OPC UA C++ SDK Release Notes   September 2023

Version	Date	Release Note
V6.30.1	12.10.2023	**Bug fixes:** • Upgraded libxml2 to version 2.11.5 - this fixes ○ CVE-2023-28484 ○ CVE-2023-29469 ○ CVE-2022-40303 ○ CVE-2022-40304
V6.30.0	15.09.2023	**New features:** • Support PubSub MQTT transport protocol with JSON message mapping • Improved discovery server registration • Use OPC UA Nodeset 1.05.01 for default address space • Support of Simple Data Type Description • Support of DataTypeSystem • Upgrade to OpenSSL 1.1.1v • Upgraded VxWorks 7 to version 2303 **Bug fixes:** • CVE-2023-41151: Exception in Server (Windows only) • Wrong exposed fields for structured data types • Bad performance in Server::BaseNode::init()
V6.20.1	19.04.2023	**Bug fixes:** • CVE-2023-27334: Unlimited Method Call Resource Exhaustion See also "Changes To Previous Versions" • CVE-2023-29377: Access of file directory • CVE-2023-29378: FileDirectory rename directory traversal • Missing client application description in user authentication
V6.20.0	14.02.2023	**New features:** • Support asynchronous user validation • Client access to data type hierarchy • Allow CRLs in DER format • Header files independent of include search paths • Update to OpenSSL 1.1.1t • Update to libxml2 2.10.2 **Bug fixes:** • CVE-2022-2097 in OpenSSL: AES OCB mode may not encrypt entire data • CVE-2022-2068 in OpenSSL: Command injection • CVE-2023-0286 in OpenSSL: X.400 address type confusion in X.509 GeneralName • CVE-2023-0215 in OpenSSL: Use-after-free following BIO_new_NDEF • CVE-2021-3541 in libxml2: Exponential entity expansion attack possible
V6.10.0	20.09.2022	**New features:** • Support of NetworkMessages with fixed layout in PubSub • Support of DataSetWriter configuration discovery messages in PubSub • Validation of own Application URI • Support of ECC security (beta)

		Bug fixes: • CVE-2022-1748 - NULL pointer access in method invocation at server • CVE 2022-37453 - malformed write requests can cause an excess memory allocation or an out-of-bounds memory access • CVE-2022-39823 - crash if too many continuation points are used in a single browse service
V6.00.0	09.06.2022	**New features:** • Use OPC UA Nodeset 1.05 for default address space. • Support of Visual Studio 2022 • Windows Server 2022 Support • Windows 11 Support • RegisterServer2 support for Server applications • Support of ResendData method • Denial of repeated connect attempts • Rework on license evaluation • Update to OpenSSL 1.1.1o **Bug fixes:** • CVE-2022-1292 - command injection in OpenSSL • Changed interface of Server::BaseNode::generateNodeIdForSubNode
V5.70.1	28.03.2022	**New features:** • Update to OpenSSL 1.1.1n **Bug fixes:** • CVE-2022-0778 - endless loop in OpenSSL • Client::Session::updateDataTypes fails if server restricts browse results
V5.70.0	28.02.2022	**New features:** • Support of GDS for certificate management • Option to send own instance certificate as chain • PKIStoreConfiguration paths can be initialized via base path • PKI store option to allow partial chains • Store rejected certificate chain as separate files • Update to OpenSSL 1.1.1m **Bug fixes:** • Application::createSelfSignedCertificate now stores private key in password protected PEM format • CVE-2021-42262 - endless loop in case of malformed type dictionary • CVE-2021-3451 - update to libxml2 2.9.11 • CVE-2021-42577, CVE-2021-45117 - a possible crash in UA client communication
V5.66.1	06.09.2021	**New features:** • Structured data types support fields containing matrix values **Bug fixes:** • PubSub does not work for Unicast • Fix delayed republish when detected on KeepAlive message • CVE-2021-40873 - a possible crash in UA server communication • CVE-2021-40871 - a possible crash in UA client communication
V5.66.0	21.07.2021	**New features:** • Support of reverse connect • Support of unions • Update to OpenSSL 1.1.1k

