



PSA Global ECS System

As one of the leading global port groups, PSA International participates in approximately 40 terminals in 16 countries across Asia, Europe and the Americas, with flagship operations in PSA Singapore Container terminals and PSA Antwerp. The PSA group currently processes some 190.000 containers per day, which amounted to a total of 68 million TEU in 2016.

PSA wanted to standardise its automation for all terminals, which is why they developed an "automation framework". Part of this framework is an Equipment Control System (ECS), which provides a link from the Terminal Operating System (TOS) to all equipment (cranes e.g.) on the container terminal yard.

The ECS system is an important part of PSA's operational environment. It ensures seamless

connectivity between the world of the database-oriented applications and the equipment on the yard. ECS supports communications between a wide variety of equipment, e.g. Straddle Carriers, Prime Movers, Yard Cranes, Quay Cranes and automated equipment, and the Terminal Operating System. The equipment itself can either be fully autonomous, semi-autonomous or it can be operated manually by means of the system's user interface.

ICT Group in Barendrecht was selected by PSA to design, build and deploy the ECS system. From 2017, the ECS software will be designed, developed and deployed on terminals in Portugal, Italy, Panama and Antwerp. Further functionality in ECS will be developed during the coming years and deployment on other terminals will continue in the near future.

The new ECS developed by ICT Group will enable PSA to achieve their ambitions to further automate and optimise their container terminals worldwide.



Technology

The ECS is a client-service architecture composed of several microservices. This flexible architecture allows vertical as well as horizontal scaling, with multiple servers working actively in parallel to handle the communications between the Terminal Operating System and the equipment. By having multiple servers concurrently handling the communications, ECS is resistant to failure of any single server. It is also possible to take a server out of the network for planned maintenance without affecting daily operations on the terminal.

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