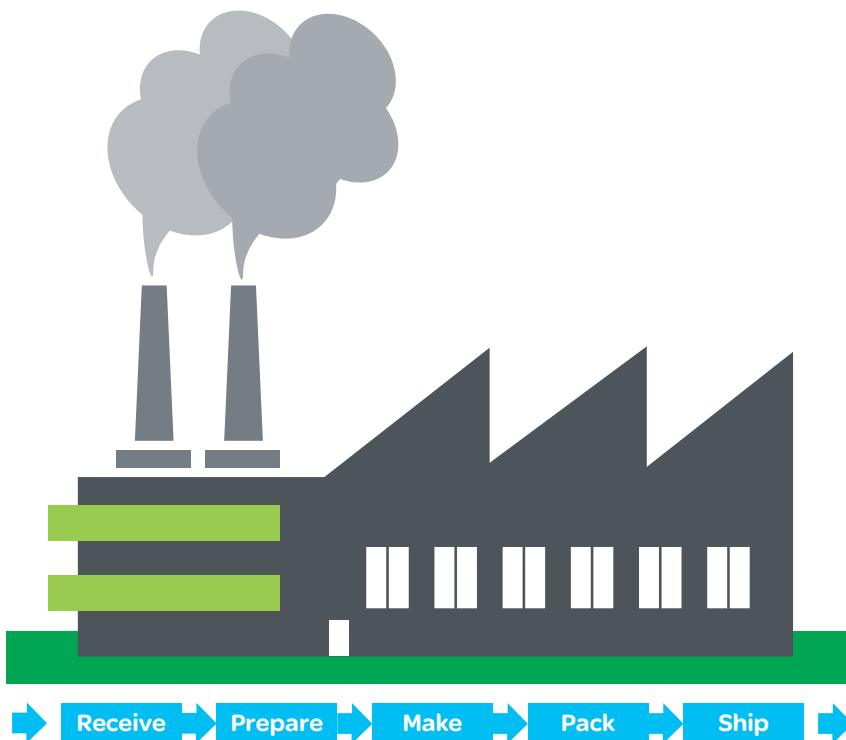


# Wonderware MES/Operations

Managing the transformation  
of materials into finished  
products in real time

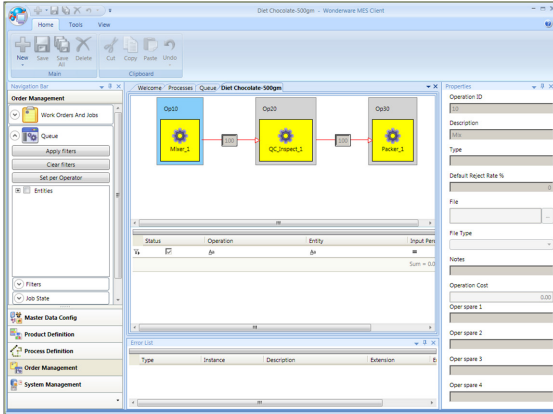
Wonderware offers a complete set of MES software functionality to digitize your industrial operations' business rules and information management needs, as well as to automate data collection of operational execution. It empowers decision makers and operators to more effectively manage production and shop floor inventory operations in real time. Full product genealogy, complete work order execution, event history and material traceability ensure product safety or regulatory compliance and provide decision making support through supply chain visibility of operational activities and work in progress in real time.

Unique execution and data collection capabilities on automated plant equipment make Wonderware MES solutions the first choice for automated or fast moving goods manufacturing processes. Incremental scalability in scope and size allows operations to easily adapt to changing priorities or business strategies, or growing your MES functionality over time. The commercial off the shelf MES software provides fast return on investment in line and single plant deployments and offers support for standardisation of processes to reduce time to value and total cost of ownership for plant wide or multi-site MES deployments.



*Wonderware*<sup>®</sup>  
by Schneider Electric

# Wonderware MES/Operations Overview



Wonderware MES/Operations provides the core Manufacturing Execution Systems management capabilities to manage work order execution and to capture all execution detail and material flow information in real time on the shop floor. Its process model provides the business rules and product specification information to provide and enforce work instructions, bill of materials, and set up information to people and automated equipment tasked with work order job execution.



