Two Russian Android Spyware Families from Gamaredon APT

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- Lookout has discovered BoneSpy and PlainGnome Android surveillance families and attributed them to the Russian Gamaredon (Primitive Bear, Shuckworm) APT group associated with the Federal Security Service (FSB).
- BoneSpy has been in use since at least 2021, while PlainGnome first appeared in 2024. Both families are still active at the time of writing.
- BoneSpy and PlainGnome target former Soviet states and focus on Russian-speaking victims. Lookout assesses this targeting may be related to worsening relations between these countries and Russia since the outbreak of the Ukraine invasion.
- Both BoneSpy and PlainGnome collect data such as SMS messages, call logs, phone call audio, photos from device cameras, device location, and contact lists.
- PlainGnome acts as a dropper for a surveillance payload, stored within the dropper package, while BoneSpy is deployed as a standalone application.

Researchers at the Lookout Threat Lab have discovered two Android surveillance families dubbed BoneSpy and PlainGnome. They are both attributed to Russia-aligned cyber espionage threat group Gamaredon (aka Primitive Bear, Shuckworm). This group was identified as a component of the Russian Federal Security Service (FSB) by the Security Service of Ukraine (SSU) in 2021. These are the first known mobile families to be attributed to Gamaredon.

BoneSpy and PlainGnome appear to target Russian speaking victims across the former Soviet Union in countries including Uzbekistan, Kazakhstan, Tajikistan, and Kyrgyzstan. While Gamaredon has historically targeted Ukraine, the targeting of Central Asian countries like Uzbekistan likely resulted from worsening relations between these countries and Russia since the start of the Russian invasion of Ukraine in 2022. Also, while specific targets are difficult to pinpoint, Lookout researchers uncovered an indication of possible enterprise targeting using the BoneSpy family in early 2022. While the Gamaredon threat group has long been known to target Ukraine, Lookout has no specific evidence to show BoneSpy or PlainGnome were used against Ukrainian victims.

Attribution to Gamaredon

Lookout researchers attribute BoneSpy and PlainGnome to Gamaredon based on use of IP addresses that point to command and control (C2) domains for both the mobile families that were also observed in Gamaredon's desktop campaigns. We also observed a large number of domains sharing Gamaredon's known domain naming convention described by MSTIC in April 2023, which were hosted on IP infrastructure shared with dynamic DNS C2 domains in use with the group's mobile surveillanceware. In addition, Gamaredon has been known to use ddns[.]net and other dynamic DNS providers since at least 2017, a consistent technique used by BoneSpy and PlainGnome.

These infrastructure connections, together with the evidence of Russian development and targeting of Russian speaking groups in former Soviet states, lead us to the conclusion that both BoneSpy and PlainGnome are operated by Gamaredon.

App Families Analysis

Lookout has tracked BoneSpy since December 2021 and discovered PlainGnome in January 2024. BoneSpy is derived from the Russian open-source DroidWatcher, a surveillance app developed between 2013 and 2014. Conversely, PlainGnome is not based on open-source code, but shares similar theming and C2 server properties with BoneSpy. PlainGnome is also a two-stage deployment while BoneSpy is a self-contained single app. Each of these have broad surveillance capabilities including:

- Attempting to gain root access to the device
- Anti-analysis checks
- Location tracking
- Getting information about the device
- Getting sensitive user data such as:some text
    - SMS messages
    - ambient audio and call recordings
    - notifications
    - browser history
    - contacts
    - call logs
    - photos from the camera
    - screenshots
    - cell service provider information

Apps of both families have properties that make targeted social engineering the likely method of distribution. To our knowledge, no apps belonging to either one of these malware families were available on Google Play.

Detailed Analysis: BoneSpy

The BoneSpy family showed evidence of continuous development between roughly January and October 2022, after which samples began using consistent lure theming and code structure. Earlier samples from between January and September 2022 used a variety of trojanized apps such as battery charge monitoring apps, photo-gallery apps, a fake Samsung Knox app, and trojanized Telegram apps. Later, Gamaredon largely shifted to using trojanized, fully functional Telegram samples titled as “Beta” versions.

