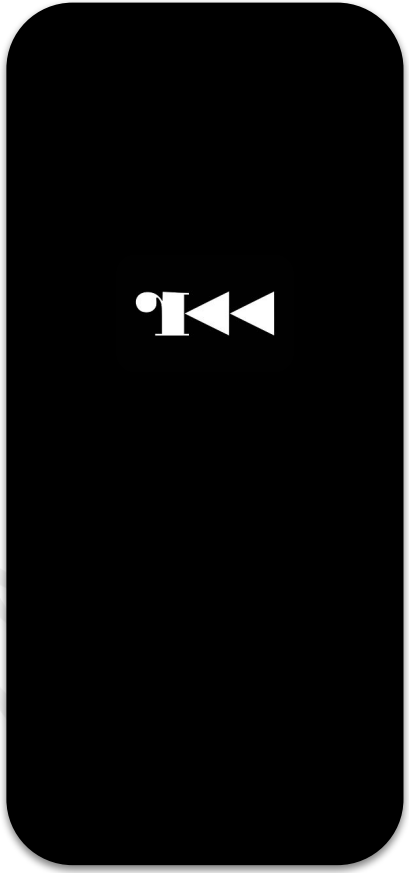

Using r2 to Uncover Mobile App Weaknesses

Carlos Holguera @ r2con
24 October 2025

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Mobile Application Security (MAS)
Flagship Project Co-leader

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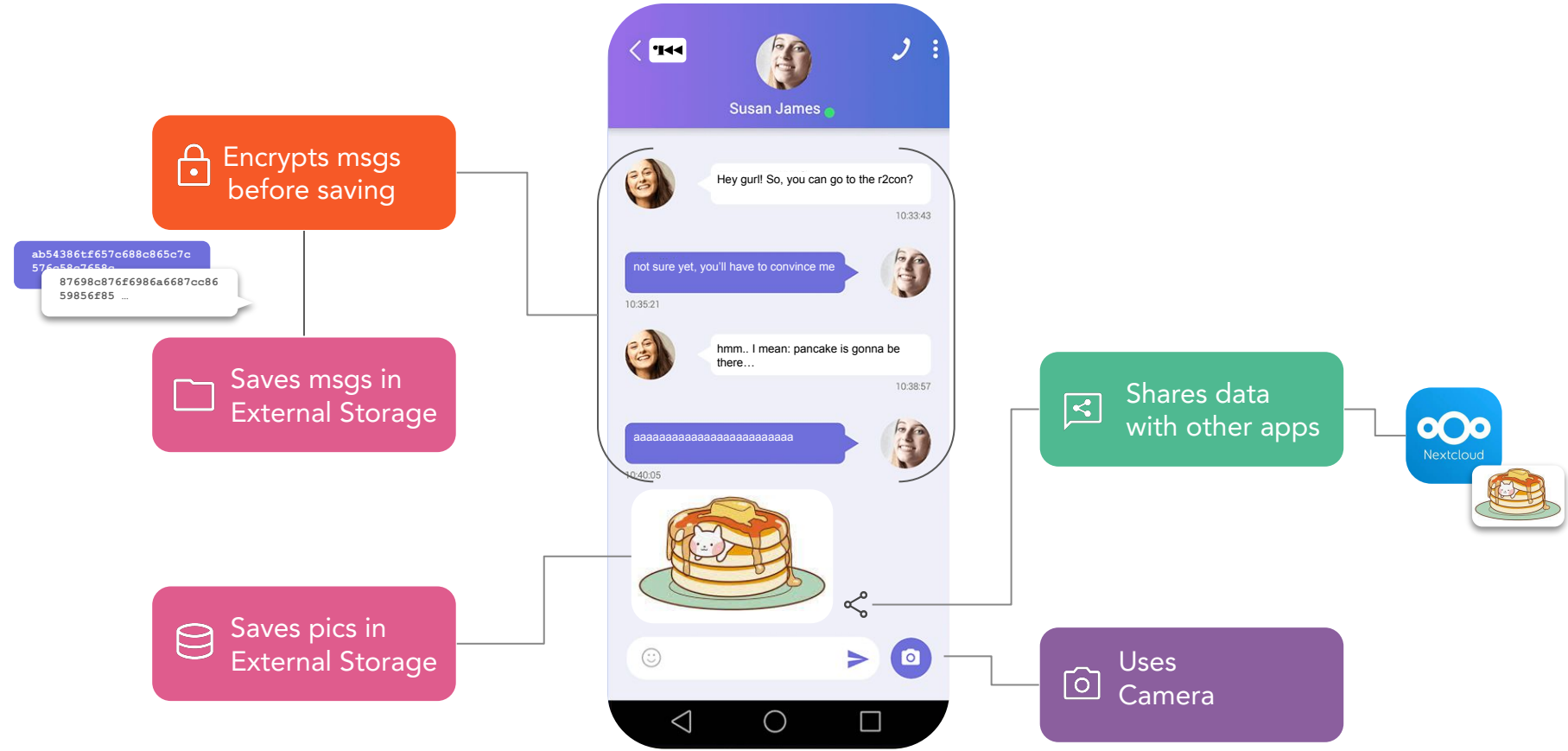
NowSecure
Principal Mobile Security
Research Engineer

