Definition and Legend

This document tracks changes made in the specifications that are mandatory for products implementing the technologies.
ODVA publishes this list separately from the specifications in order to give developers and managers advanced notice
of changes that will impact the products for which they are responsible.
This document does not list any optional changes. For optional changes and enhancements, see the Revision page at the front of each specification volume.

Scope of Change

O: Optional: An optional feature/function
C: Conditional: An optional feature/function that is required under specific conditions, see specification
M: Mandatory: A feature/function that is required
If the Scope of Change differs between Descriptions of a single spec change, separate rows are shown.

Scope of Products Impacted

New: Products taking the conformance test the first time
Existing: Products that already have a valid DOC and are being updated with new featues, as defined in section 8 of the Conformance Policy (PUB00008)

Additional Notes

With most of the changes, the object revision is being changed, so be sure to check for that detail in the specification.
The effective date is the date when the change will be enforced by conformance testing.
Specification volumes are referenced by number. The titles of the volumes can be found on a tab in this spreadsheet.
If there is a discrepancy between this spreadsheet and the specification, the latest released specification(s) will prevail.
The title of each page identifies the the publication cyle of the changes shown. There are two publication update cycles
each year, typically in April and November.

Updated   **August 24, 2021** (Correction to error in edition reference only)

Volume Number	Volume Title	Edition at April 2021 (2021 PC 1) Publication
1	The Common Industrial Protocol	3.30
2	EtherNet/IP Adaptation of CIP	1.27
3	DeviceNet Adaptation of CIP	1.16
4	ControlNet Adaptation of CIP	1.09
5	CIP Safety	2.22
6	CompoNet Adaptation of CIP	1.07
7A	Integration of Modbus Devices into the CIP Architecture	1.11
7B	Integration of HART Devices into the CIP Architecture	1.03
7C	Integration of IO-Link Devices into the CIP Architecture	1.01
8	CIP Security	1.12
9	CIP Motion	1.07

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
Corrections and Clarifications to the LLDP Management Object (PUB00346R0)	2	1.29	1. Definition correction to LLDP Enable attribute 1 for both LLDP Enable Array Length and LLDP Enable Array fields. 2. Access Rule of MsgTxHold attribute 3 was changed from Get to Set.	New and Existing	M	Apr-21	Apr-21
LLDP Date Extension	2	1.29	1. LLDP enforcement date was extended from December 2021 to May 2022. 2. Clarify the LLDP implementation requirements in section 9-8 as below.	New and Existing	M	Nov-21	May-22

The following table defines which devices need to support transmission of LLDP TLV's and reception of LLDP TLV's. If a currently conformant device without LLDP (as defined in this section) is brought for a conformance test without changes in CIP functionality, the ODVA LLDP feature is not required.[1]

Table 9-8.1 LLDP Support Requirements

Device Contains Bridge(s)	Device Implements In-Cabinet Profile	LLDP Transmission	LLDP Reception
Yes	No	Required	Required
No	No	Required	Optional
Yes	Yes	Required	Required
No	Yes	Required	Required

