# Compass
# Route Builder

User Guide



April 2024 | Part #: 700-XXXX R4

# COMPASS ROUTE BUILDER USER GUIDE

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## Introduction

Compass is a web-based solution for school transportation management that fully integrates routing, student tracking, and vehicle tracking and surveillance. Because Compass is entirely web-based, users do not need to install any software or maintain their own servers to access its full functionality.

## What does Compass do?

By simply logging in, users can begin planning routes or tracking vehicles and students directly from their web browser. Compass is a powerful routing application that features a streamlined two-step route-building process and automatic optimization.

Schools can easily synchronize their student information systems with Compass. A single database holds all student information, providing users with a consistent and reliable experience.

Users can monitor video surveillance in real time and review vehicle data status. DVR health checks, panic alarms, and stop-arm deployment events can be detected from any internet-connected device.

Compass is built on ESRI Geographic Information Systems (GIS) for mapping and planning, and users can modify ESRI-based maps to suit their needs. Importing GPS data is not required to view live vehicle tracks on the map or to check vehicle occupancy at any time — this information is available instantly with a single click.

## Get Familiar with Compass Terminology

Before taking full advantage of Compass, it is important to understand several core concepts that are fundamental to how the application works.

### Scenarios

Loading a scenario is the first step for any user who has logged in to Compass Route Builder. A scenario is a version of the conditions that affect routing events, defined by a complete dataset.

Customers can create multiple scenarios based on their operational needs, each containing different data. For example, some customers may require separate scenarios for different periods of the school year. Because scenarios are associated with school districts, all relevant data must be available before a scenario can be created.

We initially provide each customer with one scenario. Cloning this scenario before beginning any work is strongly recommended, as it preserves two copies of the original data as a safeguard.

### Maps

ESRI-based maps are essential for developing routes in Compass, as they present critical geographic information. However, maps are only effective when the associated dataset has been built and loaded. Once the user loads an existing scenario, the dataset is linked to the map, and users can retrieve information about any displayed feature by clicking on it.

When data is available, users can retrieve information about any map feature by clicking on it.

### Runs

A run is a set of directions that guides a driver from the depot to pick up students at their assigned stops, deliver them to their destination (typically a school), and return to the depot — or proceed directly to another run. A return run follows the reverse path: the driver departs from the school, drops students off at their assigned stops, and returns the bus to the depot. In every run, either the pickup or the drop-off point is at the school.

### Stops, Schools and Students

Before planning runs, users must create stops, which define the course of each run. Stops are the locations where students are picked up or dropped off each day. Each stop requires two additional datasets — schools and students — both linked to specific addresses. This data must be loaded into the database before any routing work begins.

Stops must always include both pickup and drop-off information at the time of creation.

Compass supports two types of stops, depending on their location relative to students' residences. Curb-to-Curb Stops are located at the student's residence. Group Stops can be placed anywhere within walking distance of several students' residences, allowing multiple students to share a single stop.

### Routes

A route is a combination of runs grouped into a single scheduled itinerary. A bus driver may need to complete two or more runs with different purposes before returning the vehicle to the depot. For example, two groups of students may travel to school at different times in the morning, or one group may be taken to school while another is taken to a different location. The resulting sequence of runs constitutes a route in Compass.

### Vehicles

Compass uses the term "vehicles" to refer to all transportation assets available for route planning. Because vehicles are housed in depots, depot locations are essential information from the outset of any project. Vehicle selection must account for the number of riders, as well as any required equipment or accommodations — such as wheelchair accessibility, seat belts, or safety vests.

# Geocoding

**Geocoding** is the process of converting a specific address into a pair of geographic coordinates (x and y values).

Several common tasks in Compass Route Builder — such as adding students, adding schools, or creating stops — require addresses to be converted into coordinates. Compass uses these coordinates to generate runs and routes. The Coordinates Tool can be used to view the x and y values associated with any address or point on the map.

Let's take a look at **Schools Management** to illustrate how this is done in Compass:

Three geocoding tools are available beneath the address field: A red button that retrieves both an address and its coordinates, a green button that retrieves coordinates only, and a white button that links a typed address to its corresponding coordinates.

1 If you know the exact location on the Map, use the **red Geocoding** button to retrieve both the address and coordinates simultaneously:

- Click first on the red **Geocoding** button.
- Zoom in and click the **exact location** on the Map. The **address and coordinates** will be displayed in the corresponding fields.

