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CONTENTS

FOREWORD 14
1 Scope 16
2 Normative references 16
3 Terms, definitions and abbreviated terms 17
3.1 Terms and definitions 17
3.2 Abbreviated terms 18
4 Overview 18
4.1 Fields of application 18
4.2 Abstraction layers 19
4.3 Decoupling by use of middleware 19
4.4 Synergy of models 20
5 PubSub Concepts 20
5.1 General 20
5.2 DataSet 22
5.2.1 General 22
5.2.2 DataSetClass 22
5.2.3 DataSetMetaData 23
5.3 Messages 24
5.3.1 General 24
5.3.2 DataSetMessage field 24
5.3.3 DataSetMessage 25
5.3.4 NetworkMessage 26
5.3.5 Message security 26
5.3.6 Transport security 26
5.3.7 SecurityGroup 27
5.3.8 Topics 27
5.4 Entities 27
5.4.1 Publisher 27
5.4.2 Subscriber 30
5.4.3 Configuration tool 32
5.4.4 Security Key Service 32
5.4.5 Message Oriented Middleware 35
6 PubSub communication parameters 40
6.1 Overview 40
6.2 Common configuration parameters 42
6.2.1 PubSubState state machine 42
6.2.2 PubSub configuration properties 44
6.2.3 PublishedDataSet parameters 44
6.2.4 DataSetWriter parameters 55
6.2.5 Shared PubSubGroup parameters 60
6.2.6 WriterGroup parameters 63
6.2.7 PubSubConnection parameters 66
6.2.8 ReaderGroup parameters 70
6.2.9 DataSetReader parameters 72
6.2.10 SubscribedDataSet parameters 76
6.2.11 Information flow and status handling 82

6.2.12 PubSubConfiguration 84
6.3 Message mapping configuration parameters 89
6.3.1 UADP message mapping 89
6.3.2 JSON message mapping 99
6.4 Transport Protocol mapping configuration parameters 103
6.4.1 Datagram Transport Protocol 103
6.4.2 Broker Transport Protocol 112
7 PubSub mappings 118
7.1 General 118
7.2 Message mappings 118
7.2.1 General 118
7.2.2 MessageTypes 118
7.2.3 SequenceNumber in headers 119
7.2.4 UADP message mapping 120
7.2.5 JSON message mapping 143
7.3 Transport Protocol Mappings 150
7.3.1 General 150
7.3.2 OPC UA UDP 150
7.3.3 OPC UA Ethernet 152
7.3.4 AMQP 153
7.3.5 MQTT 158
8 PubSub Security Key Service model 166
8.1 Overview 166
8.2 PublishSubscribe Object 167
8.3 PubSubKeyServiceType 167
8.3.1 PubSubKeyServiceType definition 167
8.3.2 GetSecurityKeys Method 168
8.3.3 GetSecurityGroup Method 171
8.4 SecurityGroupType 172
8.4.1 SecurityGroupType definition 172
8.4.2 InvalidateKeys Method 173
8.4.3 ForceKeyRotation Method 173
8.5 SecurityGroupFolderType 174
8.5.1 SecurityGroupFolderType definition 174
8.5.2 AddSecurityGroup Method 175
8.5.3 RemoveSecurityGroup Method 176
8.5.4 AddSecurityGroupFolder Method 177
8.5.5 RemoveSecurityGroupFolder Method 178
8.6 PubSubKeyPushTargetType 179
8.6.1 PubSubKeyPushTargetType definition 179
8.6.2 Behaviour 180
8.6.3 ConnectSecurityGroups 180
8.6.4 DisconnectSecurityGroups Method 181
8.6.5 TriggerKeyUpdate Method 182
8.6.6 HasPushedSecurityGroup 183
8.7 PubSubKeyPushTargetFolderType 184
8.7.1 PubSubKeyPushTargetFolderType definition 184
8.7.2 AddPushTarget Method 184
8.7.3 RemovePushTarget Method 186

