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Bringing Personalization To The Nextcloud Linux Client

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Abstract

This project takes the minimal amount of customization options from Nextcloud Linux Desktop client and adds multiple ways to personalize and customize for an overall better user experience.

The problem was broken down to have three main solutions, the aesthetic theming, the linux functionality, and the better user experience. For the aesthetic theming the main focus was on adding a personalized icons customization, a personalized colors customization, and personal themes for any windows needed. The Linux functionality focused on integrating Nautilus functionality for the Nextcloud Desktop client and added better documentation alongside scripts that include all the packages needed for developing on the Linux desktop client. The better user experience focused on personalizing the system tray tabs to include better user ease options, key shortcuts that would allow the user to go from window to window without needing to interact too much with the Desktop client, and better overall accessibility information for the user.

These solutions led to the approach of adding a personal user buttons tab that allowed the user to add any buttons with button names and button links from a custom made customization window that included a create button window for the interaction, this personal tab also includes theming options that come with made buttons and links specific to the user's needs. The customization window also holds the add account page theming options where the user can choose whichever color they would like for the add account page. The Nautilus Linux functionality incorporates being able to copy and move files from Nautilus directly to Nextcloud from a dropdown menu. The System trays have new tabs for overall better user experience, including the add account tab, the user buttons tab, the open nextcloud on browser tab, the support tab. In general settings there are listed key shortcuts that allow for the user to close and open a window to another with just two keys as well as more accessibility to information for the user. Overall these are all the approaches to customize and personalize Nextcloud Desktop Linux.

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INTRODUCTION

Nextcloud is an open source cloud based file storage program, like google drive or OneDrive, but hosted by independent users and companies. The purpose of this project was to enhance the personal aspects in the client side of Nextcloud, the Linux version in particular.

Current System

The existing Nextcloud client for Linux is almost entirely devoid of any customization or personalization, save for one checkbox that is used to determine whether or not to use monochrome icons in the system tray.

The current system also requires a lot of user input to navigate menus and share files, as well as upload files to Nextcloud.

Purpose of New System

The intention of the new system is to enhance the old system by allowing for customization, providing many options and methods of personalization, and making the avenues of doing so streamlined to improve user experience.

USER STORIES

- Get comfortable with the Nextcloud Desktop Linux client
- Discuss and write down any features that need more development
- Get comfortable with the Nextcloud Desktop Github
- Work on implementing an FIU customized version setting
- Fork repository and write design choices
- Write any extra features and bugs to get done
- Write down every command needed to download all packages Nextcloud build is dependent on
- Try to implement a documentation or bash script to automate the package download
- Get all the development environments set up and running with no errors
- Run tests on Nextcloud code to see where the server speaks with the desktop client
- Try to implement code that changes the theme of the desktop client if the theme is on the server
- Create theme for FIU
- Make theme selection function
- Make theme import function
- Refine theme selection function
- Attempt to reimplement themes colors from server
- Work on getting a new login page with fiu wallpaper
- Work on getting a new window access in the login page
- Get all the development environments set up and running with no errors
- Fix the conditionals for specific themes
- Get the system tray organized
- Add in more themes and colors
- Make a personalization for the welcome page
- Practice presenting the individual features
- Make a poster for the features

- Make video demos

Implemented User Stories

- Get comfortable with the Nextcloud Desktop Linux client
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PROJECT PLAN

This section describes the planning that went into the realization of this project. This project incorporated the agile development techniques and as such required the sprints to be planned. These sprint plannings are detailed in the section. This section also describes the components, both software and hardware, chosen for this project.

Hardware and Software Resources

Software Resources

Operating Systems:

- Ubuntu (23.04) for development and testing environments.

Development Tools:

- QT Creator: Main development environment.
- Github: Version control.

Sprints Plan

Sprint 1

Get comfortable with the Nextcloud code base and write down features that need any development. Get comfortable with the Nextcloud desktop Github.

Sprint 2

Work on implementing customizable fiu settings and fork repository to design any changes. Write extra features and bugs that need to be fixed.

