



# USENIX Security '24 Artifact Appendix: Enabling Developers, Protecting Users: Investigating Harassment and Safety in VR

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## A Artifact Appendix

### A.1 Abstract

Our paper describes a multi-perspective interview-based study outlining the usability challenges with safety controls and reporting mechanisms in Virtual Reality (VR) applications (Study-I), as well as VR developers' challenges designing and deploying these safety measures (Study-II). To support our paper and make it more useful for researchers, and stakeholders in the VR community, we provide all the necessary study materials available in an online repository. The repository includes the recruitment materials (flyer), screening survey (including the consent form), interview protocol, post-interview compensation survey, and codebook for both Study-I and Study-II. It also contains a demographics survey and a document containing mental health resources, specific to Study-I. Additionally, the repository also contains a README file.

### A.2 Description & Requirements

In this section, we provide the descriptions of all the applicable subsections for our use case (i.e., "artifacts available" badge).

#### A.2.1 Security, privacy, and ethical concerns

The data we provide is not harmful to viewers. All data we provide has been anonymized to protect our participants' privacy.

#### A.2.2 How to access

Our artifact can be accessed using the following URL: <https://doi.org/10.17605/osf.io/c7fks>. The complete set of study artifacts can be downloaded as a .zip file through the provided link. The study artifact repository is hosted through Open Science Framework (OSF), a free and open platform that promotes collaborative research.

#### A.2.3 Hardware dependencies

None.

#### A.2.4 Software dependencies

None.

#### A.2.5 Benchmarks

None.

### A.3 Set-up

Our artifacts can be downloaded as a .zip file from the URL provided in Section A.2.2. The file contains the following files:

1. **README.md** This .md file contains a list of and description for all the provided resources.
2. **study\_I/user\_research\_flyer.pdf** This .pdf file contains the flyer we circulated in online forums to recruit VR users for Study-I.
3. **study\_I/user\_consent\_form.pdf** This .pdf file contains the consent form for Study-I whose text is incorporated in the screening survey for Study-I, and shared as a document before the start of the interview in Study-I.
4. **study\_I/user\_screening\_survey.pdf** This .pdf file contains the screening survey for Study-I.
5. **study\_I/Study\_I Interview Protocol.pdf** This .pdf file contains the interview protocol for Study-I.
6. **study\_I/user\_demographics\_survey.pdf** This .pdf file contains the survey to collect demographic information at the start of the interview in Study-I.

7. **study\_I/post\_interview\_survey.pdf** This .pdf file contains the survey used to collect details (name, address) if the participant wants to be compensated (details required by the University's accounting office) for Study-I.
8. **study\_I/mental\_health\_resources.pdf** This .pdf file contains links and contacts to mental health resources, shared with participants after the interview in Study-I.
9. **study\_I/Codebook\_study\_I.xlsx** This .xlsx file contains the high level themes, sub themes, and codes that emerged from the interviews in Study-I.
10. **study\_II/dev\_research\_flyer.pdf** This .pdf file contains the flyer we circulated in online forums to recruit VR developers for Study-II.
11. **study\_II/dev\_consent\_form.pdf** This .pdf file contains the consent form for Study-II whose text is incorporated in the screening survey for Study-II, and shared as a document before the start of the interview in Study-II.
12. **study\_II/dev\_screening\_survey.pdf** This .pdf file contains the screening survey for Study-II.
13. **study\_II/Study\_II\_Interview\_Protocol.pdf** This .pdf file contains the interview protocol for Study-II.
14. **study\_II/post\_interview\_survey.pdf** This .pdf file contains the survey used to collect details (name, address) if the participant wants to be compensated (details required by the University's accounting office) for Study-II.
15. **study\_II/Codebook\_study\_II.xlsx** This .xlsx file contains the high level themes, sub themes, and codes that emerged from the interviews in Study-II.

### **A.3.1 Installation**

None.

### **A.3.2 Basic Test**

None.

## **A.4 Notes on Reusability**

To replicate Study-I, we suggest incorporating some form of identity checking to prevent imposter participants, as discussed in the paper. When replicating the interviews for both Study-I and Study-II, we suggest using our interview protocol document as a template.

## **A.5 Version**

Based on the LaTeX template for Artifact Evaluation V20231005. Submission, reviewing and badging methodology followed for the evaluation of this artifact can be found at <https://secartifacts.github.io/usenixsec2024/>.