system 302
Open Digital Ecosystem

PROCESSVIEW Product Brief

(Version 9.4)

Process Visualization and Operation Software

smar
Technology Company

SUMMARY

Introduction

Today's plant operations are faced with the need to perform better and to be more competitive with less resources. For plant-level operations, today's systems need to connect to different infrastructures for data gathering and users need to analyze and visualize data in real-time.

The **connectivity** or aggregation needed today can come from a wide range of data sources including OPC and SMNP data, PLCs, plant historians and more.

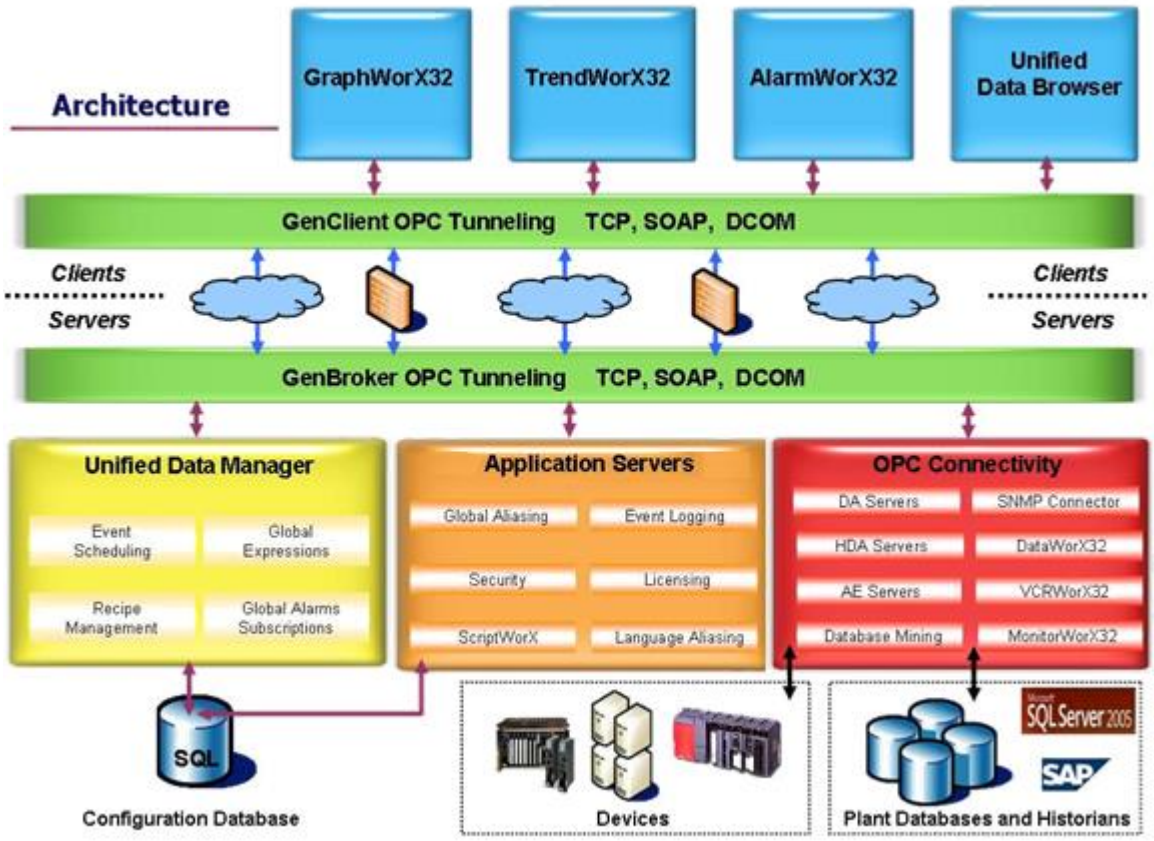
To stay competitive you need to **analyze** your plant level information in real-time in order to make necessary production adjustments.

Visualization needs to happen across many platforms, such as dedicated operator stations, pocket and wireless devices and via web browsers.

PROCESSVIEW Overview

SMAR PROCESSVIEW™ is the industry's first and only fully scalable suite of OPC, SNMP, Web-enabled HMI and SCADA applications. Designed from the ground up to take advantage of the entire range of Microsoft® Windows® operating systems, the PROCESSVIEW Automation Suite delivers unparalleled performance and cost savings due to its design around open standards.

PROCESSVIEW V9.4 centers on easy and reliable integration of information from the most popular communication infrastructures. With V9.4 it is easy to connect to the core sources of information affecting manufacturing, including: IT infrastructures monitored by SNMP, plant floor infrastructure communicating over OPC, and enterprise infrastructures, such as SAP and Oracle, through real-time, intelligent data mining. The PROCESSVIEW HMI/SCADA software suite incorporates these infrastructures to provide the most flexible connectivity for machine builders, automotive, pharmaceutical, oil and gas, water, energy and utilities and many other applications. Several new products have been introduced, including new DataWorX™32 Redundancy, OPC Tunneling, MonitorWorX™32 and ScheduleWorX™32. This all-new version also incorporates powerful data-mining and integration technology that enables visualization and reporting of real-time or enterprise data sources, including Microsoft SQL Server, SAP, Oracle, plant historians, SNMP, and OPC data.



NEW FEATURES AND BENEFITS IN PROCESSVIEW V9.4

Features	Benefits
New WorkBench™32	Provides a centralized web-based environment for PROCESSVIEW configuration and monitoring with a Pack and Go feature for faster project deployment
New PROCESSVIEW Navigator	Unified runtime environment allows user to configure and monitor live and historical alarms in a unified environment with Tree control for tailored organization of system
New BACnet Connector	Built-in BACnet connectivity and browsing to BACnet devices and systems
Native SNMP Network Management	Add the ability to report on the status of Ethernet routers, switches, hubs, network printers or any other SNMP device Link SNMP data with your production data for valuable KPI, OEE, and downtime reporting
New MonitorWorX™32	Stay informed about the health and status of any application and component on your

	network with one centralized view
DataWorX32 Standard and Professional Editions	Purchase the OPC solution that fits your application from OPC Tunneling for 3rd party products to complete OPC redundancy
New AlarmWorX™32 Multimedia	Server alarms to Microsoft Live Communication server, new IP telephony applications and new marquees
New TrendWorX™32 SQL Query Engine	Provides a powerful SQL Query interface for the TrendWorX32 logger
Unified Data Manager	Easily configure recipes and schedules from one centralized configuration window
OPC UA (Unified Architecture)	Connectivity for Data Access clients and servers across LANs and WANs in an IT firewall-friendly way using Web services
New ScriptWorX™2010	Now run your VBA scripts as an Windows service and take advantage of using global OPC variables for faster application development
Certified SAP BAPI Support	Tap into your SAP enterprise system
New GraphWorX™32 Capabilities	Use the new tool bars and the new GUI look and feel to create larger graphic files
New Open Data-mining Technology	Connect to Microsoft SQL Server 2008, Oracle, Microsoft Access, ODBC, OLEDB, SAP and virtually any other database source

Visualization

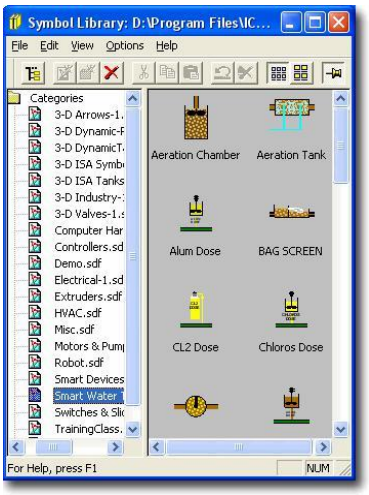
With one development tool for multiple targets, you can create impressive, scalable and portable visualization, trending, and alarm management displays using SMAR easy point and click development tools.

The PROCESSVIEW development studio can run will run on Microsoft Windows 32-bit and 64-bit operating system platforms, including Windows 10, Windows 8, Windows 7, Windows Vista, Windows Server 2003, Windows Server 2008, Windows Server 2008 R2, Windows XP Professional.

SMAR PROCESSVIEW is the industry's first and only fully scalable suite of OPC Web-enabled HMI and SCADA applications and is ideal for all industries. Designed from the ground-up to take maximum advantage of the entire range of Microsoft Windows platforms, PROCESSVIEW is a full featured scalable HMI.

GraphWorX™32

GraphWorX32 is a human-machine interface (HMI) software package for process control. This fully compliant OPC client featuring ActiveX® and OLE Automation technologies helps create dazzling animated graphics. Available in the standard PROCESSVIEW suite of applications, or as a stand-alone Open Series component, GraphWorX32 offers unparalleled tools for easily creating the content you need for efficient operations.



As with all SMAR products built on the OPC-To-The-Core technology, GraphWorX32 is an OPC Data Access client application. That means it can easily plug-n-play not only with SMAR servers and components, but also with other 3rd-Party hardware interface drivers and software.

GraphWorX32 V9.4 has many new features and has been greatly optimized for maximum overall performance, allowing graphic displays with object counts greater than 65,000 objects. With this optimization, users can build very large rich displays with many layers and take greater advantage of the clutter and declutter capabilities. GraphWorX32 V9.4 has also taken on a new Microsoft Windows XP look and feel with toolbars, icons and dialog boxes built to conform to the latest Windows operating systems.

There are several modules that together comprise GraphWorX32:

Graphics Development & Runtime Environment

At the heart of GraphWorX32 is the powerful yet easy to use development environment for creating animated displays. Using 32-bit multithreaded, symmetric multi-processor technology, your information is effectively conveyed to operators with the performance it demands. These scalable graphics can be developed and then deployed across all Microsoft Windows including Windows 10, Windows 8, Windows 7, Windows Vista, Windows Server 2003, Windows Server 2008, Windows Server 2008 R2, Windows XP Professional.

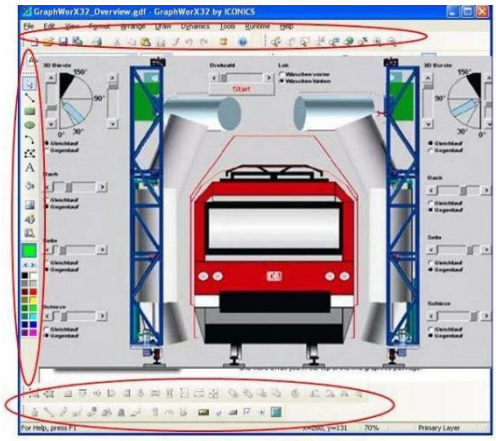
Combine drawings, operating procedures, quality reporting, and recipe management directly into your operator displays using your choice of several powerful ActiveX Controls or the built-in Microsoft Visual Basic for Applications (VBA) Scripting Language.

Integrate with Corporate Information Systems, Batch, MES, ERP and standard Microsoft Office applications such as Excel, Access and SQL. Use GraphWorX32 as your Web Browser plug-in for Internet, Intranet and remote visualization.

This award-winning HMI software can be seen running in Microsoft "Envisioning Centers" across North America. SMAR has been working with Microsoft to integrate our products into these virtual presentations. GraphWorX32, combined with WebHMI, demonstrates a manufacturing facility, showing the dazzling graphics easily created with SMAR.

Here are just some of the advantages offered by GraphWorX32:

- Resolution Independent Graphics
- Scalable Displays
- Smooth Gradients & 3D Effects
- Animate WMFs, Bitmaps, more
- Drag-n-Drop Configuration
- Visual Basic Scripting
- Web-ready Graphics
- CAD-style Layering
- Analog Color Change Dynamic
- Animator Dynamic
- Object-based Symbols
- Group Drill-down
- Pop-up Keypads/Keyboards



Icons with New look and Feel

- ActiveX Container
- Time Saving Aliases
- Native Web Browsing

- Graphics Templates
- Customized Pop-up Menus
- Multi-path Location Dynamic
- Clutter/De-Clutter Zoom
- Symbol Wizards
- Built-in Language Switching
- Pop-up Runtime Tool-tips
- State Fields
- Multi-screen Capability
- Advanced Expression Editor
- Visually Define Rotations, Sliders
- And Much More!

GraphWorX32 Viewer ActiveX Control
Drop this ActiveX Control in an HTML Internet-/Intranet-based Web page, or any other ActiveX Container, and it's ready to display your animated graphics. You can even embed it within another GraphWorX32 display for a "picture -in-picture" type effect. Combined with drag-n-drop pick actions, this module greatly expands your design possibilities for putting together an efficient and effective operator interface.

GraphWorX32 offers a FREE development system, so there are no major up-front costs to begin working with this suite of top-of-the-line tools. GraphWorX32 also has a couple of optional Add-on Components that can be added to any project needing these additional features:

- **Symbol Library** - Additional symbols for use in creating displays
- **ActiveX ToolBox** - A collection of powerful OPC Animated ActiveX Controls
- **Pocket GraphWorX** - Deploy your HMI Displays to handheld Pocket PCs

Graphical Object Drawing Tools

GraphWorX32 displays. Draw objects, such as circles, boxes, and ellipses, using the drawing tools available from the Draw menu. Also, define various formats for these objects, including line style and weight, text fonts, custom colors and background colors, using the Format menu.

Draw Toolbar

In Configuration mode, users can design displays, creating static and dynamic objects, setting general display properties, etc. Static objects are typically created on screen and then modified via the property inspector (some static objects, such as polylines, arcs, and text, also have additional on-screen editing capabilities). Dynamic objects are also configured via a Property Inspector.

The Draw functions allow users to create display objects using various drawing tools. Create complex drawings by grouping different display objects. The Draw functions are located in a Draw menu or toolbar.

A Format menu provides options for layers, formatting line color, line style, line width, font type, and background color for the intended display. It also allows users to fill and unfill selected objects, to freeze and unfreeze objects, and to define font style and size.

Object Animation Tools

With the Animator connection, objects connected to selected data points can be animated on screen based on the value of the data points.

Layers, Zooming, and Rotation

The use of layers in GraphWorX32 allows categorization of elements in the display and separation into levels of detail through decluttering. Layers can be added, removed, or duplicated using the Layers command on the Format menu. Users can also edit the layer properties, set the active layer, set the next layer, set the previous layer, hide layers above the current layer and hide layers below the current layer.

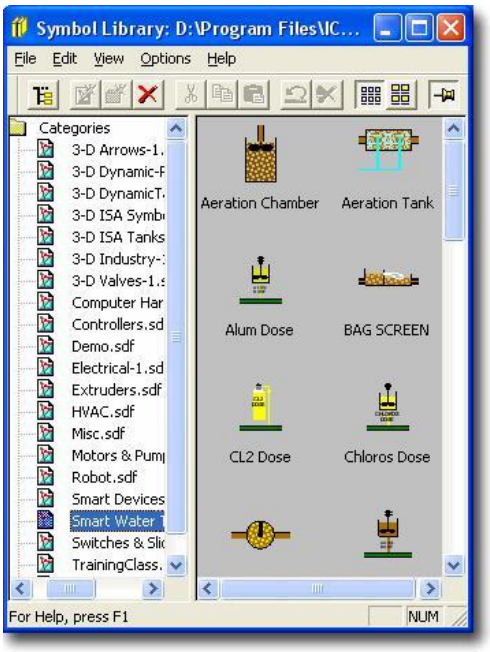
Layers allow operators to turn off aspects of a complex screen, making it easier to see a problem.

The Rotation function allows users to rotate a selected object freely, rotate left and right, and flip the object horizontally and vertically.

Complete Symbol Library

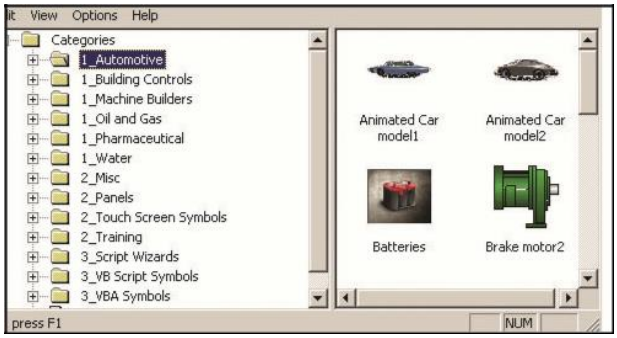
GraphWorX32 comes with a Symbol Library utility that helps store and categorize your graphic elements used in making your HMI displays. In addition to the initial set of symbols included, you can purchase an advanced symbol set or even create your own. Just drag-n-drop objects into a library category. Not only are the visual objects stored, but all dynamics and even any associated VBA scripts as well.

The stand-alone Symbol Library is a GraphWorX32-independent program visually similar to Windows Explorer. A Tree View shows directories and categories (.sdf files) on the left-hand side, and a Control View shows images of the current category on the right-hand side.