		• Discontinued support for writing DataTypeDefinition attribute **Bug fixes:** • Changed behaviour of init() • Fixed a rare issue with a missing notification during Client::Session connect and reconnect. • Fixed encoding / decoding of structure fields using fixed length array • Fixed security checks for client session not needing security • Fixed Client::Session::updateDataTypes for large number of data types
V5.65.0	16.03.2021	**New features:** • Improved access to array members of data type classes • Update to OpenSSL 1.1.1i • Support for Decimal Data Type **Bug fixes:** • Changed behaviour of inserting nodes into address space • Changed behaviour of Server::BaseNode::init • Fixed possible crash in recursive invocation of BaseNode::removeTree() • Fixed vulnerability CVE-2021-32994 (missing type checks for decoding various PubSub data types)
V5.64.0	06.10.2020	**New features:** • Support Role Permissions • Discontinued support for Visual Studio 2010 • Convenience function to configure Client::Session
V5.63.0	04.06.2020	**New features:** • Support for Visual Studio 2019 • Update to OpenSSL 1.1.1g • Configurable discovery URL • Interface changes for host name resolution • Configurable operation limits • Added support for ARMv7, reduced Linux installer size **Bug fixes:** • Corrected problems related to Nodeset2 import/export. • Trace enabled by default in all samples and tutorials. • Fix error handling on client side when republishing is enabled. • Corrected FileDirectory::addFile() to support files > 2GB.
V5.62.1	09.04.2020	**Bug fixes:** • Fixed documentation issues.
V5.62.0	26.02.2020	**New features:** • Support of Attribute DataTypeDefinition • Support of Structures with Optional Fields • Support of OptionSet data type • Support for Application Configuration Files • Control the Initialization and Deinitialization of Libxml2 via loadToolbox() • Validation of CVE-2019-19135 Method "disableSecurityChecks" replaces "ignoreMantis4545" and "ignoreMissingNonce"
V5.61.0	06.11.2019	**New Features:**

		• Support of delta frames on publishing • Support for FileDirectory object type **Bug fixes:** • Fixed missing notifications in Application::handleMonitoingChange • Missing bad status code if Client::Session did not connect • Fix in Client::Session::getCustomDataTypeIds • Fixed a missing publish response in case of session reconnect • Various bugs in PubSub implementation • Correct handling of NaN for floating point values
V5.60.0	08.08.2019	**New Features:** • Samples for PubSub applications • Support exposing of PubSub configuration in address space • Support to request and get PubSub MetaData information • Allow to Identify the source of PubSub subscribed data • Workaround for non-compliant UA applications **Bug fixes:** • Various bugs in PubSub implementation • Minor bugs in Nodeset2 XML import
V5.59.0	15.05.2019	**New Features:** • Support for Publisher and Subscriber based on UDP **Bug fixes:** • Correct handling of EnumRequestState_Pending in transaction classes
V5.58.0	29.01.2019	**New Features:** • Update to OpenSSL 1.1.1a • Endpoint can use PKI store configuration for user validation • Self-signed certificates can be created during runtime • New license keys **Bug fixes:** • Client::Session does not return from connect() or disconnect() under rare conditions with multiple sessions • Methods at types can be invoked without explicit HasComponent reference between object instance and method
V5.57.0	06.11.2018	**New Features:** • Generic validation of input arguments • Support of FileType • Samples for custom data types • New installer for Linux, Windows and VxWorks • Updated to OpenSSL version 1.1.0i **Bug fixes:** • Access pattern can be modified during runtime • Memory leak in rare conditions of parallel access • Minor bugs in client support of structured data types • CVE-2018-12087 See https://opcfoundation-onlineapplica-tions.org/faq/SecurityBulletins/OPC_Foundation_Security_Bulletin_CVE-2018-12087.pdf
V5.56.0	07.08.2018	**New Features:**

