

Privacy on Adult Websites Submission for PrivacyCon 2017

- **First and last name, email address, and phone number of researcher(s) making the Request;**

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- **Title and abstract of the research you propose to present, summarizing your methodology, findings, and how your research differs from prior research in this area;**

Privacy on Adult Websites

As it does in polite conversation, pornography goes unmentioned in policy discussions. This paper begins a conversation about this major use of the web, one that is sensitive and could lead to embarrassment and harm to users if publicized. In countries where pornography is illegal, tracking of these behaviors could have profound consequences for users. Viewing such material is legal in the US, yet authorities may wish to avoid the topic of protecting its consumers.

We document and discuss the user tracking dynamics on the most popular adult-oriented websites (N=11) using automated and manual crawls, and documenting our results using mitmproxy and Mezzobit. The literature is silent on what privacy users expect, and how they are tracked on adult websites. Prior research in this area focuses on privacy policies on adult websites (Marotta-Wurgler 2016), demographics of adult website users (Edelman 2009), popularity of adult websites (Darling 2014, Tarrant 2016) and the legal rights and implications of consumption of pornography (Kinsley 2013, Richards 2015, Gilden 2016). Our research complements Marotta-Wurgler's in particular, by engaging in technical analysis of the tracking that is present on adult sites.

Tracking dynamics are different on adult sites than other popular sites. There are relatively fewer third-party tracking companies involved and fewer cookies than on comparably popular sites. However, we found that Google trackers (Google Analytics and/or DoubleClick) were present on almost all the sites and that search terms were often leaked in plaintext to third parties and sometimes encoded in cookies. Few adult websites enable HTTPS, making adult websites vulnerable to monitoring by third parties.

- **Why our submission should be considered**

There is a long history of protectors ignoring depredations in society because the protectors themselves are disgusted by victims' activities. We express no opinion about the normative value of pornography, but we do articulate a significant harm that could come to tens of millions of Americans who are consumers of pornography. It is this harm—one increasingly present as demonstrated by the Ashley Madison breach—that our research surfaces and makes real.

Our research represents an academic effort to quantify how websites are tracking users and the amount of tracking that occurs online. It has no commercial sponsors or influence.

It is relevant to the following topical criteria:

- 1) Quantifying Consumers' Privacy & Security Interests.
 - a. Our study discusses the lacuna of discourse on consumers of adult material online.
- 2) Privacy risk from exposure of information
 - a. Our study discusses how tracking on a category of websites could lead to extortion and/or embarrassment.
- 3) Privacy-protective technologies and behaviors
 - a. Our study discusses how some basic privacy protective technologies are missing from adult websites.
- 4) Multiparty relationships
 - a. Our study focuses on the relationships between first party adult websites and sharing with third parties
- 5) Identify targeted advertising
 - a. Our study makes surprising findings about targeting and tracking on a category of popular web sites. We hypothesize, based on a comparison to a medical website, that sensitive subject matters are tracked if there is an interest in advertising on the subject matter.
- 6) Quantify security and privacy risks
 - a. Our study discusses how basic, inexpensive changes to design could heighten privacy and security protection on adult websites.

- **Publication details for any research that has been previously published or accepted for publication;**

We have not yet submitted this paper for publication.

- **Your completed or draft research paper or extended abstract**

Attached

- **A description of anything you would be interested in demonstrating (optional).**

We do not wish to do a live demo.

- **How our work satisfies the selection criteria:**

This is our own research that we initiated, designed, and conducted.

We receive no corporate funding for this report. However, we do use donated technology services for some aspects of it. These donors do not 1) tell us the subject matter of our inquiries or 2) have pre-publication review or veto of our findings.

The authors are all qualified experts in their respective fields. The team is comprised of two forensic experts (including a core developer of mitmproxy) and a legal expert on privacy and security.

This research presents objective facts based upon observation on the presence of HTTP cookies, search leakage, HTML5, and Flash objects. It can be replicated. We have kept forensic logs of our investigation for verification, and will make these available to the FTC if request. The paper does not present opinion about privacy or the internet more generally.

There is no promotional or commercial aspect to our research or our intended presentation.

Our research does not present any security vulnerabilities.

Our research is the product of a multi-year, academic effort. It has been reported upon by the technical press. Our last paper on this topic was published in a peer-reviewed journal. No one, to our knowledge, has criticized its methods or findings.

This research was initiated and completed after January 1, 2016.

Our research concerns pornography. We have written this material carefully so that it can be discussed in a civil manner, without exposing readers/conference participants to visual media or even textual description of pornography.

We can commit to participating in the event, the pre-conference calls, and submit our slides by the deadline, if selected.