Early samples featured a high degree of feature experimentation, with core capabilities to collect the call log, file system, contact list, SMS messages, and emails, while other samples included audio recording functionality. Two early samples used RTMP (Real-Time Messaging Protocol), an open-source streaming protocol, for command and control. Still others checked for root access by attempting to write the string “ZZZ” to a file path only accessible with elevated privileges.

```
public static boolean isPhoneRooted() {
    try {
        java.lang.Process process0 = Runtime.getRuntime().exec("su");
        DataOutputStream dataOutputStream0 = new DataOutputStream(process0.getOutputStream());
        dataOutputStream0.writeBytes("echo \"ZZZ\" >/system/sd/tmp.txt\n");
        dataOutputStream0.writeBytes("exit\n");
        dataOutputStream0.flush();
        try {
            process0.waitFor();
            return process0.exitValue() != 0xFF;
        }
        catch(InterruptedException unused_ex) {
            return false;
        }
    }
```

5bf384e687da92562fcbabac390a88110ddb2755 writes the string “ZZZ” into a text file if it can obtain super user privileges.

BoneSpy’s surveillance features stabilized by late 2022 along with almost exclusive use of trojanized Telegram samples. BoneSpy samples observed this year had the following surveillance capabilities:

- Browser history
- SMS messages including the addressee, body, and date-time, from inbox and sent messages
- Device location from GPS and cell information
- Contact lists including name, phone number, and email address
- Call logs such as the phone number, date, name, duration, and type of call
- File system information
- List of all installed apps
- Taking photos from device cameras
- Recording phone calls
- Notification content

- Clipboard content
- Device screenshots by abusing media projection
- Device information such as IMEI, SIM cards, carrier information
- Checking for root privileges

A notable capability of BoneSpy is its ability to be controlled via SMS messages. For the extensive list of commands that the surveillance app can receive via SMS see Appendix B.

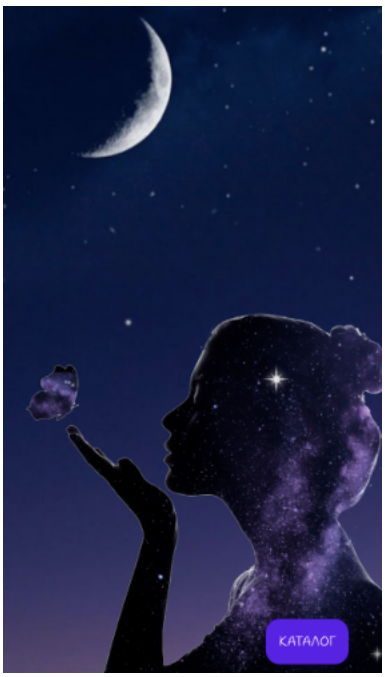
BoneSpy is based on the Russian-developed, open-source DroidWatcher surveillanceware, featuring nearly identical code, names, and log messages in multiple classes related to the handling of databases containing collected exfil data such as call logs, location tracking, SMS messages, notifications, and browser bookmarks. Class names for many entry points (receivers, activities, and services) were either the same or very similar to DroidWatcher Samples.

Unlike BoneSpy, PlainGnome does not share similar entry points. While most of its surveillance capabilities are similar, it appears to have been developed without extensive use of the code of another known surveillance tool.

Detailed Analysis: PlainGnome

PlainGnome consists of a two-stage deployment in which a very minimal first stage drops a malicious APK once it's installed. While the first and second stages use some variation on the Telegram package name, the actual functionality presented to the user is essentially the same as that observed in previous BoneSpy samples using the "image gallery" theme. This lure theme continued through most of PlainGnome's deployment throughout 2024.

Since it must install an APK (i.e. the surveillance payload), the first stage relies on the REQUEST_INSTALL_PACKAGES permission. Other than this less common permission, the first stage requests few permissions, and is lightweight in terms of code though notably contains some basic emulator checks. The victim starts the installation of the second-stage by pressing the only available button on the first stage's splash screen, which has the Russian word "каталог" (meaning catalog, listing, or directory).



First stage app's splash screen with the "каталог" button.

