



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 62541-12:2018**  
**01-november-2018**

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**Enotna arhitektura OPC - 12. del: Odkritje**

OPC Unified Architecture Specification - Part 12: Discovery

**iTeh STANDARD PREVIEW**  
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35.240.50	Uporabniške rešitve IT v industriji	IT applications in industry

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# 65E/615/CDV

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TITLE:

**OPC Unified Architecture Specification: Part 12 - Discovery**

PROPOSED STABILITY DATE: 2021

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## CONTENTS

	Page
FIGURES.....	6
TABLES.....	7
FOREWORD.....	9
1 Scope.....	11
2 Normative references .....	11
3 Terms, definitions, and conventions.....	12
3.1 Terms and definitions.....	12
3.2 Abbreviations and symbols .....	14
3.3 Conventions for Namespaces.....	14
4 The Discovery Process.....	15
4.1 Overview.....	15
4.2 Registration and announcement of Applications .....	15
4.2.1 Overview .....	15
4.2.2 Hosts with a LocalDiscoveryServer .....	15
4.2.3 Hosts without a LocalDiscoveryServer .....	16
4.3 The Discovery Process for Clients to find Servers.....	16
4.3.1 Overview .....	16
4.3.2 Security .....	17
4.3.3 Simple Discovery with a DiscoveryUrl .....	17
4.3.4 Local Discovery .....	17
4.3.5 MulticastSubnet Discovery.....	18
4.3.6 Global Discovery .....	19
4.3.7 Combined Discovery Process for Clients .....	19
5 Local Discovery Server.....	20
5.1 Overview.....	20
5.2 Security considerations for Multicast DNS.....	21
6 Global Discovery Server .....	21
6.1 Overview.....	21
6.2 Network Architectures .....	22
6.2.1 Overview .....	22
6.2.2 Single MulticastSubnet .....	23
6.2.3 Multiple MulticastSubnet.....	23
6.2.4 No MulticastSubnet.....	24
6.2.5 Domain Names and MulticastSubnets .....	24
6.3 Information Model .....	25
6.3.1 Overview .....	25
6.3.2 Directory.....	25
6.3.3 DirectoryType .....	26
6.3.4 FindApplications .....	26
6.3.5 ApplicationRecordDataType.....	27
6.3.6 RegisterApplication.....	27
6.3.7 UpdateApplication .....	28
6.3.8 UnregisterApplication .....	29
6.3.9 GetApplication .....	29
6.3.10 QueryApplications .....	30

	6.3.11	QueryServers (deprecated).....	31
	6.3.12	ApplicationRegistrationChangedAuditEventType.....	32
7		Certificate Management Overview .....	33
	7.1	Overview.....	33
	7.2	Pull Management.....	34
	7.3	Push Management.....	35
	7.4	Provisioning.....	36
	7.5	Common Information Model .....	36
	7.5.1	Overview .....	36
	7.5.2	TrustListType.....	36
	7.5.3	OpenWithMasks .....	37
	7.5.4	CloseAndUpdate.....	38
	7.5.5	AddCertificate.....	38
	7.5.6	RemoveCertificate .....	39
	7.5.7	TrustListDataType .....	40
	7.5.8	TrustListMasks .....	40
	7.5.9	TrustListOutOfDateAlarmType .....	40
	7.5.10	CertificateGroupType.....	41
	7.5.11	CertificateType .....	41
	7.5.12	ApplicationCertificateType .....	42
	7.5.13	HttpsCertificateType .....	42
	7.5.14	UserCredentialCertificateType .....	42
	7.5.15	RsaMinApplicationCertificateType .....	42
	7.5.16	RsaSha256ApplicationCertificateType .....	43
	7.5.17	CertificateGroupFolderType .....	43
	7.5.18	TrustListUpdatedAuditEventType.....	43
7.6		Information Model for Pull Certificate Management .....	44
	7.6.1	Overview .....	44
	7.6.2	CertificateDirectoryType .....	44
	7.6.3	StartSigningRequest.....	45
	7.6.4	StartNewKeyPairRequest .....	47
	7.6.5	FinishRequest .....	49
	7.6.6	GetCertificateGroups .....	49
	7.6.7	GetTrustList.....	50
	7.6.8	GetCertificateStatus .....	51
	7.6.9	CertificateRequestedAuditEventType.....	52
	7.6.10	CertificateDeliveredAuditEventType.....	52
7.7		Information Model for Push Certificate Management .....	53
	7.7.1	Overview .....	53
	7.7.2	ServerConfiguration.....	53
	7.7.3	ServerConfigurationType .....	54
	7.7.4	UpdateCertificate.....	55
	7.7.5	ApplyChanges .....	56
	7.7.6	CreateSigningRequest.....	56
	7.7.7	GetRejectedList.....	57
	7.7.8	CertificateUpdatedAuditEventType .....	58
8		KeyCredential Management.....	58
	8.1	Overview.....	58
	8.2	Pull Management.....	59

