

## ANDROID STATIC ANALYSIS REPORT



Banner Health(@string/VersionName)

File Name:	com.bannerhealth.BannerHealthMobileApp_202731.apk
Package Name:	com.bannerhealth.BannerHealthMobileApp
Scan Date:	Aug. 29, 2025, 8:04 p.m.
App Security Score:	50/100 (MEDIUM RISK)
Grade:	
Trackers Detection:	3/432

### FINDINGS SEVERITY

<u>≨</u> HIGH	▲ MEDIUM	i INFO	✓ SECURE	<b>@</b> HOTSPOT
0	15	4	0	2

#### FILE INFORMATION

File Name: com.bannerhealth.BannerHealthMobileApp\_202731.apk

Size: 99.2MB

MD5: 5da572c192795bd52bfcbf34c216696c

**SHA1:** 9facfd9b6f855aa969b4c99544d4c92a067f5d60

SHA256: 9c7c5c13a60e45f55728f7fbe66e4def7ef7c4a4dc8ed861523b6cfa391467b1

### **i** APP INFORMATION

App Name: Banner Health

Package Name: com.bannerhealth.BannerHealthMobileApp

Main Activity: com.bannerhealth.BannerHealthMobileApp.MainActivity

Target SDK: 34 Min SDK: 27 Max SDK:

Android Version Name: @string/VersionName

**Android Version Code: 202731** 

#### **APP COMPONENTS**

Activities: 70 Services: 9 Receivers: 8 **Providers:** 6

Exported Activities: 6 Exported Services: 1 Exported Receivers: 1 Exported Providers: 0

## **#** CERTIFICATE INFORMATION

Binary is signed v1 signature: False v2 signature: True v3 signature: True v4 signature: False

X.509 Subject: O=Banner Health, CN=B Signature Algorithm: rsassa\_pkcs1v15 Valid From: 2018-03-20 06:13:29+00:00 Valid To: 2048-03-12 06:13:29+00:00 Issuer: O=Banner Health, CN=B Serial Number: 0x67c13692

Hash Algorithm: sha256

md5: ca55a00021db2d8b6b7deed4ba0a5159 sha1: 20a767e96a881269ff3b2765377d88af89fbfa38

sha256: cb2324a11befb01b5bc89a043c3c61b3c4a1c43ac1f21ee01f907a828b86ff24

sha512: 1a517f31d3b7e2b4f1156aa365bb2a776d1752327a867476c1b3798aed53dbce886bc4848f649125c33b381268e10ceff4ccd082a4d658179ff78f2876cf6478

PublicKey Algorithm: rsa

Bit Size: 2048

Fingerprint: e1ce41372acd300d44145cfec74dffc31db7d13233d5822a97ee744212ac4d0c

Found 1 unique certificates

#### **⋮** APPLICATION PERMISSIONS

PERMISSION	STATUS	INFO	DESCRIPTION
android.permission.INTERNET	normal	full Internet access	Allows an application to create network sockets.
android.permission.WRITE_EXTERNAL_STORAGE	dangerous	read/modify/delete external storage contents	Allows an application to write to external storage.

PERMISSION	STATUS	INFO	DESCRIPTION
android.permission.ACCESS_FINE_LOCATION	dangerous	fine (GPS) location	Access fine location sources, such as the Global Positioning System on the phone, where available. Malicious applications can use this to determine where you are and may consume additional battery power.
android.permission.ACCESS_COARSE_LOCATION	dangerous	coarse (network-based) location	Access coarse location sources, such as the mobile network database, to determine an approximate phone location, where available. Malicious applications can use this to determine approximately where you are.
android.permission.ACCESS_NETWORK_STATE	normal	view network status	Allows an application to view the status of all networks.
android.permission.READ_EXTERNAL_STORAGE	dangerous	read external storage contents	Allows an application to read from external storage.
android.permission.READ_MEDIA_IMAGES	dangerous	allows reading image files from external storage.	Allows an application to read image files from external storage.
android.permission.CALL_PHONE	dangerous	directly call phone numbers	Allows the application to call phone numbers without your intervention.  Malicious applications may cause unexpected calls on your phone bill. Note that this does not allow the application to call emergency numbers.
android.permission.USE_FINGERPRINT	normal	allow use of fingerprint	This constant was deprecated in API level 28. Applications should request USE_BIOMETRIC instead.
android.permission.ACCESS_WIFI_STATE	normal	view Wi-Fi status	Allows an application to view the information about the status of Wi-Fi.