		• Client support of custom data types • XML import creates custom data types
V5.54.0	15.05.2018	**New Features:** • Certificate Change Callback • Specific PKI store configuration for client sessions and server end-points • Updated to OpenSSL version 1.0.2o • Windows Server 2016 Support **Bug-fixes and optimizations as customer feedback**

V5.53.2	11.08.2017	**Bug fixes:**
		• Clients based on .NET stack failed to connect.
		• **CVE 2018-12086**
		  See
		  https://opcfoundation-onlineapplica-tions.org/faq/SecurityBulletins/OPC_Foundation_Security_Bulletin_CVE-2018-12086.pdf

V5.53.0	21.06.2017	**New Features:** • Support of multi-dimensional arrays • Visual Studio 2017 project and solution files • Importing NodeSet2 XML works also when comments are included • Updated to OpenSSL version 1.0.2k • For Linux: Support for linking the Toolkit as a shared library **Bug-fixes and optimizations as customer feedback**
V5.52.0	30.09.2016	**New Features:** • IPV6 support for Windows and Linux versions • TranslateBrowsePathToNodeIds extended to to find more than one NodeId • NodeSet Import adaptation to use OPC UA 1.03 schema **Bug-fixes and optimizations as customer feedback**
V5.51.0	03.08.2016	**New Features:** • MultiStateValueDiscreteType as described in part 8, chapter 5.3.3.4 of the OPC UA specification is now supported. • Model designer server backend component extended to export "virtual" nodes, nodes defined and served at application level only.
V5.50.0	02.05.2016	**New Features:** • Address Space Model Designer Interface added – UA compatible interface • NodeSet2 compatible files Import and Export capabilities added to Address Space Designer interface • Windows 10 Support • Basic256Sha256 security policy added • Server asynchronous service handling extended with subscriptions and session management services. • Use monotonic clock to calculate sampling and publishing interval • Client subscription can connect a list of monitored items • VxWorks 7 compatibility extensions added

		• Open SSL updated to 1.0.1s • Linux build scripts extended for cross compiling and share objects support
V5.41.1	27.10.2015	**New features:** • Support of asynchronous handling for deleting sessions • Visual Studio 2015 project and solution files • Support for VxWorks 7.0 • Updated to OpenSSL version 1.0.1p **Bug-fixes and optimizations as customer feedback**
V5.41.0	04.09.2015	**New features:** • Support of user-defined enumerations (server only) • Support of asynchronous handling for deleting subscription • HTTPS as transport layer for OPC UA
V5.40.0	15.07.2015	**New Features:** • Address space modelling: Server is now capable to export it's address space into an NodeSet2 XML file • Visual Studio 2013 support • Secure Channel sharing for Client::Sessions – Multiple sessions between one client and a server shares now the same Secure Channel respective TCP/IP resources. • Tracing (logging) mechanism was extended with the option of the application to hook in and receive the toolkit internally generated trace mechanism
V5.36.1	04.03.2015	**OPC Foundation Lab certified version – Server for Linux** **Bug fixes** • Adaptions and bug fixes for OPC UA 1.02 compliance
V5.36.0	19.12.2014	**New Features** • Server Endpoint Binding: the toolkit now supports restriction of a servers endpoint to a single IP interface. • Server Address Space Import: The import of address space via NodeSet2 XML files now supports extensions within the XML file. • Server Queuing Mechanism for Monitored Items changes: The monitored items at server store changed values in a queue for reporting to client. Only one value shall be stored for a sampling interval. In former toolkit versions the timestamp used for this comparison was the actual system time in the server; now the server timestamp of the DataValue is used for this calculation.
V5.35.0	03.11.2014	**New Features** • Support of custom structured data type for servers **Licensing** • The toolkit licensing model extended to source code
V5.30.2	19.09.2014	**New Features:** • Updated to OpenSSL version 1.0.0m • isCancelled method now detects timed out transactions and requests