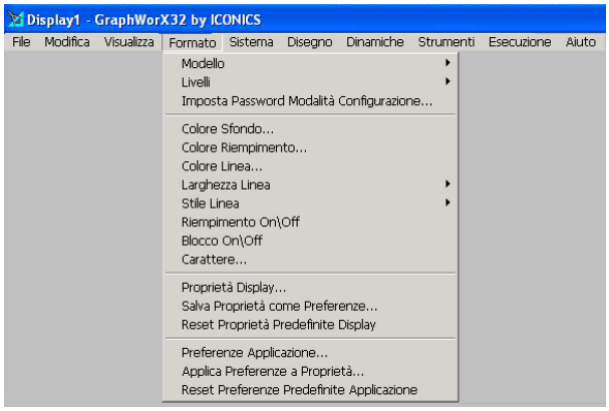
Stand-Alone Symbol Library Screen

The current design supports a multilevel hierarchy of categories. This hierarchy is characterized by a standard directory structure. This simplifies the reorganization of the library because standard Windows tools can be used for creating, renaming, moving, and deleting directories. There can be an unlimited number of categories in any directory. A category is a file containing an unlimited number of GraphWorX32 symbols. It stores any type of symbol.



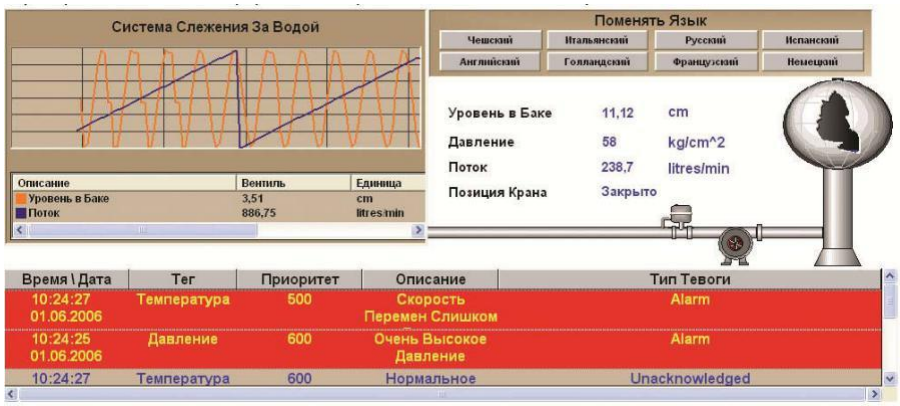
Runtime Language Switching

PROCESSVIEW includes language-aliasing support provided by the Language Configurator. PROCESSVIEW supports language aliasing with automatic range and value scaling, as well as unit conversions, formatting, and font selection in Chinese, Czech, Dutch, English, French, German, Italian, Russian and Spanish.



Italian Configuration Screen

The Languages tree control shows all languages in the configuration database. The Language Configurator provides Czech, Dutch, English, French, German, Italian, Russian, and Spanish (Chinese not yet supported in configuration) as default languages. When you click on a language, the language name and description are displayed in the right-hand pane. You can include additional comments in the Description field. The "Enable Translations for This Language" check box is checked by default. If you prefer a regional language, you can search for a Regional Specification of a particular language by clicking the Browse button. The Locale ID that corresponds with the selected language is also displayed.

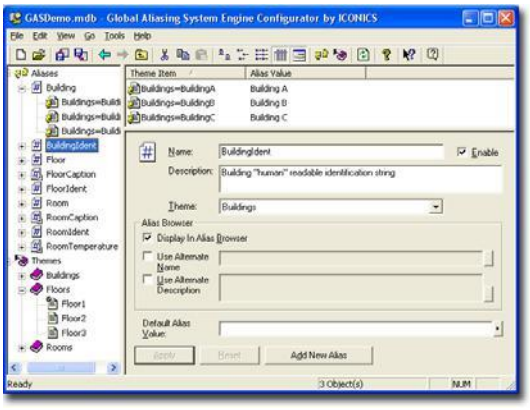


Russian Runtime Screen

You can add a new language to your configuration database. You can also add language subsets, which allow you to create an additional configuration to be used with a language.

Global Aliasing

GraphWorX32 supports document level, process level, and machine level global aliasing. A global alias is a data string that enables referencing of multiple data sources (e.g. a process point in GraphWorX32) with one unique name. Because multiple data sources can be referenced from a single location, global aliasing can reduce the overall number of required individual display files.

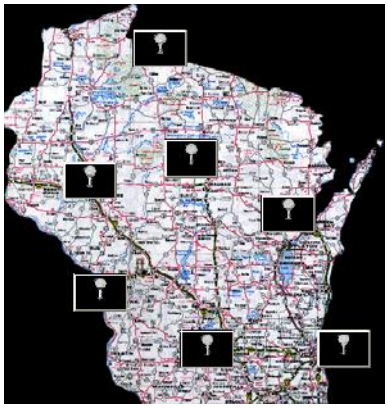


Global Aliasing System Engine Configurator

Global aliasing is integrated into the following GraphWorX32 features:

- Support for visible objects (rectangles, ellipses, lines, etc.)
- Support for dynamics (size, location, rotation, etc.)

- Support for text objects (text, button, etc.)
- Support for display buttons
- Support for state fields
- Access the Global Alias Browser from the description and language edit boxes for Analog Selector, Animator, Color, ColorAnalog, and Digital Selector
- Flash, Hide, Location, Pick, Process Points, Rotation, Size, Time/Date State Fields and connected the code behind the pages.
- Display Properties
- Pick action Select GAS (Global Aliasing System) Theme



Map Screen Utilizing Aliases

The Global Aliasing System is a powerful feature implemented in PROCESSVIEW clients and servers, GraphWorX32, WorkBenck32, TrendWorX32, and AlarmWorX32. Global aliases are stored in the central standard global database and can be accessed over the network from miscellaneous clients. To provide a reasonable performance, the local clients do not connect directly to the database (Global Aliasing Engine Server), but they communicate with a Global Aliasing Client, which will obtain the requested information and cache it locally.

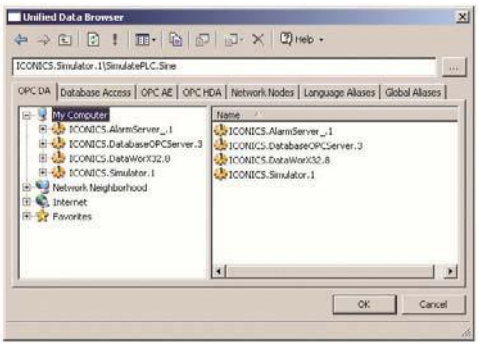
Unified Browser

Clicking the Data Tags button in the Property Inspector opens the Unified Data Browser. This feature allows you to select OPC tags, SNMP data sources and database connections.

Important features of the Unified Browser include:

- Unified look and feel Open architecture Multi-threaded
- Multi-tabbed browser interfaces Resizable window
- Movable split bar separating the tree control from the item viewer
- The most recent information displayed and the tree location maintained even after you have closed the dialog box.
- The tree control will update a branch's child information by highlighting the branch in the tree control and clicking the Refresh button.
- Copying the registry information to the local computer is not necessary for network configuration.
- Support for multiple tag selection (available only for specific applications).

The Unified Browser allows you to conveniently browse for several basic types of data from a single location accessible from most PROCESSVIEW applications, including:



Unified Data Browser

- OPC tags
- Aliases
- Variables
- Network nodes
- Databases

A tag (sometimes called a "point") is a specification that, once sent to a client, will direct your customized software to perform a desired function. For example, a tag can direct your TrendWorX32 application to provide trending information at predetermined time intervals.

Using an intuitive point-and-click interface, the Unified Browser enables you to:

- Configure OPC Data Access (DA) points (or tags).
- Obtain OPC Alarm and Events (AE) server information.
- Configure OPC Historical Data Access (HDA) tags.
- Data-mine databases, such as Microsoft Access, Microsoft SQL Server, Microsoft Excel, and Oracle.

The Unified Browser performs the previously mentioned functions for SMAR OPC clients and OPC third-party clients that support drag-and-drop, an OPC specification. To accomplish this, the Browser uses the OPC interfaces to connect to OPC data servers through COM and DCOM. This connection also allows the Browser to support network tag configuration without additional user configuration being necessary.

You can also use the Unified Browser to select from the following types of aliases and variables:

- Local aliases
- Global aliases
- Language aliases
- Local variables
- Simulation variables

Graphical Historical Replay Control

VCRWorX32 is a powerful tool in PROCESSVIEW that enables the replay and reanimation of graphical, historical and alarm data.

Features of VCRWorX replay include:

- Replay of OPC data
- Reanimation of graphics
- Re-plotting of trends
- Replay of alarms
- See what the operator saw through replay of graphical displays
- VCRWorX Control Panel with customizable skins/layouts
- Change the replay speeds
- Specify time and date ranges for data replay
- Search for key events, tags, and expressions
- Customize the layout and appearance using skins

The VCRWorX Control Panel, with fast forward and rewind abilities, is the user interface that enables you to configure your historical data replay time and date settings.

VBA Scripting Engine

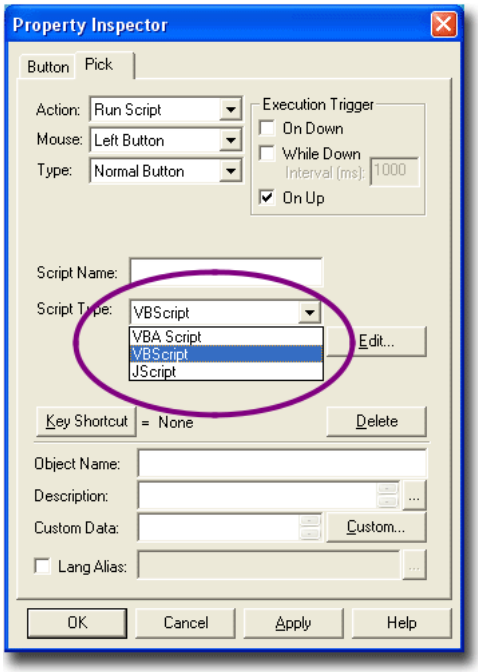
GraphWorX32 has a Visual Basic for Applications (VBA) integrated editor, which allows writing of VBA Script. This is a powerful tool that allows easy expansion of GraphWorX32 functionality. In order to run a VBA Script,

a PC must have the VBA Runtime Engine. This engine cannot be delivered through the Internet on a thin-client machine because it takes a lot of disk space and requires a long download time.

Because of this, in the past, SMAR has decided to remove VBA support from WebHMI and the other "lightweight" products, such as Pocket GraphWorX. So it is impossible to use the power of VBA and the advantage of the thin -client technology of WebHMI. Many users develop two different sets of displays: one set with VBA for the desktop workstation, and another set without VBA for the WebHMI thin client. This requires additional work needed to strip out the VBA code and redesign the display.

As a solution to the problem described above, GraphWorX32 features a scripting engine that can parse VBScript and Jscript code. This engine is lightweight and can easily be distributed over the Internet to any thin-client machine. When you plan to use the scripting technology for enhancing GraphWorX32 features and also plan to use thin-client technology, such as WebHMI, you should use the new embedded scripting engine and write your code either in VBScript or Jscript instead of Visual Basic for Applications. You can now design one unique display with script and WebHMI support, without having to manage multiple displays.

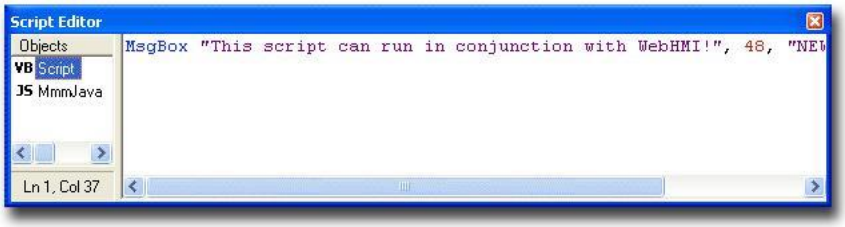
The new scripting engine for VBScript and Jscript does not have all the power of a full VBA engine, so some features are not supported. There are many limitations, but the largest one is probably the fact that it is impossible to handle events coming from ActiveX or other controls embedded inside a GraphWorX32 display.



The scripting engine is able to handle the most important display events, and all the pick actions, but it is currently impossible to fire new events. An additional limitation is that VBScript and JScript do not support forms, so it is impossible to create user interface elements different from a simple message box or input box.

Note: Enumeration constants do not work in the VBScript editor. The corresponding numeric value must be used. For example the following line of code opens a display and sets the aliases values by reading them from a file.

ThisDisplay.FileOpenSetAliases("myFileName.gdf",AliasSetFromFile, "AliasCommandString.txt")



In VBScript and JScript you must replace the enumeration constant AliasSetFromFile with its corresponding numerical value, which is 1. This is how the line will look in VBScript:

ThisDisplay.FileOpenSetAliases("myFileName.gdf", 1, "AliasCommandString.txt")

Note: For information about writing VBScript and JScript, please see the Microsoft Windows Scripting Help.

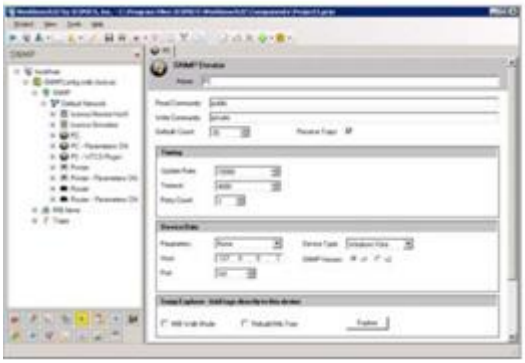
Displaying the Script Editor

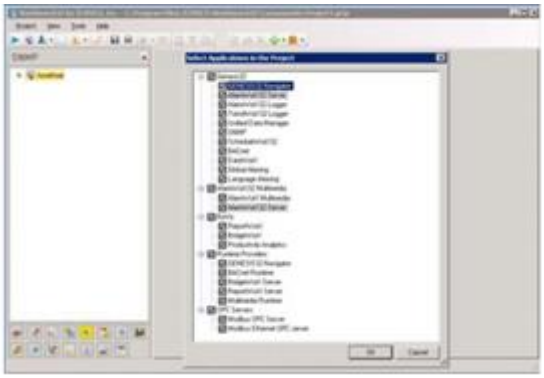
The integrated Script Editor appears as a toolbar in the GraphWorX32 display. It can be dragged around the display as a floating window or it can be docked in place on one of the four display sides. You can resize the

toolbar (both docked and floating) at any time by dragging its border. The script editor is an integrated toolbar, so you do not need to "open" it. Instead you just "show" or "hide" it by selecting Toggle Script Toolbar from the View menu.

WorkBench™32

The New **WorkBench™32** provides centralized web-based environment for **PROCESSVIEW** system configuration and monitoring.

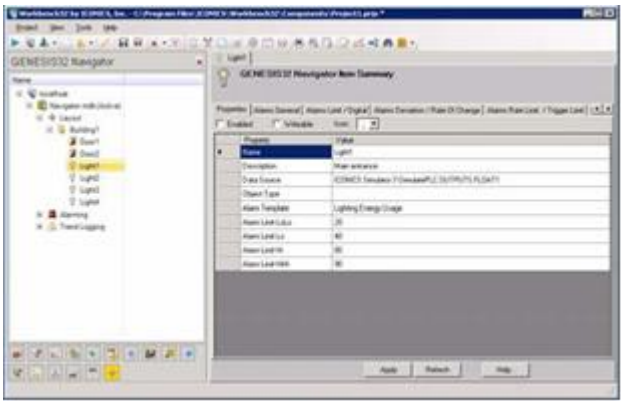




- Enables configuration of SMAR PROCESSVIEW servers from one workspace. The servers include AlarmWorX32 Server, AlarmWorX32 Logger, TrendWorX32 Logger, Unified Data Manager, ScheduleWorX32, DataWorX32, Global Aliasing, Language Aliasing, and the SMAR Modbus (Serial OPC Server). Support for additional servers will be added in future releases.
- Supports remote web-based configuration
- Includes New Tag import capability in several of the configurators
- Project Pack and Go feature for faster project deployment
- Added support for ReportWorX and BridgeWorX

The New **PROCESSVIEW Navigator** with a unified configuration and runtime environment that allows you to configure and monitor live and historical alarms in one unified environment. The new integrated configuration and runtime tree control allows you to do the following:

- Organize your system into a logical or geographic based view
- Use tree-based runtime navigation to graphic displays and to alarm views specific to areas of the plant or facility
- Provide alarm summary information organized by area
- *Added* support for browsing WebHMI displays



ScriptWorX2010

The robust, stand-alone ScriptWorX2006 application now runs as an Windows service.
ScriptWorX2010 allows the creation and management of Visual Basic for Applications (VBA) scripts. ScriptWorX2006's unique multi-tasking, multi-processor environment allows multiple scripts to run concurrently. User-defined VBA scripts can perform OPC read-and-write operations to any OPC server, which interfaces to factory floor devices, such as PLCs and other OPC-compliant servers. ScriptWorX2010 simultaneously performs calculations, manages databases, and executes any operation available in the VBA language to access reports or perform recipe operations. ScriptWorX2010 also offers project-level scripting as part of PROCESSVIEW.

