

Intimate Partner Surveillance

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Joint work with Nicki Dell, Periwinkle Doerfler, Diana Freed, Sam Havron, Karen Levy, Damon McCoy, Hadas Orgad, Jackeline Palmer, Thomas Ristenpart

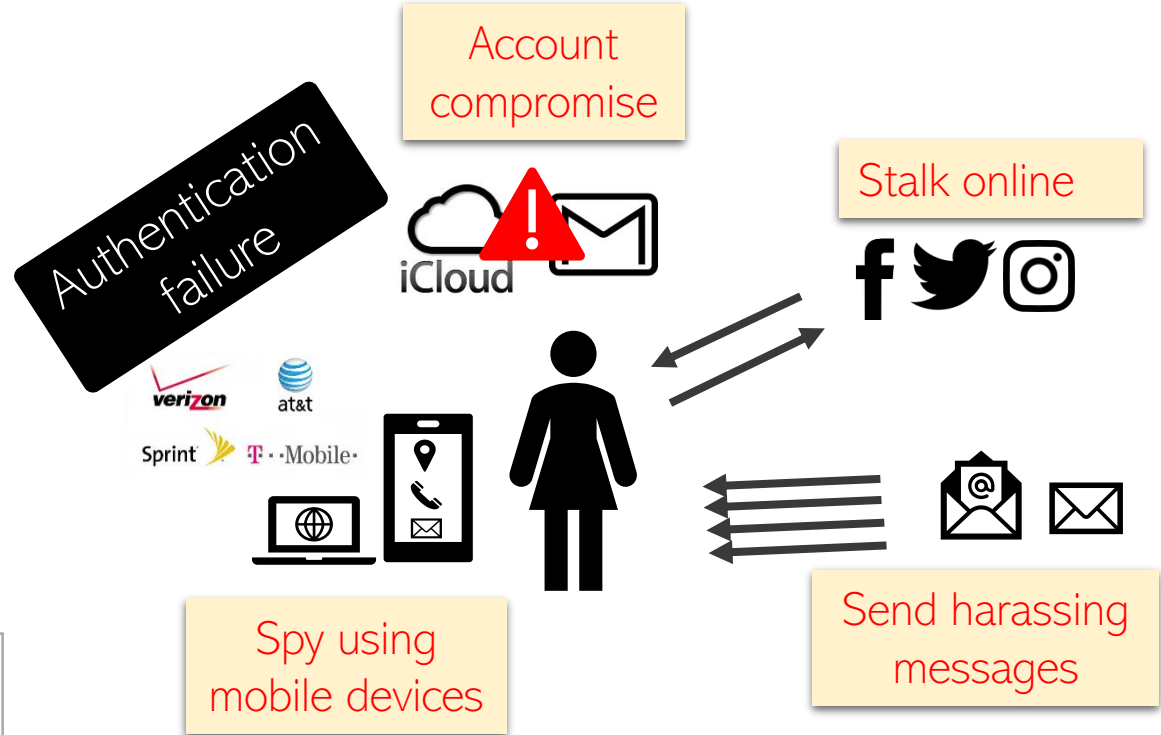
Technology abuse in Intimate Partner Violence (IPV)



1 in 4 women **1 in 10** men experienced IPV in their lifetime in US

Source: <https://www.cdc.gov/>, 2015

[Burke et al. '11], [Dimond et al. '11],
[Citron '15], [Woodlock et al '16],
[Matthews et al. '17], [Freed et al.'17, '18]



Authentication safeguards fails in IPV

Abuser

- has physical access
- knows passwords
- might own device



Abuser can **spy**
via mobile devices



Spying on intimate partner is both a form of violence
and facilitates other forms of violence.

*“An abusive partner **kicked in our front door** and wound up in the lobby of our building by tracking her phone . . . it was some **secondary application that the abuser had put on it and knew exactly where she was... it was scary.**”*

– Case manager

[Freed et al. CSCW '18]

A typical off-store spyware app



All-Inclusive Mobile Phone Spy

- ✓ Spy on all iOS and Android devices
- ✓ Track SMS, Call logs, App chats, GPS etc.
- ✓ No Rooting or Jailbreaking required
- ✓ Invisible mode, monitor the activity remotely

Source: <https://www.spyzie.com/ad/phone-spy.html>



Real-time
+ historical

Remotely record audio,
video, and alter settings

Smooth (ab)user experience with off-store spyware

How-to guides

Installing is easy

Whole process takes less than 5 min

On victim's device:

No app icon, no notification

On abuser end:

Fancy web UI or apps



On-store spyware:

Seemingly innocuous apps are used for spying

*“I’m looking for an app I can install on my wife’s phone that is **hidden** so that I can see **where she is or has been** via cell towers or gps.”*

*“[Install] **Cerberus** from the market. Once installed and configured, can be set to be invisible in the app drawer. You can also **record audio** and **take pictures remotely** with it! Be sure to **silence the camera** first though!”*



How do abusers find spying apps?

Need large number of query terms that an abuser might use

The image shows a Google search interface for the query "How to spy on my husband". The search bar at the top contains the text "How to spy on my husband" and a search icon. Below the search bar, there are tabs for "All", "Videos", "Shopping", "News", "Images", "More", "Settings", and "Tools". The "All" tab is selected. Below the tabs, it says "About 11,700,000 results (0.44 seconds)".