V5.30.1	10.04.2014	**New Features:** • Support for native 64 Bit applications on Linux • Support for asynchronous create, modify and delete for Monitored Items
V5.30.0	21.02.2014	**New features:** • Support for native 64 Bit applications on Windows • Import nodes to a server using a NodeSet2 XML file • Address space validation to OPC UA conformance for servers • Custom handling of Browse and TranslateBrowsePathToNodeId on servers • Redundancy support for clients for working with redundant servers
V5.21.2	01.07.2013	**New features:** • Linux versions now deliver static OpenSSL 0.9.8 library **Bug fixes:** • Set an empty string array to a value does not work
V5.21.1	07.03.2013	**Bug fixes:** • Diagnostic nodes are not always removed when disabling diagnostic • Problems retrieving values of type Duration and UtcTime • Crash in server in case of calling RefreshSubscription with an invalid subscription ID
V5.21.0	17.01.2013	**New Client and Server Features:** • Support for HistoryRead Services • Support for Query Services • Support for Cancel Service • Support for Node Registration Services • Authentication with WS-Security Tokens • General fixes and performance optimization **New Client Features** • Auto-Reconnect • Connection Watchdog **New Server Features** • Support for Disabling Services • Data Access Server Facet • Condition Branches • Server Diagnostics • Language Support • Support for SemanticChange events • Support for ModelChange events • Bulk Access to Cached Data Values • Initial Values of Subscriptions **Notes** • Source code version is available as Client & Server bundle in 3 flavors: Windows, Linux, VxWorks • Product name changed to OPC UA C++ Toolkit • The former .NET API is discontinued • The VxWorks deliverables are available in zip format only

V5.10.03.6665	04.11.2011	**Bug fixes:** • #408: Corrected marshalling of StatusCode.GetErrorText for .NET API • #409: Memory Leak under very rare conditions • #419: Client session name is not passed to server
V5.10.03.6594	31.08.2011	**Bug fixes:** • #397: Crash due to wrong reference counting in MonitoredItem::getNode and MonitoredItem::getSubscription • #402: Crash "out-of-bounds" if context filter causes casting of an XML element • #403: Subscriptions of sub-ranges return complete array • #407: Memory leak in server if a client invokes a not supported history-Read of historyWrite service
V5.10.02.6340	20.06.2011	**Bug fixes:** • Memory leaks in OPC UA stack in specific error conditions • #377: Crash in event filter in specific circumstances • #380: Possible leak on removing nodes from address space under very rare timing circumstances • #382: Possible deadlock (Linux and VxWorks only) under very rare conditions (re-use of thread handle before thread is terminated) • #383: Client can remove wrong monitored item • #387: Some event filters do not work as expected • #388: Memory leak (server) when filter is modified • #391: Monitored items in triggered mode do not always report changes • #394: Client deadlock in synchronous browseNext with 0 continuation points • Correct initialization of ServerArray and NamespaceArray
V5.10.01.6067		**New features:** - Support for Linux Debian/Ubuntu and Scientific Linux Asynchronous **Bug fixes:** • #345: Improved performance in reference access • #369: Browse direction not correctly evaluated in TranslateBrowsePath-ToNodeId service • Potential crash on shutdown tracing module • Initial value reporting of monitored item
V5.10.01.5872	31.05.2011	**Bug fixes:** • #334: Tutorials 8 and 9 fixed • #346: Default install path adapted • #364: Fixed deadlock in removeEndpoint • #365: User access check for write variables fixed
V5.10.00	22.10.2010	**New Features** • Alarms&Condition added, • Support of VxWorks version 6.7.1.1 and 6.8.2 **Server and Client:** • #331: Memory leak (Windows only under very rare conditions) **Server only:** • Memory leak discovered on replay attack **Client only:** • #303: Memory leak (and possible crash)

		• #317: .NET client API support for A&C filters
V5.00.04	14.12.2009	First release of OPC Toolbox UA for Windows and VxWorks supporting UA Binary protocol and Data Access. There is no clear correspondence to Profiles and Facets, yet. There has not been available any Compliance Test Tool for OPC UA (UA CTT), yet.