

# Radial Scroll

A lightweight WordPress plugin that improves long-form article navigation using a modern editorial-style reading rail inspired by Substack, Notion, ChatGPT, and Grok.

## CORE FEATURES

### Dynamic Chapter Rail

An editorial-style reading navigation rail designed for immersive long-form content presentation.

### Automatic Heading Tracking

Continuous monitoring and hierarchical mapping of H2 through H6 structural elements.

### Smooth Section Scrolling

Seamless browser viewport transitions mapped perfectly to user-initiated jump links.

### Scroll-Aware Active States

Real-time reactive interface elements syncing with the user's actual reading progression.

- **Desktop & Mobile Optimized UI:** Tailored viewport responsiveness ensuring fluid design mechanics across hardware boundaries.
- **Mobile Haptic Feedback:** Tactile mobile interactions adding physical reassurance to digital interface navigation.
- **Per-Post Controls & Settings:** Granular administrative configurations utilizing the core WordPress Options API.

## HOW IT WORKS

The plugin continuously tracks article headings within the content area and programmatically toggles the active section class based on precise scroll telemetry.

### ACTIVE STATE LOGIC

The active section is defined as the final headline whose top boundary has successfully crossed the top baseline of the active viewport.

This exact condition mitigates click-vs-scroll interface competition and yields a stable, highly predictable reading progression devoid of structural jumpiness.

## MAJOR CHALLENGES & RESOLUTIONS

### 1. Scroll State Conflicts

**PROBLEM:** Click-based and scroll-based states periodically conflicted, resulting in unstable navigation states and visual stutter.

**SOLUTION:** Rebuilt the layout architecture entirely around a single, unified pure scroll-derived state engine.

### 2. Early Headline Activation

**PROBLEM:** Chapter indicators triggered prematurely before readers physically reached the beginning of the associated text block.

**SOLUTION:** Implemented strict, unyielding viewport-top activation boundaries eliminating variable trigger offsets.

### 3. Mobile UI Breakage

**PROBLEM:** Small screen dimensions triggered label overlapping, severe visual clutter, and inconsistent touch targets.

**SOLUTION:** Isolated and redesigned the mobile rail interface completely with adaptive grid spacing and compact contextual labels.

### 4. WordPress Initialization Issues

**PROBLEM:** Dynamic theme rendering engines and lazy loading scripts triggered silent initialization failures.

**SOLUTION:** Engineered defensive initialization checks coupled with automated structural rail fallback creation routines.

## UI/UX IMPROVEMENTS

- **Editorial-Style Reading Experience:** Elevates standard WordPress long-form text layouts into premium editorial platforms.
- **Accelerated Chapter Access:** Minimizes user friction, making deep editorial pieces immediately browseable.

- **Reduced Scroll Fatigue:** Visual indices establish physical anchoring, optimizing micro-interactions and reducing excessive scroll behaviors.
- **Persistent Reading Awareness:** The rail serves as a subtle, constant orientation guide reflecting the exact physical position in the document.

## PRODUCT OUTCOME

The final implementation achieves a high-performance, lightweight navigation layer that profoundly improves long-form readability, maximizes structural discovery, and integrates transparently into high-traffic digital publishing pipelines. The project successfully transitioned from an experimental interaction prototype into an enterprise-grade navigation paradigm built for simplicity and reader retention.

## FINAL TECH STACK