Four search results are highlighted with red boxes, each with an annotation pointing to it from the right:

- Result 1:** "How to Spy on My Husband's Cell Phone Without Touching It?" with a link to <https://besttrackingapps.com/spy-on-your-spouse/>. The snippet mentions "Dec 15, 2017 - Hundreds of people wonder 'how to spy on my husbands cell ... How Can I Track My Husbands Cell Phone Without Him Knowing and for Free? So, How to Spy on My ... · How to Catch a Cheating ... · How Can I Track My ...". An annotation points to this result: "Blogposts comparing spy apps".
- Result 2:** "How to Spy on My Husband's Phone Without Him Knowing! - YouTube" with a link to <https://www.youtube.com/watch?v=LBTF2jEECo>. The snippet mentions "Aug 18, 2016 - Uploaded by Richard Smith Cell Phone **Spying** Software - Track Anyone Via Phone With Ease .This is the BEST Monitoring Software and ...". An annotation points to this result: "Videos how-to guides".
- Result 3:** "How can i spy on my husband cell phone without touching his cell ..." with a link to smstrackers.com and "Tracking My Partner". The snippet mentions "The popularity of mobile **spy** software is increasing every passing day as worried wives want to confirm that their **husbands** are absolutely honest with them at all ...". An annotation points to this result: "Ad funnels for spy apps".
- Result 4:** "How can I spy on my husband cell phone without touching ... - Guestspy" with a link to guestspy.com and "can-spy-husband-cell-phone-without-touching-cell/". The snippet mentions "Jan 10, 2017 - How can I **spy on my husband** cell phone without touching his cell. GuestSpy is a strong tracking tool with a few attributes that are truly ...". An annotation points to this result: "Spy app websites".

Search engines give query suggestions

how to spy on my

how to spy on my **husband**

how to spy on my **boyfriends phone**

how to spy on my **boyfriends iphone**

how to spy on my **girlfriends iphone**

how to spy on my **husband iphone**

how to spy on my **boyfriends facebook messages**

how to spy on my **husband phone**

how to spy on my **son's iphone**

how to spy on my **bf phone**

how to spy on my **wifi network**

Searches related to how to spy on my husband

track my husbands phone for free

track my husbands phone without him knowing

how **can i find out who** my husband is **texting for free**

cheaters spy app free

how **can i track** my **husbands cell phone** without him knowing and for free

how to **hack** my **husbands whatsapp**

how **can i track** my **husbands phone location**

spy on **cell phone** without touching target phone

Snowball searching on Google

23 off-store
spyware apps



...And several links to apps on
official app stores

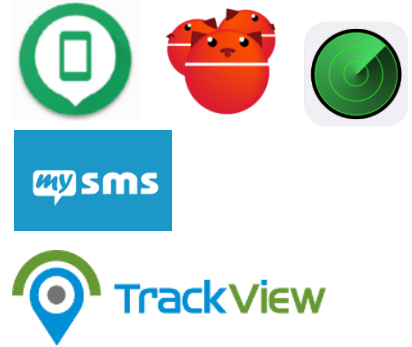
Found 4,102
apps usable
for spying

iTunes App Store:
572 apps capable
of spying

Taxonomy of dual-use/spyware apps

Personal tracking

- Find my phone or Anti-theft
- Automatic call recorder
- Automatic data/SMS syncing
- Phone control
- Personal safety



Mutual tracking

- Find-my-family / friend
- Couple tracking



Subordinate tracking

- Employee tracking
- Parental control



**Are app developers complicit in
spying on intimate partner?**

Some are promoting spying on intimate partners

HelloSpy Home Features Plans & Pricing Sign Up How To Install

Mobile Spy App for Personal Catch Cheating Spouses

Home Uses HelloSpy for Bussiness

Cheating by the numbers...

One of the unpleasant truths most married individuals are blissfully ignorant of is the surprisingly high occurrence of infidelity & extramarital affairs.

According to a study by Joan D. Atwood & Limor Schwartz, published in 2002, by the Journal of Couple & Relationship Therapy, 45-55% of married women and 50-60% of married men engage in extramarital sex at some time or another during their relationship. If that is not alarming enough, another study puts the average nonpaternity rate at above 3.3%, or in other words, 33 children in every thousand are not fathered by the man everybody thinks they are...



Spyzie

How to Spy on My Cheating Wife

You can find out if your wife is cheating on you. However, hiring a private detective to spy on y find out the truth may cost hundreds or thousands of dollars and may or may not produce res

thetruthSPY HOME FEATURES PRICES DOWNLOAD AFFILIATES

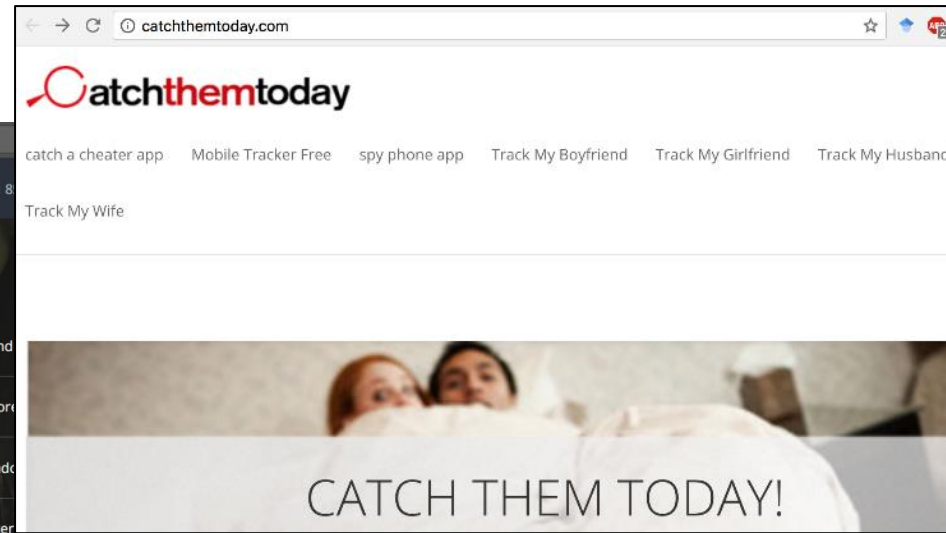
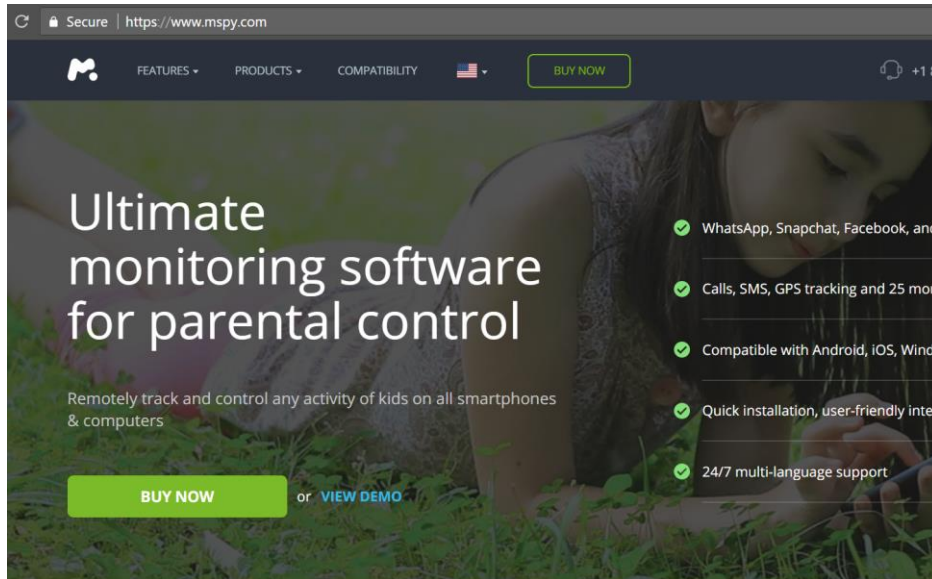
How to spy on cheating husband mobile spy app free