PERMISSION	STATUS	INFO	DESCRIPTION
android.permission.READ_CALENDAR	dangerous	read calendar events	Allows an application to read all of the calendar events stored on your phone.  Malicious applications can use this to send your calendar events to other people.
android.permission.WRITE_CALENDAR	dangerous	add or modify calendar events and send emails to guests	Allows an application to add or change the events on your calendar, which may send emails to guests. Malicious applications can use this to erase or modify your calendar events or to send emails to guests.
android.permission.RECORD_AUDIO	dangerous	record audio	Allows application to access the audio record path.
android.permission.GET_TASKS	dangerous	retrieve running applications	Allows application to retrieve information about currently and recently running tasks. May allow malicious applications to discover private information about other applications.
android.permission.CAMERA	dangerous	take pictures and videos	Allows application to take pictures and videos with the camera. This allows the application to collect images that the camera is seeing at any time.
android.permission.MODIFY_AUDIO_SETTINGS	normal	change your audio settings	Allows application to modify global audio settings, such as volume and routing.
android.permission.FOREGROUND_SERVICE	normal	enables regular apps to use Service.startForeground.	Allows a regular application to use Service.startForeground.
android.permission.WAKE_LOCK	normal	prevent phone from sleeping	Allows an application to prevent the phone from going to sleep.
android.permission.POST_NOTIFICATIONS	dangerous	allows an app to post notifications.	Allows an app to post notifications

PERMISSION	STATUS	INFO	DESCRIPTION
com.google.android.c2dm.permission.RECEIVE	normal	recieve push notifications	Allows an application to receive push notifications from cloud.
com.google.android.gms.permission.AD_ID	normal	application shows advertisements	This app uses a Google advertising ID and can possibly serve advertisements.
com.google.android.finsky.permission.BIND_GET_INSTALL_REFERRER_SERVICE	normal	permission defined by google	A custom permission defined by Google.
com.bannerhealth.BannerHealthMobileApp.DYNAMIC_RECEIVER_NOT_EXPORTED_PERMISSION	unknown	Unknown permission	Unknown permission from android reference

# ক্লি APKID ANALYSIS

FILE	DETAILS		
	FINDINGS	DETAILS	
classes.dex	Anti-VM Code	Build.FINGERPRINT check Build.MODEL check Build.MANUFACTURER check Build.PRODUCT check Build.TAGS check SIM operator check network operator name check	
	Compiler	r8 without marker (suspicious)	

FILE	DETAILS	
	FINDINGS	DETAILS
classes2.dex	Anti-VM Code	Build.HARDWARE check possible VM check
	Compiler	r8 without marker (suspicious)

## BROWSABLE ACTIVITIES

ACTIVITY	INTENT
com.bannerhealth.BannerHealthMobileApp.MainActivity	Schemes: https://, Hosts: dtbhproject.page.link/EmergencyCare,
crc64a8a01050afdddb84.SplashScreen	Schemes: https://, Hosts: ucw-qa.test-bh.com, ecw-qa.test-bh.com, urgentcare.bannerhealth.com, emergencycare.bannerhealth.com, qa-mybanner.bannerhealth.com, mybanner.bannerhealth.com,
crc644e2194ed5b62303c.MainActivity	Schemes: bannerhealthapp://,
crc644e2194ed5b62303c.LoginActivity	Schemes: bannerhealthapp://,
crc644e2194ed5b62303c.WelcomeActivity	Schemes: bannerhealthapp://,
crc644e2194ed5b62303c.ProxyRedirectActivity	Schemes: bannerhealthapp://,
crc644e2194ed5b62303c.SelectProxyTypeActivity	Schemes: bannerhealthapp://,



NO SCOPE	SEVERITY	DESCRIPTION	
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### **CERTIFICATE ANALYSIS**

HIGH: 0 | WARNING: 0 | INFO: 1

TITLE	SEVERITY	DESCRIPTION
Signed Application	info	Application is signed with a code signing certificate

# **Q** MANIFEST ANALYSIS

HIGH: 0 | WARNING: 9 | INFO: 0 | SUPPRESSED: 0

NO	ISSUE	SEVERITY	DESCRIPTION
1	App can be installed on a vulnerable Android version Android 8.1, minSdk=27]	warning	This application can be installed on an older version of android that has multiple vulnerabilities. Support an Android version => 10, API 29 to receive reasonable security updates.
2	Activity (crc64a8a01050afdddb84.SplashScreen) is not Protected. [android:exported=true]	warning	An Activity is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device.
3	Service (crc648499e87e0ae1723e.TelehealthFirebaseService) is not Protected. [android:exported=true]	warning	A Service is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device.
4	Activity (crc644e2194ed5b62303c.MainActivity) is not Protected. [android:exported=true]	warning	An Activity is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device.

