

STEGOSUITE

AIM: To familiarize steganography tools in linux

DESCRIPTION

With the rapid growth of network bandwidth and digital-communication techniques, the Internet is available to the majority of the population and it also becomes the common channel for transmitting many documents—for instance, video, image, text, and audio (in digital form). Many practices and methods have been developed to make the transmission of data more secure. The problem is that the focus of the current research is mainly on the better designing of data-hiding techniques used for transmitting secret data where digital images are selected as the cover-media. Unlike the other forms of communication, the process of steganography is defeated when the communication between sender and receiver is detected. Therefore, the first requirement for a good steganographic structure is it is undetectable.

Hiding secret information in Audio and Images: Many methods for hiding information in audio and images exist. These methods may include hiding information in unused space in file headers to hold “extra” information. Embedding techniques can range from the placement of indistinguishable information level, sometimes it includes manipulation of compression algorithms, and to the extent of modification of properties of the carrier. In audio file Steganography, small echoes or slight delays can be added or indistinct signals can be masked by sounds of higher amplitude.

Stegosuite: Stegosuite is a graphical steganography tool (this is the main difference between Stegosuite and Stegohide). It is used to hide secret data or information in image files. Stegosuite provides the facility of embedding text messages and multiple files of any type. To make the process of embedding more secure, the embedded data is encrypted using AES (Advanced Encryption Standard). Currently, the Stegosuite tool supports BMP, GIF, JPG, and PNG file types.

PROCEDURE

Installing Stegosuite: To install the Stegosuite tool in Kali Linux follow the below commands.

