

ZEBRA'S YARD MANAGEMENT SYSTEM



Complete Yard Management for Optimized Productivity and Customer Service Levels

Overview

Zebra Technologies is the market leader in providing solutions for tracking and managing assets, people and transactions through critical points in supply chains. Our Yard Management System (YMS) facilitates the continuous flow of material and goods between your transportation system and distribution centers or manufacturing plants while increasing your gate transaction speed, improving switcher productivity, and ensuring that the right trailer arrives at the right door at the right time.

Key Benefits

- **Increase Yard Throughput**—Accurate and timely information about yard resources combined with flexible business rules allow equipment and product to move through your yard with fluidity, which enables increased yard throughput without increasing yard resources.
- **Reduce Equipment Expense**—Intelligent trailer move assignments combined with Zebra's path optimization software can dramatically reduce switcher deadhead time, resulting in more trailer moves per hour and a reduction in fuel and maintenance expense.
- **Increase Space Utilization**—An effective yard operation maximizes the use of yard real estate, which reduces operational expenses while avoiding the need to lease additional property during peak seasons.
- **Reduce Detention Expense**—An efficient yard that is enabled by proper scheduling and exception management capabilities can reduce driver wait time, resulting in reduced detention expense.
- **Reduce Warehouse Overtime**—Automatic door assignment helps keep doors occupied, resulting in less downtime for dockworkers and fewer reloads.
- **Improve Safety**—Elimination of errors caused by unplanned move events and use of damaged trailers reduces workforce injuries and creates a safer work environment.

Key Features

- **Automatic Parking Assignment**—Configure rules that assign yard spots to trailers during check-in and after they are processed at a door. Available spots are determined by the location system when using RTLS.
- **Automatic Door Assignment**—Configure rules that select trailers to be pulled to doors when doors become available, resulting trailer move requests are automatically communicated to switcher wirelessly. Door availability is determined by the location system when using RTLS.
- **Check-Out Blocking Rules**—Configure rules that prevent trailers from being checked out that should not leave the yard.
- **Gate-To-Door Rules**—Configure rules that direct selected inbound trailers from the gate to dock doors (e.g. hot loads and live loads).
- **Directed Task Assignment**—The Zebra YMS can automatically assign a particular switcher to a move request based on the minimum travel distance of all switchers with respect to the trailer that needs to be moved.
- **Inbound Scheduling**—Create site arrival appointments for expected trailers. Configure time windows for calculating on-time performance within history reports. Automatically populate trailer check-in forms by pulling information from inbound schedules.

Key Features (cont'd)

- **Outbound Scheduling**—Create site departure appointments for expected trailers. Configure time windows for calculating on-time performance within history reports. Automatically populate trailer update forms by pulling information from outbound schedules.
- **Door-to-Door Moves**—The Zebra YMS minimizes trailer moves by automatically creating door-to-door moves when possible, rather than door-to-yard and then yard-to-door.
- **Exclusion Zones**—Configure a door rule to ignore trailers that are parked in designated yard locations that are managed manually (e.g. offsite yards or buried trailers that require dig moves).
- **Door Manager**—This real-time graphical view of dock doors is the command and control center for managing the movement of equipment to and from dock doors. Door Manager shows which doors are empty, which are occupied, which have trailer move requests, which rules are associated with which doors, trailer damage status, enabled / disabled doors, trailer age, and more. Queue trailers behind doors that result in automatic trailer move requests when doors become available. Manually drag and drop trailers to and from dock doors to generate move requests for switchers, or let the Zebra YMS automatically generate move requests based on rules that you define.
- **Trailer Pools**—Specify the quantity and types of trailers by carrier required to be on site at any given time. Alerts are automatically generated and sent to carriers when pool criteria are not met. Optionally block trailers from checking in if a carrier's pool threshold is exceeded.
- **Automatic Yard Inventory**—When using Zebra's Real-Time Location System (RTLS), the Zebra YMS automatically computes the location of every tagged trailer and switch tractor, as well as the status of each spot and door. RTLS is an optional feature.
- **Alerts**—Automatically notify key personnel via email when trailers are not where they are expected to be or if they have remained in a particular status for too long.
- **Automatic Pick-up Notification**—Configure the Zebra YMS to automatically email carriers when trailers are available for pick-up. The system records the notification time for each trailer to help reconcile detention disputes. Automatically send email alerts to carriers if trailers are not picked up on time.
- **Scheduled Email**—Create custom reports and configure the Zebra YMS to automatically send reports to carriers, suppliers, and anyone else on a scheduled basis. Scheduled reports help carriers better manage their trailer inventory within your yards.
- **System Interfaces**—The Zebra YMS includes an API that allows exchanging information with external systems. Through the API, external systems are made aware of each inbound and outbound trailer, each trailer that arrives at and departs from a door, each status update, each schedule change, and more. External systems can also update trailer statuses within the Zebra YMS and query any report using the API.
- **Dynamic Labor Standards**—The Zebra YMS leverages PathFinder to calculate the length of time required to complete each move request. Expected and actual move times are displayed on reports for productivity comparisons.

Boost Productivity and Revenues with the Zebra Yard Management System

As challenges with inbound and outbound logistics operations continue to broaden across geographies and industries, it is important for yard operators to improve efficiencies while maintaining continuous movement of material and goods to and from distribution centers and manufacturing plants.

