

Password Generator User Manual



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Updates

September 2024, Added Portuguese Language.

Introduction

The **Password Generator** is a desktop application that allows users to generate secure and customizable passwords. The application is written in C++ using the Qt framework, providing a user-friendly graphical interface. The software is designed for both casual users and security-conscious individuals who need to create strong passwords for online accounts, devices, or sensitive information.

The **Password Generator** is a flexible and powerful tool for creating secure, customizable passwords. Whether you're generating passwords for your personal accounts or for business purposes, this program provides the features and customization you need to ensure strong password security. If you encounter any issues or have suggestions for improvement, feel free to reach out.

Note: This application is neither novel nor groundbreaking; in fact, there are many similar tools available. However, it was specifically designed and coded with educational purposes in mind. The primary goal of this project is to provide a learning platform for understanding secure password generation and software development. This application was developed exclusively for Debian-based distributions, with a particular focus on Pop!_OS, to ensure compatibility and optimal performance within this environment.

What is this program about

The **Password Generator** is an easy-to-use tool designed to help you generate strong, secure passwords with a variety of customization options. You can tailor the password to meet specific requirements, such as including upper and lowercase letters, numbers, special characters, or even your own custom character set. Additionally, the tool supports dark mode and multiple languages, making it adaptable for different environments and users worldwide.

What does it do

This program generates random passwords based on user-specified criteria. It allows users to:

- Define password length.
- Choose to include uppercase letters, lowercase letters, numbers, and special characters.
- Create their own custom character set.
- Ensure password strength by enforcing rules such as requiring at least one number or special character.
- Provide a password strength meter to indicate the complexity of the generated password.
- Copy the generated password to the clipboard.
- Switch between light and dark modes for improved readability.
- Support multiple languages, including English, Chinese, Spanish, Italian, and Japanese.

How to use it

Installing the Application

To install the application, follow these steps:

1. Download the C++ source code for the **Password Generator**.
2. Ensure that Qt is installed on your system. Refer to the How to Install Qt on Pop!_OS section below.
3. Open a terminal in the directory containing the source code.
4. Run the following commands:

In terminal type:

```
qmake  
make
```

Launching the Application

After compiling the program, you can launch it by running the `password_generator` executable from the terminal or by double-clicking the application icon if available.

5. The application will be compiled, and you can launch it by running:

In terminal type:

```
./password_generator
```

Generating a Password

To generate a password:

1. **Set the password length:** Enter a value between 4 and 256 in the Enter your password length box.
2. **Select character types:** Use the checkboxes to choose whether you want to include uppercase letters, lowercase letters, numbers, and special characters.
3. **Add custom characters** (optional): You can specify a custom set of characters to be used when generating the password.
4. **Password Strength:** The strength of the password will be displayed as you generate it.
5. Click **Generate Password**.

Features and Options

- **Uppercase Only:** Check this box to include only uppercase letters in the password.
- **Lowercase Only:** Check this box to include only lowercase letters in the password.
- **Combination of Upper and Lowercase:** Check this to include both uppercase and lowercase letters.
- **Use Special Characters:** Include special characters like ! @ # \$ % ^ & *.
- **Use Numbers:** Include numbers (0-9) in the generated password.
- **Exclude Similar Characters:** This option removes characters that are easily confused, such as 0, O, 1, l.
- **Custom Character Set:** You can specify your own set of characters to be used for the password.
- **Password Complexity Slider:** Adjust this slider to define the complexity level of the password.

Dark Mode and Customization

The application supports dark mode. You can enable dark mode by selecting **Settings > Toggle Dark Mode** from the menu bar. When dark mode is enabled, the background will switch to dark colors with green accents to make text and elements more visible.

Multi-language Support

The application supports multiple languages. You can change the language by selecting **Settings > Language** from the menu bar. Supported languages include:

- English
- 中文 (Chinese)
- Español (Spanish)
- Italiano (Italian)
- 日本語 (Japanese)

Copying the Password

Once you generate a password, you can click the **Copy to Clipboard** button to copy it. A confirmation message will be shown once the password is successfully copied.

Clearing the Output

You can clear the generated password by clicking the **Clear** button. This will reset the password field and allow you to generate a new password.

How to Install Qt on Pop!_OS

By following the steps below you can install Qt on your Pop!_OS (or Debian type distribution) system, allowing you to build and run Qt applications. Depending on your needs, you can use **Qt Creator** for a full IDE experience, or use the command line tools (`qmake`, `make`) to compile and run projects.

To develop and run applications built with the Qt framework on **Pop!_OS** (a Debian-based distribution), you need to install the necessary Qt packages and tools. Below is a step-by-step guide on how to install **Qt** on **Pop!_OS**.

Update System Packages

First, ensure your system is up to date by running the following command in the terminal:

In terminal type: `sudo apt update && sudo apt upgrade`

This will update the package list and upgrade all installed packages to the latest version.

Install the Qt Development Tools

To install Qt and its development tools (including `qmake` and the `QtCreator` IDE), run the following commands:

Option 1: Install Qt Creator (Recommended for development)

This will install the **Qt Creator IDE**, which provides a full development environment for building Qt applications.

In terminal type: `sudo apt install qtcreator`

Option 2: Install Qt Libraries and Tools (without Qt Creator)

If you only need the Qt libraries and command-line tools (like `qmake`) for building Qt applications:

In terminal type:

```
sudo apt install qt5-default qtbase5-dev qtchooser qt5-qmake qtbase5-dev-tools
```

- `qt5-default`: Installs the default version of Qt 5.
- `qtbase5-dev`: Installs the core development libraries and headers for Qt.
- `qtchooser`: Manages different versions of Qt on your system.
- `qt5-qmake`: The `qmake` build tool that generates Makefiles for Qt projects.
- `qtbase5-dev-tools`: Additional Qt development tools.

Verify the Installation

After installation, verify that Qt is installed correctly by checking the version of `qmake`:

In terminal type:

```
qmake --version
```

You should see output similar to the following, indicating that Qt 5 is installed:

```
QMake version 3.x
Using Qt version 5.x.x in /usr/lib/x86_64-linux-gnu
```

(Optional) Install Additional Qt Modules

If you need additional Qt modules (such as Qt Multimedia or Qt WebEngine), you can install them using `apt`. For example:

In terminal type:

```
sudo apt install qt5-multimedia qtwebengine5-dev
```

(Optional) Running Qt Creator

If you installed **Qt Creator**, you can start the IDE by running:

In terminal type:

```
qtcreator
```

Qt Creator provides a fully integrated development environment where you can create, build, and debug Qt applications.

Building and Running Qt Applications

Now that Qt is installed, you can build and run Qt applications. To compile a project:

1. **Navigate to the project directory** containing your `.pro` file.
2. **Run `qmake`** to generate the Makefile:

In terminal type:
`qmake`

3. **Run `make`** to compile the project:

In terminal type:
`make`

4. **Run the application** by executing the generated binary:

In terminal type:
`./your_application_name`

Change History

Version 1.0 (2024)

- Initial release of the **Password Generator**.
- Password customization options for length, character types, and custom character sets.
- Password strength indicator.
- Copy to clipboard functionality.
- Dark mode support with enhanced checkbox and slider visibility.
- Multi-language support for English, Chinese, Spanish, Italian, and Japanese.
- Exclude similar characters option.
- GPLv3 license applied.

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