ScriptWorX2010 V9.4 is closely integrated with the new MonitorWorX and TraceWorX™32 functions. ScriptWorX2010 also takes advantage of the new Unified Data Manager with its extensive centralized support for scheduling. VBA 6.4 scripts can be scheduled and configured for execution once or repeated daily, weekly, or monthly, and perform reliably on a 24 x 7 x 365 yearly schedule with a simple point-and-click interface. Scripts can be triggered based on OPC DA or AE events as well as file events.

Connectivity (Based on Industry Standards)

PROCESSVIEW from SMAR can connect to virtually any industrial automation device due to its powerful OPC-to-the-Core™ and SNMP auto-discovery technology. Any OPC compliant data server or SNMP data point can easily connect to any PROCESSVIEW application. According to ARC Advisory Group, OPC usage is expected to grow more than 60 percent for HMI/SCADA systems in the next five years.

With open data -mining technology, PROCESSVIEW connects to Microsoft SQL Server, SQL Server Express, Microsoft Access, SAP, Plant Historians, SMAR BizViz Manufacturing Intelligence suite, or any ODBC compliant data source. This connectivity allows for on-demand reporting, with advanced analytics that help decision makers visualize trends, perform root-cause analyses, and identify opportunities for performance management and improvement.

BACnet Connector

The New **BACnet Connector** provides built-in BACnet connectivity to BACnet devices and systems, with BACnet browsing as well as an option to pre-configure BACnet tags and other important new features

OPC Overview

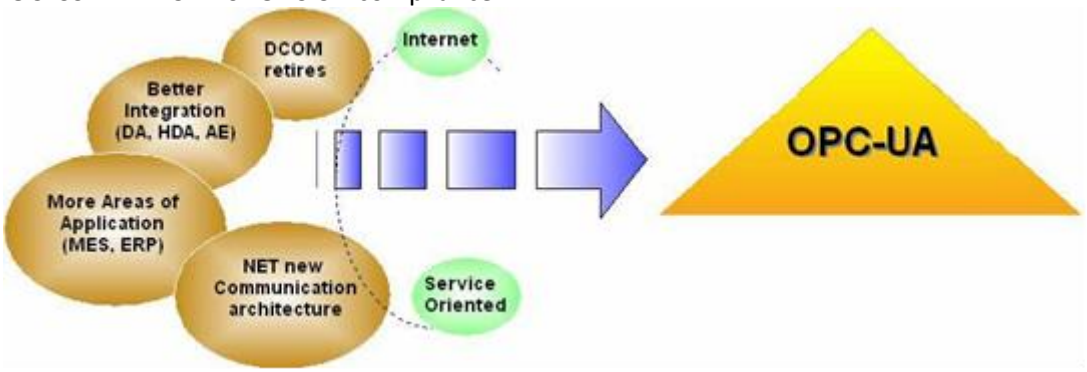
OLE™ for Process Control (OPC™) is a standards-based approach for connecting data sources (e.g. PLCs, controllers, I/O devices, databases, etc.) with HMI client applications (graphics, trending, alarming, etc.). It enhances the interface between client and server applications by providing a universally supported and well-documented mechanism to communicate data from a data source to any client application.

In the old/traditional case, each client is required to write its own set of servers to the devices. This is due to the fact that although the protocol of a device or a server may not change, the architectures of the different client applications (from different vendors) are different. This leads to increased load on the machine, work in setting it up, costs for doing the project, and time needed to implement the solution. If the device or server's protocol is changed or updated, then each of the client applications must also change.

Connectivity

OPC Connectivity is the widely accepted standard that more companies are using to communicate. According to ARC Advisory group, OPC usage is expected to grow to more than 60 percent for HMI/SCADA systems over the next five years.

OPC Foundation has provided OPC UA wrappers, which provide connectivity for Data Access clients and servers across LANs and WANs in an IT firewall-friendly way using Web services. SMAR has integrated and tested PROCESSVIEW V9.4 for OPC UA compliance.



OPC Foundation Unified Architecture Integration with Web Services

OPC Architecture was introduced by the OPC Foundation mainly to overcome this issue. By following the OPC Architecture, a device needs only one standard driver, which is an OPC-compliant server. All OPC-compliant client applications can then be connected to that device, either locally or over a network. Furthermore, connections can be made to more than one OPC server at the same time.

Any OPC client application can connect to any OPC server. In other words, OPC offers true Plug-and-Play capability in the fields of HMI and industrial automation. OPC server types include OPC Data Access (DA), OPC Alarm and Events (AE), and OPC Historical Data Access (HDA).

OPC Servers

There are literally hundreds of OPC servers available on the market today. Each OPC server has variations on the steps for using its configuration tools. You will ultimately use the actual OPC server connected to your real I/O. PROCESSVIEW "Plugs and Plays" with the powerful open communication architecture of OPC.

Server Category	Server Name
ABB	ProcessX ABB Advant (IMS) OPC Server ProcessX ABB Advant GCOM OPC Server
ADACS	ProcessX ADACS OPC Server
ADAM	Merz ADAM 4000 OPC Server Fastwel ADAM OPC Server AdvanTECH ADAM OPC Server Fastwel ADAM 4000/5000 OPC Server
Allen-Bradley	Applicom ABDF1 OPC Server SMAR AB OPC Server SST DH+ OPC Server Kepware AB DF1 OPC Server ProcessX AB OPC Server Merz AB DF-1 OPC Server Cyberlogic DHX OPC Server Suite
Analog Devices	Kepware Analog Devices 6B Series OPC Server
AnchorNT SoftLogic	Kepware Performance Software AnchorNT OPC Server
Andover	Prosoft ANI OPC Server
Aromat	Kepware Aromat Computer Link OPC Server
BACnet	Cimetrics BACnet OPC Server Innovex BACnet OPC Server JCI BACnet OPC Server
Bailey	ProcessX Bailey IC103 OPC Server RoviSys OPC90 OPC Server ProcessX DDE OPC Server ProcessX Bailey INFI-90 OPC Server
Beckhoff	SMAR Beckhoff TwinCAT OPC Server
Bristol Babcock	Bristol Babcock Open Enterprise OPC Server SMAR Bristol Open BSI OPC Server
CAL Controls	CAL Control CAL Server
CANOPEN	Hilscher CANOPEN OPC Server Synergetic Micro CANOPEN OPC Server

CITECT	ProcessX CITECT OPC Server
Contrex	Kepware Contrex CX1000 OPC Server
	Kepware Contrex M Series OPC Server
CONTROLNET	Hilscher CONTROLNET OPC Server
	Synergetic Micro CONTROLNET OPC Server
	SST CONTROLNET OPC Server
Cutler-Hammer	Kepware Cutler-Hammer D50/D300 OPC Server
Data Link	Applicom Data Link OPC Server
DDE	SMAR DDE OPC Server
	Merz DDE-to-OPC Server
DeviceNET	SST DeviceNET OPC Server
	Synergetic Micro DeviceNET OPC Server
	Hilscher DeviceNET OPC Server
DNP3	Triangle MicroWorks SCADA Data Gateway
	Imperious Technology OPC Server
Endress+Hauser	Kepware Endress + Hauser Memolog OPC Server
Ethernet I/O	OPTO 22 SNAP Ethernet I/O OPC Server
Ethway	Schneider Ethway OPC Server
	Applicom Ethway OPC Server
Eurotherm	ProcessX Eurotherm 800 Series OPC Server
Fastwel RIO	Fastwel RIO-7000 OPC Server
FieldBUS	Hilscher FieldBUS OPC Server
	Synergetic Micro FieldBUS OPC Server
Fieldpoint	National Instruments Fieldpoint OPC Server
Fipway	Applicom Fipway OPC Server
	Schneider Fipway OPC Server
Fischer & Porter	Kepware Fisher & Porter Micro DCI OPC Server
Fisher-Rosemount	ProcessX Fisher-Rosemount SCI OPC Server
	ProcessX Fisher-Rosemount RNI OPC Server
	Delta-V OPC Server
Foxboro I/A	ProcessX Foxboro I/A Solaris OPC Server

	ProcessX Foxboro I/A Windows NT OPC Server
Gello	Gello OPC Server
General Electric	Kepware GE Fanuc Ethernet OPC Server
	Applicom GE SNPX OPC Server
	Merz GE Fanuc SNPX OPC Server
	Kepware GE Fanuc Series 90 SNP OPC Server
	Kepware GE Fanuc Series 90 SNPX OPC Server
	Kepware GE Fanuc Series 90 CCM OPC Server
	Eldridge GE Genius OPC Server
PROCESSVIEW OPC	SMAR GEN OPC Server
Hilscher CIF	Hilscher CIF OPC Server
Honeywell	Prosoft HXO OPC Server
	Soft Yon Excel 5000 OPC Server
IDEC	Kepware IDEC OPC Server
IEC 60870-5	Triangle MicroWorks SCADA Data Gateway
Industrial Ethernet	Applicom Industrial Ethernet OPC Server
Intelligent Actuator	Kepware GE Fanuc Series 90 CCM OPC Server
Intellution FIX	ProcessX Intellution FIX OPC Server
InterBUS	Phoenix Contact InterBUS OPC Server
	Synergetic Micro InterBUS OPC Server
	Hilscher InterBUS OPC Server
InterBUS-s	Applicom InterBUS-S OPC Server
Johnson Controls	JCI CCTV Controller OPC Server
	JCI Encore/Performer OPC Server
	JCI N1 OPC Server
Kessler-Ellis Products	Prosoft DSC I/O OPC Server
	Kepware KEP Universal Protocol OPC Server
Klockner-Moeller	SMAR Moeller OPC Server
Koyo	Merz Koyo DirectNet OPC Server
	Kepware Koyo PLCDirect Ethernet OPC Server
	Eldridge Koyo DirectNet OPC Server

	Eldridge Koyo Ethernet OPC Server
	Kepware Koyo PLCDirect DirectNet OPC Server
Leakwarn	ProcessX Simulation Leakwarn OPC Server
Lecom	Merz Lecom OPC Server
Lonworks	Synergetic Micro Lonworks OPC Server
	Hilscher Lonworks OPC Server
Mitsubishi	Kepware FX NET OPC Server
	Kepware Mitsubishi A Series OPC Server
	Merz Melsec FX OPC Server
	Kepware Mitsubishi FX FPP OPC Server
Modbus	Schneider Modbus OPC Server
	Kepware Modbus Serial Slave RTU OPC Server
	Merz Modbus Package
	Merz General Modbus/Jbus Master OPC Server
	Applicom Modbus OPC Server
	Merz General Modbus/Jbus Slave OPC Server
	Kepware Modbus Serial Master RTU OPC Server
	Kepware Modbus Serial Master ASCII OPC Server
	Kepware Modbus Ethernet Master/Slave OPC Server
	Extended Modbus OPC Server
	Triangle MicroWorks SCADA Data Gateway
	SMAR Modbus OPC Server
Modbus+	SMAR Modbus+ OPC Server
	Triangle MicroWorks SCADA Data Gateway
	Kepware ModbusS+ OPC Server
	Schneider Ethway OPC Server
Modicon	ProcessX Modicon OPC Server
	Cyberlogic MBX OPC Server Suite
Moore Industries	Moore Industries 354 OPC Server
Moore Products	ProcessX Moore Mycro OPC Server
	SMAR Moore Procidia LIL OPC Server

	SMAR Moore Procidia Modbus OPC Server
National Instruments	National Instruments NI-DAQ OPC Server
OCI	SMAR OCI OPC/Call-R Server
ODBC	ProcessX ODBC OPC Server
Omron	Kepware Omron Host Link OPC Server
	SMAR OMRON OPC Server
OPTO	Eldridge OPTO Ethernet OPC Server
	Eldridge OPTOMux OPC Server
Partlow	Kepware Partlow Modbus RTU OPC Server
	Kepware Partlow ASCII OPC Server
PPI/PPI+	Applicom PPI/PPI+ OPC Server
ProConOS	KW Software ProConOS OPC Server
Profibus	Softing Profibus DP OPC Server
	Synergetic Micro Profibus OPC Server
	SST Profibus OPC Server
	Applicom Profibus OPC Server
	Hilscher Profibus OPC Server
	Applicom Profibus-S7 OPC Server
RS Linx	Rockwell RS Linx OPC Server
SAIA	Merz SAIA S-bus OPC Server
	Applicom SAIA OPC Server
SDS	Synergetic Micro SDS OPC Server
	Hilscher SDS OPC Server
Siemens	Merz Simatic RK512 OPC Server
	Merz Simatic MPI OPC Server
	Siemens S7 OPC Server
	Eldridge TI 505 RS-232 OPC Server
	Eldridge TI TCP/IP OPC Server
	Merz Simatic AS511 OPC Server
Siemens	Merz Siemens Package
	Kepware Simatic 505 OPC Server

	Applicom Siemens 3964 OPC Server
	ProcessX Siemens LSX OPC Server
	Kepware Siemens S7-200 OPC Server
	Applicom TI DIR OPC Server
	ProcessX Siemens TI 505 OPC Server
SNMP	COI Software IndustrialSNMP OPC Server
SQL	ProcessX Microsoft SQL OPC Server
SquareD	Kepware SquareD SY/MAX Point-to-Point OPC Server
Sucoma	Applicom Sucoma OPC Server
Sysmac-way	Applicom Sysmac-Way OPC Server
	Merz Sysmac Hostlink OPC Server
Telemecanique	Kepware Telemechanique UnitelWay OPC Server
Texas Instruments	ProcessX TI TCP/IP OPC Server
TIWAY	Kepware TIWAY Host Adapter OPC Server
Toshiba	Kepware Toshiba G3 Drive OPC Server
	Kepware Toshiba Computer Link OPC Server
Toyopuc	Kepware Toyopuc PC2 Computer Link OPC Server
	Kepware Toyopuc PC2 Ethernet OPC Server
	Kepware Toyopuc PC3 Ethernet OPC Server
Triconex	ProcessX Triconex OPC Server
Unitelway	Applicom Unitelway OPC Server
	Schneider Unitelway OPC Server
Universal Data Access	ProcessX UDA OPC Server
Valmet	ProcessX Valmet CQ-120 OPC Server
	ProcessX Valmet Damatic XD OPC Server
	ProcessX Valmet Micro IC OPC Server
West	ProcessX West Series 3010 OPC Server
Yokogawa	SMAR Yokogawa Green Series OPC Server
	ProcessX Yokogawa Centum OPC Server
	SMAR Yokogawa Darwin OPC Server

DataWorX™32

DataWorX32 is a 32-bit, multithreaded, OPC-compliant client and server application providing multiple-functionality that conforms to Microsoft COM/DCOM program practice. DataWorX32 is a component of the PROCESSVIEW product family, and it serves as a project-level data system for PROCESSVIEW applications. Acting as a bridge between various OPC servers, DataWorX32 provides different OPC data channels. Once multiple I/O channels are established between PCs, DataWorX32 will switch between a primary PC (node) and a backup PC on the network. Should the primary PC be disabled, DataWorX32 will automatically (should the options be specified) default to the backup PC and vice versa. Another feature of DataWorX32 is the use of global variables that are accessible from multiple clients.