8.7.4 AddPushTargetFolder Method 187
8.7.5 RemovePushTargetFolder Method 187
8.8 Security Key Service Roles 188
9 PubSub configuration model 189
9.1 Common configuration model 189
9.1.1 General 189
9.1.2 Configuration behaviours 191
9.1.3 Types for the PublishSubscribe Object 192
9.1.4 Published DataSet model 208
9.1.5 Connection model 230
9.1.6 Group model 237
9.1.7 DataSetWriter model 247
9.1.8 DataSetReader model 249
9.1.9 Subscribed DataSet model 255
9.1.10 PubSub Status Object 265
9.1.11 PubSub Diagnostics Objects 267
9.1.12 PubSub Capabilities 276
9.1.13 PubSub Status Events 279
9.2 Message Mapping configuration model 281
9.2.1 UADP Message mapping 281
9.2.2 JSON Message mapping 283
9.3 Transport Protocol Mapping configuration model 285
9.3.1 Datagram Transport Protocol mapping 285
9.3.2 Broker Transport Protocol mapping 287
Annex A (normative) Header layouts 291
A.1 General 291
A.2 UADP header layouts 291
A.2.1 Message headers for periodic data with fixed layout 291
A.2.2 Message headers for Events and Data with dynamic layout 298
A.3 JSON Header Layouts 303
A.3.1 DataSets for examples 303
A.3.2 JSON message headers for minimal messages 306
A.3.3 JSON message headers for single DataSetMessage 308
A.3.4 JSON message headers for multiple DataSetMessages 311
Annex B (informative) Client Server vs. Publish Subscribe 314
B.1 Overview 314
B.2 Client Server Subscriptions 314
B.3 Publish-Subscribe 315
B.4 Synergy of models 316

Figure 1 – Publish Subscribe model overview 19
Figure 2 – Publisher and Subscriber entities 21
Figure 3 – DataSet in the process of publishing 22
Figure 4 – OPC UA PubSub message layers 24
Figure 5 – Publisher details 28
Figure 6 – Publisher message sending sequence 29
Figure 7 – Subscriber details 30

Figure 8 – Subscriber message reception sequence 31
Figure 9 – SecurityGroup management sequence 33
Figure 10 – Handshake used to pull keys from SKS 33
Figure 11 – Handshake used to push keys to Publishers and Subscribers 34
Figure 12 – Handshake with a Security Key Service 35
Figure 13 – PubSub using network infrastructure 36
Figure 14 – UDP Multicast overview 36
Figure 15 – PubSub using broker 37
Figure 16 – Broker overview 38
Figure 17 – Message Oriented Middleware providing QoS 39
Figure 18 – Mapping of priority-based QoS 40
Figure 19 – PubSub component overview 41
Figure 20 – PubSub mapping specific parameters overview 42
Figure 21 – PubSub component state dependencies 42
Figure 22 – PubSubState state machine 43
Figure 23 – PubSub information flow dependency to field representation 57
Figure 24 – PubSub information flow 82
Figure 25 – Start of the periodic publisher execution 89
Figure 26 – Timing offsets in a PublishingInterval 90
Figure 27 – DataSetOrdering and MaxNetworkMessageSize 91
Figure 28 – PublishingOffset options for multiple *NetworkMessages* 93
Figure 29 – UADP NetworkMessage 122
Figure 30 – UADP DataSet payload 129
Figure 31 – DataSetMessage header structure 130
Figure 32 – Data Key Frame DataSetMessage data 132
Figure 33 – Data Delta Frame DataSetMessage 133
Figure 34 – Event DataSetMessage 134
Figure 35 – KeepAlive message 135
Figure 36 – PublishSubscribe Object Types overview 166
Figure 37 – PubSub configuration model overview 189
Figure 38 – PubSub example Objects 190
Figure 39 – PubSub information flow 190
Figure 40 – PublishSubscribe Object Types overview 192
Figure 41 – Published DataSet overview 208
Figure 42 – PubSubConnectionType overview 230
Figure 43 – PubSubGroupType overview 237
Figure 44 – DataSet Writer model overview 247
Figure 45 – DataSet Reader model overview 250
Figure 46 – PubSub Diagnostics overview 267
Figure 47 – PubSubDiagnosticsCounterType 267
Figure A.1 – UADP NetworkMessage header layout 292
Figure A.2 – UADP NetworkMessage header layout with integrity (signing) 294
Figure A.3 – UADP NetworkMessage header layout with integrity and confidentiality 295