8.3	Push Management .....	59
8.4	Information Model for Pull Management .....	60
8.4.1	Overview .....	60
8.4.2	KeyCredentialManagement .....	61
8.4.3	KeyCredentialServiceType .....	61
8.4.4	StartRequest .....	62
8.4.5	FinishRequest .....	63
8.4.6	Revoke .....	64
8.4.7	KeyCredentialAuditEventType .....	64
8.4.8	KeyCredentialRequestedAuditEventType .....	65
8.4.9	KeyCredentialDeliveredAuditEventType .....	65
8.4.10	KeyCredentialRevokedAuditEventType .....	66
8.5	Information Model for Push Management .....	66
8.5.1	KeyCredentialConfiguration .....	67
8.5.2	KeyCredentialConfigurationType .....	67
8.5.3	UpdateCredential .....	67
8.5.4	DeleteCredential .....	68
8.5.5	KeyCredentialUpdatedAuditEventType .....	69
8.5.6	KeyCredentialDeletedAuditEventType .....	69
9	Authorization Services .....	69
9.1	Overview .....	69
9.2	Implicit .....	70
9.3	Explicit .....	71
9.4	Chained .....	72
9.5	Information Model for Requesting Access Tokens .....	73
9.5.1	Overview .....	73
9.5.2	AuthorizationServices .....	74
9.5.3	AuthorizationServiceType .....	74
9.5.4	RequestAccessToken .....	75
9.5.5	GetServiceDescription .....	76
9.5.6	AccessTokenIssuedAuditEventType .....	76
9.6	Information Model for Configuring Servers .....	77
9.6.1	Overview .....	77
9.6.2	AuthorizationServices .....	77
9.6.3	AuthorizationServiceConfigurationType .....	77
Annex A (informative)	Deployment and Configuration .....	79
A.1	Firewalls and Discovery .....	79
A.2	Resolving references to remote Servers .....	81
Annex B (normative)	Constants .....	83
B.1	Numeric Node Ids .....	83
Annex C (normative)	OPC UA Mapping to mDNS .....	84
C.1	DNS Server (SRV) Record syntax .....	84
C.2	DNS Text (TXT) Record syntax .....	84
C.3	DiscoveryUrl mapping .....	85
Annex D (normative)	Server Capability Identifiers .....	86
Annex E (normative)	DirectoryServices .....	87
E.1	Global Discovery via other directory services .....	87
E.2	UDDI .....	87

E.3	LDAP .....	88
Annex F (normative) Local Discovery Server .....		90
F.1	Certificate store directory layout .....	90
F.2	Installation directories on Windows .....	90
Annex G (normative) Application installation process .....		92
G.1	Provisioning with Pull Management .....	92
G.2	Provisioning with the Push Management .....	92
G.3	Setting permissions .....	93
Annex H (informative) Comparison with RFC 7030 .....		94
H.1	Overview .....	94
H.2	Obtaining CA Certificates .....	94
H.3	Initial enrolment .....	94
H.4	Client Certificate reissuance .....	95
H.5	Server key generation .....	95
H.6	Certificate Signing Request (CSR) attributes request .....	95

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## FIGURES

Figure 1 – The Registration process with an LDS.....	16
Figure 2 – The simple Discovery process.....	17
Figure 3 – The Local Discovery process .....	18
Figure 4 – The MulticastSubnet Discovery process .....	18
Figure 5 – The Global Discovery process.....	19
Figure 6 – The Discovery Process for Clients.....	20
Figure 7 – The relationship between GDS and other components .....	22
Figure 8 – The Single MulticastSubnet architecture .....	23
Figure 9 – The Multiple MulticastSubnet architecture .....	24
Figure 10 – The No MulticastSubnet architecture .....	24
Figure 11 – The Address Space for the GDS .....	25
Figure 12 – The Pull Certificate management model .....	34
Figure 13 – The Push Certificate management model .....	35
Figure 14 – The Certificate Management AddressSpace for the GlobalDiscoveryServer .....	44
Figure 15 – The AddressSpace for the Server that supports Push Management.....	53
Figure 16 – The Pull Model for KeyCredential management .....	59
Figure 17 – The Push Model for KeyCredential management .....	60
Figure 18 – The Address Space used for Pull KeyCredential management.....	61
Figure 19 – The Address Space used for Push KeyCredential management.....	66
Figure 20 – Roles and Authorization Services .....	70
Figure 21 – Implicit authorization .....	71
Figure 22 – Explicit authorization .....	72
Figure 23 – Chained authorization .....	73
Figure 24 – The Model for Requesting Access Tokens from Authorization Services .....	74
Figure 25 – The Model for Configuring Servers to use Authorization Services.....	77
Figure 26 – Discovering Servers outside a firewall .....	79
Figure 27 – Discovering Servers behind a firewall .....	80
Figure 28 – Using a Discovery Server with a firewall.....	81
Figure 29 – Following References to Remote Servers .....	82
Figure 30 – The UDDI or LDAP Discovery process .....	87
Figure 31 – UDDI registry structure.....	88
Figure 32 – Sample LDAP hierarchy .....	89



