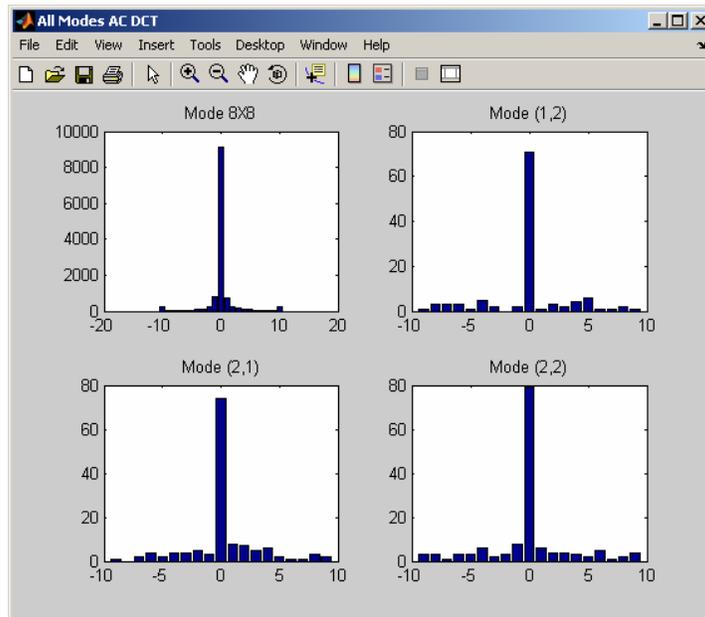
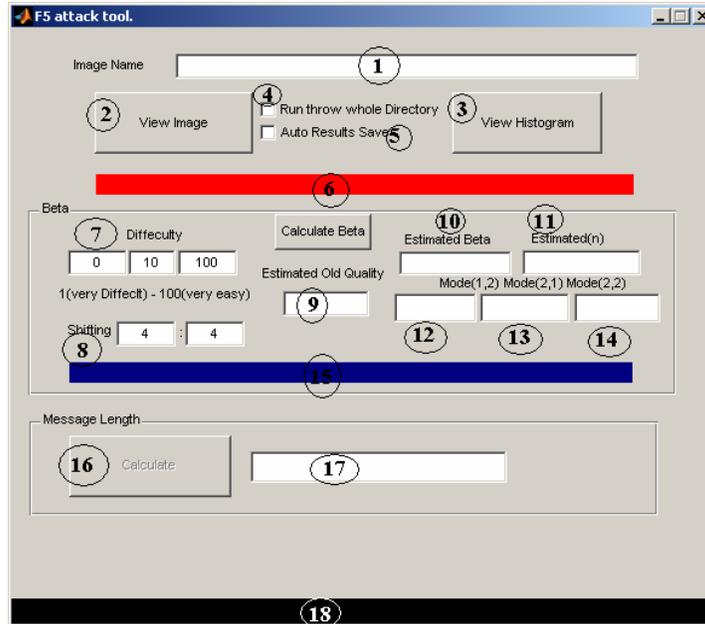


F5 Attack Tool

1. Screen Shots



2. Getting Started

To run the tool executes the "F5_Tool.EXE" file. Click on the Run Button. Enter the image name with full path, example "c:/Images/MyPic.jpg". Press the "End" key on your keyboard. Now Click the Button "Calculate Beta". Wait for a while depending on the image size. You can see the progress of the processing on the blue and red progress bars. After Beta is calculated, if its value is positive then you can click on "calculate" button in Message Length Section to calculate the estimated secret message length in KB.

3. Performance Tuning

You can adjust the Old quality range and steps (default is 0:10:100 that is 0, 10, 20...100). More are the steps more accurate are the results but more processing time. Also you can specify the shifting range (default is 4:4 only one shift by 4 in both direction). More is the range more accurate are the results but more processing time.

Example:

Quality Range (0:50:100) resulting 3 steps: 0, 50, and 100.

Shifting Range (1:8) resulting 64 shifts in both directions: 1-1, 1-2, 1-3,...,8-7,8-8.

Note: Shifting step x-y means shifting the image by x in horizontal and y in vertical.

4. Auto Save

You can automatically save you results on a Matlab data file by checking on the "Auto Results Save" Button. The data file is saved on the same image directory with the name "(ImageName.jpg)Results.MAT".

5. Operation Modes

You can use the tool to calculate only one image on a time. Also there are a batch mode that you can use to run the tool through a set of images located in the same directory. To use the batch mode you must click the "Run Throw Whole Directory" Button.

You can see the current image that is processed in the black progress bar. Do not forget to click the "Auto Results Save" Button to save the results.

6. Matlab data file results description

After saving results in "(ImageName.jpg)Results.MAT" you can extract the results by running the Matlab command:

```
> load('{PATH}/(ImageName.jpg)Results.MAT','B','B1','B2','B3','N','OQ','ML');
```

The Results are loaded in these variables:

B: Estimated Beta Value.

B1: Estimated Beta Value for mode(1,2).

B2: Estimated Beta Value for mode(2,1).

B3: Estimated Beta Value for mode(2,2).

N: Estimated n Value.

OQ: Estimated Old Quality value.

ML: Estimated secret message length in KB.

