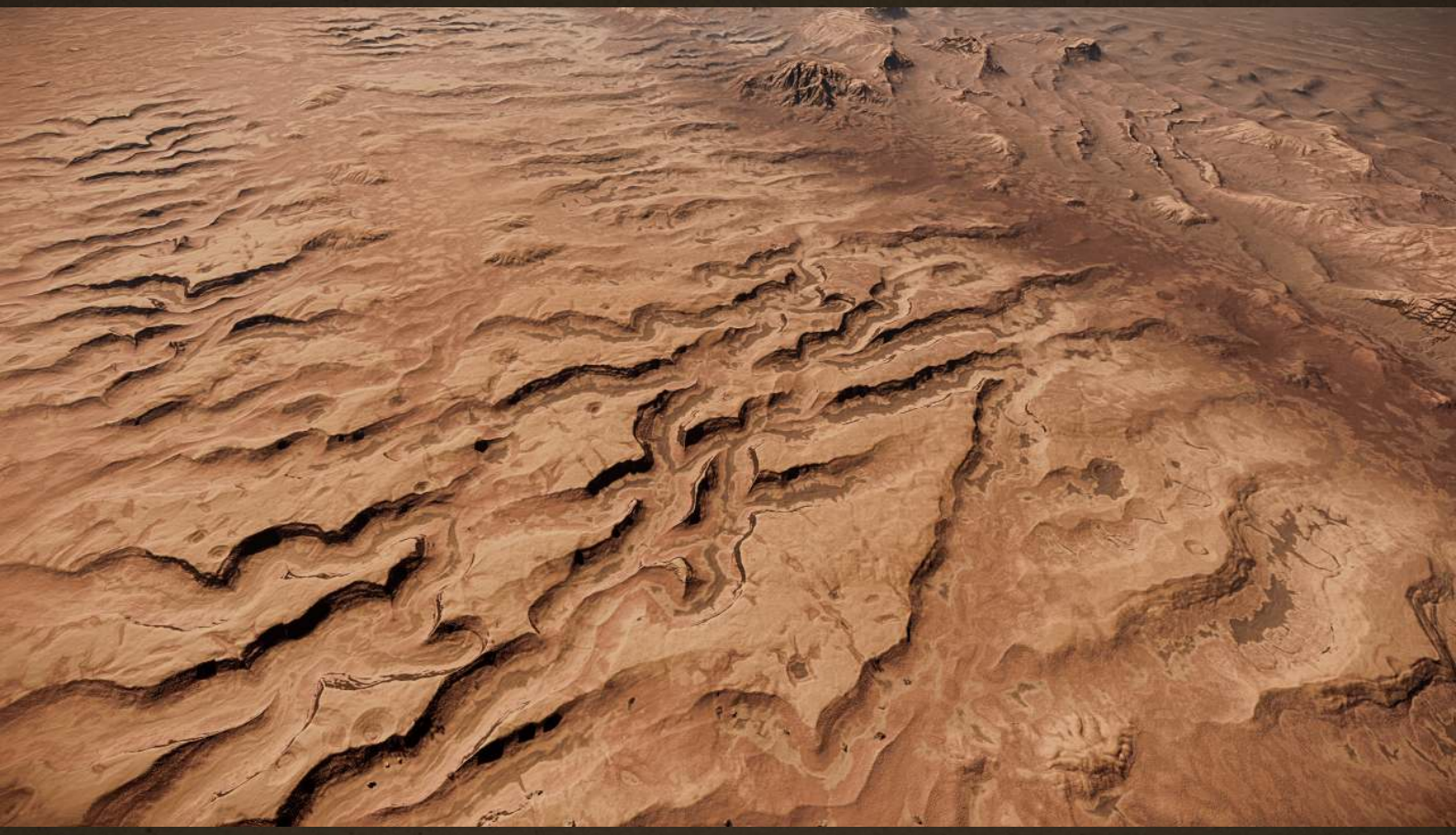

DTNR Nav Tool

User Handbook v1.0

As of: March 2026

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1. Introduction

The **DTNR Nav Tool** is the central desktop application of the Daymar Tactical Navigation & Racing project. It is designed for navigation on the moon Daymar in Star Citizen and offers comprehensive features for maps, route planning, live tracking and race participation.

The application displays an interactive satellite map of Daymar using Mercator projection, allowing you to track your current position, plan routes and navigate to Points of Interest (POIs).