November 14, 2014 2:56PM

by: Allen Johnson

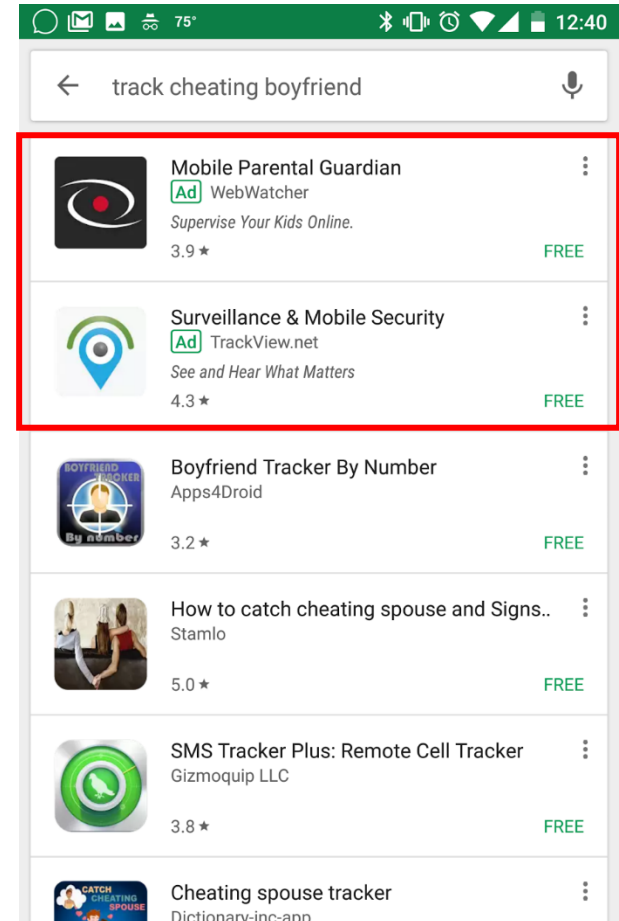
Others are condoning spying on intimate partners

- Suspicious redirect from blogposts discussing spying on intimate partner to app websites



Others are condoning spying on intimate partners

- Suspicious redirect from blogposts discussing spying on intimate partner to app websites
- Paid ads coming up on search
- Customer support give a blind eye



Others are condoning spying on intimate partners

Jessie:

Hi, If I use this app to track my husband, will he know that I am tracking him?

WebWatcher:

For Android monitoring the app can be hidden from the home screen ...

9 responses:

8 condoned IPS

1 admonished against such use

Impact of our study



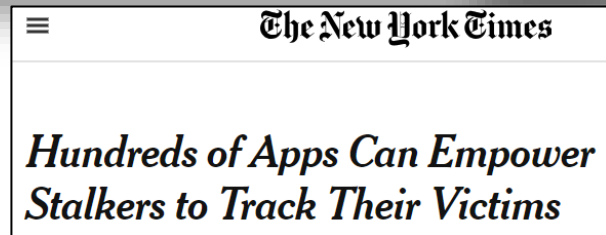
Google Ads

Restricted ad-serving on
IPV-related search terms



Took action against
violating apps and videos

Raised
awareness



BLUMENTHAL SEEKS ANSWERS ON STALKING THREATS FROM DIGITAL TRACKING APPS

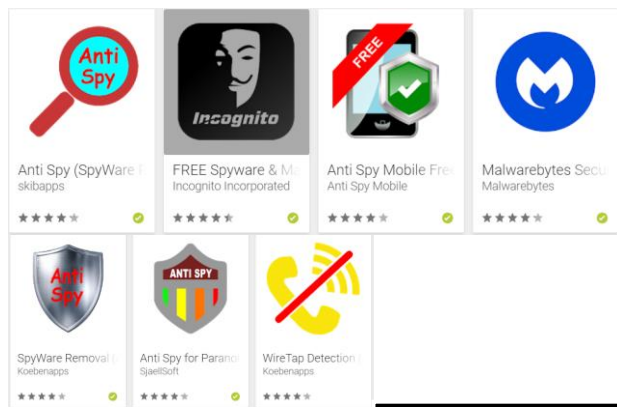
[WASHINGTON, D.C.] – In letters to over a dozen developers of digital tracking applications, U.S. Senator Richard Blumenthal (D-CT) called on companies to explain what measures their products have enacted to prevent abuse by stalkers and to secure consumer data. Recent investigations by the New York Times, Motherboard, and academic researchers have demonstrated that the open market for digital surveillance products have become an increasing threat in stalking and domestic violence. Exacerbating these harms, several companies that provide such tracking apps have suffered data breaches that exposed the private communications and information collected from victims.

Dual-use apps will/should remain on stores.

We need **detection tools**
to help (potential) victims

Are anti-spyware tools effective?

- Tested 40 anti-spyware apps available in Play Store



Current anti-spyware apps
do not flag
dual-use apps as threat

“State-of-the-art” spyware detection remains:

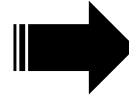
Battery Draining Fast



or

+

Feel being spied on



Getting hot



How can we help victims?

