Villon

Simulation tool
for rationalizing infrastructure, resources,
and operation of transportation and logistic nodes

Simcon s.r.o.
Nám. Ľ. Fullu 15/105
SK 01008 Žilina
Slovak Republic

tel.,fax: +421-41-5655379
tel: +421-905-723425
            +421-907-228397
e-mail: simcon@simcon.sk
www: www.simcon.sk

simcon

Analysis, Simulations & Solutions
for Transportation and Logistic Systems

Villon is a software tool for the creation and application of universal and detailed simulation models of transportation and logistic nodes and their technological processes. Produced models are utilized for long-term and mid-term planning of infrastructure, resources, and control strategies. Models allow all properties of an existing node (or one to be configured) to be investigated in an experimental environment (instead of a real one). Transport and logistic nodes are understood to be train formation installations for freight transport, industrial sidings, passenger railway stations, sidings for passenger stock, multi-modal terminals, airports, etc.

The system is fully interactive and cooperative, which means that it permits and requires participation from the user in decision-making. The majority of processes are animated by the system and executed using an exact reproduction of the node's infrastructure. During simulation, comprehensive information on the system behavior is collected and stored; at the end of the simulation, this information is displayed in a user-friendly form (employing diagrams and tables) as an aid to result analysis and decision-making.

Input

In order to build up the simulation model, various data about the node and its operation must be collected:

- *Infrastructure* - A precise and detailed model of the infrastructure is used. The data needed can be obtained either directly from a DXF data format or even from paper plans that have been scanned and vectorized.
- *Mobile service resources* (personnel, locomotives, cranes, etc.) - Every resource is considered and described: by professions involved, working shifts, and many other parameters.
- *Clients* (trains, trucks, airplanes, etc.) - Comprehensive information about transportation flows (inbound and outbound) has to be defined.
- *Technological processes* - Client service technologies are described in the form of network graphs.
- *Control and decision making strategies* - It is essential to properly analyze and define all rules, algorithms, and strategies used (for example, in the resource management).
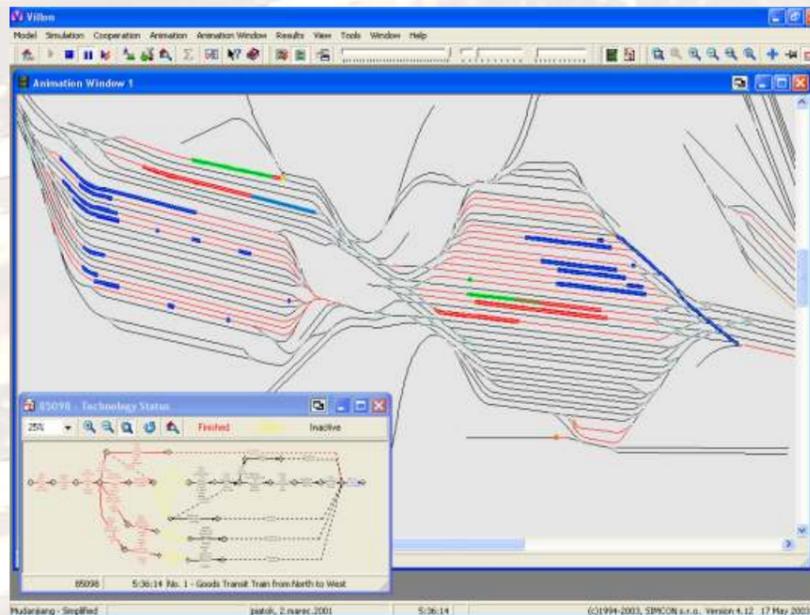
Output

Villon offers various ways to evaluate simulation results:

- *Graphical protocols* showing the occupation of resources, waiting delays, and many other items on a time-line
- *Statistics,* in the form of flexible tables and graphs (e.g. personnel, engines utilizations, realizations of clients service technologies, position tracing, etc.).
- All available data can also be exported into *Excel* data format for future processing.
- In addition, a special software *Villon Viewer* is available for customers, allowing them to view animation output of a simulation run.

