

Configuration Manual

MSc Internship
Cyber Security

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1 Overview

The proposed application is an android based NFC reading software that is used to detect malicious URL present inside a Near Field Communication(NFC) tag. This application was developed as a part of research focusing on the security aspect of the NFC communication. The research was specifically centred on ways to prevent NFC enabled smartphones from being exploited.

This is a modified version of a regular NFC reading application[1] that was taken from GitHub. This application has been modified specifically to analyse URL based record within the tag in order to identify malicious URL.

2 Software and Hardware Requirement

- NFC enabled Android smartphone

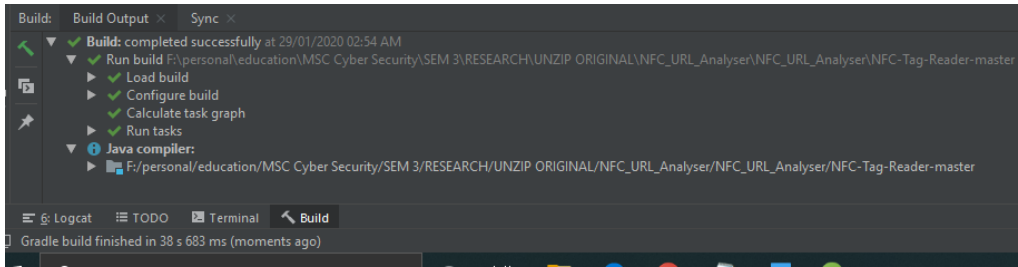
Minimum requirement

- OS version -> Android 4.0.3 above
- NFC enabled
- RAM -> 1 GB or above
- ROM -> 8GB and above
- NFC tag – (preferred = NXP MIFARE Ultralight)
Memory – Minimum 180 bytes
- Android Studio [2]

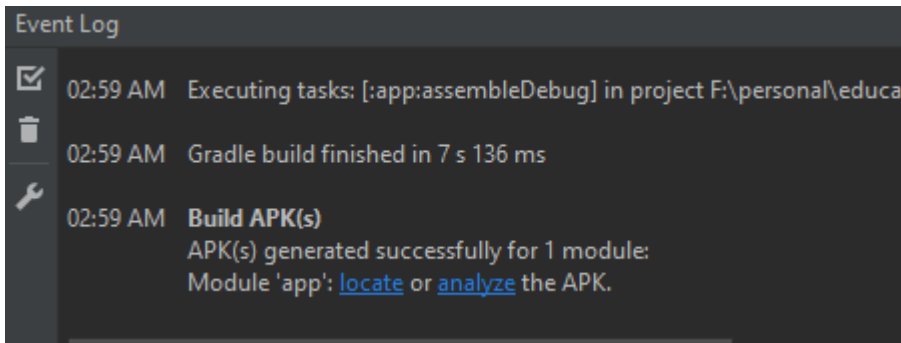
3 Installation

3.1 Generating apk

- Download the application source code (zip file) from GitHub [3].
- Extract the zip file and open the project in android studio.
- Perform gradle build by navigating to Build > Make Project



- Generate the apk by navigating to Build > Build Bundle(s)/APK(s) > Build APK(s).



- Locate the generated apk and transfer it into the reader (Android phone).

3.2 Installation of apk

- Before installing make sure to check the Unknown sources
- Settings>security> enable allow installation of app from unknown sources

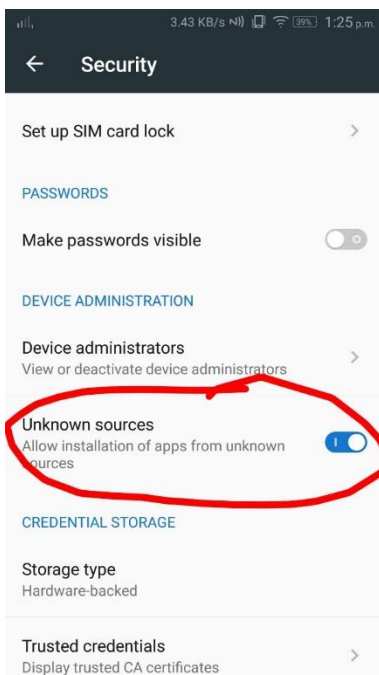


Figure 1:enabling Unknown sources

- Install the application.

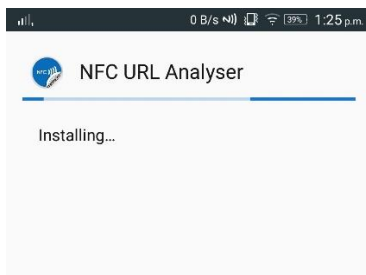


Figure 2 Installing the application

- Enable the NFC in the phone
- Open the app > click allow app the permission to access the internal storage.
- Tap on the NFC tag that contain the URL
- Get the result on the UI

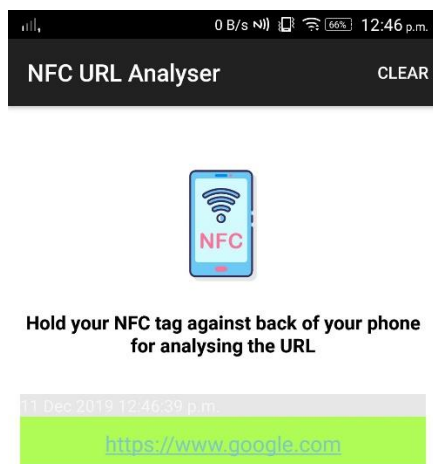


Figure 3: Detecting good URL

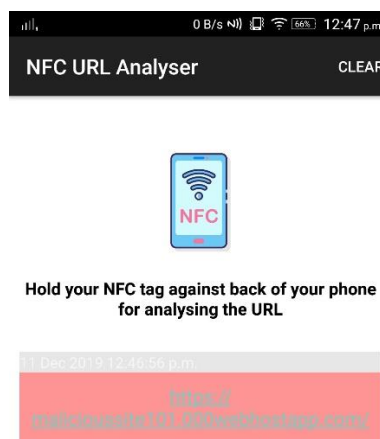


Figure 4: Detecting Bad URL

References

- [1]"legenddcr/MyNFCReader", *GitHub*, 2019. [Online]. Available: <https://github.com/legenddcr/MyNFCReader>. [Accessed: 12- Dec- 2019].
- [2] Android Developers. (2020). *Download Android Studio and SDK tools | Android Developers*. [online] Available at: <https://developer.android.com/studio> [Accessed 29 Jan. 2020].
- [3] GitHub. (2020). *tony09thomas/NFC_URL_Analyser*. [online] Available at: https://github.com/tony09thomas/NFC_URL_Analyser [Accessed 29 Jan. 2020].