

User Manual

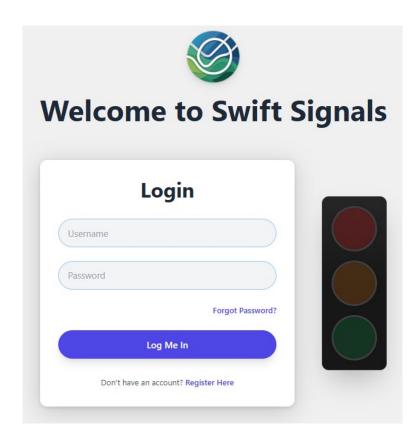
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Introduction

Welcome to Swift Signals! This guide will help you navigate through the application. It includes various pages such as the login screen where user can sign in if they have an account. If not, they can register a new account. Once you have signed in, you will be able to access the dashboard, Intersections, Simulations and Users pages. You may switch between dark and light mode using the button at the bottom of your screen. You can also sign out once you are done with the application. All of this can be located on the navbar.

Sign In



If you already have an account, follow these steps to access your dashboard:

Steps:

- 1. Enter your Email Use the email address you registered with.
- 2. Enter your Password Type in your account password.
- 3. Click the "Log Me In" Button You'll be redirected to your user dashboard.

Tip: If you don't have an account yet, click the "Register Here" link above the Log Me In button to create one.

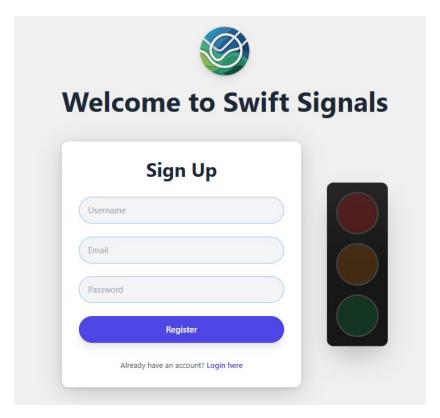
If you forgot your password, follow these steps:

Steps:

- **1.** Click the "Forgot Password?" Button You'll will then have the option to enter a password.
- **2.** Enter your password Enter an existing password
- **3.** Reset Password Enter your new password

Reset Password Enter your email Cancel Send Reset Link

Sign Up



If you're new, create an account:

Steps:

- 1. Username Choose a unique username.
- 2. Email Enter a valid email address.
- 3. Password Create a strong password.
- 4. Confirm Password Re-enter your password for confirmation.
- 5. Click the "Register" Button Your account will be created, and you'll be directed to sign in.

Note: Passwords must match. If there's an error, you'll be prompted to correct it before proceeding. After the account has been created correctly, a pop-up message will appear indicating that the account has been created successfully. You will be required to insert your email and new password on the sign-in page.

Navbar



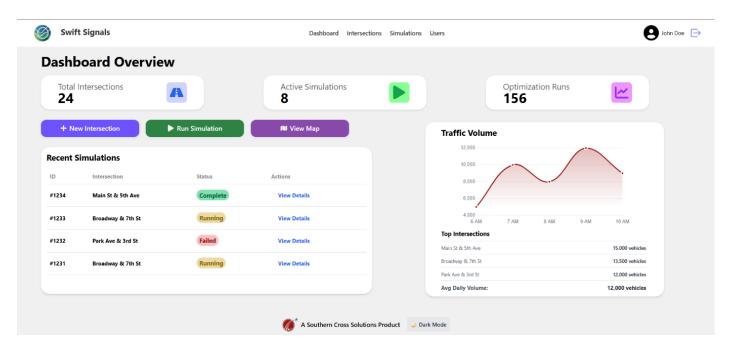
Dashboard Intersections Simulations Users



Once you have reached the dashboard, you will see the navbar on top of your screen. It includes the logo on the left as well as various texts that lead to other pages once clicked on. The pages include the Dashboard, Intersections, Simulations and Users pages. It also includes sign-out button which can used to sign-out once you are done using the application. It is included in all the pages after login.