DataWorX32 License Versions

	DataWorX32 Redundancy	**DataWorX32 Professional**	**DataWorX32 Standard**	**DataWorX32 Tunneler Kit**	**DataWorX32 Lite Version**
	DATAWORX 32-R V9.4	DATAWORX 32-PRO V9.4	DATAWORX 32 V9.4	DATAWORX 32-TUN V9.4	DATAWORX 32-LITE V9.4
OPC Data Aggregation	**Y**	**Y**	**Y**	**Y**	**Y**
OPC HDA Tunneling	**Y**	**Y**	**Y**	**Y**	**Y**
OPC A/E Tunneling	**Y**	**Y**	**Y**	**Y**	**Y**
OPC DA Tunneling	**Y**	**Y**	**Y**	**Y**	**Y**
United Data Manager	**Y**	**Y**	**Y**	**Y**	**Y**
SNMP	**Y**	**Y**	**Y**	**Y**	**Y**
MonitorWorX	**Y**	**Y**	**Y**	**Y**	**Y**
Security	**Y**	**Y**	**Y**	**Y**	**Y**
GenBroker Networking	**Y**	**Y**	**Y**	**Y**	**Y**
Database OPC Server	**Y**	**Y**	**Y**	**Y**	**Y**
Global Aliasing	**Y**	**Y**	**Y**		
OPC DA Data Bridging	**Y**	**Y**	**Y**		
OPC DA Redundancy	**Y**	**Y**	**Y**		
Store & Forward Technology	**Y**	**Y**			
OPC HDA Logged Data Redundancy	**Y**	**Requires Pair**			
OPC A/E Logged Data Redundancy	**Y**	**Requires Pair**			

The main features of DataWorX32 include the following:

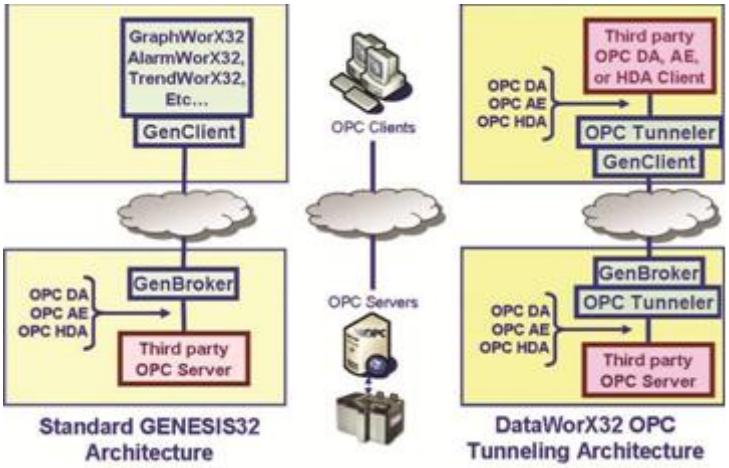
- OPC Redundancy
- Secure OPC Tunneling
- Patented OPC Data Bridging
- Compliant with OPC Data Access 1.0 – 3.0 Standards
- OPC Data Aggregation for Optimization
- Easy to Configure

- Real-time Redundancy Status Monitoring
- Client & Server Side Redundancy
- Alarm, Trend and SQL Data Logging Synchronization
- Guard Against Single Point of Failure
- Different Configurations to Choose From

OPC Tunneling

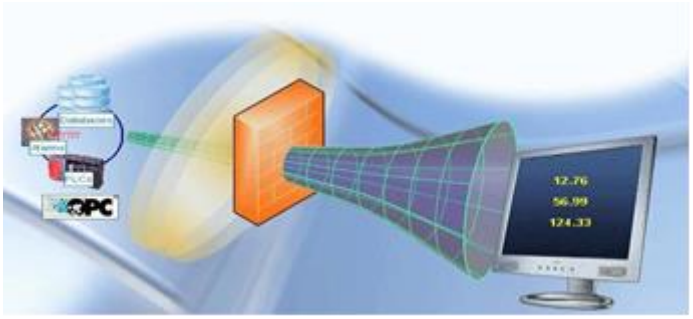
DataWorX32 will now be offered in three license versions: Professional, Standard and Lite. DataWorX32 V9.4 contains many significant new product capabilities and enhancements, including:

- New full featured redundancy with support for OPC Data, OPC Alarms and OPC HDA Historian
- New OPC Tunneling supports any third-party OPC server to OPC client communications
- New MonitorWorX shows performance and provides centralized diagnostic utility
- Integration with new Unified Data Manager
- OPC groups and user-selectable Data Bridging and Patented Data Aggregation
- New alarm and data historian Store and Forward technology
- New scheduled data transfers

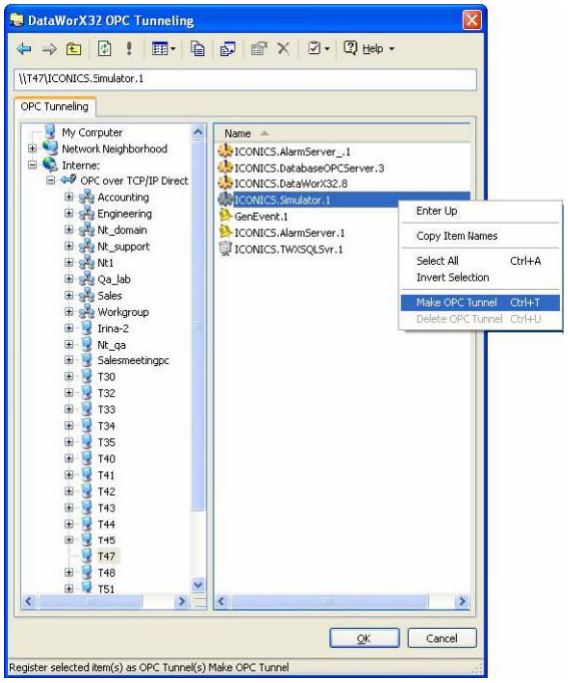


DataWorX32 OPC Tunneling Architecture

The new OPC Tunneling feature comes with all license versions of DataWorX32 V9.4 and connects a remote OPC server to a local client in a robust and secure manner, allowing for one server to be redirected to more than one location. The powerful graphical user interface allows for easy configuration and a centralized place to manage all remote connections. The underlying technology behind OPC Tunneling is the patented SMAR GenBroker™ communication, which provides high-performance and robust communication, replacing Microsoft DCOM communications. OPC Tunneling is completely OPC-compliant and is IT firewall-friendly, supporting communications over LANs, WANs and the Internet with extensive built-in security.



It's simple to install and deploy OPC Tunneling technology to virtually any application requiring remote and secure OPC communications with DataWorX32 V9.4.



DataWorX32 V9.4 OPC Tunneling fully supports open OPC industry standards such as:

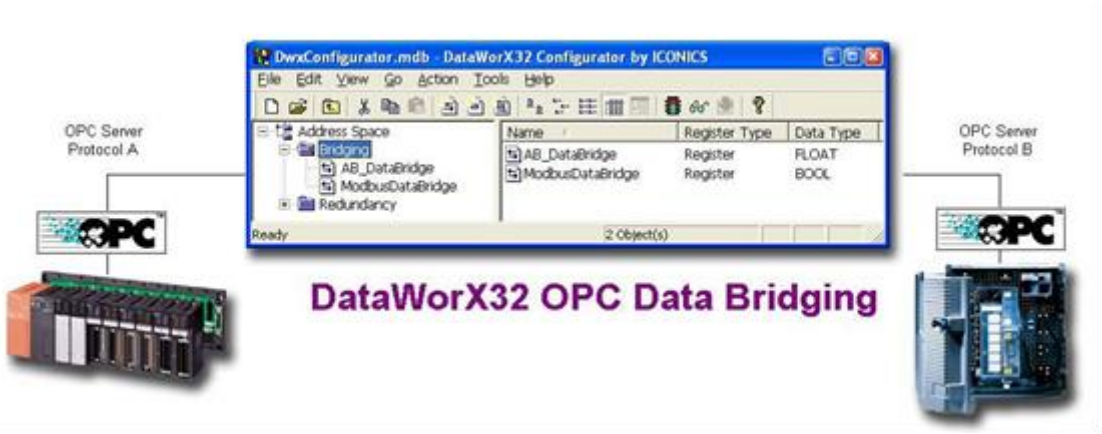
- OPC Data Access (DA 3.0)
- OPC Alarm and Events (AE 1.1)
- OPC Historical Data Access (HDA 1.2)
- OPC Unified Architecture (UA)

Other significant features of DataWorX32 OPC Tunneling include:

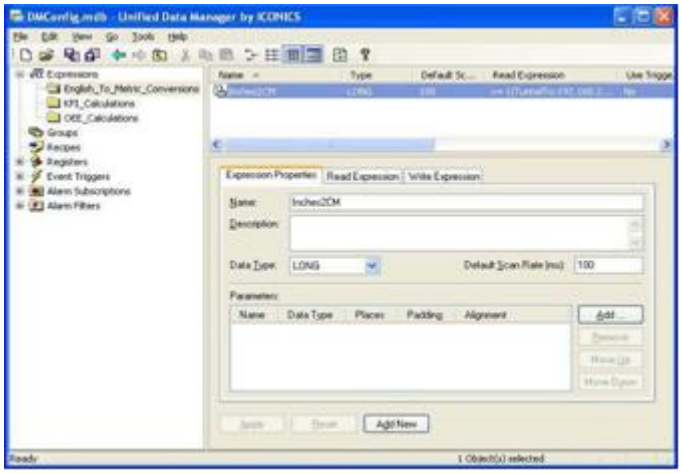
- Auto-discovery of remote OPC DA, AE and HDA servers
- Extremely simple to set up and configure
- Supports OPC browser interfaces over LANs, WANs and the Internet
- Provides a robust, secure alternative to standard Microsoft DCOM communications
- Integrated secure communications
- IT-friendly communications through firewalls and Network Address Translators (NAT)
- Supports TCP/IP and XML communication protocols

OPC Universal Data Bridging

DataWorX32 provides simple and reliable means for connecting real-time OPC DA data between OPC servers and applications using OPC.



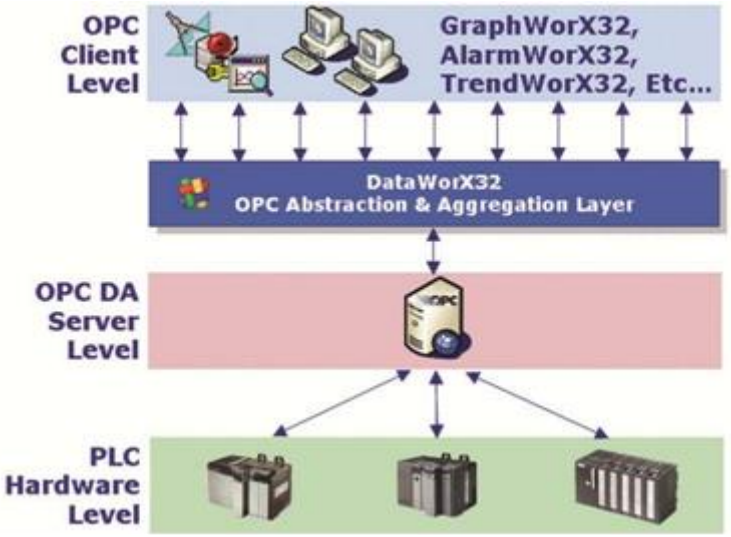
DataWorX32 supports the use of OPC groups and registers, which are used to form collections of OPC items that will be moved between OPC servers at a specified rate. Using multiple groups, DataWorX32 allows you to control how fast data are transferred from one OPC server to another. By using DataWorX32 groups with different update rates, you can tailor your data transfers to fit the needs of the application. While one item may need to be sent at high speed, other items in the application may need slower update rates. The benefit is reduced network traffic and increased overall communications reliability.



OPC Aggregation

Often in very large projects, several OPC client applications request the same points from an OPC server. For example, GraphWorX32 may need to display a tank level value, and AlarmWorX32 may need to monitor and alarm that same value. This may increase the load of the OPC server, as it now has to provide the same data more than once. Thus, when multiple clients request data from an OPC server, DataWorX32 monitors the OPC server and aggregates the data to the requesting clients.

Often it is desirable to optimize the work performed by the lower-level I/O servers (for example, greater throughput can be achieved). DataWorX32 can serve as a "middle-man" between clients and servers and assist in this optimization process. This is beneficial especially with remote servers over the network.



Architecture of OPC Data Aggregation

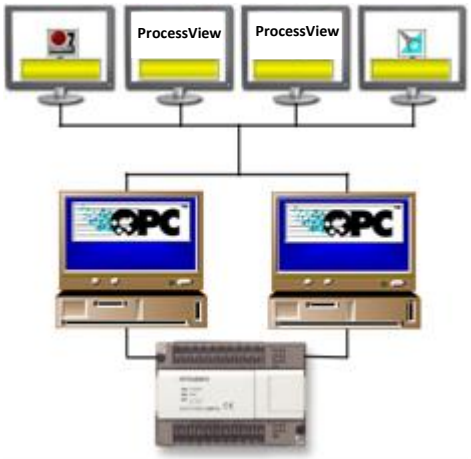
OPC Redundancy

DataWorX32 Professional with Redundancy

New DataWorX32 full-featured redundancy provides high availability similar to features found in large Distributed Control Systems. DataWorX32 Redundancy is the only product to support the three most important OPC standards, increasing the reliability and availability of OPC data by allowing multiple OPC servers to be configured into redundant pairs. These redundant OPC server pairs seamlessly appear as a single OPC server to any OPC client application. This feature can be added to an existing OPC server/client application, without any reconfiguration of those applications, keeping your processes going without any downtime.

Taking maximum advantage of the popularity of the OPC Data Access, OPC Alarm and Events and OPC Historical Data Access standards, a DataWorX32-enabled system uses multiple connections to a device or system to increase the reliability of data collection. By using built-in, patented aggregation, redundant data paths transparently map and appear as if a single OPC server connection. DataWorX32 can be seamlessly integrated into any existing OPC application without any changes to the client and without loss of data.

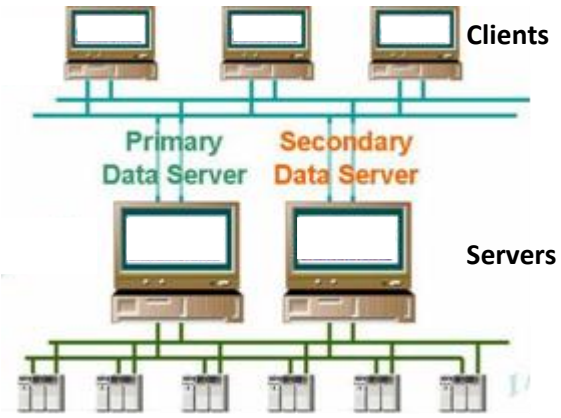
DataWorX32 V9.4 Redundancy Key Features Include:



- Seamless and transparent addition to OPC applications
- Extremely easy to set up; no programming or application changes required
- Upon failure of a primary OPC server, DataWorX32 automatically switches to the secondary server
- Supports multiple OPC Data Access (DA) server pairs; supports 1.0 through 3.0 specifications
- Supports multiple OPC Alarm and Event (AE) server pairs
- Supports multiple OPC Historical Data Access (HDA) server pairs
- Add redundant data collection to any OPC Data Access application
- Automatic as well as manual fallback capability when primary server becomes available
- Built-in MonitorWorX32 support with system tray diagnostics
- Configure OPC tags for visualization of key redundant monitor items
- Built-in audit trail/diagnostics with event logging, tracking redundant events to disk
- Drop-in design makes implementing redundancy a snap
- Available fail-over modes: hot, warm, and cold
- Configurable server polling intervals
- Integrate with multimedia alarming product to provide e-mail, and SMS notifications

OPC Data Redundancy

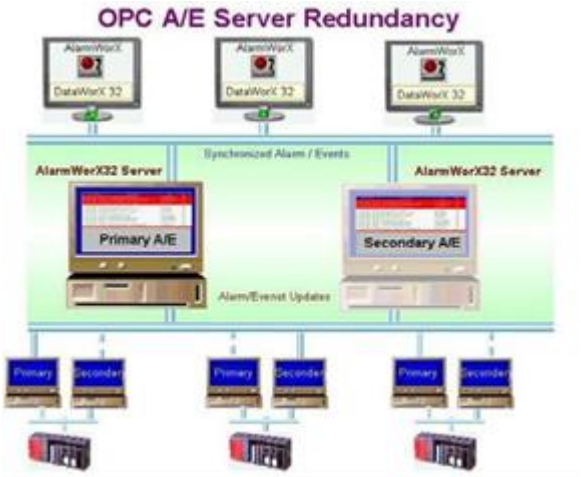
DataWorX32 V9.4 supports OPC DA (Data Access) Redundancy. DataWorX32 is a powerful dataoptimization tool, as well as an easy-to-configure redundancy solution for any OPC-based application. The patented OPC data-aggregation technology found in DataWorX32 will lower network traffic by aggregating server-to-client requests, leading to a reduction in CPU



load and an increase in performance. DataWorX32 is a component of the PROCESSVIEW product family, and it serves as a project-level data system for PROCESSVIEW applications.

OPC AE Alarm Redundancy

DataWorX32 V9.4 supports OPC Alarm and Events server redundancy and alarm logger redundancy. Providing both real-time OPC Alarm Server redundancy as well as synchronization of alarm historical log files was a design goal. Alarm acknowledgements are automatically synchronized, guaranteeing that all operator actions are accounted for when switching from primary to secondary alarm servers and vice versa. Integrated Store and Forward technology provides the core capability when synchronizing alarm history between primary and secondary alarm log files.



OPC HDA Redundancy

DataWorX32 V9.4 supports OPC Historical Data Access (OPC HDA) redundancy, providing several configurations for guaranteeing synchronization of critical historical time- stamped data. Integrated Store and Forward technology provides the core capability when synchronizing historical data between primary and secondary log files. DataWorX32 supports Microsoft SQL Server data stores for highly available trend historian redundancy.

