Load Building and Route Scheduling for SAP® ERP

Optimization Excellence
Advanced 3D Load Building and Dynamic Route Scheduling
Designed for use with SAP® ERP
Maximize your SAP® ERP capabilities for shipping and transportation

ORTEC for SAP® ERP

With increasing pressure on streamlining logistics and increasing business efficiencies, information technology demands are constantly evolving. Companies that run SAP® ERP require robust integrated solutions capable of managing their entire supply chain.

ORTEC, a leading global supplier of Supply Chain Optimization software, expands your SAP® ERP with its advanced 3-dimensional load optimization and dynamic route scheduling software designed for use with SAP® ERP. Packing boxes, building pallets, filling trucks or containers and scheduling routes are all optimized with this innovative solution.

The perfect add-on to your standard SAP® ERP

ORTEC for SAP® ERP is software certified by SAP providing the capabilities of ORTEC Load Building and ORTEC Route Scheduling designed for use with SAP® ERP. Using best-in-class optimization algorithms the ORTEC for SAP® ERP supports your daily inbound and outbound supply chain planning with decision-ready proposals to optimize the material flow and reduction of logistic costs.

Available modules

- ORTEC Load Building for SAP ERP
- ORTEC Route Scheduling for SAP ERP
- ORTEC Web Portal for Load Building
- ORTEC Transport Load Optimizer
- ORTEC Cross Docking for SAP ERP

Benefits

- Business representatives have one single source of truth. All data for shipping and transportation planning resides in SAP® ERP.
- Users have best-in-class optimization tools at their hands in their SAP® ERP environment without having to switch between applications.
- Business intelligence and analytics teams can easily access all ORTEC planning data directly in their SAP® ERP environment for an easy comparison of ‘planned vs. actuals.’ This enables the setup of a continuous improvement process for logistics planning.
- ORTEC provides a certified add-on by SAP which confirms the technical compliance without any negative impact to the SAP® ERP environment.
- ORTEC is constantly enhancing and improving the software and regularly provides new enhancement packages and releases.

It delivers flexible modules and configuration for packing boxes, building pallets, loading trucks or containers and dynamic routing that can be deployed depending on your specific needs. All relevant configuration, master data and transactional data are maintained within SAP® ERP.

ORTEC for SAP® ERP supports out-of-the-box business process integration for multiple SAP® ERP business documents such as Sales Order, Outbound Delivery, Purchase Order, Inbound Delivery, Stock Transfer Order and Shipment. The end-user accesses all features via the SAP® GUI. Customizing ORTEC for SAP® ERP with individual business logic without modifications by providing own BAdI or Enhancements Spots is easy.
Maximize asset utilization and grow your business

ORTEC Load Building for SAP® ERP

ORTEC is setting new benchmarks with its advanced 3D load optimization software. ORTEC Load Building for SAP® ERP is a powerful tool that calculates optimized packaging proposals for rectangular and cylindrical packages. The key benefit of ORTEC Load Building for SAP® ERP is to help you maximize the utilization of your resources while considering all applicable strategies and constraints.

The optimal loading scenario - in seconds

Utilizing the best algorithms available in the marketplace, ORTEC Load Building for SAP® ERP computes and simulates scenarios for how to pack rectangular or cylindrical items in cartons, build pallets and fill trucks or containers in the most efficient way. Decision ready proposals, presented in 3D interactive graphics, enable you to make the right decisions almost instantly.

A fast and flexible process to determine the exact number of shipping and transportation units needed before any physical packaging has started.

Proven technology

ORTEC Load Building for SAP® ERP has been used for many years by companies around the globe to plan and optimize shipping and transportation units in different business process scenarios such as:
- Order-To-Cash (Inquiry, Quotation, Sales Order)
- Procure-To-Pay (Purchase Order)
- Dynamic Replenishment (Stock Transfer Order)
- Vendor Managed Inventory
- Transportation Planning (Inbound Delivery, Outbound Delivery, Shipment)

Benefits

- Optimal utilization of cartons, pallets and containers
- Improved quality of your shipping and loading
- Much lower process times for planning, warehouse operations and shipping
- Better customer service and improved customer satisfaction levels
- Less transportation units therefore less freight costs and reduced carbon footprint
Optimize parcel, LTL, FTL, sea and air freight

Three-Step Optimization

Whether you need to pack cartons, optimize pallets or select the best possible container type, ORTEC has the solution. ORTEC Load Building for SAP® ERP consists of three modules to manage each of these packing tasks. All modules can be used individually or combined in sequence to create a powerful multi-level packing optimizer solution.