Dashboard

The dashboard provides a comprehensive view of your overall statistics and options to perform various tasks such as add new intersection, run simulation and viewing the map. Once you have logged in, this is the first screen you will see. It acts as the main hub for all your traffic management activities.



Dashboard Overview

At the top of the screen, you will find an overview of your system's key metrics, displayed in a series of cards. The layout of these cards has been updated to place the icon on the right.

- Total Intersections: Displays the total number of intersections currently in the system.
- Active Simulations: Shows the number of simulations that are currently running.
- **Optimization Runs:** Indicates the total number of optimization processes that have been executed.

Quick Actions

Below the overview, you have access to primary actions. These buttons are now arranged in a responsive grid that adjusts to your screen size for improved usability.

- **+ New Intersection:** Click this button to begin the process of adding a new intersection to the system.
- Run Simulation: This button allows you to launch a new traffic simulation.
- View Map: Use this button to open a map view of all your configured intersections.



Recent Simulations

This section contains a table that lists your most recent simulation activities, allowing you to track their progress at a glance.

- ID: The unique ID number for the simulation.
- Intersection: The name of the intersection where the simulation was run.
- **Status:** The current status of the simulation is shown in a coloured tag (e.g., Complete, Running, Failed) to make it easily identifiable.
- **Actions:** Click the "View Details" link to see more information about a specific simulation.

Traffic Volume & Top Intersections

The column on the right side of the dashboard is dedicated to more detailed analytics.

- Traffic Volume: This card features an updated line graph that visualizes traffic patterns over time. The graph now uses a red colour scheme. You can hover your mouse over the graph to view specific data points. A new "View Report" button is now located at the top of this card to navigate to a full report.
- Top Intersections: This card shows a ranked list of your busiest intersections. Each
 entry displays the intersection's name, its traffic volume, and a visual progress bar
 indicating its traffic load relative to the others. The card also displays the Avg Daily
 Volume at the bottom.



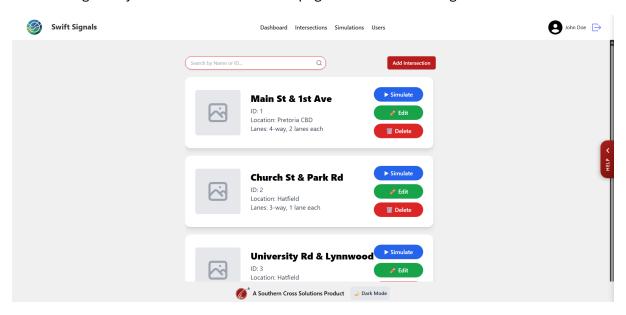
Help Menu

A new Help Menu has been added to the application. This feature gives you direct access to documentation, support, and other helpful resources from within the dashboard, ensuring that assistance is always just a click away. This is located in a tab on the right-hand side of the screen.



Intersections

The Intersections page is where you can view, manage, and organize all the intersections within the Swift Signals system. You can access this page from the main navigation bar.



Page Controls

At the top of the page, you will find controls that allow you to search for specific intersections and add new ones.

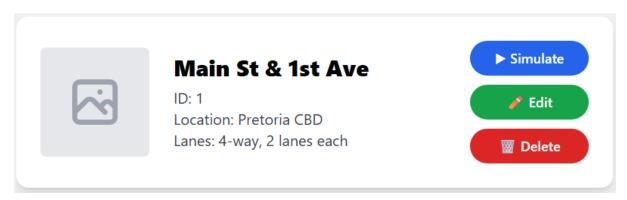
- **Search Bar:** A search bar is located on the left to help you quickly find a specific intersection. You can filter the list by entering an intersection's **Name** or **ID**.
- Add Intersection Button: On the right, the "Add Intersection" button allows you to create and configure a new intersection entry in the system.



Intersection Card

Each intersection in the system is displayed on its own dedicated card. The list of cards is scrollable. Each card provides detailed information and management options.

