Malware Displaying Porn Ads Discovered in Game Apps on Google Play

research.checkpoint.com/malware-displaying-porn-ads-discovered-in-game-apps-on-google-play/

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Check Point Researchers have revealed a new and nasty malicious code on Google Play Store that hides itself inside around 60 game apps, several of which are intended to be used by children. According to Google Play's data, the apps has so far been downloaded between 3 million and 7 million times.

How It Works

Dubbed 'AdultSwine', these malicious apps wreak havoc in three possible ways:

1. Displaying ads from the web that are often highly inappropriate and pornographic.
2. Attempting to trick users into installing fake 'security apps'.
3. Inducing users to register to premium services at the user's expense.

Apart from these current three main activities, the malicious code can use its infrastructure to broaden its goals to other purposes, such as credential theft.

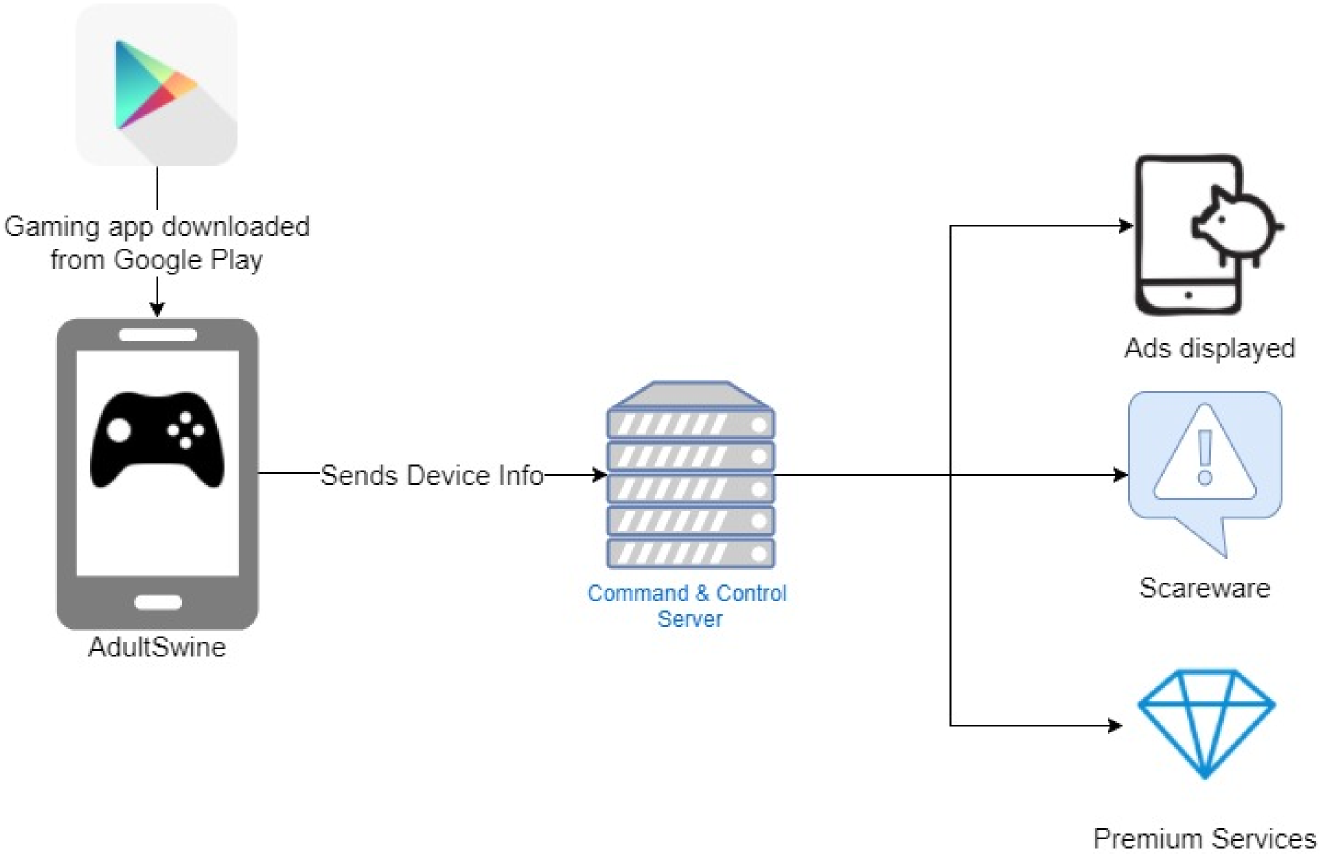


Figure 1: *AdultSwine operation flow*

Once the malicious app is installed on the device, it waits for a boot to occur or for a user to unlock his screen, upon which it initiates its malicious activity.