Note: The tool save a lot of Matlab data file for processing one of them is named "ImageName.jpgA.MAT" if the computer crashed or the tool is quitted accidentally

before finishing the rest of images (in Batch mode), you can run the tool again in batch mode and the tool will skip already calculated results from last time and only process the unprocessed images.

Note: If you run the tool with auto save option and want to do the attack again with different shifts or Old quality ranges You must first delete, rename, or move the file "(ImageName.jpg)Results.MAT" to another directory because the tool will skip it.

7. Controls Description

- 1- Image name and location full path ex "c:/Images/MyPic.jpg".
- 2- To View the image in a new window.
- 3- To view the image histogram in a new window.
- 4- Batch mode processing.
- 5- Automatically saving the results in a Matlab data file called "(ImageName.jpg)Results.MAT" located in Image directory.
- 6- Progress bar for image components histogram evaluation.
- 7- Old quality Range and steps (default is 0:10:100 that is 0,10,20,...100).
- 8- Shifting range (default is 4:4 only one shift by 4 in both directions).
- 9- Estimated Old Quality.
- 10- Estimated Beta value.
- 11- Estimated n value.
- 12- Estimated Beta value in mode(1,2).
- 13- Estimated Beta value in mode(2,1).
- 14- Estimated Beta value in mode(2,2).

15- Processing Progress bar for current image.

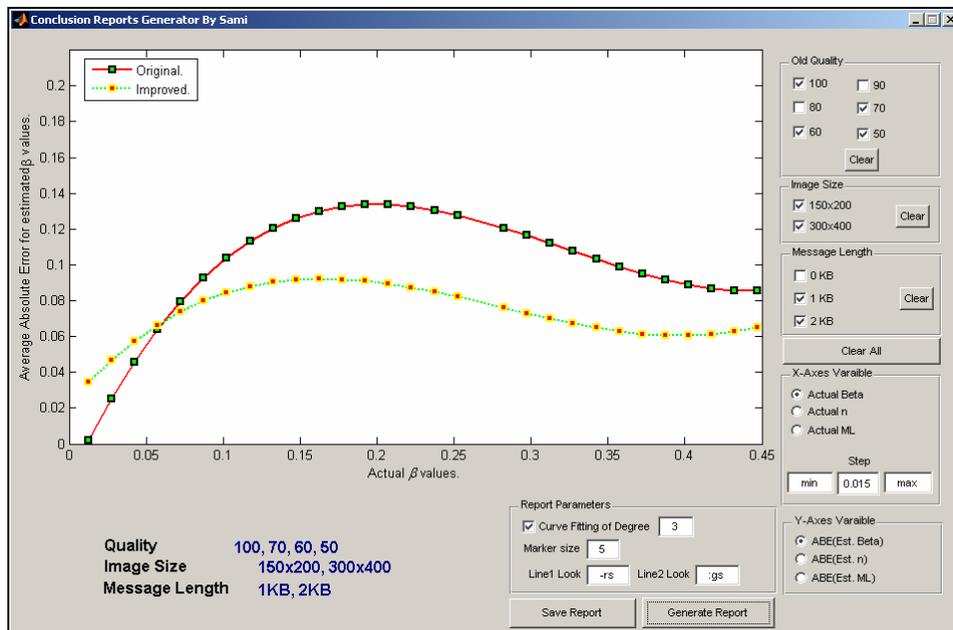
16- To calculate secret message length in KB (only enabled when estimated beta [10] is positive).

17- Calculated secret message length in KB.

18- Overall Progress Bar.

Conclusion Report Generator

The figure below shows what the report generator looks like. To generate a report, you must specify a list of parameters. First, you should select the sample(s) by test image old quality, size, or/and secret message length. Then, you have to select the x-axes variable actual β , n , or ML. Finally before pressing the 'generate report' button, you should select the y-axes variable $AAE(\beta)$, $AAE(n)$, or $AAE(ML)$. (AAE means Average Absolute Error). Now you can generate the report of the specified parameters by pressing the 'Generate Report' button and the report will be displayed in the white area. For better presentation, you can scale and specify the range of x-axes values that should be presented by editing the range/scale parameters fields in the x-axes panel. Also for better view, you can apply a curve fitting function to smooth up the report results. You can change the line color and marker type, size, and color by directly specifying it in Matlab format in the 'Report Parameters' panel. After viewing the report you may save it by clicking 'Save Report' Button.



Here is the line look specifiers defined in Matlab environment.

Color Specifiers

Specifier	Color
r	Red
g	Green
b	Blue
c	Cyan
m	Magenta
y	Yellow
k	Black
w	White

Line Style Specifiers

Specifier	Line Style
-	Solid line (default)
--	Dashed line
:	Dotted line
-.	Dash-dot line

Marker Specifiers

Specifier	Marker Type
+	Plus sign
o	Circle
*	Asterisk
.	Point
x	Cross
'square' or s	Square
'diamond' or d	Diamond
^	Upward-pointing triangle
v	Downward-pointing triangle
>	Right-pointing triangle
<	Left-pointing triangle
'pentagram' or p	Five-pointed star (pentagram)
'hexagram' or h	Six-pointed star (hexagram)