Identification of Hidden Data from Android Phone

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***Abstract*- We develop an android mobile based android application that identify user all the data that is hidden in android mobile phone using any type hidden method used to hide the data in android mobile. We identify all types of Hidden data is internal or external stored medium. All data are identified by application is user get easily from the application.**

***Index terms*- Android Phone, Hidden data, Android applications, Storage**

1.INTRODUCTION

Android mobile platform is based on the Linux kernel. That is supported across a wide range of devices. This application has resulted in all of applications written for the Android operating system.

Specific security features have been built into the based platform from which is the not require a specific hardware manufacturers build from to create their own Android for their hardware. But there are a number of consistencies including the Dalvik virtual machines to create an application sandbox.

Some data hiding applications allow the native Linux functionality to be leveraged for hiding data. The application available from Google Play (Android Marketplace), it provides a number of stealthy features to evade detection from the casual or nosey observer. Many applications is designed to allow the user to hide files and folders from other users or the Android smartphone.

2. METHODOLOGY

The application hides itself behind any other application it also deployed during the install. In android base operating system data hiding application is creates a separate directory for storing the files and also rename the files with an arbitrary extension.

This directory is found on the SD card under /mnt/sdcard in ProgramData/Android/Language. Application uses this to further disguise itself on the SD card, by creating a hidden directory in this case ".fr" in the Language directory. This is intentional as Android Gallery ignores files with filenames that are prepended with a ".".

Application uses this technique to hide files from a casual user looking for multimedia files. When the installation is complete, the user can hide multimedia files through application. Simply choose required file within Android Gallery and select Menu and then Share.

Files saved in application are renamed with a ∗.bin extension. A Linux directory listing reveals the aforementioned hidden directories and renamed files.

Once hidden within application, the multimedia files are removed from the Android Gallery. But of course the files can still be accessed through application.

For providing data security application developers use encryption algorithm for data encryption like SHA-1, SHA-2, MD5, etc.

SHA-1

SHA-1 (Secure Hash Algorithm 1) is a cryptographic hash function which takes an input and produces a 160-bit (20-byte) hash value known as a message digest – typically rendered as a hexadecimal number, 40 digits long.

MD5

MD5 message-digest algorithm is a widely used hash function producing a 128-bit hash value. Although MD5 was initially designed to be used as a cryptographic hash function, it has been found to suffer from extensive vulnerabilities. It can still be used as a checksum to verify data integrity, but only against unintentional corruption.

3. IMPLEMENTATION AND RESEARCH

There are many techniques for hiding data in android phone using different watermarking and other technique for user to hide the data.

There are many android base application available on android application market place for download. The application and user can used it for hiding data and stored data on that application. All application is used different type of data hiding methods for hidden photos, videos, and etc. many application uses encryption algorithm for encrypting the photos, videos, etc. and providing the security of that user data.

All application uses some Linux base system for hiding data in android phone and providing security for the data.

We used top application that used data hiding in android phone and we observe the activity for identification of data processing and managing the all data.

All application uses the different categories algorithm and key for encryption and decryption for stored in local database. That decryption of the data recover files from hidden location to previously original location and name.

Android data hiding application is data base backup on local storage or any cloud base system for recovering the data decryption key for unhide the data from android applications.

Android phone providing security for that application to data storing and allowed other application for accessing the data. Data hiding in android phone is easily not accessing the other permission for the data sharing and information to allow.

Identification of hidden data from application

3.1 Sgallery-Hide photos, hide video, gallery vault

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone. Storage location in internal storage or External storage of devices as follow,"storage/emulated/0/.privacy_safe"."privacy_safe" folder is hidden folder created by application for storing information of user data.

These application contain "Account, db, decrypt, picture" folders for data hiding and store image and video. "Account db" folder is storing information of user name and PIN for accessing application data.in this method dara are store in same file name and same file of original file that can hide.

3.2 Dialer vault-AppHider

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone. Storage location in internal storage or External storage of devices as follow, "storage/emulated/0/. VaultDialerGallery". ".VaultDialerGallery" folder is hidden folder created by application for storing information of user data.

These application contain "Nomedia, Main album, Trash" folder for data hiding and store image and video. "Main Album" folder has stored all image and video that user hide. Data are stored in same file format withy same file name and other information.

3.3 Vault-Hide Pics & Video, App Lock

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone storage location in internal storage or External storage of devices as follow,

"/storage/emulated/0/SystemAndroid/Data/…/.image " ".Image" folder is hidden folder created by application for storing information of user data.

These application contain "Image, Video" folder for data hiding and store image and video. "Image" folder storing user image that user hide. Image and video size is compress and stored in local storage medium and file name and other information is encypted.

3.4 Calculator-Photo Vault & Video Vault hide Photos

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone storage location in internal storage or External storage of devices as follow, "/storage /emulated /0/. privacy_safe". ".privacy_safe" folder is hidden folder created by application for storing information of user data.

These application contain "Account, db, decrypt, picture" folder for data hiding and store image and video. "decrypt" folder storing decrypted data from

application. Data are stored in compress format and size limit 8KB to 10KB for data

3.5 Notepad Vault-AppHider

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone storage location in internal storage or External storage of devices as follow, "/storage/emulated/0/VaultNotepadGallery". ".VaultNotepadeGallert" folder is open folder created by application for storing information of user data.

These application contain "Nomedia, Main album, Trash" folder for data hiding and store image and video. "Trash" folder store deleted data from application. Data stored is extension of file is ".anBn.22" file name and other information is same with original file data.

3.6 Safe Folder Vault AppLock: Hide photo and video

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone storage location in internal storage or External storage of devices as follow, "/storage/emulated/0/.SafeFolderAndVault". ".SafeFolderAndVault" folder is hidden folder created by application for storing information of user data.

These application contain "Image, Video" folder for data hiding and store image and video. "Video" folder storing user Video that is hide by application. Details of file is don't show in the application and size of image and video is compressed.

3.7 Audio Manager Gallery Vault: Hide photos-video

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone storage location in internal storage or External storage of devices as follow, "/storage/emulated/0/.wr_audiomanager". ".wr_audiomanager" folder is hidden folder created by application for storing information of user data.

These application contain "Audio, Image, Video" folder for data hiding and store image and video. "Audio" folder storing user Audio formatted data that user hide. In this case file extension is change to hide data is ".jpg.lock"

3.8 Easy vault: Hide Picture

This application is downloaded from Android application Marker place for hiding data. Using these application data is hidden and identified by application from Android Phone storage location in internal storage or External storage of devices as follow,

"/storage/emulated/0/.vault_com_gamemalt_vault_do_not_delete".

".Vault_com_gamemalt_do_not_delete" folder is hidden folder created by application for storing information of user data.

These application contain "HiddenFolder" folder for data hiding and store image and video. "HiddenFolder" folder storing all file in one folder. File name and other information is change and encrypt name of file.

4. CONCLUSION

Application can identify all hidden data from the android phone. So, user can easily get information in application and allow sharing to other applications. It can handle all data encryption and decryption of data retrieve display list.

Application uses identification of all data that is hidden by third party application. This data provides their method of hiding, methodology and technique in android phone. Though, this application used for retrieve hidden data.

5. FUTURE RESEARCH

In future, Development and identification of different Android based operating system for the identification of hidden data can be possible. Many projects are being developed considering various data hiding techniques, especially watermark-based methods in smartphone-driven scenarios. Researcher can try to identify more application data hiding methods and retrieve data for user securely.

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