1 Review section 8 of ODVA PUB00008 for requirements related to conformance testing by a TSP.

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
Time Sync Object Attribute Clarifications	1	3.30	1. Some instance attributes of Time Sync Object changed data types but no data length change. 2. Time Sync Object is at revision 5 which has a new conditional Associated Interface Labels attribute 31. Associated Interface Objects attribute 29 description is also calarified.	New and Existing	C	Apr-21	Apr-21
Process Device Diagnostics Object Updates	1	3.30	1. Process Device Diagnostic Object Revision 3 is required. (Table 5B-19.5) 2. A required Supported Profile Diagnostics attribute 17 was added. (Table 5B-19.6)	New and Existing	C	Apr-21	Apr-21
In-Cabinet EtherNet-IP Profile	2	1.27	1. A required EtherNet/IP Usage Item in ListIdentity response for devices implementing the In-Cabinet Usage profile. (Table 2-4.6) 2. Two conditional attributes were added to Ethernet Link Object which are required for In-Cabinet Usage Profile. (Table 5-5.3) 3. New Select Link Link Object, In-Cabinet Actual Topology Object and In-Cabinet Commissioning Object were added. (Section 5-17, 5-18 & 5-19) 4. LLDP Data Table Object and two new attributes are required for In-Cabinet Profile Gateway/Router devices. (Table 5-16.3) 5. New required LLDP TLVs for In-Cabinet Profile Gateways Nodes and End Nodes. (Section 9-8.3)	New	C	Apr-21	Apr-21
Active Certificate Deletion Behavior	8	1.12	Added behavior specification about deletation of an active device certificate. (Section 5-4.4.6 and 5-4.9)	New and Existing	C	Apr-21	Apr-22
Constrained CIP Security	8	1.12	1.Added a ligthweight Constrained CIP Security Profile for resource-constrained devices. (Table 1-3.2) 2. Defined a User Authentication/Authorization Proxy scheme for resource-constrained devices and CIP Security Object is updated to support this new prpofile. (Section 2-6 and section 5-3.4) 3. Added two new required Pre-Shared Key Cipher Suites. (Table 3-5.5) 4. Updated EtherNet/IP Security Object to revision 6 to support multiple PSKs needed by Constrained CIP Security Profile. (Section 5-4.3 and 5-4.4)	New	C	Apr-21	Apr-21
Update EST Service Name	8	1.12	Request CIP Endpoints to look for EST server _est-cip._tcp service instead of _est._tcp service for CIP certificates. (Section 4-3.4.3.2.1)	New and Existing	C	Apr-21	Apr-21
Send Receive Fragment Requirement	8	1.12	Ethernet/IP devices implemented EtherNet/IP Seucirty Profiles are required to support Send_Receive_Fragment service, Pull Model and File Object. (Table 8-2.1)	New and Existing	C	Apr-21	Apr-21
Certificate Signing Request with Subject Alt Name	8	1.12	1. Added Subject Alternative Name to Create_CSR service which updated Certificate Management Object to revision 2. (Table 5-5.15). Conformant CIP Security devices shall be updated to support the new service parameter. 2. A optional Check Subject Alternative Name attribute was added to EtherNet/IP Security Object. (Table 5-4.3)	New and Existing	C	Apr-21	Nov-22
Requirement for Output Ownership	5	2.22	OCPUNID is required only for connection points that directly control 'safety outputs' within an 'output device'. (Section F-3.10.1.4) (Section 5-4.2)	New and Existing	C	Apr-21	Apr-21

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
CIP Security Session ID	1	3.29	The User Authentication Session ID Network Segment is added (Section C-1.4.3) to support CIP Security User Authenication Profile.	New and Existing	C	Nov-20	Nov-20
Process Device Diagnostics Object Updates	1	3.29	1. Process Device Diagnostic Object Revision 2 is required. (Table 5B-19.4) 2. A Optional Recommended Action attribute 11 was added. (Table 5B-19.6) 3. Class attribute 16 User Diagnostic Groups was changed from Required to Optional. (Table 5B-19.1)	New and Existing	C	Nov-20	Nov-20
Serial Number E-key Correction	1	3.29	New status code 0x13A (Serial Number Mismatch) (Table 3-5.34)(Table 5A-3.33)	New and Existing	C	Nov-20	Nov-20
Identity Object Instance Level GAA Response	1	3.29	1. Identity Object Revision 2 is defined. For devices support revision greater than 1, GAA response shall include attribute 14, 19-22 if those attributes are implemented. (Table 5A-2.11) 2. Issue Advisory for devices only support revision 1.	New	C	Nov-20	Nov-20
CIP Security User Authentication Profile	8	1.11	1.The newly added CIP Secuirty User Authentication Profile will provide user level authentiation and basic authorization. (Table 1-3.2) 2. Added three new CIP objects: Authority Object, Password Authenticator Object and Certificate Authenticator Object. (section 5-2) 3. A updated format of CIP Security Item in ListIdentity response. (Table 3-5.1) 4. CIP Security Object is in Revision 4 and add new Required Security Profiles Configured instance attribute 3. (Table 5-3.1 and Table 5-3.2)	New	C	Nov-20	Nov-20
Objects Cleanup	8	1.11	1. Kick_Timer service of CIP Security Object shall only be accepted in Configuration In Progresss state otherwise shall return status 0x0C (section 5-3.7.2) 2. When Delete service is used to delete an static instance, status code 0x2D shall be returned, not status 0x0C. (section 5-5.5.2) 3. Kick_Timer service of EtherNet/IP Security Object shall only be accepted in Configuration In Progresss state otherwise shall return status 0x0C (section 5-4.7.2)	New and Existing	M	Nov-20	Nov-21
Modification of Max Fault Count	5	2.21	1. The Max_Fault_Number parameter in Safety Open is changed from a range to a constant 2. (section 2-6.1) 2. The Max Fault Number attribute 22 is changed to have a fixed value 2 and Get only. (Table 5-6.2) 3. The Max_Fault_Number field of Safety Network Segment is changed to a fixed value 2. (Table C-5.1) 4. TST112, TST117, TST9, TST118, TST10, TST119, TST95 are all updated to use Max_Fault_Number = 2 (F-3.6.2, F3.9.2, F-3.4.2, F-4.11)	New and Existing	M	Nov-20	Nov-20

