

# **USER MANUAL**

## **FOR THE CHAOS-BASED ENCRYPTION DEMO PROGRAM**

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### **1. INTRODUCTION**

*ChaosDemo* is a new encryption program running on Windows 95/98/ME/XP that can encrypt both images and ordinary text files. The core algorithm of the program is based on a specially designed chaotic map. The program is implemented with VC++ 6 under Windows 98. This demo works for 10 different formats of readable images:

tif, jpg, png, bmp, rgb, rgba, cel, tga, gif, pcx

and 6 formats of writable images:

jpg, tif, png, bmp, rgb, rgba

### **2. SYSTEM REQUIREMENT**

The program runs on Windows 95/98/Me/XP. There is no requirement of CPU speed and memory size, but the faster the CPU speed and the larger the memory size, the quicker the encrypt/decrypt processes.

### **3. INSTALLATION**

The program consists of three individual files: one executive file (.EXE file), named ChaosDemo.exe, and two dynamic link libraries (.DLL file), named BMGLIB.dll and CATMAP.dll, respectively (as shown in Fig. 1). Installation of the program is very easy: simply copy all these three files into a directory (folder).

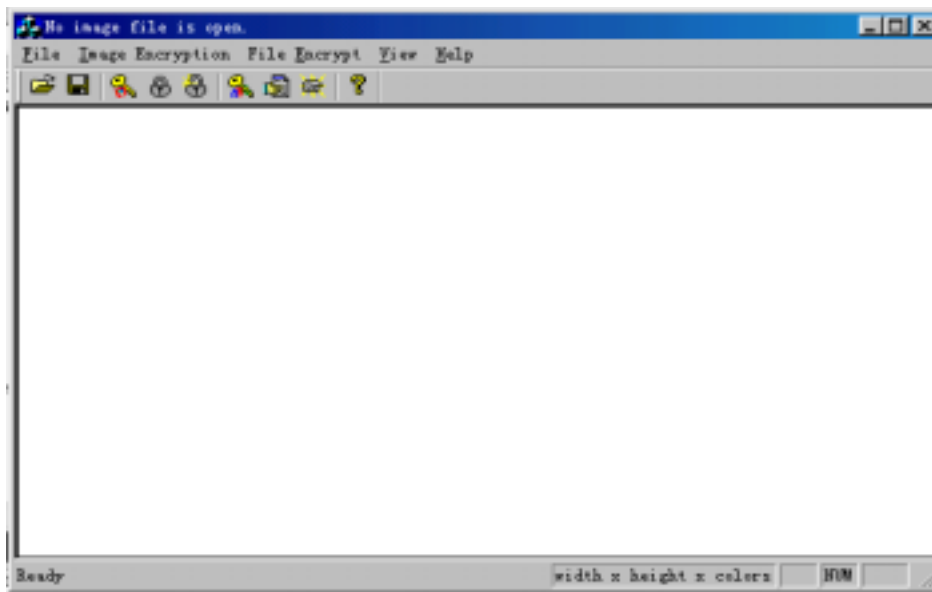


**Fig. 1** The three program files for installation

## 4. USAGE OF THE PROGRAM

### 4.1 To start the program

Use the mouse to double click on the icon ChaosDemo. The initial interface is as shown in Fig.2.