NO	ISSUE	SEVERITY	DESCRIPTION
5	Activity (crc644e2194ed5b62303c.LoginActivity) is not Protected. [android:exported=true]	warning	An Activity is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device.
6	Activity (crc644e2194ed5b62303c.WelcomeActivity) is not Protected. [android:exported=true]	warning	An Activity is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device.
7	Activity (crc644e2194ed5b62303c.ProxyRedirectActivity) is not Protected. [android:exported=true]	warning	An Activity is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device.
8	Activity (crc644e2194ed5b62303c.SelectProxyTypeActivity) is not Protected. [android:exported=true]	warning	An Activity is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device.
9	Broadcast Receiver (com.google.firebase.iid.FirebaseInstanceIdReceiver) is Protected by a permission, but the protection level of the permission should be checked. Permission: com.google.android.c2dm.permission.SEND [android:exported=true]	warning	A Broadcast Receiver is found to be shared with other apps on the device therefore leaving it accessible to any other application on the device. It is protected by a permission which is not defined in the analysed application. As a result, the protection level of the permission should be checked where it is defined. If it is set to normal or dangerous, a malicious application can request and obtain the permission and interact with the component. If it is set to signature, only applications signed with the same certificate can obtain the permission.

# </> CODE ANALYSIS

HIGH: 0 | WARNING: 3 | INFO: 3 | SECURE: 0 | SUPPRESSED: 0

	With the second of the second			
NO	ISSUE	SEVERITY	STANDARDS	FILES
				com/airbnb/lottie/L.java com/airbnb/lottie/LottieAnimationView.java com/airbnb/lottie/LottieComposition.java com/airbnb/lottie/LottieDrawable.java com/airbnb/lottie/LottieTask.java com/airbnb/lottie/PerformanceTracker.java

NO	ISSUE	SEVERITY	STANDARDS	com/airbnb/lottie/manager/FontAssetManager.java
				r.java com/airbnb/lottie/parser/AnimatableTransformParse r.java com/airbnb/lottie/parser/ContentModelParser.java com/airbnb/lottie/parser/MaskParser.java com/microsoft/appcenter/AbstractAppCenterService. java com/microsoft/appcenter/AppCenter.java com/microsoft/appcenter/Constants.java com/microsoft/appcenter/CustomProperties.java com/microsoft/appcenter/Flags.java com/microsoft/appcenter/ServiceInstrumentationUtil s.java com/microsoft/appcenter/UncaughtExceptionHandle r.java com/microsoft/appcenter/analytics/Analytics.java com/microsoft/appcenter/analytics/AnalyticsTransmi ssionTarget.java com/microsoft/appcenter/analytics/AuthenticationPr ovider.java com/microsoft/appcenter/analytics/EventProperties.j ava com/microsoft/appcenter/analytics/channel/Analytic sValidator.java com/microsoft/appcenter/analytics/channel/Session Tracker.java com/microsoft/appcenter/analytics/ingestion/model s/EventLog.java com/microsoft/appcenter/analytics/ingestion/model s/json/EventLogFactory.java com/microsoft/appcenter/channel/DefaultChannel.ja va com/microsoft/appcenter/channel/DefaultChannel.ja va com/microsoft/appcenter/channel/OneCollectorCha nnelListener.java com/microsoft/appcenter/crashes/Crashes.java com/microsoft/appcenter/crashes/Crashes.java com/microsoft/appcenter/crashes/Crashes.java
1	The App logs information. Sensitive information should never be logged.	info	CWE: CWE-532: Insertion of Sensitive Information into Log File OWASP MASVS: MSTG-STORAGE-3	com/microsoft/appcenter/crashes/ingestion/models/ AbstractErrorLog.java com/microsoft/appcenter/crashes/ingestion/models/ ErrorAttachmentLog.java com/microsoft/appcenter/crashes/ingestion/models/ HandledErrorLog.java com/microsoft/appcenter/crashes/ingestion/models/ ManagedErrorLog.java

NO	ISSUE	SEVERITY	STANDARDS	com/microsoft/appcenter/crashes/utils/ErrorLogHel
				com/microsoft/appcenter/http/AbstractAppCallTemp
				late.java
				com/microsoft/appcenter/http/DefaultHttpClient.jav
				a
				com/microsoft/appcenter/http/DefaultHttpClientCall
				Task.java
				com/microsoft/appcenter/http/HttpClientNetworkSta
				teHandler.java
				com/microsoft/appcenter/http/HttpClientRetryer.jav
				a
				com/microsoft/appcenter/ingestion/OneCollectorIng
				estion.java
				com/microsoft/appcenter/ingestion/models/Abstract
				Log.java
				com/microsoft/appcenter/ingestion/models/one/Co
				mmonSchemaDataUtils.java
				com/microsoft/appcenter/ingestion/models/one/Co
				mmonSchemaLog.java
				com/microsoft/appcenter/ingestion/models/one/Par
				tAUtils.java
				com/microsoft/appcenter/persistence/DatabasePersi
				stence.java
				com/microsoft/appcenter/utils/AppCenterLog.java
				com/microsoft/appcenter/utils/AsyncTaskUtils.java
				com/microsoft/appcenter/utils/DeviceInfoHelper.jav
				a
				com/microsoft/appcenter/utils/IdHelper.java
				com/microsoft/appcenter/utils/NetworkStateHelper.j
				ava
				com/microsoft/appcenter/utils/context/SessionConte
				xt.java
				com/microsoft/appcenter/utils/context/UserIdConte
				xt.java com/microsoft/appcenter/utils/crypto/CryptoUtils.ja
				va
				com/microsoft/appcenter/utils/storage/DatabaseMa
				nager.java
				com/microsoft/appcenter/utils/storage/FileManager.
				java
				mono/android/incrementaldeployment/Incremental
				ClassLoader.java
				Classicoader Java