Figure A.4 – UADP DataSetMessage header layout 295
Figure A.5 – Example for fixed message layout without security 297
Figure A.6 – Example for fixed message layout without signature 297
Figure A.7 – UADP NetworkMessage header layout 298
Figure A.8 – UADP NetworkMessage header layout with integrity (signing) 299
Figure A.9 – UADP NetworkMessage header layout with integrity and confidentiality 300
Figure A.10 – UADP DataSetMessage header layout 301
Figure A.11 – Example for dynamic message layout without security 303
Figure B.1 – Subscriptions in OPC UA Client Server model 315
Figure B.2 – Publish Subscribe model overview 316

Table 1 – PubSubState values 42
Table 2 – PubSubState state machine 43
Table 3 – PubSubState definition 44
Table 4 – General PubSub configuration properties 44
Table 5 – DataSetMetaDataType structure 45
Table 6 – DataSetMetaDataType definition 46
Table 7 – FieldMetaData structure 46
Table 8 – FieldMetaData definition 48
Table 9 – DataSetFieldFlags Values 48
Table 10 – DataSetFieldFlags definition 48
Table 11 – ConfigurationVersionDataType structure 49
Table 12 – ConfigurationVersionDataType definition 49
Table 13 – PublishedDataSetDataType structure 50
Table 14 – PublishedDataSetDataType definition 50
Table 15 – PublishedDataSetSourceDataType definition 51
Table 16 – PublishedVariableDataType structure 51
Table 17 – PublishedVariableDataType definition 52
Table 18 – PublishedDataItemsDataType structure 52
Table 19 – PublishedDataItemsDataType definition 53
Table 20 – PublishedEventsDataType structure 54
Table 21 – PublishedEventsDataType definition 54
Table 22 – PublishedDataSetCustomSourceDataType structure 54
Table 23 – PublishedDataSetCustomSourceDataType definition 55
Table 24 – DataSetFieldContentMask Values 56
Table 25 – DataSetFieldContentMask definition 56
Table 26 – DataSetMessage field representation options 57
Table 27 – DataSetWriterDataType structure 58
Table 28 – DataSetWriterDataType definition 59
Table 29 – DataSetWriterTransportDataType definition 59
Table 30 – DataSetWriterMessageDataType definition 60
Table 31 – SecurityKeyService parameter content 61
Table 32 – PubSubGroupDataType structure 63

Table 33 – PubSubGroupDataType definition 63
Table 34 – WriterGroupDataType structure 65
Table 35 – WriterGroupDataType definition 65
Table 36 – WriterGroupTransportDataType definition 66
Table 37 – WriterGroupMessageDataType definition 66
Table 38 – ConnectionProperties 67
Table 39 – PubSubConnectionDataType structure 68
Table 40 – PubSubConnectionDataType definition 68
Table 41 – ConnectionTransportDataType definition 69
Table 42 – NetworkAddressDataType structure 69
Table 43 – NetworkAddressDataType definition 69
Table 44 – NetworkAddressUrlDataType structure 69
Table 45 – NetworkAddressUrlDataType definition 70
Table 46 – ReaderGroupDataType structure 70
Table 47 – ReaderGroupDataType definition 71
Table 48 – ReaderGroupTransportDataType definition 71
Table 49 – ReaderGroupMessageDataType definition 71
Table 50 – DataSetReaderDataType structure 74
Table 51 – DataSetReaderDataType definition 75
Table 52 – DataSetReaderTransportDataType structure 75
Table 53 – DataSetReaderTransportDataType definition 76
Table 54 – DataSetReaderMessageDataType structure 76
Table 55 – DataSetReaderMessageDataType definition 76
Table 56 – SubscribedDataSetDataType structure 76
Table 57 – SubscribedDataSetDataType definition 77
Table 58 – TargetVariablesDataType structure 77
Table 59 – TargetVariablesDataType definition 77
Table 60 – FieldTargetDataType structure 78
Table 61 – FieldTargetDataType definition 79
Table 62 – OverrideValueHandling values 79
Table 63 – OverrideValueHandling definition 79
Table 64 – SubscribedDataSetMirrorDataType structure 80
Table 65 – SubscribedDataSetMirrorDataType definition 80
Table 66 – StandaloneSubscribedDataSetRefDataType structure 80
Table 67 – StandaloneSubscribedDataSetRefDataType definition 81
Table 68 – StandaloneSubscribedDataSetDataType structure 81
Table 69 – StandaloneSubscribedDataSetDataType definition 82
Table 70 – Source to message input mapping 83
Table 71 – Message output to target mapping 83
Table 72 – PubSubConfigurationDataType structure 84
Table 73 – PubSubConfigurationDataType definition 84
Table 74 – PubSubConfiguration file content 85
Table 75 – SecurityGroupDataType structure 86

