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Kotlin static code analysis

Unique rules to find Bugs, Vulnerabilities, Security Hotspots, and Code Smells in your KOTLIN code

All rules 98 | Vulnerability 10 | Bug 17 | Security Hotspot 15 | Code Smell 56

Tags

Search by name...

Hard-coded credentials are security-sensitive
Security Hotspot

Cipher algorithms should be robust
Vulnerability

Encryption algorithms should be used with secure mode and padding scheme
Vulnerability

Server hostnames should be verified during SSL/TLS connections
Vulnerability

Server certificates should be verified during SSL/TLS connections
Vulnerability

Cryptographic keys should be robust
Vulnerability

Weak SSL/TLS protocols should not be used
Vulnerability

"SecureRandom" seeds should not be predictable
Vulnerability

Cipher Block Chaining IVs should be unpredictable
Vulnerability

Hashes should include an unpredictable salt
Vulnerability

Regular expressions should be syntactically valid
Bug

"runFinalizersOnExit" should not be called
Bug

Server hostnames should be verified during SSL/TLS connections

Analyze your code

Vulnerability | Critical | cwe privacy owasp ssl

To establish a SSL/TLS connection not vulnerable to man-in-the-middle attacks, it's essential to make sure the server presents the right certificate.

The certificate's hostname-specific data should match the server hostname.

It's not recommended to re-invent the wheel by implementing custom hostname verification.

TLS/SSL libraries provide built-in hostname verification functions that should be used.

Noncompliant Code Example

When using the okhttp library, a custom unsecure hostname verifier accepting every hostname is used:

```
val builder = OkHttpClient.Builder()
builder.hostnameVerifier(object : HostnameVerifier {
  override fun verify(hostname: String?, session: SSLSes
    return true // Noncompliant (s5527)
  }
})
```

Compliant Solution

When using the okhttp library, if `hostnameVerifier` method is not used to set a verifier, then a built-in secure one will be used:

```
val builder = OkHttpClient.Builder()
```

See

- OWASP Top 10 2021 Category A2 - Cryptographic Failures
- OWASP Top 10 2021 Category A5 - Security Misconfiguration
- OWASP Top 10 2021 Category A7 - Identification and Authentication Failures
- OWASP Top 10 2017 Category A3 - Sensitive Data Exposure
- OWASP Top 10 2017 Category A6 - Security Misconfiguration
- Mobile AppSec Verification Standard - Network Communication Requirements
- OWASP Mobile Top 10 2016 Category M3 - Insecure Communication
- MITRE, CWE-297 - Improper Validation of Certificate with Host Mismatch

Available In:

sonarlint | sonarcloud | sonarqube

"ScheduledThreadPoolExecutor" should not have 0 core threads

Bug

Jump statements should not occur in "finally" blocks

Bug

Using clear-text protocols is security-sensitive

Security Hotspot

Accessing Android external storage is security-sensitive

Security Hotspot

Receiving intents is security-sensitive

Security Hotspot

Broadcasting intents is security-sensitive

Security Hotspot

Using weak hashing algorithms is security-sensitive

Security Hotspot

Using pseudorandom number generators (PRNGs) is security-sensitive

Security Hotspot

Empty lines should not be tested with regex MULTILINE flag

Code Smell

Cognitive Complexity of functions should not be too high

Code Smell