

[MS-ADCAP]: Active Directory Web Services: Custom Action Protocol Specification

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft [Open Specification Promise](#) or the [Community Promise](#). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplg@microsoft.com.
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.
- **Fictitious Names.** The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted in this documentation are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

Revision Summary

| Date | Revision History | Revision Class | Comments |
|------------|------------------|----------------|--|
| 12/05/2008 | 0.1 | Major | Initial Availability |
| 01/16/2009 | 0.1.1 | Editorial | Revised and edited the technical content. |
| 02/27/2009 | 1.0 | Major | Updated and revised the technical content. |
| 04/10/2009 | 2.0 | Major | Updated and revised the technical content. |
| 05/22/2009 | 3.0 | Major | Updated and revised the technical content. |
| 07/02/2009 | 4.0 | Major | Updated and revised the technical content. |
| 08/14/2009 | 5.0 | Major | Updated and revised the technical content. |
| 09/25/2009 | 6.0 | Major | Updated and revised the technical content. |
| 11/06/2009 | 7.0 | Major | Updated and revised the technical content. |
| 12/18/2009 | 8.0 | Major | Updated and revised the technical content. |
| 01/29/2010 | 9.0 | Major | Updated and revised the technical content. |
| 03/12/2010 | 10.0 | Major | Updated and revised the technical content. |
| 04/23/2010 | 11.0 | Major | Updated and revised the technical content. |
| 06/04/2010 | 12.0 | Major | Updated and revised the technical content. |
| 07/16/2010 | 13.0 | Major | Significantly changed the technical content. |
| 08/27/2010 | 13.1 | Minor | Clarified the meaning of the technical content. |
| 10/08/2010 | 13.1 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 11/19/2010 | 13.1 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 01/07/2011 | 14.0 | Major | Significantly changed the technical content. |
| 02/11/2011 | 14.0 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 03/25/2011 | 14.0 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 05/06/2011 | 14.0 | No change | No changes to the meaning, language, or formatting of the technical content. |
| 06/17/2011 | 14.1 | Minor | Clarified the meaning of the technical content. |

Contents

| | | |
|-----------|---|-----------|
| 1 | Introduction | 13 |
| 1.1 | Glossary | 13 |
| 1.2 | References..... | 16 |
| 1.2.1 | Normative References..... | 16 |
| 1.2.2 | Informative References | 17 |
| 1.3 | Overview | 17 |
| 1.4 | Relationship to Other Protocols..... | 18 |
| 1.5 | Prerequisites/Preconditions | 19 |
| 1.6 | Applicability Statement..... | 19 |
| 1.7 | Versioning and Capability Negotiation..... | 19 |
| 1.8 | Vendor-Extensible Fields..... | 19 |
| 1.9 | Standards Assignments | 19 |
| 2 | Messages..... | 20 |
| 2.1 | Transport..... | 20 |
| 2.2 | Common Message Syntax | 20 |
| 2.2.1 | Namespaces | 20 |
| 2.2.2 | Messages | 20 |
| 2.2.3 | Elements..... | 20 |
| 2.2.3.1 | ActiveDirectoryObject..... | 21 |
| 2.2.3.2 | ActiveDirectoryPrincipal | 21 |
| 2.2.3.3 | ActiveDirectoryGroup | 21 |
| 2.2.3.4 | CustomActionFault..... | 21 |
| 2.2.3.5 | Server..... | 22 |
| 2.2.4 | Complex Types | 22 |
| 2.2.4.1 | ActiveDirectoryObject..... | 23 |
| 2.2.4.1.1 | ActiveDirectoryObject/DistinguishedName | 23 |
| 2.2.4.1.2 | ActiveDirectoryObject/Name..... | 23 |
| 2.2.4.1.3 | ActiveDirectoryObject/ObjectClass..... | 23 |
| 2.2.4.1.4 | ActiveDirectoryObject/ObjectGuid | 24 |
| 2.2.4.1.5 | ActiveDirectoryObject/ObjectTypes..... | 24 |
| 2.2.4.1.6 | ActiveDirectoryObject/ReferenceServer | 24 |
| 2.2.4.2 | ActiveDirectoryPrincipal | 24 |
| 2.2.4.2.1 | ActiveDirectoryPrincipal/SamAccountName..... | 24 |
| 2.2.4.2.2 | ActiveDirectoryPrincipal/SID | 25 |
| 2.2.4.3 | ActiveDirectoryGroup | 25 |
| 2.2.4.3.1 | ActiveDirectoryGroup/GroupScope | 25 |
| 2.2.4.3.2 | ActiveDirectoryGroup/GroupType | 25 |
| 2.2.4.4 | ArrayOfActiveDirectoryGroup | 25 |
| 2.2.4.5 | ArgumentErrorDetailCA | 26 |
| 2.2.4.5.1 | ArgumentErrorDetailCA/Message..... | 26 |
| 2.2.4.5.2 | ArgumentErrorDetailCA/ParameterName | 26 |
| 2.2.4.5.3 | ArgumentErrorDetailCA/ShortMessage | 26 |
| 2.2.4.6 | CustomActionFault..... | 26 |
| 2.2.4.6.1 | CustomActionFault/ArgumentError | 27 |
| 2.2.4.6.2 | CustomActionFault/DirectoryError | 27 |
| 2.2.4.6.3 | CustomActionFault/Error | 27 |
| 2.2.4.6.4 | CustomActionFault/ShortError | 27 |
| 2.2.4.7 | DirectoryErrorDetailCA | 28 |
| 2.2.4.7.1 | DirectoryErrorDetailCA/ErrorCode..... | 28 |