@grepharder


Encrypts msgs before saving
ab54386tf657c688c865c7c
87698c876f6986a6687cc86
59856f85 …
Saves msgs in External Storage
Saves pics in External Storage
Susan James
Hey gurl! So, you can go to the r2con?
10:33:43
not sure yet, you'll have to convince me
10:35:21
hmm.. I mean: pancake is gonna be there…
10:38:57
aaaaaaaaaaaaaaaaaaaaaaa
10:40:05
Shares data with other apps
Nextcloud
Uses Camera


High-level
Less Specific
MASVS
Example
Insecure Crypto is bad
MASWE
Example
The app uses weak
Encryption Algorithms
MASTG
Example
Test for Cipher objects
using DES
Low-level
More specific

MASVS-CRYPTO-1

The app employs current strong cryptography and uses it according to industry best practices.

L1 L2

Weakness: Cryptographically Weak Pseudo-Random Number Generator (PRNG)

Test 1: Insecure Random API Usage

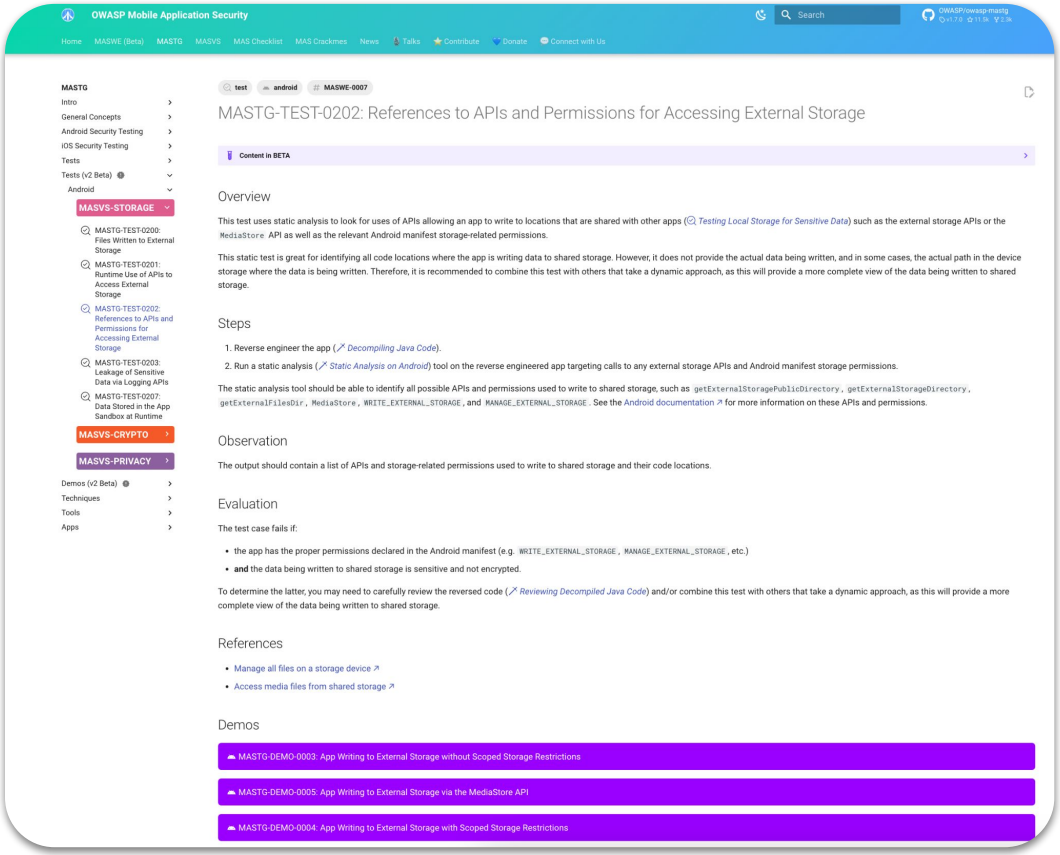
Demo 1: Common Uses of Insecure Random APIs

Sample Code | Test Script

SAST Rule * | Output

Test 2: Non-random Sources Usage

Tests



What are we testing and why?