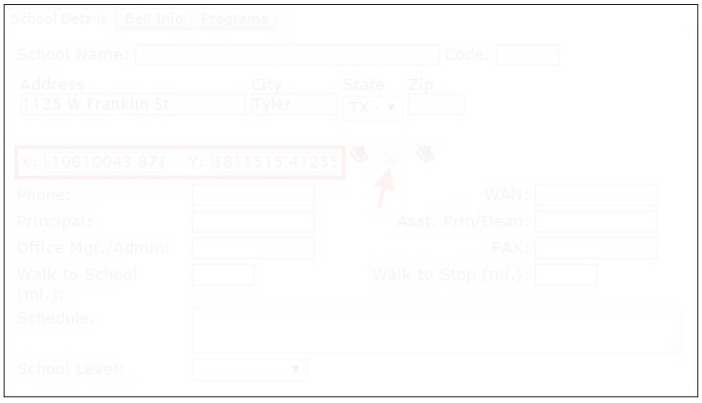

2 The green geocoding button allows you to enter the address manually and even control how it is displayed. To do so:

- Click the green **Geocoding** button.
- Zoom in and click the **exact location** on the map. The **coordinates** for that location appear in the corresponding fields.
- Then, enter the **address information** as you want it displayed in the address field.


3 The white geocoding button, shown as a magnifier icon, links a typed address to its corresponding coordinates.

To link an address with its **coordinates**:

- Enter the **address** in its corresponding fields.
- Click on the white **Geocoding** button. The coordinates appear in the fields below.



# CREATING STOPS

## Understanding Stops

As described in the introductory tutorial *Get to Know Compass*, stops are the locations where students are picked up or dropped off on their way to and from school. Stops must be planned carefully before runs and routes can be generated, as they define the course of each run.

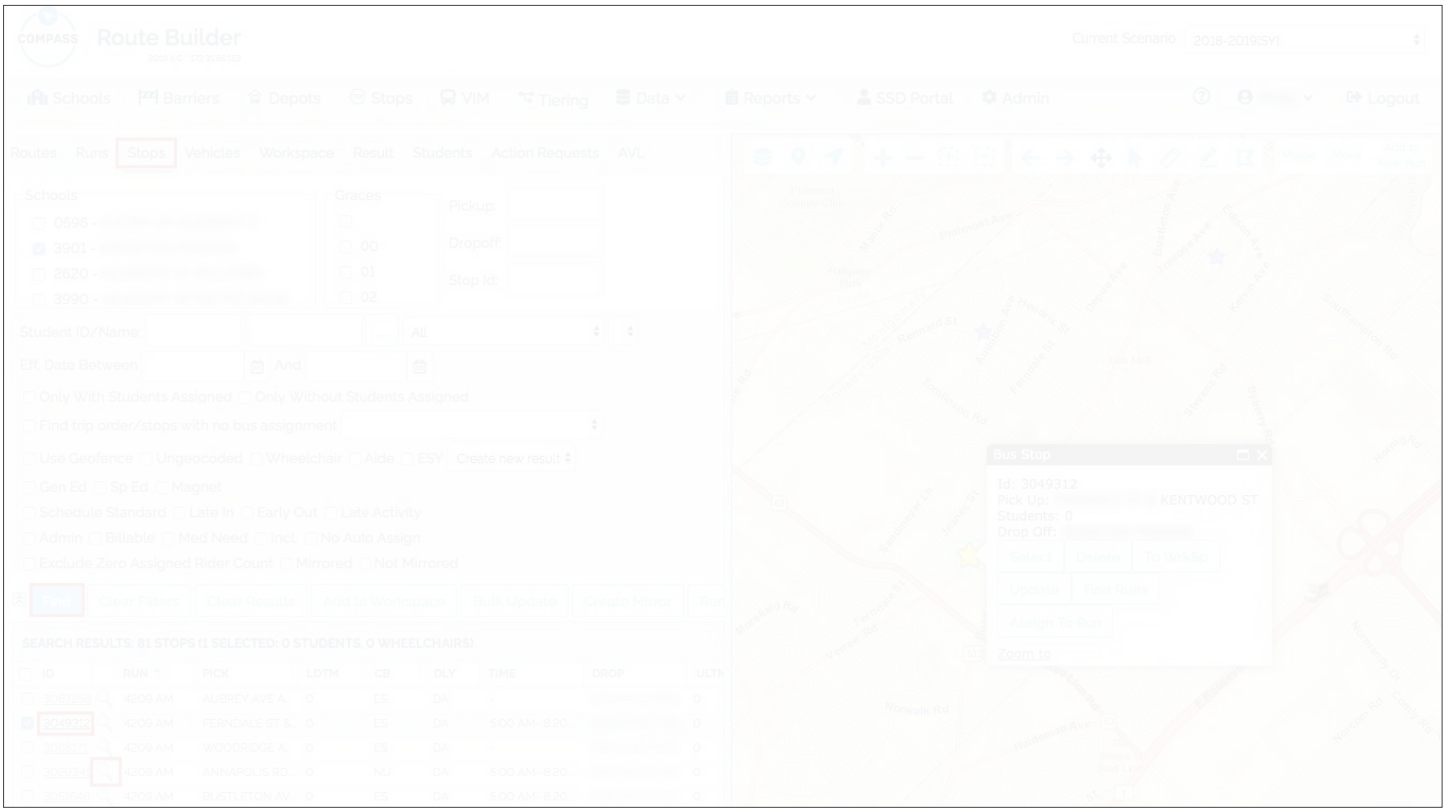
Compass supports two types of residential bus stops (distinct from chools), based on the number of students assigned to them:

- **Curb-to-Curb Stops** serve a single student and are typically located at or near that student's residence.
- **Group Stops** serve multiple students who live in the same area and are able to walk to a shared stop location.

### Stop Management Tool

The Stop Management tool is accessible from the **Stops** tab. Clicking this tab opens the **Stop Management** menu, which provides a range of filters for searching existing stops.

After selecting the desired filters, click the **Find** button to display a list of matching stops. Each result shows the stop ID alongside a **Search** button, which locates the selected stop on the map and opens its **Bus Stop** details window..



# MANAGING VEHICLES

## Understanding Vehicle Management

Compass uses the term "vehicles" to refer to all transportation assets available for route planning. In practice, fleets typically include several vehicle types with different characteristics, and users must determine which vehicles are appropriate for each route they design.

### Vehicle Properties

Vehicle selection is based primarily on maximum rider capacity and occupancy allowance, but must also account for any required equipment or special accommodations.

Some of these considerations are technical. For example, the availability of AVL or GPS systems is essential for tracking and location purposes. Others relate to safety, including maximum route and drive times, maximum total distance, seat belts, safety vests, and wheelchair accessibility. Additional accommodations — such as air conditioning or assigned aides — depend on individual student needs.

Operating costs per hour or per mile may also be factored in as financial considerations.

Vehicles are housed in depots, and depot locations are essential from the outset of any routing project, as they typically serve as both the starting point and the final destination of every route. Depot location therefore plays a significant role in vehicle selection.

### Vehicle Management Tool

The Vehicle Management tool is accessible from the Vehicles tab, located in the left section of the screen beneath the main toolbar. Vehicles can be searched using filters organized into the following sections:

a. Vehicle Profiles — Select a profile from the drop-down menu. Profiles are used to group vehicles with similar characteristics and equipment.
b. Schools and Depots — Search for vehicles assigned to specific schools or available at specific depots using the corresponding scroll-down menus.
c. Special Equipment and Accommodations — Filter for vehicles equipped with wheelchairs, an assigned aide, air conditioning, spare vehicle availability, or AVL/GPS.
d. Vehicle Number and Attributes — Search by vehicle number or specific attributes
e. Vehicles With No Runs — Identify vehicles with no assigned runs during a specified period.

Refer to the figure below for an overview of how these filters are arranged on screen.

## Editing Vehicles

Existing vehicles within a scenario can be edited at any time. To locate and edit a vehicle:

1. Select the appropriate search filters as described in the Vehicle Management Tool section.
2. Click the **Find** button. A list of matching vehicles appears below.
3. Click the record icon to the left of the vehicle number. The Vehicle Details window opens.


In the Vehicle Details window, enter the required information in the corresponding fields. These fields are organized into sections, highlighted in the figures below for reference.

1


The first set of fields allows you to:

- Select **Spare** Vehicle if applicable.
- Enter the **AVL Device ID,** if required.
- Select the appropriate **AVL Account**.
- Enter **Notes**, **Stall** number and **Odometer** data.

  Note that the vehicle number assigned to the selected vehicle, located in the upper-left corner, is read-only and cannot be modified.

2


The following fields allow you to enter:

- The maximum number of **Riders** allowed.
- The **Wheelchair** capacity on the vehicle.
- The number of **Seat Belts** and **Safety Vests** available on the vehicle.