NO	ISSUE	SEVERITY	STANDARDS	FILES
2	Files may contain hardcoded sensitive information like usernames, passwords, keys etc.	warning	CWE: CWE-312: Cleartext Storage of Sensitive Information OWASP Top 10: M9: Reverse Engineering OWASP MASVS: MSTG-STORAGE-14	com/microsoft/appcenter/AppCenter.java com/microsoft/appcenter/Constants.java com/microsoft/appcenter/channel/DefaultChannel.ja va com/microsoft/appcenter/crashes/utils/ErrorLogHel per.java com/microsoft/appcenter/http/DefaultHttpClient.jav a com/microsoft/appcenter/ingestion/OneCollectorIng estion.java com/microsoft/appcenter/ingestion/models/Wrappe rSdk.java com/microsoft/appcenter/ingestion/models/one/Co mmonSchemaLog.java com/microsoft/appcenter/persistence/DatabasePersi stence.java com/microsoft/appcenter/utils/context/SessionConte xt.java com/microsoft/appcenter/utils/storage/DatabaseMa nager.java
3	This app listens to Clipboard changes. Some malware also listen to Clipboard changes.	info	OWASP MASVS: MSTG-PLATFORM-4	crc64a0e0a82d0db9a07d/ClipboardChangeListener.j ava mono/android/content/ClipboardManager_OnPrima ryClipChangedListenerImplementor.java
4	This App uses SQL Cipher. Ensure that secrets are not hardcoded in code.	info	OWASP MASVS: MSTG-CRYPTO-1	com/microsoft/appcenter/utils/storage/DatabaseMa nager.java
5	App uses SQLite Database and execute raw SQL query. Untrusted user input in raw SQL queries can cause SQL Injection. Also sensitive information should be encrypted and written to the database.	warning	CWE: CWE-89: Improper Neutralization of Special Elements used in an SQL Command ('SQL Injection') OWASP Top 10: M7: Client Code Quality	com/microsoft/appcenter/persistence/DatabasePersi stence.java com/microsoft/appcenter/utils/storage/DatabaseMa nager.java
6	The App uses an insecure Random Number Generator.	warning	CWE: CWE-330: Use of Insufficiently Random Values OWASP Top 10: M5: Insufficient Cryptography OWASP MASVS: MSTG-CRYPTO-6	com/microsoft/appcenter/http/HttpClientRetryer.jav a