The Payload

The code of PlainGnome's second stage payload evolved significantly from January 2024 through at least October. In particular, PlainGnome's developers shifted to using Jetpack WorkManager classes to handle data exfiltration, which eases development and maintenance of related code. In addition, WorkManager allows for specifying execution conditions. For example, PlainGnome only exfiltrates data from victim devices when the device enters an idle state. This mechanism is probably intended to reduce the chance of a victim noticing the presence of PlainGnome on their device.

As opposed to the minimalist first (installer) stage, the second stage carries out all surveillance functionality and relies on 38 permissions. PlainGnome's developers made no effort to obfuscate code and took very basic steps to hinder analysis. PlainGnome supports a total of 19 commands, including functionality to collect

- SMS messages,
- contacts,
- GPS location,
- ambient audio,
- call audio,
- take photos.

A detailed list of commands is in Appendix C.

Once launched, the payload requests approval of permissions from the user until it gains access to a minimum set of permissions:

- READ_SMS
- READ_CALL_LOG
- READ_CONTACTS
- CAMERA

Notably, PlainGnome has two modes of ambient audio recording - one that automatically stops recording when the screen of the device is activated and one that permits recording regardless of the state of the screen. This is likely because newer versions of Android display a microphone icon in the status bar when the microphone is active, which might help the surveillance victim discover the malware.

Infrastructure

With the exception of some early samples, most BoneSpy as well as PlainGnome samples use the No-IP Dynamic DNS service with the ddns[.]net domain for C2 domain hosting. Gamaredon has been known to use ddns[.]net for C2 infrastructure since at least 2019. Gamaredon employs mutually exclusive sets of C2 domains for the BoneSpy and PlainGnome families.

According to Research by Palo Alto Unit42, Silent Push, Check Point, and MSTIC, Gamaredon uses rapidly rotating IP infrastructure with wildcard DNS A records and other dynamic DNS technologies (including ddns[.]net) across multiple desktop campaigns. These domains use randomized names from wordlists, and follow a typical naming convention of <subdomain><2 digit number>[.]<apex domain>[.]ru, (for example, count56[.]vasifgo[.]ru) in which one apex domain can have several dozen or hundreds of subdomains. The llkeyvost.ddns[.]net domain, used by PlainGnome, shares a resolving IP address of 89.185.84[.]81 with multiple domains matching the naming convention for Gamaredon's recent desktop C2 infrastructure. Several of their resolving IP addresses also resolve multiple ddns[.]net subdomains.

Date resolved	Detections	Resolver	Domain
2023-07-19	1 / 89	VirusTotal	account.accountsmanagement.co
2023-07-19	1 / 89	VirusTotal	accountsmanagement.co
2023-07-18	1 / 89	VirusTotal	auth.accountsmanagement.co
2023-07-18	0 / 89	VirusTotal	llkeyvost.ddns.net
2023-07-18	1 / 89	VirusTotal	e.accountsmanagement.co
2023-02-18	13 / 89	VirusTotal	bashaardi.ru
2023-02-18	14 / 89	VirusTotal	billion23.vasifgo.ru
2023-02-18	12 / 89	VirusTotal	count26.vasifgo.ru
2023-02-18	11 / 89	VirusTotal	count56.vasifgo.ru
2023-02-18	20 / 89	VirusTotal	vasifgo.ru
2023-02-18	13 / 89	VirusTotal	count41.vasifgo.ru
2023-02-18	13 / 89	VirusTotal	clap3.vasifgo.ru
2023-02-18	11 / 89	VirusTotal	baloglandi.ru

Snapshot of passive DNS records for 89.185.84[.]81 from VirusTotal shows resolution of multiple Gamaredon desktop C2 subdomains such as count56[.]vasifgo[.]ru and clap3[.]vasifgo[.]ru alongside PlainGnome C2 likeyvhost[.]ddns[.]net

Most of the resolving IP address space associated with the BoneSpy and PlainGnome C2 domains were owned by Russian ISP Global Internet Solutions LLC (Russian: ООО Глобал Интернет Решения), incorporated in Sevastopol, Ukraine, within occupied Crimea. This ISP is geographically co-located with the physical location of Gamaredon's operators, who are working from an FSB branch office in Sevastopol according to SSU. The Ukrainian National Cybersecurity Coordination Center has reported that Gamaredon primarily uses Global Internet Solutions.

