

ImgCrypt - Linux Image Encryption Tool

Overview

ImgCrypt is a command-line tool for Linux that provides secure encryption and decryption for image files. It uses AES-256-CBC encryption with PBKDF2 key derivation to ensure your image files remain protected from unauthorized access and tampering.

Features

- **Strong Encryption:** Uses OpenSSL with AES-256-CBC and PBKDF2 for secure encryption
- **Simple Interface:** Easy-to-use command-line interface with color-coded output
- **Recursive Processing:** Option to process entire directories of images
- **File Backups:** Create backups of original files before encryption/decryption
- **Format Detection:** Automatically detects and validates image files
- **Comprehensive Help:** Built-in help and man page support

Installation

Method 1: Automatic Installation

1. Download both script files (`imgcrypt.sh`) and (`install.sh`)
2. Make the installer executable:

```
bash
```

```
chmod +x install.sh
```

3. Run the installer:

```
bash
```

```
sudo ./install.sh # System-wide installation
```

or

```
bash
```

```
./install.sh # Local user installation
```

Method 2: Manual Installation

1. Download the (`imgcrypt.sh`) script
2. Make it executable:

```
bash
```

```
chmod +x imgcrypt.sh
```

3. Move it to a directory in your PATH:

```
bash
```

```
sudo mv imgcrypt.sh /usr/local/bin/imgcrypt # System-wide installation
```

or

```
bash
```

```
mkdir -p ~/.local/bin
```

```
mv imgcrypt.sh ~/.local/bin/imgcrypt # Local user installation
```

Usage

Basic Commands

```
bash
```

```
# Display help
```

```
imgcrypt -h
```

```
# Encrypt a single image
```

```
imgcrypt -e image.jpg
```

```
# Decrypt an encrypted image
```

```
imgcrypt -d image.jpg.enc
```

```
# Encrypt all images in a directory
```

```
imgcrypt -e -r /path/to/images/
```

```
# Decrypt all encrypted images in a directory
```

```
imgcrypt -d -r /path/to/encrypted/
```

```
# Create backups during encryption
```

```
imgcrypt -e -b image.jpg
```

Options

- `-e, --encrypt`: Encrypt image file(s)
- `-d, --decrypt`: Decrypt image file(s)
- `-r, --recursive`: Process directories recursively
- `-b, --backup`: Create backup of original files

- `-p, --password`: Specify password (not recommended, use prompt instead)
- `-h, --help`: Display help message

Supported Image Formats

- JPEG (`.jpg`, `.jpeg`)
- PNG (`.png`)
- BMP (`.bmp`)
- GIF (`.gif`)
- TIFF (`.tiff`)
- WebP (`.webp`)

Security Notes

- ImgCrypt uses industry-standard encryption (AES-256-CBC) with PBKDF2 key derivation
- Files are encrypted with a unique salt for each encryption operation
- The tool uses 100,000 iterations for PBKDF2 to enhance security
- Passwords are never stored or written to disk
- For maximum security, avoid using the `-p` flag and let the tool prompt for passwords instead

Requirements

- Bash shell
- OpenSSL
- File command
- Core utilities (basename, dirname, realpath)

License

This tool is provided as free software. Feel free to modify and distribute according to your needs.

Troubleshooting

If you encounter any issues:

1. Ensure all dependencies are installed:

```
bash
```

```
sudo apt-get update && sudo apt-get install openssl file coreutils
```

2. Check file permissions for both the tool and target directories

3. Make sure the password is entered correctly for decryption
4. For encrypted files that won't decrypt, verify they haven't been corrupted