

Kepware's Oracle Connectivity Suite

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Kepware's KEPServerEX with New Analysis and Connectivity Plug-ins is Designed Specifically for Oracle Customers.

KEY FEATURES

Connectivity to Thousands of Devices
Over 150 Protocols
Data Aggregation
Data Analytics
Basic RDB Connectivity
Oracle MES Connectivity
Oracle MOC Connectivity

Today's businesses demand higher throughput, intelligent scheduling, reduced inventories, and automation information to reduce errors and enhance productivity. This can only be accomplished by connecting the manufacturing automation systems with enterprise business systems. Oracle has selected Kepware specifically for this purpose. Oracle business and operations management solutions can be connected in real-time with equipment and operations on the plant floor. Kepware's suite of communication products are leveraged with analytic and connectivity tools tailored for Oracle business solution products. These products include the Oracle Manufacturing Execution System (MES) and the Oracle Manufacturing Operation Center (MOC).

Kepware offers several products and options that can be combined to offer users the solution they need today, while delivering a scalable architecture that will meet future requirements. The Oracle Connectivity Suite's foundation is KEPServerEX, which provides access to over 130 manufacturing protocols (drivers). KEPServerEX presents a single, consistent interface that allows users to truly maximize equipment connectivity. Users can add multiple driver "plug-ins" within a single KEPServerEX project without worrying about learning new communication protocols or spending time understanding new applications. PLC and device drivers are supported, along with the User-Configurable Driver (U-CON) for serial and Ethernet data acquisition (which delivers connectivity to a myriad of devices, from barcode scanners to scales and RFID). KEPServerEX works on both Workstation and Server Operating Systems from Microsoft and can operate as a user or service-level application. Operating systems from Windows 2000 through Windows 7 are supported.

KEPServerEX's straight-forward installation makes it easy to select a driver. Simply set up the communications channel, and then select the driver (protocol) from the built-in list.

Once a driver is selected, users can easily reference data, events, and conditions from plant floor equipment through tags. A tag is a high-level reference to plant floor data that

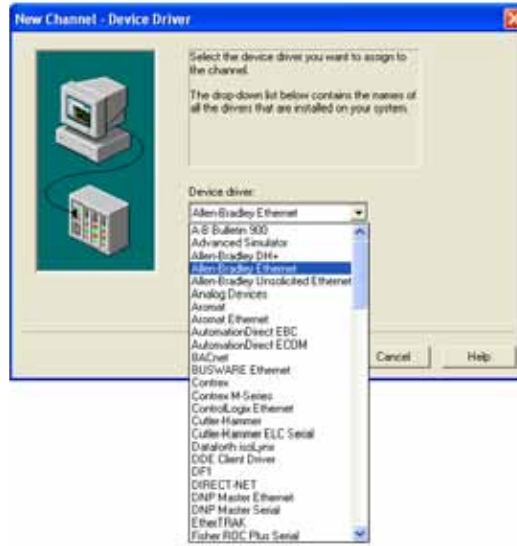


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abstracts users from all the details (protocol, data addresses, scaling, and so forth) that are needed to acquire the result. Tags deliver real-time performance data from the machine to the application.



Driver Selection

users can measure the duration of operations, totalize events, perform averages over a group of sensors, set trigger conditions for data acquisition, and combine machine conditions to generate an overall machine state. This is extremely valuable for future analytics.

Advanced Tags are similar to I/O Tags. They allow users to create an expression by browsing from existing data tags and then combining them with math and logic operators to generate a new result.

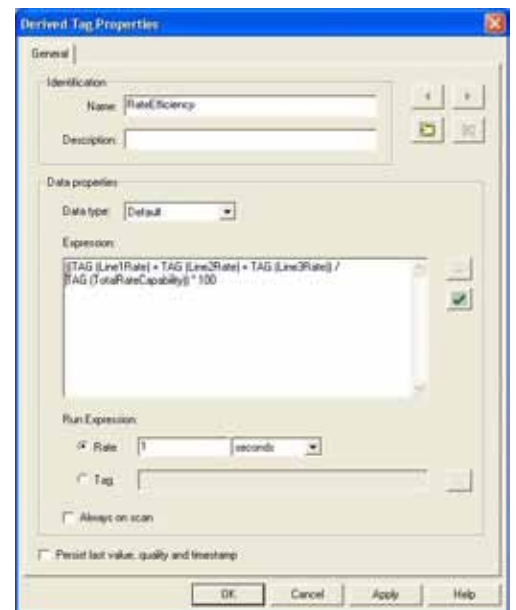
Building a Transaction for Higher-Level Analytics.

Many MES, ERP, or OPM solutions require input data in the form of predefined transactions of relevant information. For example, the result

Raw Data is Not Information.

The machines may not deliver all the data necessary for a proper operations assessment. Variables such as Cycle Time, Maximum Temperature, Downtime Reason, and so forth may not exist, but are essential for operations analysis.