Attribute	Value
WHOIS Server	rdap.db.ripe.net
Registrar	RIPE
Domain Status	active
Email	+ support@gir.network (registrant) - -
Name	+ GLOBAL INTERNET SOLUTIONS LLC (registrant) Oleg Pischulev (tech) Igor Gilmutdinov (admin) - ru-permtelecom-1-mnt (registrant) Oleg Pischulev (tech) Igor Gilmutdinov (admin)
Organization	-
Street	+ 12 malkova (admin, tech) vn.ter.g. gagarinsky municipal district 13 mayachnaya st. (registrant) - 12 malkova (admin, tech)
City	+ sevastopol (registrant) perm (admin, tech) - perm (admin, tech)

Whois records for 89.185.84[.]81, 81.19.140[.]71, 89.185.84[.]46, and 212.192.14[.]34 show registrant Global Internet Solutions LLC, located in Sevastopol, Crimea, as well as Perm, Russia. Sevastopol is the common registrant location for all BoneSpy and PlainGnome C2 resolving IP addresses.

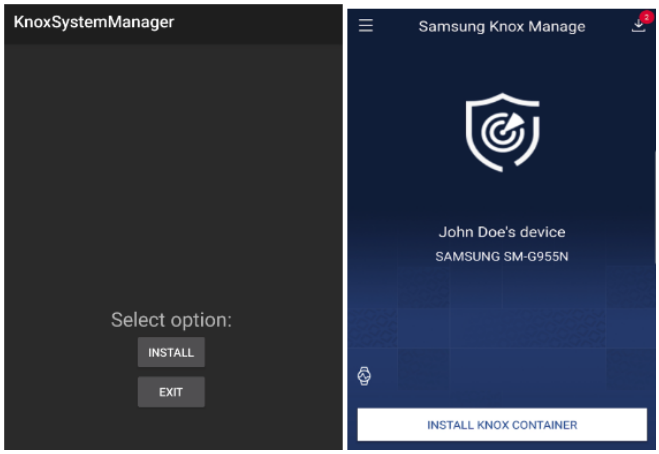
A number of BoneSpy and PlainGnome C2 domains were hosted on alternate bulletproof provider Global Connectivity Solutions (GCS, autonomous system number 215540), with the latter's IP infrastructure geolocated in Great Britain. Global Connectivity Solutions, LLP, is incorporated in the UK and owned by Yevgeniy Valentinovich Marinko, a Russian national. Marinko also owns and is general director of Global Internet Solutions, LLC. Marinko, known by aliases Rustam Yangirov or dimetr50, has operated in hacker forums and run stolen-credential trading since at least 2018. In addition, Marinko was fined by a Sevastopol court for defrauding a Russian-national victim using malware in late 2023.

One notable exception is the IP 34.98.99[.]30 (owned by Google Cloud), which resolved the C2 domain goos[.]pw.

Appendix D details known infrastructure overlaps between Gamaredon desktop C2 apex domains and C2 domains of the two mobile families discussed in this article.

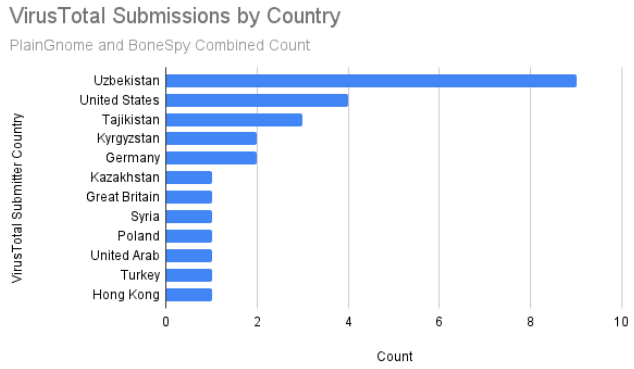
Victims

Perhaps the most targeted BoneSpy sample, which has the title "KnoxSystemManager", attempts to masquerade as Samsung Knox Manage, designed to enable enterprise mobility management on Samsung devices. Since Knox Manage is an enterprise service, this sample suggests that BoneSpy may have been deployed against targeted enterprise victims, with the attacker posing as an internal IT administrator.



The KnoxSystemManager BoneSpy sample (left) presents an extremely basic activity with "Install" and "Exit" options; the real Samsung Knox Manage (right) presents full EMM functionality.