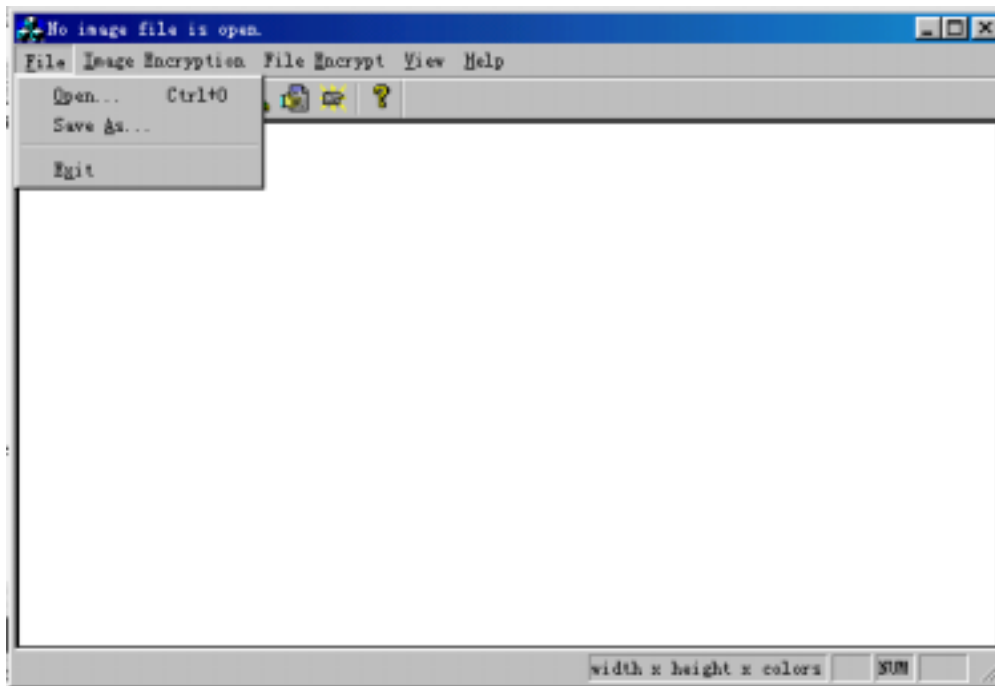


**Fig. 2** The initial interface of the program

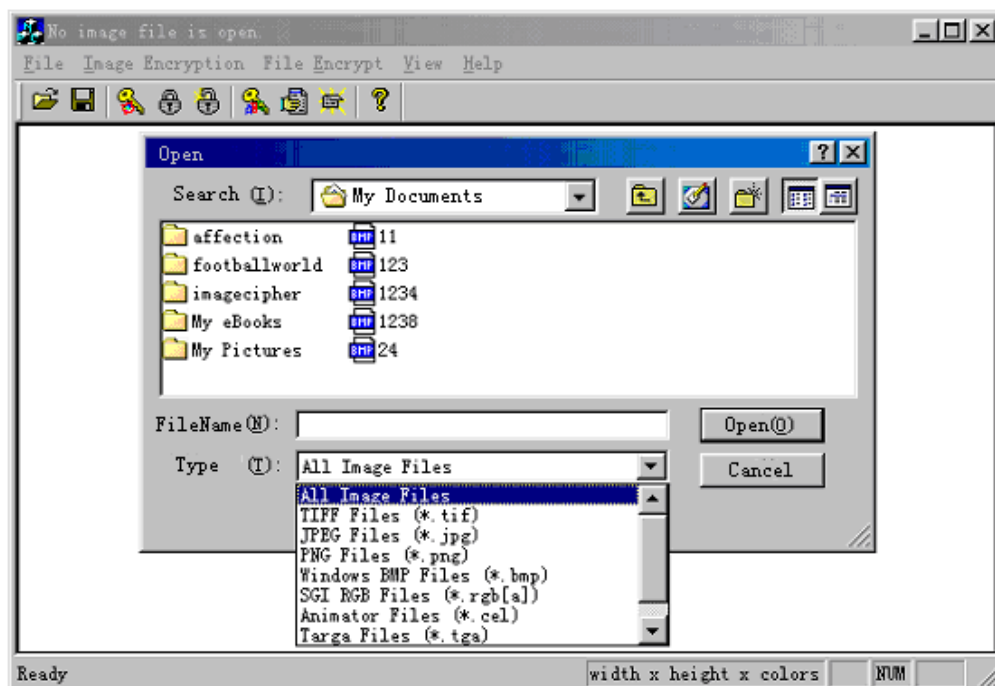
### 4.2 To encrypt/decrypt an image file

Encryption. Select program's 'File' menu to pop out its sub-menu (as shown in Fig.3). Then, click the 'Open...' item on the sub-menu to open a plaintext image file, or a cipher image (as shown in Fig. 4). Once an image file is opened and shown in the program window, one can encrypt it by clicking the 'Encipher' item on the 'Image Encryption' sub-menu, or decrypt it by clicking the 'Decipher' therein (as shown in Fig. 6).

