Beta Relay 2.0

Fleet Management & Relay Dispatch Platform
Complete Feature Guide & Subscription Reference

Document Version	v2.1.0
Release Date	March 18, 2026
Platform	Beta Relay 2.0 — Web Application
Target Audience	Fleet Operators, Logistics Companies, Dispatch Managers
Powered By	Google Maps Platform · Chart.js · Inter + Syne Fonts
Contact	sales@betarelay.com · +1 (555) 000-0100

Table of Contents

1. Overview & Introduction
What is Beta Relay 2.0?

Beta Relay 2.0 is an enterprise-grade, real-time relay freight dispatch and fleet management platform. It is purpose-built for logistics companies that operate multi-driver relay chains across interstate corridors, enabling a single freight shipment to be handed between multiple drivers at designated relay points — dramatically reducing driver fatigue and improving delivery speed.

What is the Relay (Baton) Method?

In traditional trucking, a single driver carries freight from origin to destination. With the relay baton method, a long-distance route is divided into multiple legs — typically 100–200 km each. A different driver handles each leg. When a leg is complete, the driver arrives at a pre-arranged truck stop or depot (called a relay point), where the next driver is already waiting on standby. The freight (the "baton") is transferred in 15–25 minutes, and the new driver immediately departs. This allows 24/7 freight movement without violating hours-of-service regulations.

Key Benefits

- **Continuous 24/7 freight movement** — multiple drivers cover the same corridor around the clock.
- **HOS compliance** — each driver works only their assigned leg, staying well within legal driving limits.
- **Reduced fatigue incidents** — shorter drives with adequate rest periods between shifts.
- **Faster delivery times** — eliminating mandatory rest stops that a single driver would require.
- **Real-road GPS tracking** — all routes use Google Maps Directions API for exact road geometry.
- **Full fleet visibility** — every driver, vehicle, and relay handoff is visible in real time.

Technology Stack

Layer	Technology	Purpose
Mapping	Google Maps JS API v3	Interactive map, real-road polylines, traffic overlay
Routing	Google Directions API + Routes API v2	Real road geometry, traffic-aware ETA calculation
Charts	Chart.js 4.4	Cost trends, distance charts, utilization doughnut
Animation	requestAnimationFrame (60fps)	Smooth vehicle movement along decoded road paths
Typography	Inter + Syne + Manrope	Tabular metrics, display headings, body text
Storage	localStorage + REST API (production)	Session persistence and cloud sync across devices

2. Quick Start Guide
Get your fleet live on the map in under 2 minutes

After logging into your Beta Relay account, follow these three steps to begin tracking your relay fleet in real time.

Step 1 — Open the Routes Map

1. Click **Routes Map** in the left sidebar. The map initialises and automatically fetches real road routes via Google Maps for all 4 active relay shipments.

2. Watch the loading indicator — it shows which API leg is being fetched. Once complete, 4 colour-coded polylines appear following real highways and roads.

3. Driver markers (D1–D4) appear at their current positions and begin moving smoothly in real time.

Step 2 — Monitor a Shipment

1. Click any **driver marker** on the map to see a popup with name, vehicle, leg progress %, current speed, and traffic level.

2. Click any **route polyline** to open the Route Info Card showing distance, ETA, driver, stops completed, and live speed.

3. The **bottom stats bar** shows live aggregate data: routes, progress %, total distance, average speed, and ETA.

Step 3 — Plan a New Route

1. Click **Plan New Route** in the routes toolbar (or press Ctrl+N).

2. Click anywhere on the map to pin your origin (green A). Click again to pin your destination (red B). Add optional intermediate stops.

3. The system automatically computes a real road route. Distance and ETA are shown instantly in the result panel.

4. Assign a driver, name the route, then click **Save & Assign Route**.

***Tip:** The map auto-regenerates 4 fresh relay routes every day at midnight, drawing from the interstate pool across TX, LA, MS, OK, and AR. Routes are automatically assigned to the available driver pool.*

Keyboard Shortcuts

Shortcut	Action
Ctrl + N	Open Route Planner
Ctrl + S	Save current route
F11	Toggle map fullscreen (on Routes page)
Esc	Exit fullscreen / close open menus

3. Dashboard
Real-time command centre for your entire fleet

The Dashboard is the first screen you see after login. It consolidates the most important fleet metrics, live speed telemetry, cost analytics, a mini-map, and a maintenance calendar — all updating every 4 seconds.