Table 76 – SecurityGroupDataType definition 86
Table 77 – PubSubKeyPushTargetDataType structure 87
Table 78 – PubSubKeyPushTargetDataType definition 87
Table 79 – PubSubConfiguration2DataType structure 88
Table 80 – PubSubConfiguration2DataType definition 88
Table 81 – DataSetOrderingType values 90
Table 82 – DataSetOrderingType definition 91
Table 83 – UadpNetworkMessageContentMask values 92
Table 84 – UadpNetworkMessageContentMask definition 92
Table 85 – UadpWriterGroupMessageDataType structure 94
Table 86 – UadpWriterGroupMessageDataType definition 94
Table 87 – UadpDataSetMessageContentMask Values 95
Table 88 – UadpDataSetMessageContentMask definition 95
Table 89 – UadpDataSetWriterMessageDataType structure 96
Table 90 – UadpDataSetWriterMessageDataType definition 96
Table 91 – UadpDataSetReaderMessageDataType structure 98
Table 92 – UadpDataSetReaderMessageDataType definition 98
Table 93 – JsonNetworkMessageContentMask values 99
Table 94 – JsonNetworkMessageContentMask definition 99
Table 95 – JsonWriterGroupMessageDataType structure 100
Table 96 – JsonWriterGroupMessageDataType definition 100
Table 97 – JsonDataSetMessageContentMask values 100
Table 98 – JsonDataSetMessageContentMask definition 101
Table 99 – JsonDataSetWriterMessageDataType structure 101
Table 100 – JsonDataSetWriterMessageDataType definition 101
Table 101 – JsonDataSetReaderMessageDataType structure 102
Table 102 – JsonDataSetReaderMessageDataType definition 102
Table 103 – Standard QosCategory values 103
Table 104 – QosDataType structure 103
Table 105 – QosDataType definition 103
Table 106 – TransmitQosDataType structure 104
Table 107 – TransmitQosDataType definition 104
Table 108 – TransmitQosPriorityDataType structure 104
Table 109 – TransmitQosPriorityDataType definition 105
Table 110 – ReceiveQosDataType structure 105
Table 111 – ReceiveQosDataType definition 105
Table 112 – TransmitQosPriorityDataType structure 106
Table 113 – ReceiveQosPriorityDataType definition 106
Table 114 – DatagramConnectionTransportDataType structure 106
Table 115 – DatagramConnectionTransportDataType definition 107
Table 116 – DatagramConnectionTransport2DataType structure 108
Table 117 – DatagramConnectionTransport2DataType definition 108
Table 118 – DatagramWriterGroupTransportDataType structure 108

