Summary

Wonderware MES Software gives manufacturers complete plant visibility and control to effectively manage manufacturing and quality operations and ensure product safety compliance. Full product genealogy, complete event history and detailed material movement tracking are just a few of the features. Performance analysis and monitoring help to increase asset and resource utilization to leverage equipment capacity.

Business Value

Using Wonderware MES Software, manufacturers can increase operational efficiencies and product yields. Productivity can be improved through faster inventory turns, reduced production lead times and swifter new product introductions for faster return on investment (ROI). Wonderware MES Software offers a low risk, step by step implementation approach, long term sustainability and low total cost of ownership (TCO).

Wonderware®

Wonderware MES Software 2012

THE FOUNDATION FOR OPERATIONAL EXCELLENCE

Manufacturing Execution Systems (MES) are a software-based approach to manufacturing operations management. Using MES, customers enjoy increased product throughput, repeatability, quality and a foundation for compliance with internal, customer and industry regulations (such as food safety, HACCP and 21 CFR Part 11).

Wonderware MES capabilities:

• Increase real-time visibility of work orders and priorities for optimal execution

• Reduce lead times and product and quality variance by delivering appropriate process information (work instructions, process and quality specifications) to operators and equipment

• Automatically capture an accurate electronic production history

At the same time, a MES complements and provides the necessary context for Plant to Enterprise systems integration, enabling near real-time visibility across the whole supply chain for better decision making, closer alignment with business targets, and ultimately, higher customer satisfaction.

Wonderware® MES Software provides a configurable, and highly scalable, Manufacturing Execution System which can be applied to essentially any industrial manufacturing or production process. Wonderware MES Software includes real-time operations, performance and quality management and execution capabilities in a single application. Comprehensive enterprise integration capabilities facilitate business or enterprise system integration.
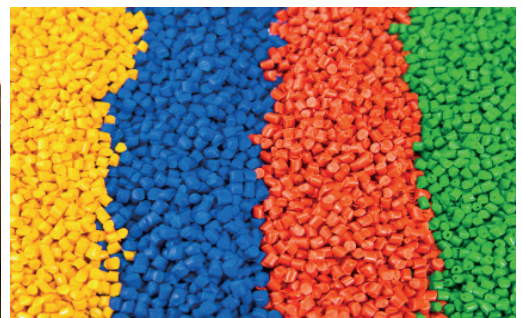
IMPROVE YOUR OPERATIONAL EFFICIENCY, QUALITY AND AGILITY, AND INCREASE YOUR ASSET UTILIZATION

Wonderware MES Software includes the management of the following operational activities:

Production operations for production work order execution with real-time information management of product definitions and process specifications with tracking of production resources like equipment, inventory and labor and capturing all production events and data of execution. Production operations include inventory operations for tracking bulk, lot and item inventory movements across storage locations and production equipment in real time on the shop floor.

Production performance management in work order execution context, capturing and calculating the actual production performance vs. planned according to the process, equipment and product specification.

