OPC Classic Toolkits Release Notes   March 2018

Version	Date	Release Note
V4.46.0	15.03.2018	**New Features:** • Added support for Microsoft Visual Studio 2017 (CORE, API, Samples, Wizard). • .NET 4.6.1 is now supported for .NET API. • Custom server shutdown message can now be sent to connected clients. **Improvements:** • Improved XMLDA connection management on both client and server side, increased compatibility with older Toolkit versions. • Better handling of vendor exceptions in all callbacks. • Various improvements and fixes according to customer feedback. • Several documentation clarifications. • Additional DCOM improvements and fixes. • Improved Variant.ToString() for DATE values (local GMT time with offset is used)
V4.45.0	03.08.2016	**New Features:** • Support for Microsoft Visual Studio 2015 • Support for .NET 4.6 for .NET API. • Support for Windows 10 • Client API Subscriptions handling extended with Synchronous reads operating mode **Improvements:** • Various improvements and fixes according to customer feedback. • Stability improvements (OPC DA 1.0 is now disabled in 64-bit applications). • Improved OPC DA 2.0 browsing for server not supporting OPC_BROWSE_TO. • Improved example applications functionality. • Several documentation clarifications e.g. DCOM configuration.
V4.41.2	02.10.2015	**Improvements:** • Various improvements and fixes according to customer feedback
V4.41.1	12.05.2015	**OPC Foundation Lab certified version for both Server and Client functionalities** • Adaptions and small client fixes applied
V4.41.0	06.02.2015	**New Features:** • Support for Microsoft Visual Studio 2013 • Support for .NET 4.5.1 for .NET API. • Support for Windows 8.0, 8.1 and Windows Server 2012 R2

		• OPC Server state can be controlled now from the API **Improvements:** • Significant improvements on the speed of the server-side Browse operation for string-based address spaces with a large number of items • Added possibility to choose whether the OPC Server will run in speed optimization mode (item order will not be preserved between addition and browsing) or item order preservation mode (certain operations may be slow) • Improved ReadMaxAge behaviour inside OPC DA Toolkit CORE • Added continuationpoint support for browsing string-based namespace • Improved behavior of OPC DA Address Space Element properties retrieval • Unified behavior and improved forwarding of various sync/async method call result codes • Added support for changing update rate for XML-DA **API Changes:** • Added support for direct OPC Server state control through SetAeServerState/SetDaServerState. Should any of these two methods be used, the OPC Server state will no longer be automatically advanced from NOCONFIG to RUNNING, vendor application action is required • Added extended creator for DA Address Space Elements - CreateAddressSpaceElementEx - which also takes into account the element type (node/item)
V4.40.3	19.09.2014	**Improvements:** • Significant performance increase for client-side AddItem operations inside connected groups with high item count. • Enhanced client-side behavior regarding subsequent requests for adding invalid DA item. • Better synchronization for internal resources used in both callbacks and direct API calls.
V4.40.2	21.02.2014	**Fixes:** • Fixed compilation problem in client-only Soruce Code License. • Fixed problem causing an error in DaBrowse_DA20 sample. **Improvements:** • DaSession.Browse now also works for DA2.05a OPC Servers which implement the OPC_BROWSE_TO functionality.
V4.40.1	18.12.2013	**Improvements:** • Improved callbacks for string-based address space element data. **API Changes:** • Server, C++ and .NET API: Added new callback for better handling of the string-based address space element data query operation: QueryAddressSpaceElementDataEx. If completely implemented, the previous callback - QueryAddressSpaceElementData - will no longer be

		invoked. • Server, C++ and .NET API: Added new enumeration which specifies what members of the AddressSpaceElementData structure must be filled in for the callback QueryAddressSpaceElementDataEx: EnumAddressSpaceElementData.
V4.40.0	01.10.2013	**New Features:** • Added native support for x64 systems (VS2008, VS2010 and VS2012; C++, C# and VB). • Added support for Microsoft Visual Studio 2012 (CORE, API, Samples). • .NET 4.5 is now supported for .NET API • Windows 8 and Windows 2012 server are now supported • Significant improvements on the speed of the server-side Read/Write/Subscribe operations with a large number of items. • New DCOM security settings are initialized in Toolkit CORE in order to allow secure access to the OPC Servers built with Softing OPC Toolkit (minimum configuration of the server-side Windows DCOM security settings is requried). The Toolkit CORE allows receiving callbacks with minimum configuration of client-side Windows DCOM security settings. • Removed CoInitializeEx and CoInitializeSecurity from all C++ samples (in order to allow Toolkit CORE to perform the correct security settings initialization for both client/server applications). Yet, custom DCOM security settings may be initialized before initializing the Toolkit Core. • Added caching of string-based object data when invoking callbacks in vendor-specific server application. Maximum age for the cached objecd data may be configured through . • Updated OPC Core Components to version 3.00.105.1 (both x64 and x86 versions are deployed; NOTE: x64 version of OPC Core Components DOES NOT contain OpcEnum service). **API Changes:** • Server, .NET API: Modified the data type of handle parameter in all the functions which have an object handle parameter (was IntPtr, is now uint). • Server, .NET API: Modified the data type of Application.IpPortHTTP property (was integer, is now unsigned short). • Server, C++ and .NET API: Added new thread-safe method for changing the state of a DaRequest (handled in vendor code for string-based DaItems): ProgressRequestState (respectively. • Added new EnumRequestState member to reflect the fact that the request is in progress: EnumRequestState.IN_PROGRESS. Updated SerialIO server sample to use ProgressRequestState method. • Added DA Browse Options continuation point in "DaAddressSpaceElementBrowseOptions" structure of the client API; checking if more items exist on server is done by verifying the size of the "Continua-