Sprint 3

Write every command needed to download all the packages to work on Nextcloud and create a bash script that automatically downloads all the packages, gets all the development environments set up and works with the build. Try to implement themes to the desktop client if the theme is on the server.

Sprint 4

Create a theme for FIU and make a theme selection function, Make a theme import function and refine theme selection function. Attempt to reimplement theme colors from server.

Sprint 5

Work on getting a new login page with FIU themes and wallpaper, get window access in the login page and get the development environments set up properly.

Sprint 6

Fix conditionals for themes, get the system tray organized, add in more themes and colors to the customization window and make a personalization for the welcome page.

Sprint 7

Practice presenting individual features and make posters, documents, and videos for all the final deliverables.

SYSTEM DESIGN

We designed our additions to be in line with Nextcloud's original format, using ui windows for different purposes and the system tray for initial access to the ui, as Nextcloud did.

Architectural Patterns

We used Nextcloud's existing Client/Server pattern, being careful not to disrupt features that were implemented to interact with the server side of the client.

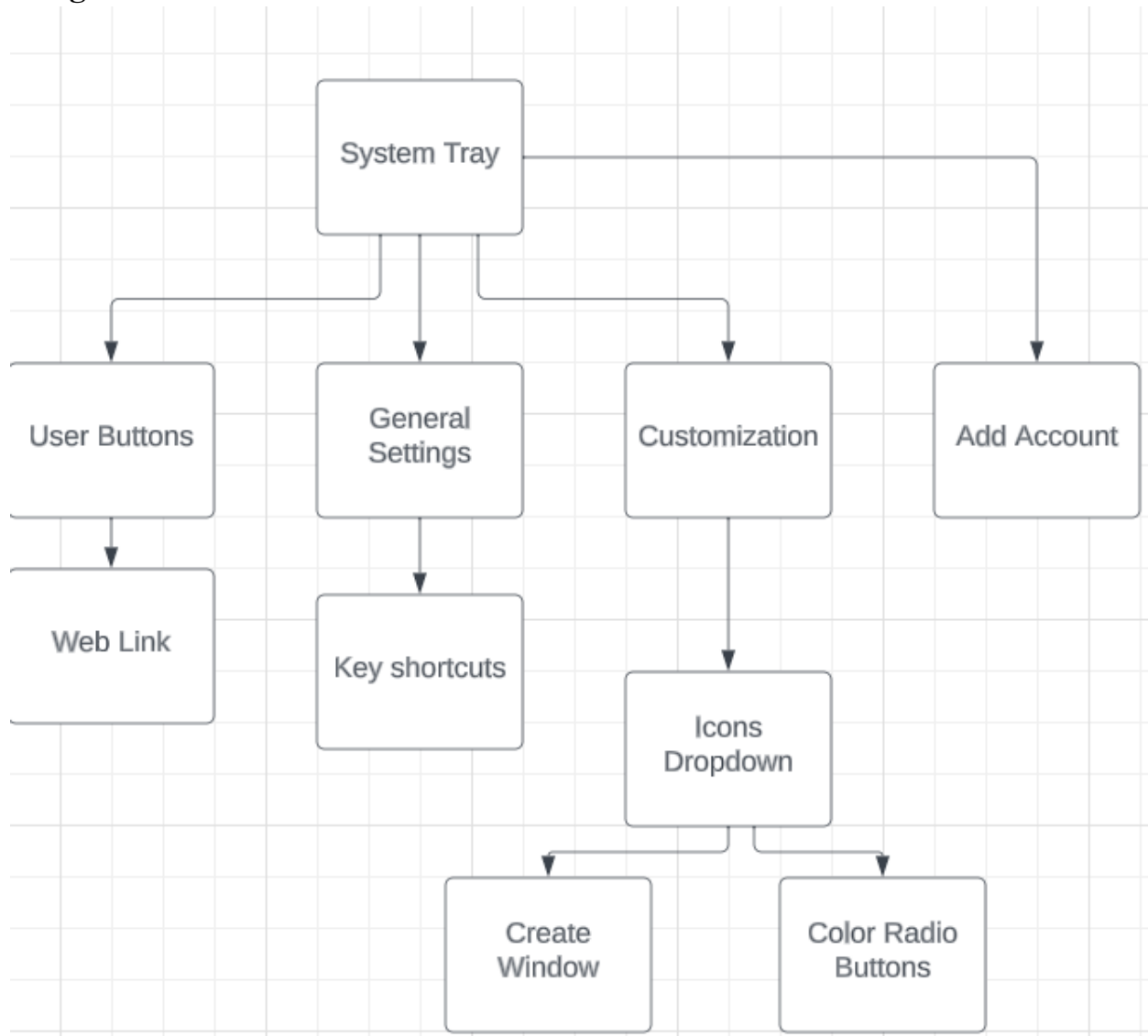
System and Subsystem Decomposition

The Customization window sets global variables for client-wide access to customization choices, so both old and new windows can appropriately assign colors, icons, and themes according to the selected options.

The Personal Tab window always has 4 existing buttons, and as buttons are added, their values are adjusted and they are made visible to the UI.

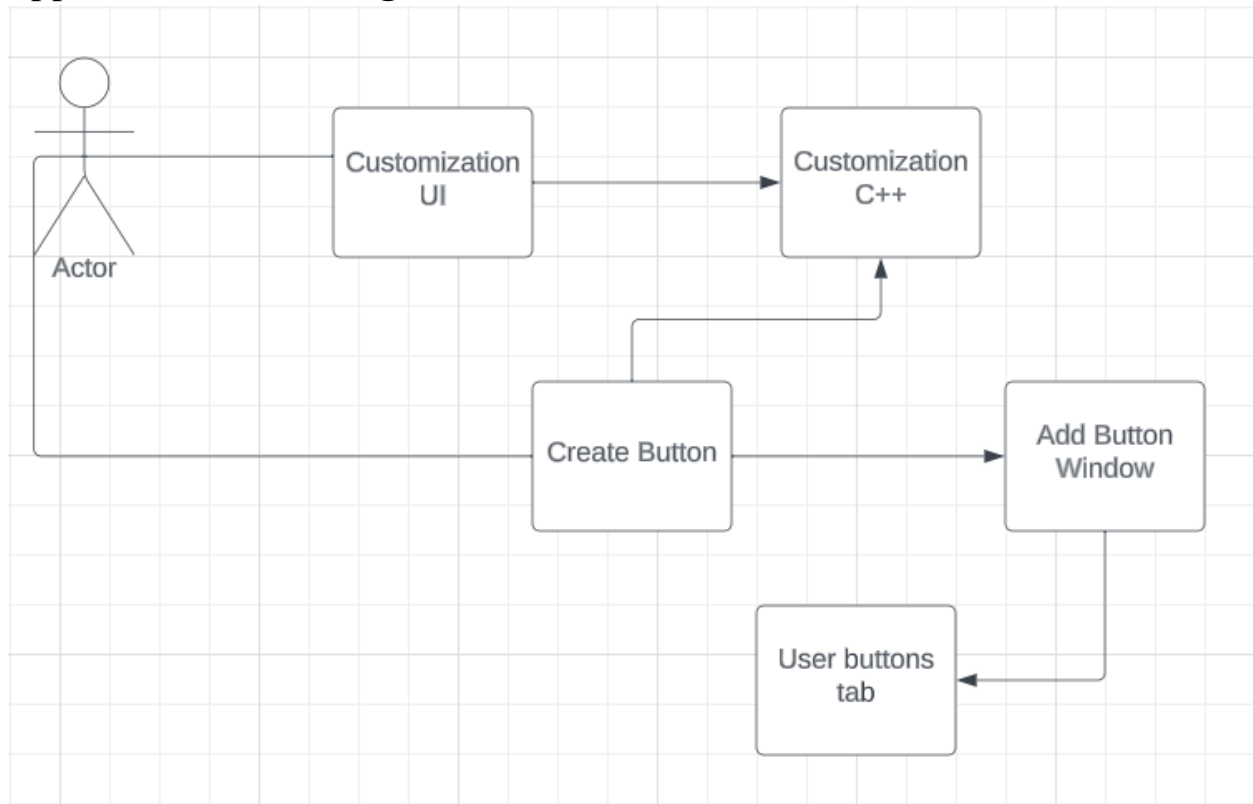
The nautilus integration was done through the use of python scripts, interfacing with the computer and client to allow the user to bypass using the client almost entirely.