1.1 What can the Nav Tool do?

- Interactive map of Daymar with zoom, pan and seamless horizontal scrolling
- Automatic position query from Star Citizen
- Create and edit up to 10 simultaneous routes
- Navigation with bearing indicator, distance and ETA
- Track recording with export
- Day/night display with realistic terminator
- Race participation via the integrated race server
- Configurable status overlay and hotkeys

2. Installation and First Launch

2.1 Installation

Use the **DTNR Installer** to install the Nav Tool. The Nav Tool is the mandatory component – the Race Tool is optional. A standalone Transponder Tool no longer exists – the transponder is fully integrated into the Nav Tool.

After installation you can find the application at:

- **Start Menu**: DTNR Tool □ DTNR Nav Tool
- **Desktop**: DTNR Nav Tool (if shortcut was created)

2.2 First Launch

The installer creates the following directory structure under `C:\Program Files\DTNR-Tool`:

Directory	Contents
Nav-Tool\	DTNR-NavTool.exe
Nav-Tool\config\	Configuration files (config.json, config.example.json)
Nav-Tool\config\transponder\	Transponder configuration
Nav-Tool\resources\	Splash screen, icons
Nav-Tool\resources\Daymar Surface\	Map data (Primary & Secondary Map)
Nav-Tool\docs\	User handbook (PDF)
Nav-Tool\routes\	Saved routes
Nav-Tool\tracking\	Recorded tracking data
Nav-Tool\logs\	Log files

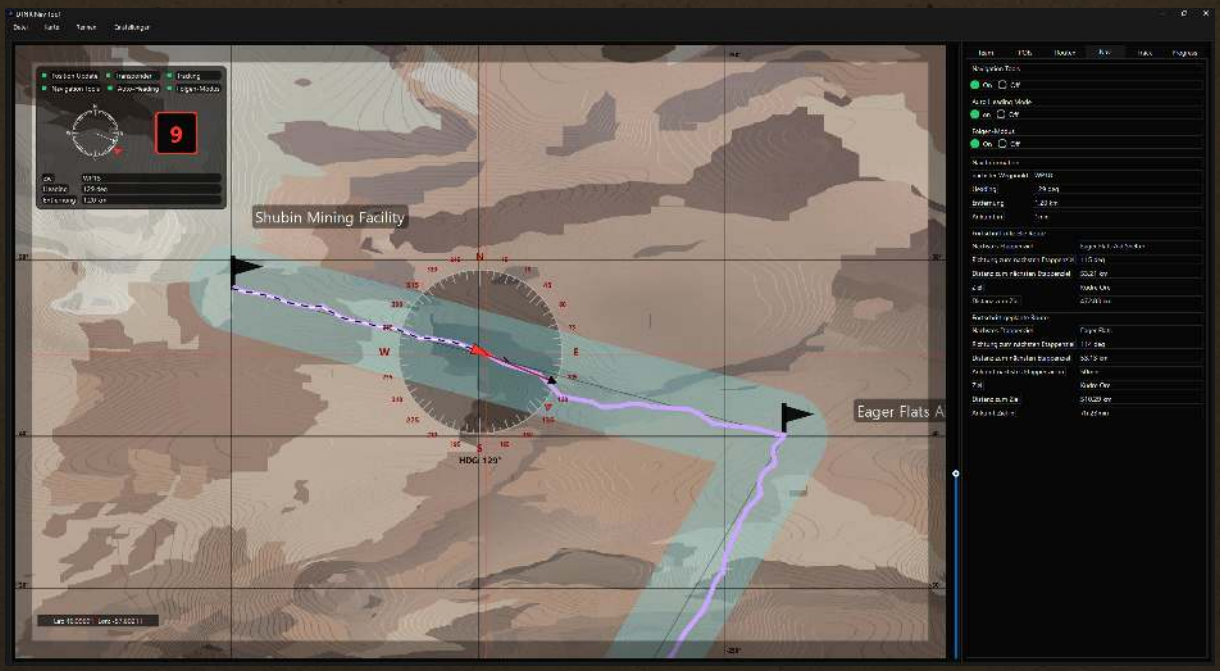
2.3 System Requirements

- Windows 10 or 11
- Screen resolution: at least 1920×1080
- Star Citizen (for position queries)

3. User Interface Overview

The window is divided into three main areas:

Area	Position	Function
Map View	Left (large area)	Interactive Daymar map with overlays
Zoom Control	Center (narrow strip)	Vertical slider for zoom
Side Panel	Right	Tabs with various functions



The DTNR Nav Tool user interface

3.1 Side Panel Tabs

Tab	Contents
Team	Team name, driver (RSI Handle), division, vehicle, race controls
POIs	List of all Points of Interest with search and filter
Routes	Route management with editor (up to 10 routes)
Nav	Navigation display (target, bearing, distance, ETA)
Track	Track recording with track points
Progress	Speed and distance charts

3.2 The Menu Bar

Menu	Key Entries
File	Load/save routes and tracks, exit
Map	Switch map layers, grid, overlay, day/night
Race	Manage participation, end race
Settings	Default folders, navigation, position system, hotkeys

MAP & NAVIGATION

4. The Map -- Basic Operation

4.1 Panning and Zooming

Action	Controls
Pan the map	Hold left mouse button and drag
Zoom in	Scroll mouse wheel up
Zoom out	Scroll mouse wheel down
Set zoom level	Use the slider on the right edge of the map

The map repeats seamlessly in the horizontal direction – you can scroll endlessly left or right, just like a real world map.

The interactive Daymar map with grid and active day/night area

4.2 Map Layers

Under **Map** in the menu bar you can switch between two map views:

- **Daymar Primary** – Primary map view
- **Daymar Secondary** – Secondary map view

4.3 Map Grid

Via **Map** □ **Show Map Grid** you can display a latitude/longitude grid. Coordinates are labeled along the edges of the map.

4.4 Reading Coordinates

The current mouse position is displayed as coordinates in the lower left corner. By right-clicking on the map you can copy the coordinates of a location to the clipboard.

5. Points of Interest (POIs)

POIs are predefined landmarks on Daymar (settlements, outposts, notable locations). They are loaded from a CSV file.

5.1 Using the POI List

- Switch to the **POIs** tab in the side panel
- Use the **search field** at the top to filter POIs by name
- Use **Enable All** / **Disable All** to control the visibility of all POIs on the map
- Use the **checkbox** to show/hide individual POIs

5.2 POI Columns

Column	Meaning
POI	Name of the Point of Interest
Heading	Bearing from your current position to the POI (in degrees)
Distance	Straight-line distance from your position to the POI

5.3 POI as Navigation Target

Click a POI in the list to highlight it on the map. An activated POI can be used as a navigation target (see Chapter 8). A double-click on an empty area of the map deselects a waypoint.

> The map smoothly centers on the selected POI with an animated camera movement.

6. Routes -- Loading, Creating and Editing

The Nav Tool supports up to **10 simultaneously loaded routes**. Each route has its own color and can be edited independently.

6.1 Loading a Route

1. Select menu **File □ Load Route**
2. Choose a `.route` file
3. The route appears in the **Routes** tab and on the map

6.2 Creating a New Route

1. Select menu **File □ New Route**
2. An empty route is created
3. Unlock the route (context menu □ **Unlock**)
4. Add waypoints by right-clicking on the map

6.3 Editing a Route (Unlock Mode)

A route must be **unlocked** before it can be edited. Right-click on the route in the tree → **Unlock**.

In the unlocked state you can:

- **Rename waypoints** – Double-click on the ID column
- **Reorder waypoints** – Right-click-drag in the route tree
- **Move waypoints on the map** – Right-click-drag on a waypoint marker
- **Insert waypoints** – Right-click on a waypoint → New waypoint above/below
- **Insert waypoints from the map** – Right-click on the map → Create new waypoint
- **Remove waypoints** – Right-click on a waypoint → Remove waypoint

> Waypoints affected by a change are marked with an asterisk (*). Changed waypoints are highlighted by a color marker. A selected route is drawn bold on the map and can be deselected by double-clicking on an empty area in the route window.

6.4 Saving a Route

Right-click on the route in the tree → **Save** or **Save As**. Routes are saved as `.route` files in JSON format and can be edited at any time using a suitable text editor.