Table 119 – DatagramWriterGroupTransportDataType definition 109
Table 120 – DatagramWriterGroupTransport2DataType structure 110
Table 121 – DatagramWriterGroupTransport2DataType definition 110
Table 122 – DatagramDataSetReaderTransportDataType structure 111
Table 123 – DatagramDataSetReaderTransportDataType definition 111
Table 124 – BrokerTransportQualityOfService values 112
Table 125 – BrokerTransportQualityOfService definition 112
Table 126 – BrokerConnectionTransportDataType structure 113
Table 127 – BrokerConnectionTransportDataType definition 113
Table 128 – BrokerWriterGroupTransportDataType structure 114
Table 129 – BrokerWriterGroupTransportDataType definition 114
Table 130 – BrokerDataSetWriterTransportDataType structure 116
Table 131 – BrokerDataSetWriterTransportDataType definition 116
Table 132 – BrokerDataSetReaderTransportDataType structure 118
Table 133 – BrokerDataSetReaderTransportDataType definition 118
Table 134 – PubSub MessageTypes 119
Table 135 – Values for different sequence number sizes 120
Table 136 – UADP MessageType mapping 121
Table 137 – UADP NetworkMessage 123
Table 138 – Layout of the key data for UADP message security 127
Table 139 – Layout of the MessageNonce for AES-CTR 127
Table 140 – Layout of the counter block for UADP message security for AES-CTR 127
Table 141 – Chunked NetworkMessage payload header 128
Table 142 – Chunked NetworkMessage payload fields 128
Table 143 – UADP DataSet payload header 129
Table 144 – UADP DataSet payload 130
Table 145 – DataSetMessage header structure 131
Table 146 – Data Key Frame DataSetMessage structure 133
Table 147 – Data Delta Frame DataSetMessage structure 134
Table 148 – Event DataSetMessage structure 135
Table 149 – Discovery announcement header structure 137
Table 150 – OPC UA *Application* information announcement message structure 138
Table 151 – DataSetMetaData announcement message structure 138
Table 152 – ApplicationInformationType application description fields 138
Table 153 – Publisher Endpoints announcement message structure 139
Table 154 – ApplicationInformationType status fields 139
Table 155 – PubSubConnection configuration announcement message structure 140
Table 156 – DataSetWriter configuration announcement message structure 140
Table 157 – Discovery probe header structure 141
Table 158 – Publisher information probe message structure 142
Table 159 – DataSetWriter settings for Publisher information probe 142
Table 160 – WriterGroup settings for Publisher information probe 143
Table 161 – PubSubConnections settings for Publisher information probe 143

Table 162 – JSON NetworkMessage MessageType mapping 144
Table 163 – JSON NetworkMessage definition 144
Table 164 – JSON DataSetMessage definition 145
Table 165 – JSON DataSetMetaData definition 147
Table 166 – JSON ApplicationDescription definition 148
Table 167 – JSON ServerEndpoints definition 148
Table 168 – JSON Status definition 149
Table 169 – JSON PubSubConnection definition 149
Table 170 – UADP message transported over UDP 150
Table 171 – UADP message transported over Ethernet 153
Table 172 – AMQP standard header fields 155
Table 173 – OPC UA AMQP standard header QualifiedName Name mappings 156
Table 174 – OPC UA AMQP header field conversion rules 157
Table 175 – MQTT ConnectionProperties 160
Table 176 – OPC UA MQTT standard connection property configuration 160
Table 177 – Examples of MQTT Wildcards 161
Table 178 – MQTT Topic level MessageType mapping 162
Table 179 – TransportProfileUri encodings 164
Table 180 – OPC UA MQTT message properties 164
Table 181 – OPC UA MQTT standard message property configuration 165
Table 182 – PublishSubscribe Object definition 167
Table 183 – PubSubKeyServiceType definition 168
Table 184 – GetSecurityKeys Method AddressSpace definition 171
Table 185 – GetSecurityGroup Method AddressSpace definition 172
Table 186 – SecurityGroupType definition 172
Table 187 – InvalidateKeys Method AddressSpace definition 173
Table 188 – ForceKeyRotation Method AddressSpace definition 174
Table 189 – SecurityGroupFolderType definition 174
Table 190 – AddSecurityGroup Method AddressSpace definition 176
Table 191 – RemoveSecurityGroup Method AddressSpace definition 177
Table 192 – AddSecurityGroupFolder Method AddressSpace definition 178
Table 193 – RemoveSecurityGroupFolder Method AddressSpace definition 179
Table 194 – PubSubKeyPushTargetType definition 179
Table 195 – ConnectSecurityGroups Method AddressSpace definition 181
Table 196 – DisconnectSecurityGroups Method AddressSpace definition 182
Table 197 – HasPushedSecurityGroup ReferenceType 183
Table 198 – TriggerKeyUpdate Method AddressSpace definition 184
Table 199 – PubSubKeyPushTargetFolderType definition 184
Table 200 – AddPushTarget Method AddressSpace definition 186
Table 201 – RemovePushTarget Method AddressSpace definition 186
Table 202 – AddPushTargetFolder Method AddressSpace definition 187
Table 203 – RemovePushTargetFolder Method AddressSpace definition 188
Table 204 – Well-Known SKS Roles 188