New Approach: **Clinical computer security**



Medical consultation



Legal counselling

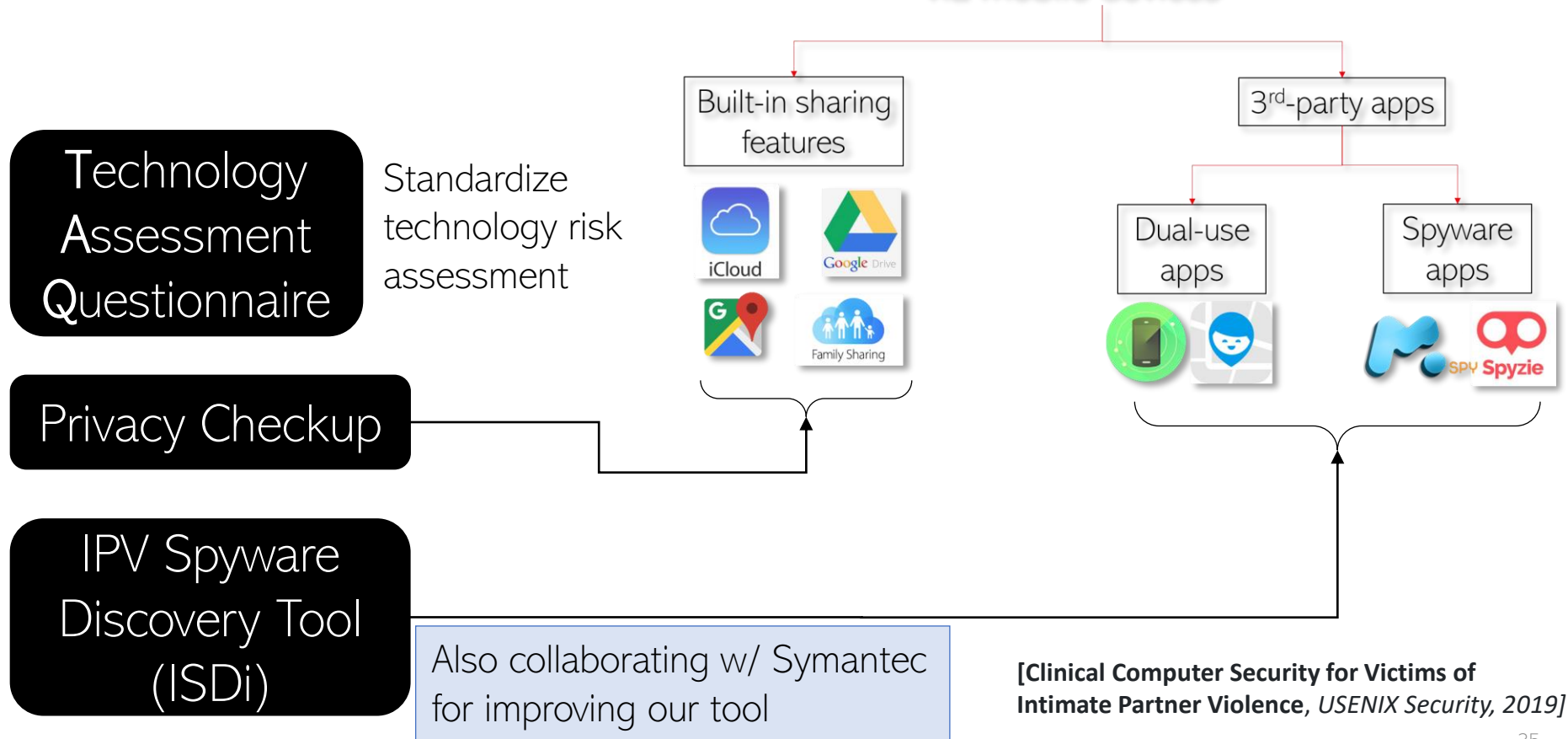


Tax consultation



Build tools for consultation

Spy on intimate partner
via mobile devices



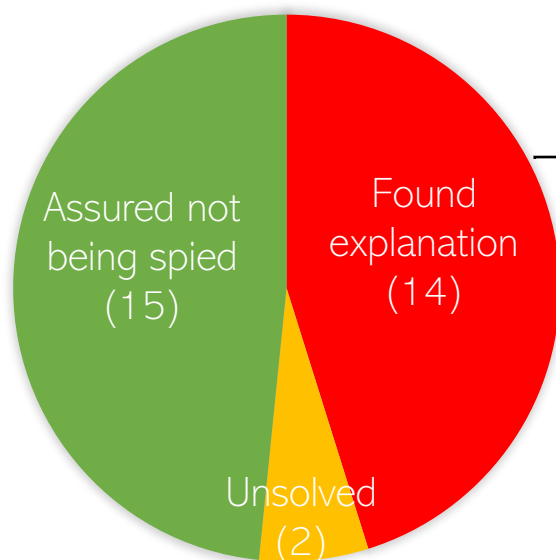
Running client consultation with ENDGBV (NYC)

NYC Mayor's Office to End Domestic and Gender-Based Violence

Nov '18 – Feb '19

- 31 clients
 - 33 client consultations
 - 77 devices
- Lots of demand!