6.5 Context Menu Overview

Menu Item	Available on	Function
Use for Navigation	Route	Set route as navigation target (Autoheading)
Save	Route	Overwrite current file
Save As	Route	Save under new name/path
Remove	Route	Remove route from the list
Lock / Unlock	Route	Toggle edit mode
Remove Waypoint	Waypoint	Delete a single waypoint
New Waypoint Above	Waypoint	Insert waypoint above
New Waypoint Below	Waypoint	Insert waypoint below

7. The Official Route

Independently of your own routes you can load and display the **official route**. The official route is **not** shown in the route window. Loading an official route is required to calculate the distances to the next stage and to the finish in the **Official Route Progress** section of the Nav area.

7.1 Loading and Displaying

- **Map → Load Official Route** – select a `.route` file
- **Map → Show Official Route** – toggle on/off

7.2 Appearance

The official route is displayed with special styling:

- A wide, semi-transparent **corridor** along the course
- **Direction arrows** indicating the driving direction
- **Start flag** (pennant) at the beginning
- **Finish flag** (checkered pattern) at the end
- **Labels** at all waypoints (if available)

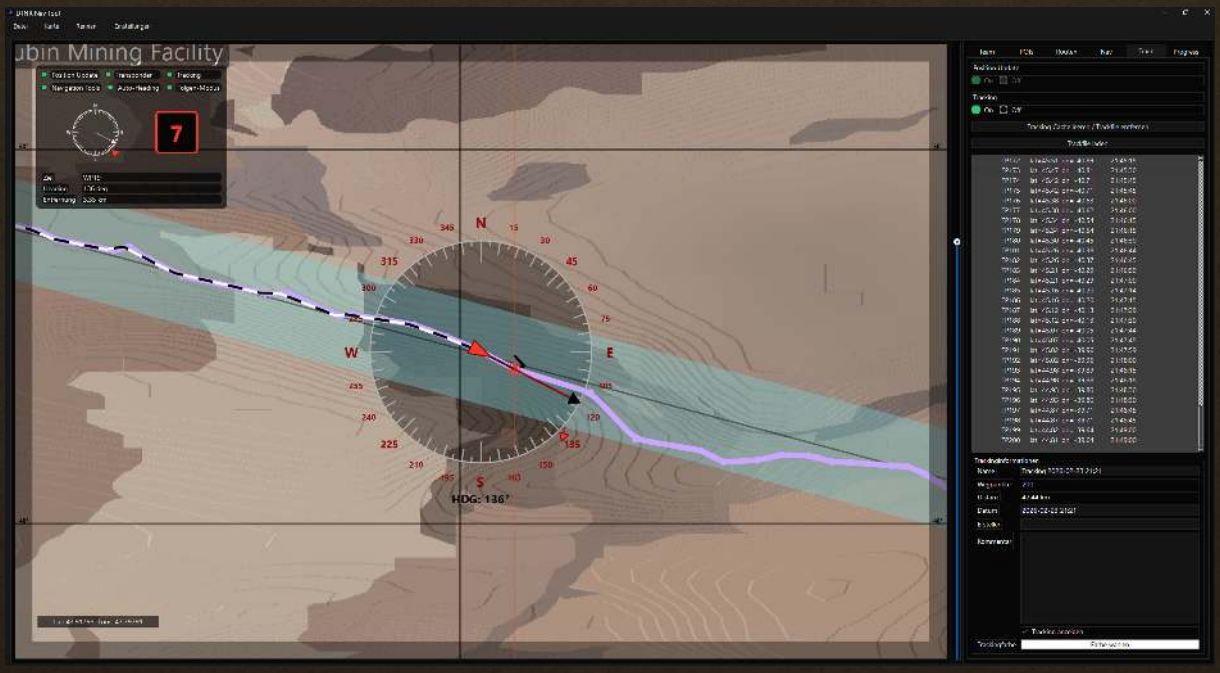
7.3 Navigation Along the Official Route

The **Nav** tab shows additional information about the official route:

- Bearing and distance to the next stage goal
- Remaining total distance to the finish

8. Navigation

The **Nav** tab provides a full navigation display with bearing, distance and ETA.



The navigation display with compass ring and planned route

8.1 Activating Navigation

Prerequisites:

- A route must be set as the navigation route (context menu → Use for Navigation) **or** a POI must be selected
- Position data must be received

8.2 Navigation Modes

Mode	Description
Navigation On/Off	Enable/disable basic navigation
Auto-Heading	Automatically advances to the next waypoint when you are close enough (configurable threshold)
Follow Mode	Map automatically follows your position. After manual panning, the map returns after 5 s.