For this reason, KEPServerEX offers an option called Advanced Tags, which deliver a variety of analytics. Advanced Tags contain an array of mathematical and logical operators that allow new data to be generated, or existing data to be aggregated into information suitable for higher-level archive and analysis. Through Advanced Tags,

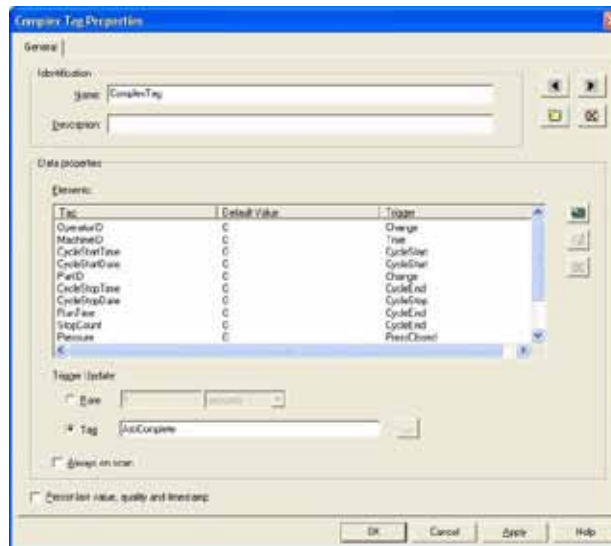


Advanced Tag Configuration



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Complex Tags

of a machine cycle might deliver a Machining Center ID, Part ID, Operator ID, Cycle Time, Number of Downtime Transitions, Total Downtime, Machine Speed, Tool Life, and so forth. This array of data can be made up of a combination of values and logic states, all bundled into one transaction. Although Advanced Tags deliver the mechanism to create the variables and events to define relevant data, another mechanism must provide the function of transaction assembly. This is the function of the Complex Tag.

Complex Tags assemble the transaction for higher-level systems by providing a data definition and a collection triggers definition for each value. Some values are simply a measurement (such as the count of parts generated during a run cycle). Other values might be correct at a moment in time, such as the maximum pressure reached at a point in a press cycle. Complex Tags define the details of the collection and transaction. They support the wide variety of collections that may exist for the plant manufacturing environment, and are the mechanism used to interface with the Manufacturing Operations Center.

Oracle Connection Options

Several mechanisms are available for sharing information with higher-level systems. They include:

- Writing Transactions to a Relational Database Table
- Writing Data to the Oracle MES Transaction Table
- Writing Data to the Oracle MOC Transaction Table

General Database Logging: Writing data to a Relational Database is accomplished through the KEPServerEX DataLogger option via ODBC. This option enables users to select I/O or Advanced Tags, and then write them to a Relational Database on either a time or event basis.

Oracle MES Logging: Writing Data to the Oracle Manufacturing Execution System is accomplished via the Kepware-Oracle MES (OMES) option for KEPServerEX. This option enables selected I/O or Advanced Tags to be written to the appropriate Oracle MES Interface Table on either a time or event basis.

Oracle MOC Logging: Writing data to the Oracle Manufacturing Operations Center is accomplished via the Kepware-Oracle MOC (OMOC) option for KEPServerEX. This option



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enables transactions of data as defined by a Complex Tag to be written to the MOC Interface Table on a time or event basis.

KEPServerEX Product Option Details

1. Device Drivers:
 - Multiple Protocols for Plant Floor Data Collection
2. Advanced Tag Option:
 - Required for Analytics (Math, Counters, and Timers) and for Event Triggering
3. DataLogger Option:
 - Required for Basic Relational Database Connectivity
4. + Oracle Connectivity Plug-in:
 - Option : OMES Option – Required for Oracle MES Connectivity
 - Option 2: OMOG Option – Required for Oracle MOC Connectivity

Product Pricing

Options	MOC	MES	Basic DB
KEPServerEX with one Standard Driver - \$895.	✓	✓	✓
Additional Standard Driver - \$895.	optional	optional	optional
Advanced Tag Option - \$1795.	✓	optional	optional
DataLogger Option - \$995.	-	-	✓
OMES Option - \$2495.	-	✓	-
OMOG Option - \$2495.	✓	-	-
Base Pricing	\$5,185	\$3,390	\$1,890

ABOUT KEPWARE

Kepware is the world leader in communication software for automation and offers unique experience in both OPC and embedded device communications. Since 1995, Kepware has focused on the development of communication drivers to automation controllers, I/O and field devices. Operating system support includes; Microsoft Windows Desktop, Server and Embedded (Windows CE and Windows NT/XP Embedded). Today, with over 150 communication protocols, and through the efforts of our direct sales, distribution and embedded partners, Kepware is the leading provider of communications with annual shipments exceeding 100,000 units.

For a complete list of the communication drivers available, refer to www.kepware.com/Products/products_OPCServers.asp. Kepware Products are available for download at www.kepware.com. All products operate in a two hour demonstration mode for installation and testing. Once Kepware is contacted for product purchase, users will be supplied with a product license key for unlocking permanent operation.