- 3 (potential) spyware
- 8 abusive configurations
- 8 accounts compromised

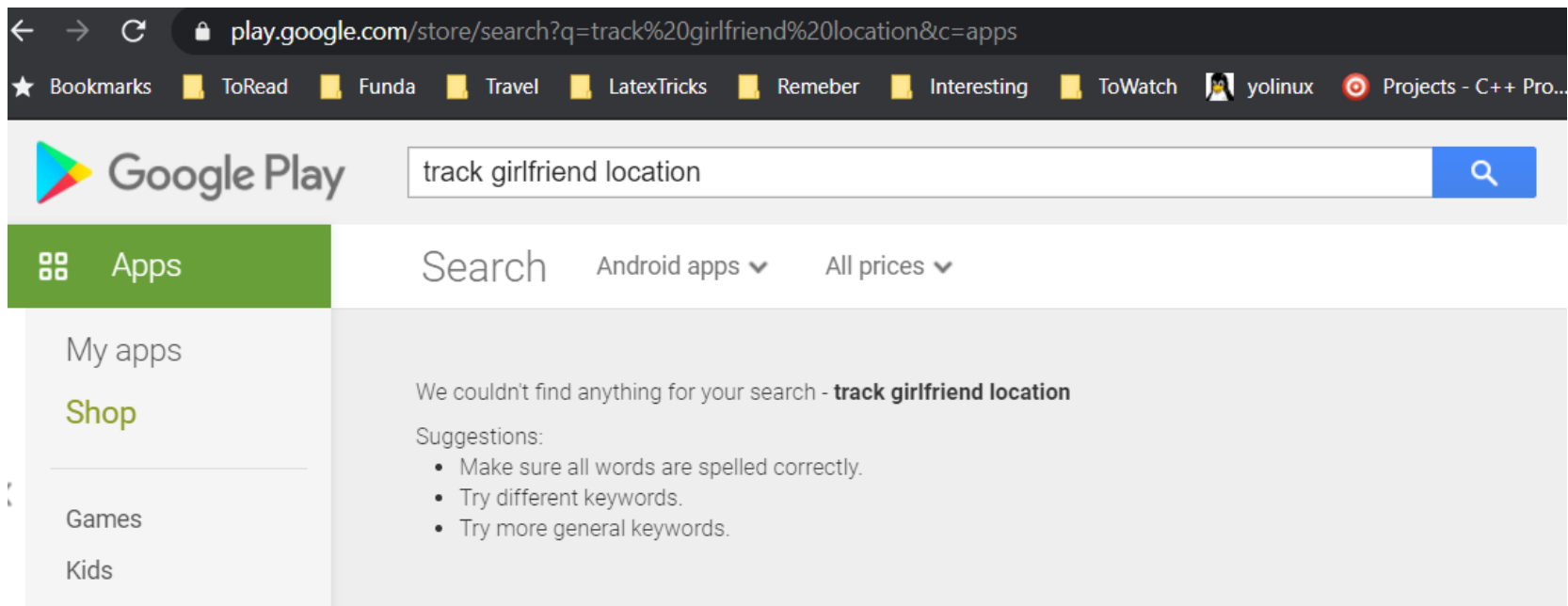


Clients and professionals working with them are very positive about our approach

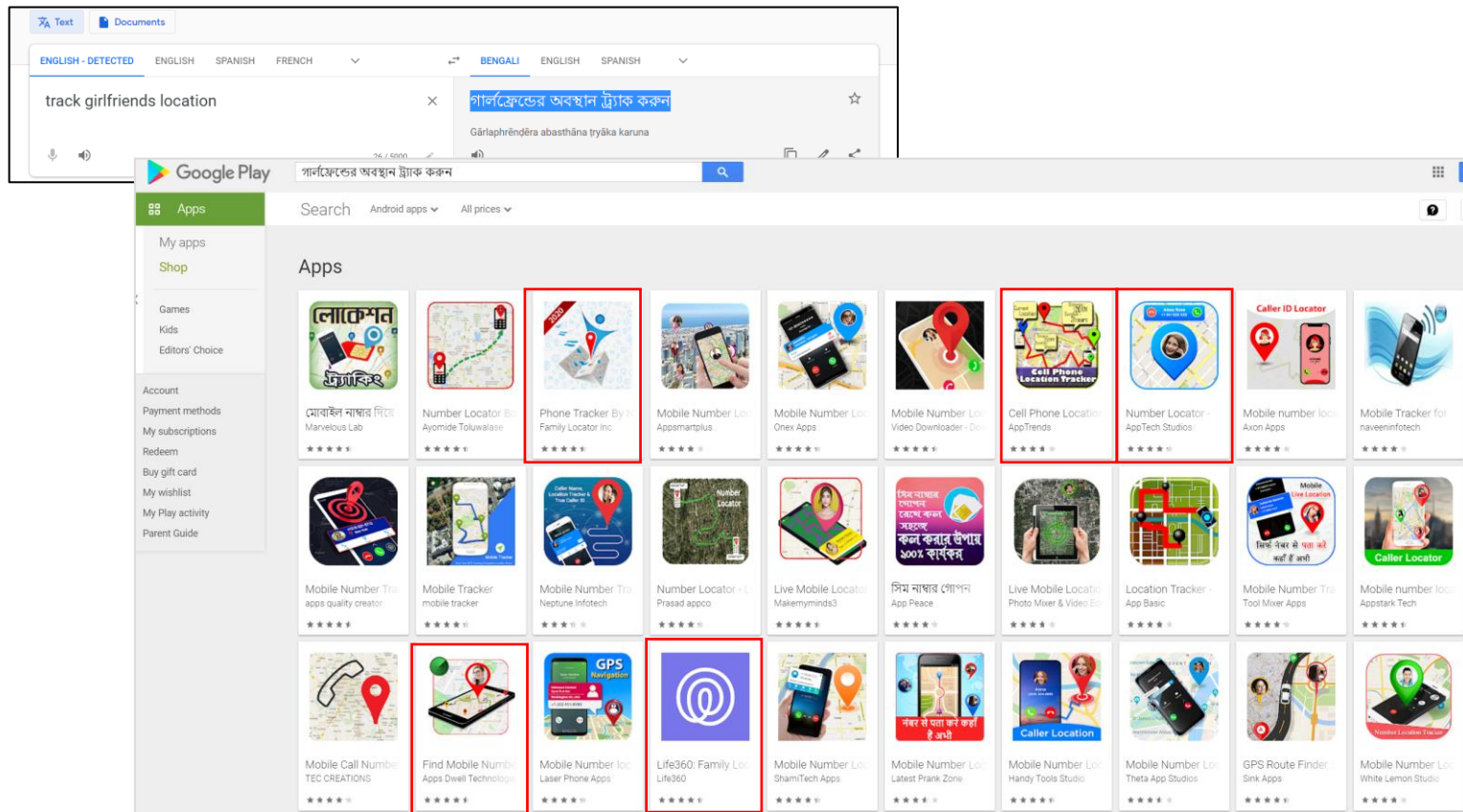


What's next!

