

Class Activity: Mailvelope and Email Encryption

Objective

To understand and implement email encryption using Mailvelope, a browser extension that integrates PGP (Pretty Good Privacy) encryption into webmail services.

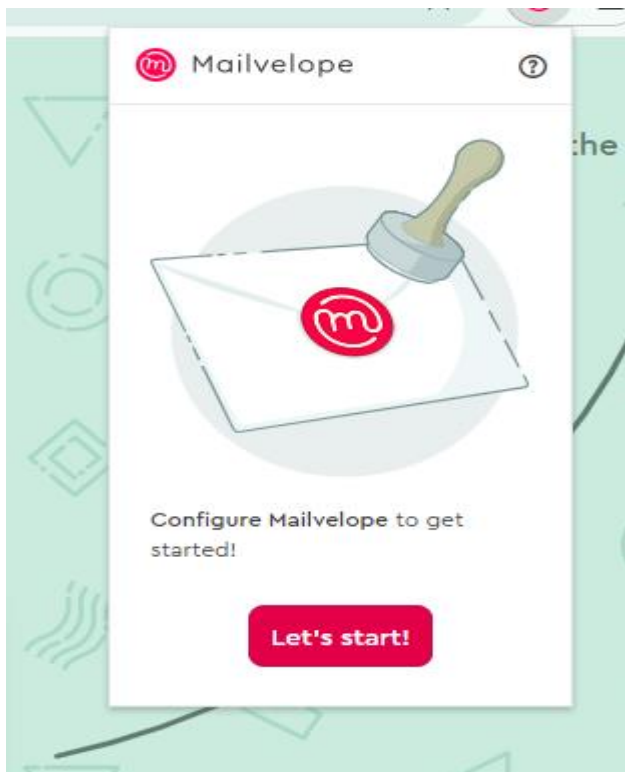
Key Concepts

1. **Mailvelope**: A browser extension for encrypting and decrypting emails within webmail interfaces.
2. **PGP (Pretty Good Privacy)**: An encryption system that provides cryptographic privacy and authentication.
3. **Keypair**: A set of public and private keys used for encryption and decryption.

Implementation Steps

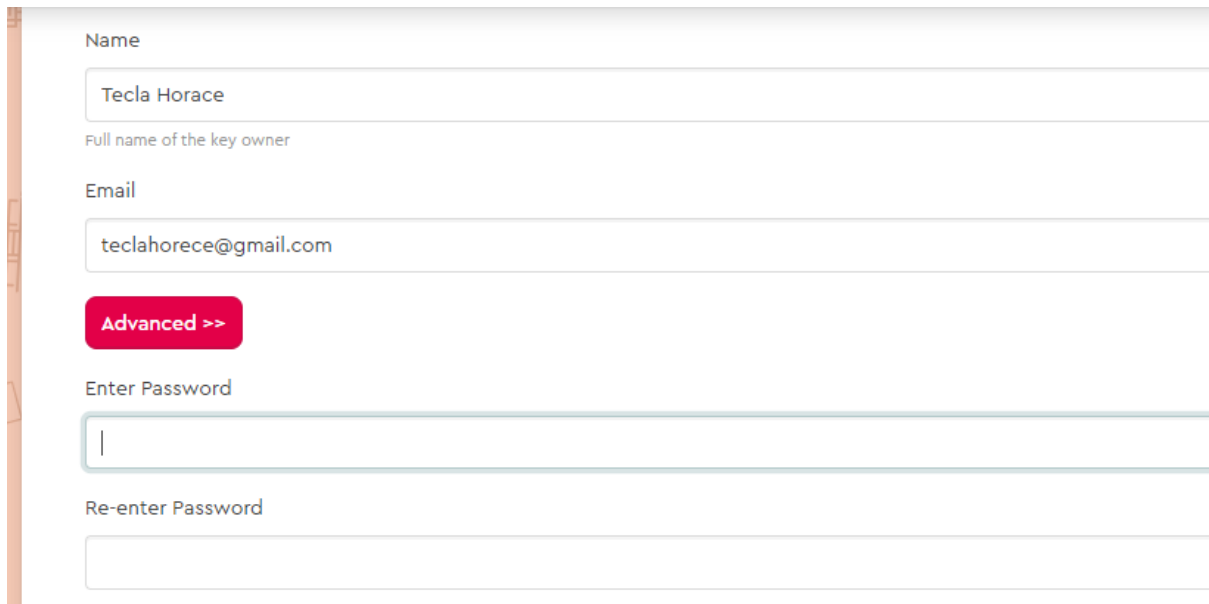
1. Installation

- Install Mailvelope extension on supported browsers (Chrome, Firefox, Edge). I used chrome
- Grant necessary permissions for webmail integration.



Key Generation

- Generate a new key pair or import existing keys.
- Choose a secure passphrase for the private key.