- **Intersection Image:** On the left of the card, a space is reserved for a thumbnail image of the intersection. If no image is available, a placeholder icon is shown.
- Intersection Details: The central part of the card displays key information:
 - o Name: The unique name of the intersection (e.g., "Main St & 1st Ave").
 - o **ID:** The system-assigned ID number.
 - o Location: The geographical area or suburb (e.g., "Pretoria CBD").
 - o **Lanes:** A description of the lane configuration (e.g., "4-way, 2 lanes each").
- **Action Buttons:** On the right side of the card, a set of buttons allows you to perform actions for that specific intersection:
 - o **Simulate:** Launches a new traffic simulation for the intersection.
 - Edit: Opens the editor to modify the intersection's details.
 - Delete: Removes the intersection from the system.



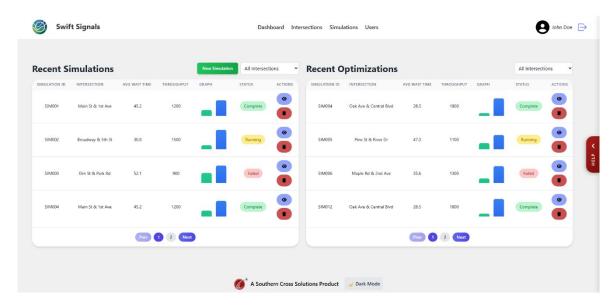
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Simulations

The Simulations page provides a comprehensive dashboard for creating, viewing, and managing all traffic simulations and optimizations. The page is organized into two main sections for clarity and ease of use.



Page Layout

The main screen is divided into a two-column grid:

- **Recent Simulations:** The left column is dedicated to standard traffic simulations. From here, you can view past simulations and create new ones.
- **Recent Optimizations:** The right column displays a history of your optimization runs, which are specialized simulations aimed at improving traffic flow.

Simulations & Optimizations Tables

Both columns contain a powerful table for displaying data. While their data is different, their functionality is identical.

Table Controls

Above each table, you will find a title and a dropdown menu that allows you to filter the list by a specific intersection. The "Recent Simulations" table also includes a "**New Simulation**" button to initiate a new run.

Table Contents

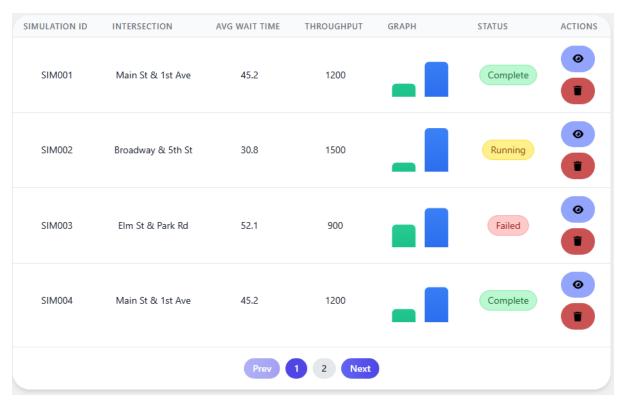
Each row in the table represents a single simulation or optimization run and includes the following columns:

- Simulation ID: The unique identifier for the run.
- Intersection: The name of the intersection involved.
- Avg Wait Time: The average vehicle waiting time in seconds.

- **Throughput:** The total number of vehicles that passed through the intersection.
- **Graph:** A miniature bar chart providing an at-a-glance comparison of the Average Wait Time and Vehicle Throughput for that specific run.
- Status: A coloured tag indicates the current state (e.g., Complete, Running, Failed).
- Actions: Icon buttons to manage the entry:
 - o **Wiew:** Opens the detailed results page for the simulation.
 - Delete: Permanently removes the simulation entry.

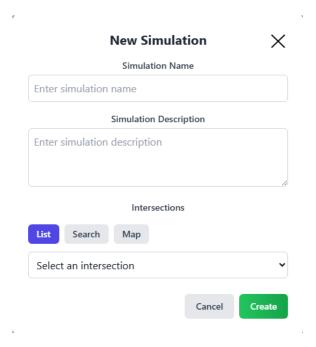
Pagination

If there are more entries than can fit on one page, navigation controls will appear at the bottom of the table, including "Prev" and "Next" buttons, along with page numbers.