Table 205 – PublishSubscribeType definition 193
Table 206 – PublishSubscribeType Additional Subcomponents 194
Table 207 – SetSecurityKeys Method AddressSpace definition 196
Table 208 – AddConnection Method AddressSpace definition 197
Table 209 – RemoveConnection Method AddressSpace definition 198
Table 210 – HasPubSubConnection ReferenceType 198
Table 211 – PubSubConfigurationType definition 199
Table 212 – PubSubConfigurationRefMask values 200
Table 213 – PubSubConfigurationRefMask definition 202
Table 214 – PubSubConfigurationRefDataType structure 202
Table 215 – PubSubConfigurationRefDataType definition 203
Table 216 – PubSubConfigurationValueDataType structure 204
Table 217 – PubSubConfigurationValueDataType definition 204
Table 218 – ReserveIds Method AddressSpace definition 205
Table 219 – CloseAndUpdate Method AddressSpace definition 208
Table 220 – PublishedDataSetType definition 209
Table 221 – ExtensionFieldsType definition 211
Table 222 – Well-Known Extension Field Names 211
Table 223 – AddExtensionField Method AddressSpace definition 212
Table 224 – RemoveExtensionField Method AddressSpace definition 213
Table 225 – DataSetToWriter ReferenceType 214
Table 226 – PublishedDataItemsType definition 214
Table 227 – AddVariables Method AddressSpace definition 216
Table 228 – RemoveVariables Method AddressSpace definition 218
Table 229 – PublishedEventsType definition 218
Table 230 – ModifyFieldSelection Method AddressSpace definition 220
Table 231 – DataSetFolderType definition 220
Table 232 – AddPublishedDataItems Method AddressSpace definition 222
Table 233 – AddPublishedEvents Method AddressSpace definition 224
Table 234 – AddPublishedDataItemsTemplate Method AddressSpace definition 226
Table 235 – AddPublishedEventsTemplate Method AddressSpace definition 227
Table 236 – RemovePublishedDataSet Method AddressSpace definition 228
Table 237 – AddDataSetFolder Method AddressSpace definition 229
Table 238 – RemoveDataSetFolder Method AddressSpace definition 230
Table 239 – PubSubConnectionType definition 231
Table 240 – AddWriterGroup Method AddressSpace definition 232
Table 241 – AddReaderGroup Method AddressSpace definition 233
Table 242 – RemoveGroup Method AddressSpace definition 234
Table 243 – NetworkAddressType definition 234
Table 244 – NetworkAddressUrlType definition 235
Table 245 – ConnectionTransportType definition 235
Table 246 – HasWriterGroup ReferenceType 236
Table 247 – HasReaderGroup ReferenceType 236