**Step 1 - Carton Optimization**

Order Picking into Cartons

The carton optimization module calculates the number of cartons required to ship items on an order-by-order basis. The main objective of the optimization is to determine the most efficient carton type mix for packing while taking into account various constraints.

**Step 2 - Pallet Optimization**

Order Picking on Pallets

The pallet optimization module calculates the number of pallets required to ship items. The main objective of the optimization is to build as few pallets as possible while taking into account various constraints.

**Step 3 - Load Optimization**

Loading into Trucks, Containers, Railcars, Air Cargo Containers

The load optimization module calculates the optimal number of vehicles required to transport items and can also determine the most efficient vehicle type. The main objective of the optimization is to use as few vehicles as possible while taking into account various constraints.
With a powerful multi-level packing optimizer solution

**Features** ORTEC Load Building for SAP®ERP

The closer to reality an optimization solution simulates your business process, the quicker you will receive value from the solution. ORTEC Load Building for SAP®ERP offers numerous optimization possibilities and extensions to the standard functionalities of the solution - providing you with the tools to simulate reality, no matter how complex.

- Use three-step shipping and transportation planning with packing cartons, building pallets and loading containers, trucks or other transportation units
- Consider multiple optimization objectives such as minimize load volume, minimize load length, minimum cost and others
- Optimize for each single loading unit type or find the best mix of multiple loading unit types (e.g. 20’ and 40’ containers)
- Consider product related constraints such as stacking rules, allowed orientations, compatibility rules with other products
- Provides many different loading unit types such as carton, box, pallet, various truck types (standard, double decker with beams, double decker with single floor, goose neck, semi-trailer), various container types (standard, open-top, flat rack), railcar, air cargo container
- Use specific rules for individual orders to overrule other general rules such as maximum pallet load height or using separator pallets between layers of different products
- Create secure and stable loads by using the configurable strategies how to consider axle weights and center of gravity for loads
- Fill up partially loaded containers by using the priority-based backfill logic or fill it by using a single product
- Use the algorithm to automatically split orders larger than one truck
- Find the best fitting combination of vehicle types (e.g. 10’, 20’ or 40’ containers) for your transportation demand

**Results**

- Up to 3-7% improvements in shipping and transportation asset utilization
- Up to 50-70% reduction of planning time compared to manual processing
- Reduce the risk of not fitting loads and expensive additional shipments
- Reduce the risk of damaging goods
Amplify supply chain collaboration

**ORTEC Transport Load Optimizer**

ORTEC Transport Load Optimizer (TLO) is the planning environment in SAP®ERP providing a flexible and efficient way of simulating different business scenarios using the ORTEC Load Building for SAP®ERP capabilities.

**It creates world-class load building customized just for you**

Whether you would like to consolidate replenishment demands based on their priority or you want to consolidate firm customer sales orders together with VMI forecast quantities to build Full-Truck-Loads for your customers - the ORTEC Transport Load Optimizer provides the right environment. It comes with a set of pre-defined configurable process scenarios which can be easily extended.

**Benefits**

- Use predefined planning scenarios out-of-the-box or define your own scenario
- Run your planning interactively or as a background process with automated rules for maximum efficiency
Optimize your route planning

ORTEC Route Scheduling for SAP®ERP has been developed to optimize the planning of transportation tasks from Order to Delivery to Shipment. The key benefit of this software is calculating optimal routes while taking order-, customer- and vehicle-specific restrictions into account.

The main objective of the optimization is to provide cost-efficient allocation of orders to vehicles in Tours, based on a set of Shipping Orders and a set of vehicles. All Tours are based on SAP Business Documents such as SAP Purchase Orders, SAP Inbound Deliveries, SAP Stock Transport Orders, SAP Sales Orders, SAP Outbound Deliveries and creates SAP Shipments for further execution.
Simulate your reality, no matter how complex

**Features** ORTEC Route Scheduling for SAP®ERP

The closer to reality an optimization solution simulates your business process, the quicker you will receive value from the solution. ORTEC Route Scheduling for SAP®ERP offers numerous optimization possibilities and extensions to the standard functionalities of the solution. Providing you with the tools to simulate your reality, no matter how complex.