KPI Strip — Top Row

Four large KPI cards show headline numbers at a glance. Each includes a trend badge, a mini progress bar, and a sub-label.

KPI Card	What It Shows	Update Frequency
Total Vehicles	All registered vehicles in the fleet	On vehicle add/remove
Active Drivers	Drivers currently en route + available	Every 4 seconds
Active Routes	Relay shipments currently in progress	Every 4 seconds
Fleet Alerts	Unresolved alerts requiring attention	Real time

Metrics Row

Four secondary metric cards track operational efficiency: **Total Distance** (YTD km), **Fuel Cost** (monthly spend), **On-Time Rate** (delivery punctuality %), and **Fleet Utilization** (active vehicles as % of total fleet).

Analytics Charts

Two Chart.js charts occupy the main body. The **Fleet Cost Breakdown** stacked bar chart shows monthly fuel, service, and insurance costs over 12 months. The **Total Travel Distance** area chart shows monthly km driven — useful for spotting seasonal patterns and utilization trends.

Live Speed Monitor

The right panel shows a live speed row per en-route driver. Each row displays: driver name, a real-time speed bar colour-coded by traffic level (blue = light, amber = moderate, red = heavy), exact speed in km/h, and metres-per-tick telemetry. Stopped drivers show their stop reason and remaining wait time.

Mini-Map

A compact Google Map at the dashboard bottom shows all en-route driver positions. Clicking a driver jumps to the Routes Map and centres on that driver. Four stats below show: en-route count, average speed, average progress, and total active km.

4. Routes Map
Live operational control centre with real-road GPS

The Routes Map page is the live operational core of Beta Relay 2.0. It renders all active relay routes using real road geometry from Google Maps, animates vehicle positions at 60fps, and provides full dispatch control through a menu bar and routes toolbar.

Menu Bar

Menu	Key Actions
File	New Route, Import/Export routes, Print manifest, Regenerate shipments
View	Toggle map type (Roadmap/Satellite/Hybrid/Terrain), zoom, fullscreen
Routes	Recenter map, refresh all routes, optimize routes via traffic API
Operations	Dispatch all, recall all, send fleet alert, emergency stop all vehicles
Help	Documentation, keyboard shortcuts, What's New, contact support

Route Colour Coding

Each of the 4 simultaneous relay routes is colour-coded consistently across all UI elements:

- **Blue (#2563eb)** — Route 1
- **Red (#dc2626)** — Route 2
- **Green (#059669)** — Route 3
- **Purple (#7c3aed)** — Route 4

Map Markers Explained

Marker	Meaning
Numbered circle (D1–D16)	En-route driver — colour matches route, shows live speed badge
Grey circle (Standby)	Driver waiting at relay point for the baton to arrive
Amber circle (Transferring)	Relay handoff in progress — cargo being physically transferred
Pin with ■ / ■ / ✓	Relay handoff point: waiting / active / completed
Lettered circle (A/B/1/2)	Route stop markers: origin (A), intermediate stops, destination (B)

Live Traffic & Speed Simulation

The traffic layer shows real-time congestion. The simulation engine modulates vehicle speed based on traffic state: **50–55 m/tick** in light traffic (~47 km/h), **44–49 m/tick** in moderate, **40–43 m/tick** in heavy traffic. This directly updates the km/h readout on each driver marker.

Bottom Panel — Timeline & Data Table

The bottom panel has two tabs. **Timeline** shows a Gantt-style view of each driver's leg progress across the scheduled time window. **Table** is a fully resizable data grid with 20 configurable columns — planned vs actual distance, service times, dispatch timestamps, and completion status. Columns are resized by dragging their edge and toggled via Customize Columns.

5. The Relay (Baton) System
How multi-driver handoffs work end to end

The relay system is the defining innovation of Beta Relay 2.0. It models the real-world practice of handing a freight load between multiple drivers at scheduled intermediate stops, enabling continuous 24/7 freight movement without violating driver rest regulations.

How a Relay Shipment is Built

1. A relay route is selected from the interstate pool (e.g. *Houston TX → New Orleans LA — 505 km, 4 legs*).
2. The route is divided into **legs** at real truck stops (Pilot/Flying J/Love's locations). Each leg is 100–200 km.
3. One driver is assigned per leg. The Leg 1 driver departs immediately. All other drivers travel to relay points and wait on **standby**.
4. When the active driver completes their leg, a **relay handoff** is triggered: a 15–25 minute transfer window begins with a visible countdown.
5. Once the transfer completes, the next driver's marker activates and begins moving along Leg 2's real road path.
6. This continues until the final driver delivers to the destination, marking the shipment complete.