SNMP Connectivity

SNMP Overview

PROCESSVIEW V9.4 now features native Simple Network Management Protocol (SNMP) support. Users benefit from the ability to report on the status of Ethernet routers, switches, hubs, network printers or any other SNMP device. Link SNMP data with your production data for valuable KPI, OEE, and downtime reporting.

This new SNMP connectivity, fully integrated into PROCESSVIEW V9.4 (more than an OPC server), provides the ability to communicate to any SNMP-compliant managed device.

Supported Features:

- Auto-discovery of SNMP-compliant devices on the network
- Auto-detection of device types with recognizable icons
- Browsing for available objects within each managed device (OIDs)
- Human readable names for the objects (OIDs)
- Importing of MIB files
- Reception and handling of SNMP traps
- GenEvent event messages based on SNMP traps
- Ability to use SNMP data as data tags

New SNMP PROCESSVIEW SNMP Agent V9.4…

- Exposes system monitoring and diagnostic information to SNMP
- Provides product monitoring for products such as ScriptWorX2010 and others
- Provides application runtime and version information
- Provides redundancy monitoring
- Works with DataWorX32 Professional
- Provides notification of failed servers and redundancy statistics
- Indicates when connected OPC Servers become available
- Provides software installation information including the versions of all installed PROCESSVIEW components

SNMP Data Mining

Today's factory automation systems must integrate information from different infrastructures reliably and in real-time. To assist with integration, PROCESSVIEW Version 9.2 enables users to integrate OPC, SNMP (Simple Network Management Protocol), and databases with real-time data mining. SMAR' new native SNMP network management and analysis capability was specifically developed for the industrial controls marketplace to seamlessly integrate monitoring and analysis of a wide variety of managed and unmanaged Ethernet devices into all SMAR products.

SNMP connectivity is the standard by which IT systems and infrastructures work. Ethernet routers, switches, hubs, and network printers all use SNMP to report their performance. Linking this with your production data is valuable when reporting KPI, OEE, and downtime.

Possible SNMP Applications

Modern systems connect to PLC, DCS, sensors, actuators, building control management systems, power systems, fire and safety systems with Ethernet- based network devices. Now you can easily monitor and analyze the Ethernet-based network from within PROCESSVIEW V9.4. This removes the need to employ third-party SNMP monitoring software. Important processes that employ multiple devices connected over Ethernet are just as dependent on the network devices themselves as on the individual controllers and sensors.

PROCESSVIEW V9.4 enables monitoring of network device failure from any PROCESSVIEW client, including WebHMI™ and Pocket PROCESSVIEW™.

Real-Time IT Network Analysis
Raw SNMP network data can be difficult to interpret. The PROCESSVIEW SNMP data browser discovers and connects to data from network devices and continually performs calculations and presents useful information, such as bandwidth utilization and network error rate statistics. Additionally, it is now possible to integrate real-time OPC information together with SNMP information to create combined visualization and alarm-management displays that easily summarize the health of network devices and network infrastructure with process control status.

Power Supply Management
Uninterruptible power supplies have become necessary to ensure maximum uptime and protect powered network equipment from power surges. Most UPSs have embedded microprocessors and are capable of reporting their status and operating mode information via SNMP. With PROCESSVIEW V9.4, operators can integrate UPS status into GraphWorX32 displays, data log, or alarm on the information.

Support for Unmanaged Device Monitoring
Not all Ethernet network devices employ SNMP device management. To help monitor any system from within PROCESSVIEW, both managed and unmanaged network devices are auto-discovered. The PROCESSVIEW SNMP data browser automatically generates OPC tags that represent "heartbeat" and response time for each device on a network.

Unmanaged Device Support
PROCESSVIEW offers an OSI Layer 1 device "heartbeat" feature for any Ethernet network device. Device response and reply latency tags are created for all network devices by the PROCESSVIEW SNMP Service, and are made available to PROCESSVIEW client applications for visualization alarming and trend logging. This allows monitoring of all devices on a control network, from sensors, actuators and computer ports through hubs, routers, and switches that manage network traffic.

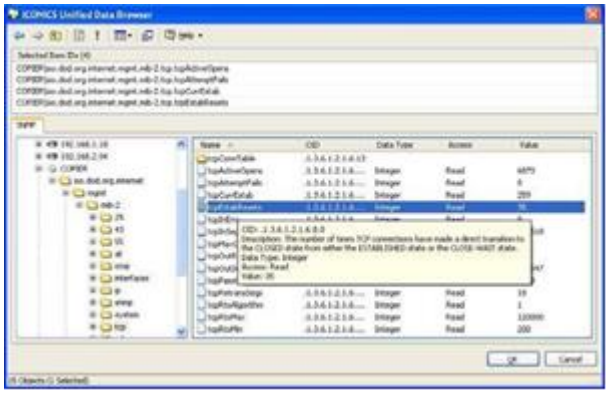
SNMP Traps Support
Some SNMP-manageable devices can be configured to send unsolicited data to network-management software systems. By configuring an SNMP device to send data without being "polled," such as when a critical system tag goes into an unfavorable state, you can reduce the need for "polling" the network device. PROCESSVIEW V9.4 supports receiving SNMP Trap data.

Auto-Discovery and Auto-Detection

Auto-Discovery
The new PROCESSVIEW SNMP data browser feature includes a new time-saving auto-discovery feature. Simply by opening the SNMP Configurator, the SNMP auto-discover capability is immediately started. This powerful tool will search through your Ethernet network for SNMP-manageable network devices. Once the SNMP Configurator has discovered all the manageable devices, they are automatically added to the Auto Discover Browse Tree Control for connectivity.

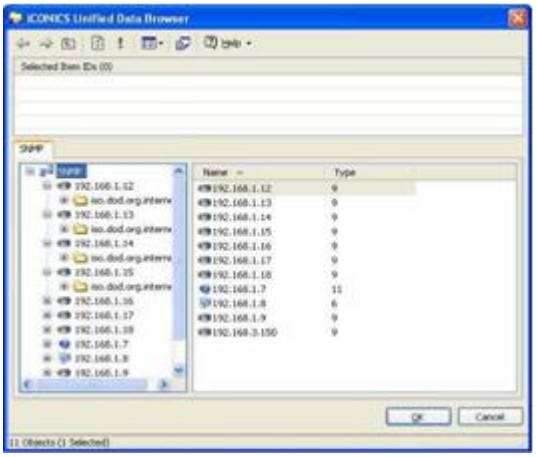
Automatically Scans for MIB Files

There are literally thousands of SNMP-manageable devices available. PROCESSVIEW users can easily incorporate management information from any SNMP-manageable device. PROCESSVIEW SNMP incorporates a browse capability for easy connectivity to network device MIB addresses. Using a powerful auto- discovery capability, SNMP devices will automatically be recognized and will present the device parameters for connection to PROCESSVIEW visualization, alarming, trend historian and other functions.



Auto-Discovery of Managed Network Devices with Device Browse Tree

Unified Data Browser Auto-Discovery of SNMP Devices



Database Connectivity

SAP BAPI

Tap into your SAP Enterprise system with PROCESSVIEW V9.4's certified SAP BAPI (Business Application Programming Interface) support. SAP business objects are accessed through BAPIs, which are stable, standardized methods. SAP business objects and their BAPIs provide an object-oriented view of business functions.

Microsoft SQL Server

PROCESSVIEW V9.4 integrates with Microsoft SQL Server, a comprehensive database platform providing enterprise-class data management with integrated business intelligence (BI) tools. This added full support includes all configuration databases, TrendWorX32/AlarmWorX32 Logging and Data Mining OPC Server.

Data Mining Grid Control

PROCESSVIEW V9.4 enables users to integrate OPC, SNMP, and databases with real-time data mining. With his new technology, users are able to connect to Microsoft SQL Server, Oracle, Microsoft Access, ODBC, OLEDB, SAP and virtually any other database source.

New Data Mining Grid Control V9.4 Features:

- Updated GUI with Windows XP Look and Feel
- Added Query Wizard (Basic and Advanced Mode)
- Added Language Alias Support
- Added new Automation Interface methods:
  - Dynamic load configuration files
  - More control of the Grid operation
  - Added the ability to specify the cell color for each cell
- Added new events in GraphWorX32 to allow user notification of events/changes of the grid
- Added support for Word Wrap
- Added support for Smart Alias

New Data Mining V9.4:

- Adds a provider for SAP BAPI (Business Application Programming Interface)
- Adds a provider for Microsoft SQL Server
- Improves the ease-of-use of the Data Mining configurator
  - Provides better support for Stored Procedures
  - Adds the ability to view the SQL command
  - Adds a Test-Query button

Analysis

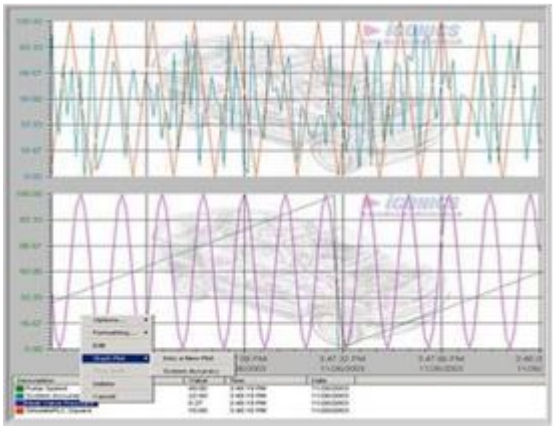
Having the ability to provide real-time analysis of your plant operations is vital. PROCESSVIEW can present real-time and historical information in a wide variety of trend plots. Alarms management can take place anywhere, anytime with instant acknowledgment.

TrendWorX32, a distributed enterprise-wide data collection, logging, charting, reporting and analysis system, has the distinction of being the first OPC-compliant trending product to be not only an OPC Data Access client application, but also an OPC Historical Data Access (HDA) server. That means it can easily plug-n-play not only with SMAR servers and trend components, but with other 3rd-Party hardware interface drivers and trending software as well.

For replay analysis, PROCESSVIEW has a powerful feature called VCRWorX that can step, frame by frame, through a replay of your process to see what happened and when. VCRWorX32 enables historical data replay within your real-time graphic screens. The media-like control floats on top of a GraphWorX32 screen and works just like a VCR or DVD player. Users can specify time and date ranges for replay, fast forward or rewind, as well as change the replay speed, and search for key events, tags, or expressions.

Trending – TrendWorX™32

TrendWorX32 Overview



TrendWorX™32 is a powerful collection of real-time trending, historical data logging, reporting, and analysis tools that seamlessly integrates with enterprise-wide information systems. Based on the OPC Historical Data Access specification for creating Plug and Play historical data servers and clients, TrendWorX32 offers an open solution to applications requiring scalable and distributed real-time performance.

The powerful Microsoft based ADO/OLEDB data-logging provider is at the core of TrendWorX32. OPC HDA provides the standard COM and OLE interface for SMAR Trend ActiveX Viewer Control to display real-time and historical data, separately or simultaneously.

Several trend display types are supported, including time plots, XY plots, logarithmic plots, bar plots, the popular strip chart recorder, and even circular charts! Acquire thousands of data points and organize them into groups for very fast and efficient replay of historical and real-time information. You can use the built in Visual Basic Application to create reports, calculations, and data analysis.

TrendWorX32 integrates with Microsoft Access, Microsoft SQL Server and Oracle using ADO and OLEDB database technologies. In addition, TrendWorX32 supports MSDE 7.0 and MSDE 2000.

New TrendWorX32 Logger V9.4 Features

- Added Store and Forward capability - ensures data logging integrity even when the database server or the communications to it fails.
- Added support for data logging at fixed intervals. The logging intervals are user-configurable on a per group basis.
- Added support for user-configurable OPC DA refreshes
- Separated the Logger and HDA Server functions. Allows the Trend Logger configuration to be changed without disturbing the TrendWorX32 HDA Replay

- Added support for data logging to MySQL databases
- Added support for data logging to Microsoft SQL Server databases
- Added support for MonitorWorX - reporting key runtime information

New TrendWorX32 Configurator V9.4 Features

- Updated GUI with Windows XP Look and Feel

New TrendWorX32 Report V9.4 Features

- Updated GUI with Windows XP Look and Feel
- Added support for MonitorWorX - reporting key runtime information

Real-time Trending

TrendWorX Real Time Trend Configuration uses the OLE Automation interface of the TrendWorX32 Viewer ActiveX within a VBA-enabled application, such as GraphWorX32. Pens can be added "on the fly" by reading the pen configuration from a Microsoft Access database (.mdb) file and utilizing the OLE Automation properties of the TrendWorX32 ActiveX through VBA scripts.

Historical Trending

TrendWorX32 Reporting is compliant with the latest OPC HDA specification 1.2. Although TrendWorX32 Reporting is not a direct OPC HDA client or server, it creates reports with data outputs as specified by the OPC HDA specification. Version 7.x introduced an enhanced data-retrieval system, which utilizes an updated approach to creating historical reports:

- Data filter selection other than Raw will result in data time stamped at the beginning of each subinterval.
- When retrieving data using data filters other than Raw, subintervals for which there are no data because of no data-logging activity will be marked as "empty" slots at the corresponding time with a zero value. You can check the returned qualities for further processing.

The TrendWorX32 OLE DB Provider supports a minimal set of "trend SQL" keywords that can be used to formulate "trend" queries in order to retrieve historical data.

If any or both of the start and end dates are not specified, the TrendWorX32 OLE DB Provider will perform an exhaustive database search to retrieve all samples in the database, or those samples starting from the start date or ending prior to the end date. Because this can be an extremely time-consuming operation, it is suggested that you use the "MaxRows" property of the provider to establish a limit to the total number of retrieved samples.

PROCESSVIEW trending has enhanced language aliasing support, including automatic value scaling. You need to configure the SMAR Language Server, as well as configure language aliases in the TrendWorX32 Configurator. Once all language aliases are configured, you can use the LCID property of the TrendWorX32 OLE DB Provider connection to set the desired language settings.

Trend Reporting

Trend reporting within TrendWorX32 has been updated with a new GUI featuring a Windows XP look and feel plus additional support for MonitorWorX, reporting key runtime information.

TrendWorX32 Reporting includes the following key features:

- Microsoft Excel reporting password support/performance tuning
- Enhanced data retrieval support
- Updated Microsoft Excel date handling
- Microsoft Excel FDA password support. TrendWorX32 Reporting supports creating Microsoft Excel reports where a random password will be created to lock the worksheet if desired. The password is not stored anywhere, therefore providing added security for FDA reports. This support is on a per-report basis.
- Report tag reordering/time span enabled for periodic reports
- TraceWorX32 debug tracing support
- Enhanced expression support
- Daylight savings time support

There are, however, some things to consider. These functions are used by default (no user enabling is required). In order to convert each time stamp, users are advised to check Windows for the PC Time Zone Settings and to see if automatic daylight savings is enabled. Also, obtain the times/dates from Windows for switching over. These dates do not change (e.g. “the first Sunday of April”). Depending on previous information, the functions properly adjust the conversion times to compensate for daylight savings time.