## SHARED LIBRARY BINARY ANALYSIS

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
1	arm64- v8a/libmonodroid.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	True info The binary has the following fortified functions: ['_umask_chk', '_read_chk', '_memcpy_chk', '_umask_chk', '_read_chk', '_read_chk', '_read_chk', '_memcpy_chk']	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
2	arm64-v8a/librealm- wrappers.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
3	arm64- v8a/libxamarin- app.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Partial RELRO warning This shared object has partial RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In partial RELRO, the non-PLT part of the GOT section is read only but .got.plt is still writeable. Use the option - z,relro,- z,now to enable full RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
4	arm64-v8a/libmono- native.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	No RELRO high This shared object does not have RELRO enabled. The entire GOT (.got and .got.plt both) are writable. Without this compiler flag, buffer overflows on a global variable can overwrite GOT entries. Use the option - z,relro,-z,now to enable full RELRO and only - z,relro to enable partial RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
5	arm64- v8a/libmonosgen- 2.0.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	No RELRO high This shared object does not have RELRO enabled. The entire GOT (.got and .got.plt both) are writable. Without this compiler flag, buffer overflows on a global variable can overwrite GOT entries. Use the option - z,relro,- z,now to enable full RELRO and only - z,relro to enable partial RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	True info The binary has the following fortified functions: ['FD_ISSET_chk', 'FD_SET_chk']	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
6	arm64-v8a/libxa- internal-api.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
7	arm64-v8a/libmono- btls-shared.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
8	arm64- v8a/libSkiaSharp.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
9	armeabi- v7a/libmonodroid.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	True info The binary has the following fortified functions: ['_umask_chk', '_memcpy_chk', '_ThumbV7PILongThunk_umask_chk', '_umask_chk', '_memcpy_chk']	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
10	armeabi- v7a/librealm- wrappers.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
11	armeabi- v7a/libxamarin- app.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Partial RELRO warning This shared object has partial RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In partial RELRO, the non-PLT part of the GOT section is read only but .got.plt is still writeable. Use the option - z,relro,- z,now to enable full RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
12	armeabi- v7a/libmono- native.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
13	armeabi- v7a/libmonosgen- 2.0.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
14	armeabi-v7a/libxa- internal-api.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
15	armeabi- v7a/libmono-btls- shared.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
16	armeabi- v7a/libSkiaSharp.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
17	arm64- v8a/libmonodroid.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	True info The binary has the following fortified functions: ['_umask_chk', '_read_chk', '_memcpy_chk', '_umask_chk', '_read_chk', '_read_chk', '_read_chk', '_memcpy_chk']	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
18	arm64-v8a/librealm- wrappers.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
19	arm64- v8a/libxamarin- app.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Partial RELRO warning This shared object has partial RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In partial RELRO, the non-PLT part of the GOT section is read only but .got.plt is still writeable. Use the option - z,relro,- z,now to enable full RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
20	arm64-v8a/libmono- native.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	No RELRO high This shared object does not have RELRO enabled. The entire GOT (.got and .got.plt both) are writable. Without this compiler flag, buffer overflows on a global variable can overwrite GOT entries. Use the option - z,relro,- z,now to enable full RELRO and only - z,relro to enable partial RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
21	arm64- v8a/libmonosgen- 2.0.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	No RELRO high This shared object does not have RELRO enabled. The entire GOT (.got and .got.plt both) are writable. Without this compiler flag, buffer overflows on a global variable can overwrite GOT entries. Use the option - z,relro,- z,now to enable full RELRO and only - z,relro to enable partial RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	True info The binary has the following fortified functions: ['FD_ISSET_chk', 'FD_SET_chk']	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
22	arm64-v8a/libxa- internal-api.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
23	arm64-v8a/libmono- btls-shared.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
24	arm64- v8a/libSkiaSharp.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
25	armeabi- v7a/libmonodroid.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	True info The binary has the following fortified functions: ['_umask_chk', '_memcpy_chk', '_ThumbV7PILongThunkumask_chk', '_umask_chk', '_memcpy_chk']	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
26	armeabi- v7a/librealm- wrappers.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
27	armeabi- v7a/libxamarin- app.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Partial RELRO warning This shared object has partial RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In partial RELRO, the non-PLT part of the GOT section is read only but .got.plt is still writeable. Use the option - z,relro,- z,now to enable full RELRO.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
28	armeabi- v7a/libmono- native.so	True info The binary has NX bit set. This marks a memory page non-executable making attacker injected shellcode non-executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
29	armeabi- v7a/libmonosgen- 2.0.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
30	armeabi-v7a/libxa- internal-api.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
31	armeabi- v7a/libmono-btls- shared.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	True info This binary has a stack canary value added to the stack so that it will be overwritten by a stack buffer that overflows the return address. This allows detection of overflows by verifying the integrity of the canary before function return.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	False warning Symbols are available.

NO	SHARED OBJECT	NX	PIE	STACK CANARY	RELRO	RPATH	RUNPATH	FORTIFY	SYMBOLS STRIPPED
32	armeabi- v7a/libSkiaSharp.so	True info The binary has NX bit set. This marks a memory page non- executable making attacker injected shellcode non- executable.	Dynamic Shared Object (DSO) info The shared object is build with - fPIC flag which enables Position independent code. This makes Return Oriented Programming (ROP) attacks much more difficult to execute reliably.	False high This binary does not have a stack canary value added to the stack. Stack canaries are used to detect and prevent exploits from overwriting return address. Use the option - fstack- protector- all to enable stack canaries. Not applicable for Dart/Flutter libraries unless Dart FFI is used.	Full RELRO info This shared object has full RELRO enabled. RELRO ensures that the GOT cannot be overwritten in vulnerable ELF binaries. In Full RELRO, the entire GOT (.got and .got.plt both) is marked as read-only.	None info The binary does not have run-time search path or RPATH set.	None info The binary does not have RUNPATH set.	False warning The binary does not have any fortified functions. Fortified functions provides buffer overflow checks against glibc's commons insecure functions like strcpy, gets etc. Use the compiler option - D_FORTIFY_SOURCE=2 to fortify functions. This check is not applicable for Dart/Flutter libraries.	True info Symbols are stripped.