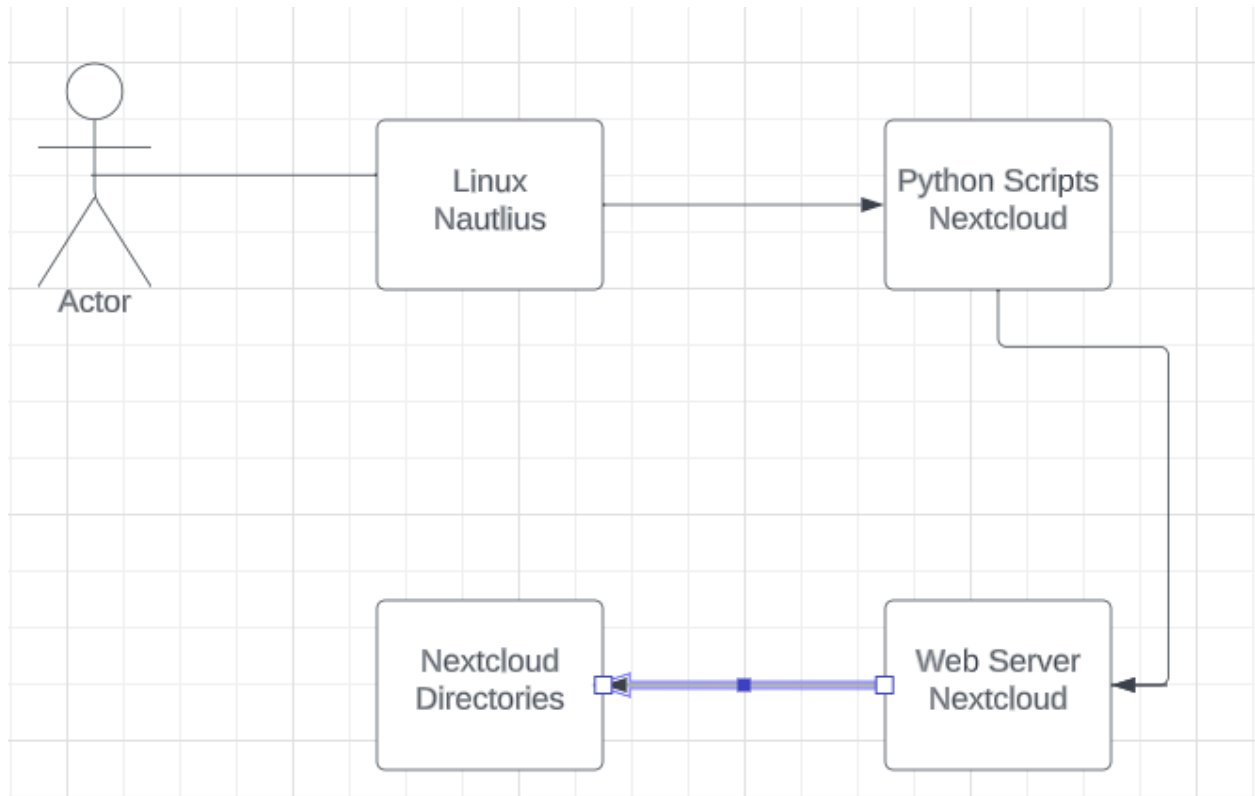
Design Patterns

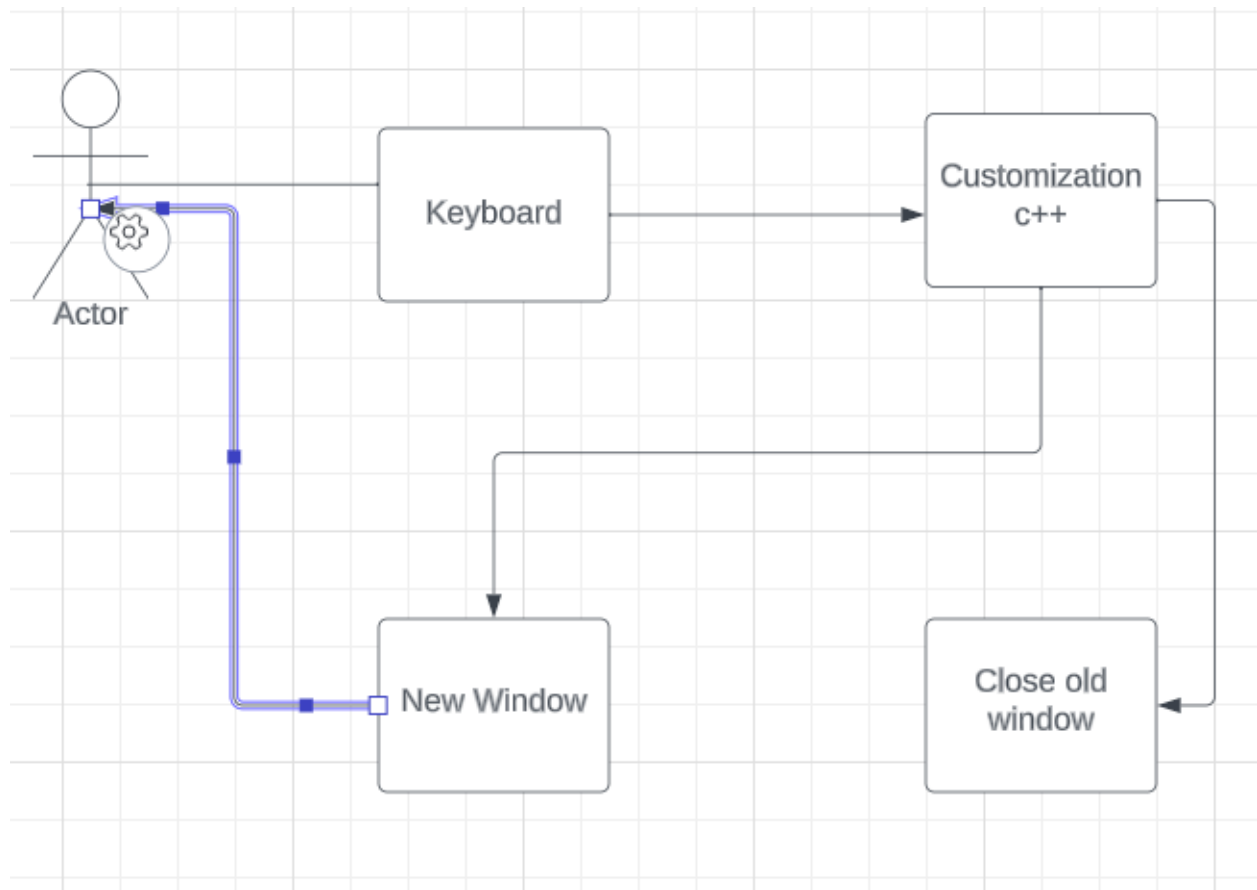


APPENDIX

Appendix A - UML Diagrams







Appendix B - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document and other documents

Shortcomings

- Trying to implement a color change for the main dialog didn't go as planned, we tried to implement different design choices in the customization window for it but we could not properly figure out how to work out the change being implemented onto the main dialog.
- We could not get a full background color change for the add account page, we implemented different code designs to figure it out but ultimately all we could get was the strip of color at the bottom that helps differentiate the themes.
- We didn't have enough time to fully flesh out the icons theming for Nextcloud since a lot of our sprints were focused heavily on understanding the code base and implementing code to Nextclouds code abstraction design.
- We did not have enough time to implement an edit button for the user buttons personal tab where the user would be able to delete or edit a specific button, instead we just have a reset button that resets all themes or the cancel button which will put the user buttons back to default.