Wonderware MES Software

- Operations
- Performance
- Quality

Quality operations integrated with production work order execution for quality test and sample specification management and execution of quality sampling procedures for quality data collection, either direct from process equipment or through operators with sample plan procedure enforcement.
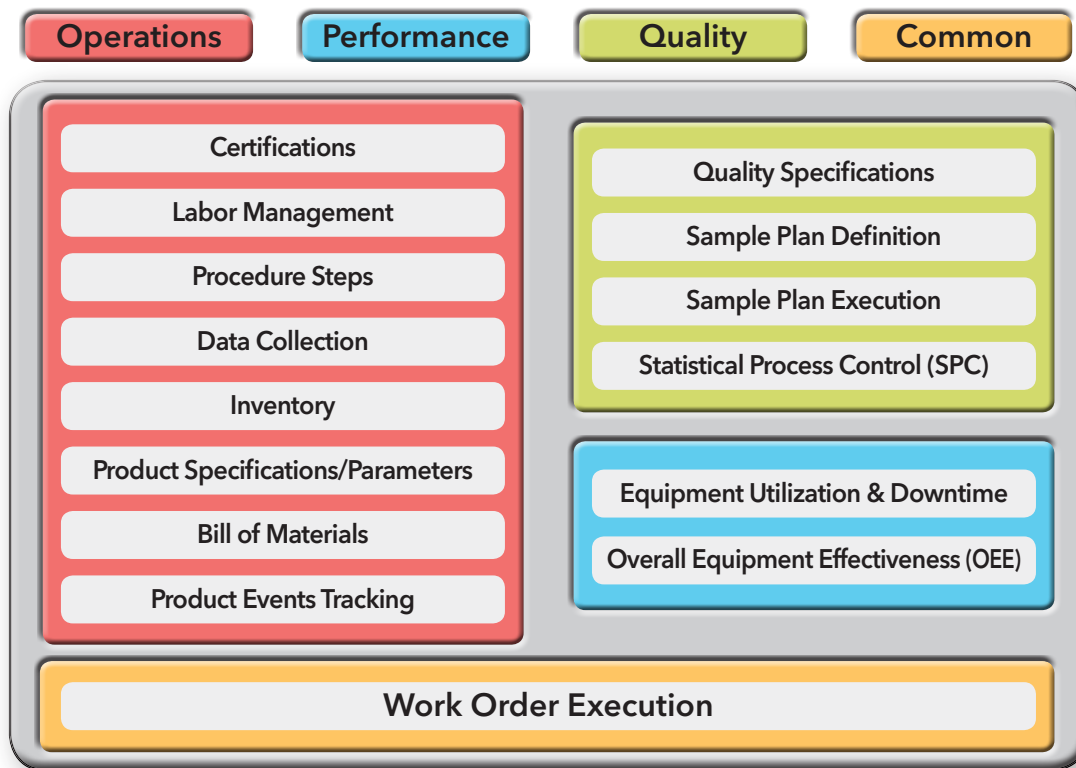
Using Wonderware MES Software's real-time information, decision makers and operators can effectively manage the order flow and production execution, track the transformation of products from raw materials through to finished goods, monitor production quality according to specifications, and gather information on yields, quality, resource and asset utilization for the continuous improvement process.

- **Reduce production order lead time** by rapidly responding to changes in demand by dynamic allocation of production assets
- **Improve predictability of order fulfillment** by accurately monitoring 'planned vs. actual' production dates and production quantities
- **Lower variance in production results** by controlling and monitoring operational activities through standardized production methods, procedures and specifications
- **Reduce time-to-volume** – your operators can accomplish quicker 'change-overs' between products and a faster return to normal production rates with electronic specifications and set point management
- **Optimize asset utilization** – monitoring asset production and historical downtime events leads to identification of bottlenecks and establishes best practices when comparing line-to-line and equipment-to-equipment performance effectiveness and other characteristics
- **Improve inventory velocity** through increased visibility into actual material consumptions and inventory movements in real time
- **Improve compliance and governance** through electronic records of operational execution and quality sampling procedures including detailed information necessary to document what was done to produce finished products including the genealogy of the products, production sign-offs and labor certifications

WONDERWARE MES SOFTWARE–FLEXIBLE, SCALABLE AND INCREMENTALLY DEPLOYABLE MES FUNCTIONALITY TO FIT YOUR NEEDS

Wonderware MES Software is a single software application providing a complete set of MES functionality which can be scaled to meet the needs of any scope of MES implementation. The software can be incrementally implemented step by step and function by function reducing time to value and lowering the risk of project complexity. Once installed, you can easily upgrade or add capabilities – flexible licensing options enables you to increase capabilities using your existing MES configuration without major rework, thereby reducing the investment required for the new capabilities.

Operations	Performance	Quality	Common

Operations
- Certifications
- Labor Management
- Procedure Steps
- Data Collection
- Inventory
- Product Specifications/Parameters
- Bill of Materials
- Product Events Tracking

Quality
- Quality Specifications
- Sample Plan Definition
- Sample Plan Execution
- Statistical Process Control (SPC)

Performance
- Equipment Utilization & Downtime
- Overall Equipment Effectiveness (OEE)

Common
- Work Order Execution

WONDERWARE MES SOFTWARE COMPONENTS

Wonderware MES Software/Operations helps manufacturing companies manage, execute and document production operations by capturing, monitoring and managing information about the "Who, What, When, Where, Why and How Much" information during work order execution, including inventory tracking, collecting product genealogy for lots / sub lots– as well as consumed and produced materials. Also it helps to manage the important equipment set point specifications and labor qualifications and certifications.

Wonderware MES Software/Performance helps improve asset utilization by real-time equipment downtime monitoring in order to provide KPIs like Overall Equipment Effectiveness (OEE) for use in tracking and analyzing the effectiveness of assets used in the production process.