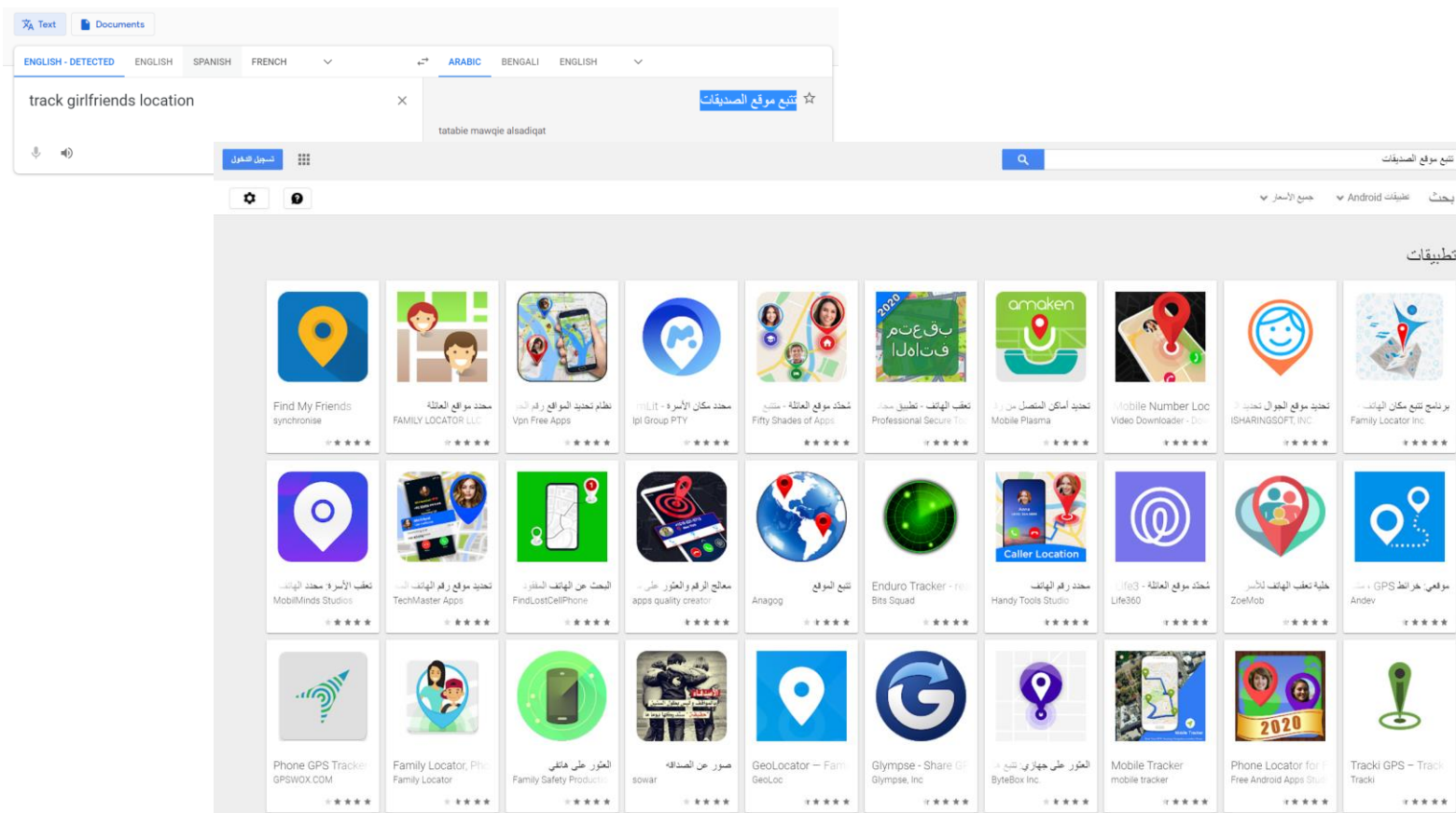
Dual Use apps in other languages



Dual Use apps in other languages



Dual Use apps in other languages





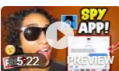
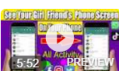
Abusers and Survivors
get disparate amount
of help from search
engines

How to spy on my girlfriend

Search filters: All Videos Shopping News Images More Settings Tools

About 81,900,000 results (0.43 seconds)

Videos

-  **How to Know if Your Girlfriend is Cheating on You** 🆓 Free ...
YouTube · FlixHD Guides
Jan 26, 2020
-  **Best FREE SPY APP (iPhone/Android) Spy On Someone's ...**
YouTube · Termie16
Jul 8, 2020
-  **How to Know if Your Girlfriend/Boyfriend is Cheating on You ...**
YouTube · Jordan Jennings
Aug 11, 2020
-  **See your GF Phone Screen Without knowing Her | Android**
YouTube · TechGiant
Nov 14, 2019

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[www.sciencetimes.com](#) › articles › top-5-tips-to-spy-on...
Top 5 Tips to Spy on My Girlfriend's Phone | Science Times
Jul 10, 2020 — Top 5 Tips to **Spy** on **My Girlfriend's** Phone · 1). Spyc · Spying on Phone with the help of Spyc (For iOS) · 2). Spyer · 3). Minspy · 4). Spynie · 5).

[techstory.in](#) › how-to-spy-on-girlfriends-phone-without...
How to Spy On Girlfriend's Phone without Touching It ...
Jul 17, 2020 — The **Spyer** app is a 2MB-sized app. Download and install this app on **your girlfriend's** device. Don't worry, she won't find out that the app is ...

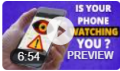



[spyine.com](#) › mobile-spy › spy-on-girlfriend-phone
How to Spy on My Girlfriend's Phone Without Her Knowing for ...
How to Spy on My Girlfriend's Phone. April 10, 2020. Your girlfriend comes home late, is too busy to pick up your calls, and is generally acting off. You think she's ...