Table 248 – PubSubGroupType definition 238
Table 249 – WriterGroupType definition 239
Table 250 – AddDataSetWriter Method AddressSpace definition 240
Table 251 – RemoveDataSetWriter Method AddressSpace definition 241
Table 252 – HasDataSetWriter ReferenceType 242
Table 253 – WriterGroupTransportType definition 242
Table 254 – WriterGroupMessageType definition 242
Table 255 – ReaderGroupType definition 243
Table 256 – AddDataSetReader Method AddressSpace definition 244
Table 257 – RemoveDataSetReader Method AddressSpace definition 245
Table 258 – HasDataSetReader ReferenceType 246
Table 259 – ReaderGroupTransportType definition 246
Table 260 – ReaderGroupMessageType definition 246
Table 261 – DataSetWriterType definition 248
Table 262 – DataSetWriterTransportType definition 249
Table 263 – DataSetWriterMessageType definition 249
Table 264 – DataSetReaderType definition 251
Table 265 – DataSetReaderTransportType definition 252
Table 266 – DataSetReaderMessageType definition 253
Table 267 – CreateTargetVariables Method AddressSpace definition 254
Table 268 – CreateDataSetMirror Method AddressSpace definition 255
Table 269 – SubscribedDataSetType definition 256
Table 270 – TargetVariablesType definition 256
Table 271 – AddTargetVariables Method AddressSpace definition 258
Table 272 – RemoveTargetVariables Method AddressSpace definition 259
Table 273 – SubscribedDataSetMirrorType definition 259
Table 274 – SubscribedDataSetFolderType definition 260
Table 275 – AddSubscribedDataSet Method AddressSpace definition 261
Table 276 – RemoveSubscribedDataSet Method AddressSpace definition 262
Table 277 – AddDataSetFolder Method AddressSpace definition 263
Table 278 – RemoveDataSetFolder Method AddressSpace definition 264
Table 279 – StandaloneSubscribedDataSetType definition 264
Table 280 – PubSubStatusType definition 265
Table 281 – Enable Method AddressSpace definition 266
Table 282 – Disable Method AddressSpace definition 266
Table 283 – PubSubDiagnosticsType 268
Table 284 – Counters for PubSubDiagnosticsType 268
Table 285 – Reset Method AddressSpace definition 269
Table 286 – DiagnosticsLevel values 270
Table 287 – PubSubDiagnosticsCounterType 270
Table 288 – PubSubDiagnosticsCounterClassification values 271
Table 289 – PubSubDiagnosticsRootType 271
Table 290 – LiveValues for PubSubDiagnosticsRootType 271

Table 291 – PubSubDiagnosticsConnectionType 272
Table 292 – LiveValues for PubSubDiagnosticsConnectionType 272
Table 293 – PubSubDiagnosticsWriterGroupType 272
Table 294 – Counters for PubSubDiagnosticsWriterGroupType 273
Table 295 – LiveValues for PubSubDiagnosticsWriterGroupType 273
Table 296 – PubSubDiagnosticsReaderGroupType 273
Table 297 – Counters for PubSubDiagnosticsReaderGroupType 274
Table 298 – LiveValues for PubSubDiagnosticsReaderGroupType 274
Table 299 – PubSubDiagnosticsDataSetWriterType 274
Table 300 – Counters for PubSubDiagnosticsDataSetWriterType 275
Table 301 – LiveValues for PubSubDiagnosticsDataSetWriterType 275
Table 302 – PubSubDiagnosticsDataSetReaderType 275
Table 303 – Counters for PubSubDiagnosticsDataSetReaderType 275
Table 304 – LiveValues for PubSubDiagnosticsDataSetReaderType 276
Table 305 – PubSubCapabilitiesType definition 277
Table 306 – PubSubStatusEventType definition 279
Table 307 – PubSubTransportLimitsExceedEventType definition 280
Table 308 – PubSubCommunicationFailureEventType definition 281
Table 309 – UadpWriterGroupMessageType definition 281
Table 310 – UadpDataSetWriterMessageType definition 282
Table 311 – UadpDataSetReaderMessageType definition 283
Table 312 – JsonWriterGroupMessageType definition 284
Table 313 – JsonDataSetWriterMessageType definition 284
Table 314 – JsonDataSetReaderMessageType definition 285
Table 315 – DatagramConnectionTransportType definition 285
Table 316 – DatagramWriterGroupTransportType definition 286
Table 317 – DatagramDataSetReaderTransportType definition 287
Table 318 – BrokerConnectionTransportType definition 287
Table 319 – BrokerWriterGroupTransportType definition 288
Table 320 – BrokerDataSetWriterTransportType definition 289
Table 321 – Broker Writer well-known extension field names 289
Table 322 – BrokerDataSetReaderTransportType definition 290
Table A.1 – UADP NetworkMessage header layout 293
Table A.2 – Values for configuration parameters 293
Table A.3 – UADP NetworkMessage header layout with integrity (signing) 294
Table A.4 – UADP NetworkMessage header layout with integrity and confidentiality 295
Table A.5 – UADP DataSetMessage header layout 296
Table A.6 – Values for configuration parameters 296
Table A.7 – UADP NetworkMessage header layout 299
Table A.8 – Values for configuration parameters 299
Table A.9 – UADP NetworkMessage header layout with integrity (signing) 300
Table A.10 – UADP NetworkMessage header layout with integrity and confidentiality 301
Table A.11 – UADP DataSetMessage header layout 302