Interstate Route Pool

Route ID	Corridor	Highway	Distance	Legs
R-001	Houston TX → Dallas TX	I-45 North	390 km	3
R-002	Houston TX → New Orleans LA	I-10 East	505 km	4
R-003	San Antonio TX → Dallas TX	I-35 North	440 km	3
R-004	Houston TX → Jackson MS	I-10 / I-20	610 km	4
R-005	Dallas TX → Oklahoma City OK	I-35 North	325 km	3
R-006	Dallas TX → Little Rock AR	I-30 East	500 km	3

Realistic Stop Simulation

En-route drivers experience realistic random stops during their leg. Each stop has a type, duration range, and a visible countdown timer shown on the driver marker and popup.

Stop Type	Duration	Trigger Probability
Fuel Stop	12–20 min	~0.8% per 4-second tick
Rest Break	10–18 min	~0.8% per 4-second tick
Meal Break	12–20 min	~0.8% per 4-second tick
Delivery Stop	5–15 min	~0.8% per 4-second tick
Traffic Signal	1–3 min	~0.8% per 4-second tick
Weigh Station	8–15 min	~0.8% per 4-second tick

Stop Type	Duration	Trigger Probability
Traffic Delay	3–10 min	~0.8% per 4-second tick

6. Interactive Route Planner
Custom route creation with real-road Google Maps routing

The Route Planner lets dispatchers create custom relay legs or one-off routes directly on the map, using real road routing. It supports up to 8 waypoints per route and auto-computes the path on every pin.

How to Use the Planner

1. Click **Plan New Route** in the Routes toolbar to open the planner modal.
2. Click anywhere on the map to place your **origin** pin (green A marker). The system reverse-geocodes the click to show a human-readable address.
3. Click again to place your **destination** pin (red B marker). With 2+ pins, the route is computed automatically using real roads.
4. Add up to 6 additional **intermediate stops** by clicking more points. The route recomputes each time.
5. The result panel shows: total distance (km), estimated travel time, and which API was used.
6. Select a driver, enter a route name, and click **Save & Assign Route**.

Routing Priority Chain

The planner uses a three-tier routing priority to guarantee a real road path:

1. **Google Maps DirectionsService** (primary) — built into the Maps JS SDK. Most reliable, works with any standard API key. Returns step-by-step road geometry with hundreds of path points.
2. **Routes API v2** (secondary) — richer traffic data. Used if DirectionsService returns an unexpected error.
3. **Great-circle arc path** (last resort) — densely interpolated arc shown with a dashed line, clearly indicating it is not a real road route.

Tip: *To remove a waypoint, click the × beside it in the sidebar list. The route automatically recomputes with the remaining points.*

7. Shipments
Card-based view of all active relay freight

The Shipments page provides a card-based view of every active relay shipment, with live progress tracking, cargo details, stop timelines, and quick-action buttons.

Shipment Card Elements

Element	Description
Route name & corridor	Relay label (e.g. "Houston TX → Dallas TX") and state corridor
Status pill	■ Dispatched · ■ En Route · ■ Delivered
Progress bar	Overall shipment progress as % of total route distance
Stop timeline	Horizontal step diagram from Origin through all stops to Destination, colour-coded by completion
Meta strip	Distance (km), ETA (traffic-aware), Live Speed (km/h)
Cargo panel	Cargo type, weight, declared value, assigned driver name
Action buttons	Track Route (jumps to map), Driver Info (opens detail panel), ETA (notification)

Auto-Refresh

The Shipments page auto-refreshes every 12 seconds while active. This keeps progress bars, speeds, and stop completions in sync with the live simulation. The four stat cards at the top update on every cycle.

***Tip:** Use the Regenerate Shipments option (File menu) to generate a fresh set of 4 relay routes. This clears the map, resets all driver positions, and loads new real-road routes from the pool.*

8. Driver Management
Profiles, onboarding, and live performance tracking

The Drivers page gives a full view of every driver — current status, vehicle assignment, license class, experience, and live telemetry. A 5-step onboarding flow handles new driver registration.

