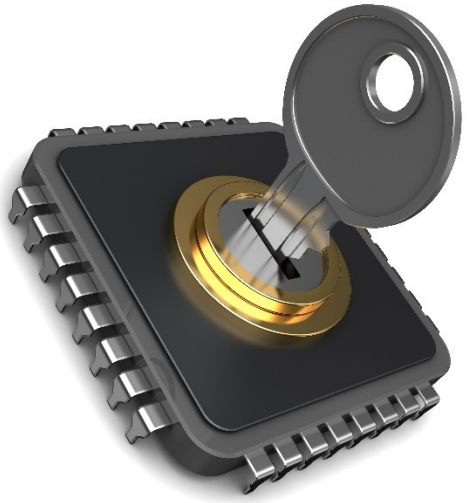
Introduction to Information Security

Tutorial Android Security



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TU Graz

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Android Security - Assignment

2 Applications
- First application collects data (images, videos, audio etc...) from the user without noticing
- The second has network access or a similar technique for sending data to the attacker
- The first app connects to the network app (via a covert channel) and transfer the data, so the gathered data can be send to the attacker via the second app

Android Security - Tools

Android SDK
- Software Development Kit
- Include basic tools for app development without IDE
- https://developer.android.com/sdk/index.html#Other

Android NDK
- Native Development Kit
- Toolset for using native-code languages
- Maybe needed for some cool ideas (covert channel)
-https://developer.android.com/ndk/downloads/index.html

Android Security - Tools

IDE:
Android Studio
- https://developer.android.com/sdk/index.html

Eclipse
- With the right plugin
- https://eclipse.org/

Android Security – Permission System

- By default a Android application has no permissions associated with it
- If you want to use protected features of the device, you must include the right `<uses-permission/>` in your app manifest
- User has to accept the different permissions the app uses

- For example, an application that needs to monitor incoming SMS messages:

```
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
package="com.android.app.myapp" > <uses-permission
android:name="android.permission.RECEIVE_SMS" /> ... </manifest>
```

Android Security – Covert Channel

- "channels not intended for information transfer at all, such as the service program's effect on system load."
- Your main task is to build such a covert channel between your apps
- Team up to 4 members –> try out different covert channels
- What covert channel do you know?
- What could be possible covert channels in Android?

Android Security - Get started

- Think about the context of your apps
- Decide the data you want to exploit
- Gather ideas for some different cover channels
- Use the developers website as a start point
- http://developer.android.com/index.html

Android Security - Spec part

What do we expect?
- Ideas for different cover channels
- The context of your app
- Present the apps in a way that the user does not get suspicious
- At the best already something implemented

You will get
- Feedback on your ideas (do they make sense to implement...)
- Design discussion

Android Security - Further challenges

- No more forced meetings with you tutor
- BUT you can contact your tutor to set up a meeting
- No additional material
- You will have to implement your own ideas (of course with a little help from us)

Android Security - Final Deliverable

- A working collusion attack
- The 2 apps are implemented with (at least) one covert channel
- You will have a short assignment talk with tutor
- Every team member must know the whole code and the ideas behind

The Grade will depend on
- The ideas and implementations of the covert channels
- How good you sell the context of the apps to the user
- How much work was done by _you_

Android Security - Questions

If you have any questions,
- ask them now.
- ask them in the newsgroup (general questions)
- send an email (questions for possible solutions etc.)