

The company has provided 3,000 active RFID tags to operators of container-hauling trucks, enabling it to immediately identify vehicles as they enter and exit the facility.

By Dave Friedlos

July 27, 2009—[DP World](#), one of the largest operators of marine container terminals in the world, is deploying radio frequency identification technology at the terminals it operates at three ports in Australia. More than 2 million 20-foot equivalent unit (TEU) containers enter or leave the three ports via trucks each year. To improve security, increase the efficiency of vehicle movements through access gates, and reduce queues and congestion, the company is installing RFID readers at all of the terminals' access points. In addition, DP World is also providing approximately 3,000 battery-powered RFID tags to owner/operators of trucks that enter and exit the terminals.

The first deployment has been completed at the firm's Port Botany terminal in Sydney, with the system slated to be rolled out at the Brisbane and Fremantle ports over the next six months.

DP World operates 50 facilities in more than 25 countries, including China, India, France, Germany, Canada and Egypt, and handles more than 46 million TEU containers annually. In Australia, the firm also operates terminals in Melbourne and Adelaide.

Victoria Rose, the company's regional office project coordinator in Sydney, says DP World wanted greater accuracy and detail of truck movements into and out of the terminals, in order to improve gate productivity. RFID was the preferred technology because it was able to withstand the rugged weather conditions of a marine container terminal.

"The scalability and ability to leverage RFID in the future to improve efficiencies, and both accelerate and optimize the services that we offer to our clients, was fundamental to our decision," Rose explains. "We saw that RFID could improve gate efficiency through improved truck management, reduce queues and congestion around gates, and remove the number of trucks from public roads by streamlining truck-processing procedures."

By improving gate efficiency, DP World can organize the pickup and drop-off of containers at its terminals more effectively, in addition to speeding up the delivery of containers to its customers.

Prior to the deployment of RFID in Australia, DP World called on several vendors to carry out a proof-of-concept test and prove the functionality of their RFID hardware and software. "The major challenge faced by vendors was our requirement that 99.5 percent of all tags be read," Rose says. "Being in an environment on the water, with heavy vehicles moving through all gate points, it was imperative that a strong, rugged system be implemented to ensure its longevity."

RFID tags were fitted to the bumpers of 400 trucks and RFID interrogators installed at terminal access and entry points. Australian systems integrator [Ramp](#), using [Identec Solutions'](#) active Intelligent Long

Range (ILR) technology, provided a read rate of 100 percent, and was thus awarded the contract.

Identec's active tags operate at 915 MHz, and each one continually sends out its unique ID number at pre-programmed intervals, utilizing the company's proprietary air-interface protocol. Identec's RFID readers and position markers are then installed at each entry and exit point, to determine the exact location of DP World's trucks. As the tag passes an induction loop connected to the position marker, it wakes up and downloads identification data from that marker. The ID and time of passage can then be broadcast and read by an ILR reader at a later time and place.

The system software, known as OnRamp IQ Beacon, polls readers at access gates at predetermined intervals. The software filters the tag-read data, and the information is transmitted to DP World's integration layer using an HTTP request so that the read is validated and sent on to the terminal's operating system. The operating system then determines if the truck is on time, which is vital in organizing the efficient pick-up and drop-off of containers.

In addition, the system increases security by providing additional information automatically, such as whether the truck has a booking, whether it is authorized for entry and, ultimately, whether is allowed into the port. It also speeds up the process of permitting trucks into and out of the terminal.

Identec has provided similar RFID systems to other marine terminals as well, including those operated by the Georgia Ports Authority (see [Georgia Ports Authority Hopes RFID Will Boost Efficiency, Throughput](#)). What's more, DP World had previously deployed Identec Solutions' technology at ports in the Middle East, so choosing Identec's systems for its Australian sites enables the firm to maximize its economies of scale.

"Identec Solutions has successfully implemented RFID solutions at numerous terminals around the world," Rose states. "A strong local partner was a critical element in determining to use Identec, and Ramp has local offices and technical support within Australia."

According to Rose, many months were spent evaluating available RFID hardware and software systems. But once the proof-of-concept trials were completed, the installation at DP World's Port Botany terminal was completed within a matter of weeks. Before the system could go live, end-to-end testing and tagging of trucks had to be undertaken, which took approximately another month.

After installation has been completed at the Brisbane and Fremantle terminals, Rose says, DP World will consider expanding its use of the technology. "Investigation around its use within the yard, and how the data captured can be used, will be the focus of the coming months," she says.