## SUMMARY

- Full-Featured MES Capability – “Dock-to-Dock”
- Paperless Work Order and Product Specification Management
- Real-Time Visibility to Production and Inventory Activities
- Integrated Business Rules to Secure Quality to Specifications
- Comprehensive Electronic Manufacturing Genealogy and Material Traceability

## BUSINESS VALUE

- 10-20% average manufacturing cost reduction
- 5-10% average increased productivity
- 20-30% average quality improvements
- Empower Supply Chain Applications and Increase Business Agility
- Enforce Compliance and Governance

## Increase efficiency, quality and agility of your manufacturing operations

Wonderware MES/Operations empowers decision makers and operators with real-time plant operations information to optimize work schedules and product runs for increased throughput and reduced losses. Enforcement of product specifications such as bill of materials, rules of material flow and sequence of process execution improve profitability by reducing scrap and rework, and secure consistency in product quality. Meeting quality expectations and improved schedule attainment additionally helps to ensure brand protection and increase customer satisfaction and loyalty.

## Reduced risks and cost of compliance

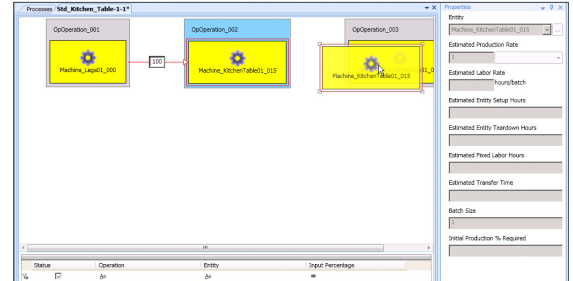
Wonderware MES/Operations helps manufacturing companies to document production, material traceability, quality of products and processes. Detailed electronic records of product genealogy and material traceability allow for fast and effective responses to unforeseen events, manage product quarantine/recalls, protect your brand equity and reduce the cost of compliance to consumer and product safety regulations.

# Wonderware MES/Operations Features

## Process Modeling and Product Specification Management

Wonderware MES/Operations leverages a process model to describe the manufacturing process comprised of multiple operations and to link business rules and specification information to the method of producing a product. The process model allows defining and linking the operations, equipment, Bill of Material (BOM) and set up specifications, routings and flow of materials between operations, and the data capture requirements for each operation or step within a process.

An 'operation' defines a task to produce an intermediate or finished product, including the raw materials or intermediate products consumed, any by-products produced, the equipment used to complete the task, and labor and machine time estimates.



➤ Intuitive user interface for process modelling

Wonderware MES/Operations allows you to:

- Define raw, semi-finished or finished goods
- Define product-specific production routings
- Attach multiple BOM definitions (versions) and multiple specifications (versions) to a product
- Use Multi-level BOMs (n-tier)
- Define multiple substitutes per BOM item
- Define co-products / by-products
- Configure specific material processing and tracking business rules per BOM Item
- Synchronize all product definitions with your ERP or document management system

Status	Version ID	Description	Preferred Version
✓	1	Blended Pomegranate	✓
✓	2	Pomegranate Simple	

Status	BOM Position	Item Description	Quantity	Min Quantity	Max Quantity
✓	1	Water	0.8	0.7	0.9
✓	2	Red Grape 1000	0.02	0.01	0.03
✓	3	Wh Grp Con Sp	0.07	0.06	0.08
✓	4	Ascorbic Acid	0.0003	0.0002	0.0004
✓	5	Fumaric Acid	0.0005	0.0004	0.0006
✓	6	Cmby Con 50B	0.006	0.005	0.007

# Wonderware MES/Operations

## Features (continued)

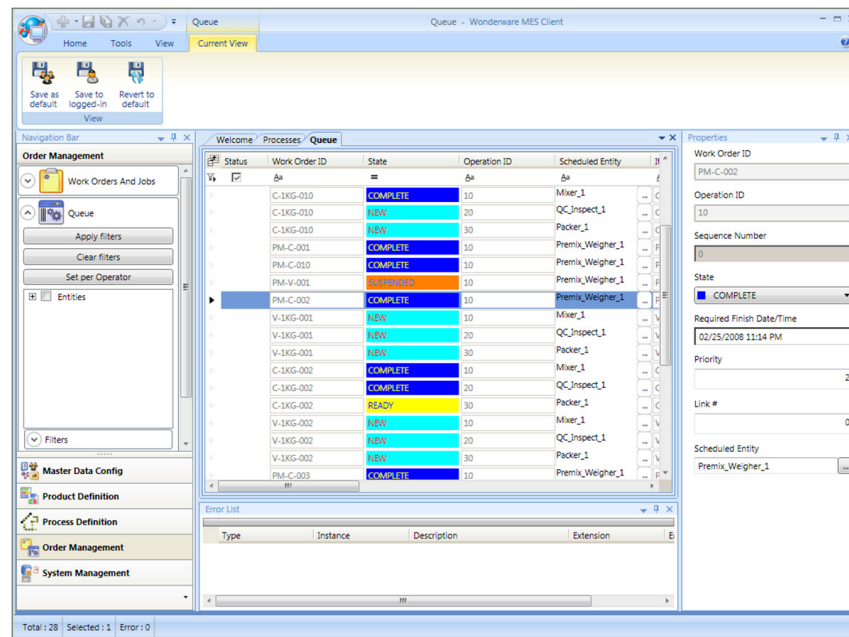
### Production Management and WIP Execution