tionPoint" string property (respectively the size of the tstring returned by "getContinuationPoint" function).

- Modified deployment folder from "%Program-Files(x86)%\SOFTING\OPCToolbox\" to "%Program-Files(x86)%\SOFTING\OPCToolkit\".

Improvements:
- Improved alignment and packing of various core structures (order of members was changed). Required because of the native 64 bit support.
- Improved server performance with respect to client`s items manipulation. DA server address space browse operations will not return the items in the order they were created anymore.
- Custom build steps automatically copy the required libraries for every sample / Project Wizard generated application. This is required as the PATH environment variable is no longer updated.
- Added special handling of AE Attributes Filters for the case when an array containing both valid and invalid filters is used; the invalid filter is ignored but all the valid filters are used.
- Most of the client/server samples should now have macros in their output paths (for versions of VS which support these macros).
- Exemplified how to use AE filtering (source/area/category + property)
- Exemplified how to access non-zero-indexed arrays (bounded arrays) in .NET DaConsole client sample.
- Separated the OPC Server initiated shutdown from the console / windows application initiated shutdown in code.
- Project Wizard-generated applications now have the shutdown event handler connected (except services). DLL projects provide a method of detecting whether a shutdown was internally initiated by the OPC Server (OPC Server was started through DCOM by an OPC Client and the last OPC Client has just disconnected); this method should be inquired often or the architecture may be modified introducing an external event.

Fixes:
- Minor cosmetic / functional fixes on Client/Server Samples and Project Wizard.
- Fixed memory leak generated by the .NET "ValueQT.ToString()" API method.
- Fixed cookies missbehavior in AE clients - each time the same condition was triggerred, the condition cookie was different.
- Fixed sporadic server crash when various vendor-specific DA items are added/removed very fast.
- Fixed subscription asynchronous write with invalid item(s) in between valid items; this was causing the write values to be shifted to the left

		before performing the actual write operation (instead of skipping the value corresponding to the invalid item id). • Fixed .NET DA Browse sample - "NetServerEnum has unbalanced the stack" - correct signature of the "NetServerEnum" function is now used (although not OPC-related). • Fixed .NET VB/CS Sample server where IO operations on vendor-specific server items (server items with "POLL_OWHCACHE" flag set) return "Catastrophic Failure" error. • Fixed "Collection was modified" exception in .NET Session sample server (when more than 1 client disconnected/connected at the same time). Replaced ArrayList.Synchronized(..) with an synchronous object lock (although not OPC-related). • Fixed bug where "DaAddressSpaceElement.ValueChanged(..)" re-turned S_OK although it failed to update the item`s value. • Fixed timestamp-related issue in ReadMaxAge method. • Fixed conversion from Int64 to Currency. **Other modifications** • The "OPCToolkit\V44x\\Windows\bin" folder will no longer be added to the system environment path as the OTB and OTBu libraries exist both in "bin" and in "bin\Legacy" folders. Each sample and Project Wizard generated project copies the its required version as a post-build/custom-build event. • Removed Linux support. Linux support will be further maintained in Softing OPC Tookit V4.3x.
V4.31.1	16.03.2013	**Fixes** • Client connection monitoring optimizations
V4.31.0	11.10.2012	**New Features** • OPC basic authentication demonstration is now provided in the Da-Console sample applications (C#.NET, VB.NET, C++) • Added support for writing Value/Quality/Timestamp (OPC DA Server) • Programmer's Guide in the documentation was enhanced with several new topics **API Changes** • Added ServerState enumeration to the APIs • Added API method for disabling / re-enabling initial read behavior (usually performed by Softing OPC DA Clients when a subscription is connected) **Improvements, extensions, fixes** • Flat namespace browsing issue fixed for OPC Clients; • Namespace browsing with TYPE_FLAT issue fixed inside OPC Servers