Creating a New Simulation

Clicking the "New Simulation" button opens a modal window where you can configure and launch a new simulation or optimization run.



The creation process involves the following steps:

- 1. **Enter Details:** Provide a **Simulation Name** and an optional **Simulation Description**.
- 2. **Add Intersections:** Add one or more intersections to the simulation using one of the three methods provided in the tabs:
 - List Tab: Select an intersection from a dropdown list of all available locations.
 - Search Tab: Type the name or location of an intersection into a search bar and click "Add".
 - Map Tab: Click directly on the interactive map to select a location. The coordinates will be automatically added to the simulation.
 - Selected intersections will appear as coloured "pills" above the tabs. You can remove one by clicking the "X" on the pill.

3. **Create:** Once all details are configured, click the **"Create"** button to start the simulation. You can click **"Cancel"** at any time to close the window without saving.



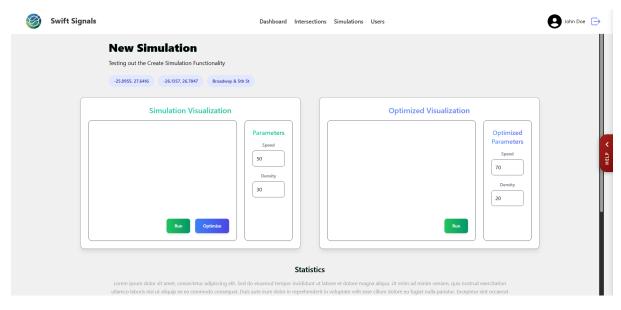
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Simulation Results

After creating and running a simulation from the Simulations page, you will be directed to the Simulation Results page. This page provides a detailed, interactive environment to analyse and compare the initial simulation with an optimized version.



Simulation Details

At the top of the page, you will find the core details of the simulation you are viewing:

- Simulation Name: The title of the simulation run.
- **Description:** The description you entered when creating the simulation.
- Intersections: A series of tags or "pills" showing all the intersections that were included in this simulation run.

Interactive Visualizations

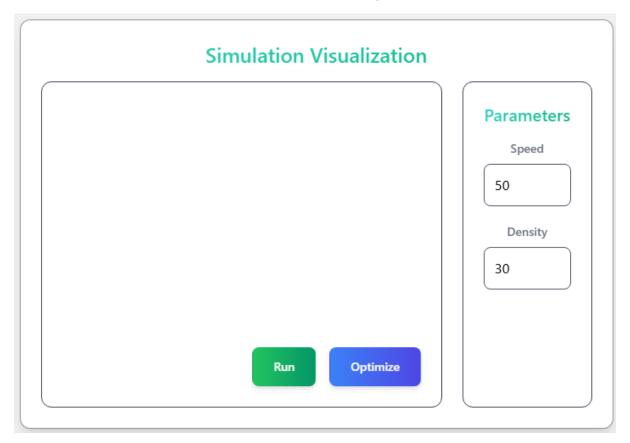
The main content area is split into two distinct sections, allowing for direct comparison between your initial setup and a potential, improved version.

Simulation Visualization (Left Side)

This section on the left represents your initial simulation run.

- Chart: A bar chart visualizes the current simulation parameters. You can click on the chart itself to open a full-screen view for a more detailed look.
- **Parameters:** On the right side of this section, you can manually adjust the **Speed** and **Density** parameters. Changing these values will update the chart in real-time.
- Actions:
 - Run: Click this button to re-run the simulation with the currently set parameters.
 The button will show "Running..." while the simulation is in progress.