8.3 Navigation Display

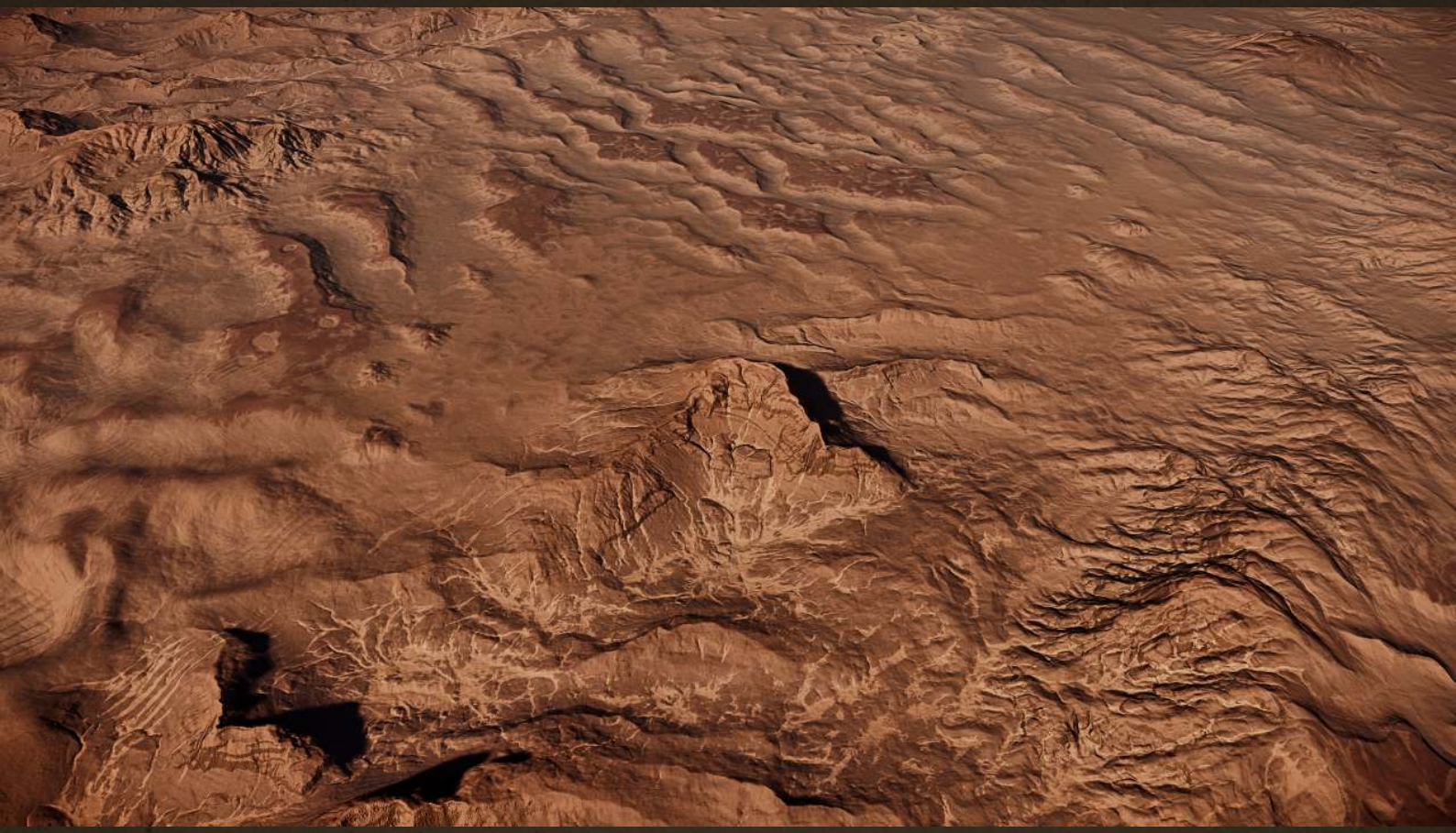
In the Nav tab you see:

- **Next Target** – Name of the current waypoint/POI
- **Bearing** – Direction to the target in degrees
- **Heading** – Your current driving direction
- **Distance** – Distance to the target
- **ETA** – Estimated time of arrival

8.4 Map Visualization

With active navigation the map shows:

- A **position marker** at your current location
- A **target line** from your current position to the next waypoint
- A **compass ring** with degree marks and heading line



TRACKING & DISPLAY

9. Tracking -- Route Recording

Tracking records your journey on Daymar as a series of points.