Illegitimate and Inappropriate Ads

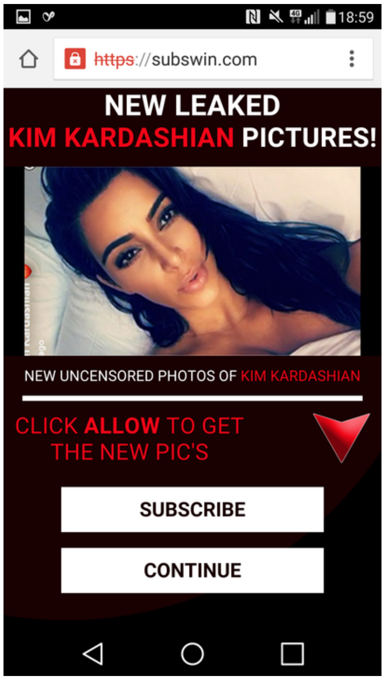
First, the malicious code contacts its Command and Control server (C&C) to report the successful installation, sends data about the infected device and then receives the configurations, which determine its course of operation. These configurations instruct it on whether to hide its icon (to encumber removal), which ads to display, over which apps and on what terms. It is interesting to note that the server however forbids ads to be displayed over certain apps such as browsers and social networks, in order to avoid suspicion.

The malicious code then verifies certain conditions regarding the device's status and checks which app is currently running on screen. Once all its terms are met, it begins to display the illegitimate ads outside of the app's context. If it is embedded inside a web browser app the ads will be displayed inside that browser, if not they will be displayed inside a designated web view.

As for the ads being displayed, they come from two main sources; the first is that of the main ad providers, which forbid such illegitimate display of their ads. The second is the malicious code's own ad library, which contains ads of an offensive nature, including pornographic ads.

All these are displayed to children while playing the game that the app is masquerading as.

Below is a mild example of the ads presented and a comment from one of the victims, whose son had an unfortunate experience.



NEW LEAKED
KIM KARDASHIAN PICTURES!

NEW UNCENSORED PHOTOS OF KIM KARDASHIAN

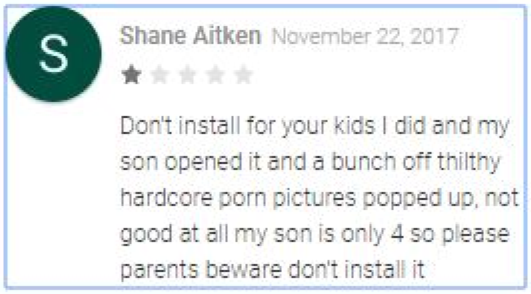
CLICK ALLOW TO GET
THE NEW PIC'S

Figure 2: *Examples of ad displayed and user reviews on Google Play*

Scareware – Deceptive App Install Tactics

Another course of action the malicious app pursues is scaring users into installing unnecessary and even harmful “security” apps.

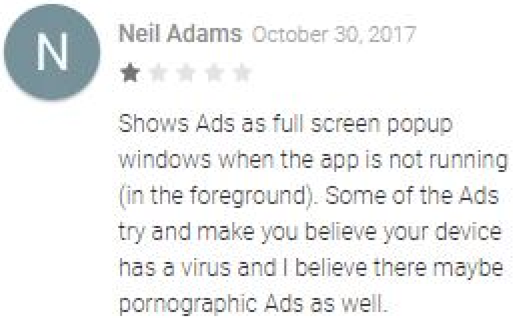
First, the malicious app displays an ad that claims the user’s device is infected by a virus. Should the user press the notification of “Remove Virus Now” he is redirected to an app in the Google Play Store with a somewhat questionable connection to virus removal. An experienced eye could easily foresee this tactic, though a child playing a game app is easy prey for such nefarious apps.



