, Rafael Goldstein, David Baraka, Shaoyan Li, Yuanyuan Feng, and Norman Sadeh. Compliance traceability: Privacy policies as software development artifacts. In *Open Day for Privacy, Usability, and Transparency* (*PUT*), *Stockholm, Sweden*, 2019.

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the usable privacy policy project