9.1 Starting Tracking

- In the **Track** tab, set the tracking switch to **On**
- Or use the configured **hotkey**

When activated, a new track file is automatically created. Each received position point is recorded with a timestamp.

9.2 Track Points

In the Track tab you see all recorded points with:

- Point number (TP1, TP2, ...)
- Latitude / Longitude
- Timestamp

> Duplicate and implausible jumps are automatically filtered out.

9.3 Editing and Saving Tracks

Via the context menu in the Track tab you can:

- **Remove individual points**
- **Rename track file**
- **Save track file** (as a `.track` file)
- **Save as route** (converts track to route)

9.4 Track Display

- **Show tracking** – Shows/hides the recording on the map
- **Choose tracking color** – Adjust the color of the tracking line

The tracking trail is displayed as a dashed line with high contrast (black base + colored stripes).

10. Day/Night Display

The Nav Tool calculates the current illumination on Daymar based on the position of the sun in the Star Citizen universe.

10.1 Settings

Via **Map** □ **Day/Night Display** you open the configuration dialog:

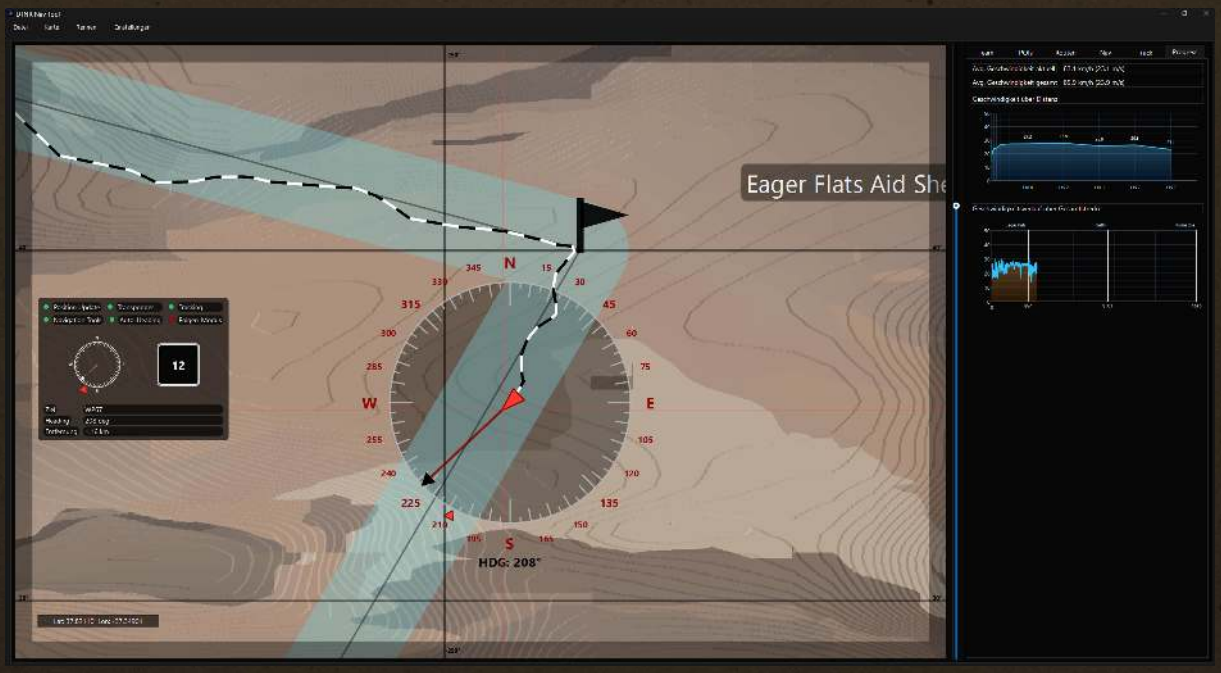
Setting	Function
Terminator Visible	Show dashed line at the day/night boundary
Night Overlay Visible	Show semi-transparent darkening of the night area
Update Interval	How often the display is updated (in seconds)

10.2 How It Works

The day/night calculation uses the astronomical position of the sun in the game universe. The transition between day and night is smooth (no hard cut) to realistically represent the twilight zone.