Wonderware MES Software/Quality helps configure, manage and execute quality specifications. MES Software provides historical documentation of quality sample data, and performs SPC monitoring of the sample data collected.

Wonderware MES Software capabilities for Operations, Performance and Quality management can be deployed individually, but do offer increased value when used in combination.

WONDERWARE MES SOFTWARE OBJECTS FOR ARCHESTRA SYSTEM PLATFORM-BASED MODELING AND MES EXECUTION

Wonderware MES Software comes with an Utilization Capability Object, an Operations Capability Object and a Quality Sample Recording Object to extend the real-time data processing plant model of ArchestrA® System Platform to access MES data. At the same time the MES objects connect with real-time information from control systems or to plant automation devices, enabling automatic / semi-automatic information exchange and data collection.
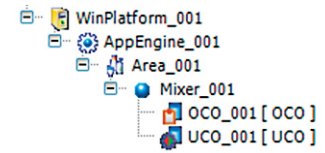
BUILD YOUR OWN LIBRARIES OF MES FUNCTIONS TO STANDARDIZE YOUR PROCESSES

These configurable and extensible core objects can be copied and altered to form a set of monitoring, data download and data collection objects, which can be tailored to your specific types of production equipment or plant operations. These tailored objects can be deployed as a reusable, standard library of MES functions to quickly build, re-configure or expand your Wonderware MES systems with a minimal amount of effort.

REAL–TIME DATA PROCESSING AND MES FUNCTIONS EXECUTION

Wonderware MES Software is fully integrated with the ArchestrA System Platform for configuration, real-time execution, data collection, reporting and integration to shop floor operations, automation systems, equipment and instrumentation. This common Platform eliminates the cost and risks attached to the integration between operations management, process supervision and process control (ISA 95 Levels 1 to 3) application functionality and enables true long term project sustainability.
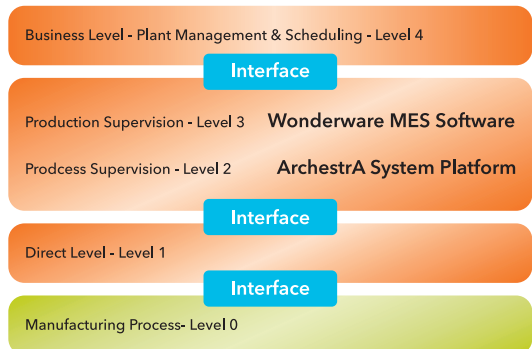
## WEB-BASED PRODUCTION REPORTING FOR COLLABORATION

The entire manufacturing facility operates better when plant personnel at all levels have real-time production information at their fingertips. Wonderware MES Software publishes interactive reports through Wonderware Information Server so that web-based production reports are available to anyone with Internet access and a need to know. Wonderware Information Server can be tailored to individual information needs so each user can sees only the plant information they need, allowing them to focus on improving plant performance using the provided real-time information on demand.
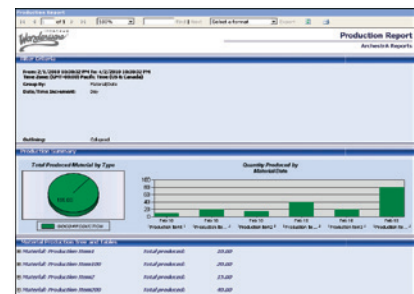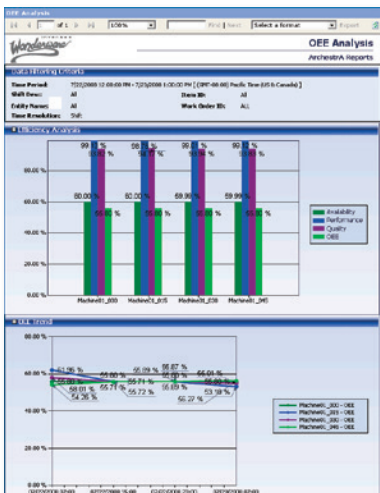
WONDERWARE MES SOFTWARE OFFERS MINIMIZED SETUP AND MAINTENANCE COSTS

Wonderware MES Software is configurable software that can be used to build standard applications, allowing you to lower the cost to design, deploy, maintain and extend your MES system.