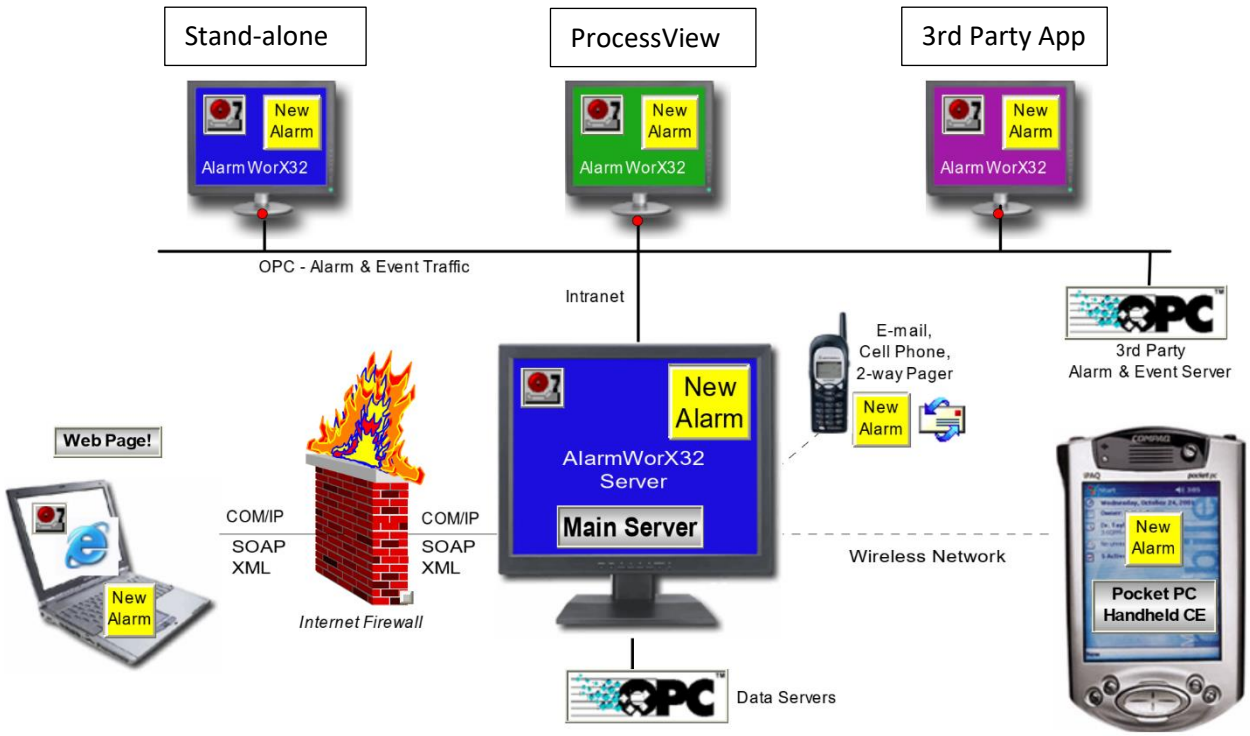
TrendWorX32 also includes the following features:

- Data-retrieval filters
- Scheduling and load-balancing support
- Microsoft Excel integration and template support
- HTML and e-mail support for Microsoft Excel-based reporting
- Unicode version support
- Report integration to historical database, operator comments, and batch information
- Multiple database support
- Easy-to-use report configuration wizard
- Microsoft SQL 2000 support
- Tag column description support

Alarm Management – AlarmWorX™32

AlarmWorX32 Overview

AlarmWorX32 is a distributed enterprise-wide alarm and events management system. Available in the standard PROCESSVIEW suite of application, or as a stand-alone Open Series component, AlarmWorX32 offers the tools you need to deliver real-time alarm information throughout your system. AlarmWorX32 is a family of modular alarming products, including the Alarm Container, the Alarm Server, the Alarm Logger, the Alarm Viewer ActiveX, the Alarm Report ActiveX, and the Multimedia Server. The Alarm Container is an ActiveX container capable of embedding various ActiveX components.



AlarmWorX32 is the first OPC-compliant alarming product based on the OPC Alarm and Events (AE) specification. It can easily "Plug and Play" not only with SMAR applications but also with other third-party OPC alarming software.

Alarm Container

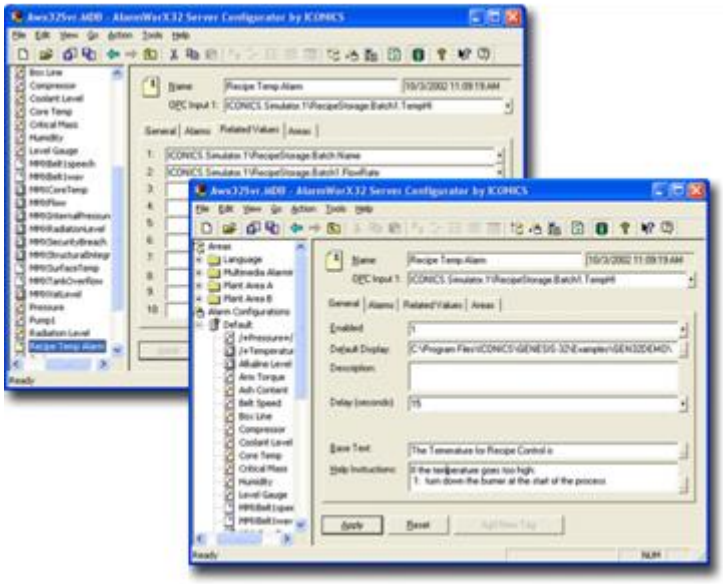
AlarmWorX32 delivers a "Container" application, which can host not only the Live and Historical ActiveX controls, but also other third-party controls. It also offers the rich Microsoft Visual Basic for Applications (VBA) scripting language. Use this, or other containers (e.g., GraphWorX32) to fulfill your alarm viewing needs.

Alarm Server and Server Configurator

Alarm Configuration is easy with the Alarm/Event Configurator. You can define your own alarms on any OPC data and/or expression (complex combinations of OPC data), choosing from analog limit alarms, deviation, rate-of-change, and digital alarms. In keeping with the open standards employed throughout the PROCESSVIEW architecture, your alarm configurations are saved to a Microsoft Access or Microsoft SQL Server database.

Once the alarms are configured, the OPC Alarm Server takes care of monitoring the live data, posting new alarms throughout your network. This component runs in the background (even as a Windows NT Service if desired), and is tuned to give your system the performance required of an alarming system.

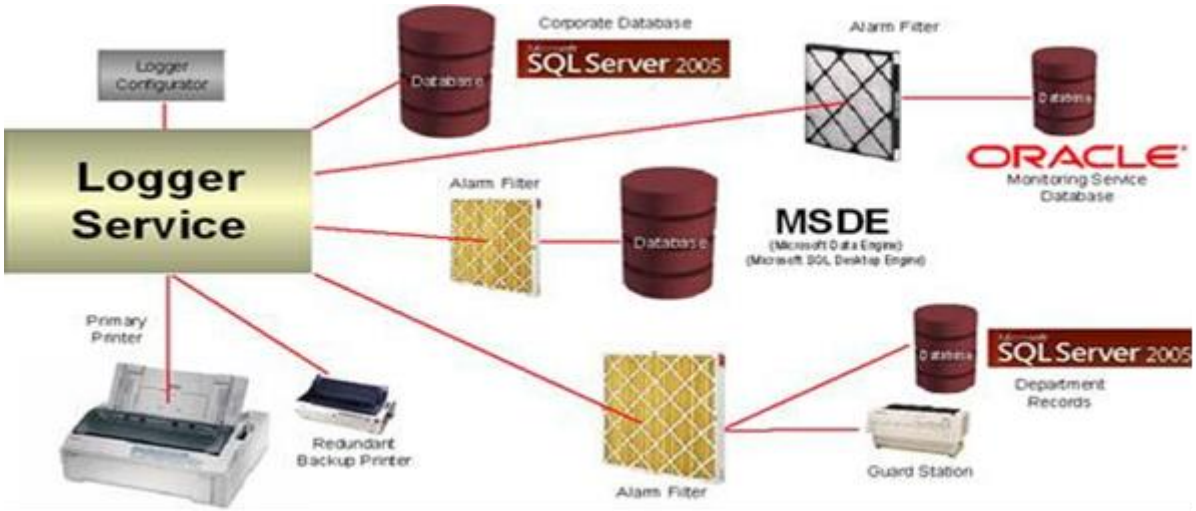
The AlarmWorX32 Server receives field data from any OPC-compliant Data Access (DA) server and performs alarm detection and reporting based on the OPC data sent to any OPC Alarm and Event (AE) clients that subscribe. The AlarmWorX32 Viewer and the AlarmWorX32 Logger are two examples of clients that can receive these notifications from the server.



Alarm Logger

The AlarmWorX32 Logger logs alarms to Microsoft Access, Microsoft SQL Server, or Oracle databases. It also can print out the information to one or even a redundant set of printers. You can create alarm reports and calculations with Microsoft's built in Visual Basic for Applications (VBA) scripting language. Alarm calculations can be performed on individual tags or groups of tags. Now, AlarmWorX32 has been enhanced for archiving to be time scheduled.

The logger can run as an executable or a service and is able to process alarm information from several alarm severs locally or over a network. The database is user-configurable (i.e. it allows autoflushing at a specified period, autostart, circular and append logging modes, etc.). Of primary importance to the database issue is performance. The logger is able to handle bursts of alarms due to the design and implementation of the logger's database handling.



Live Alarm Viewer ActiveX

The Alarm Viewer is a current-events alarm ActiveX. Because this component is an ActiveX, it can be placed in any ActiveX container application, such as GraphWorX32, Microsoft Visual Basic, or a Web page. The Alarm Viewer displays current alarm information and handles the user interface to the alarm system (such as alarm acknowledgement). The layout of information displayed, including sort order, color, font, and displayed data, is user-configurable.

You can drop this ActiveX Control in the provided AlarmWorX32 Container, within any GraphWorX32 HMI Display, an HTML Internet/intranet-based Web page, or any other ActiveX container, and it automatically configures itself to deliver live alarms in a scrollable window. You can easily customize the view via its properties page to control the colors, fonts, columns, rows, alarm filtering, subscriptions, hot-links, etc.

Alarm Report ActiveX
Alarms logged to a database can be a chore to sort through and analyze. The powerful Historical Alarm Analysis (Report) ActiveX solves this problem by easily creating filtered reports, pie charts, bar plots, and even exporting to custom Crystal Reports. At the click of a button, you can find out which alarm is occurring most often and see if there are certain "trouble-spots," review downtime, and more.

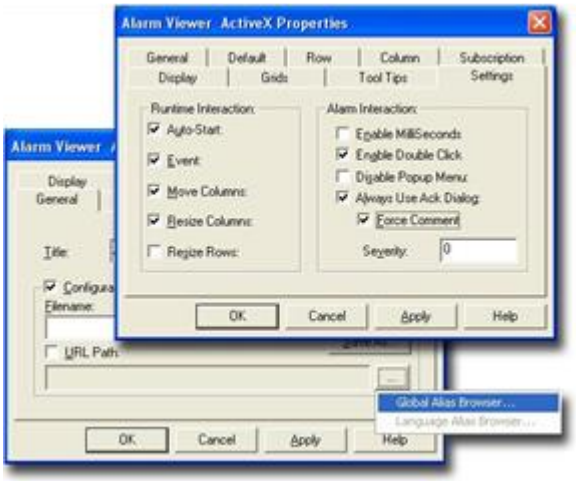
The Alarm Report ActiveX allows reporting (user -configured or preconfigured) and graphing of alarms. The source of the Alarm data can be live alarms, alarms previously logged by the Alarm Logger, or a combination of both. Because the Alarm Report is an ActiveX, you can drop it into the AlarmWorX32 Container, within any GraphWorX32 HMI Display, an HTML Internet/intranet-based Web page, or any other ActiveX container.

Multimedia Server
AlarmWorX32 Multimedia is a distributed enterprise-wide alarm notification system that delivers real-time alarm information to you wherever you may be through various multimedia "agents," including from e-mail, pager, fax, voice, text-to-speech, phone, and marquees. AlarmWorX32 Multimedia can easily "Plug and Play" not only with SMAR Alarm and Event Servers but also with other third-party OPC alarming software.

MMX Alarm Server Configurator
Multimedia Configurator takes you through the steps to create alarm notification rules and action sets. There is even a step-by- step animated tutorial to help you configure your system. You can easily apply filters so only specific alarms trigger your multimedia announcements. When an alarm occurs, specify multiple notifications methods (e.g., page the technician, phone the supervisor, and email the QA lab.). You can also send notifications only to on-duty personnel using the built-in scheduling mechanism. Create sophisticated (yet easy- to-build) work schedules with vacation times, re-occurring patterns and more. There's even the concept of "roles" for various personnel.

Alarm Viewing
New AlarmWorX32 View32 V9.4 provides the following features:

- Global (centralized) Alarm Subscriptions
- Global (centralized) Alarm Filters
  - Updated GUI with Windows XP Look and Feel
    - More Intuitive and feature-rich configuration
    - Ability to Turn On / Off Column Headers
    - Ability to Turn On / Off Scroll Bars
    - Automatic row sizing
    - WYSIWIG Column Sizing
  - Ability to be run by users with normal user privileges
  - Redundancy aware - able to monitor alarms from redundant pairs of AlarmWorX32 Servers
  - Support for Microsoft SQL Server (Configuration and Logger databases)



Alarm Logging
New AlarmWorX32 Logger V9.4 features an added store and forward capability, ensuing data logging integrity even when the database server or the communications to it fails. Also featured is additional support for alarm logging to Microsoft SQL Server databases.

Alarm Reporting
New AlarmWorX32 Report ActiveX V9.4 has received multiple additions including an updated GUI with a Windows XP look and feel, expression-based columns and an improved Animate/Deanimate function.

Multimedia Alarm Management – AlarmWorX™32 Multimedia

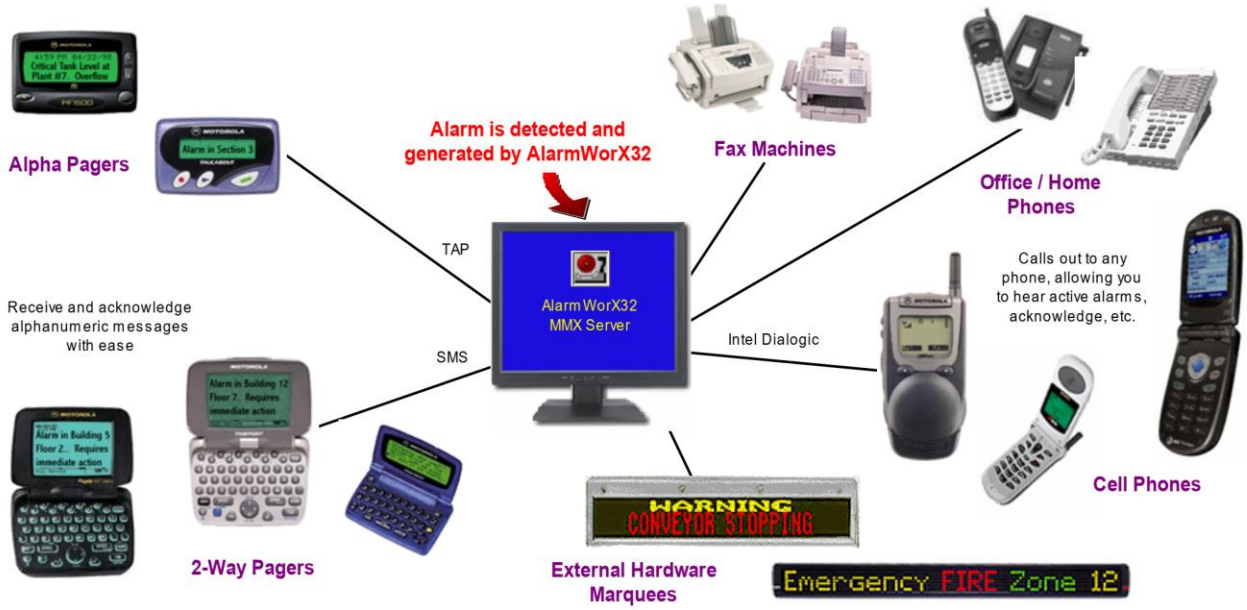
AlarmWorX32 Multimedia Overview

AlarmWorX™32 Multimedia (MMX) is a distributed enterprise-wide alarm notification system. It delivers real-time alarm information to wherever you may be. Choose from Email, Pager, Fax, Voice, Text-to-Speech, Phone, Marquees and more.

AlarmWorX32 MMX can easily plug -n-play not only with SMAR Alarm and Event Servers, but with other 3rd-Party OPC alarming software as well.

AlarmWorX32 Multimedia Standard Edition
This multimedia package connects to any OPC Alarm and/or Events server. It comes with complete multimedia agents including Paging, SMS, E-mail, Fax, Popup, Marquee, Video, Phone, and Sound.

AlarmWorX32 Multimedia Lite
With the “lite” version, you’ll get all the power of AlarmWorX32 Multimedia Standard, but with a limited set of agents. AlarmWorX32 Multimedia Lite comes with the following agents: Paging, SMS, E-mail, Popup and Marquee.



In addition to the new Lite version, AlarmWorX32 Multimedia V8 also offers the following:

MMX Alarm Server Configurator
Let the Configuration Wizard walk you through the steps to create alarm notification rules and action sets. There's even a step-by-step animated tutorial to help you configure your system. Easily apply filters so only specific alarms trigger your multimedia announcements. When an alarm occurs, specify multiple notifications methods (e.g., page the technician, phone the supervisor, and email the QA lab.).

Send notifications only to on-duty personnel using the built-in scheduling mechanism. Create sophisticated (yet easy to build) work schedules with vacation times, re-occurring patterns and more. There's even the concept of "roles".

Pager
MMX can deliver alarms not only to numeric pagers, but also to alphanumeric and even two-way pagers. Use the templates provided out-of-the-box, or configure your own message formats to send the information you need to the handy remote devices. Supports not only the TAP paging protocol standard, but also the newer SMS paging services for universal worldwide support!

Fax
Stay informed of your alarms and events via FAX. The AlarmWorX32 Multimedia Fax Agent delivers your alarm messages to remote fax machines. It can even send an optional cover page, so recipients know the urgency of the message.

Phone
By using the Phone Agent, your alarm and event messages will be spoken to you over the telephone! It can announce complete details of the message, using both text-to-speech (to read you specific alarm messages and values) and pre-recorded sound.

