CTI Constraint Technologies

TPAC™ Rail Timetable Management

What is TPAC™ Rail Timetable Management

The **TPAC™ Rail Timetable Management** is an integrated suite of windows based products intended for use by railway planners and operators who need to construct and verify the operational feasibility of train timetables covering a complex geographic network. **TPAC™ Rail Timetable Management** has created, maintained, modeled and reported more than 5000 trips for the 2000 Olympic Games timetables.

TPAC™ Rail Timetable Management's prime requirements are to:

*   Reduce trip data entry effort
*   Improve data entry accuracy
*   Be intuitive to use
*   Be driven by a single railway geography and be responsive to network changes within that geography and
*   Be able to prove the operational feasibility and robustness of a timetable

Technology

The **TPAC™ Rail Timetable Management** system has several major modules:

*   RailNet – Railway network builder
*   RailTable – Timetable designer

Architecture

*   Microsoft Windows
*   Client-server based
*   Multiple RDMS available
    *   o   Oracle
    *   o   SQL Server

About TPAC™ Rail Timetable Management

The **TPAC™ Rail Timetable Management** suite of modules:

*   Are based on client-server technology with multiple user access to common timetable data bases
*   Are driven by graphical interfaces
*   Are driven by a multiple geographic database with version control to ensure timetables can always be related to the railway network with which they were prepared.
*   Are able to customise timetables via user-definable control tables
*   Areas able to create, copy or combine different timetable data bases
*   Guarantee all trips to be geographically and operationally
*   Are able to report (on-screen or in hardcopy) timetables in a variety of ways (eg individual station reports, tabular Working Timetables, graphical Train Diagrams or tabular train duty reports).
*   Track changes for auditing
*   Are integrateable with external systems

RailNet

The Tried and Proven Train Simulation and Timetable Development System RailNet is a both a railway network editor program and a train performance/signal simulation program.

As a railway network editor program, it allows users to create and maintain a model of a railway network including interconnecting bus routes.

As a train performance and signal simulation program, it allows users to calculate train performance and examine the interaction between trains along a route.
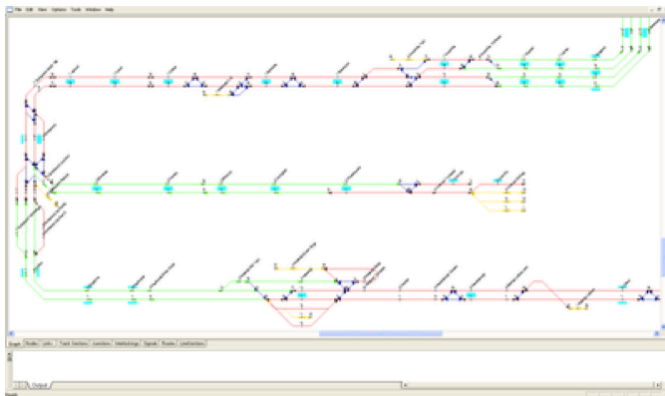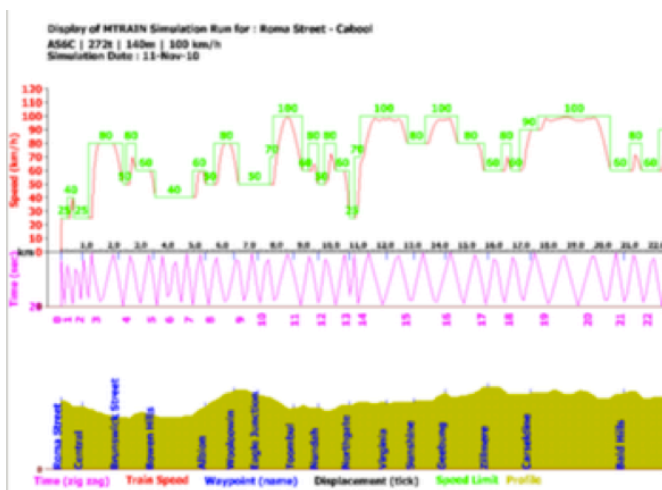

Fig.1 Build and manage rail networks

Fig.2 Run simulations on train performance and signalling

Features & Benefits

Railway Network Editor

- Create and maintain simple or complex network models - the model can accommodate any feasible railway network configuration including single or multi track, uni or bi-directional corridors, complex junctions, platforms, track gauge and motive power source requirements.