While not a direct indicator of deployment geography, VirusTotal submissions of known BoneSpy and PlainGnome samples indicate targeting in former Soviet states such as Uzbekistan, Kyrgyzstan, Tajikistan. While Gamaredon has historically targeted Ukraine since at least 2013, Lookout lacks direct evidence of such targeting in Gamaredon's mobile campaigns, although the possibility of Ukrainian targeting remains likely due to Gamaredon's long history of attacking Ukrainian targets.



VIrusTotal web submissions by country for BoneSpy and PlainGnome, all time

Additional indicators of targeting are present in use of app lures - particularly Telegram - and Russian-language filenames and promotional strings such as those found in the BoneSpy sample cd6ee49b224ccb169d5d7f1b85c476cfc253540f. The actor later apparently shifted away from Russian-language APK filenames. Consistent use of trojanized Telegram samples indicates eastern European targeting to some degree, as the app is highly popular in that region. The table below shows some early BoneSpy samples that were submitted to VirusTotal with Russian-language filenames.

Package Name	SHA1	Filename	Translation
com.project.photogallery	aae4fe35ffcd086253e60825e53269590f917bbc	Личный.apk	Personal
com.project.photogallery	5bf384e687da92562fcbabac390a88110ddb2755	Альбом.apk	Album
org.telegram.messenger.bet	2ec79ffa20d8da7282842925481cbd39c7ef6b46	Фотоальбом.apk	Photo album
im.vector.app	03b18e8e7d414d25930a29ae2976e1ddb5e0fe5c	galareya.apk	Gallery

Russian-language filenames found in some early BoneSpy samples from 2022.

Conclusion

Lookout researchers have discovered two new mobile surveillance tools named BoneSpy and PlainGnome. We attribute these to the Russian APT group Gamaredon (Primitive Bear, Shuckworm) associated with the Federal Security Service (FSB). Both BoneSpy and PlainGnome focus on Russian-speaking victims in former Soviet states. BoneSpy has been in use since at least 2021, and is based on the open-source DroidWatcher surveillanceware. While PlainGnome, which first surfaced this year, has many overlaps in functionality with BoneSpy, it does not appear to have been developed from the same code base.