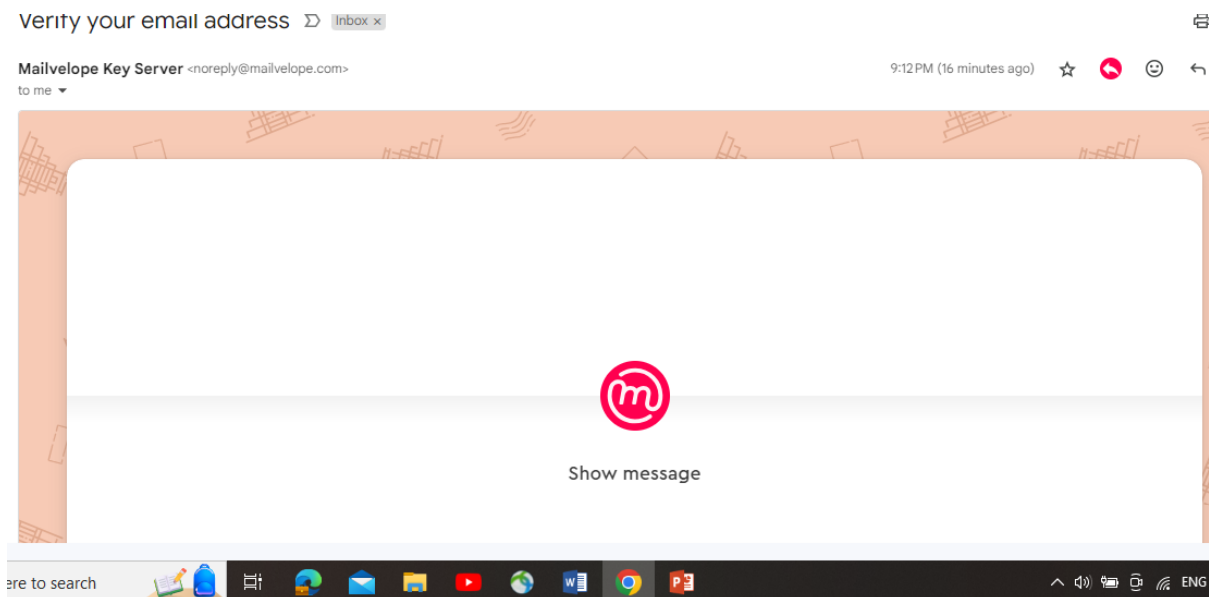


A screenshot of a web form for key generation. The form has a light gray background with white input fields. On the left side, there is a vertical orange bar with a pattern of small white squares. The form contains the following elements:

- Name:** A text input field containing "Tecla Horace". Below it, a smaller text label reads "Full name of the key owner".
- Email:** A text input field containing "teclahorece@gmail.com".
- Advanced >>:** A red button with white text.
- Enter Password:** A text input field with a vertical cursor.
- Re-enter Password:** An empty text input field.

Key Verification

- Verify email address through an encrypted verification email.



Mailvelope Key Server

Email address `teclahorece@gmail.com` successfully verified

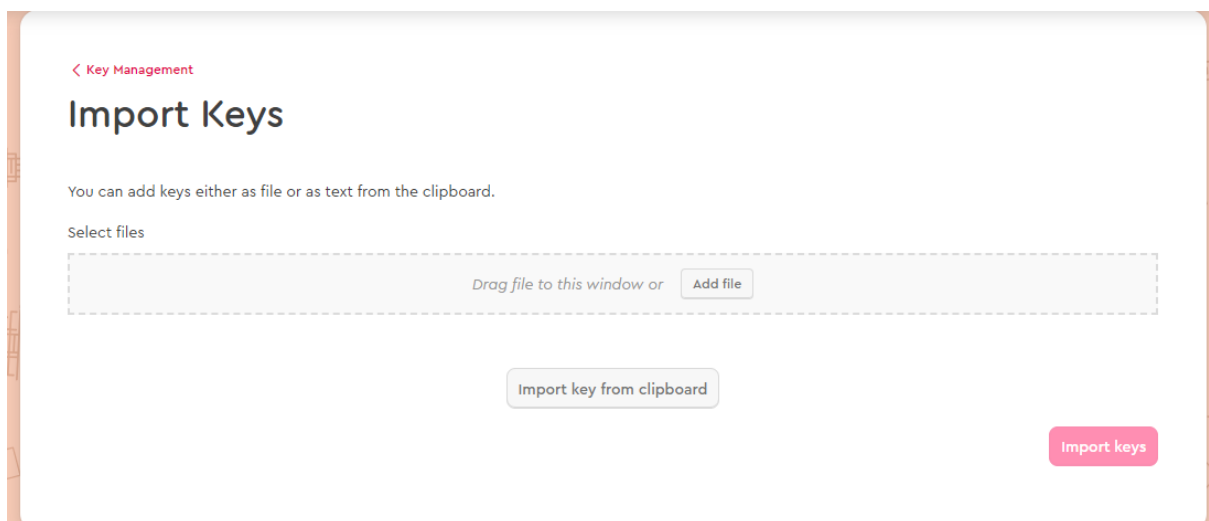
Your public OpenPGP key is now available at the following link: <https://keys.mailvelope.com/pks/lookup?op=get&search=teclahorece@gmail.com>