Shane Aitken November 22, 2017

★☆☆☆☆

Don't install for your kids I did and my son opened it and a bunch off thilthy hardcore porn pictures popped up, not good at all my son is only 4 so please parents beware don't install it



Neil Adams October 30, 2017

★☆☆☆☆

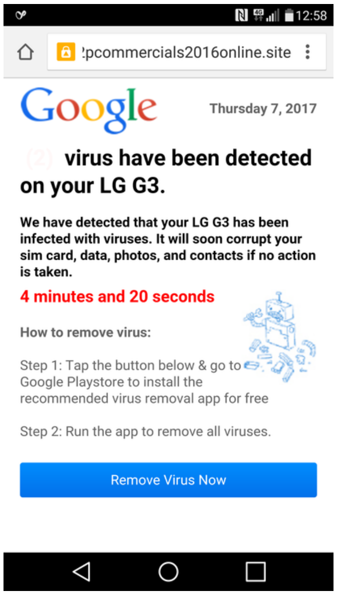
Shows Ads as full screen popup windows when the app is not running (in the foreground). Some of the Ads try and make you believe your device has a virus and I believe there maybe pornographic Ads as well.

Figure 3 *– Left image: Scareware Ad Displayed*
Centre image: The redirect ‘anti-virus’ app in Google Play.
Right image: User reviews in Google Play

Registering To Premium Services

Another technique used by the malicious app is registering to premium services and charging the victim’s account for fraudulent premium services they did not request to send or receive. In a similar way to the scareware tactic seen above, the malicious app initially displays a pop-up ad, which attempts to persuade the user to click through.

This time however, the ad claims that the user is entitled to win an iPhone by simply answering four short questions. Should the user answer them, the malicious code informs the user that he has been successful, and asks him to enter his phone number to receive the prize. Once entered, the malicious code then uses this number to register to premium services.



Thursday 7, 2017

(2) virus have been detected on your LG G3.

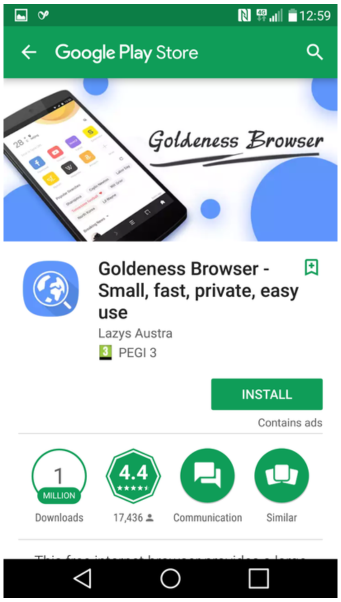
We have detected that your LG G3 has been infected with viruses. It will soon corrupt your sim card, data, photos, and contacts if no action is taken.

4 minutes and 20 seconds

How to remove virus:

Step 1: Tap the button below & go to Google Playstore to install the recommended virus removal app for free

Step 2: Run the app to remove all viruses.



Goldeness Browser - Small, fast, private, easy use

Lazys Austra

PEGI 3

The flow is presented in the images below.

Notification of Winning the iPhone *Request to Enter Phone Number*

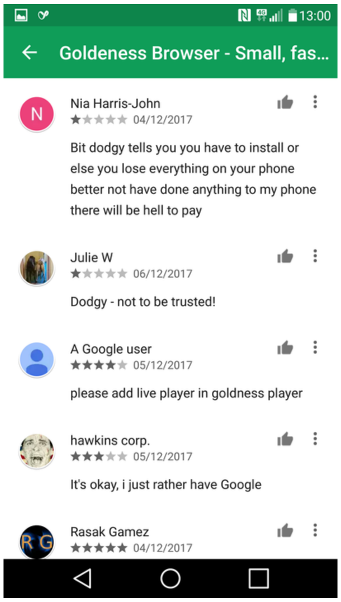
A Comprehensive Threat

Although for now this malicious app seems to be a nasty nuisance, and most certainly damaging on both an emotional and financial level, it nevertheless also has a potentially much wider range of malicious activities that it can pursue, all relying on the same common concept.