Steps to test

Output of test

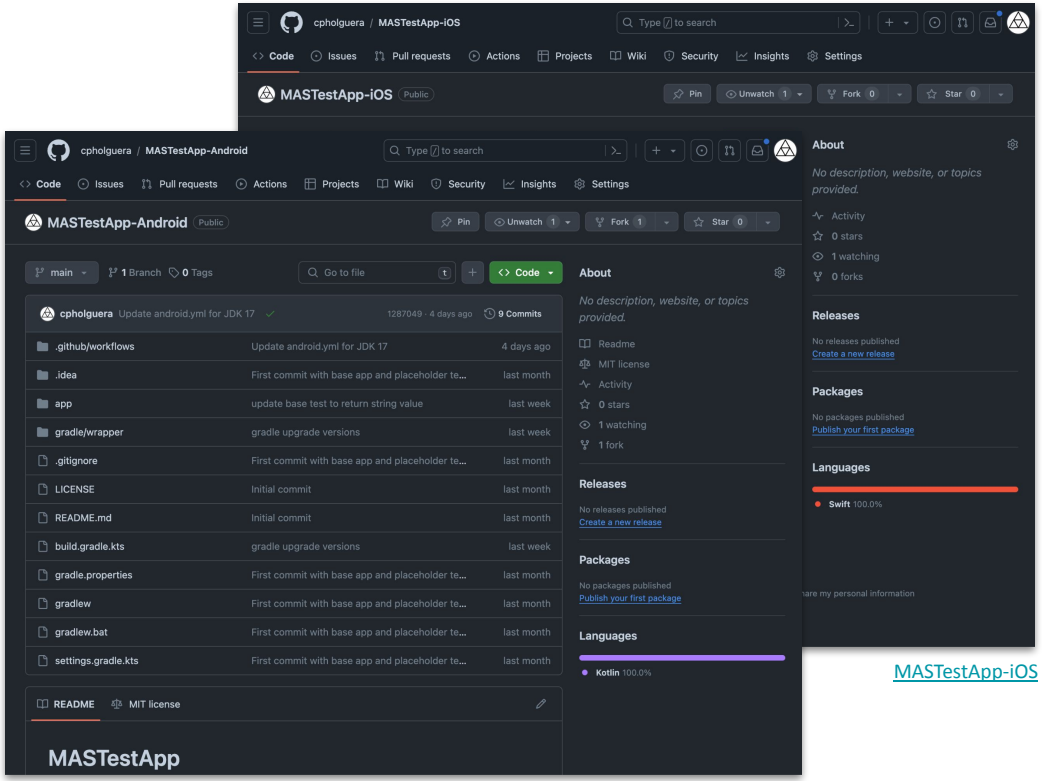
How to evaluate?