## TABLES

Table 1 – GDS NamespaceMetadataType Object definition .....	14
Table 2 – Directory Object definition .....	25
Table 3 – DirectoryType definition.....	26
Table 4 – FindApplications Method AddressSpace definition.....	27
Table 5 – ApplicationRecordDataType definition .....	27
Table 6 – RegisterApplication Method AddressSpace definition .....	28
Table 7 – UpdateApplication Method AddressSpace definition .....	29
Table 8 – UnregisterApplication Method AddressSpace definition .....	29
Table 9 – GetApplication Method AddressSpace definition.....	30
Table 10 – QueryApplications Method AddressSpace definition .....	31
Table 11 – QueryServers Method AddressSpace definition .....	32
Table 12 – ApplicationRegistrationChangedAuditEventType definition .....	33
Table 13 – TrustListType definition .....	36
Table 14 – OpenWithMasks Method AddressSpace definition .....	37
Table 15 – CloseAndUpdate Method AddressSpace definition .....	38
Table 16 – AddCertificate Method AddressSpace definition .....	39
Table 17 – RemoveCertificate Method AddressSpace definition.....	40
Table 18 – TrustListDataType definition.....	40
Table 19 – TrustListMasks values .....	40
Table 20 – TrustListOutOfDateAlarmType definition.....	40
Table 21 – CertificateGroupType definition .....	41
Table 22 – CertificateType definition.....	41
Table 23 – ApplicationCertificateType definition.....	42
Table 24 – HhttpsCertificateType definition.....	42
Table 25 – UserCredentialCertificateType definition.....	42
Table 26 – RsaMinApplicationCertificateType definition .....	42
Table 27 – RsaSha256ApplicationCertificateType definition.....	43
Table 28 – CertificateGroupFolderType definition .....	43
Table 29 – TrustListUpdatedAuditEventType definition .....	44
Table 30 – CertificateDirectoryType ObjectType definition .....	45
Table 31 – StartSigningRequest Method AddressSpace definition.....	47
Table 32 – StartNewKeyPairRequest Method AddressSpace definition .....	48
Table 33 – FinishRequest Method AddressSpace definition .....	49
Table 34 – GetCertificateGroups Method AddressSpace definition.....	50
Table 35 – GetTrustList Method AddressSpace definition .....	51
Table 36 – GetCertificateStatus Method AddressSpace definition .....	52
Table 37 – CertificateRequestedAuditEventType definition .....	52
Table 38 – CertificateDeliveredAuditEventType definition .....	52
Table 39 – ServerConfiguration Object definition .....	53
Table 40 – ServerConfigurationType definition.....	54
Table 41 – UpdateCertificate Method AddressSpace Definition.....	56
Table 42 – ApplyChanges Method AddressSpace Definition .....	56