NO	IDENTIFIER	REQUIREMENT	FEATURE	DESCRIPTION

# BEHAVIOUR ANALYSIS

RULE ID	BEHAVIOUR	LABEL	FILES
00096	Connect to a URL and set request method	command network	com/airbnb/lottie/network/NetworkFetcher.java
00022	Open a file from given absolute path of the file	file	com/airbnb/lottie/network/NetworkCache.java com/airbnb/lottie/network/NetworkFetcher.java com/microsoft/appcenter/crashes/Crashes.java com/microsoft/appcenter/crashes/utils/ErrorLogHelper.java com/microsoft/appcenter/utils/storage/FileManager.java
00013	Read file and put it into a stream	file	com/airbnb/lottie/network/NetworkCache.java com/airbnb/lottie/network/NetworkFetcher.java com/microsoft/appcenter/utils/storage/FileManager.java
00089	Connect to a URL and receive input stream from the server	command network	com/airbnb/lottie/network/NetworkFetcher.java
00030	Connect to the remote server through the given URL	network	com/airbnb/lottie/network/NetworkFetcher.java
00109	Connect to a URL and get the response code	network command	com/airbnb/lottie/network/NetworkFetcher.java
00078	Get the network operator name	collection telephony	com/microsoft/appcenter/utils/DeviceInfoHelper.java
00132	Query The ISO country code	telephony collection	com/microsoft/appcenter/utils/DeviceInfoHelper.java
00005	Get absolute path of file and put it to JSON object	file	com/microsoft/appcenter/crashes/utils/ErrorLogHelper.java
00004	Get filename and put it to JSON object	file collection	com/microsoft/appcenter/crashes/utils/ErrorLogHelper.java

# FIREBASE DATABASES ANALYSIS

TITLE	SEVERITY	DESCRIPTION
App talks to a Firebase database	info	The app talks to Firebase database at https://banner-mobile-app.firebaseio.com
Firebase Remote Config enabled	warning	The Firebase Remote Config at https://firebaseremoteconfig.googleapis.com/v1/projects/764959894480/namespaces/firebase:fetch?  key=AlzaSyD7UPEZf9wim7JclH8nUZP6mGefqR-oNzY is enabled. Ensure that the configurations are not sensitive. This is indicated by the response: {'entries': {'app_store_link': 'https://play.google.com/store/apps/details?id=com.bannerhealth.BannerHealthMobileApp', 'default_provider_search_radius': '10', 'doctors_appts_end_time': '18:45', 'doctors_appts_start_time': '06:30', 'doctors_frequent_search_terms': '["Primary Care Providers","Family Medicine*,"Pediatrics*,"Internal Medicine*,"Obstetrics & Gynecology","Cardiology*,"Orthopedic Surgery*,"Gastroenterology*,"Neurology*,"Dermatology*]', 'doctors_insurance_gfe_text': 'If you are uninsured or self-pay, you have a right to a good faith estimate. Click <a href="https://www.bannerhealth.com/patients/billing/pricing-resources">here</a> - For more information.', 'doctors_popular_insurance_carriers': '["MEDICAID","UHC","BCBS","MEDICARE","AETNA","CIGNA","HUMANA"]', 'doctors_trending_care_links': '[\text{"title":"COVID-19}, Cold, Flu","link":"https://www.bannerhealth.com/staying-well/health-and-wellness/wellness"),{\text{"title":"Seasonal}} Allergies","link":"https://www.bannerhealth.com/staying-well/expert/springtime-allergies",)]', 'home_page_alert_message': 'Welcome Colorado Village Medical patients to Banner Health! Visit our <b> &gt;<a href="https://bannerhealth.com/services/womenos/gynecology/well-womenoco">volllage Medical NOCO</a>- //b&gt; page for information on accessing medical records and more.', 'home_page_alert_should_show: 'true', 'home_quick_links': '["title":"Fight the flu","url":"https://www.bannerhealth.com/staying-well/health-and-wellness/wellness/flu"),{\text{"title":"Banner Health's Sports Partners","url":"https://www.bannerhealth.com/staying-well/health-and-wellness/wellness/health-risk-assessments"),{\text{"title":"Order Home Medical Equipment(HMB)","url":"https://www.bannerhealth.com/staying-well/health-and-wellness/well</b>

## **\*: ::** ABUSED PERMISSIONS

|--|--|

TYPE	MATCHES	PERMISSIONS
Malware Permissions	11/25	android.permission.INTERNET, android.permission.WRITE_EXTERNAL_STORAGE, android.permission.ACCESS_FINE_LOCATION, android.permission.ACCESS_COARSE_LOCATION, android.permission.ACCESS_NETWORK_STATE, android.permission.READ_EXTERNAL_STORAGE, android.permission.ACCESS_WIFI_STATE, android.permission.RECORD_AUDIO, android.permission.GET_TASKS, android.permission.CAMERA, android.permission.WAKE_LOCK
Other Common Permissions	7/44	android.permission.CALL_PHONE, android.permission.READ_CALENDAR, android.permission.MODIFY_AUDIO_SETTINGS, android.permission.FOREGROUND_SERVICE, com.google.android.c2dm.permission.RECEIVE, com.google.android.gms.permission.AD_ID, com.google.android.finsky.permission.BIND_GET_INSTALL_REFERRER_SERVICE

### **Malware Permissions:**

Top permissions that are widely abused by known malware.