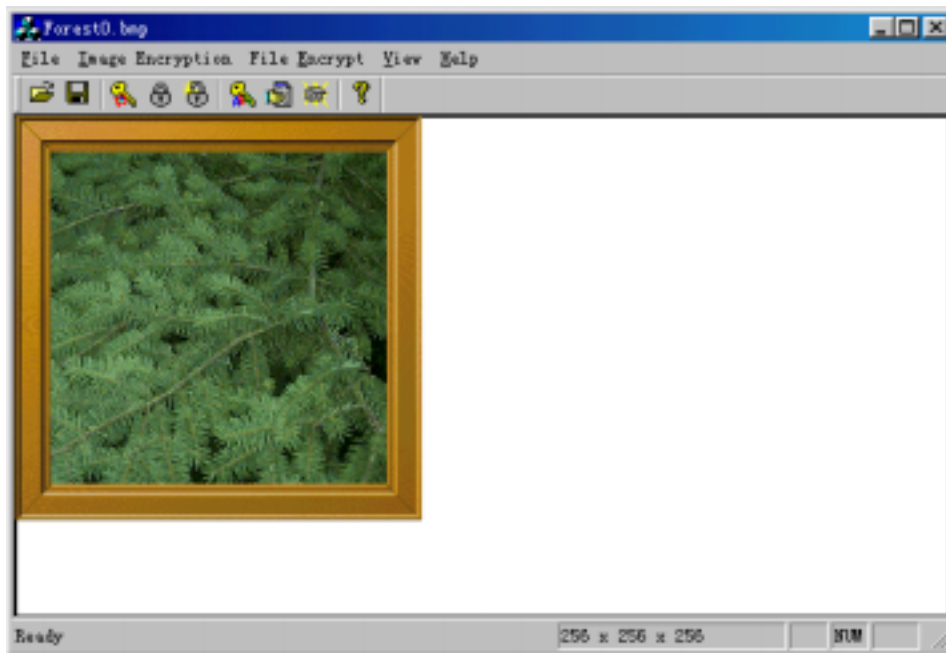
Figures 5 and 7 show the plaintext image and encrypted image, respectively. Clicking the 'Key Setup' item on the 'Image Encryption' sub-menu can activate the cipher key setup window (as shown in Fig. 8). In this demo program, a cipher key cannot exceed 16 characters long. To save an encrypted or decrypted file, simply click the 'Save as' items on the 'File' menu as usual (as shown in Fig. 9).