Table 43 – CreateSigningRequest Method AddressSpace definition.....	57
Table 44 – GetRejectedList Method AddressSpace definition.....	58
Table 45 – CertificateUpdatedAuditEventType definition .....	58
Table 46 – KeyCredentialManagement Object definition .....	61
Table 47 – KeyCredentialServiceType definition .....	61
Table 48 – StartRequest Method AddressSpace definition .....	63
Table 49 – FinishRequest Method AddressSpace definition .....	64
Table 50 – Revoke Method AddressSpace definition.....	64
Table 51 – KeyCredentialAuditEventType definition .....	65
Table 52 – KeyCredentialRequestedAuditEventType definition .....	65
Table 53 – KeyCredentialDeliveredAuditEventType definition .....	66
Table 54 – KeyCredentialRevokedAuditEventType definition .....	66
Table 55 – KeyCredentialConfiguration Object definition.....	67
Table 56 – KeyCredentialConfigurationType definition .....	67
Table 57 – UpdateCredential Method AddressSpace definition .....	68
Table 58 – DeleteCredential Method AddressSpace definition .....	69
Table 59 – KeyCredentialUpdatedAuditEventType definition .....	69
Table 60 – KeyCredentialUpdatedAuditEventType definition .....	69
Table 61 – AuthorizationServices Object definition .....	74
Table 62 – AuthorizationServiceType definition.....	74
Table 63 – RequestAccessToken Method AddressSpace definition.....	76
Table 64 – GetServiceDescription Method AddressSpace definition.....	76
Table 65 – AccessTokenIssuedAuditEventType definition.....	76
Table 66 – AuthorizationServices Object definition .....	77
Table 67 – AuthorizationServiceConfigurationType definition .....	78
Table 68 – Allowed mDNS service names .....	84
Table 69 – DNS TXT Record string format .....	85
Table 70 – DiscoveryUrl to DNS SRV and TXT Record Mapping .....	85
Table 71 – Examples of <i>ServerCapabilityIdentifiers</i> .....	86
Table 72 – UDDI tModels .....	88
Table 73 – LDAP object class schema .....	89
Table 74 – Application Certificate store directory layout.....	90
Table 75 – Verifying that a Server is allowed to provide Certificates .....	94
Table 76 – Verifying that a Client is allowed to request Certificates .....	94

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4 **OPC UNIFIED ARCHITECTURE –**

5  
6 **Part 12: Discovery and Global Services**

7  
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44 IEC 62541-12 has been prepared by subcommittee 65E: Devices and integration in enterprise  
45 systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

46 The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
65E/XX/DTR	65E/XX/RVC

47  
48 Full information on the voting for the approval of this technical report can be found in the report on  
49 voting indicated in the above table.

50 This is the first edition of edition of IEC 62541-12.

- 51
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- 53 Throughout this document and the referenced other Parts of the series, certain document  
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61 initial letter capitalized within the compound). For example the defined term is AddressSpace  
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  - 72 • amended.

73

74 The National Committees are requested to note that for this publication the stability date  
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79

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## OPC UNIFIED ARCHITECTURE

### Part 12: Discovery and Global Services

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#### 87 1 Scope

88 This part specifies how OPC Unified Architecture (OPC UA) *Clients* and *Servers* interact with  
89 *DiscoveryServers* when used in different scenarios. It specifies the requirements for the  
90 *LocalDiscoveryServer*, *LocalDiscoveryServer-ME* and *GlobalDiscoveryServer*. It also defines  
91 information models for *Certificate* management, *KeyCredential* management and  
92 *Authorization Services*.

#### 93 2 Normative references

94 The following referenced documents are indispensable for the application of this document.  
95 For dated references, only the edition cited applies. For undated references, the latest edition  
96 of the referenced document (including any amendments) applies.

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

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

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

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

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

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

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

104 IEC 62541-9, *OPC Unified Architecture – Part 9: Alarms and Conditions*

105 IEC 62541-14, *OPC Unified Architecture – Part 14: PubSub*

106

107 Auto-IP: Dynamic Configuration of IPv4 Link-Local Addresses

108 <http://www.ietf.org/rfc/rfc3927.txt>

109 DNS-Name: Domain Names – Implementation and Specification

110 <http://www.ietf.org/rfc/rfc1035.txt>

111 DHCP: Dynamic Host Configuration Protocol

112 <http://www.ietf.org/rfc/rfc2131.txt>

113 mDNS: Multicast DNS

114 <http://www.ietf.org/rfc/rfc6762.txt>

115 DNS-SD: DNS Based Service Discovery

116 <http://www.ietf.org/rfc/rfc6763.txt>

117 [RFC 5958: Asymmetric Key Packages](http://www.ietf.org/rfc/rfc5958.txt)

