

OPC the Link

DEDICATED TO INTEROPERABILITY IN AUTOMATION

Foundation News

OPC Data eXchange released March 17th, 2003.

The OPC Data eXchange 1.0 specification was released on March 17th, 2003 after an intensive 18 month effort by OPC volunteers from over 30 companies.

The Data eXchange specification is the first in the series that addresses the OPC vision of interoperability across platforms and language architectures. Included with the specification is the functional definition necessary to support both legacy DCOM based OPC Data Access servers as well as the OPC XML Data Access servers.

The specification also provides both a Web Service interface and DCOM interface for Data eXchange configuration. A fully functional implementation of the client and server is provided to the members as sample code, and development of a compliance test is under construction to self-certify Data eXchange servers. (See page 5 for a fuller appraisal of the development of this key OPC specification.)

Other Specification Releases

In March the Technical Steering Committee also approved and released the Data Access 3.0 specification.

The long awaited XML-DA specification has entered the final review stage and the first release of both Complex Data and Commands are expected later this year.

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New Names bring Fresh Impetus

Russ Agrusa (ICONICS President) has been elected to the chair of the OPC Foundation Marketing Steering Committee, as well as being appointed to the OPC Foundation Board of Directors. Russ is actively recruiting and promoting a 'tiger team' of marketing talent to execute a promotion and evangelism strategy for the OPC Foundation members. (For more of Russ's thoughts, see right)

Simultaneously, Jim Luth (ICONICS) has been appointed as chair of the OPC Foundation Technical Steering Committee. (See Page 5 for a Technical Update by Jim)



Tom Burke, President of OPC paid tribute to the achievements of outgoing Chairs Don Holley of NI (Marketing) and Andrew Kowalczyk (Technical). "Both volunteers worked tirelessly for the Foundation and we thank them for their dedication and vision over the period," he said.

Hanover Success



The Foundation showed off its wares on a booth at Hanover Fair, right next to the Industrial Communications Forum, where OPC

representatives also presented the latest OPC technologies. A European Steering Committee meeting, a General Assembly and a Technical meeting rounded off the week. Congratulations to Michael Vetter (above at the GA) and his team for their excellent support in running these events.



OPC wins Control Engineering Award

Thomas J. Burke, President OPC Foundation (center), accepts an award from Control Engineering magazine, recognizing the commitment of the OPC Data eXchange working group in driving forward and delivering a critical OPC component that provides true horizontal interoperability between devices and applications.

Marketing Column

Hi! This past March, the OPC Board of Directors and OPC Foundation President, Tom Burke appointed me as the new Marketing Committee Chairman. My



Russ Agrusa

responsibility is to increase the reach of OPC technology into new markets, grow overall OPC Foundation membership and aggressively improve overall OPC awareness in the media and tradeshow.

These are very exciting times for the Foundation and its members. Not since the founding days of OPC has there been so many new technologies that have a direct and immediate impact on applications interoperability and communications. Factory and plant floor integration with corporate enterprise applications such as ERP, MES and CRM as well as support for Microsoft .NET, JAVA, Web Services and overall WEB based access to OPC information are creating many exciting opportunities. As technology changes the OPC Foundation Technical Committee under the direction of Jim Luth is making significant efforts to make certain OPC technical specifications and marketing initiatives take maximum advantage of these new technologies.

OPC usage and adoption in a broad range of applications has dramatically increased since the release of the first OPC Data Access specification. Indications are that OPC technology is in the process of becoming the de facto standard in many non process and discrete markets such as Building Controls and OEM Machine Tool and builders. The original intention of OPC was to make connecting products from a wide variety of manufacturers a plug and play operation. The net result of OPC has been to dramatically reduce overall systems integration costs while making many applications more far more reliable.

We have many new and exciting marketing initiatives planned and I invite members to join one of my Committees, whose role it will be to help expand and develop the Foundations interests.

Russ Agrusa
Marketing Committee Chairman
Russ.Agrusa@opcfoundaton.org

Visit our web site at:

www.opcfoundation.org

Issue 2 May 2003

OPC in Action

Electrical Power Balancing

4CE Industry has used OPC to reduce costs and make maintenance easier at the smelting works of Peugeot Sept-Fons in France. The need was to install a solution to control electrical power in an effort to improve the management of a power cost threshold. The customer required that the solution be future-proof and could allow mixed hardware from different manufacturers. There was also a need to be compliant with the real-time constraints of the project.