How to know if my phone is being tracked

Search filters: All Videos Images News Maps More Settings Tools

About 82,300,000 results (0.60 seconds)

Videos

-  **Is someone tracking you WITHOUT your knowledge? Look for ...**
YouTube · Liron Segev
May 5, 2020
-  **Find Out Who's Tracking You Through Your Phone**
YouTube · BRIGHT SIDE
Aug 24, 2017
-  **How To Know Who's Tracking Your Phone | Who's tracking me ...**
YouTube · SCENEONE TV
Apr 2, 2019
-  **How to know if your location is being tracked**
YouTube · JRESHOW
Jan 30, 2014

[View all](#) [Feedback](#)

[www.androidauthority.com](#) › spying-tracking-android...
How to tell if someone is spying or tracking my Android phone
Mar 23, 2016 — How can you even **know** if **your Android phone** or tablet is **being monitored**, spied on or tracked? It's a bit tricky, but there are a few red flags you ...

[www.welivesecurity.com](#) › 2015/01/29 › how-to-spot-a...
Are you being tracked? How to spot a tracking app on your ...
Jan 29, 2015 — There are a number of **tell-tale signs** that **your phone** might be **tracking** you without **your** knowledge and reporting on **your** every communication.

[pixelprivacy.com](#) › Resources
Is Someone Spying on Your Cell Phone? 10 Ways to Tell ...
There are a few **signs** that should ring the alarm bells and could point to the possibility of **your cell phone** being infected with spy software that is either **tracking** ...

Intimate Partner Surveillance and How to Stop it

In-depth analysis of
US IPS app ecosystem

Current anti-spyware
doesn't flag IPS apps

Tech Clinic to help
survivors from IPS

Moving forward:

Analyzing IPS app
ecosystem globally

How search engines
are failing IPV victims

Thanks!

 @rhlchatterjee



chatterjee@cs.wisc.edu

Installing off-store spyware is easy

Android's native
Anti-spyware

Play Protect might
come into way

Installation blocked



System Service

This app can be used to spy on you.

