Table 1

	Mapped Classes	Added Classes	Removed Classes	Entry Points (official/ unofficial)	Reachable Methods (official/ unofficial)	Mapped Entry Points	Added Entry Points	Removed Entry Points	Call Graph Difference	Permission Changes	Repackaging Reason
com.droidhen.game.dinosaur (1.3.7 — 43)	1285	487	0	36 (86)	3110 (3985)	36	50	0	11 (8 — Google Ads, 1 — Umeng, 2 — Baidu Ads)	+android.permission.READ_LOGS	1. Baidu Ads 2. Google Ads 3. Umeng
com.rootuninstaller.eraserpro (1.4 — 13)	256	20	0	43 (53)	740 (828)	43	10	0	2 (Remove facebook, AntTekStore)	+android.permission.READ_PHONE_STATE +android.permission.INTERNET +android.permission.ACCESS_NETWORK_STATE +android.permission.ACCESS_WIFI_STATE	1. Steal device info 2. Download apps (Ads) (fire up when network status changes or package added)
com.shinybox.smash (1.7.0.0 — 142341700)	2302	36	0	62 (71)	1098 (1191)	62	9	0	6 (2 – Hijack buying, 2 – show Ads, 2 – malicious behavior)	+android.permission.INTERNET +android.permission.READ_PHONE_STATE +android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.ACCESS_WIFI_STATE +android.permission.SYSTEM_ALERT_WINDOW +android.permission.GET_TASKS +android.permission.ACCESS_COARSE_LOCATION	1. Crack buying in-app products 2. Something malicious? (String Encrypted, Call methods through reflection)
com.tokyopop.wallpaper.panda (1.1 — 2)	17	2	1	5 (4)	29 (21)	4	0	1	1	None	1. Localization
com.easytime.dragonchaser (2.5 — 25)	27	0	0	5 (5)	63 (63)	5	0	0	None	None	1. Localization
com.gavinbrown.blindscape (1.0 — 1)	102	0	0	12 (12)	347 (347)	12	0	0	None	None	1. Localization
com.paladin.defencehero2 (1.0.6 — 7)	185	15	0	53 (63)	425 (492)	53	10	0	1 (Start push service)	+android.permission.INTERNET +android.permission.READ_PHONE_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.ACCESS_NETWORK_STATE +android.permission.INSTALL_PACKAGES +android.permission.RECEIVE_BOOT_COMPLETED	1. Download and install apps.
com.melimots.WordSearch (1.14 — 18)	967	131	0	72 (1269)	92 (1778)	72	20	0	None	+android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.ACCESS_WIFI_STATE +android.permission.RESTART_PACKAGES +android.permission.SYSTEM_ALERT_WINDOW +android.permission.GET_TASKS	1. Download apps 2. Enable JS, remote command execution
brain.teasers.logic.puzzles.riddles (1.5 — 5)	2053	175	43	105 (2348)	124 (2946)	102	22	3	119 (Most of are false positives: StringBuilder, inner classes; the rest are caused by different version)	+android.permission.READ_PHONE_STATE +android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.ACCESS_COARSE_LOCATION +android.permission.ACCESS_FINE_LOCATION +android.permission.ACCESS_WIFI_STATE +android.permission.SYSTEM_ALERT_WINDOW +android.permission.RECEIVE_BOOT_COMPLETED +android.permission.RESTART_PACKAGES +android.permission.WAKE_LOCK +android.permission.GET_TASKS +android.permission.VIBRATE +com.android.vending.BILLING +android.permission.INTERNET	1. Umeng 2. Ads 3. Enable JS (The version codes are same, but version names are different, official 1.5—5, unofficial 1.4—5)
cn.com.nd.s.skin.diaoyuislands (1.0 —1)	9	0	0	3 (51)	3 (48)	3	0	0	3 (Removed 3 Intent relevant method calls)	None	1. The unofficial app is signed with the debug key.