4CE's solution was to install 2 new DA servers using a specific MODBUS protocol and an internal card from Siden. The Electrical Control Application (ECA) contains the clients and also implements the logic to balance the actions on the servers. OPCX is used to create a link between the client application and the servers.

The factory is divided into cells (known as consumers). One OPC group is associated with one OPC server for each cell, using OPCX2000 for the connection.

The benefits of the applications include a 5% reduction in power costs due to better management. Maintenance is also easier, as with OPC each PLC in a cell can be substituted for another quite readily. The installation is also ready for Windows XP. **Contact:** michael.condemine@wanadoo.fr

Handy Hints

Tunnelling Eliminates Headaches

From the shop floor to the top floor, OPC is the preferred communication standard for sharing process control data at all levels of the enterprise. But as OPC pours into mainstream acceptance, integrators are finding configurations where OPC can be a hindrance to the panacea of plug-and-play application interconnectivity. The most common situation occurs when applications on different Windows domains must communicate with each other. Still other designs call for the use of low-bandwidth or unreliable networks. It is in these setups that OPC can make use of new "tunnelling" technology, which eliminates the biggest OPC headache for integrators - setting up DCOM.

No matter what the device is, OPC data is always shared with an application in a standardized format. Of course, standards-based communication is only half the task - the other half deals with the actual method by which the data moves across the network. When OPC applications are installed on a single computer, they use Microsoft's COM (Component Object Model) technology to exchange data. But, when installed on two or more PCs they use DCOM (Distributed COM) for data exchange. Unfortunately, OPC developers have no programmatic control over DCOM and are thus bound by DCOM's limitations.

Consider two OPC applications that are installed on two PCs on two different Domains. Clearly, their OPC communication must use DCOM. Consequently, the Domains must share at least one common username and password. This can be a serious issue, especially when these domains and applications are owned by different groups (e.g. IT and Process Control), different vendors (two different DCS vendors), or even different businesses. OPC applications from any vendor will be stopped dead in their tracks unless this DCOM issue can be overcome. While the technical hurdles may be simple, there may be serious political issues to address.

DCOM problems can sometimes be overcome with a few hours of work and good corporate manoeuvring. But, another approach is to eliminate DCOM altogether with Tunnelling technology. In this case, an OPC Tunneller is placed on each of the two PCs. Each OPC Tunneller object communicates with its local OPC application using reliable COM. The two OPC Tunneller objects are then free to exchange data via any appropriate communication technology such as TCP/IP, HTTP, HTTPS, XML, etc. The data transport technology can be selected by either the user or programmer to accommodate the special needs of the required design. Third party passwords are immediately nullified, Domains become irrelevant, and network performance (bandwidth and reliability) is a non-issue. Thus, each OPC Tunneller has two objectives: to transfer the data in the most reliable way to the other OPC Tunneller object, and to translate all data back to standards-based OPC so that the communication remains persistent **Contact:** Brian.neufeld@matrikon.com

Member News

5 Pocket PCs on offer

To mark the 10 year anniversary of providing feature-rich, cost-saving PLC connectivity tools and solutions, CimQuest



INGEAR Products Group has kicked off a monthly promotional campaign to give away 5 of the hottest MS-Windows™ powered Pocket PCs on the planet - the DELL Axim X5 Handheld PC. The timing of the start of the contest mirrors the worldwide release of INGEAR's new pocketPC™ OPC servers, ported to run on Intel's® new X-Scale™ processor. For more information on this limited time only promotional event, please visit the INGEAR web site at www.plcdriver.com

Web Forum improves Timeliness and Quality

A recent major improvement to the OPC web site is the addition of a public message board forum. This is used to provide technical support to both OPC members and non-members. It replaces the former "Ask OPC" email support system and web site FAQ. Anyone can post questions and provide answers. Randy Armstrong and Jim Luth, along with other TSC members, serve as moderators to insure the timeliness and quality of the responses. Access the forum at: www.opcfoundation.org/forum

Other Web Site services for Members

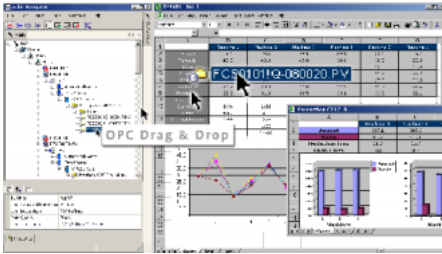
Foundation member companies can now add their own press releases to the OPC web site and have them show up on the News section for the world to read. To do this, go to your normal Update area to find the new fields for adding your press releases.

