

Exhibit 18

Sent: Mon 8/16/2021 7:03:57 PM (UTC)
From: yangliu@google.com
To: yangliu@google.com, romkal@google.com, taliaf@google.com
Subject: AAAAorcOyEI-MBI-THREADED:Mjf2XoHZTLw%%2021-08-16T00:03:56.790175

yangliu@google.com 2021-08-16T19:03:56.790Z

@Roman Kalukiewicz In Family Link & Location Sharing chatroom, multiple people reported that their kid can use Samsung store to install any apps to a Samsung phone with Unicorn account in it

yangliu@google.com 2021-08-16T19:04:23.476Z

I thought we have a restriction to disable install from unknown sources by default?

romkal@google.com 2021-08-16T19:04:47.115Z

It is not an unknown source I guess..

yangliu@google.com 2021-08-16T19:05:02.692Z

why is it not?

yangliu@google.com 2021-08-16T19:05:14.963Z

is it up to manufacturer to decide, or up to Google to decide?

yangliu@google.com 2021-08-16T19:05:38.363Z

I thought that any source other than Google Play store is considered unknown sources

yangliu@google.com 2021-08-16T19:06:05.660Z

but maybe manufacturer can override that restriction?

yangliu@google.com 2021-08-16T19:06:20.162Z

if that's the case, it defeated the purpose of our parental control

yangliu@google.com 2021-08-16T19:08:37.833Z

we should talk to PM -- that our promise to parents are no longer true. We can choose to implement something to block all other stores (not sure if feasible), or inform parents with a disclaimer or something, e.g. ask them to remove the Samsung account and/or block Samsung app store, etc

yangliu@google.com 2021-08-16T19:10:07.370Z

@Talia Fukuroe FYI

romkal@google.com 2021-08-16T19:28:51.680Z

I'm not 100% sure how this "Block unknown sources" work, but I believe this is about installing downloaded apks from webpages directly. Not through an installer app that is on the system image.

romkal@google.com 2021-08-16T19:30:44.707Z

<https://developer.android.com/distribute/marketing-tools/alternative-distribution#unknown-sources>

<https://developer.android.com/distribute/marketing-tools/alternative-distribution#unknown-sources>

romkal@google.com 2021-08-16T19:30:51.702Z

romkal@google.com 2021-08-16T19:38:17.187Z

https://developer.android.com/reference/android/os/PackageManager#DISALLOW_INSTALL_UNKNOWN_SOURCES

https://developer.android.com/reference/android/os/PackageManager#DISALLOW_INSTALL_UNKNOWN_SOURCES

romkal@google.com 2021-08-16T19:38:39.227Z

"Unknown sources exclude adb and special apps such as trusted app stores."

romkal@google.com 2021-08-16T19:46:01.441Z

So specifically the problem is that the MPAA, ESRB and other content restrictions do not apply to other stores? And that they don't require parental consent for installs?

romkal@google.com 2021-08-16T19:48:33.920Z

@Yang Liu Do I remember correctly that all those parental approvals are a feature of Play Store?

romkal@google.com 2021-08-16T19:50:05.747Z

In order to handle this correctly we would need to automatically block newly installed apps (if installed from outside of Play) and gather consent from parents withing FL ecosystem?

romkal@google.com 2021-08-16T20:04:16.425Z

According to

https://source.corp.google.com/android/frameworks/base/packages/PackageInstaller/src/com/android/packageinstaller/PackageInstallerActivity.java;l=253;bpv=1;bpt=1;rcl=HEAD?q=DISALLOW_INSTALL_UNKNOWN_SOURCES%20&sq=package:android an app is considered "trusted" if it has `PRIVATE_FLAG_PRIVILEGED` flag. But I'd guess Samsung would put it on the Samsung Store.

https://source.corp.google.com/android/frameworks/base/packages/PackageInstaller/src/com/android/packageinstaller/PackageInstallerActivity.java;l=253;bpv=1;bpt=1;rcl=HEAD?q=DISALLOW_INSTALL_UNKNOWN_SOURCES%20&sq=package:android

yangliu@google.com 2021-08-16T23:07:53.685Z

You are right. They reported that their kids have Samsung account on the phone, side by side with the Unicorn account. With Samsung account and Samsung app store (a preinstalled app on Samsung phone), they can install any app without content rating check or parent approval

yangliu@google.com 2021-08-16T23:09:39.167Z

Looks like the experience can be explained by the current implementation, in another word, it's not a bug. Whether we want to do anything about it is a product question. I personally feel we need to do something

yangliu@google.com 2021-08-16T23:10:12.239Z

Otherwise the protection of inappropriate apps is circumvented

yangliu@google.com 2021-08-16T23:10:30.219Z

@Wendi Rieb

taliaf@google.com 2021-08-16T23:25:19.437Z

Catching up on the thread, let me see if I can summarize (@Leota Tennant FYI)...

1. Samsung has its own "app store" on Samsung phones.

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2. Our app restrictions/filtering are in Play Store, which means that even on a Unicorn supervised device, if a kid has a Samsung account they can download whatever they want from the Samsung store.

3. Samsung store app is pre-installed on every Samsung phone

Questions I have:

Q1: Does the Samsung store app show up in the list of apps on the device that the parent agrees to during supervised device onboarding?

Q2: Do Samsung accounts ask for age, allow users under 13, have parental restrictions of their own, etc?

Q3: Is something here new somehow, or has it always been true? I'm surprised if this has always been true and we're only seeing it now after 5 years (or maybe we made this decision before and aren't remembering?)

Q4: Yang and Roman: If we did decide to do something here, what would our options be? It wouldn't just be for Samsung store, it would also need to apply to Amazon app store, F-Droid, and others, I would think...

romkal@google.com 2021-08-16T23:53:08.458Z

A3. I'm almost sure that it is nothing new. Reading the code it seems that it was the case at least from Oreo unless Samsung was not setting the `FLAG_PRIVILEGED` on their store before (hard to believe).

A4. The problem applies to app stores that were on the system image. If you installed some app store from an apk, it would be treated as untrusted source.

Updated on2021-08-16T23:53:31.985Z

A1. It should show up and we should be able to disable it.A3. I'm almost sure that it is nothing new. Reading the code it seems that it was the case at least from Oreo unless Samsung was not setting the `FLAG_PRIVILEGED` on their store before (hard to believe).

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Updated on2021-08-16T23:53:39.685Z

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yangliu@google.com 2021-08-17T00:14:15.402Z

As to A4, I'm thinking about some disclaimer to inform parents that their kids might be able to by-pass content filtering and approval from 3rd party app stores.

taliaf@google.com 2021-08-17T00:16:43.789Z

Yang and Roman: Since this is a sensitive discussion, I'm going to move it to a smaller room

romkal@google.com 2021-08-17T00:16:56.287Z



romkal@google.com 2021-08-17T00:18:07.934Z

Group chat.. with the history off ;)

taliaf@google.com 2021-08-17T00:21:06.462Z

(anyone here who needs to be in the discussion, ping me/roman/yang to be added)