Links to demos

mas.owasp.org

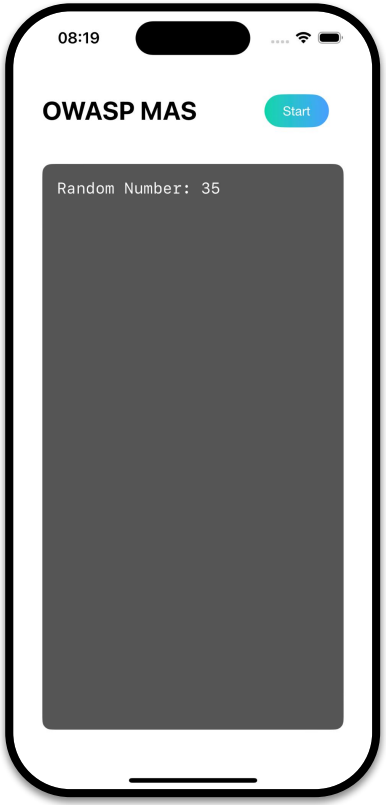
MAS Test Apps

MASTestApps

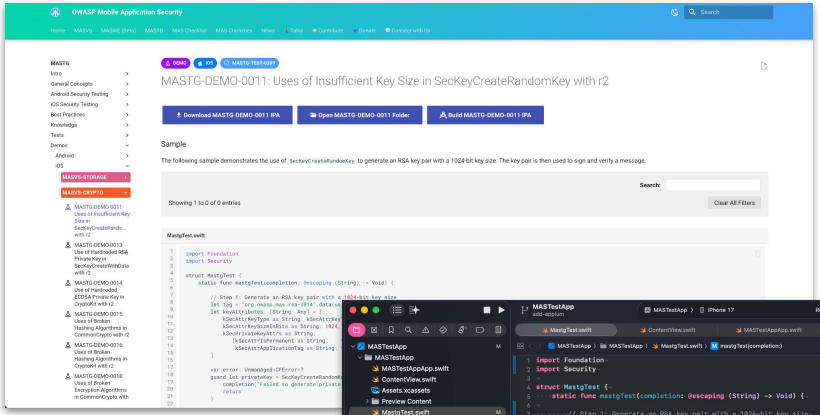


MASTestApp-iOS

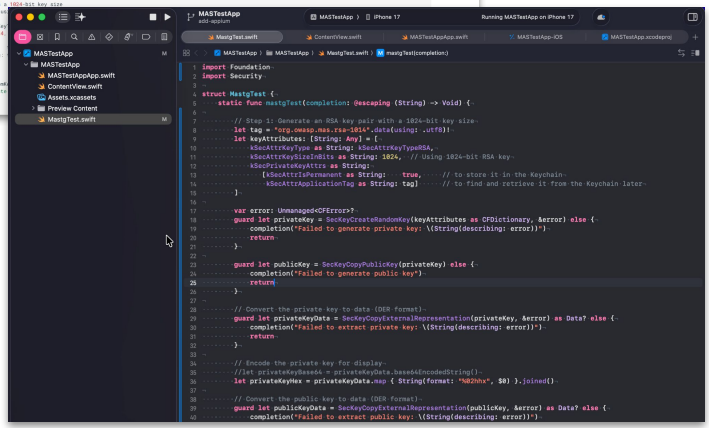
MASTestApp-Android



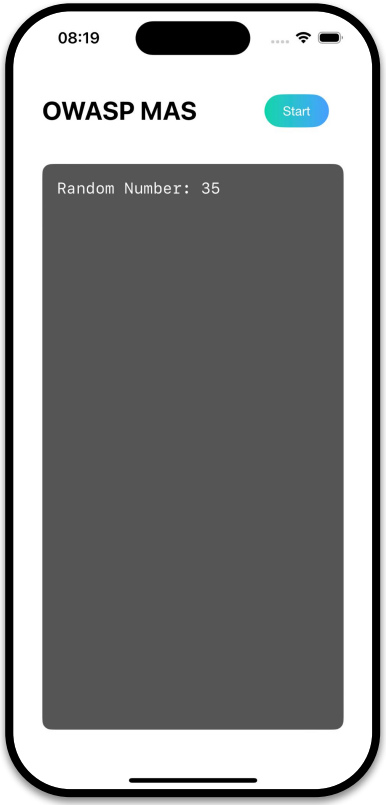
MASTestApps



Copy



Paste



Run

Demos:

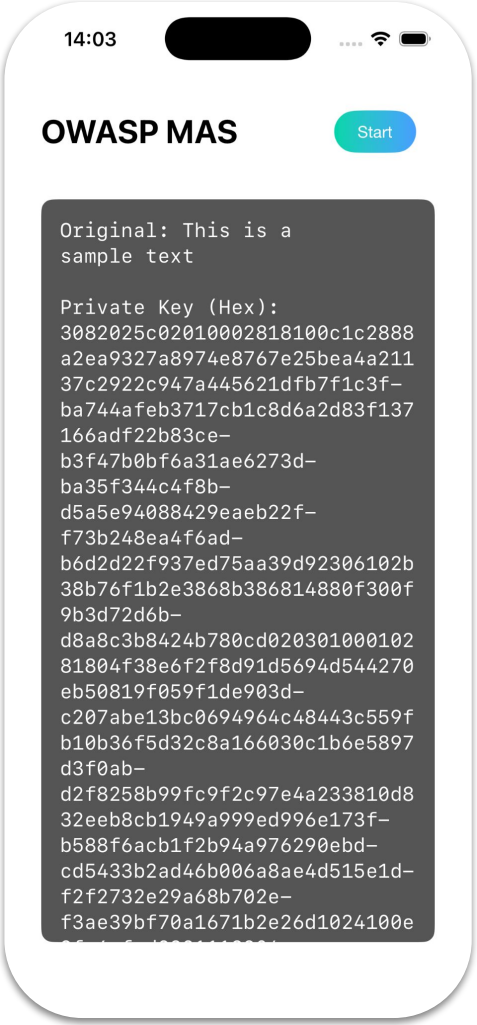
MASWE vulnerable code samples as downloadable apps

MASVS-CRYPTO

MASTG-DEMO-0011

Uses of Insufficient Key Size in `SecKeyCreateRandomKey` with r2

TEST | DEMO



MASVS-CRYPTO

MASTG-DEMO-0015

Uses of Broken Hashing Algorithms in CommonCrypto with r2

TEST | DEMO

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mas.owasp.org/contact

References

https://mas.owasp.org/MASTG/
https://mas.owasp.org/MASWE/

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https://github.com/cpholguera/MASTestApp-iOS/

https://github.com/radareorg/radare2-mcp