Savings

- Proof the consequences of your decisions in advance
- Verify infrastructure changes prior to construction
- Spot potential savings in an inexpensive way
- Gain incontestable arguments to support your proposals
- Optimize staff costs; eliminate waste resources
- Lower your maintenance costs
- Prepare yourself for a new timetable in advance

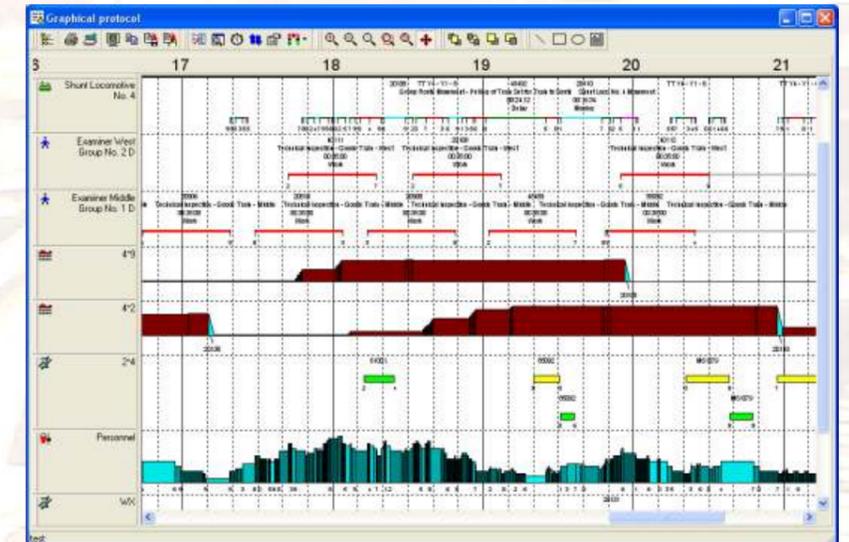### Would you like to design new facilities or invest in the modernization of existing ones?

Villon gives you arguments for potential savings by means of:

- Analysis of planned infrastructure
- Analysis of staff requirements
- Analysis of projected system capacity
- Analysis of operating costs
- Examination of new operating techniques
- Locating bottlenecks

Would you like to economize operations in your facility?

Villon helps you to find cost-effective improvements involving:

- Locating weak points to be restructured
- Deciding the optimal structure and schedule of resources
- Estimating the consequences of new operating techniques
- Deciding how to improve strategies of on-line control

Features

- Precisely modeled infrastructure
- Detailed modeling of dynamic processes
- Complex resource management possibilities
- Great flexibility
- User-definable decision strategies
- User-definable service technologies
- User interaction and cooperation
- Run-time animation
- Rich possibilities for graphic and statistical result evaluations
- User-friendly interface

Would you like to prepare for future changes in your facility?

Villon can give you efficient proposals for:

- How to treat changes in input flows
- How to plan operations during maintenance stages
- How to introduce new timetables
- How to deal with potential crises and critical situations
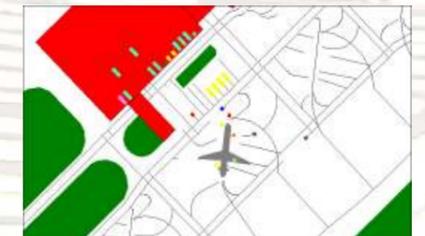
Ground handling at Bratislava Airport
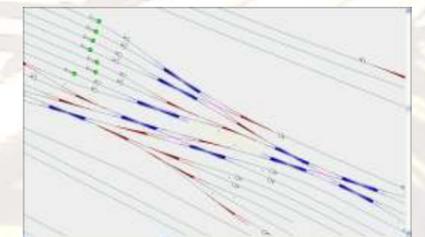
Precise infrastructure modeling

Projects

The simulation tool *Villon* has been successfully used in the process of planning infrastructure, rationalizing technological procedures, and minimizing resource costs on many nodes:

- *Marshalling yards*
  Austria (Wien, Linz)
  Germany (Hamburg Alte Süderelbe, Oberhausen-Osterfeld)
  Switzerland (Basel)
  China (Mudanjiang)

- *Other kinds of transportation and logistic nodes*
  Germany (factory sidings at the BASF Ludwigshafen chemical plant)
  Austria (railway traffic at the SCA Laakirchen paper producing company, and at the VOEST Alpine steel plant)
  Slovakia (internal railway/road traffic at the Volkswagen company in Bratislava, the passenger station in Žilina)