| | | |
|-------------|---|-----------|
| 2.2.4.7.2 | DirectoryErrorDetailCA/ExtendedErrorMessage..... | 28 |
| 2.2.4.7.3 | DirectoryErrorDetailCA/MatchedDN..... | 28 |
| 2.2.4.7.4 | DirectoryErrorDetailCA/Message..... | 29 |
| 2.2.4.7.5 | DirectoryErrorDetailCA/Referral | 29 |
| 2.2.4.7.6 | DirectoryErrorDetailCA/ShortMessage | 29 |
| 2.2.4.7.7 | DirectoryErrorDetailCA/Win32ErrorCode..... | 29 |
| 2.2.4.8 | sera:ArrayOfString..... | 29 |
| 2.2.5 | Simple Types | 30 |
| 2.2.5.1 | ActiveDirectoryGroupScope..... | 30 |
| 2.2.5.2 | ActiveDirectoryGroupType | 30 |
| 2.2.5.3 | ActiveDirectoryOperationMasterRole | 31 |
| 2.2.5.4 | ser:duration..... | 31 |
| 2.2.5.5 | ser:guid | 31 |
| 2.2.6 | Attributes..... | 32 |
| 2.2.7 | Groups..... | 32 |
| 2.2.8 | Attribute Groups | 32 |
| 2.3 | Directory Service Schema Elements | 32 |
| 3 | Protocol Details | 35 |
| 3.1 | Common Server Processing and Notational Conventions | 35 |
| 3.1.1 | Abstract Data Model | 35 |
| 3.1.1.1 | Attribute List..... | 36 |
| 3.1.1.2 | Object Class List..... | 38 |
| 3.1.1.3 | Read and Write Operations | 38 |
| 3.1.1.3.1 | Read Operations | 38 |
| 3.1.1.3.2 | Write Operations | 39 |
| 3.1.2 | Timers | 39 |
| 3.1.3 | Initialization | 39 |
| 3.1.4 | Message Processing Events and Sequencing Rules..... | 39 |
| 3.1.4.1 | Header Processing Rules..... | 39 |
| 3.1.4.2 | Common Response Elements Processing Rules | 40 |
| 3.1.4.2.1 | ActiveDirectoryGroup..... | 40 |
| 3.1.4.2.2 | ActiveDirectoryObject | 40 |
| 3.1.4.2.3 | ActiveDirectoryPrincipal | 42 |
| 3.1.4.3 | Security Context of Operations..... | 42 |
| 3.1.5 | Timer Events | 43 |
| 3.1.6 | Other Local Events | 43 |
| 3.2 | Port Types | 43 |
| 3.3 | AccountManagement Server Details | 43 |
| 3.3.1 | Abstract Data Model | 44 |
| 3.3.2 | Timers | 44 |
| 3.3.3 | Initialization | 44 |
| 3.3.4 | Message Processing Events and Sequencing Rules..... | 44 |
| 3.3.4.1 | ChangePassword | 44 |
| 3.3.4.1.1 | Messages | 45 |
| 3.3.4.1.1.1 | AccountManagement_ChangePassword_ChangePasswordFault_Fault Message | 45 |
| 3.3.4.1.1.2 | ChangePasswordRequest..... | 46 |
| 3.3.4.1.1.3 | ChangePasswordResponse | 46 |
| 3.3.4.1.2 | Elements..... | 46 |
| 3.3.4.1.2.1 | ChangePasswordFault | 46 |
| 3.3.4.1.2.2 | ChangePasswordRequest..... | 47 |