Table A.12 – Values for configuration parameters 302
Table A.13 – DataSet1 fields 303
Table A.14 – DataSet2 fields 303
Table A.15 – DataSet3 fields 304
Table A.16 – Values for WriterGroup configuration parameters 306
Table A.17 – Values for DataSetWriter configuration parameters 307
Table A.18 – Values for WriterGroup configuration parameters 309
Table A.19 – Values for DataSetWriter configuration parameters 309
Table A.20 – Values for WriterGroup configuration parameters 312
Table A.21 – Values for DataSetWriter configuration parameters 312

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IEC 62541-14 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This second edition cancels and replaces the first edition published in 2020. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Addition of a “Quantity Model” which can be referenced from EngineeringUnit Properties. The model defines quantities and assigned units. In addition it provides alternative units and the conversion to them.

b) Addion of rules for ValuePrecision Property:

- can also be used for other subtypes like Duration and Decimal.
- rules have been added when ValuePrecision has negative values.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65E/1052/CDV	65E/1099/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

Throughout this document and the other parts of the IEC 62541 series, certain document conventions are used:

Italics are used to denote a defined term or definition that appears in the "Terms and definitions" clause in one of the parts of the IEC 62541 series.

Italics are also used to denote the name of a service input or output parameter or the name of a structure or element of a structure that are usually defined in tables.

The *italicized terms and names* are, with a few exceptions, written in camel-case (the practice of writing compound words or phrases in which the elements are joined without spaces, with each element's initial letter capitalized within the compound). For example, the defined term is *AddressSpace* instead of Address Space. This makes it easier to understand that there is a single definition for *AddressSpace*, not separate definitions for Address and Space.

A list of all parts in the IEC 62541 series, published under the general title *OPC Unified Architecture*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

1 Scope

This part of IEC 62541 defines the *PubSub* communication model. It defines an OPC UA publish subscribe pattern which complements the client server pattern defined by the *Services* in IEC 62541-4. See IEC 62541-1 for an overview of the two models and their distinct uses.

PubSub allows the distribution of data and events from an OPC UA information source to interested observers inside a device network as well as in IT and analytics cloud systems.

This document consists of

- a general introduction of the *PubSub* concepts,
- a definition of the *PubSub* configuration parameters,
- mapping of *PubSub* concepts and configuration parameters to messages and transport protocols,
- and a PubSub configuration model.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62541-1, *OPC Unified Architecture - Part 1: Overview and Concepts*

IEC 62541-2, *OPC Unified Architecture - Part 2: Security Model*

IEC 62541-3, *OPC Unified Architecture - Part 3: Address Space Model*

IEC 62541-4, *OPC Unified Architecture - Part 4: Services*

IEC 62541-5, *OPC Unified Architecture - Part 5: Information Model*

IEC 62541-6, *OPC Unified Architecture - Part 6: Mappings*

IEC 62541-7, *OPC Unified Architecture - Part 7: Profiles*

IEC 62541-8, *OPC Unified Architecture - Part 8: Data Access*

IEC 62541-12, *OPC Unified Architecture - Part 12: Discovery and Global Services*

IEC 62541-20, *OPC Unified Architecture - Part 20: File Transfer*

IEC 62541-22, *OPC Unified Architecture - Part 22: Base Network Model*

ISO/IEC 19464:2014, *Information technology - Advanced Message Queuing Protocol (AMQP) v1.0 specification*

ISO/IEC 20922:2016, *Information technology - Message Queuing Telemetry Transport (MQTT) v3.1.1*

Message Queuing Telemetry Transport (MQTT) Version 5
http://docs.oasis-open.org/mqtt/mqtt/v5.0

IETF RFC 8254, Klensin J. and Hakala J., “The JavaScript Object Notation (JSON) Data Interchange Format”, October 2017, available at http://www.ietf.org/rfc/rfc8254.txt