Appendix A - Indicators of Compromise

Sample SHA-256

2c7827f92a103db1b299f334043fbdc73805bbee11f4bfac195f672ba0464d22

114d2a25bb4c296f8ef5bfca4e8192b5aca9b169099ac6291139e68cfc7e37dc

8af63d7aa2142701116207f61e3e01c9e0239731e5bbbdf79114889b56ca46ea

ce6e5838f3ada452b64ffc6261e9bf74479bd31e83f77c7409c89564846db6a3

8407fed605805f0e7ef9628767d0aff1014e7231549b09f3c0d0cb723f07c48a

cb648ba5cce810e5ba17b89ca2c346bd3f0ad612834c225ec7b55871c4acc085

39cb17cb03a794e69eb4f0694e90e41a8cfb8480b82da82fcbd4a88dfe49930d

fd5fa718a7411b18845b76d7007db6b4431b1a2ce2f8b2cc047c0fff7c46161f

f0acf9558b7a4fcdaa119731ad5fb5bbdf5a704c9be9e929735a4679735989db

7de055018723b612dfa66a90c83a69afce7db918fb7fa88619833557c4fc61c3

551b8917f57c5cf8cd0a34c1d500db1dd4aed8ec8f31d28a5fabc4720e5b89a3

533ff7ba5eb5329cb860486a952259a4dfc0d74654831eb08dbcadc1ae5ca333

acede5fa46e09803adf9de5e731ca690dc7b02b69a63bacd4836429d289ec4f0

a3b0c178ab5e6e4b3442d358a78df7409461fa48f6ca8e63b730b0a455a89b18

7a8ec25f3d4a5c6b4fbdb1002ce22ff0352ce65c0f4ddc9567458e8fcb964845

86e51f1cc8213e173e47080ab45577e922e624006954de73ebae531589c912f4

2ef72c67cf76e8162f5e4bf0a743ac4ed756e153593c430cedf2043a310b24e8

5b7b5a2995c102121695225797f12f0b860500150472126b3b465b51ccad07bd

9dd73c9caa547358b6fe5acddf59443d7bf0ffc5b92867e9b67edd5bb2a9f786

3b5794ca6051740fff6e1b449db06f169df2749f81aaf4c329e18b12afb9a5c7

dfaa47ed20021c4f84bf68820a618f9e8a2e077d36b6d7281e8724b2124c7825

f948b650bdc63cf9b1781d651974a9c54d2b2981d3bf4b882f48c3a406272470

c82f0a1546bf7025993f2e7da33d1a741d91c78b01268a2d44afa31e66eb2fe8

de3a0b30b8976da933fe6bf88e6e7ab2386a967ada2599ef1dc1b12100a37694

bd65dbd61f27a90c0770d5f8cc02cfa7d9552f0fb300868611d69972b42d3f1c

bed2cf8758d86daaf25475cc6ed1c71fd3f9a922247c42fe246f8542c76d8c15

255996e1aa2a7514b167d9c940d7c8ff3c34393e97e43bda319eb92ea626c4eb

46b10de13887c36d61517125bec87c4557f325114221291a3ac7142cbc15de29

6bfdc285dee8ae3e3dade52a34f5d178163e4a08904b651ff5c906e78ddccec0

e0c5656ca9877b37e92f5208caf9c65365e9d35ea6eb351915eb3efee235db31

30429e95b9318816709e23488c77e364a294b6f5f7e3ee414a6a2bef74620ca6

278c9819583ce64913882d425c1d7634307b290709e0143e9268f8f999dacfba

3a4fa698536111f377030a5d794851d2e23b18d67e6d440ce883b9906d65037d

629ca39d2c90ff8b343ba1f4cfae11bbc2f61ca6bae80bd093f22efbcf4e4770

633875ce353391ea8bd4c92d8f3f57a525ff0abf9eba8d78528de616b1ee7118

eadd9c3e3f7a1c5e008ca157cb850aa72d283f702da2ab4daf0e4af4d926ab3e

C2 Server Domains

llkeyvost.ddns[.]net

fiordmoss.ddns[.]net

winterknowing.ddns[.]net

weeklyoptional.ddns[.]net

ltkwark.ddns[.]net

ollymap[.]pw

wleak[.]pw

Appendix B - SMS Commands

SMS Command String	Result
setSettings	Saves settings values to BoneSpy's shared preferences
getSettings	Gets BoneSpy's settings from shared preferences
calendar	Retrieves calendars and calendar events
deletelogcall	Deletes a call log entry by its phone number
gpson	Enables device GPS via a boolean value stored in BoneSpy's shared preferences.
gpsoff	Disables device GPS via a boolean value stored in BoneSpy's shared preferences.
gpsget	Gets the GPS location of the device
callback	Call an arbitrary phone number
download	Download a file from a specified URL
shell	Open a shell to the victim device; if root access is available, run the shell as root
reset	Clears all settings from BoneSpy's shared preferences
sms	Gets SMS messages from the device
connect	Initiates an authenticated session with the C2 server and starts the main AppService class as a foreground service
record	Enables call recording based on a boolean value stored in BoneSpy's shared preferences
recordstop	Disables call recording based on a boolean value stored in BoneSpy's shared preferences
wifion	Enables Wi-Fi on the device
wifioff	Disables Wi-Fi on the device
gprson	Enable cellular data use on the device
gprsoff	Disable cellular data use on the device
reboot	Reboots the device, if root access is available
restart	Restarts BoneSpy's main AppService foreground service
contact	Gets the victim's contact list
applist	Gets a list of installed apps
sendsms	Send an SMS message with arbitrary content to an arbitrary phone number
sendsms1	Alternative to "sendsms"; send an SMS with a direct call to SmsManager.sendTextMessage()
wipesd	Wipe all files and directories on the SD card
allog	Retrieves all exfil logs including SMS, call log, GPS logs, clipboard contents, notifications, browser history, and installed apps
deletelastsms	Deletes the most recent SMS from the `content://sms/` provider
smsblock	Block inbound SMS
screenshoot	Takes a screenshot.
screenshootenable	Enables screenshots based on a boolean value stored in BoneSpy's shared preferences.
screenshootdisable	Disables screenshots based on a boolean value stored in BoneSpy's shared preferences.