Out of the box functionality, "one click" clients, and system configuration streamline deployment and lessen the need for highly specialized IT skills. The software offers a number of extensibility tools to effectively address customer-specific requirements in business logic, client, and reporting needs.
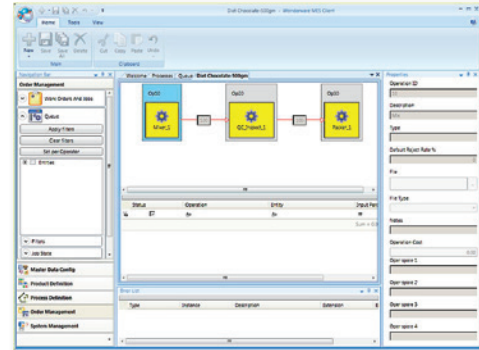
SCALABLE ARCHITECTURE READY FOR GLOBAL DEPLOYMENT

Wonderware MES is can handle global roll outs—from a single node deployment for line OEE or a focused traceability solution, up to a large, distributed MES spanning multiple time zones and countries having distinct language and writing styles. Wonderware MES Software supports all sizes and scopes of implementations. Scalability ensures data processing performance and speed of process event capturing and reliability for 24/7 operations.
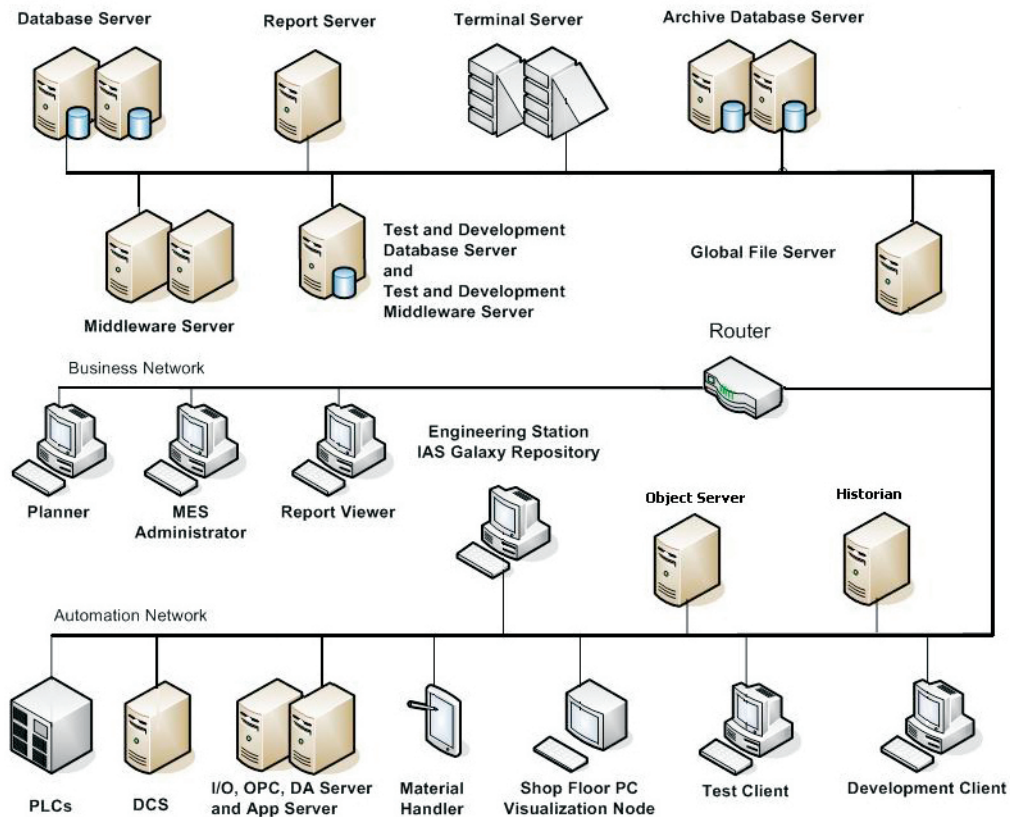
WONDERWARE MES SOFTWARE INTEGRATION