11. The Status Overlay

The status overlay is a semi-transparent, freely movable panel that always floats in the foreground of the map. It is toggled via **Map □ Overlay**.



The status overlay with compass and countdown

11.1 Displayed Information

The overlay shows the status of all important systems at a glance:

Status	Meaning
Position Update	Automatic position query active/inactive (green/red)
Transponder	Transponder data transmission active/inactive
Tracking	Track recording active/inactive
Navigation	Navigation active/inactive
Auto Heading	Automatic waypoint switching active/inactive
Follow	Map following active/inactive

11.2 Additional Displays

- **Mini Compass** with bearing and direction to target
- **Countdown** until next position query (large red display in the last 10 s)
- **Navigation values** (target, bearing, distance) – when navigation is active

12. Progress Tab -- Performance Analysis

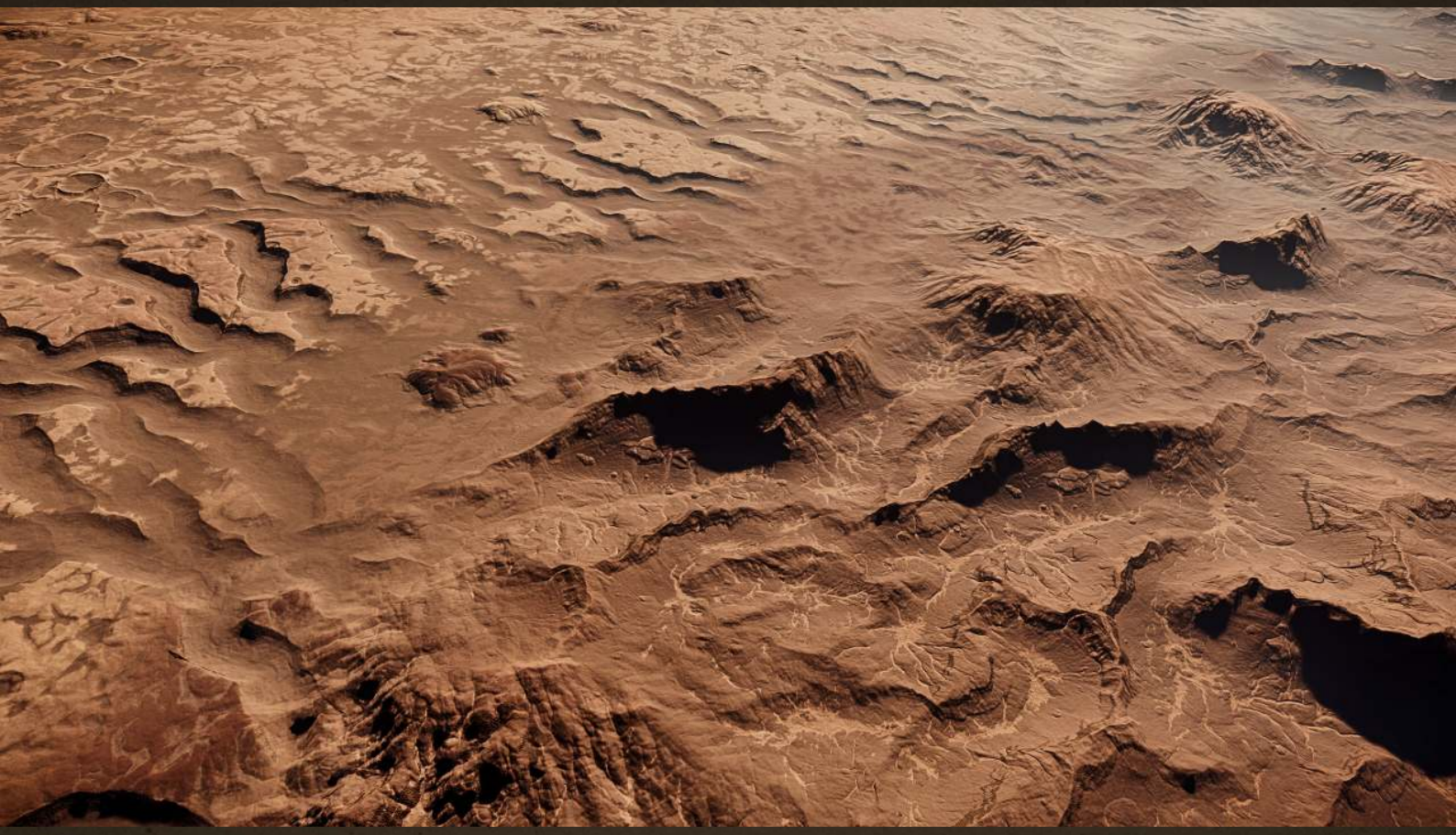
The **Progress** tab shows real-time performance data during your journey.