		• Softing OPC Demo Client saves now the configuration in the user-specified folder • Softing OPC Demo Client loads now configurations with long paths (from command line) • BSTR and BOOL arrays are updating correctly now (OPC Servers) • Trivial errors were fixed in some of the sample applications; • Assured that no DataChange callbacks will arrive before the initial read (ReadCompleted callback) arrives. So far there were chances that some DataChange callbacks got ahead of the initial read • Minor improvements in memory management; • Accessing functions of the consant ValueQT parameter received on the handleValueChanged callback is now possible (getter functions of ValueQT are now const); • Improved AE filter management functionalities. • Restart without user interaction during installation is fixed • Browse DA2.0 performance optimizations • Browse DA2.0 filtering fixes
V4.30.1	01.03.2012	**OPC Foundation Lab Certification for both Client and Server** • Fixes for minor issues reported during lab tests
V4.30.0	07.10.2011	**New Features** • Operating system Microsoft Windows 7 is supported now. • Windows XP X64 • Windows 7 X64 • Windows Vista X64 • Windows 2003 Server X64 • Windows 2008 Server X64 • A new development environment, Visual Studio 2010, is supported now. • .NET 4.0 support added **Improvements, extensions, fixes** • Limit number of connected clients on server side (XML-DA, OPCDA) • The data types UI8 array and I8 array cannot be used with the .NET Toolbox • EU units in XML-DA not properly handled in the OTB • Connection to a generated AE OPC Server with Demo Client fails • Read/write still active after disconnecting the session on XML-DA servers • Timestamps returned are not correct when items are added to a group the very first time, and an initial read is performed • Incorrect functionality for XML-DA Server with items or properties with Unicode names • The information regarding the type of element (branch, leaf or item) is

		blocked at the API level
		• Connecting a session with a subscription which includes non valid items returns E_FAIL instead of S_FALSE
		• Asynchronous call of subscripton.ValidateItems leads to access violation
		• Request keep alive setting not working in C++ API
		• Error was found during compliance testing when removing items from the group
		• "EnumResultCodes" contains two incorrect definitions of standard COM error codes
		• OPC Server registry entries regarding the execution path (LocalServer) are truncated into 8.3 format at registration
		• AE Server gets into a deadlock when multiple network interruptions
		• Improvement in Variant equal handling
		• .NET CDK AE event attributes are not retrieved correctly
		• Unhandled exception in the Client when disconnecting the session with condition alarms
		• DemoServer returns Errors when writing properties
		• Writing error after changing the I/O mode to REPORT_CYCLIC
		Please note: Setup files for installation of V4.30 are contained in Toolbox V5.11 (CD box)
V4.22.05	08.02.2010	**This version includes improvements, extensions and bug fixes for version 4.22:**
		• OPC Client toolkit improved with access to Rockwell Server
		• Documentation items added in Reference Manual
		• Tracefiles are not created on the server's binaries location if the server is started by Demo Client fixed
		• Array datatype UI8 and I8 does not work correctly (TBC and TBN) fixed
		• Client ObjectSpaceElement superfluous attributes removed fixed
		• XML-DA now interoperable with SIMOTION OPC server implementation
		• XML-DA Session CurrentState property now changes when server is disconnected
		• String-based address space supported with XML-DA
		• Browsing of DCOM servers with the filter EnumServerBrowser Data_URL fixed
		• DaBrowse_DA20 items not named correctly in hierarchy with duplicate names - The sample was adapted to demonstrate the feature used for servers built with Rockwell OPC Toolkit
		• Connect using credentials to a server using tpda fails fixed
		• .NET dlls and C++ dlls have the same way of defining product versions
		• Wrong client name set for tunnel connections fixed
		• Demo client and server upgrade to unicode and VS2008

		• Server Request component works also when cache is NULL • XML-DA Subscriptions are now removed when client is being killed • XML-DA Arrays are now supported by Demo Client • SODaSRequest::complete can be called twice without failure • Session.DaGetProperties now works properly when properties for more than one element are requested • DA server side sessions are now cleaned up properly if the client closes "ungracefully" • From EasyConnect: Blocking syncRead TP call with itemTag = NULL • UI8 arrays and I8 arrays can now be used with .NET • Warning level has been upgraded to 4 for toolbox libraries • Documentation updated, remarks, notes added • .NET applications are working on 64 bit operating systems • Server Sample PerfClient can now be started implicitly with DemoClient • Ambiguous usage of string-based syntax-based and objectbased namespace
V4.22.03	08.07.2009	**This version includes improvements, extensions and bug fixes for version 4.22 for following topics:** **Common** • XML-DA: SOAP messages that contain elements between the envelope and body tag are now handled correctly • OTInitLib OTExitLib is now decoupled from the Server/Client instances **Server** • C++ ServerAEAddressSpaceElement::getParent method does now work correctly • Server status version number is now reported correctly • AeAddressSpaceElement::removeChild now handles the child elements correctly • The server is now able to get and store the name of the client that is connecting to it • The number of clients that can connect to a server now can be limited **Client** • Browse on DaSession does now work properly for XML-DA • Browsing a DAV2.0 server that has nodes with a huge amount of items now works properly • Communication problems (gaps in interpretation of the specification) with Siemens XML-DA Server fixed • Browsing of name spaces with identical item names in several name space branches in OPC servers built with Rockwell Toolkit (problem of Rockwell Toolkit) fixed with workaround