The malicious code simply receives a target link from its Command and Control server and displays it to the user. While in some cases this link is merely an advertisement, it could also lead to whatever social engineering scheme the hacker has in mind.

Indeed, these plots continue to be effective even today, especially when they originate in apps downloaded from trusted sources such as Google Play.

Appendix 1 – List of App Names



Goldeness Browser - Small, fas...

Nia Harris-John
★☆☆☆☆ 04/12/2017

Bit dodgy tells you you have to install or else you lose everything on your phone better not have done anything to my phone there will be hell to pay

Julie W
★☆☆☆☆ 06/12/2017

Dodgy - not to be trusted!

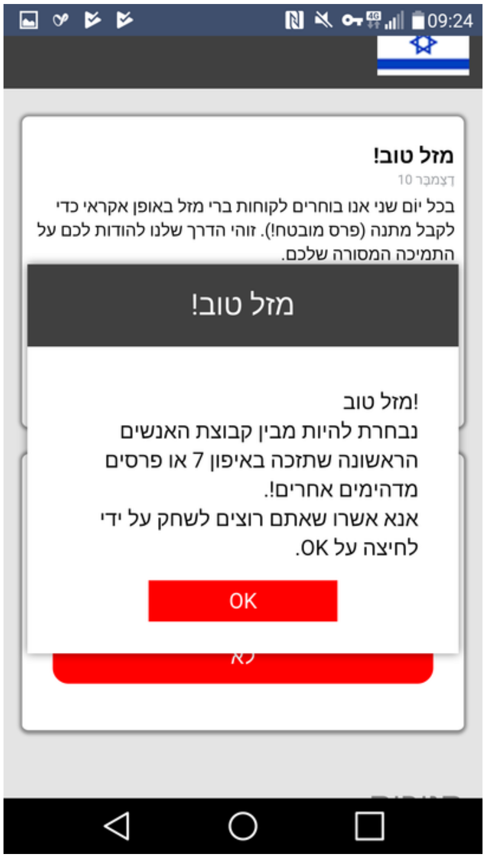
A Google user
★★★★☆ 05/12/2017

please add live player in goldness player

hawkins corp.
★★★☆☆ 05/12/2017

It's okay, i just rather have Google

Rasak Gamez
★★★★★ 04/12/2017



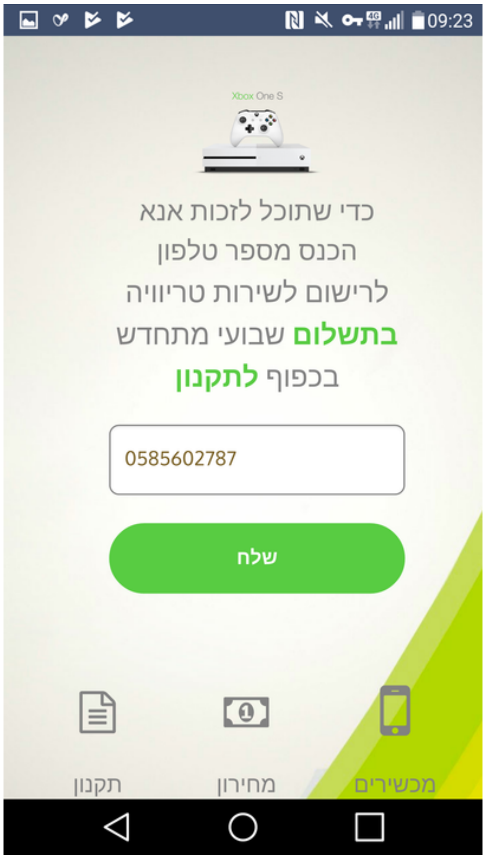
מזל טוב!

דצמבר 10

בכל יום שני אנו בוחרים לקוחות ברי מזל באופן אקראי כדי לקבל מתנה (פרס מובטח!). זוהי הדרך שלנו להודות לכם על התמיכה המסורה שלכם.