... and don't forget ...

... that you can add your own product details and company profile yourself. The catalog section is being used more and more to identify product for an application. The most recently-entered products get shown on the Home Page as well, so 'keep on adding' to keep your competitors away!

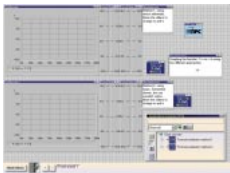
New OPC Products

Drag and Drop



plantserver.lite is a new OPC tool from best solutions that allows OPC items to be 'Dragged and Dropped' into MS Excel without programming or engineering effort. OPC data sources are searched and identified automatically and, using a harmonized addressing scheme, nested structures of OPC-based information (live values as well as engineering metadata) can be embedded using 'Drag & Drop'. Any number of OPC data sources can be integrated for any number of desktop users. Use it for testing OPC Servers, creating on-line reports and analyses, system startups, services and maintenance. **best solutions:** +49 221 969 77-42 stefan.becker@bestsolutions.ag or www.bestsolutions.ag or www.plantserver.net

Test and Measure



Data Translation Inc. has released *DT Measure Foundry 3.0*, the newest version of its test and measurement application software. An innovative drag-and-drop approach lets users arrange the desired instrument functions on their desktops and select the measurement source – no training is required. Powerful functionality at a \$249 price wipes out any barriers to entry in the test and measurement market. This new version features a software developer's kit, built-in maths functionality and software that incorporates OPC-compliant devices as DT Measure Foundry data sources on the manufacturing floor. These new features make taking powerful PC-based measurements easier and more affordable than ever. The Formula Evaluator offers a library of maths functions, and an OPC Tool

lets users access OPC hardware such as PLCs, DCS, etc. and easily create graphical user interfaces. Other new features include a Hot Key function and DT Measure Foundry can also replace the Windows desktop, turning a standard PC into an instrument. **Data Translation Inc:** +1 (508) 481-3700 or amcdonough@datx.com

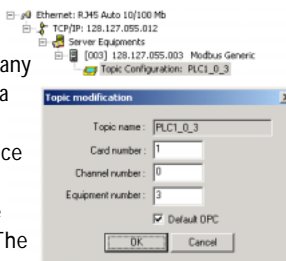
Mining Knowledge

ExperTune's *PlantTriage* now will monitor the performance of control loops directly from your plant Historian. The new OPC HDA interfaces to OSI PI Historian, Honeywell PHD, AspenTech InfoPlus.21, Invensys AIM, Historian and any historian supporting OPC HDA. *PlantTriage* assesses the plant data, prioritizing process control loops and focusing efforts on those loops that will have the greatest economic impact. Applying *PlantTriage* results in a steady and continuous improvement in the product quality, costs, throughput, and waste reduction in process plants. The OPC HDA connection is simple and elegant, allowing control engineers to view past data and apply *PlantTriage* tools to diagnose, tune, linearize and decouple the problems found. These tools increase the effectiveness of maintenance and engineering personnel by a factor of 5 to 10. **ExperTune Inc.:** +1 262-628-0088



Redundancy with OPC

Applicom has become the first company to implement a redundancy feature at device level, managed directly by the OPC server. The principle is very simple and does not require any software development - just a simple configuration in the applicom OPC DA server. The OPC application sends a command to the applicom OPC server, switching the Data Access from one Device set (as primary) to a backup Device set (as secondary). Different scenarios can be managed for the primary and the backup (secondary) devices. Any OPC Data Access V1 and V2 client can initiate the swap. **applicom:** +33 2 32 96 26 31 or egory@applicom-int.com



S7 Server and Explorer

The new *S7 OPC Server* provides fast and easy access to data in any S7-300 and S7-400 controllers via PROFIBUS. using STEP7 semantics, any OPC client can access I/O data, flags, timers, counters etc in several controllers at the same time. It communicates using the S7 protocol via any Softing PROFIBUS card. Separately, Softing's new PROFIBUS Configurator can scan a PROFIBUS network and register connected devices with their corresponding device identifications. The Configurator contains GSD files for numerous device types and files are automatically assigned during scanning. The Configurator also allows the creation of the namespace for the latest Softing PROFIBUS OPC Server, which enables any OPC client to access DP, DP-V1 or PA devices. **Softing:** +49 89 456 56 362 or www.softing.com