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
Unit Code cleanup	1	3.28	Update Symbols for several Engeering Units, such as x2609, x260A, x261A, x2621, etc. (Section D-2.7, D-2.25)	New and Existing	M	Apr-20	Apr-20
Member List Clarifications	1	3.28	1. Assembly Object instance attribute 1 and 2 clarification (Table 5A-5.4). 2. Clarify that the padding between Connection Point members shall be represented as null members in the Connection Point Member list. (section 4.8.1) 3. Correct Standard Network Diagnostic Assmbly Content and Ordering. (Table 5A-5.15) 4. Explain how to handle padding in Get_Connection_Point_Member_List service. (section A-4.23.1)	New and Existing	C	Apr-20	Apr-20
CIP Security Object Reset	8	1.10	Specify CIP Security Object Revision 3 which adds a Required Reset service. (Table 5-3.5)	New and Existing	M	Apr-20	Apr-21
DTLS Extensions for UDP-Only Transport	8	1.10	1. For UDP-only EtherNet/IP security device, DTLS is used for all CIP communications sent in a CIP Security context. (Section 3-2.1) 2. New StartDTLS command (section 3-5.3.2) 3. Specify EtherNet/IP Security Object Revision 5 which adds new UPD-only Policy attribute. (Table 5-4.3)	New	C	Apr-20	Apr-20
UDP-Only EtherNetIP for Constrained Devices	2	1.26	1.Specify requirements for a UDP-only EtherNet/IP solution which causes changes in handling of Encapsulation commands and UCMM. (Table 2-3.2) 2. ListIdentiy reply has one new EtherNet/IP Capability Item. (Table 2-4.5, Table 2-6.3) 3. Introduce the EtherNet/IP Transports Application Profile. (Chapter 11) 4. TCP/IP Interface Object Encapsulation Inactivity Timeout attribute is not allowed for UDP-Only EtherNet/IP Transport Profile. (Table 5-4.3)	New	C	Apr-20	Apr-20
Unit Code cleanup	7B	1.2	Update Symbols of several Engeering Units for HART devices. (section D-1.1)	New and Existing	M	Apr-20	Apr-20
Base Format Deprecation	5	2.20	Remove the requirement to implement and test the Base Format. (Table 2-1.3)	New and Existing	M	Apr-20	Apr-20
Test TST42, TST43 and TST44 Corrections	5	2.20	Update TST42, TST43 and TST44 to accept correct error code. (F-3.10.1.2, F-3.10.1.3,	New and Existing	M	Apr-20	Nov-21
Cleanup Configuration Procedure Guidelines	5	2.20	Remove classs 3 connection requirement for SNCT configuration data transfer so SRS138 was removed from TST55. (F-3.11.5.5)	New	M	Apr-20	Nov-21
Switch change detect	5	2.20	Remove the requirement for a background test of the switches in safety devices so FRS350, FRS351 and FRS 354 were removed from TST50 (F-3.11.2); FRS350 and RSR364 were remvoed from TST108 (F-3.11.3).	New	M	Apr-20	Apr-20