12.1 Key Metrics

- **Current Average Speed** – Moving average of the most recent data points
- **Overall Average Speed** – Across the entire distance covered so far

12.2 Charts

- **Speed over Distance** – Shows your speed along the distance covered. More recent data points receive more space on the X-axis.
- **Route Speed Profile** – Shows your speed across the entire route distance with waypoint markers.



TEAM & RACE PARTICIPATION

13. Team and Transponder Settings

13.1 Team Tab

In the **Team** tab you enter your identification data:

Field	Description
Team Name	Name of your team
Driver	Your RSI Handle (player name)
Division	Vehicle class: Bike, Buggy or Truck
Vehicle	Specific vehicle model (list depends on division)

This data is automatically saved in the transponder configuration and used for race registrations.

13.2 Race Controls in the Team Tab

- **Share Route** – Shares your navigation route with the race server (only active when a navigation route is set)
- **Team Ready** – Signals to the race server that your team is ready to start

13.3 Position System (Integrated Transponder)

The transponder is fully integrated into the Nav Tool. Via **Settings □ Position System** you configure the automatic position query:

Setting	Description
Update Interval	How often `/showlocation` is executed automatically (default: 5 s). Overridden by the race server during race mode.
Chat Delay (ms)	Delay when opening the chat window (default: 300 ms)
Key Delay (ms)	Delay between keystrokes (default: 50 ms)
Freeze Workaround	Works around a known Star Citizen UI bug where the chat window freezes

In the **Team** tab, the transponder can be toggled on and off at any time via the **Transponder** switch (On/Off).

14. Race Participation from the Nav Tool

You can participate in races directly from the Nav Tool that were created in the Race Tool.

14.1 Registering for a Race

1. Open menu **Race □ Manage Participation**
2. Select a race from the list of planned races
3. Click **Register**
4. Wait until the race director approves your registration

14.2 Joining a Race

After approval, the race appears in the list of approved races. Click **Join**.

When joining, the following is automatically received from the server:

- The **official race route**
- The **position update interval**
- The **transponder requirement** (if activated by the race director)

14.3 Race Start and Countdown

When the race director starts the race, a **countdown overlay** with large text appears on your screen. At race start, the transponder and position update are automatically activated.

14.4 Ending a Race

Via **Race** → **End Race** you leave the active race. Your previously loaded official route is restored.

15. Hotkeys

Via **Settings** → **Hotkeys** you configure system-wide keyboard shortcuts:

Action	Description
Single Position Update	Queries the position once **(F7)**
Position Update On/Off	Toggles automatic querying on/off **(F9)**
Tracking On/Off	Starts/stops track recording **(F10)**
Transponder On/Off	Activates/deactivates the transponder **(F8)**

The hotkeys work **system-wide** – even when the Nav Tool is in the background.

> In the hotkey dialog there is a Defaults button to restore the default key bindings.

16. File Formats

16.1 Route (.route)

JSON file with header data and a list of waypoints:

- **name** – Name of the route
- **date** – Creation date
- **driver** – Creator
- **comment** – Comment
- **WPoints** – List of waypoints (longitude, latitude, height, name, id)

16.2 Track (.track)

Like a route, but additionally with **timestamps** per point. Can be converted to a route via the context menu.

16.3 Configuration (.json)

The main configuration is located at `DTNR-NavTool/config/config.json` and contains all map, network and display settings.

17. Troubleshooting

Problem	Possible Solution
Position is not updating	Check whether Star Citizen is running and /showlocation works. Check the hotkey bindings.
Map is not displayed	Check the map files under resources/. Paths are defined in config.json.
Status overlay is missing	Map □ Overlay to enable. The overlay can also be moved by dragging.
Transponder is not sending	Check the network settings (UDP host/port) in the configuration.
Race connection fails	Check your internet connection and whether the race server is reachable.

Log files can be found at `DTNR-Tool/logs/` .