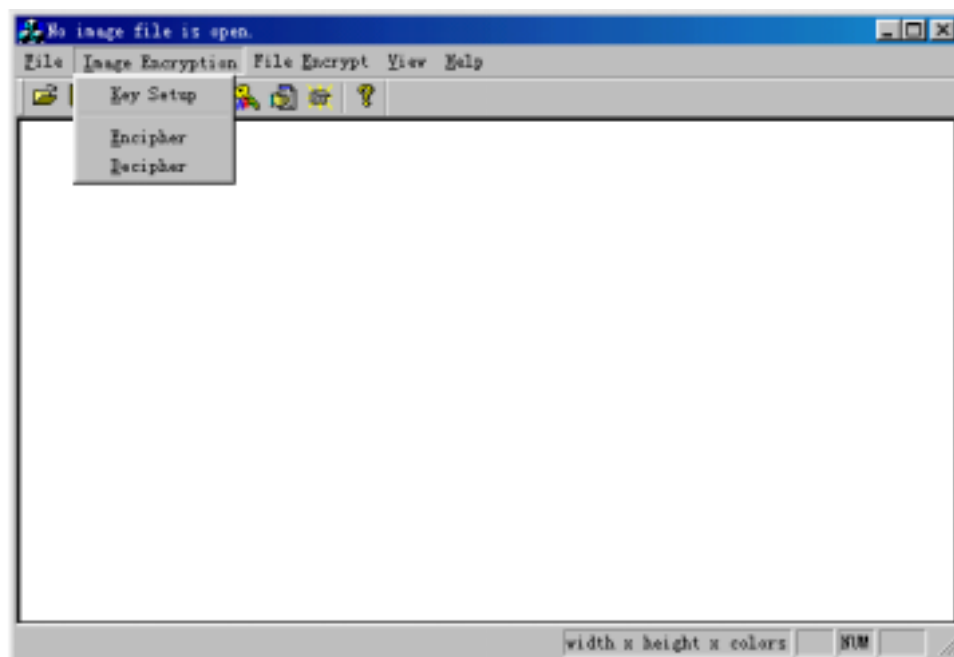
**Fig. 3** The File menu



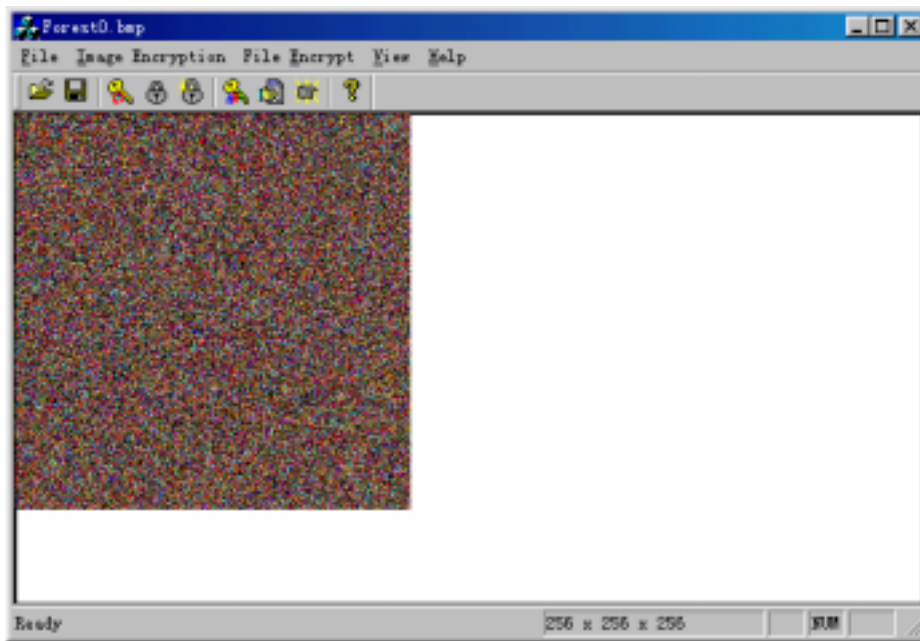
**Fig. 4** To open an image file



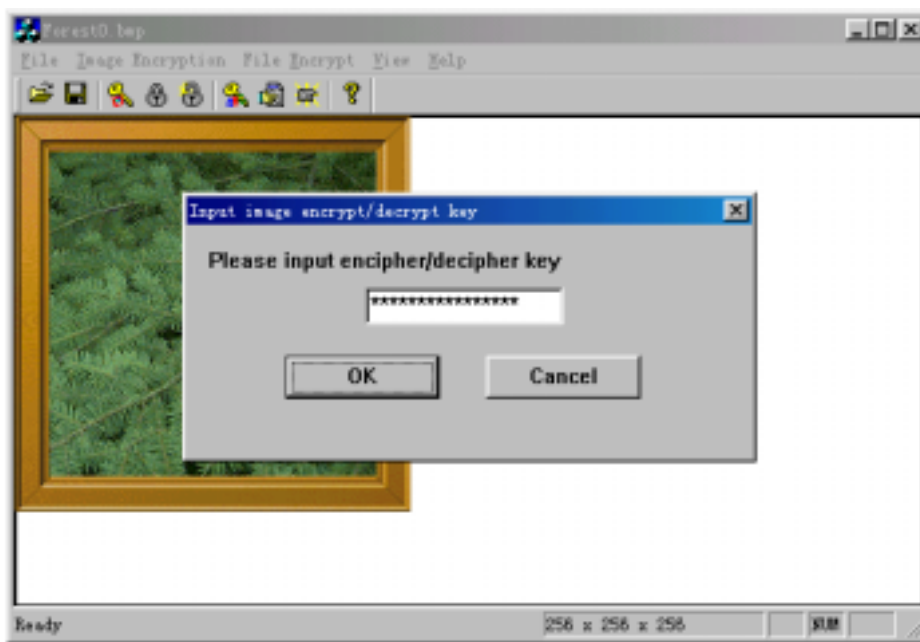
**Fig. 5** The opened image is seen in the program window