| | | |
|-------------|---|----|
| 3.3.4.1.2.3 | ChangePasswordRequest/AccountDN | 47 |
| 3.3.4.1.2.4 | ChangePasswordRequest/NewPassword..... | 47 |
| 3.3.4.1.2.5 | ChangePasswordRequest/OldPassword | 47 |
| 3.3.4.1.2.6 | ChangePasswordRequest/PartitionDN..... | 47 |
| 3.3.4.1.2.7 | ChangePasswordResponse | 48 |
| 3.3.4.1.3 | Complex Types | 48 |
| 3.3.4.1.3.1 | ChangePasswordFault | 48 |
| 3.3.4.1.4 | Simple Types..... | 48 |
| 3.3.4.1.5 | Attributes..... | 48 |
| 3.3.4.1.6 | Groups..... | 48 |
| 3.3.4.1.7 | Attribute Groups | 48 |
| 3.3.4.1.8 | ChangePassword SOAP Faults | 49 |
| 3.3.4.1.8.1 | Bad Parameter Error | 50 |
| 3.3.4.1.8.2 | Bad Principal Error..... | 50 |
| 3.3.4.1.8.3 | Bad Principal AD LDS Error | 51 |
| 3.3.4.1.8.4 | Bad Password Error | 52 |
| 3.3.4.1.8.5 | Bad Naming Context Error | 53 |
| 3.3.4.1.8.6 | Directory Error | 53 |
| 3.3.4.1.8.7 | Authorization Error | 54 |
| 3.3.4.1.8.8 | Authentication Error..... | 55 |
| 3.3.4.2 | GetADGroupMember | 55 |
| 3.3.4.2.1 | Messages | 57 |
| 3.3.4.2.1.1 | AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage | 57 |
| 3.3.4.2.1.2 | GetADGroupMemberRequest..... | 57 |
| 3.3.4.2.1.3 | GetADGroupMemberResponse..... | 57 |
| 3.3.4.2.2 | Elements..... | 58 |
| 3.3.4.2.2.1 | GetADGroupMemberFault | 58 |
| 3.3.4.2.2.2 | GetADGroupMemberRequest..... | 58 |
| 3.3.4.2.2.3 | GetADGroupMemberRequest/GroupDN..... | 58 |
| 3.3.4.2.2.4 | GetADGroupMemberRequest/PartitionDN..... | 59 |
| 3.3.4.2.2.5 | GetADGroupMemberRequest/Recursive | 59 |
| 3.3.4.2.2.6 | GetADGroupMemberResponse..... | 59 |
| 3.3.4.2.2.7 | GetADGroupMemberResponse/Members..... | 59 |
| 3.3.4.2.3 | Complex Types | 60 |
| 3.3.4.2.3.1 | ArrayOfActiveDirectoryPrincipal | 60 |
| 3.3.4.2.3.2 | GetADGroupMemberFault | 60 |
| 3.3.4.2.4 | Simple Types..... | 60 |
| 3.3.4.2.5 | Attributes..... | 60 |
| 3.3.4.2.6 | Groups..... | 61 |
| 3.3.4.2.7 | Attribute Groups | 61 |
| 3.3.4.2.8 | GetADGroupMember SOAP Faults..... | 61 |
| 3.3.4.2.8.1 | Bad Parameter Error | 62 |
| 3.3.4.2.8.2 | Bad Principal Error..... | 62 |
| 3.3.4.2.8.3 | Multiple Matching Principals Error | 63 |
| 3.3.4.2.8.4 | Bad Naming Context Error | 63 |
| 3.3.4.2.8.5 | Directory Error | 64 |
| 3.3.4.2.8.6 | Authentication Error..... | 65 |
| 3.3.4.2.8.7 | Remote Authentication Error | 66 |
| 3.3.4.3 | GetADPrincipalAuthorizationGroup | 66 |
| 3.3.4.3.1 | Messages | 67 |