sudo apt-get update -y

// Execute above command first then execute

// next command to avoid Archives

// Installation Error

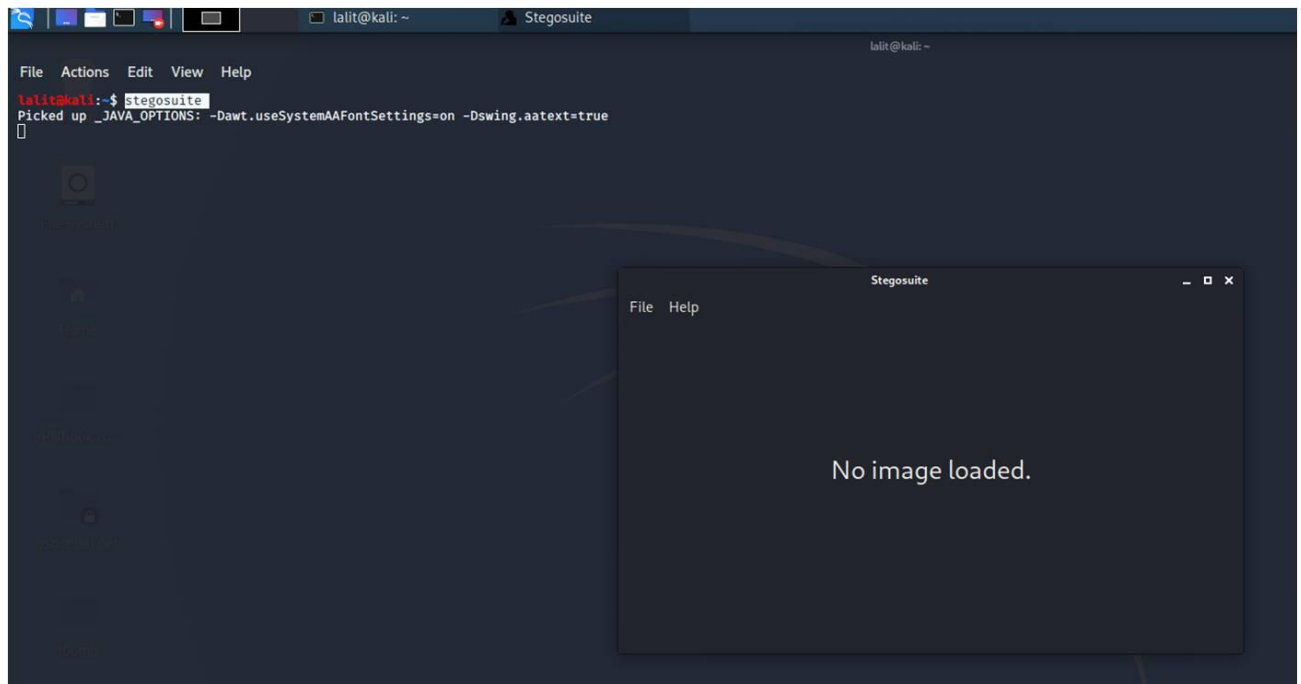
sudo apt-get install stegosuite

```
lalit@kali:~$ sudo apt-get update -y
Get:1 http://ftp.harukasan.org/kali kali-rolling InRelease [30.5 kB]
Get:2 http://ftp.harukasan.org/kali kali-rolling/main amd64 Packages [17.0 MB]
Get:3 http://ftp.harukasan.org/kali kali-rolling/non-free amd64 Packages [199 kB]
Get:4 http://ftp.harukasan.org/kali kali-rolling/contrib amd64 Packages [102 kB]
Fetched 13.9 MB in 2min 42s (86.0 kB/s)
Reading package lists... Done
lalit@kali:~$
```

```
File Actions Edit View Help
lalit@kali:~$ sudo apt install stegosuite
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libgfpio libgfrpc0 libgfxdr0 libglfw3 libglusterfs0 libgnuradio-fosphor3.8.0 libpython3.7-dev python3.7-dev
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  liblogback-java libslf4j-java libswt-cairo-gtk-4-jni libswt-gtk-4-java libswt-gtk-4-jni
Suggested packages:
  groovy libjanino-java libjansi-java libjetty9-java libmail-java libservlet3.1-java libtomcat9-java libcommons-logging-java liblog4j1.2-java
The following NEW packages will be installed:
  liblogback-java libslf4j-java libswt-cairo-gtk-4-jni libswt-gtk-4-java libswt-gtk-4-jni stegosuite
0 upgraded, 6 newly installed, 0 to remove and 1927 not upgraded.
Need to get 1,866 kB/2,951 kB of archives.
After this operation, 6,248 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://ftp.harukasan.org/kali kali-rolling/main amd64 libswt-gtk-4-jni amd64 4.17.0-1 [166 kB]
Get:2 http://ftp.harukasan.org/kali kali-rolling/main amd64 libswt-cairo-gtk-4-jni amd64 4.17.0-1 [31.5 kB]
Get:3 http://ftp.harukasan.org/kali kali-rolling/main amd64 libswt-gtk-4-java amd64 4.17.0-1 [1,668 kB]
Fetched 1,866 kB in 11s (165 kB/s)
Selecting previously unselected package libslf4j-java.
(Reading database ... 433232 files and directories currently installed.)
Preparing to unpack .../0-libslf4j-java_1.7.25-3_all.deb ...
Unpacking libslf4j-java (1.7.25-3) ...
Selecting previously unselected package liblogback-java.
Preparing to unpack .../1-liblogback-java_1.3.0-5_all.deb ...
Unpacking liblogback-java (1.3.0-5) ...
Selecting previously unselected package libswt-gtk-4-jni.
Preparing to unpack .../2-libswt-gtk-4-jni_4.17.0-1_amd64.deb ...
Unpacking libswt-gtk-4-jni (4.17.0-1) ...
Selecting previously unselected package libswt-cairo-gtk-4-jni.
Preparing to unpack .../3-libswt-cairo-gtk-4-jni_4.17.0-1_amd64.deb ...
Unpacking libswt-cairo-gtk-4-jni (4.17.0-1) ...
Selecting previously unselected package libswt-gtk-4-java.
Preparing to unpack .../4-libswt-gtk-4-java_4.17.0-1_amd64.deb ...
Unpacking libswt-gtk-4-java (4.17.0-1) ...
Selecting previously unselected package stegosuite.
Preparing to unpack .../5-stegosuite_0.8.0-2_all.deb ...
Unpacking stegosuite (0.8.0-2) ...
Setting up libslf4j-java (1.7.25-3) ...
Setting up liblogback-java (1.3.0-5) ...
Setting up libswt-gtk-4-jni (4.17.0-1) ...
Setting up libswt-cairo-gtk-4-jni (4.17.0-1) ...
Setting up libswt-gtk-4-java (4.17.0-1) ...
Setting up stegosuite (0.8.0-2) ...
Processing triggers for desktop-file-utils (0.24-1) ...
Processing triggers for mime-support (3.64) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for man-db (2.9.0-2) ...
Processing triggers for kali-menu (2020.1.7) ...
lalit@kali:~$
```