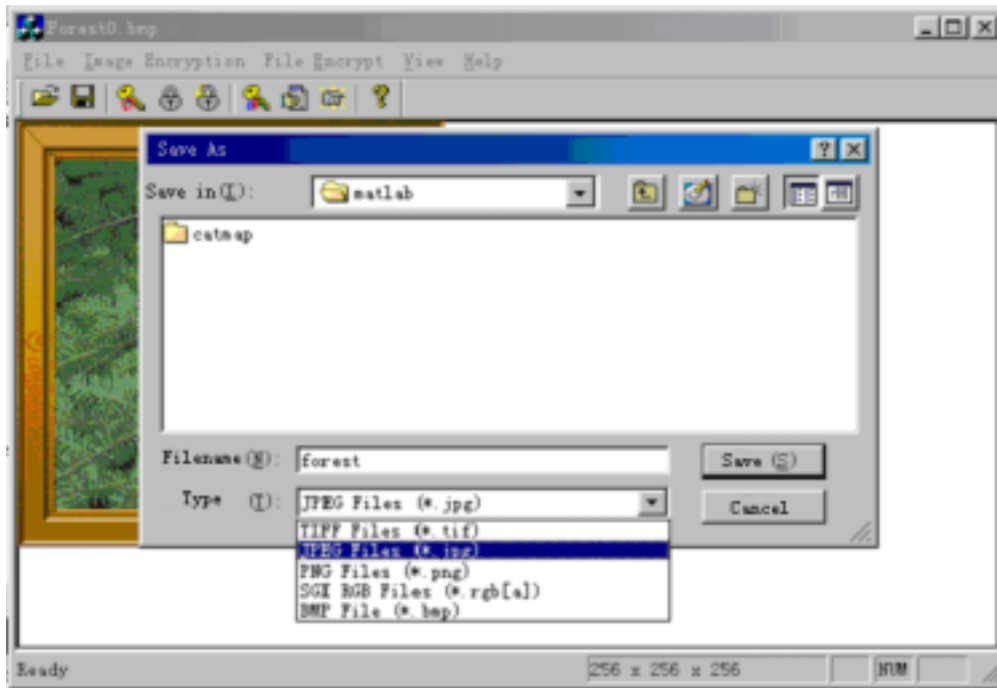
**Fig. 6** The encipher/decipher sub-menu



**Fig. 7** The encrypted image



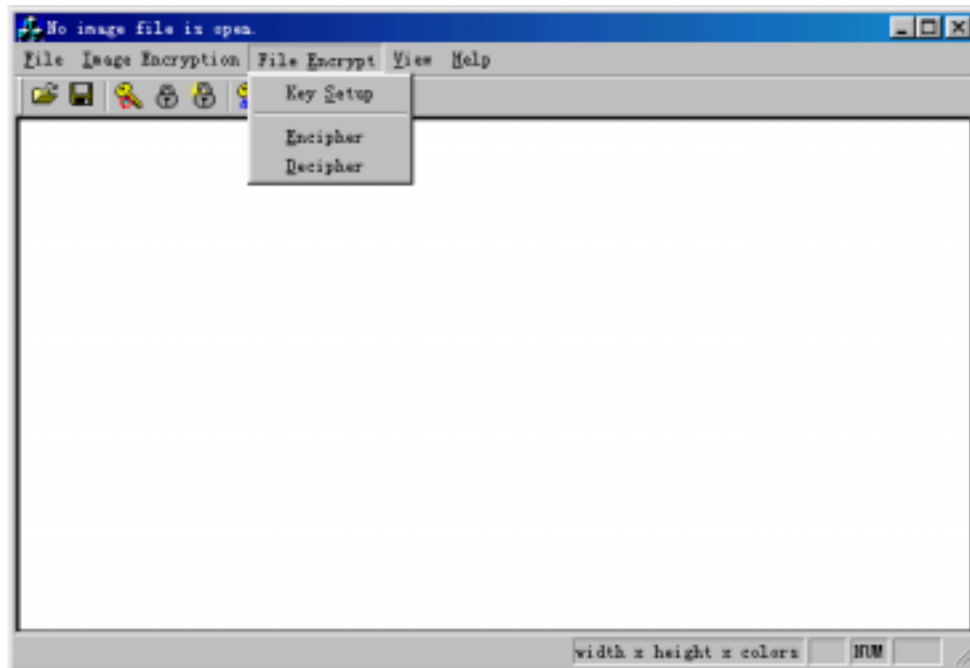
**Fig. 8** The encryption/decryption key setup window