מזל טוב!

!מזל טוב
נבחרת להיות מבין קבוצת האנשים הראשונה שתזכה באיפון 7 או פרסים מדהימים אחרים!.
אנא אשרו שאתם רוצים לשחק על ידי לחיצה על OK.



כדי שתוכל לזכות אנא
הכנס מספר טלפון
לרישום לשירות טריוויה
בתשלום שבועי מתחדש
בכפוף **לתקנון**

0585602787

App Name	Minimum Downloads	Maximum Downloads
Five Nights Survival Craft	1,000,000	5,000,000
Mcqueen Car Racing Game	500,000	1,000,000
Addon Pixelmon for MCPE	500,000	1,000,000
CoolCraft PE	100,000	500,000
Exploration Pro WorldCraft	100,000	500,000
Draw Kawaii	100,000	500,000
San Andreas City Craft	100,000	500,000
Subway Banana Run Surf	100,000	500,000
Exploration Lite : Wintercraft	100,000	500,000
Addon GTA for Minecraft PE	100,000	500,000
Addon Sponge Bob for MCPE	100,000	500,000
Drawing Lessons Angry Birds	50,000	100,000

Temple Crash Jungle Bandicoot	50,000	100,000
Drawing Lessons Lego Star Wars	50,000	100,000
Drawing Lessons Chibi	50,000	100,000
Girls Exploration Lite	10,000	50,000
Drawing Lessons Subway Surfers	10,000	50,000
Paw Puppy Run Subway Surf	10,000	50,000
Flash Slither Skin IO	10,000	50,000
Invisible Slither Skin IO	10,000	50,000
Drawing Lessons Lego Ninjago	10,000	50,000
Drawing Lessons Lego Chima	5,000	10,000
Temple Bandicoot Jungle Run	1,000	5,000
Blockcraft 3D	1,000	5,000
Jungle Survival Craft 1.0	1,000	5,000
Easy Draw Octonauts	1,000	5,000
halloweenskinsforminecraft	1,000	5,000
skinsyoutubersmineworld	1,000	5,000
youtubersskins	1,000	5,000
DiadelosMuertos	500	1,000
Draw X-Men	500	1,000
Moviesskinsforminecraft	500	1,000
Virtual Family – Baby Craft	500	1,000
Mine Craft Slither Skin IO	500	1,000
Guide Clash IO	100	500
Invisible Skin for Slither IO app	100	500
Zombie Island Craft Survival	100	500
HalloweenMakeUp	100	500

ThanksgivingDay	100	500
ThanksgivingDay2	100	500
Jurassic Survival Craft Game	100	500
Players Unknown Battle Ground	100	500
Subway Bendy Ink Machine Game	100	500
Shin Hero Boy Adventure Game	100	500
Temple Runner Castle Rush	100	500
Dragon Shell for Super Slither	100	500
Flash Skin for Slither IO app	50	100
AnimePictures	50	100
Pixel Survival – Zombie Apocalypse	50	100
Fire Skin for Slither IO app	10	50
San Andreas Gangster Crime	10	50
fidgetspinnerforminecraft	10	50
Stickman Fighter 2018	10	50
Subway Run Surf	10	50
Guide Vikings Hunters	10	50
Woody Pecker	10	50
Pack of Super Skins for Slither	10	50
Spinner Toy for Slither	10	50
How to Draw Coco and The Land of the Dead	10	50
How to Draw Dangerous Snakes and Lizards Species	1	5
How to Draw Real Monster Trucks and Cars	1	5
How to Draw Animal World of The Nut Job 2	1	5
How to Draw Batman Legends in Lego Style	1	5

Appendix 2 – List of SHA256 hashes

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14f1829a9d3c38a45c869c28ee8cde1e4e67cd5a637b22edb62de01e3faf7932

34d1a4a40a959d2c4219dfc5ca7e4b6aa9771ad1c577baf0a2fe16b655e9837d

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564313b6d07bc54482671b010e23095fcb35fd1402cbf8464bc2b3f9e4a5f3c6

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