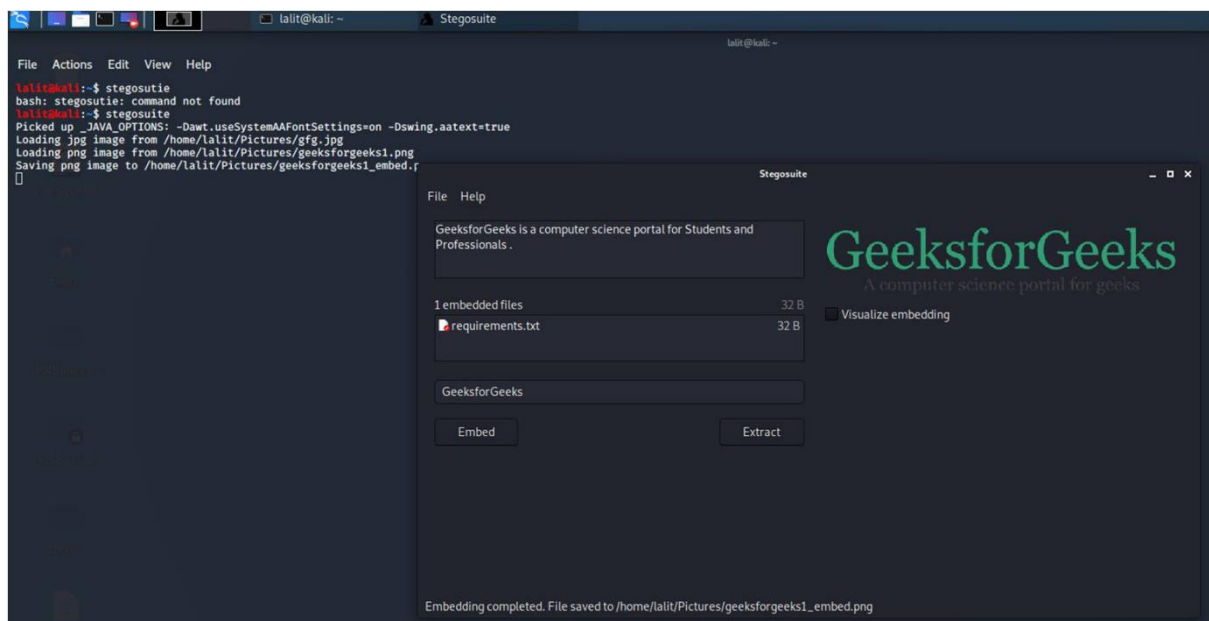
Now after complete execution of the above commands. To run Stegosuite simply type “stegosuite” in terminal.

stegosuite



Embed data:

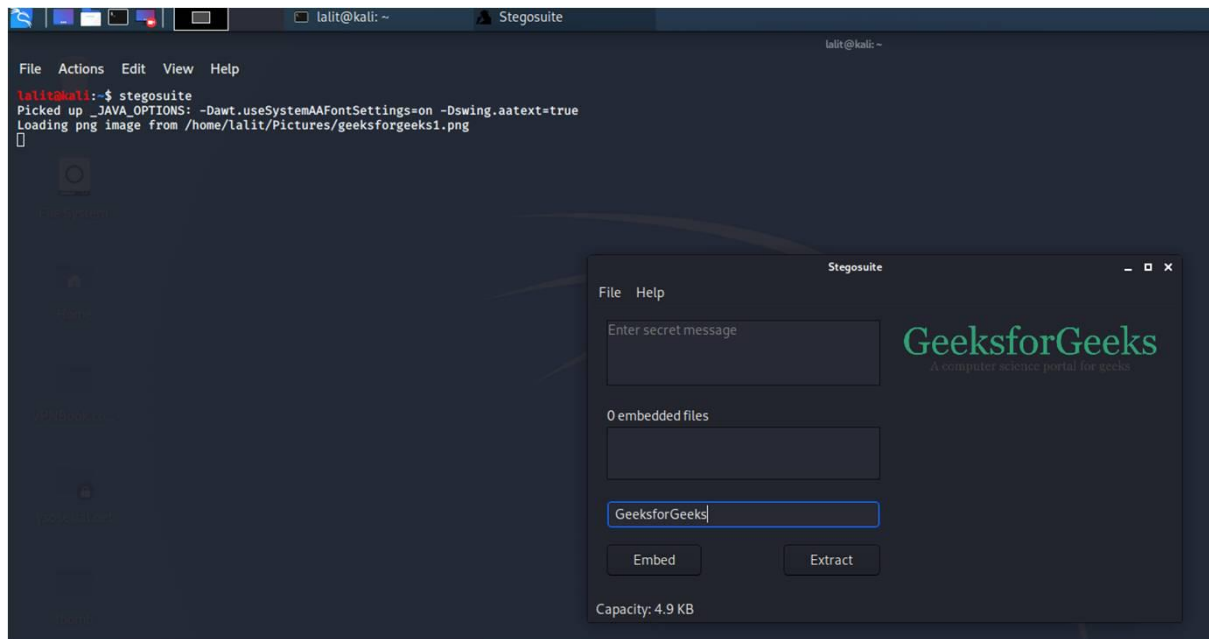
1. *stegosuite* command will open the Stegosuite window.
2. Click on the file in the Stegosuite window to select the image file.
3. Type the secret message or select the text files you want to embed in the image.
4. Choose any password and after that click on the Embed button.



In the above image, We are hiding a secret message as well as a text file. Then we just need to click on Embed and Steganography will be done.

Extract Data:

1. Click on the file in Stegosuite window to select the stego file you want to extract hidden information from
2. Type the password and click the extract button
3. The hidden data will be extracted



Type your Password and click on Extract. The hidden message and text files will be visible now.