

The SCADA and automation industry is besieged with technologies and names like ActiveX, DCOM, OLE DB and others. Many of these are hyped in all the brochures, tradeshows and magazines in manner suggesting that we should intuitively understand their meaning. This document serves to assist readers in their understanding of these acronyms and provide a greater insight into the technologies impacting the SCADA industry.

CSV (Comma – Separated Values) – a file that contains the values in a table as a series of ASCII text lines organized so that each column value is separated by a comma from the next column's value and each row starts a new line. A CSV file is a way to collect the data from any table so that it can be conveyed as input to another application such as Microsoft Excel.

Client Server – Client server describes the relationship between two computer programs in which one program, the client, makes a service request from another program, the server, which fulfills the request. Although the client server idea can be used by programs within a single computer, it is a more important idea in a network. In a network, the client server model provides a convenient way to interconnect programs that are distributed efficiently across different locations. Typically, multiple client programs share the services of a common server program. The client server model has become one of the central ideas of network computing.

DDE (Dynamic Data Exchange) – a form of inter-process communication that uses shared memory to exchange data between applications and provides a standard set of commands and message formats. Applications can use DDE for ongoing exchanges between them whereby they advise one another as data changes or events are triggered. Another facility, NetDDE, allows progams to converse across networks.

ERP (Enterprise Resource Planning) - an industry term for the broad set of activities supported by multi-module application software that help a manufacturer or other business manage the important parts of its business, including product planning, parts purchasing, maintaining inventories, interacting with suppliers, providing customer service, and tracking orders. ERP can also include application modules for the finance and human resources aspects of a business. Typically, an ERP system uses or is integrated with a relational database system.

JavaScript - an interpreted programming or script language. It is somewhat similar in capability to Microsoft's Visual Basic. In general, script languages are easier and faster to code in than the more structured and compiled languages such as C and C++. Script languages generally take longer to process than compiled languages, but are very useful for shorter programs.

LAN (local Area Network) - A LAN is a high-speed, fault-tolerant network of interconnected workstations, personal computers, printers within a relatively small geographic area. LAN's offer computer users many advantages, including shared access to devices and applications, file exchange between connected users, and communications between users via electronic mail and other applications.

MES (Manufacturing Execution Systems) – a factory floor, performance oriented system that uses network computing to automate production control and process automation. This can be achieved by downloading recipes and work schedules, and uploading production result thereby bridging the gap between business and plant-floor or process control systems. By capturing real-time information about set-ups, run times, throughput, and yields, an MES can measure constraints and identify bottlenecks, to allow better management of manufacturing capacity.

MIS (Management Information Systems) - a general term for the computer systems in an enterprise that provide information about its business operations. It's also used to refer to the people who manage these systems. The term is used broadly in a number of contexts and includes (but is not limited to): decision support systems, resource and people management applications, project management, and database retrieval applications.



Glossary of SCADA Terminology

Multitasking – Operating systems, like Window NT and Windows 2000 support multitasking, which allows multiple tasks (programs) to run concurrently, taking turns using the resources of the computer.

Multithreading - the management of multiple concurrent uses within the same program. In a SCADA application, this might include the concurrent execution of logging, scanning, alarming etc.

OLE (Object Linking and Embedding) – a set of system services that provides a powerful means for applications to interact and inter-operate and is based on the underlying Component Object Model. Through OLE Automation, an application can dynamically identify and use the services of other applications.

COM (Component Object Model) - the foundation of Microsoft Windows applications and underlies the majority of the new code written to run on Microsoft operating systems. It is a family of specifications and software that produces platform independent, object oriented and scalable components. It is the "glue" that integrates the operating environment with plant applications and support the interoperability that is defining the software industry.

DCOM (Distributed Component Object Model) – an enhancement to COM that allows objects to interact over a network.

ActiveX – an extension of OLE that allows visual software components, created in any language, to be embedded easily into forms and web pages. Active X is a "brand" referring to a broad family of COM based technologies that were originally part of the OLE family.

OPC (OLE for Process Control) – an industry standard created with the collaboration of a number of leading worldwide automation, hardware and software suppliers working in cooperation with Microsoft. Based on Microsoft's OLE, COM and DCOM technologies, OPC provides a common interface for communicating with diverse range of process control devices, regardless of the controlling software or devices in the process.

ODBC (Open Database Connectivity) - a standard or open application programming interface (API) for accessing a database. By using ODBC statements in a program, you can access files in a number of different databases, including Access, dBase, DB2, Excel, and Text. The main proponent and supplier of ODBC programming support is Microsoft.

OLE DB – Microsoft's strategic, universal data access method. It allows users to view data from a wide range of devices, databases, web data sources, applications and relational mainframes as if the data resided at a single source. As a design from Microsoft's Component Object Model (COM), OLE DB is a set of methods for reading and writing data.

OOP (Object Oriented Programming) - a revolutionary way of looking at computer programming. An object is something that has an identity, state and behavior. Object oriented programming creates source code that consists of small, reusable, flexible, boundless components with clearly defined interfaces that can be molded to the users requirements.

SCADA (Supervisory Control and Data Acquisition) – a system whereby computers are used to collect real-time data from plant machinery to provide central monitoring, control and process visualization of the plant and its facilities. Plant instrumentation (sensors, switches, motors, pumps, valves etc.) is connected to the PLC, which in turn is connected to the PC running the SCADA software.

SQL (Structured Query Language) – a standard interactive and programming language for getting information from and updating a database. Queries take the form of a command language that lets you select, insert, update, find out the location of data, and so forth.



Glossary of SCADA Terminology

Visual Basic - a programming environment from Microsoft in which a programmer uses a graphical user interface to choose and modify pre-selected sections of code written in the BASIC programming language. There are reportedly at least 3 million developers using Visual Basic.

Windows 98 - a widely-installed product in Microsoft's evolution of the Windows operating system for personal computers. Windows 98 expresses Microsoft's belief that users want and should have a global view of their potential resources and that Web technology should be an important part of the user interface. Windows 98 is being replaced by versions of Windows 2000 that are designed for personal or small-office professional or business use.

Windows NT - the Microsoft Windows personal computer operating system designed for users and businesses needing advanced capability. Windows NT is actually two products: Microsoft NT Workstation and Microsoft NT Server. The Workstation is designed for users, especially business users, who need faster performance and a system that is more fail-safe than Windows 95 and Windows 98. The Server is designed for business machines that need to provide services for LAN-attached computers.

Windows NT Workstation: Microsoft says that 32-bit applications will run 20% faster on this system than on Windows 95. Since older 16-bit applications run in a separate address space, one can crash without crashing other applications or the operating system. Security and management features not available on Windows 95 are provided. The Workstation has the same desktop user interface as Windows 95.

Windows NT Server: The NT Server is probably the most installed network server operating system.

Windows 2000 - the latest version of Microsoft's evolving Windows operating system. Most users of Windows 98 and Windows NT will in time move to Windows 2000. Previously called Windows NT 5.0, Microsoft emphasizes that Windows 2000 is evolutionary and "Built on NT Technology." Windows 2000 is designed to appeal to small business and professional users as well as to the more technical and larger business market for which the NT was designed. The initial Windows 2000 product line consists of four products: Windows 2000 Professional,

Windows 2000 Server, Windows 2000 Advanced Server and Windows 2000 Datacenter Server. **WAN (Wide Area Network)** - A WAN is a geographically dispersed data network and the term

distinguishes a broader telecommunication structure from a local area network (LAN). A wide area network may be privately owned or rented.