screenshootdisable	Disables screenshots based on a boolean value stored in BoneSpy's shared preferences.
whatsappoffline	Unknown, presumably opens WhatsApp in offline mode
requestrecord	unknown/not implemented
whatsapp	Get authentication token for WhatsApp
facebook	Get authentication token for Facebook
vb	Get authentication token for Viber
vk	Get authentication token for VKontakte
imo	Get authentication token for IMOIM
ondoklassniki	Get authentication token for Odnoklassniki
mailruagent	Get authentication token for mail.ru
telegramm	Get authentication token for Telegram
TelegrammPlus	Get authentication token for Telegram Plus
camera	Starts CameraService, which allows for taking photos from device cameras
getsdcardstruct	Gets the file structure of the SD card
frontcameraon	Enables the front camera using a boolean value stored on BoneSpy's shared preferences
frontcameraoff	Disables the front camera using a boolean value stored on BoneSpy's shared preferences
deviceinfo	Gets updated device information and passes it to the C2
debugrealtime	Unknown, probably enables debug-level logging
messangers	Checks for Facebook Messenger
open, close, getconfig, setconfig, autorecoron, autorecoroff	unknown/not implemented

Appendix C - PlainGnome Commands

Commands supported by PlainGnome. Note that the last two commands appear only in later samples.

Command string	Result
get_sms	Gets SMS messages from the victim device in JSON format, including the address, message body, date, and message type
get_call_log	Retrieves the call logs in JSON format, including the victim device IMEI, contact name, number, direction (inbound/outbound), duration, and date.
get_contacts	Packages victim contacts in a JSON including the victim IMEI, contact name, contact phone number, and date.
upload	Uploads any files to the `/upload` path on the C2.
gps_on	Starts locationService or locationServiceLow foreground services (depending on victim's Android API level) to capture the device's location.
gps_off	Stops locationService or locationServiceLow.
start_record	Starts the RecordingService foreground service, which captures microphone audio, if RECORD_AUDIO permission is granted.
stop_record	Stops RecordingService.
start_record_screen_off	Enables ambient audio recording only when the device screen is off.
stop_record_screen_off	Disables ambient audio recording when the screen is off, by stopping RecordingService.
start_record_always	Enables constant ambient audio recording
stop_record_always	Disables constant ambient audio recording by stopping RecordingService.
screen_status	Returns a JSON with the screen status (on or off).
gps_status	Returns a JSON containing whether the device GPS is enabled, and whether the locationService is running.
perm_status	Returns a JSON containing whether READ_CONTACTS, READ_SMS, READ_CALL_LOG, WRITE_EXTERNAL_STORAGE, ACCESS_FINE_LOCATION, RECORD_AUDIO permissions are granted, and whether the device is connected to the internet.
start_photo	Takes a photo from the device camera with the takePhoto class and uploads it to the C2.
delete_kesh	Deletes the local cache.
ls	List contents of a path much like the standard Unix command
cash	Unclear, but presumably retrieves cached exfil data

Appendix D - Infrastructure Overlap

The table below details overlaps between known Gamaredon desktop C2 apex domains, including use of ddns[.]net for desktop C2, and mobile ddns[.]net C2 domains. An apparent naming convention prevalent in Gamaredon mobile C2 domain names is the use of two randomized words such as fiordmoss.ddns[.]net. More recent domains such as llkeyvost.ddns[.]net or wwkravs.ddns[.]net reflect a shift away from paired words toward a more abstract and perhaps more randomized pattern of domain names.

The table illustrates that Gamaredon's use of IP address space common to C2 servers for the mobile and desktop tooling is inconsistent, and becomes more prevalent with the domains associated with the more recent BoneSpy samples as well as PlainGnome.