		• .NET DABrowseV2.0 sample - Browsing servers that support DAV2.0 returns correct results now
V4.22.01	04.03.2009	**Common** • Extensions of tracing capabilities **Server** • CTT failure in string based address space fixed **Client** • VB .NET DAConsole sample - Fix asynchronous read and write on session object • Alarms & Events: get the fully qualified name of an area or source object in the correct way • Wrong binary name for AEQuerySourceConditions in client sample fixed • Add a subscription to an OPC server not supporting setFilter interface is now possible • Wrong HRESULT when validating Items fixed • AE event attributes are now retrieved by .NET client application

V4.22.00	19.12.2008	**Visual Studio 2008 support**
		• A new development environment, Visual Studio 2008, is supported now. Beside the already existing toolbox and example projects, an additional VS2008 project exists for all of them.
		
		Linux support
		• The version 4.22 of the OPC Toolbox is introducing Linux support. Following Linux distributions are supported:
		  - Debian - distributions with 2.4 and 2.6 Kernel
		  - RedHat - distributions with 2.4 and 2.6 Kernel
		  - Suse - distributions with 2.4 and 2.6 Kernel.
		• Examples to demonstrate the toolbox functionality are also available for Linux distributions.
		
		Extended client and server samples
		• New samples were added for both client and server to demonstrate the toolbox functionality that was not covered by the other examples. A service sample was added for both server and client.
		
		Tutorial samples for C++
		• With the version 4.22, tutorial examples were added for C++ to show the steps to be followed for creating an OPC Client or an OPC server. The documentation, in the "Tutorial" chapter, gives explanations about the actions that were taken in every step.
		
		Wizard application new look and feel
		• With the version 4.22, tutorial examples were added for C++ to show

the steps to be followed for creating an OPC Client or an OPC server. The documentation, in the "Tutorial" chapter, gives explanations about the actions that were taken in every step.

API(classes, methods, parameters) Changes V4.20->V4.22
- With the version 4.22, the .NET methods returned type is int instead of uint as it was before. Still, the returned values should be checked using ResultCode.SUCCEEDED or Result-Code.FAILED.
- In the Application class the EnableTracing method signature has changed - parameter fileName2 was removed.

V4.20.04	13.10.2008	**Common** - Corrected ValueQT.ToString and ValueData.ToString method implementation **Server** - Fixed server registration problem with blanks in the path for Wizard generated projects - Performance tuning for adding and removing groups > 2000 items **Client** - Fixed problem when writing write only item on XML-DA #214# - Corrected DaSession. Write method
V4.20.03	25.09.2008	**Client** - Added HTTP basic authorization functionality to XML-DA client
V4.20.02	29.08.2008	**Server** - Fixed possible XML-DA CTT 1.0.8 "FT – SubscriptionPolledRefresh - Valid - Case 5" error - Fixed possible XML-DA CTT 1.0.8 "FT – SubscriptionPolledRefresh - Valid - Case 8" error - Fixed XML-DA server error if the last part of a SOAP message has the length 1 **Client** - Corrected behaviour on explicit Connect call on a DaItem - Fixed wrong return code of DaSubscription.ValidateDaItems for invalid items - Corrected browsing leaves on a DA V2 server - Fixed wrong return code on a failure of browsing the servers installed on a computer - Fixed wrong return code on a failure of connecting to a server - Corrected DaValidateItems implementation for XML-DA servers

V4.20.01	23.06.2008	**Common** • Corrected implementation of base64 encoding in the XML-DA client and server **Server** • Removed compile error occurred when compiling the core with all server sources installed **Client** • Corrected getting local stored properties in the client • Corrected the string based browsing in the server
V4.20.00	17.03.2008	After more than 10 years of successful OPC Toolkit development, the OPC Toolbox with almost 20 toolkits has been redesigned. It has also been prepared for the portation to any operating system and the inclusion of OPC Unified Architecture.