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
File Object Clarifications & Extensions	1	3.27	1. Specify File Object Revision 3 which has new attribute 12 and different behaivor (Table 5A-42.27) than rev 1 or 2. CIP Security device is required to support revision 3. 2. New Optional Encoding parameter to Create service (Table 5A-42.10).	New and Existing	C	Dec-19	Jun-21
Assembly Object Class Revision Attribute clarification	1	3.27	Assembly Object Revision attribute value can be either 02 or 03 (Table 5A-5.3).	New and Existing	C	Dec-19	Dec-19
Orphan Certificate Cleanup	8	1.9	1. Specify CIP Security Object Revision 2 which adds a Required Object_Cleanup service (Table 5-3.9). 2. Update Apply Behavior Flag parameter for Apply_Config service of EtherNet/IP Security Object (Table 5-4.12).	New and Existing	C	Dec-19	May-19
EIPSO Reset Condition	8	1.9	Reset service must be sent over a TLS session conditional on the EtherNet/IP Security Object being in the configured state. (Section 5-4.5.1)	New and Existing	C	Dec-19	Dec-19
EIPSO State Addition	8	1.9	Specify EtherNet/Ip Security Object Revision 4, added new Pull Model Disabled state and changed Atrribute #13 to Get only. Stte Event Matrix Table 5-14.14 was updated with the new state.	New and Existing	C	Dec-19	Dec-19
LLDP	2	1.25	1. LLDP Management Object (0x109) and LLDP Data Table Object (0x10A) definition are added (Section 5-15 and Section 5-16). 2. Specify ODVA specific implementation of the Link Layer Discovery Protocol (LLDP) (section 9-8). If LLDP protocol is supported, LLDP Management Object shall be implemented. If receive mode is implemented, either LLDP Data Table Object or SNMP shall be implemented. 3. EtherNet/IP Devices undergoing certification for the first time and multi-port devices receiving an update that adds CIP functionality are required to implement LLDP protocol.	New and Existing	M	Dec-19	Dec-21

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Standard Network Diagnostic Assy	1	3.26	1. Assembly Object Revision attribute should be 3, 1 and 2 are only allowed for Static Assemblies (Table 5A-5.3). New Conditional attribute Member List Signature (Table 5A-5.4). 2. New Conditional Get_Connection_Point_Member_List service for Connection Manager, Time Sync Object (Table 3-5.3, Table 5B-2.17).	New and Existing	C	Apr-19	Nov-20
Identity Object Reset Service Clarification	1	3.26	1. Reset service is only required for instqance 1. 2. Devices that reset the whole device if a Reset has been directed to Instances greater than 1 will be non-conformant.	New and Existing	C	Apr-19	Apr-20
DTLS Timeout Enhancement	8	1.8	EtherNet/IP Security Object Revision updates to 3. New required attribute DTLS Timeout is added for CIP Security device.	New and Existing	C	Apr-19	Apr-19
Requiring CIP Security for Services	8	1.8	After a device's CIP Security Object has attained the CONFIGURED state configuration changes must only be accepted if the changes are made over a CIP Security connection for File Object, TCP/IP Object and Ethernet Link Object (Section 4-3.1.3).	New and Existing	C	Apr-19	May-19
CMO State Machine Clarification	8	1.8	Verify_Certificate service clarification and CMO State clarification. (Table 5-5.17 and Table 5-5.18)	New and Existing	C	Apr-19	Apr-19
Feedback Ratio	5	2.18	Add new Conditional attributes and services to Safety Dual Feedback Channel Object for multiport safety devices. (Section 5-4)	New and Existing	C	Apr-19	Apr-19

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
Common Object Class EDS Correction	1	3.25	Object_Name and Object_Class_Code keywords are required in the [Assembly], [Parameter], [Group] section of eds file if such object exists in the device.(Table 7-3.32, Table 7-3.5, Table 7-3.29.)	New and Existing	M	Nov-18	Apr-19
HART Hooks	1	3.25	New required attributes are added to Identity Object for HART devices (Table 5A-2.3)	New	C	Nov-18	Nov-18
File Instance Clear_File and Save Params	1	3.25	Clear_File service shall not clear File Save Parameter. (Section 5A-42.5.7)	New and Existing	M	Nov-18	Nov-18
STIME correction	1	3.25	STIME shall be data type ULINT not LINT.	New and Existing	M	Nov-18	Nov-18
Remove Integrity Profile	8	2.17	Integrity Profile is obsolete for CIP Security device.	New and Existing	M	Nov-18	Nov-18

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System Time Definition	1	3.24	Improve elementary data type for System Time (STIME) (Table C2.1, Section C-3.3, Section 7-3.5.1.12)	New and Existing	M	Apr-18	Apr-18
Invalid Connection Size Status Code	1	3.24	Allow an exception for CIP-Modbus translators to use Status Code 0x109 (Table 3-5.33)	New and Existing	M	Apr-18	Apr-18
Pull Model	8	1.6	Pull Model is a new mandatory capability of CIP Security devices. (Section 4-3, 5-4, 5-5, 6-5.3)	New and Existing	C	Apr-18	May-21
EIP Security Object IF Linkage	8	1.6	Each CIP Security device with more than one IP address shall support the Port Object and the Associated Communication Objects attribute. (Section 5-4.1)	New and Existing	C	Apr-18	Apr-18
Multiport Safety Devices	5	2.17	Add new Required attributes and services of Safety Supervisor Object for multiport safety devices. (Section 5-4)	New and Existing	C	Apr-18	Apr-18