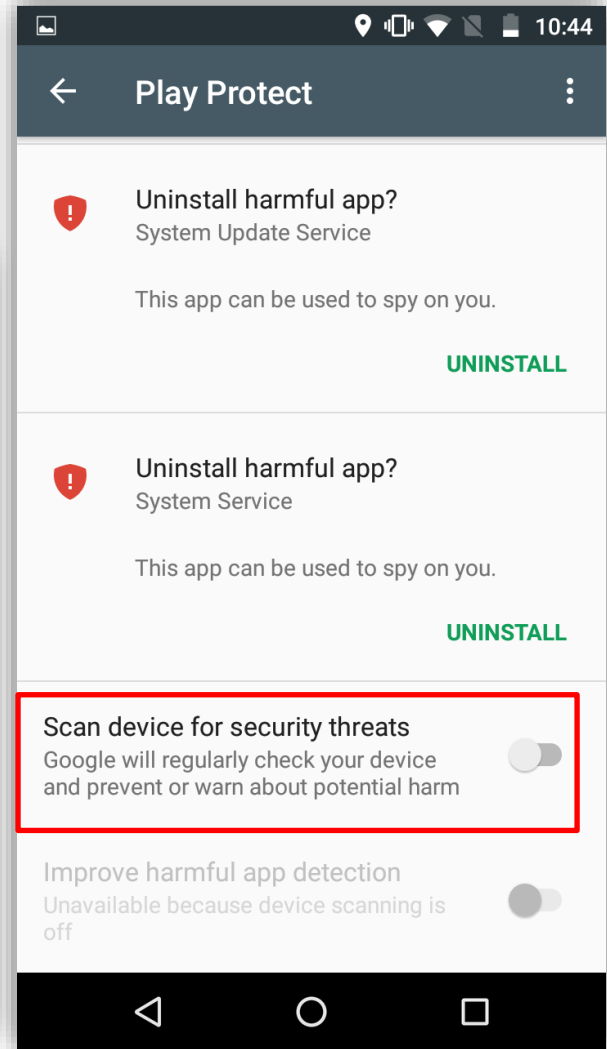
More details



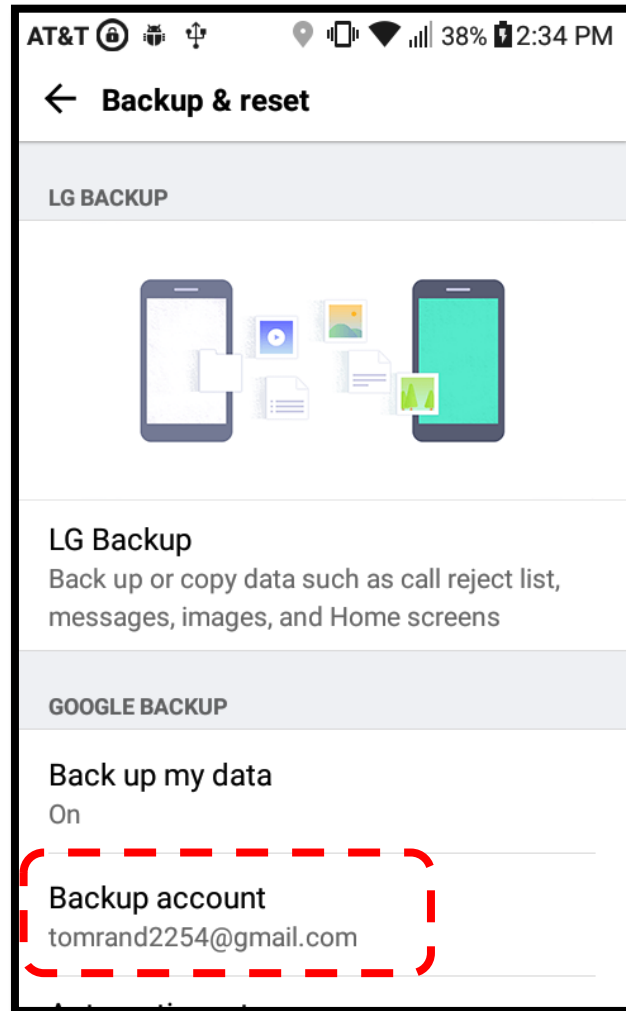
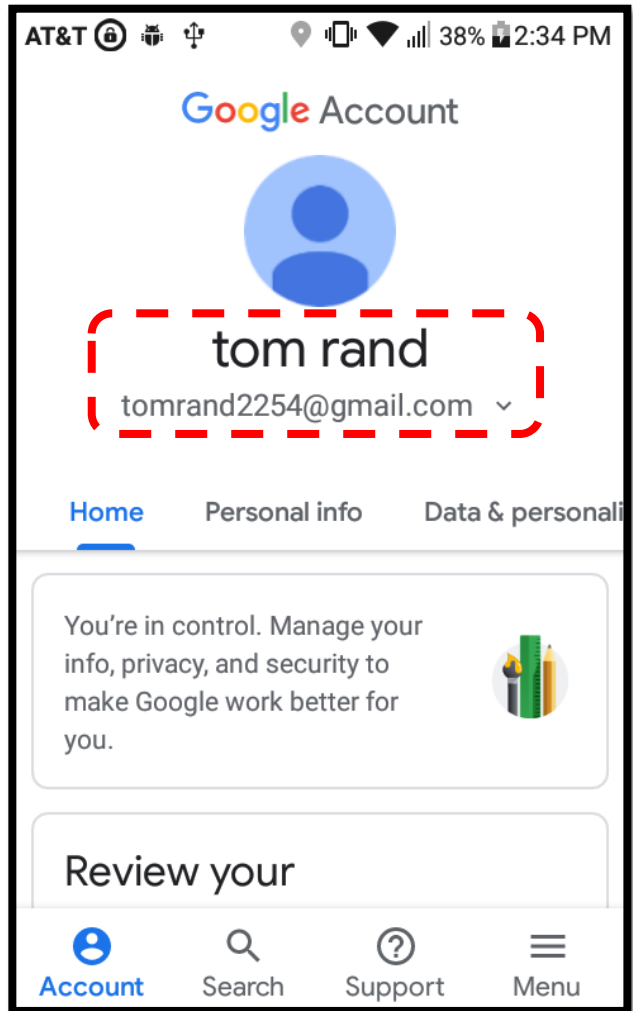
Even if you have heard of this app or the app developer, it's still dangerous to install an app from an untrusted source.

[Install anyway \(unsafe\)](#)

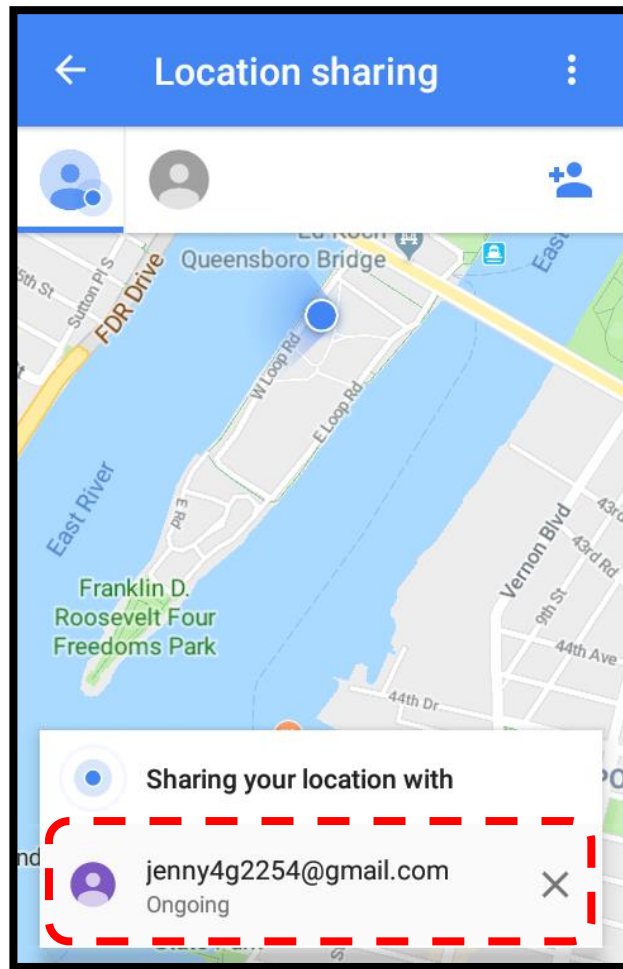
OK



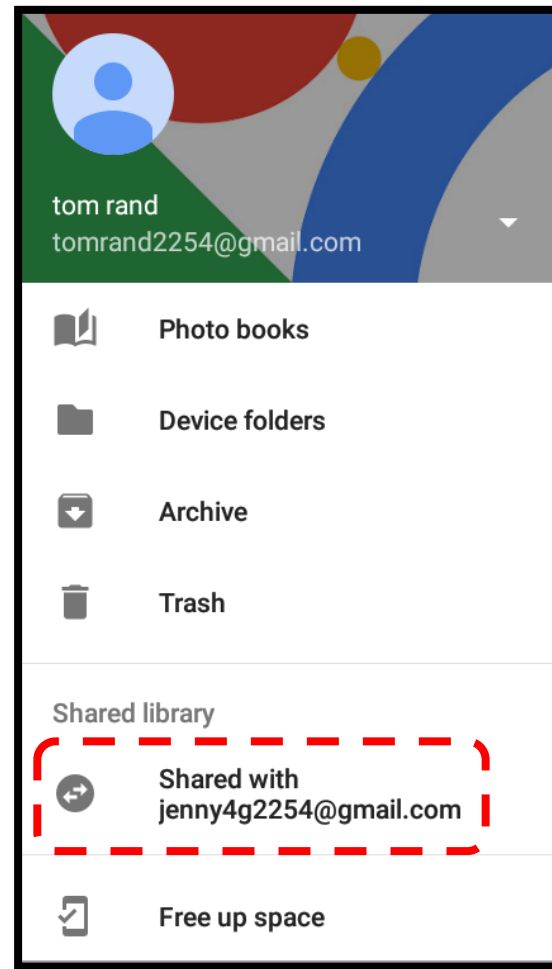
Privacy Checkup



Privacy Checkup



Google Maps



Google Photos