Wonderware MES/Operations manages work order execution by scheduling instances of the product-related master process, scaled to the requested quantity to make. Work orders are broken into jobs as instances of the process operations for sequencing and scheduled to equipment for execution on the plant floor.

The software provides an information model to assist with job-related information, to enforce the business and data collection rules for operator workflow management, to verify material consumption against BOM specifications using barcode or RFID readers, as well as to set up automation systems for job execution according to specifications.

With Wonderware MES/Operations, you can:

- See WIP status with the ability to estimate expected completion date and time
- Provide the most recent job schedule and changes to operators
- Move active operations to an alternative line if required
- Automatically hold operations based upon material availability and prior production limits
- Record and track production, consumption and labor
- Record variations made to the master product definition for a specific job



# Wonderware MES/Operations

## Features (continued)

### Inventory and Storage Management

Wonderware MES/Operations Inventory and Storage Management features can be used to configure business rules for tracking and managing inventory on the plant floor in real time. It enhances traceability across fixed or mobile storage locations for raw, semi-finished and finished products. Inventory quantities are updated automatically as materials are consumed and products are made. There is support for both explicit declarations of lot consumptions as well as backflushing standard quantities. You can additionally manage and track inventory operations independently from work order execution activities, such as material receiving and transfer related to pre- or post-production logistics or managing Kanban inventory.

Wonderware MES/Operations Enables:

- Transfers, split, combining, receiving, shipment and reclassification of inventory
- Storage of Material ID, Quantity, Lot, Expiry, Item Grade and State
- Defining, monitoring and tracking the state of fixed or mobile inventory locations/ devices
- Visibility to see where your products and materials are located in the factory
- Automatic upgrades of inventory quantities as materials are consumed and products are made
- An electronic log of inventory transfers
- Integration of material movements with your warehouse and ERP business systems

# Wonderware MES/Operations

## Features (continued)

### Labor Tracking, Certification & Document Management

Wonderware MES/operations tracks operators logged into jobs and captures time and duration on machines, which also allows accounting of labor costs attached to work order execution by an operator or groups of operators. Operators can be requested to review and acknowledge work instructions presented as electronic documents, or confirm BOM item or specification values. Jobs can be restricted to operators with valid certificates of necessary qualification(s) to run the job.

Wonderware MES/Operations:

- Records the operator Log on time and equipment used
- Assigns operators into labor departments and categories
- Labor time can be categorized for activities such as setup or production activities
- View the status of operators, where they are working and on what jobs
- Associates production steps with BOMs, specs and/or drawings
- Assigns a certification to an Operation
- Links work instructions and documents (e.g. PDFs, Microsoft Documents, web pages, etc.) to products, production orders, operations, work centers or procedural steps

Operator		Serial Number		Step Group			
jim		-		- All -			
Step No	Step Desc	Form Name	Inspector	Start	Finish	State	Enter Data
1	Clean and inspect all components			09:34:58 07/01/04	09:36:12 07/01/04	COMPLETE	<input type="checkbox"/>
2	Pre-assemble test. Do not secure any parts.			09:36:27 07/01/04		RUNNING	<input type="checkbox"/>
3	Review specs sheet					NEW	<input type="checkbox"/>
4	Assemble base. tighten to					NEW	<input type="checkbox"/>
5	Assemble Upper components					NEW	<input type="checkbox"/>
Step Desc. Clean and inspect all components						Documents	
Data Edit						Form Name	
Status COMPLETE		Action Normal		Start 09:34:58 07/01/04		Inspector	
Required for Step Completion				Finish 09:36:12 07/01/04			

- Track labor, enforce manual activities and certifications with Wonderware MES/Operations

# Wonderware MES/Operations

## Features (continued)

### Electronic Production Record, Genealogy and Traceability

With complete electronic records for all work order execution events and material flows, Wonderware MES/Operations provides real-time and historical information on material consumption, yield, lot genealogy and Work In Process (WIP), helping to manage day by day operations more efficiently, and facilitating the continuous improvement process.

