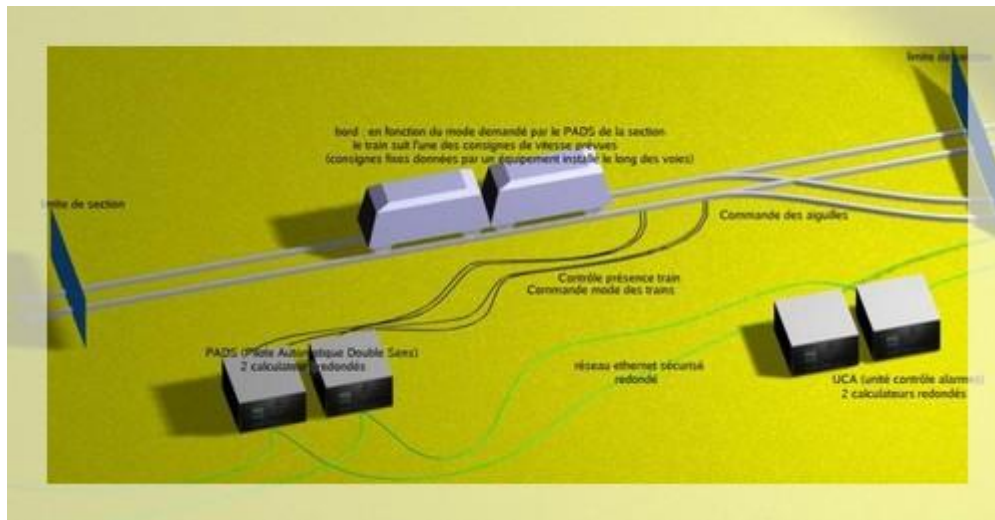


VAL DE ROISSY

DEVELOPMENT OF SIL4 SAFETY SOFTWARE FOR THE FIXED AUTOMATISMS OF THE FUTURE VAL DE ROISSY

The Simplified System



Realization of the Safety Software with the B Method

Siemens Transportation Systems (STS) has subcontracted with ClearSy for the realization with B of the safety software for the automatism of the future VAL de ROISSY: alarm control unit (UCA) and automatic section drivers (PADS) for Siemens. This software represents approximately 150,000 ADA lines once completed. The software is classified as SIL4, according to standards IEC61508: EN50126, EN50128, EN50129.

A few figures ...

On the L1 VAL line inaugurated on 4 April 2007, 2 computers have been installed: the UCA and PADS (as many PADS as required - S for Section).

For the PADS software:

- 186,440 lines for the AS Ada safety code (AS - Safety Application)
- 30,632 lines for the AS non safety-critical Ada code
- number of mathematical Proofs: 62,056
- number of B lines: 256,653 lines





For the UCA software:

- 50,085 lines for the AS Ada safety code
- 11,662 lines for the AS non safety-critical Ada code
- number of mathematical Proofs: 12,811
- number of B lines: 65,722 lines

The number of effective B lines is smaller than that announced as comments are taken into account, including remarks which guide refinement.

A second line for Charles de Gaulles airport is due to be inaugurated in June 2007.

Publications and Feedback

- Introduction document: realization of SIL4 safety software for the Val de Roissy: [download](#)
- Conférence ZB2005 : Article "Using B as a High Level Programming Language in an Industrial" : [download](#)
- Conférence ZB2005: "Using B as a High Level Programming Language in an Industrial Project" (slides): [download](#)
- Météor : a Successful Application of B in a Large Project", FM'99, Toulouse, France, 1999 - Behm P., Benoît P., Faivre A., Meynadier J.-M. [SpringerLink.com](#)
- Vital software: Formal method and coded processor - ERTS 2006 - 25-27 January 2006 - Toulouse - Dollé D. [download article](#)
- Formal Methods in Industry: Achievements, Problems, Future - JeanRaymond Abrial Swiss Federal Institute of Technology Zurich : [Portal.acm.org](#)
- MetroPole : [an article on the Val de Roissy](#)