

User documentation for Enigma Machine Simulator on Java.

Nikita Tkachyov.

Welcome to the Enigma Machine Simulator. This simulator has been designed to offer a historically accurate experience of the renowned Enigma encryption device.

Features:

- Historical Accuracy: Attempts to simulate/emulate the exact working of the Enigma machine, complete with its complexities.
- Double Stepping Mechanism: Implemented to ensure the perfect simulation of the machine's rotor movement.

Rotor & Reflector Choices: Choose from:

- 8 different normal rotors (labeled with Roman numerals like I, II, III, IV, etc.)
- 2 thin rotors (Beta or Gamma) (specific to the Kriegsmarine version).
- 2 normal reflectors.
- 2 thin reflectors (specific to the Kriegsmarine version).

How to Use:

To launch the program, unzip the zip file, and from the created directory, open it in Terminal, and using Maven, compile and execute it with the following commands:

- `mvn clean compile`
- `mvn exec:java`

Once started, the machine will prompt the user to set up the settings for the machine in the following order:

- Plugboard Connections: Enter an integer between 0-13 to choose how many pairs of letters you want to swap.
- Plugboard Setting: Enter settings in the format of "A-B". This denotes a swap between letters 'A' and 'B'.
- Choosing the Version: Input the number of rotors you want to use, 3 or 4 (Normal and Naval version of the machine)
- Choosing Reflectors: Simply input the desired number (1 or 2).
- Choosing Rotors: Input the rotor's label, e.g., "III" or "VI". For thin rotors, input either "Beta" or "Gamma".
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Text Input:

- Use only the English alphabet.
- All punctuations will be automatically deleted.
- Whitespaces and numbers are ignored

The output will always be:

- Always in capital letters.
- Grouped in sets of 5 letters, separated by spaces.
 - Note: This might make the output appear challenging to read, but this format ensures historical accuracy.

Decryption: To decrypt, use the exact same settings as were used during encryption. Make sure to note down your configurations!

Reset Mechanism: After receiving an output, the machine asks if the user wants to continue and resets the settings or exit the program. Users need to input their settings again for a new operation.

Two Versions Available:

- Army Version:
 - Uses the normal reflectors.
 - Configured with 3 rotors.
- Kriegsmarine Navy Version:
 - Uses the thin reflectors.
 - Configured with 4 rotors. The 4th rotor is thin (either Beta or Gamma).
 - The 4th rotor doesn't auto-rotate and is set manually.