Wishlist

- We wish we could have added more fiu related theme icons throughout all of Nextcloud, including the main dialog.
- We wish we could have added a language option inside the desktop client for the user's ease to be able to change the language whenever.
- We wish we could have added more keyboard shortcuts for all windows and personalized shortcuts for anything the user needed.
- We wish we could have added an overall general theme that changes an entire windows look

Nextcloud-QtCreator, Ubuntu 23.04 Installation process.

1 . Install necessary tools and libraries:

1 . Update the package lists:

```
sudo apt update
```

```
sudo apt upgrade
```

2 . Install basic build tools:

```
sudo apt install build-essential git cmake
```

3 . Install Qt Creator and necessary Qt5 dev packages:

```
sudo apt install qtcreator qttools5-dev-tools libqt5webkit5-dev qtbase5-dev
```

3.1 . Install other necessary libraries:

```
sudo apt install libssl-dev libsqlite3-dev zlib1g-dev
```

```
sudo apt install pkg-config
```

```
sudo apt-get install qt5keychain-dev
```

```
sudo apt-get install libqt5websockets5-dev
```

```
sudo apt-get install qtquickcontrols2-5-dev
```

```
sudo apt-get install qtwebengine5-dev libqt5webengine5 libqt5webenginewidgets5
```

```
sudo apt-get install inkscape
```

```
sudo apt-get install librsvg2-bin
```

```
sudo apt-get install python3-sphinx
```

```
sudo apt-get install texlive-latex-base
```

```
sudo apt-get install doxygen
```

```
sudo apt-get install libkf5archive-dev
```

```
sudo apt-get install qtbase5-private-dev
```

```
sudo apt-get install qttools5-dev qttools5-dev-tools
```

```
sudo apt-get install libkf5kio-dev
```

```
sudo apt-get install libcmocka-dev
```

```
sudo apt-get install libssl-dev
```

```
sudo apt-get install libqt5svg5-dev
```

```
sudo apt-get install extra-cmake-modules
```

2 . Clone the Nextcloud client repository:

1 . Navigate to the directory where you want to store the Nextcloud client source:

```
cd ~/your_preferred_directory
```

2 . Clone the repository:

git clone <https://github.com/nextcloud/desktop.git>

3 . Navigate into the cloned directory:

```
cd desktop
```

3 . Prepare for the build:

1 . Make a build directory:

```
mkdir build
```

```
cd build
```

2 . Run CMake to configure the project. This will prepare the build and generate necessary files for Qt Creator:

```
cmake -DCMAKE_BUILD_TYPE=Debug
```

```
-DCMAKE_PREFIX_PATH=/usr/lib/x86_64-linux-gnu/qt5/..
```

Note: Adjust the -DCMAKE_PREFIX_PATH if your Qt5 path is different.

4 . Open the project in Qt Creator:

1 . Start Qt Creator:

```
qtcreeator &
```

2 . In the Qt Creator interface:

- Go to 'File' -> 'Open File or Project'
- Navigate to the 'desktop' directory where you cloned the Nextcloud client.
- Select the 'CMakeLists.txt' file and click 'Open'.

3 . Configure the project:

- Qt Creator will ask to set up the build configuration. Usually, the default values are good, but ensure that you're building in Debug mode for development.
- Click 'Configure Project'.

5 . Build and Run:

1 . Once configured, you should see the source code of the Nextcloud client loaded into Qt Creator.

2 . To build the project, click on the green play (run) button, or press 'Ctrl + R'. This will compile and run the application.

Optional:

Package Installation Script:

This repository contains a script to help users install a set of packages on Ubuntu with a single command.

1 . Clone the repository: Open a terminal and run:

<https://github.com/Geovani9/NextcloudQtCreatorUbuntu.git>

2 . Navigate to the directory:
`cd NextcloudQtCreatorUbuntu`

3 . Make the script executable:
`chmod +x install_packages.sh`

4 . Execute the script:
`./install_packages.sh`

Follow the on-screen instructions. The script will automatically install the necessary packages. Once the installation process is complete, you'll see a message indicating the successful installation.

Now all step 1 its complete, you can go to step 2.

REFERENCES