Pocket HMI

INGEAR Products Group has released *pocketPC* OPC servers re-compiled for Intel's high-performance, X-Scale processor. Several 'paradigm shifts' have rendered the timing perfect to launch this latest version, says INGEAR: the migration of PLC communications towards Ethernet and TCP/IP; the commercialization of WLAN technology; falling prices for next generation handheld devices. An INGEAR pocketPC OPC server running on a next generation Pocket PC, when used in conjunction with commercial-off-the-shelf (COTS) ancillary WLAN connectivity, can provide untethered freedom for HMI end-users. "Using handheld PCs and WLAN technology will empower system operators, technicians and engineers with unheralded mobility," says INGEAR. "Within a few short years Pocket PCs will be as commonplace and indispensable as the digital multimeter". INGEAR products are cross-platform compatible so one configuration file can be used for Windows XP/2000/NT 4.0/98 S.E./CE v3.0 and Pocket PC 2002. No other leading OPC server vendor has this breadth of OS support, claims INGEAR. *pocketPC* OPC servers are currently available for Allen-Bradley, Modicon and GE Fanuc. INGEAR has also relaunched its range of OPC servers to focus on single OPC connectivity at an affordable price. **INGEAR:** www.plcdriver.com



OPC Japan

Interoperability Success

The OPC Interoperability Workshops have been organized successfully by OPC Council, Japan three times since the 2000 fall. Last year, 16 Japan and overseas companies attended the workshop to test their 16 OPC servers and 16 OPC clients. The following table shows the attendant list and their OPC products tested.

Company	#OPC Servers	#OPC Clients
ASAHI Glass Co., Ltd	0	1
Digital Electronics Co.	1	0
Fuji Electric Co.	2	0
GE Fanuc Automation Japan Co.,	1	2
Hitachi Ltd	0	1
Intellution KK.	0	1
JT Engineering Inc.	0	1
Matsushita Electric Works Ltd.	1	0
OMRON Co.	2	0
Roboticsware, Inc.,	1	1
Rockwell Automation Japan Co., Ltd.	0	1
Sumitomo Metal System Solutions Co., Ltd.	0	1
Takebishi Electric Sales Co.	1	0
Toshiba Co.	1	1
Yamatake Co.	1	2
Yokogawa Electric Co.	5	4



Almost all possible combinations were tested during 3 days' workshop and very satisfactory results were obtained. Over 93% of test cases passed the test without any programming modifications or only with some minor modifications. And some technical problems were found and noticed by OPC developers. For example, Microsoft has changed their DCOM security policy for Windows XP.

This year, the 4th OPC Interoperability Workshop has been scheduled for Wednesday, July 9 through Friday, July 11 in the Microsoft Shinjyuku office in Tokyo.

We welcome more overseas members to join our OPC Interoperability workshop. Contact the secretaries of OPC-J at info@opcjapan.org for more detail information.

Technical Road Show in Japan

OPC, born in 1995, has become more and more noticed by Japanese engineers and customers. Since 1998, OPC Open Technical Seminars have been held in spring every year in the 3 biggest cities in Japan - Tokyo, Osaka, and Nagoya, and also other cities. Every year, latest OPC developments and other interesting topics have been the focus of attention.

In our Open Technical Seminar 2001, we focused our mind on OPC client development. We showed how to program the OPC client application using VB/VBA with demonstrations. The easiness of OPC client programming impressed attendees. A book named as "ABC's of OPC Application" was edited and published in Japan.

Last year, OPC' Foundations latest specifications, - OPC-XML and OPC-DX, - and the OPC vision drew considerable interest. Over 300 participants made our seminar room space not big enough! The event also attracted many buyers.

This year, we will introduce the latest developments - DA 3.0, OPC-XML and OPC-DX, and we will show how to access existing OPC servers by VB.NET/C# using the .NET wrapper.

Also, we will invite guest speakers from Japanese companies to give presentations about the present situation of IT technologies in factories. This year's Open Seminar will be held in Tokyo, Osaka, and Nagoya in May.



President's Column



"The technical focus for 2003 & 2004 is to build and enhance the OPC Foundation vision": Burke

This second edition of The LINK highlights some of the achievements and deliverables of the OPC Foundation of the last few months, together with latest news from around the world.

I am pleased to welcome Russ Agrusa (ICONICS President) as the new chair of the OPC Foundation Marketing Steering Committee. Russ was also appointed to the OPC Foundation Board of Directors and I know he has many exciting plans.