Local Annunciation

Hear your alarm messages over a local PA system or audio speaker system. Crisp, clear messages announce specific instructions to operators, eliminating confusion as to which alarms are occurring. Free up personnel from having to "baby-sit" an alarm view screen, and get them into a more productive roll out on the plant floor. Choose combinations of text-to-speech and pre-recorded speech and sound to deliver your messages (even in multiple languages).

Email

Receive alarm notification via standard email! Not only can the alarm message be sent, but you can also configure email attachments. Send screen snapshots, data files, or any other file you desire. What's more, you can even send a reply back to the alarm system and actually acknowledge the alarm throughout the system ... via email!

Marquee

AlarmWorX32 Multimedia can send alarm and event messages to external scrolling marquees. There's also a software scrolling marquee, permitting your important messages to scroll across the screen of a PC, either local or someone on the network.

Agent Library

AlarmWorX™32 Multimedia (MMX) is a distributed, enterprise-wide alarm notification system that delivers real-time alarm information to you wherever you may be. Choose from e-mail, pager, fax, voice, text-to-speech, phone, software and Ethernet hardware marquees and more.

In addition to several key features, including TAPI support for the Phone Agent, AlarmWorX32 Multimedia now comes with three new agents:

Hardware Marquee Multimedia Agent

The functionality in the Marquee Agent has been split into two agents for ease of configuration. AlarmWorX32 Multimedia V9.4 offers one agent for configuring and managing software desktop marquees and another agent for hardware external marquees.

Skype Multimedia Agent

Skype is an Internet telephony company that offers telephone calling over the Internet. Using the new SMAR AlarmWorX32 Multimedia Skype agent, voice alarm messages can be delivered to any Skype account. Do you have a Skype account? If not, you can sign up for a free account at www.skype.com.

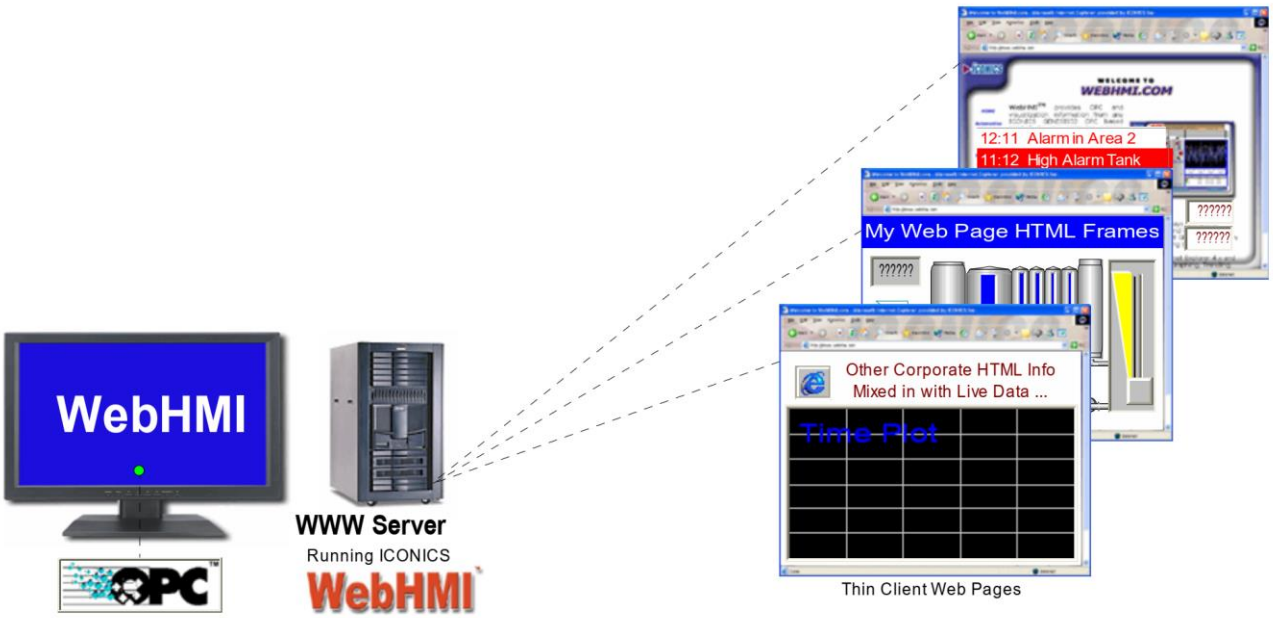
Web and Wireless Deployment

Web-Enabled Monitor and Control – WebHMI™

WebHMI™ is a powerful add-on to any PROCESSVIEW system, providing remote Internet or Intranet connectivity to your enterprise system. Using nothing more than a standard off-the-shelf web browser (i.e. Microsoft Internet Explorer), a remote PC can instantly browse to view live OPC and visualization information from any SMAR PROCESSVIEW product on the network.

Based on the Microsoft DNA architecture, WebHMI automatically delivers the required "plug- ins" so your browser station can be used as part of the overall network solution. Not only view, but also take control of operator real-time displays with animation, live data trends, reports and alarms. Integrate your HMI application with traditional Internet Browsers to perform remote and low cost monitoring of key manufacturing information. WebHMI comes complete with a security server tie-in so data entry and real-time interaction with your application is controlled across the system.

Real-time networking and communications with factory floor information is provided via the industry standard OLE for Process Control (OPC). Using the SMAR GenBroker technology, deployment of this solution is easy and effective. WebHMI makes Web-based HMI/SCADA a plug-n-play operation!



HMI for Handheld and Wireless Devices:

Pocket PROCESSVIEW™

Pocket PROCESSVIEW™ helps to get users instantly connected to the most critical business and plant data anytime, anywhere. SMAR developed the first suite of robust automation tools with a scalable architecture for running Human Machine Interfaces on Pocket PC–based devices – an ideal solution for operators and maintenance personnel who need to be mobile.

Pocket PROCESSVIEW can network via your internal intranet or wireless network with virtually any enterprise productivity application. The suite is also fully compliant with the latest OPC specifications for Data Access, Alarm and Events and Historical Data Access.

Benefits of Pocket Devices in Automation

- Take advantage of low-cost, small-footprint devices.
- Enable your workforce to be mobile and not locked to a workstation.
- Get alarm notification instantly, anytime and anywhere.
- Reduce downtime by mobilizing maintenance engineers.
- Stay connected and get real-time KPI anytime and anywhere.

Applying Handheld Wireless Devices on the Production Floor

A typical handheld, wireless application setup might look similar to the one below:
Work orders are produced and sent to the plant database.

From there, maintenance personnel and operators with their Pocket PC devices running Pocket PROCESSVIEW can perform the operations they need and send the data back to the main application.

Even if the user drifts into a dead zone, Pocket PROCESSVIEW has a store-and-forward feature that will store and then forward the data once a connection is detected.

Main Features

Full HMI Capability on Pocket PC - Graphics, Alarms, Trends, and More

Pocket PROCESSVIEW is a full-featured HMI designed and scaled for Pocket PC devices. It contains all the functionality of a desktop HMI, such as rich graphics. Instant alarm notification and acknowledgment as well as informative trending can be achieved with any Pocket PC device running Pocket PROCESSVIEW.

Use One Development Tool for Multiple Targets

With one development tool for multiple targets you can create impressive, scalable and portable visualization, trending, and alarm management displays from your workstation PC using the SMAR easy point -and-click development tools. Then download the displays to your Pocket PC device running Pocket PROCESSVIEW.

Part of a Complete Suite of Scalable Solutions

Pocket PROCESSVIEW is part of a complete line of visualization solutions for real-time information.
SMAR solutions can visualize your information from the plant floor to the enterprise.

Supports the Following Operating Systems

- Pocket PC 2002
- Pocket PC 2003
- Pocket PC 2003 Second Edition

Data-mine Standard Databases

Pocket PROCESSVIEW can also integrate easily and seamlessly into any enterprise application running on Microsoft SQL Server, MSDE, Microsoft Access, or Oracle databases.

Supports Multiple Pocket PC Platforms

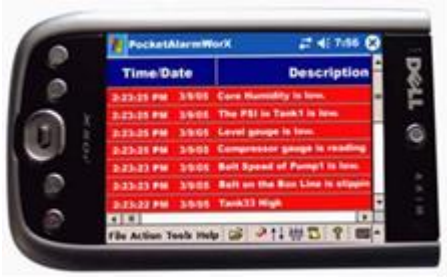
Pocket PROCESSVIEW supports several Pocket PC platforms from small footprint to industrial devices. This list includes Dell Axim, HP IPAQ, Symbol Technologies industrial devices and more.

New Store & Forward Feature

Pocket PROCESSVIEW is loaded with several new features, including built-in store-and-forward technology that allows your Pocket PC device to store information offline. Then you can forward the data when a wireless or wired connection becomes available.

Screen Rotation Supports Portrait and Landscape Modes

With Pocket PROCESSVIEW users can switch between the traditional portrait mode and landscape mode screen orientation settings to optimize viewing of trend plots and alarm summaries.



Remote Global Aliasing and Language Aliasing Support

Global aliasing and language aliasing save valuable development time and dollars. The same Pocket PROCESSVIEW screen or GraphWorX™ display file can be used to show different real-time information and also to switch between different languages automatically. A simple example of global aliasing would be a screen showing the values of Tank 1. An operator can click on a button labeled "Next Tank," and all the data tags on that screen instantly start showing the operator the values for Tank 2.

The same on-the-fly switching can also be used to switch between languages. With one push of a button the entire Pocket PROCESSVIEW application shows all information in a different language. Not only will the words change, but the units of measurement also will convert. For example, suppose the tank screen is displayed in English and an operator switches to French. The words will be translated from English to French, and the tank level will change from inches to centimeters.

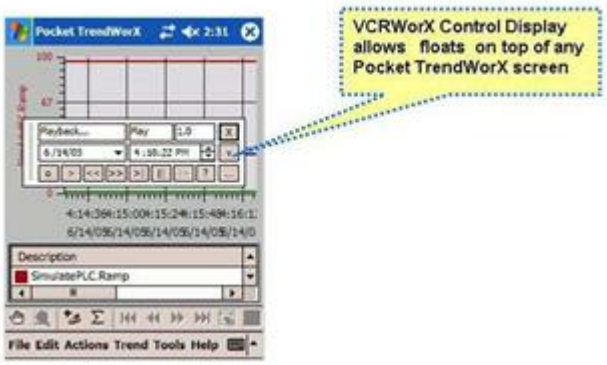
Stackable Plots

The award-winning Pocket TrendWorX™ component of Pocket PROCESSVIEW keeps getting better. Users can take advantage of stackable plots, allowing for quick trending comparisons and analysis. Tick marks, chart titles and labels are now completely configurable.

Historical Replay

VCRWorX™ introduced with PROCESSVIEW™ is now supported on Pocket PROCESSVIEW. From your Pocket PC device, you can replay and visualize historical, archived data from plant and business systems. With Pocket VCRWorX you can:

- Select a playback start time.
- Pick a playback speed.
- Compare live views with historical views.



Utilities

Security Configuration Overview

PROCESSVIEW comes with a powerful security server, which prevents unauthorized users from using the application. The PROCESSVIEW suite will not work if Security Server is not found or has been deleted from the computer. The installation of PROCESSVIEW Security Server comes with a default Security File that allows Maximum Rights to every one. That means that if you do not configure the security, everyone will have full rights. This is allowed for testing and configuration of an application. Once you feel comfortable with the application, you may set the users and workgroups.

Network Configuration - GenBroker

DCOM is the method of communication for PROCESSVIEW. There are, however, certain disadvantages to using DCOM. To overcome DCOM timeout problems, for example, it was necessary to eliminate Windows callbacks and reduce the number of different function calls over Windows DCOM communications.

DCOM's major disadvantages are:

- Its complex settings often make its configuration ineffective when the client is remote.
- It does not work well across NT domains.

- Its connection over slow and unreliable networks (e.g., the Internet) is practically impossible.
- It is not easy to configure to pass through firewalls.

In response to these difficulties, SMAR has enhanced PROCESSVIEW with GenBroker, a proven, high-speed communications utility. Employing a network of applications, GenBroker uses TCP/IP and SOAP/XML channels to achieve real-time and secure communications between Web browser clients and WebHMI servers. Everything except the method of communication remains the same as before.

The basic philosophy of GenBroker communications lies in its use of reliable Request/Response protocols. The client sends requests, and the servers reply to them. GenBroker applies to all PROCESSVIEW applications.

For example, a thin client sends out a request over the Internet to the WebHMI server. The thin client uses GenBroker to transmit the request. The WebHMI server's response to the request is also returned via GenBroker. But if the thin client's request requires a response from a remote server in a local area network (LAN), WebHMI could be configured to use DCOM. The machine will use DCOM to return the response to the WebHMI server, which will use GenBroker to relay the response to the thin client.

GenBroker technology has been incorporated to make the setup of Internet and intranet communications easier. In addition, GenBroker provides easier Internet connectivity and operation with firewalls and routers.

GenBroker enables you to designate which method is to be used for networked communications, as well as to define a central License and/or Security server for a networked set of workstations.

New in GenBroker V9.4

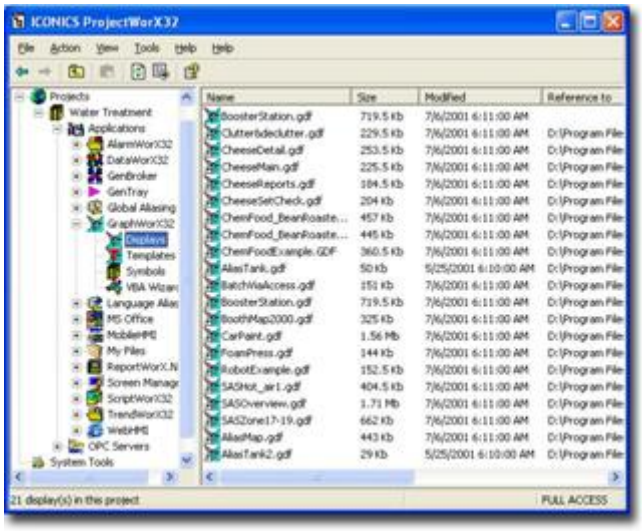
- Added security to the TCP/IP and SOAP/XML based communications
- Provides secure connections by passing user's credentials (domain name, username, and password) to the server side for authentication.

Project Management – ProjectWorX™32

PROCESSVIEW contains numerous applications with multiple components, requiring a well-trained user in order to successfully create, integrate, deploy, and manage projects. Each of these components requires complex setup of many different types of configuration files, databases, and OPC servers, as well as runtime and security settings. To simplify the management and deployment of the broad spectrum of PROCESSVIEW applications, SMAR has introduced ProjectWorX32, a sort of "super configurator" that integrates all PROCESSVIEW applications into a single, easy-to-manage format. The ProjectWorX32 user interface is basically a container embedded in the Microsoft Management Console (MMC).

The ProjectWorX32 console conveniently consolidates all of your PROCESSVIEW files in one easily accessible location, enabling you to:

- Organize all PROCESSVIEW application files into separate projects.
- Create new PROCESSVIEW application files and OPC server configurations.
- Import application files into projects.
- Start and stop PROCESSVIEW applications.
- Pack project files into a single, compressed file, and unpack project files for easy deployment to multiple computers.
- Activate entire projects into runtime mode.
- Control the layout of windows using the Screen Manager.
- Configure security settings to password-protect projects.



- Back up project files to Microsoft Visual SourceSafe.
- Search for and replace machine names and OPC tags throughout all project files using a global find/replace utility.
- Control and monitor runtime functions for all applications using GenTray.
- Launch PROCESSVIEW system tools.
- Import and manage third-party applications.
- Publish projects to the Web.
- Generate comprehensive reports for all files and projects.
- Import and manage third-party applications. (Note: For information about adding third-party applications to ProjectWorX32, please contact Nova Smar S/A.)