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
PTP_Leap_Seconds_Attribute	1	3.23	a. Revision Class attribute can be 3 or 4 (required for Master capabple device). (Section 5B-2.3) b. New conditional attribute 30. (Section 5B-2.4)	New and Existing	C	Nov-17	May-19
Port Type 0 Associated Communication Objects Issue	1	3.23	a. Port Type and associated objects classification. (Table 3-7.4) b. Associated Communication Object attribute clarification. (Section 3-7.2.1.9)	New and Existing	C	Nov-17	Nov-17
CIP Sync over PRP	1	3.23	A new PTP profile for PRP (Table 5B-2.20)	New and Existing	C	Nov-17	Nov-17
Connection Manager Error Codes Updates	1	3.23	New Connection Manager Error Codes (Table 3-5.33)	New and Existing	C	Nov-17	Nov-17
Get-Set_Attribute_List Clarifications	1	3.23	Clarification of Get/Set_Attribute_List service (Section A-4.3 and Section A-4.4)	New and Existing	C	Nov-17	Nov-18
Commissioning Updates	8	1.5	Enhanced commissioning requirements. (Section 4-3 and section 5-3)	New and Existing	C	Nov-17	Nov-17
Enhance Certificate Trust	8	1.5	a. New required Trusted Identities attribute of EtherNet/IP Security Object (Section 5-4.4) b. Clarification of Certificate Management Object (Section 5-5.4)	New and Existing	C	Nov-17	Nov-17
Correct CIP Security Object Get Attr All	8	1.5	Correct error in CIP Security Object instance level Get_Attribute_All response layout (Table 5-3.8)	New and Existing	C	Nov-17	Nov-17
Secure CL3 and Non-Secure CL1 Clarification	8	1.5	Guideline on how to open non-secure Class 0/1 connection via secure UCMM or Class 3 connection (Section 3-5.7.2.4)	New and Existing	C	Nov-17	May-18

Topic	Volume	Edition	Description	Scope of Products Impacted	Scope of Change	Publish Date	Effective Date
File Object Enhancements	1	3.22	a. Revision Class attribute can be 1 or 2. (Section 5A-42.2) b. Changed definition of the File Save Parameters attribute. (Section 5A-42.2.1.8) c. State Event Matrix change for Download Transfer, First-and-last and Upload_Transfer event. (Table 5A-42.26)	New and Existing	C	Apr-17	Nov-17
PTP port number association	1	3.22	a. Associated Interface Objects attribute is added to Time Sync Object to declare the PTP port number association. (Table 5B-2-3) b. [AssociatedInterfaceObjects] Entry Keyword is added to eds file. (Section 7-3.6.6.1)	Only New	C	Apr-17	Nov-17
Missing Item Count	8	1.4	Added Item Count to CPF Item for Unconnected Message over UDP for DTLS. (Table 3-5.4)	New and Existing	M	Apr-17	Apr-17
Null Fwd Open Clarification	8	1.4	Specify how a Null ForwardOpen should be sent in the presence of CIP Security. (Section 3-7)	New and Existing	C	Apr-17	Apr-17
Cert Format Clarification	8	1.4	Certificate Encodings Flag attribute and Certificate Encoding attribute are added to Certificate Management Object to specify certificate format. (Section 5-5.3.3 and Section 5-5.4.1)	New and Existing	M	Apr-17	Apr-17
PSK Format Clarification	8	1.4	Specify encoding format for Pre-shared keys. (Section 5-4.4.5)	New and Existing	M	Apr-17	Apr-17
MCAO_Not_Required	9	1.1	A Motion Control Axis Object or a vendor specific equivalent construct needs to be in CIP Motion Controller. (Section 1-2.2)	New and Existing	C	Apr-17	Apr-17
Enhancements for PRP HSR	2	1.23	a. PRP/HSR Nodes Table with Active Status attribute is added to PRP/HSR Table Object. (Section 5-14.3.3.1) b. Get_Member service is now Required for PRP/HSR Table Object. (Table 5-14.4) c. Diagnostic attributes 17 - 20 are added to PRP/HSR Protocol Object. (Table 5-13.3)	New and Existing	C	Apr-17	Nov-17