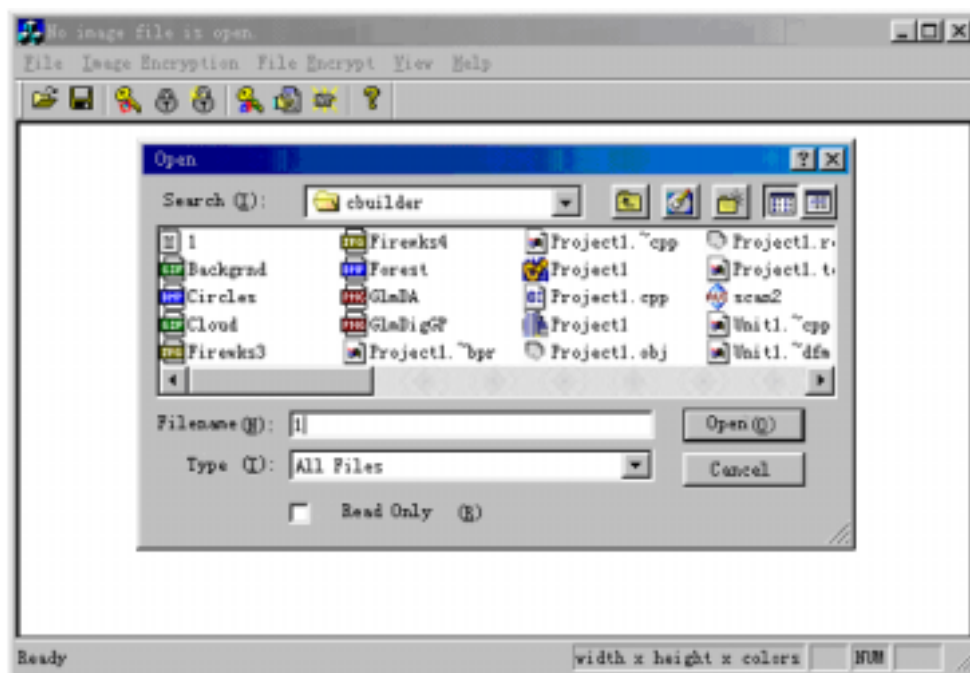
**Fig. 9** To save a file

### 4.3 To encrypt/decrypt a file

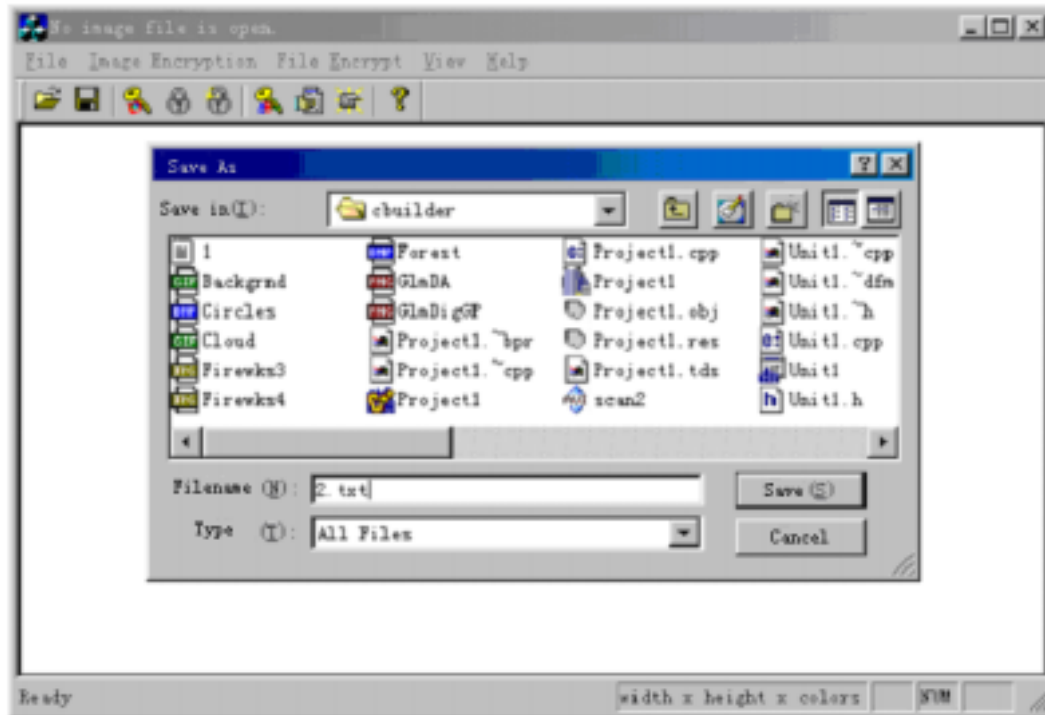
Performing encryption or decryption on an ordinary text file is similar to the corresponding operations performed on an image, as described above. Select program's 'File encryption' menu and click the 'Encipher' item to encrypt a file, or decrypt it by clicking the 'Decipher' (as shown in Fig. 10). Figures 11 and 12 show the plaintext file open dialog and the encrypted file saving window, respectively. Similarly to the image encryption / decryption, click the 'Key Setup' item on the 'File Encryption' menu can activate the cipher key setup window. In this demo program, the cipher key cannot exceed 16 characters long.



**Fig. 10** The ordinary text file encipher menu



**Fig. 11** To open a file for encryption/decryption



**Fig. 12** To save an encrypted/decrypted text file as a new text file