

Petrosoft.pl

A New Era of Asset Management for Railway Infrastructure

Efficient, Safe and Automated – The Future of Rail Infrastructure Management

In the modern age of smart infrastructure and digital transformation, railway operators and infrastructure managers face growing demands for safety, efficiency and regulatory compliance.

Meeting these demands requires not only experienced staff and robust planning but also powerful digital tools. That's where a comprehensive, modern asset management system (AMS) comes into play.

AMS is a web-based software solution tailored for railway infrastructure management. It supports the full asset lifecycle – from inventory and inspections to repair scheduling, technical documentation control and long-term maintenance planning. It is particularly well-suited for managing complex linear assets like tracks, switches, semaphores and other specialised equipment across shunting yards and national rail networks.

Key Functional Areas of the System

1. Asset Registry and Passporting

The system provides a central registry for all infrastructure components such as:

- Turnouts
- Rail tracks
- Semaphores
- Axle sensors
- Platforms
- Public safety infrastructure
- Other own-defined part of infrastructure

Each asset can be uniquely identified, classified by type and assigned custom parameters (e.g. manufacturer, operational status, review history). The passporting module ensures full traceability over the asset's lifetime, enabling compliance with both technical and legal standards.

2. Inspection and Preventive Maintenance

AMS automates the creation of inspection schedules, allowing planners to define:

- Review groups and maintenance rules
- Effective validity periods (e.g. 5-year inspections)
- Custom types of inspections such as 'track measurement' or 'tour and control'

Assets can be grouped by location (e.g. sidings, yards), equipment type (e.g. semaphore) or function. This approach streamlines planning, ensures consistency and allows bulk operations.

An intuitive interface enables quick access to:

- Review status (safe/warning/expired)
- Last inspection date
- Maintenance forecasts and upcoming tasks

3. Technical Status Monitoring

The system continuously tracks the technical condition of each asset using both manual entries and optionally IoT sensor integrations. Dashboards display colour-coded statuses (e.g. green = safe, orange = warning), allowing infrastructure managers to instantly identify and react to critical issues.

Inspections and control results are logged in an electronic maintenance book, ensuring full auditability and regulatory compliance.

4. Incident and Fault Management

AMS supports real-time logging and coordination of:

- Breakdowns
- Unscheduled repairs
- Field technician interventions

Workflows include registering the incident, assigning repair tasks, tracking resolution steps and confirming technical restoration. Alerts and reports help track response times and effectiveness.

5. Document Register and Compliance Tracking

Each asset or infrastructure area can have linked documents such as:

- Technical protocols
- Construction records
- Legal certificates
- Inspection and audit lists

The system features an automatic document expiry tracking mechanism with notifications, helping ensure that critical documentation is never outdated. The Document Register also supports version control, archival management, and access policies.

6. Real-Time GIS and Visualisation Integration

One of AMS's most powerful features is its integration with GIS systems such as ESRI ArcGIS. This allows infrastructure elements to be visualised on dynamic maps, with the ability to:

- Select infrastructure components directly on the map
- Define spatial zones or regions (e.g. yards, districts)
- Monitor events or tasks geospatially
- Plan work based on geographic context

This geospatial layer is particularly valuable for linear asset management, route optimisation and dynamic response coordination.



7. Automation and Coordination

The system minimises manual work through:

- Automated generation of inspection plans
- Predefined maintenance templates
- Predictive logic for inspection renewals
- Intelligent routing of tickets and work orders

This results in reduced downtime, lower costs and higher infrastructure reliability.

Summary: One Platform – Full Control

The asset management system offers an end-to-end solution for any railway infrastructure owner or manager seeking to modernise and streamline operations. By consolidating asset records, inspection data, compliance documents and geospatial visualisations into one centralised system, AMS empowers users to make smarter, faster and more informed decisions.

Whether you're managing a regional siding or a national network, this system will help you ensure safety, compliance, efficiency and long-term resilience.

For more information visit our website petrosoft.pl.



Modernize your Railway Infrastructure

- ✓ Asset Management
- ✓ Inspection Planning
- ✓ GIS Visualization
- ✓ Fault and Maintenance Management
- ✓ Legal Documentation and Control