Driver Status Types

Status	Colour	Meaning
En Route	Amber	Actively driving a relay leg — marker visible on map
Available	Green	On shift, ready to be dispatched to a route
Standby	Purple	Waiting at a relay point for an incoming baton handoff
Transferring	Orange	Relay handoff in progress at relay point
Offline	Grey	Off shift or unavailable

Driver Detail Panel

Clicking any driver card opens a slide-in detail panel with five sections: **Live Status** (speed, traffic level, leg progress, stop reason and countdown), **Contact & Personal** (phone, license, experience), **License & Compliance** (class, expiry, endorsements), **Performance Metrics** (on-time rate, km driven, efficiency), and **Recent Activity**.

5-Step Driver Onboarding

Step	Fields Collected
1 · Personal Info	Full name, date of birth, nationality, emergency contact
2 · License	License class (A/B/C/D), license number, expiry date, endorsements
3 · Vehicle	Assign an available vehicle from the fleet (van/car/truck)
4 · Schedule	Start date, shift pattern, home depot, preferred corridor
5 · Review	Confirm all details before finalising onboarding

9. Vehicle Fleet
Fleet registry with live fuel and status monitoring

The Vehicles page shows the full registered fleet with live fuel levels, driver assignments, current status, and payload capacity. Fuel bars update every 30 seconds for en-route vehicles.

Vehicle Types & Capacities

Type	Example Models	Typical Capacity
Van	Mercedes Sprinter, Ford Transit, VW Transporter, Renault Master	800 kg – 1,200 kg
Car	Toyota Corolla, Honda Civic, Hyundai Tucson	Passengers / Light cargo
Truck	Isuzu NPR 3.5t, MAN TGS 7.5t, Ford F-650	3,500 kg – 7,500 kg

Fuel Level Thresholds

- **Above 55%** — Normal (shown in blue)
- **30–55%** — Monitor (shown in amber)
- **Below 30%** — Refuel Soon (shown in red, triggers a fleet alert)

Note: *In the production release, fuel data is pulled from real telematics hardware (CAN bus / OBD-II) integrated via the Beta Relay API. The current version simulates fuel consumption for demonstration.*

10. Alerts & Monitoring
Priority-ranked fleet event management

The Alerts page is a centralised view of all fleet events requiring dispatcher attention. Alerts are ranked by severity, filterable by type, and can be acknowledged and resolved.

Alert Severity Levels

Level	Colour	Examples	Response Target
Critical	Red	Vehicle breakdown, emergency stop, GPS signal lost	Immediate
Warning	Amber	Low fuel (<30%), driver overdue, missed relay handoff window	< 15 minutes
Info	Blue	Route regenerated, new shipment dispatched, driver checked in	Informational
Resolved	Green	Previously active alerts that have been addressed	Archive

Toast Notifications

In addition to the Alerts page, time-sensitive events trigger toast notifications at the bottom-right of the screen. These appear for relay handoffs, driver stops, resume events, and system messages. Each toast auto-dismisses after 6 seconds.

11. Reports & Analytics
Fleet-wide performance, cost, and efficiency data

The Reports page delivers fleet-wide analytics across cost, utilization, distance, and driver efficiency — visualised with interactive Chart.js charts and exportable data.

Available Reports

Report	Type	Period	Export
Driver Performance	Table	Current month	CSV / PDF
Vehicle Utilization	Doughnut chart	Current day	PNG / PDF
Monthly Fuel Costs	Bar chart	Last 7 months	CSV / PDF
Route Completion	Progress bars	Live / today	PDF
Fleet Cost Breakdown	Stacked bar	Last 12 months	CSV / PDF
Total Travel Distance	Area chart	Last 12 months	CSV / PDF

Data Table — 20 Configurable Columns

The data table at the bottom of the Routes page provides the most granular data in the system. Available columns include: Route, Leg, Driver, Destinations Total, Date Created, Scheduled For, Dispatched Time, Assigned Vehicle, Actual Start Time, Progress %, Planned Duration, Actual Travel Time (Mobile), Actual Travel Time (Telematic), Planned Distance, Actual Distance (Mobile), Actual Distance (Telematic), Planned Avg Service Time, Actual Avg Service Time, Visited Destinations, Done Destinations, and Skipped Destinations.

12. Settings
Personalise and configure your Beta Relay instance

The Settings page lets each user personalise the platform, configure API keys, and control which real-time features are active. Settings are persisted to localStorage.