- Provides a 100% SAP embedded planning cockpit for the transportation planner, the ORTEC Planboard, giving a central overview of the planners daily workload with orders, vehicles and tours
- Use out-of-the-box available digital map material for accurate geocoding and route calculation (Time & Distance) supporting region and time-specific constraints such as traffic congestions patterns, city zones etc.
- Leverage semi-automatic and automatic creation of tour proposals with a powerful route scheduling algorithm (assignment of orders to vehicles)
- Delivers manual supported with optimized route calculation and interactive planning in the map or in the Gantt chart
- Helps the planner ensure multiple planning constraints such as time windows for loading/unloading locations, allowed vehicle types, required drivers/equipment, and vehicle capacities.
- Dispatch LTL (Less than one Truck Load) transport consolidation and FTL (Full Truck Load) with owned fleet or rented vehicles
- Planning flexible horizons (daily to weekly)
- Consider driving time legislations
- Optimize inbound and outbound transportation in one ORTEC tour
- Use ORTEC Route Scheduling for SAP®ERP and ORTEC Load Building for SAP®ERP in combination

**Benefits**

- Decrease mileage driven
- Decrease driver overtime
- Adhere to customer service constraints
- Maximize utilization of transportation assets
- Reduce the impact of transportation changes during the day
Two-stage Outbound Transportation

**ORTEC Cross-Docking for SAP® ERP**

A standard SAP scenario for outbound transportation is to load the goods at a plant or warehouse and take them directly to a customer location. It can be more cost efficient to ship the orders via a third location, the so-called cross-docking location, instead of executing a direct delivery from A to B.

**In a cross-docking scenario the goods are:**
- Transported in one tour (‘shuttle’) from one plant to the cross-docking location
- Re-grouped with goods from other plants at the cross-docking location into multiple new tours
- Transported from the cross-docking location to the customer locations (‘distribution’)

**ORTEC Cross-Docking for SAP® ERP supports a two-stage transportation planning process for outbound distribution processes with the following functions:**
- Determination of cross-docking location per delivery
- Automatic or manual decision for distribution strategy (direct or cross-docking)
- Automated creation of two ORTEC orders: one for the shuttle and one for the distribution, both to be planned with ORTEC Route Scheduling for SAP® ERP

![Cross-Docking Diagram](image)
Need help with your supply chain?

Our mission is to optimize your supply chain using world class mathematics and engineering. We’ve been helping our global customers grow for 35 years. As a Silver Certified SAP partner, we are proud to offer you innovative technology built specifically for you.
Our Software Solutions

**SAP Integrated**

**ORTEC for SAP®ERP**
Certified add-on embedded in SAP®ERP, providing Load Building for Cartons, Pallets, Trucks and Containers as well as optimal Route Scheduling. It improves your shipping and transportation planning with decision-support tools, graphical planning tools and optimization algorithms for loading and routing.

**ORTEC Warehouse Execution for SAP®WM**
Add-on to Warehouse Management in SAP®ERP for picking planning and control, including paperless picking.

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**Windows applications**

**ORTEC Load Building**
Carton, pallet, and load space optimization, plus order picking.

**ORTEC Routing and Dispatch**
Route planning and optimization with a primary focus on real-time route planning and dispatching in a multiuser environment.

**ORTEC Route Scheduling**
Route planning and optimization for logistics and field services.

**ORTEC Tactical Routing**
Territory and delivery day optimization including individual route sequencing and the creation of trips while optimizing the utilization of resources.

**ORTEC Service Planning**
Route planning and optimization for field services.

**ORTEC Inventory Routing**
An advanced solution for demand forecasting, order generation, and route planning and execution.

**ORTEC Warehouse Control and Optimization**
An advanced solution for warehouse control.

**ORTEC Workforce Planning**
Strategic workforce planning, forecast and budgeting.

**ORTEC Workforce Scheduling**
Operational workforce scheduling with rules, skills, service-level agreements and employee preferences taken into account.
About ORTEC
ORTEC is one of the largest providers of advanced planning and optimization solutions and services. Our products and services fully optimize fleet routing and dispatch, vehicle and pallet loading, workforce scheduling, delivery forecasting, logistics network planning, and warehouse control. We offer stand-alone, custom-made and SAP® certified and embedded solutions that are supported by strategic partnerships. Our 750 employees support over 1,800 customers worldwide from offices in Europe, North America, South America, and Asia Pacific.

Want to learn more about our solutions? Contact us at:

- info@ortec.com
- www.ortec.com