The technical focus for 2003 & 2004 is to build and enhance the OPC Foundation vision of being Dedicated to Interoperability In Automation. I am pleased to announce the election of Jim Luth (ICONICS) as Chair of our Technical Steering Committee. Jim's contributions over past years has been key to the success and adoption of Data Access, Alarm & Events, and Data eXchange. Jim is currently working on adding the key bells and whistles to OPC technically, while spending his free time carving out a vision to move the Foundation and its members to total application & platform interoperability for automation and beyond. I'd like to thank outgoing Chair Andrew Kowalczyk (Honeywell) for his valuable past contributions.

The OPC Regions continue to be the blood of the organization, delivering the message of interoperability to their respective areas. This newsletter provides an update on the OPC Japan Region (see left). Growth In Europe continues as the European contingent drives adoption of OPC technology. We are also putting together a strategic plan to promote and leverage the promotion of OPC in China.

My commitment to the OPC community is simple: to serve, deliver and market the best technology that facilitates the interoperability requirements of the vendors and end users in industrial automation. With that simple goal in mind, I sincerely desire your feedback and opinions on what the OPC Foundation can do for you.

Please feel free to distribute printed versions of this newsletter, or email the file or link to all your contacts and friends that you want to tell about OPC!

Thomas J. Burke
President, OPC Foundation
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UPDATE: DX sub-committee

by Tom Burke

What's the buzz on that OPC DX thing ?

The concept of OPC Data eXchange was originally bandied about by companies representing various industrial Ethernet consortiums in early 2001. In summer of 2001 I attended one of their informal working & strategic group meetings and together we got agreement that the effort for standardizing the horizontal movement of data between systems would be best accomplished by leveraging the skills and success of the OPC Foundation in developing interoperability standards that vendors adopt and build in to their products.

On September 11, 2001, at ISA, amidst the turmoil of that day, we held a press conference announcing the OPC Data eXchange initiative, with the endorsement by industrial Ethernet consortiums and major vendors.

The specification has been much more than a year in the making. It underwent development and review by a large constituency of developers from a variety of companies and took longer than this optimistic Chair of the group thought. In reality the work has gone well when you

take into consideration:

1. The economic climate since the OPC Data eXchange effort was initiated.
2. All work is done by volunteers from OPC Foundation companies. We actually had 30 companies signed on to participate in the DX development.
3. We had to go through an iterative process to identify and get agreement on the detailed requirements, functionality and the expectations of how OPC DX actually gets deployed: with OPC Data Access, we knew the majority of the requirements when we started seven years ago, which in one respect made it easier to develop the solution;
4. We had one of the largest working sub-committees in OPC history. The good news is everyone wanted DX; the bad news is it took longer to get understanding and agreement!

At the ARC Forum in Japan in July, I presented a keynote on Plant Data eXchange (OPC Data eXchange) and I also participated in a panel discussion with the various industrial Ethernet consortiums. The consensus was that OPC Data eXchange provides "the solution for moving data seamlessly in a standard way" that customers have been begging suppliers to deliver for years.

The OPC Data eXchange specification Release Candidate was announced at ISA in Chicago (October 21, 2002). At ISA we also demonstrated the OPC Data eXchange Interoperability that includes the OPC Foundation-supplied sample code that will be delivered to members as part of the OPC Data eXchange deliverables. Now (in March) we have released the specification itself - a major achievement, believe me!

Special thanks goes to the team of dedicated volunteers who devoted many hours to the development of this key standard. The team has a reputation for working long hours, often forgetting to take breaks. It's common that meetings have been held where the team literally has worked 30 - 35 hours over a 2 and a half day scheduled period - which averages 12 -14 hours per day. Our OPC Data eXchange WebEx meetings can last 2.5 hours, with people working through lunch or dinner on their own time!

More on the development process and what it takes to successfully develop a standard in an upcoming issue.

Thomas J. Burke
OPC Data eXchange Chair
 Thomas.Burke@opcfoundation.org

UPDATE: Technical Committee Chair

by Jim Luth

The OPC Technical Steering Committee (TSC) and the individual Working Groups continue to produce new and updated specifications.

This past month the TSC approved and released the Data Access 3.0 and Data eXchange 1.0 specifications. The long awaited XML-DA specification has entered the final review stage. The first releases of both Complex Data and Commands are expected this year. Each of these latest specification releases are accompanied by high quality sample code written by Randy Armstrong, who has been retained by OPC to provide programming services and technical support at a level previously unattainable by volunteer staff. For those of you who have not looked at the latest sample code, I urge you to do so. I think you will be pleasantly surprised.



