



Monitoring

## Track Trend Analyser

Integrating track and vehicle measurements to monitor the status of the infrastructure

Integration of information is key for further growth of railway transport volume. Decision makers will be able to make better decisions once they have the right information at hand about their own processes and about the processes of their partners in business. InteGRail is the project that developed an enabling technology to allow universal access to existing information systems, be it databases, monitoring systems or existing user applications. For this purpose InteGRail defined a standard approach for architecture and communication. Using this standard approach a number of example applications were developed. One of these applications is the Track Trend Analyser. This application facilitates the integration of multiple monitoring systems from both the track side and train side. It enables the infrastructure operator and maintainer to assess the status of track based on observed parameters.



### What is the Track Trend Analyser?

The Track Trend Analyser is a software application that receives data from multiple monitoring systems such as Wheel Impact Load Measurement systems (WILM) and on vehicle track data recorders. It uses the Railway Domain Ontology<sup>†</sup> (RDO) to link measurement concepts to concepts representing real world infrastructure concepts. The purpose is to integrate the data and execute an algorithm to establish if the rate of deterioration or the level of deterioration of a section of track has reached a level that suggests closer inspection or maintenance is required. The objective of the application is to transform the data into a semantic format for interpretation by a decision support tool such as the Event Analyser<sup>†2</sup>.

### Who can benefit?

The infrastructure operator or maintainer can use this application to support decision making activities. The benefit is believed to be improved assessment of asset status through increased availability and visibility of asset related data.

### How is the benefit realised?

The benefit is realised by the implementation of an online integrating tool. On processing the received data, the Track Trend analyser reports any events to a semantic tool, such as the Event Analyser, which will integrate the information with other sources to support decision making activities. Quantification is possible by reviewing costs associated with current maintenance activities and by measuring the reduction in cost through implementation of a Wheel Trend Analyser in the maintenance process.

<sup>†</sup> See the Railway Domain Ontology fact sheet

<sup>†2</sup> See the Event Analyser fact sheet

## Present status, availability and future possibilities

This application is currently in the development phase within the project. This application requires a semantic model of the infrastructure layout together with the capture of associations between assets. In the current prototype, a restricted model is implemented to demonstrate the key functionality of the Application. At the end of the project, this application will be available for trial. This tool will be available to infra operators and maintainers who wish to use asset monitoring data to support decision making.

### Other results of InteGRail

Architecture definition of integrated information systems: IGRIS

Semantic data structure of the railway domain, the InteGRail ontology

Example user applications: ODSS for on-line operational decision support, IAC for on-line infrastructure availability, IDT for on-line vehicle maintenance information

Description of interdependence of performance of railway processes: the railway KPI tree, and a tool to assess and visualise performance

### InteGRail - Facts and Figures

InteGRail started on 1/1/2005 and ends on 31/12/2008

Total project budget:  
20 million Euros

EC funding : 11 million Euros

Total effort over 125 person-years

39 partners from 11 countries

### Partners of InteGRail:

UNIFE • Alstom Transport • AnsaldoBreda • Bombardier Transportation • Siemens Mobility • UIC • Trenitalia • D'Appolonia • TSB-FAV • DeltaRail • ATSF • CAF • Nortel Networks • Laboratori Guglielmo Marconi • FAR Systems • MER MEC • Italcertifer • ATOC • České dráhy • MAV • UNICONTROLS • Strukton Railinfra • Deuta-Werke • Heriot-Watt University • IMEC • OFFIS • Televic • Seebyte • Kontron • University of Chile • INRETS • Wireless Future • University of Birmingham • ADiF • RFF • ARGE Corridor X • Network Rail • ProRail • SNCF

### More information:

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