com.AndPhone.game.Cross Road (1.0.3 — 11)	483	111	80	44 (1206)	52 (1238)	38	14	6	254 (Most are caused by different version, the rest fire up ads)	-android.permission.WRITE_EXTERNAL_STORAGE	1. Removed Google Ads 2. Add Mouse Ads (Should be different version: official 1.0.3—11, 1.0.8 — 11)
com.bangdev.freakingmath	3054	0	0	57 (1245)	57 (1087)	57	0	0	1 (Removed google ads)	None	1. Remove Google ads
com.BazookaRabbitLite (1.2.8 — 13)	30	47	0	4 (27)	14 (477)	4	10	0	1 (Fire up ads)	+android.permission.INTERNET +android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.READ_PHONE_STATE +android.permission.WAKE_LOCK	1. Add ads (Kuguo)
com.divmob.doodlebubble (1.1.8 — 12)	664	442	11	9 (290)	50 (985)	8	42	1	2 (False positives, inner classes)	+android.permission.ACCESS_FINE_LOCATION +android.permission.READ_PHONE_STATE +android.permission.ACCESS_COARSE_LOCATION +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.CHANGE_WIFI_STATE +android.permission.ACCESS_WIFI_STATE	1. Add ads 2. Get location (Should be different version: official 1.1.8 — 12, 10 — 12)
com.DragonKnight (1.0 — 1)	211	328	0	30 (809)	66 (1886)	30	36	0	1 (Fire up ads)	+android.permission.INTERNET +android.permission.WAKE_LOCK +android.permission.READ_PHONE_STATE +android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.GET_TASKS +android.permission.SYSTEM_ALERT_WINDOW +android.permission.ACCESS_WIFI_STATE +com.android.launcher.permission.INSTALL_SHORTCUT	1. Add ads 2. Install shortcuts
com.dws.release.udaaku (1.2 — 2)	3038	363	0	71 (1936)	117 (3079)	71	46	0	3 (Fire up ads)	+android.permission.INTERNET +android.permission.WAKE_LOCK +android.permission.READ_PHONE_STATE +android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.ACCESS_WIFI_STATE +android.permission.PROCESS_OUTGOING_CALLS +com.android.launcher.permission.INSTALL_SHORTCUT	1. Add ads 2. Install shortcuts 3. Fire up webchat (replace key string)
com.elky.likekids.enfree (1.16 — 25)	119	117	703	104 (1409)	53 (802)	18	35	86	181	+android.permission.RECEIVE_BOOT_COMPLETED +android.permission.READ_PHONE_STATE +android.permission.ACCESS_COARSE_LOCATION +android.permission.ACCESS_FINE_LOCATION +android.permission.ACCESS_WIFI_STATE +android.permission.READ_EXTERNAL_STORAGE +android.permission.MOUNT_UNMOUNT_FILESYSTEMS +android.permission.GET_TASKS +android.permission.CHANGE_WIFI_STATE +android.permission.VIBRATE	1. Add ads (Should be different versions: official 1.16–25, unofficial 2.6.4–25)
com.ettinentertainment.castlebuilder (1.0 — 1)	523	184	0	49 (922)	73 (1557)	49	24	0	2 (Fire up Ads and Umeng)	+android.permission.GET_TASKS +com.android.vending.BILLING +android.permission.INTERNET +android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.READ_PHONE_STATE +android.permission.ACCESS_WIFI_STATE +android.permission.READ_LOGS +android.permission.WAKE_LOCK +android.permission.RECEIVE_BOOT_COMPLETED +android.permission.ACCESS_COARSE_LOCATION +android.permission.ACCESS_FINE_LOCATION +android.permission.SYSTEM_ALERT_WINDOW +android.permission.GET_ACCOUNTS	1. Ads 2. Umeng 3. Enable JS
com.fiema.beamcannon (1.0 — 1)	1278	15	0	27 (1018)	33 (1131)	27	6	0	1 (Fire up ads)	+android.permission.INTERNET +android.permission.WAKE_LOCK +android.permission.READ_PHONE_STATE +android.permission.ACCESS_NETWORK_STATE +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.ACCESS_WIFI_STATE +android.pereMsission.ACCESS_FINE_LOCATION +android.pereMsission.ACCESS_COARSE_LOCATION +com.android.launcher.permission.INSTALL_SHORTCUT	1. Add ads 2. Install shortcuts
com.gamebility.fruitmatching (1.0 — 1)	514	60	0	26 (654)	35 (741)	26	9	0	1 (Fire up ads)	+android.permission.ACCESS_NETWORK_STATE +android.permission.ACCESS_WIFI_STATE +android.permission.CHANGE_WIFI_STATE +android.permission.CHANGE_NETWORK_STATE +android.permission.READ_PHONE_STATE +android.permission.INTERNET +android.permission.WRITE_EXTERNAL_STORAGE +android.permission.MOUNT_UNMOUNT_FILESYSTEMS +android.permission.RESTART_PACKAGES +android.permission.WRITE_SETTINGS +android.permission.MODIFY_PHONE_STATE (<= 2.2) +android.permission.VIBRATE +android.permission.ACCESS_FINE_LOCATION +android.permission.ACCESS_COARSE_LOCATION +android.permission.RECEIVE_BOOT_COMPLETED +android.permission.CHANGE_CONFIGURATION +android.permission.CONTROL_LOCATION_UPDATES	1. Add ads