### **Other Common Permissions:**

Permissions that are commonly abused by known malware.

# • OFAC SANCTIONED COUNTRIES

This app may communicate with the following OFAC sanctioned list of countries.

DOMAIN	COUNTRY/REGION

## **Q DOMAIN MALWARE CHECK**

DOMAIN	STATUS	GEOLOCATION
in.appcenter.ms	ok	IP: 4.152.45.235 Country: United States of America Region: Washington City: Redmond Latitude: 47.682899 Longitude: -122.120903 View: Google Map

DOMAIN	STATUS	GEOLOCATION
android.googlesource.com	ok	IP: 142.251.15.82 Country: United States of America Region: California City: Mountain View Latitude: 37.405991 Longitude: -122.078514 View: Google Map
banner-mobile-app.firebaseio.com	ok	IP: 34.120.206.254  Country: United States of America Region: Missouri City: Kansas City Latitude: 39.099731 Longitude: -94.578568 View: Google Map
mobile.events.data.microsoft.com	ok	IP: 52.182.143.213 Country: United States of America Region: lowa City: Des Moines Latitude: 41.600540 Longitude: -93.609108 View: Google Map
docs.microsoft.com	ok	IP: 23.53.144.75 Country: Australia Region: New South Wales City: Sydney Latitude: -33.867851 Longitude: 151.207321 View: Google Map

DOMAIN	STATUS	GEOLOCATION
www.color.org	ok	IP: 104.26.5.216 Country: United States of America Region: California City: San Francisco Latitude: 37.775700 Longitude: -122.395203 View: Google Map
www.iec.ch	ok	IP: 18.238.96.119 Country: United States of America Region: Washington City: Seattle Latitude: 47.627499 Longitude: -122.346199 View: Google Map
www.srgb.com	ok	IP: 74.207.241.245  Country: United States of America Region: California City: Fremont Latitude: 37.548271 Longitude: -121.988571 View: Google Map
www.w3.org	ok	IP: 104.18.23.19 Country: United States of America Region: California City: San Francisco Latitude: 37.775700 Longitude: -122.395203 View: Google Map



EMAIL	FILE
help@realm.io	lib/arm64-v8a/librealm-wrappers.so
help@realm.io	lib/armeabi-v7a/librealm-wrappers.so
help@realm.io	apktool_out/lib/arm64-v8a/librealm-wrappers.so
help@realm.io	apktool_out/lib/armeabi-v7a/librealm-wrappers.so

## \*\* TRACKERS

TRACKER	CATEGORIES	URL
Google Firebase Analytics	Analytics	https://reports.exodus-privacy.eu.org/trackers/49
Microsoft Visual Studio App Center Analytics	Analytics	https://reports.exodus-privacy.eu.org/trackers/243
Microsoft Visual Studio App Center Crashes	Crash reporting	https://reports.exodus-privacy.eu.org/trackers/238

## **₽** HARDCODED SECRETS

# POSSIBLE SECRETS "google\_crash\_reporting\_api\_key": "AlzaSyD7UPEZf9wim7JclH8nUZP6mGefqR-oNzY" "google\_maps\_key": "AlzaSyD0Uo4J6unOYCf-N87pL8GfgLyqevN9hho" "file\_provider\_authority": "com.bannerhealth.BannerHealthMobileApp.fileprovider" "firebase\_database\_url": "https://banner-mobile-app.firebaseio.com"

# POSSIBLE SECRETS "google\_api\_key": "AlzaSyD7UPEZf9wim7JclH8nUZP6mGefqR-oNzY" TClFormsetRecyclerViewAdapter+StatusLinkViewHolder DFFormsetRecyclerViewAdapter+BHDFCheckBoxYNViewHolder TClFormsetRecyclerViewAdapter+BHDFBlueTitleChevronlconViewHolder SymptomCheckerLandingFragment+PastResultsViewHolder TClFormsetRecyclerViewAdapter+BHDFCheckBoxYNViewHolder

### > PLAYSTORE INFORMATION

Title: Banner Health

Score: 3.920635 Installs: 100,000+ Price: 0 Android Version Support: Category: Medical Play Store URL: com.bannerhealth.BannerHealthMobileApp

Developer Details: Banner Health, Banner+Health, None, http://www.bannerhealth.com, mybannerhelpline@bannerhealth.com,

Release Date: Jan 17, 2019 Privacy Policy: Privacy link

### **Description:**

Access services and information from Banner Health, regarded and recognized as a top health system in the country for the clinical quality consistently provided to patients. This app includes urgent care search, find a doctor, bill pay, patient portal access, healthcare blog content, and more. Banner Health, making health care easier, so life can be better. Features include: - Find the closest Urgent Care to you, view available times and book your visit. - Find the closest doctor near you or a specific location and search by insurance accepted, specialty, condition, doctor name, language, and more - Call to schedule your doctor or provider visit - Access your patient account to view your medical chart - Pay your bills - View health related articles and content provided by bloggers from across the Banner Health system