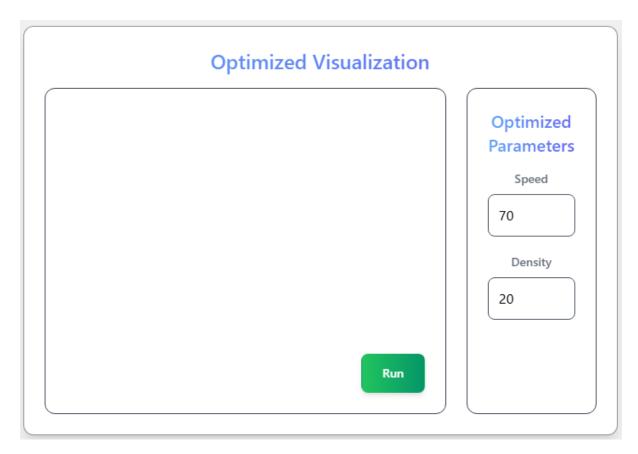
 Optimize: Click this button to automatically generate an optimized set of parameters based on your current inputs. The results will appear in the "Optimized Visualization" section on the right.



Optimized Visualization (Right Side)

This section on the right displays the results of an optimization run.

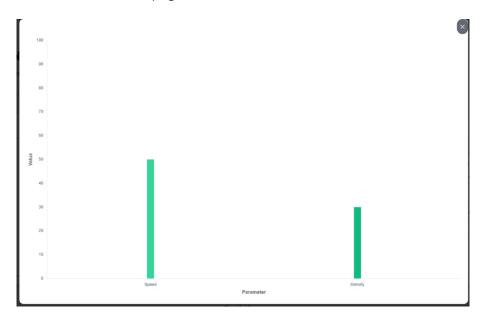
- Chart: This bar chart visualizes the optimized parameters for **Speed** and **Density**, making it easy to compare against the initial simulation chart. This chart can also be clicked to open it in full-screen mode.
- **Optimized Parameters:** You can view and manually adjust the optimized **Speed** and **Density** values here.
- Action:
 - o **Run:** Click this button to run a new simulation using the optimized parameters.



Full-Screen Chart View

For a more detailed analysis, you can view either chart in a full-screen modal window.

- **How to Open:** Simply click on either the "Simulation Visualization" chart or the "Optimized Visualization" chart.
- **How to Close:** Click the "X" button in the top-right corner of the full-screen view to return to the main results page.



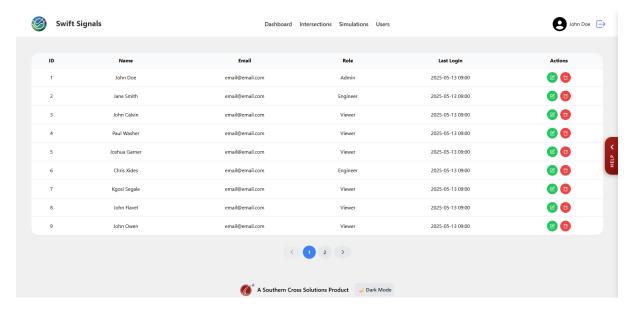
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Users Page

The Users page provides administrators with a comprehensive list of all users in the system. From this central location, you can view user details and perform essential management tasks.



Users Table

The main feature of this page is the users table, which is designed to present user information in a clear and organized manner. The number of users displayed on each page may adjust automatically based on your screen size to ensure optimal viewing.

Table Columns

The table is organized into the following columns:

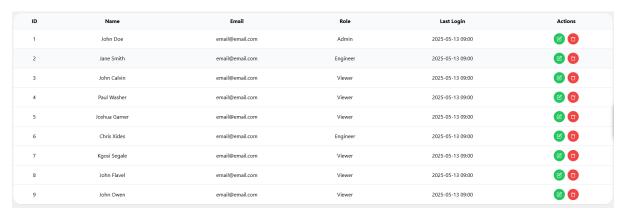
- ID: The unique identification number assigned to each user.
- Name: The full name of the user.
- **Email:** The user's registered email address.

- Role: The permission level assigned to the user (e.g., Admin, Engineer, Viewer).
- Last Login: The date and time of the user's last login session.
- Actions: A dedicated column for user management controls.

User Actions

The Actions column contains two icon buttons for each user:

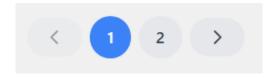
- **Edit (Pencil Icon):** Click the green button with the pencil icon to modify a user's details and role permissions.
- **Delete (Trash Icon):** Click the red button with the trash icon to permanently remove a user from the system.