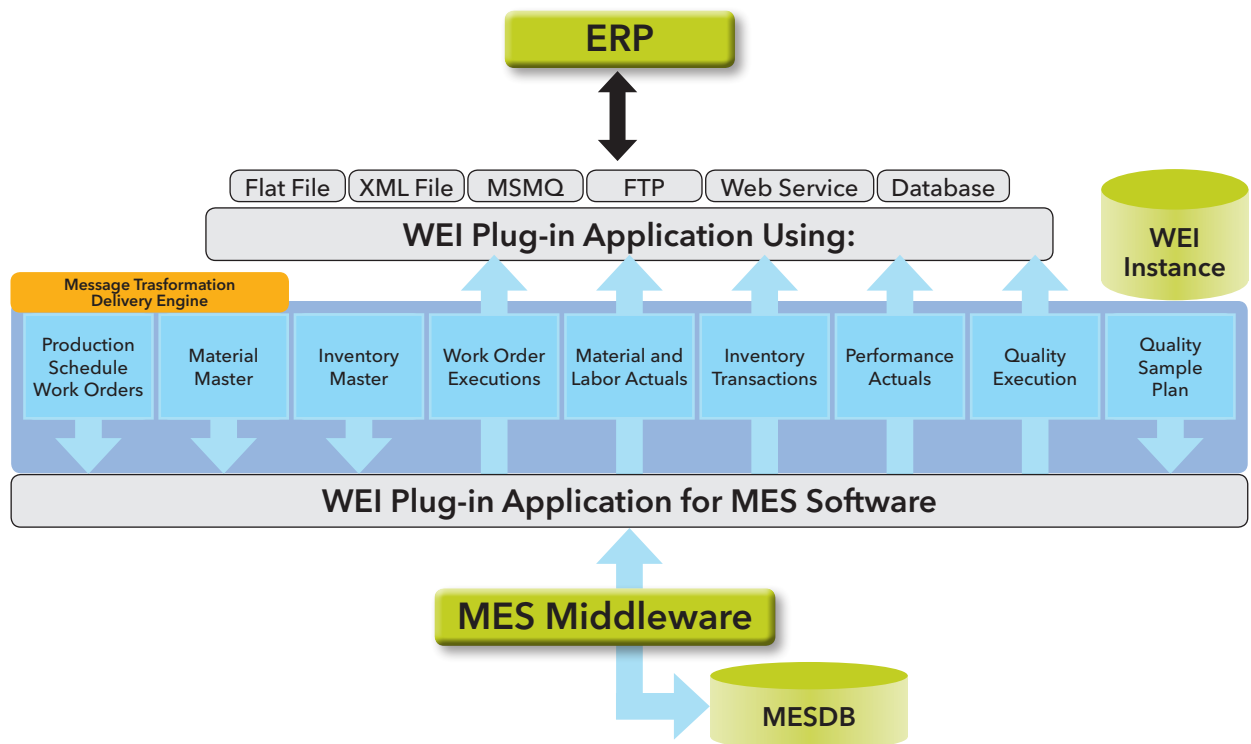**Open Data Source Connectivity to See All of Your Plant Data**

Wonderware is a leader in open data source connectivity for over 25 years. This broad connectivity to your plant data provides the real-time data collection to ensure that you have all of the accurate and current production data you need to better manage your operations processes.

PLANT TO ENTERPRISE INTEGRATION FOR REAL-TIME INFORMATION EXCHANGE AND SUPPLY CHAIN COLLABORATION

Wonderware offers extended capabilities with Wonderware Enterprise Integrator (WEI) software. It complements Wonderware MES by linking the manufacturing shop floor to your supply chain including business applications like ERP, PLM, SCM or LIMS systems.

Wonderware Enterprise Integrator provides an extensible framework for reliable information exchange supporting industry standards such as ISA-95 and B2MML.

Wonderware Enterprise Integrator enables existing business and manufacturing systems to work in a complementary fashion that is extremely reliable to ensure business continuity on the shop floor.

ERP

| Flat File | XML File | MSMQ | FTP | Web Service | Database |

WEI Plug-in Application Using:

WEI Instance

Message Trasformation Delivery Engine

| Production Schedule Work Orders | Material Master | Inventory Master | Work Order Executions | Material and Labor Actuals | Inventory Transactions | Performance Actuals | Quality Execution | Quality Sample Plan |