### **∷** SCAN LOGS

Timestamp	Event	Error	
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2025-08-29 20:04:56	Generating Hashes	ОК
2025-08-29 20:04:56	Extracting APK	ОК
2025-08-29 20:04:56	Unzipping	ОК
2025-08-29 20:04:57	Parsing APK with androguard	ОК
2025-08-29 20:04:58	Extracting APK features using aapt/aapt2	ОК
2025-08-29 20:04:58	Getting Hardcoded Certificates/Keystores	ОК
2025-08-29 20:05:01	Parsing AndroidManifest.xml	ОК
2025-08-29 20:05:01	Extracting Manifest Data	ОК
2025-08-29 20:05:01	Manifest Analysis Started	ОК
2025-08-29 20:05:01	Performing Static Analysis on: Banner Health (com.bannerhealth.BannerHealthMobileApp)	ОК
2025-08-29 20:05:02	Fetching Details from Play Store: com.bannerhealth.BannerHealthMobileApp	ОК
2025-08-29 20:05:03	Checking for Malware Permissions	ОК

2025-08-29 20:05:03	Fetching icon path	ОК
2025-08-29 20:05:03	Library Binary Analysis Started	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/libmonodroid.so	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/librealm-wrappers.so	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/libxamarin-app.so	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/libmono-native.so	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/libmonosgen-2.0.so	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/libxa-internal-api.so	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/libmono-btls-shared.so	ОК
2025-08-29 20:05:03	Analyzing lib/arm64-v8a/libSkiaSharp.so	ОК
2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/libmonodroid.so	ОК
2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/librealm-wrappers.so	ОК

2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/libxamarin-app.so	ОК
2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/libmono-native.so	ОК
2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/libmonosgen-2.0.so	ОК
2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/libxa-internal-api.so	ОК
2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/libmono-btls-shared.so	ОК
2025-08-29 20:05:03	Analyzing lib/armeabi-v7a/libSkiaSharp.so	ОК
2025-08-29 20:05:03	Analyzing apktool_out/lib/arm64-v8a/libmonodroid.so	ОК
2025-08-29 20:05:03	Analyzing apktool_out/lib/arm64-v8a/librealm-wrappers.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/arm64-v8a/libxamarin-app.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/arm64-v8a/libmono-native.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/arm64-v8a/libmonosgen-2.0.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/arm64-v8a/libxa-internal-api.so	ОК

2025-08-29 20:05:04	Analyzing apktool_out/lib/arm64-v8a/libmono-btls-shared.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/arm64-v8a/libSkiaSharp.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/libmonodroid.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/librealm-wrappers.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/libxamarin-app.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/libmono-native.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/libmonosgen-2.0.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/libxa-internal-api.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/libmono-btls-shared.so	ОК
2025-08-29 20:05:04	Analyzing apktool_out/lib/armeabi-v7a/libSkiaSharp.so	ОК
2025-08-29 20:05:04	Reading Code Signing Certificate	ОК
2025-08-29 20:05:05	Running APKiD 2.1.5	ОК

2025-08-29 20:05:10	Detecting Trackers	ОК
2025-08-29 20:05:12	Decompiling APK to Java with JADX	ОК
2025-08-29 20:05:25	Converting DEX to Smali	ОК
2025-08-29 20:05:25	Code Analysis Started on - java_source	ОК
2025-08-29 20:05:26	Android SBOM Analysis Completed	ОК
2025-08-29 20:05:31	Android SAST Completed	ОК
2025-08-29 20:05:31	Android API Analysis Started	ОК
2025-08-29 20:05:34	Android API Analysis Completed	ОК
2025-08-29 20:05:34	Android Permission Mapping Started	ОК
2025-08-29 20:05:38	Android Permission Mapping Completed	ОК
2025-08-29 20:05:38	Android Behaviour Analysis Started	ОК
2025-08-29 20:05:42	Android Behaviour Analysis Completed	ОК

2025-08-29 20:05:42	Extracting Emails and URLs from Source Code	ОК
2025-08-29 20:05:43	Email and URL Extraction Completed	ОК
2025-08-29 20:05:43	Extracting String data from APK	ОК
2025-08-29 20:05:43	Extracting String data from SO	ОК
2025-08-29 20:05:44	Extracting String data from Code	ОК
2025-08-29 20:05:44	Extracting String values and entropies from Code	ОК
2025-08-29 20:05:46	Performing Malware check on extracted domains	ОК
2025-08-29 20:05:49	Saving to Database	ОК

### Report Generated by - MobSF v4.4.0

Mobile Security Framework (MobSF) is an automated, all-in-one mobile application (Android/iOS/Windows) pen-testing, malware analysis and security assessment framework capable of performing static and dynamic analysis.

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