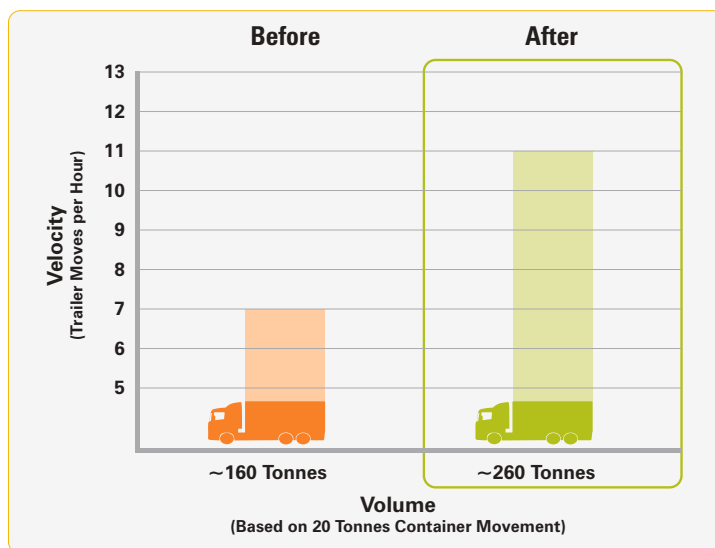
In today's climate of 24/7 demand for information, yard operations play a vital role for organizations. Yard systems that effectively bridge transportation and warehouse/distribution operations allow companies to shorten forecasting lead times and increase overall supply chain throughput, which in turn reduces waste and costs.

The Zebra YMS provides your business with best in class yard planning and exception management capabilities, with configurable business rules to optimize your yard operations, and interfaces that connect to your transportation and warehouse systems.

Experience shows that an investment in Zebra's Yard Management Solution usually pays for itself within 6-12 months. For yards that experience significant velocities and volumes of equipment, the Zebra YMS can leverage its real-time locating system (RTLS) infrastructure to provide more precise and automated asset tracking capabilities to your operations, creating a key differentiation for your business and a potential new source of revenue.

The Zebra YMS can benefit yards of different sizes, from smaller yards that utilize 2 to 3 concurrent switchers, to larger yards that utilize 7 or more switchers. Regardless of the size of your yards, the Zebra YMS enables tight orchestration between your yard operations and adjacent transportation and warehouse/plant operations. With the Zebra YMS, you can expect faster gate transactions, increased switcher productivity, greater door turns, enhanced security, and improved warehouse/plant productivity. While the scheduling system is used for planning yard events, the execution system responds to unplanned events based on business rules that are configured for your particular operations. The combination of effective planning and exception handling allows the Zebra YMS to direct the right trailer to the right door at the right time.

Switch Dispatch Enhancement with Zebra YMS



Characteristics

- 3 to 30 concurrent switchers
- 50 to 400 dock doors
- 100 to 2,000 yard spots
- 40 to 1,500 check-ins per day

In addition, the Zebra YMS includes APIs that allow interfacing with back-end Warehouse Management Systems (WMS) and Transportation Management Systems (TMS), enabling continuous flow of product and material to and from your facilities.. The YMS also provides inventory, pickup, and alert notification to carriers, resulting in a more effective management of equipment inventory within your yards.






The combination of Zebra YMS's planning and scheduling capabilities combined with flexible business rules for exception management allows you to be more informed and make smarter decisions about your overall yard operations; therefore, product and equipment move through the yard with greater fluidity, even when the yard becomes congested. As a result, you can achieve increased yard throughput, door turns and equipment utilization while reducing detention and demurrage expenses. In addition, enabling greater yard throughput means doing more with less,

less space, less resources, and less doors, but it also increases the speed at which the equipment moves through the yard, thereby reducing order-time-to delivery windows and warehouse overtime.

Zebra Yard Management Suite Modules

The rich set of modules encompassed within the Zebra YMS ensures that whatever your challenges you have the right solution.

Zebra's Yard Management Solutions Modules

Module Name	Highlighted Functions	Core	Optional
Switcher Dispatch	Enables wireless communication of trailer move requests to switchers via touch-screen vehicle-mounted terminals. Switchers can map requests, perform trailer inspections, audit yard spots, and complete trailer moves from their on-board computer. Switchers can also receive instant text messages from dispatchers.		
Trailer Inspection	Configure your own inspection points and assign severities. Prevent damaged trailers from being pulled to dock doors. Measure the quality of trailers across carriers over time.		
Fast Gate	When RTLS tags are attached to trailers, the Zebra YMS identifies trailers as they approach the gate and automatically populates the check-in screen to enable fast check-ins.		
Easy Dock	Using a stationary or vehicle-mounted touch screen terminal, dock personnel can quickly view the status of dock doors, change trailer status at doors, and create trailer move requests. Easy Dock can also be extended to include custom plug-in modules such as creating shippers.		
Vessel Voyage	Assign vessel voyage information to each inbound container to track their origin and process them in FIFO order.		



Your Partner in Boosting Productivity

Zebra has been helping Yard owners and operators realize increased productivity, new revenue streams and happier customers with the Zebra YMS since 1998. This experience has helped us develop site-specific solutions for a wide range of facilities. We take care of the project planning and deployment from end to end, often as the turnkey solution provider.

Our vast experience includes a multitude of deployments, ranging from single facilities to multiple yard facilities across the globe. In addition to taking advantage of the latest features of the Zebra YMS, yards that experience significant volume and velocity can leverage Zebra's RTLS solution for wireless tracking of trailers and switch tractors.

Zebra Technologies Corporation (NASDAQ: ZBRA) gives customers visibility of critical assets, people and transactions through a broad range of printing and location technologies. Our bar code, card, kiosk and RFID printers as well as real-time location solutions have made us a recognized global leader in providing enabling solutions that identify, track, and manage critical assets, people and transactions for improved business efficiencies. For more information about Zebra's solutions, visit www.zebra.com

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