- Uses network rules - the use of network rules, which disallows unfeasible train movements, ensures that only viable train schedules can be created in either RailTable or RailTrain.

- Network revisions

- Archiving - each network can be saved to file for archival purposes

Train Performance and Signal System Simulation

- Calculates train running times - gives users an accurate and reproducible calculation of train running times on which timetables can be based

- Determines trailing loads - allows the user to determine the maximum trailing load for a given motive power configuration thus enabling the maximization of rolling stock utilization.

- Determines impact of temporary speed restrictions - allows the user to determine the impact of temporary speed restrictions (TSR's) on a train's running time. This assists the user with operational planning and infrastructure maintenance scheduling.

- Provides signal clearance graphs for determination of headways - allows the user to graphically represent signal clearance characteristics which assists in determining infrastructure utilization levels.

RailTable

The Tried and Proven Train Simulation and Timetable Development System RailTable is a railway timetable editing program that allows users to create, maintain and report on railway and interconnecting bus timetables.

Features & Benefits

Enforces railway network rules - Railway network rules (such as, running times, junction movements and eligible rolling stock) are enforced during timetable creation thus ensuring the consistency and feasibility of the timetable.

1. Advanced editing features - Editing features include bulk copying of a trip, bulk editing of many trips, trip splicing and editing of duty rosters including next day duties.

2. Advanced reporting features – Reporting features include production ready timetable pages, train duty rosters, train graphs and various executive style reports. These reports can be published as working documents or used as the basis for strategic analysis.

3. Advanced modeling features - The modeling capabilities assist in the creation of robust timetables.

4. Creation of Master and/or Daily timetables - A Master timetable sets down the long term schedules. This can then be overlaid with a Daily timetable which takes into account short term network changes such as temporary speed restrictions and/or track closures.

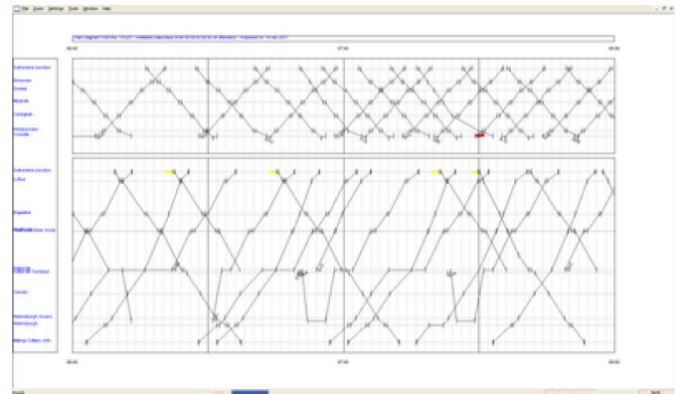5. Multi User - RailTable is a multi user program.
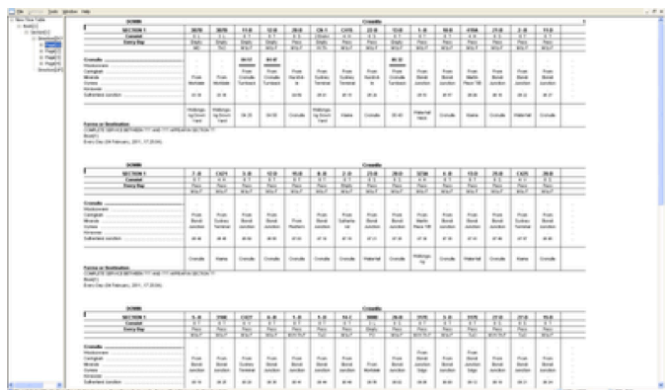

Fig.3 View and edit interactions on train diagrams (zig-zags)

Fig.4 Prepare and publish working timetables