| | | |
|-------------|---|----|
| 3.3.4.3.1.1 | AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage | 68 |
| 3.3.4.3.1.2 | GetADPrincipalAuthorizationGroupRequest | 68 |
| 3.3.4.3.1.3 | GetADPrincipalAuthorizationGroupResponse | 68 |
| 3.3.4.3.2 | Elements | 69 |
| 3.3.4.3.2.1 | GetADPrincipalAuthorizationGroupFault | 69 |
| 3.3.4.3.2.2 | GetADPrincipalAuthorizationGroupRequest | 69 |
| 3.3.4.3.2.3 | GetADPrincipalAuthorizationGroupRequest/PartitionDN | 69 |
| 3.3.4.3.2.4 | GetADPrincipalAuthorizationGroupRequest/PrincipalDN | 70 |
| 3.3.4.3.2.5 | GetADPrincipalAuthorizationGroupResponse | 70 |
| 3.3.4.3.2.6 | GetADPrincipalAuthorizationGroupResponse/MemberOf | 70 |
| 3.3.4.3.3 | Complex Types | 71 |
| 3.3.4.3.3.1 | GetADPrincipalAuthorizationGroupFault | 71 |
| 3.3.4.3.4 | Simple Types | 71 |
| 3.3.4.3.5 | Attributes | 71 |
| 3.3.4.3.6 | Groups | 71 |
| 3.3.4.3.7 | Attribute Groups | 71 |
| 3.3.4.3.8 | GetADPrincipalAuthorizationGroup SOAP Faults | 71 |
| 3.3.4.3.8.1 | Bad Parameter Error | 72 |
| 3.3.4.3.8.2 | Bad Principal Error | 73 |
| 3.3.4.3.8.3 | Multiple Matching Principals Error | 74 |
| 3.3.4.3.8.4 | Bad Naming Context Error | 74 |
| 3.3.4.3.8.5 | Directory Error | 75 |
| 3.3.4.3.8.6 | Authentication Error | 76 |
| 3.3.4.3.8.7 | Remote Authentication Error | 76 |
| 3.3.4.4 | GetADPrincipalGroupMembership | 77 |
| 3.3.4.4.1 | Messages | 79 |
| 3.3.4.4.1.1 | AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage | 80 |
| 3.3.4.4.1.2 | GetADPrincipalGroupMembershipRequest | 80 |
| 3.3.4.4.1.3 | GetADPrincipalGroupMembershipResponse | 80 |
| 3.3.4.4.2 | Elements | 81 |
| 3.3.4.4.2.1 | GetADPrincipalGroupMembershipFault | 81 |
| 3.3.4.4.2.2 | GetADPrincipalGroupMembershipRequest | 81 |
| 3.3.4.4.2.3 | GetADPrincipalGroupMembershipRequest/PartitionDN | 81 |
| 3.3.4.4.2.4 | GetADPrincipalGroupMembershipRequest/PrincipalDN | 82 |
| 3.3.4.4.2.5 | GetADPrincipalGroupMembershipRequest/ResourceContextPartition | 82 |
| 3.3.4.4.2.6 | GetADPrincipalGroupMembershipRequest/ResourceContextServer | 82 |
| 3.3.4.4.2.7 | GetADPrincipalGroupMembershipResponse | 82 |
| 3.3.4.4.2.8 | GetADPrincipalGroupMembershipResponse/MemberOf | 83 |
| 3.3.4.4.3 | Complex Types | 83 |
| 3.3.4.4.3.1 | GetADPrincipalGroupMembershipFault | 83 |
| 3.3.4.4.4 | Simple Types | 83 |
| 3.3.4.4.5 | Attributes | 83 |
| 3.3.4.4.6 | Groups | 83 |
| 3.3.4.4.7 | Attribute Groups | 83 |
| 3.3.4.4.8 | GetADPrincipalGroupMembership SOAP Faults | 84 |
| 3.3.4.4.8.1 | Bad Parameter Error | 85 |
| 3.3.4.4.8.2 | Bad Principal Error | 86 |
| 3.3.4.4.8.3 | Multiple Matching Principals Error | 86 |
| 3.3.4.4.8.4 | Bad Naming Context Error | 87 |