WEI Plug-in Application for MES Software

MES Middleware

MESDB

EXTENDED MANUFACTURING OPERATIONS MANAGEMENT CAPABILITIES WITHIN THE WONDERWARE SOFTWARE PORTFOLIO

Manufacturing Intelligence

Wonderware Intelligence Software for Enterprise Manufacturing Intelligence (EMI) benefits Wonderware MES users by providing an environment for site and enterprise-wide intelligence analysis for production improvement collaboration. Wonderware Intelligence creates real-time KPIs, viewable in a web-based dashboard, for operations and IT enablement.
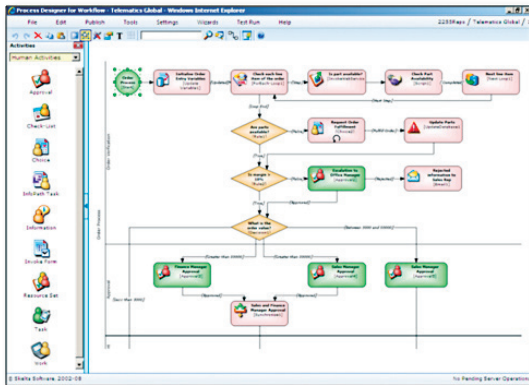

ArchestrA Workflow

The combination of ArchestrA Workflow Software with Wonderware MES Software allows users to implement electronic workflows for sign-off approvals, escalation of alarms, notifications of out-of-control conditions or any other event. ArchestrA Workflow Software drives collaborative work processes by joining Wonderware MES, Intelligence and legacy systems in the enterprise with people-driven operations into an advanced process management and workflow solution. A Wonderware MES Connector enables Wonderware MES Software to invoke or interact with workflows and provides configurable workflow activity to transact with Wonderware MES Software or to retrieve data from the Wonderware MES Database.

Mobile Solutions

IntelaTrac®, Wonderware's mobile solution, is integrated with ArchestrA System Platform, enabling you to push standardized operating procedures and data collection tasks to your mobile workers more easily than ever before.
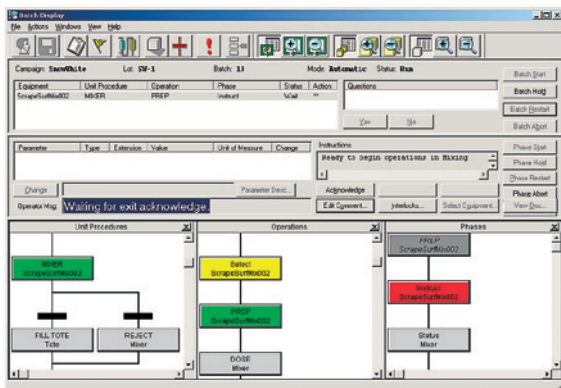
InBatch

ArchestrA System Platform provides integration with Wonderware InBatch recipe management and batch execution software which combine the batch execution capabilities of Wonderware InBatch with Wonderware MES Software capabilities. The integration enables solutions for end to end product genealogy and traceability across all production operations including the batch process operations.

TECHNICAL SPECIFICATIONS

LANGUAGE SUPPORT

Wonderware MES Software includes support for the following languages:

- English
- French
- German
- Japanese

- Russian
- Simplified Chinese
- Spanish

OPERATING SYSTEMS

Wonderware MES Software supports the Microsoft® Windows® platform for Client and Server applications including:

- Windows 2003 R2 in 32-bit architectures
- Windows Server 2008 in 32-bit and 64-bit architectures
- Windows Server 2008 R2 in 64-bit architectures
- Windows XP Professional in 32-bit architectures
- Windows Vista Business in 32-bit and 64-bit architectures
- Windows 7 Professional or Enterprise in 32-bit and 64-bit architectures

DATABASE TECHNOLOGY

Wonderware MES Software supports the following RDBMS:

- Microsoft SQL Server 2008 with Clustering in Standard or Enterprise editions in 32-bit and 64-bit architectures
- Microsoft SQL Server 2008 R2 with Clustering in Standard or Enterprise editions in 32-bit and 64-bit architectures
- Microsoft SQL Server 2012 in Standard or Enterprise editions in 32-bit and 64-bit architectures
- Oracle 10g release 2 (10.2) Standard, Standard Edition One or Enterprise edition in 32-bit and 64-bit architectures
- Oracle 11g release 2 (11.2) Standard, Standard Edition One or Enterprise edition in 32-bit and 64-bit architectures

VIRTUALIZATION

Wonderware MES Software supports the following virtualization platforms:

- Hyper-V™ SP1 included with Windows Server 2008 R2 SP1 and Microsoft Hyper-V Server 2008 R2 SP1
- VMware® ESX 3.5, ESX 4.0, ESX 4.1, ESXi 4.1, and ESXi 5.0

For more information on Wonderware MES Solutions, please visit our website, iom.invensys.com, or contact your local Invensys salesperson.

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