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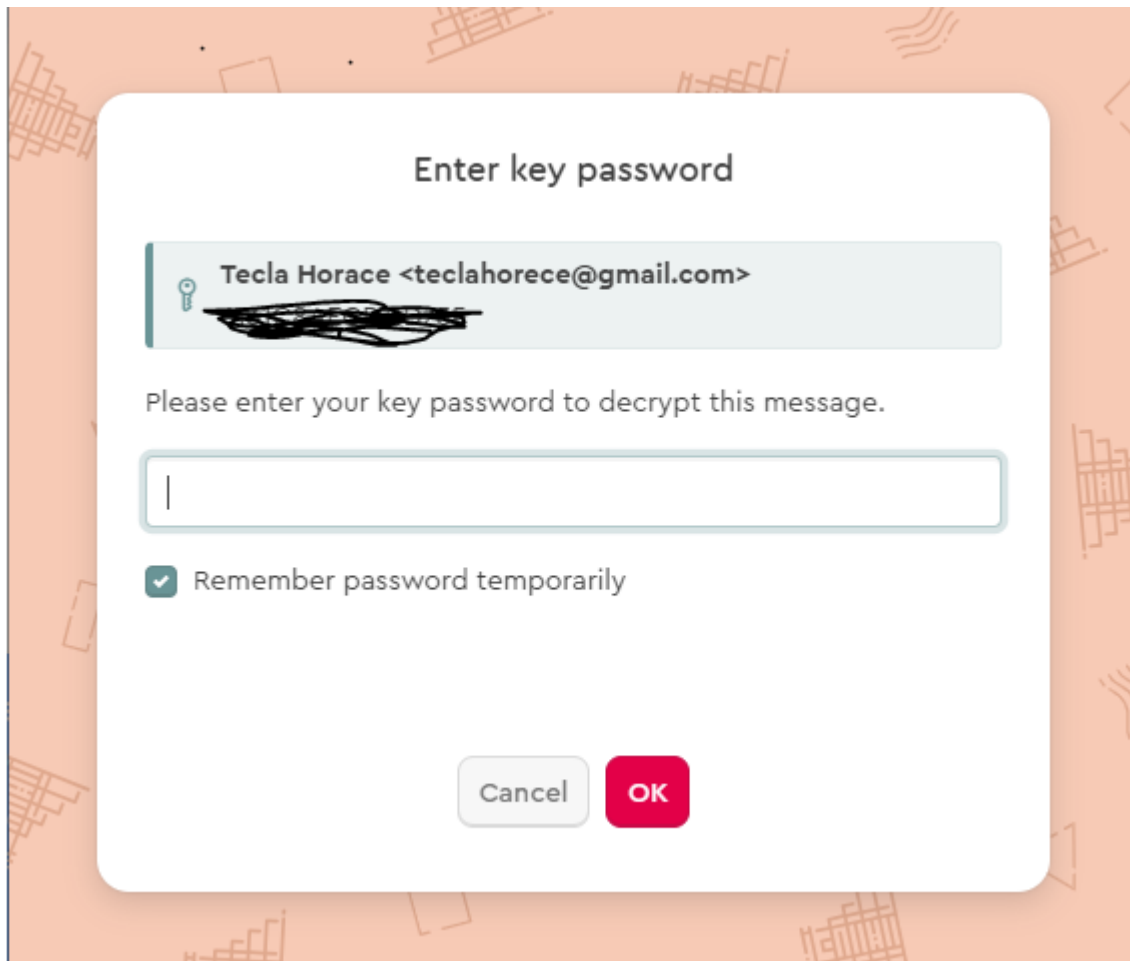
Key Management

- Add public keys of contacts to the keyring.
- Import keys manually or use the Mailvelope key server.



Encrypting and Decrypting Emails

- Compose encrypted emails using the Mailvelope editor in webmail.
- Decrypt received encrypted emails using the private key passphrase.



Security Considerations

- Never share private keys or passphrases.
- Subject lines are not encrypted.
- Mailvelope integrates deeply with the browser but does not read email content.

Conclusion

Mailvelope provides an accessible way to implement email encryption, enhancing privacy and security in everyday communication. This activity demonstrated the practical application of cryptographic principles in a common digital environment.