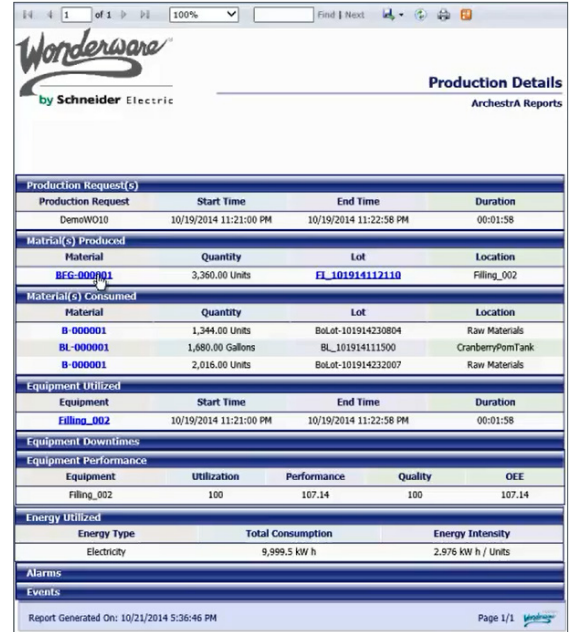
Wonderware MES/Operations:

- Extensive history records for reporting and drill down to enable product/process genealogy and traceability Tracks the exact quantity and lot numbers of materials used to make all your products
- Captures lot and serial numbers manually from operator or automatically with bar code scanners
- Records production of all goods back to a unique work order number
- Maintains a log of inventory transfers
- Records and track production, consumption and labor events

### Operations Reporting

Wonderware MES/Operations includes standard reports which are published to Wonderware Information Server for flexible and collaborative information access via a web browser. These reports include:

- Genealogy by Work Order
- Production by Entity



Production Details				
Archestra Reports				
<b>Production Request(s)</b>				
Production Request	Start Time	End Time	Duration	
DemoWO10	10/19/2014 11:21:00 PM	10/19/2014 11:22:58 PM	00:01:58	
<b>Material(s) Produced</b>				
Material	Quantity	Lot	Location	
BFG-000701	3,360.00 Units	FL_101914112110	Filing_002	
<b>Material(s) Consumed</b>				
Material	Quantity	Lot	Location	
B-000001	1,344.00 Units	BoLot-101914230804	Raw Materials	
BL-000001	1,680.00 Gallons	BL_101914111500	CranberryPomTank	
B-000001	2,016.00 Units	BoLot-101914232007	Raw Materials	
<b>Equipment Utilized</b>				
Equipment	Start Time	End Time	Duration	
Filing_002	10/19/2014 11:21:00 PM	10/19/2014 11:22:58 PM	00:01:58	
<b>Equipment Downtimes</b>				
<b>Equipment Performance</b>				
Equipment	Utilization	Performance	Quality	OEE
Filing_002	100	107.14	100	107.14
<b>Energy Utilized</b>				
Energy Type	Total Consumption	Energy Intensity		
Electricity	9,999.5 kW h	2.976 kW h / Units		
<b>Alarms</b>				
<b>Events</b>				
Report Generated On: 10/21/2014 5:36:46 PM				
				Page 1/1

➤ “As-built” records from Wonderware MES/Operations

# Wonderware MES/Operations Specifications

## Language Support

**Wonderware MES/Operations Software includes support for the following languages:**

- English
- German
- Russian
- Spanish
- French
- Japanese
- Simplified Chinese

## Operating Systems

**Wonderware MES/Operations software supports the Microsoft Windows platform, including:**

- Windows 7 Professional or Enterprise Edition (32-Bit and 64-Bit)
- Windows 8.1 Professional or Enterprise Edition (32-Bit and 64-Bit)
- Windows 10 Professional or Enterprise Edition
- Windows Server 2008 R2 Standard or Enterprise Edition (64-Bit)
- Windows Server 2012 Standard or Data Center Edition (64-Bit)
- Windows Server 2012 R2 Standard or Data Center Edition (64-Bit)

## Database Technology

**Wonderware MES/Operations software supports the following databases:**

- Microsoft SQL Server 2008 R2 in Express, Standard or Enterprise Edition (32-Bit and 64-Bit)
- Microsoft SQL Server 2012 in Express, Standard or Enterprise Edition (32-Bit and 64-Bit)
- Microsoft SQL Server 2014 in Express, Standard or Enterprise Edition (32-Bit and 64-Bit)

## For more information on Wonderware MES/Operations Software please

contact your local Wonderware distributor, or visit: <http://software.schneider-electric.com/products/wonderware/manufacturing-operations-management/mes-software-operations/>