Section	Options Available
Profile	Display name, role title, email address, timezone
Map Configuration	Default map type, default zoom level, auto-recenter on load, traffic default state
Notifications	Toast duration, alert sound on/off, email digest frequency (daily/weekly)
Simulation	Tick rate (1–10s), speed range (light/moderate/heavy traffic bands), stop frequency
API Keys	Google Maps API key, Routes API key override for your own billing account
Data & Privacy	Clear saved driver records, reset to defaults, export all data as JSON

Note: *In the production cloud deployment, settings sync across all devices logged into the same account via the Beta Relay API.*

13. Subscription Plans & Pricing

Choose the right plan for your fleet size

Beta Relay 2.0 is offered as a SaaS subscription. All plans include the full real-road routing engine, live GPS simulation, relay handoff system, and Google Maps integration.

Feature	Starter	Professional	Enterprise
Price (annual billing)	$199 / mo	$499 / mo	Custom
Drivers	Up to 10	Up to 50	Unlimited
Active Routes	Up to 2	Up to 8	Unlimited
Dispatcher Accounts	1	5	Unlimited
Relay Baton System	Yes	Yes	Yes
Real-Road Routing	Yes	Yes	Yes
Traffic-Aware Routing	Basic	Full	Full + SLA
Analytics & Reports	Standard	Advanced	Custom
API Access (REST)	No	Yes	Yes + WS stream
White-Label Branding	No	No	Yes
Support	Email 24–48h	Priority 4–8h	24/7 Dedicated
Uptime SLA	99.5%	99.8%	99.9%
Free Trial	14 days	14 days	Custom POC

Note: *All plans include a* ***14-day free trial*** *with no credit card required. Contact sales@betarelay.com to start your trial or schedule a live demo.*

14. API & Integration
Connect Beta Relay to your existing systems

Professional and Enterprise plans include REST API access, allowing integration of fleet data with your existing TMS, ERP, or warehouse management systems.

Available API Endpoints (Production)

Endpoint	Method	Description
/api/v1/shipments	GET	List all active and completed shipments
/api/v1/shipments/{id}	GET	Full detail of a single shipment including leg positions
/api/v1/drivers	GET / POST	List drivers or add a new driver record
/api/v1/drivers/{id}/position	GET	Live GPS coordinates of a driver (lat/lng + speed)
/api/v1/routes	GET / POST	List routes or create a new relay route
/api/v1/alerts	GET	All unresolved fleet alerts with severity and timestamp
/api/v1/vehicles	GET / POST	Fleet vehicle list or register a new vehicle
/api/v1/telemetry/stream	WebSocket	Real-time telemetry stream (position, speed, status) for all drivers

Google Maps API Key Setup

1. Go to **Google Cloud Console** → APIs & Services → Credentials.
2. Create an API key and enable: **Maps JavaScript API**, **Directions API**, **Routes API**, and **Geocoding API**.
3. Restrict the key to your domain (HTTP referrers) for security.
4. Enter the key in Beta Relay: **Settings** → **API Keys** → **Google Maps API Key**.

Warning: *Never expose your Google Maps API key in public code repositories. Restrict the key by HTTP referrer and monitor usage in Google Cloud Console.*

15. Support & Contact

We're here to help your fleet succeed

The Beta Relay support team is available to help with onboarding, technical issues, API integration, and custom enterprise requirements.

Contact Channels

Channel	Contact	Response Time	Plans
Email Support	support@betarelay.com	24–48 hours	All plans
Priority Email	priority@betarelay.com	4–8 hours	Professional +
Sales & Demo	sales@betarelay.com	Same business day	All plans
Enterprise Hotline	+1 (555) 000-0100	24/7	Enterprise only
In-App Feedback	Help → Send Feedback	Logged immediately	All plans

What's New in Version 2.1

- Real-road DirectionsService routing (primary path — replaces previous straight-line fallback)
- Inter tabular-nums font applied to all metric and numeric display elements
- Routes API v2 fallback chain with clear dashed indicator for estimated paths
- Full in-app documentation modal (this document, always up to date)
- Responsive clamp() sizing on all metric numbers — adapts from 320px mobile to 4K desktop
- Route planner result markers tracked and cleared correctly on route recompute

---

Beta Relay 2.0 · v2.1.0 · Released March 2026

Powered by Google Maps Platform · support@betarelay.com · +1 (555) 000-0100