Pagination Controls

Located below the table, the pagination controls allow you to navigate through the list of users if there are too many to display on a single page.

- **Previous & Next Buttons:** Use the arrow buttons on the far left and right to move to the previous or next page.
- **Page Numbers:** Click on a specific number to jump directly to that page. The current page will be highlighted with a blue background.
- Ellipsis (...): If there is a large number of pages, an ellipsis (...) will be displayed to indicate a gap in the page number sequence for a more compact view.



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Help Menu & Support

The Swift Signals platform includes an integrated, comprehensive Help Menu designed to provide on-demand assistance without interrupting your workflow. It offers support through an Al-powered chatbot, interactive tutorials, and a detailed FAQ section.

Accessing the Help Menu

You can access the support panel from any page within the application.

- **Activation:** On the right-hand edge of your screen, you will find a floating "**HELP**" button. Click this button to slide the Help Menu open.
- Closing: To close the menu, you can either click the "HELP" button again or click the "X" icon inside the menu panel.



The Help Menu is organized into two main tabs: Swift Chat and General Help.

Swift Chat (AI Chatbot)

The default tab is Swift Chat, an Al-powered chatbot designed to answer your questions in real-time.

- **Asking Questions:** Type your question into the message box at the bottom and either press **Enter** or click the **Send** icon.
- **Quick Replies:** For common queries, the chatbot may provide "quick reply" buttons below its answer. Clicking one of these buttons will send a pre-defined follow-up question, making it faster to get the information you need.
- **Starting Tutorials:** You can ask the chatbot to guide you. For example, typing "Show me how the dashboard works" will prompt the chatbot to start the interactive tutorial for the Dashboard page.



General Help

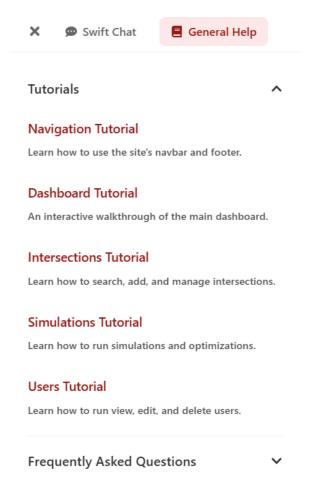
The General Help tab contains a library of self-serve resources, including interactive tutorials and a list of frequently asked questions.

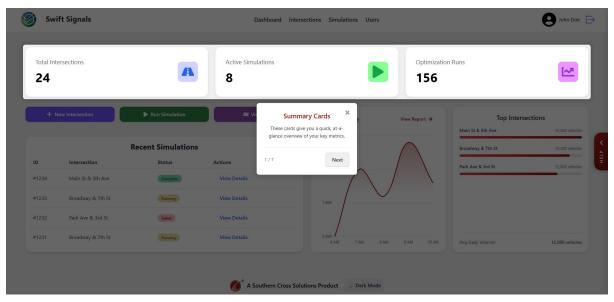
Interactive Tutorials

This section provides step-by-step guided tours of the application's main features.

- Launching a Tutorial: Under the "Tutorials" dropdown, click on the topic you want to learn about (e.g., Dashboard Tutorial, Intersections Tutorial). This will launch an interactive, on-screen guide.
- **Guided Steps:** The tutorial will darken the screen and highlight a specific feature, displaying a pop-up box with a description and navigation controls like **"Previous"** and **"Next"**.

• **Navigation Confirmation:** If you launch a tutorial for a page you are not currently on, a confirmation window will appear asking for your permission to navigate to the correct page first.





Frequently Asked Questions (FAQ)

This section contains a detailed list of common questions about the Swift Signals platform, its purpose, and its technology.

- How to Use: The FAQ section is an accordion menu.
 - 1. First, click the main **"Frequently Asked Questions"** header to reveal the list of questions.
 - 2. Then, click on any individual question to expand it and view the detailed answer.