BoneSpy, PlainGnome Domain	Resolving IP Address	Desktop targeted apex domains, or ddns[.]net domains following typical Gamaredon naming convention
llkeyvost.ddns[.]net	89.185.84[.]81	vasifgo[.]ru baloglandi[.]ru buckso[.]ru bashaardi[.]ru detroito[.]ru loperto[.]ru drowrang[.]ru hitrovana[.]ru molotiras[.]ru milashto[.]ru quyenzo[.]ru drivento[.]ru ihsana[.]ru antropa[.]ru ibragimo[.]ru witchdors[.]ru cavalierso[.]ru vilitord[.]ru phoenixo[.]ru pistonso[.]ru makdarit[.]ru bishoten[.]ru forensit[.]ru hornetso[.]ru miltras[.]ru flashiko[.]ru vipertos[.]ru battleras[.]ru sniportas[.]ru bartopl[.]ru exportan[.]ru chromatol[.]ru volnopas[.]ru bilodon[.]ru silentar[.]ru intigam[.]ru skymagra[.]ru gayado[.]ru vezirgo[.]ru saviti[.]ru tilofol[.]ru kramati[.]ru plumbumo[.]ru ziyafat[.]ru hydrargyrumo[.]ru agshinsa[.]ru hersopa[.]ru kistroplon[.]ru militora[.]ru minhizo[.]ru kaelos[.]ru lugarto[.]ru cicindi[.]ru

inspiredflow.ddns[.]net	89.185.84[.]46	reniumo[.]ru dedspac[.]ru mexv[.]ru anthuso[.]ru billyhot[.]ru hoanzo[.]ru soputh[.]ru bismutumo[.]ru vadigo[.]ru akinot[.]ru koportas[.]ru jisholot[.]ru linuxo[.]ru bartopl[.]ru hustorla[.]ru buckso[.]ru bilodon[.]ru kistroplon[.]ru antropa[.]ru ubunto[.]ru cupsman[.]ru abdulsa[.]ru arenosi[.]ru centosi[.]ru
fiordmoss.ddns[.]net	212.192.14[.]34 194.87.31[.]3	inspiredflow.ddns[.]net
goos[.]pw	34.98.99[.]30 185.247.184[.]63 195.133.88[.]3	rakinla[.]ru sabirpo[.]ru roomsecuador.ddns[.]net savagelouisiana.ddns[.]net walletdimension.ddns[.]net whiteeligible.ddns[.]net wentdiscs.ddns[.]net spoken-object.ddns[.]net spreadingearning.ddns[.]net televisionshandle.ddns[.]net tongue-forms.ddns[.]net throwingcoupons.ddns[.]net shakecostume.ddns[.]net tabs-iowa.ddns[.]net saferexpansys.ddns[.]net stringscrap.ddns[.]net sony-high.ddns[.]net seasonalfamily.ddns[.]net soilentirely.ddns[.]net seeklemon.ddns[.]net spacesknowledge.ddns[.]net rendercounting.ddns[.]net regimepassive.ddns[.]net standardfebruary.ddns[.]net towerextraordinary.ddns[.]net ruleglance.ddns[.]net twistedfaces.ddns[.]net

weeklyoptional.ddns[.]net	194.87.216[.]136	goos[.]pw waltermanage.ddns[.]net tokyoprepared.ddns[.]net tacticsnovelty.ddns[.]net sonic-needed.ddns[.]net warrantiesford.ddns[.]net threateningdealer.ddns[.]net twentymicrophone.ddns[.]net slopepainting.ddns[.]net rogermayor.ddns[.]net stocksharbour.ddns[.]net wivespassed.ddns[.]net savageprozac.ddns[.]net rhythmfunky.ddns[.]net sauce-patio.ddns[.]net skinpublishing.ddns[.]net yields-drew.ddns[.]net

Authors

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Kyle Schmittle is a security researcher with a primary focus on mobile threat discovery and attribution. As part of Lookout's Threat Intelligence team he works to discover and track threat actors and their targets, and provide accurate research and reporting on these issues. Kyle has over 15 years of experience tracking and reporting on cyber threat actors and other issues, both in the intelligence community, and most recently at Lookout.

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Paul is a security researcher with a primary focus on reverse engineering mobile malware. Prior to Lookout, he worked in a security operations centre first as a cyber threat intelligence analyst and later in security investigations. Paul graduated with a Bachelor of Applied Information Sciences (Information Systems Security) from Sheridan College in 2015.

Platform(s) Affected

Android

Threat Type

Spyware

Entry Type

In-Depth Analysis

Platform(s) Affected

Android

Spyware

In-Depth Analysis