"Our goal is to have the functionality of all popular OPC COM interfaces available as Web Services": Luth

The latest sample clients are written in C# and include a reusable class library and an OPC specific COM interop assembly. The class library/COM interop assembly can be used to create OPC clients in any .NET language including VB.NET. The class library/COM interop assembly provides a similar functionality for .NET that the OPC Automation Wrapper provided for VB6.

Along with the new specifications and sample code comes a new packaging of the deliverables. All of the files that constitute a release have been packaged into professional installations and de-composed into the following groups for each specification: Specifications (as PDFs); Redistributables (proxy/stubs etc.); SDKs; Sample Binaries; Sample Source Code. All downloadable files have been collected in a single location at <http://www.opcfoundation.org/downloads>.

As soon as the XML-DA specification is released Working Groups will be re-formed to produce Alarms & Events and Historical Data Access Specifications with XML Web Services interfaces. The goal is to have the functionality of all of the popular OPC COM interfaces available as Web Services. We believe that Web Services are a key enabling technology for the future, and to insure that we provide the right level of support in OPC applications, the Foundation has joined the Web Services Interoperability Organization (<http://www.ws-i.org>). I will be representing OPC in some technical committees.

Although we have a lot of new exciting technology in the pipeline, I invite you to contact me if you have identified some area that you believe could benefit from standardization by OPC. We welcome any and all opinions on technical areas that OPC should target.

Jim Luth, ICONICS
Technical Committee Chair
 Jim.Luth@opcfoundation.org

Foundation Page

OPC Board of Directors

Reinhold Achatz - Siemens AG
 Al Chisholm
 Ron Eddie - Emerson Process Management
 David Eisner - Honeywell IAC
 Russ Agrusa - ICONICS
 Richard Ryan - Rockwell Software
 Yo Shimanuki - Toshiba

Benefits of Membership

- ★ The chance to contribute to and influence OPC strategy and Specifications
- ★ Close contact with the development of OPC Specifications
- ★ Collaboration in common promotional and marketing projects, such as the OPC Web site, The LINK and Trade Fairs
- ★ Co-operation with the OPC Community worldwide, to discuss joint activities, overcome technical challenges and share common objectives
- ★ Access to OPC Specifications in advance of the general public
- ★ Collaboration with a unique software development community, for the benefit of automation users worldwide.

Join OPC now!

The OPC Foundation is a member-only organization that maintains the integrity of existing OPC specifications and drives forward OPC technology. It is effectively a standards-making body in its own right, but focused on the needs of members and directed towards the evolution of automation interoperability solutions. Three Officers are responsible for implementing the direction of the organization as determined from time to time by the Board and the Membership. All Members may contribute to the organization, ranging from helping develop OPC specifications to being elected to the Board and determining strategy. If you want to contribute to the OPC global effort, why not contact your local regional office today. Contact details are given below. Or, one of the Officers listed below right will be pleased to help you.

OPC members and organizations can have their stories and pictures published in The Link free of charge. Please send material to mike.bryant@opcfoundation.org

OPC Specifications: what they are and where they fit.

OPC specifications leverage COM and DCOM technologies to define common interfaces which allow diverse Windows-based software and hardware platforms to interoperate:

- OPC Data Access 1 and 2 ↔ the originals! Used mainly in continuous monitoring applications.
- OPC Data Access 3 ↔ leveraging earlier versions to better support OPC XML and OPC DX.
- OPC Alarms and Events ↔ OPC optimized for exception reporting.
- OPC Batch ↔ OPC optimized for batch rather than continuous operations.
- OPC Historical Data Access ↔ for trending and historian-type functionality.
- OPC Security ↔ to ensure that free exchange of data is never prejudiced!
- OPC Common I/O ↔ addressing the needs of soft control
- OPC Data eXchange ↔ server-to-server connectivity across Ethernet, for helping fieldbus platforms interoperate.
- OPC XML ↔ as the Windows world moves towards .NET and the Internet opens up Web-based services, OPC faces the open-connectivity challenge.
- OPC Complex Data ↔ where more than simple data must be exposed.
- OPC Compliance ↔ independent and standardized test platform for confirming OPC Server conformance.
- OPC Commands ↔ allowing OPC clients and servers to communicate executables.

OPC Officers:

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DEDICATED TO
 INTEROPERABILITY
 IN AUTOMATION

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