118 <http://www.ietf.org/rfc/rfc5958.txt>

- 119 PKCS #10: Certification Request Syntax Specification  
 120 <http://www.ietf.org/rfc/rfc2986.txt>
- 121 PKCS #12: Personal Information Exchange Syntax  
 122 [http://www.emc.com/emc-plus/rsa-labs/pkcs/files/h11301-wp-pkcs-12v1-1-personal-](http://www.emc.com/emc-plus/rsa-labs/pkcs/files/h11301-wp-pkcs-12v1-1-personal-information-exchange-syntax.pdf)  
 123 [information-exchange-syntax.pdf](http://www.emc.com/emc-plus/rsa-labs/pkcs/files/h11301-wp-pkcs-12v1-1-personal-information-exchange-syntax.pdf)  
 124 [RFC 7030: Enrollment over Secure Transport](http://www.ietf.org/rfc/rfc7030.txt)  
 125 <http://www.ietf.org/rfc/rfc7030.txt>
- 126 DI: OPC Unified Architecture for Devices (DI)  
 127 [https://opcfoundation.org/developer-tools/specifications-unified-architecture/opc-unified-](https://opcfoundation.org/developer-tools/specifications-unified-architecture/opc-unified-architecture-for-devices-di/)  
 128 [architecture-for-devices-di/](https://opcfoundation.org/developer-tools/specifications-unified-architecture/opc-unified-architecture-for-devices-di/)
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 131 [architecture-for-analyzer-devices-adi/](https://opcfoundation.org/developer-tools/specifications-unified-architecture/opc-unified-architecture-for-analyzer-devices-adi/)
- 132 PLCopen: OPC Unified Architecture / PLCopen Information Model  
 133 [https://opcfoundation.org/developer-tools/specifications-unified-architecture/opc-unified-](https://opcfoundation.org/developer-tools/specifications-unified-architecture/opc-unified-architecture-plcopen-information-model/)  
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- 138 ISA-95: ISA-95 Common Object Model  
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 140 [common-object-model/](https://opcfoundation.org/developer-tools/specifications-unified-architecture/isa-95-common-object-model/)
- 141 X.500: ISO/IEC 9594-1:2017 – The Directory  
 142 <https://www.iso.org/standard/72550.html>
- 143 **3 Terms, definitions, and conventions**
- 144 **3.1 Terms and definitions**
- 145 For the purposes of this document the following terms and definitions as well as the terms and  
 146 definitions given in IEC TR 62541-1, IEC TR 62541-2, IEC 62541-3, IEC 62541-4, IEC 62541-  
 147 6 and IEC 62541-9 apply.
- 148 **3.1.1**  
 149 **CertificateManagement Server**  
 150 a software application that manages the *Certificates* used by *Applications* in an administrative  
 151 domain.
- 152 **3.1.2**  
 153 **Certificate Group**  
 154 a context used to describe the *Trust List* and *Certificate(s)* associated with an *Application*.
- 155 **3.1.3**  
 156 **Certificate Request**  
 157 a PKCS #10 encoded structure used to request a new *Certificate* from a *Certificate Authority*.
- 158 **3.1.4**  
 159 **KeyCredential**  
 160 a unique identifier and a secret used to access a *Server*, an *Authorization Service* or a  
 161 *Broker*.
- 162 Note 1 to entry: a user name and password is an example of a credential.

163 **3.1.5**  
164 **KeyCredentialService**  
165 a software application that provides *KeyCredentials* needed to access a *Server*, an  
166 *Authorization Service* or a *Broker*.

167 **3.1.6**  
168 **DirectoryService**  
169 a software application, or a set of applications, that stores and organizes information about  
170 resources such as computers or services.

171 **3.1.7**  
172 **DiscoveryServer**  
173 an *Application* that maintains a list of OPC UA *Servers* that are available on the network and  
174 provides mechanisms for *Clients* to obtain this list.

175 **3.1.8**  
176 **DiscoveryUrl**  
177 a URL for a network *Endpoint* that provides the information required to connect to a *Client* or  
178 *Server*.

179 **3.1.9**  
180 **GlobalDiscoveryServer (GDS)**  
181 a *DiscoveryServer* that maintains a list of OPC UA *Applications* available in an administrative  
182 domain.

183 Note 1 to entry: a GDS may also provide certificate management services.

184 **3.1.10**  
185 **IPAddress**  
186 a unique number assigned to a network interface that allows Internet Protocol (IP) requests to  
187 be routed to that interface.

188 Note 1 to entry: An *IPAddress* for a host may change over time.

189 **3.1.11**  
190 **LocalDiscoveryServer (LDS)**  
191 a *DiscoveryServer* that maintains a list of all *Servers* that have registered with it.

192 Note 1 to entry: *Servers* normally register with the LDS on the same host.

193 **3.1.12**  
194 **LocalDiscoveryServer-ME (LDS-ME)**  
195 a *LocalDiscoveryServer* that includes the *MulticastExtension*.

196 **3.1.13**  
197 **MulticastExtension**  
198 an extension to a *LocalDiscoveryServer* that adds support for the mDNS protocol.

199 **3.1.14**  
200 **MulticastSubnet**  
201 a network that allows multicast packets to be sent to all nodes connected to the network.

202 Note 1 to entry: a *MulticastSubnet* is not necessarily the same as a TCP/IP subnet.

203 **3.1.15**  
204 **Network Service**  
205 a secured resource on a network that provides functionality used by *Clients* and/or *Servers*.