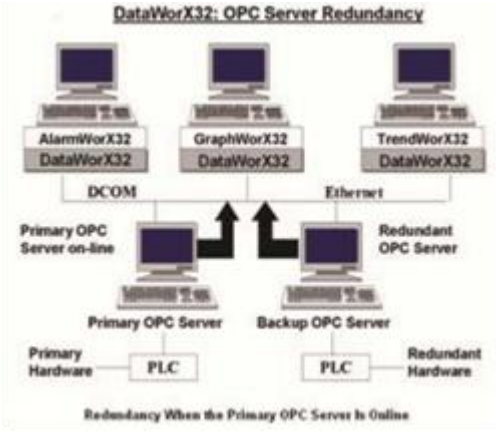
New in ProjectWorX32 V9.4

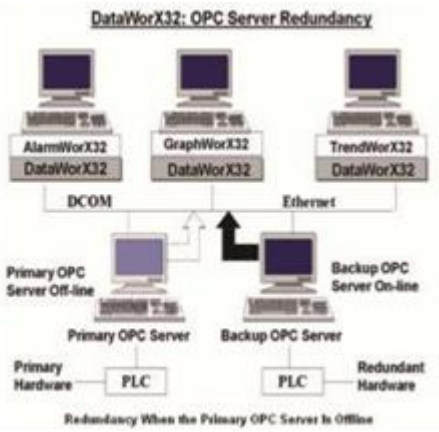
- Added support for ScriptWorX2010 Configurator
- Added support for the SNMP Configurator

- Added support for the Unified Data Manager Configurator

Redundancy Configurations

PROCESSVIEW, DataWorX32 specifically, provides 100 percent OPC server redundancy using OPC servers to any OPC client through the network. This means that users can designate alternative machines as backup servers should a designated Primary server go offline. DataWorX32 scans the OPC server status and switches to the Backup node in case of Primary node failure. This means that, once a Primary server does go offline, DataWorX32 will default to the Backup server or servers in the order in which the backup servers were designated. A special digital tag is provided to start events in case of a switchover from the Backup to the Primary server. If the Automatic Switch Back to Primary Server option is selected in the Redundant Server Configuration dialog box, DataWorX32 will default to the Primary server once it returns online.





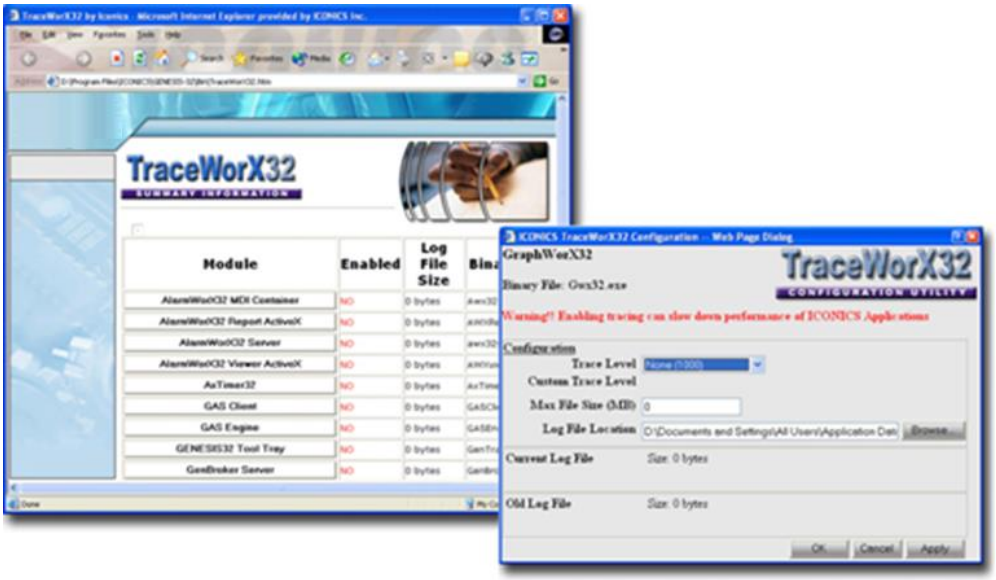
Online Diagnostics and System Monitoring

TraceWorX™32

TraceWorX32 is an audit trail and debugging XML-based utility. Using a technology that has been incorporated into all SMAR products, TraceWorX32 provides online diagnostics and tuning of all applications running in the PROCESSVIEW system. TraceWorX32 is designed expressly for systems integrators, OEMs and customers who want to have tools for doing their own troubleshooting and diagnostics.

TraceWorX32 tracks the runtime activity for each PROCESSVIEW application and logs the runtime data to a log file based on user-configured trace levels. The log file provides a thorough, color-coded report detailing all activity for the application, including the time, the date, the severity level, and a description of the event or problem.

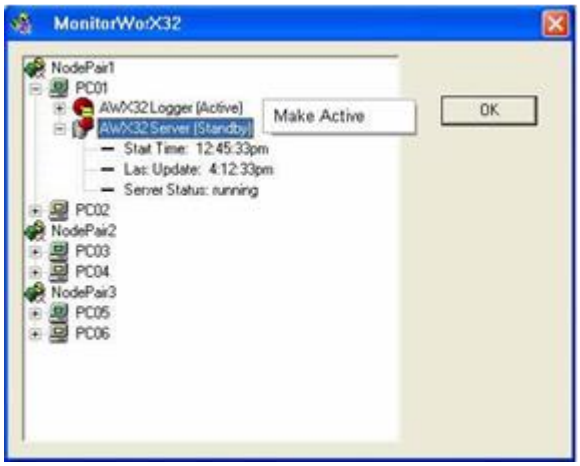
TraceWorX32 also features several options for reporting issues to technical support. If you are experiencing problems with any applications, the log file deployment options, such as compressing and e-mailing log files, are ideal for tracking and archiving data and sending detailed reports to technical support. Developers can use these reports to identify the source of the problems.



MonitorWorX™32

MonitorWorX32 provides a system-wide monitoring function via a common user interface to all SMAR System Services, License Monitoring, WebHMI User Utilization and PROCESSVIEW Application Launch and start-up capabilities. With MonitorWorX32, users can quickly get application version information on local and remote nodes, as well as get valuable real- time DataWorX32 redundancy statistics. MonitorWorX32 can reside on the Windows system tray and provides a GUI for analyzing SMAR PROCESSVIEW NT services.

Information is provided via an easy-to-use GUI:



- Start and stop applications and services
- Applications total running time
- Applications version information
- Redundancy Status Monitoring
- View SMAR apps from remote nodes
- DataWorX32 Redundancy statistics
- View WebHMI users and license information
- Ghost Image Duplicate License Detection
- System tray provides visual balloons interface

New MonitorWorX V9.4 Benefits:

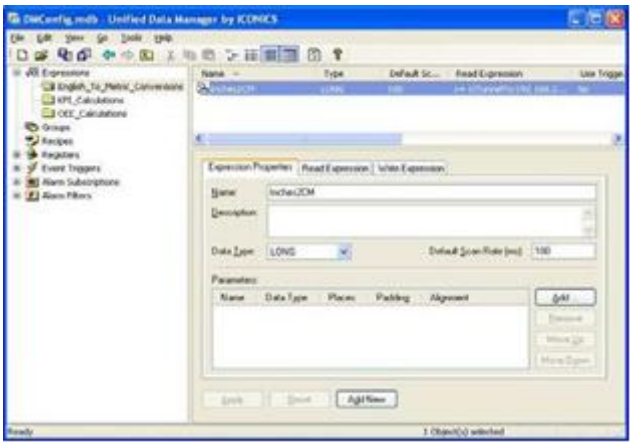
- Centralized Diagnostics area
- Product "Monitor View" tool for products such as ScriptWorX2010 and others
- GenTray Replacement
- Start and stop applications and services
- Provides application runtime and version information
- Provides duplicate License Detection
- Redundancy monitor
    - Works with DataWorX32 Professional
    - Provides notification of failed servers and redundancy statistics Tells you when connected OPC Servers become available

- System tray provides visual balloons interface
- Visualize all connections (OPC, License, Runtime)
- Provides software installation information including versions of all PROCESSVIEW components
- GenTray and MonitorWorX require Power User privileges to set up Services.

Recipe Management

Unified Data Manager

PROCESSVIEW V9.4 has a new integrated Unified Data Manager, which allows for the centralized management of commonly used Expressions, Schedules, Alarm Subscriptions, Alarm Filters, Recipes, Tag Groups, Event Triggers and Registers across PROCESSVIEW products as well as other SMAR products. From an easy-to-use interface users can create libraries of reusable expressions, recipes and other functions. The Unified Data manager (UDM) provides time-saving, on-the-fly selections and modifications of commonly used functions, saving integration and applications development time. Within the Unified Data Manager user now have the ability to handle recipe management via a recipe tree and grid control. Recipes can also be Exported and Imported in CSV or XML file format. Additional new features for V9.4 are a pick action inside GraphWorX—where users can add a comment on the value they are changing-- and a recipe button.



Install and Licensing

SMAR Software Licensing Utility V9.4

This version includes a new Softkey Utility, which enables users to run PROCESSVIEW in Demo mode for two hours without a registered license.

Users can also activate a temporary license for thirty days (one time only), which enables all options. You have to get the appropriate license in order to work after the Temporary Authorization is expired.

Once the license is authorized, do not delete the files under SMAR/SOFTLIC directory.

Contact SMAR Order Department for your License queries.

Hardware Keys are available on request for an extra Charge.

Uninstalling
It is recommended by Microsoft to use Add/Remove Applications from Control Panel to uninstall the applications. Since applications are registered into the Registry, Add/Remove will take care of uninstalling PROCESSVIEW products.

If you uninstall some common components that are used by GraphWorX32 or TrendWorX32, you may be required to register those components again or simply reinstall the product.

Note: Do not delete.

Validated Systems

Operating Systems Supported

PROCESSVIEW fully supports the following Windows operating system platforms, including:

- Windows 10 x64 (runs in the 32 bit compatibility mode) [1]
- Windows 10 x86
- Windows 8.1 x64 (runs in the 32 bit compatibility mode) [2]
- Windows 8.1 x86 1
- Windows 8 x64 (runs in the 32 bit compatibility mode) [3]
- Windows 8 x86 2
- Windows 7 x64 (runs in the 32 bit compatibility mode) [4]
- Windows 7 x86 3
- Windows Server 2012 R2 x64 (runs in the 32 bit compatibility mode)
- Windows Server 2012 x64 (runs in the 32 bit compatibility mode)
- Windows Server 2008 x64 R2 (runs in the 32 bit compatibility mode)
- Windows Server 2008 x64 SP2 (runs in the 32 bit compatibility mode)
- Windows Server 2008 x86 SP2
- Windows Vista x64 SP2 (runs in the 32 bit compatibility mode) [5]
- Windows Vista x86 SP2 4
- Windows Server 2003 x86 SP2
- Windows XP Professional x86 SP3

[1] Supported Editions of Windows 10 are Windows 10 Pro and Windows 10 Enterprise Edition. Windows 10 (Standard Edition) are not supported in this release.

[2] Supported Editions of Windows 8.1 are Windows 8.1 Pro and Windows 8.1 Enterprise Edition. Windows RT 8.1 and Windows 8.1 (Standard Edition) are not supported in this release.

[3] Supported Editions of Windows 8 are Windows 8 Pro and Windows 8 Enterprise Edition. Windows RT 8 and Windows 8 (Standard Edition) are not supported in this release.

[4] Supported Editions of Windows 7 are Windows 7 Professional, Ultimate, and Enterprise Edition. Windows 7 Starter and Home Premium Editions are not supported in this release.

[5] Supported Editions of Windows Vista are Windows Vista Business, Ultimate, and Enterprise Edition. Windows Vista Home and Home Premium Editions are not supported in this release.

Note: See Compatibility Test Matrix for specific details as to which Microsoft service patches SMAR products have been tested with.

System Requirements

To use the PROCESSVIEW Product, you must have the following hardware and software components. System requirements may vary based on application size and system performance requirements and loading factors.

Minimum Requirements

- GHz Processor (CPU)
- 512 MB Physical Memory (RAM)
- 2.0 GB Hard Disk space available
- DVD optical drive
- SVGA Video Card; 256 or more colors for best results
- A mouse or other compatible pointing device
- Microsoft-compatible keyboard
- Microsoft Internet Explorer 6.0 or higher

Optional Hardware

- Ethernet adapter (for remote PC connections or Ethernet I/O)
- USB port (for hardware license or license transfer)
- Serial COM ports or other adapters (for data I/O)

Recommended Requirements

Requirements described above are based on typical applications. Depending on your specific application, the minimum requirements may vary. In order to recommend specific system requirements, we must break the systems up into three categories based on tag count and running applications. In all systems we recommend that the virtual memory allotment be two times the amount of physical memory (RAM) on the system. For the systems below, we are assuming that the OPC server(s) are installed locally on the system and that the following SMAR components are all running and using the tag count specified per classification: AlarmWorX32 Server, AlarmWorX32 Logger, TrendWorX32 Logger, and GraphWorX32 with AlarmWorX32 Viewer and TrendWorX32 Viewer.

Smaller Systems – 500 or fewer tags

- GHz Processor (CPU) or more
- 512 MB Physical Memory (RAM)
- GB Hard Disk space available

Medium-Sized Systems – Between 500 and 3000 tags

- 2.0 GHz Processor (CPU) or more
- GB Physical Memory (RAM)
- 4 GB Hard Disk space available

Larger Systems – More than 3000 tags

- 3.0 GHz Processor (CPU) or more
- 2.0 GB Physical Memory (RAM)
- 10 GB Hard Disk space available

Requirement Notes

Specific hardware requirements depend on the size and complexity of your SMAR PROCESSVIEW implementation. With any application, faster CPU speeds and increased physical memory (RAM) result in better performance.

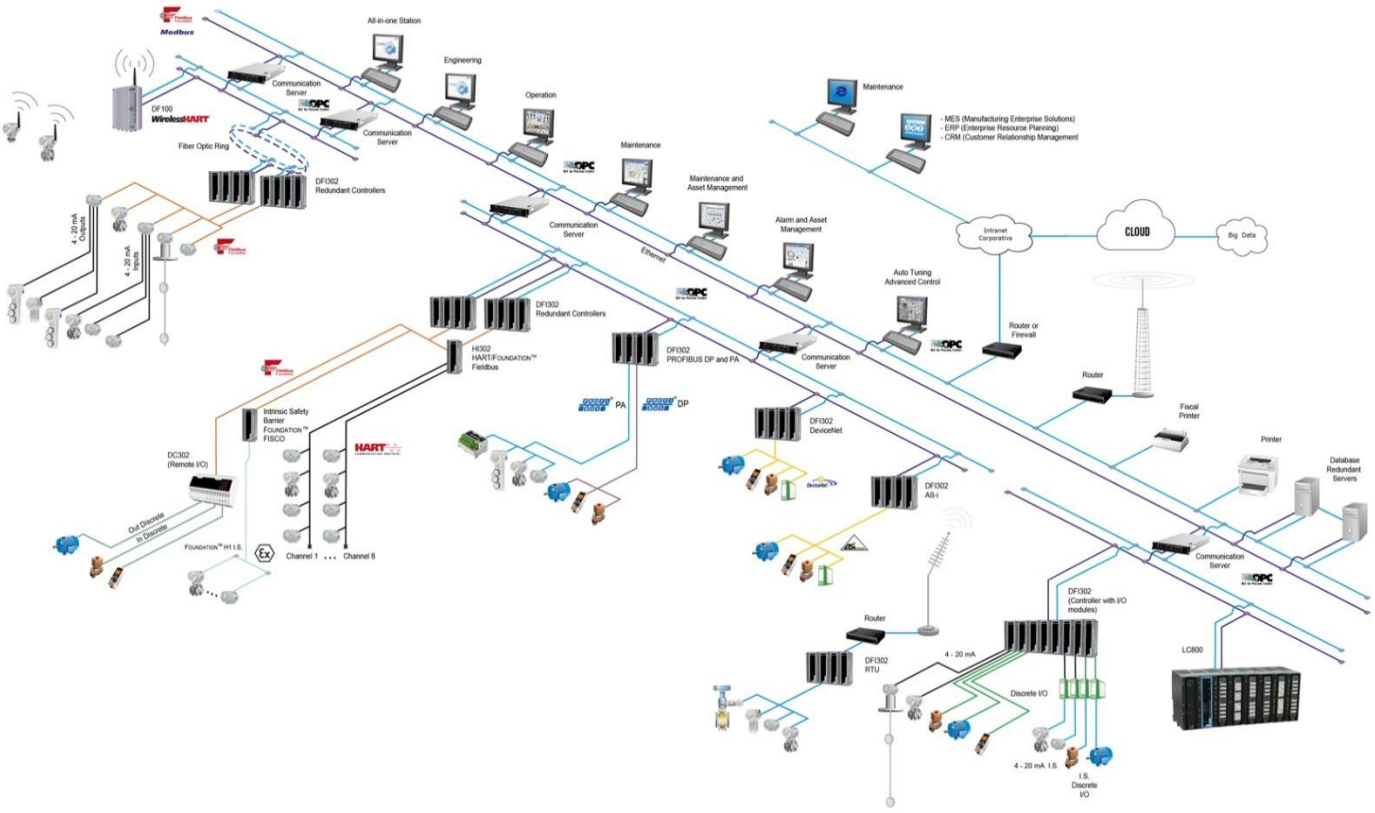
* Supports dual-core and hyper-threaded systems.

** The actual amount of space required may decrease if help and example files are not installed.

Requirements for logging data, alarms and screen storage are above this minimum. Virtual memory requires at least twice the amount of the physical RAM.

ProcessView

system 302
Open Digital Ecosystem



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