| | | |
|---------------|---|-----|
| 3.3.4.4.8.5 | ObjectGuid Error | 87 |
| 3.3.4.4.8.6 | Directory Error | 88 |
| 3.3.4.4.8.7 | Authentication Error..... | 89 |
| 3.3.4.4.8.8 | Remote Authentication Error | 90 |
| 3.3.4.5 | SetPassword | 90 |
| 3.3.4.5.1 | Messages | 91 |
| 3.3.4.5.1.1 | AccountManagement_SetPassword_SetPasswordFault_FaultMessage ... | 91 |
| 3.3.4.5.1.2 | SetPasswordRequest..... | 92 |
| 3.3.4.5.1.3 | SetPasswordResponse..... | 92 |
| 3.3.4.5.2 | Elements..... | 92 |
| 3.3.4.5.2.1 | SetPasswordFault | 92 |
| 3.3.4.5.2.2 | SetPasswordRequest..... | 92 |
| 3.3.4.5.2.3 | SetPasswordRequest/AccountDN | 93 |
| 3.3.4.5.2.4 | SetPasswordRequest/NewPassword | 93 |
| 3.3.4.5.2.5 | SetPasswordRequest/PartitionDN..... | 93 |
| 3.3.4.5.2.6 | SetPasswordResponse..... | 93 |
| 3.3.4.5.3 | Complex Types | 94 |
| 3.3.4.5.3.1 | SetPasswordFault | 94 |
| 3.3.4.5.4 | Simple Types..... | 94 |
| 3.3.4.5.5 | Attributes..... | 94 |
| 3.3.4.5.6 | Groups..... | 94 |
| 3.3.4.5.7 | Attribute Groups | 94 |
| 3.3.4.5.8 | SetPassword SOAP Faults..... | 94 |
| 3.3.4.5.8.1 | Bad Parameter Error | 95 |
| 3.3.4.5.8.2 | Bad Principal Error..... | 96 |
| 3.3.4.5.8.3 | Bad Principal AD LDS Error | 97 |
| 3.3.4.5.8.4 | Bad Password Error | 98 |
| 3.3.4.5.8.5 | Bad Naming Context Error | 99 |
| 3.3.4.5.8.6 | Directory Error..... | 100 |
| 3.3.4.5.8.7 | Authorization Error | 100 |
| 3.3.4.5.8.8 | Authentication Error..... | 101 |
| 3.3.4.6 | TranslateName..... | 102 |
| 3.3.4.6.1 | Messages | 103 |
| 3.3.4.6.1.1 | AccountManagement_TranslateName_TranslateNameFault_FaultMes sage | 103 |
| 3.3.4.6.1.2 | TranslateNameRequest..... | 103 |
| 3.3.4.6.1.3 | TranslateNameResponse | 103 |
| 3.3.4.6.2 | Elements..... | 104 |
| 3.3.4.6.2.1 | TranslateNameFault..... | 104 |
| 3.3.4.6.2.2 | TranslateNameRequest..... | 104 |
| 3.3.4.6.2.3 | TranslateNameRequest/FormatDesired..... | 104 |
| 3.3.4.6.2.4 | TranslateNameRequest/FormatOffered | 105 |
| 3.3.4.6.2.5 | TranslateNameRequest/Names..... | 105 |
| 3.3.4.6.2.6 | TranslateNameResponse | 105 |
| 3.3.4.6.2.7 | TranslateNameResponse/NameTranslateResult..... | 106 |
| 3.3.4.6.3 | Complex Types | 106 |
| 3.3.4.6.3.1 | ActiveDirectoryNameTranslateResult..... | 106 |
| 3.3.4.6.3.1.1 | ActiveDirectoryNameTranslateResult/Result | 106 |
| 3.3.4.6.3.1.2 | ActiveDirectoryNameTranslateResult/Name | 107 |
| 3.3.4.6.3.2 | ArrayOfActiveDirectoryNameTranslateResult | 107 |

| | | |
|---------------|--|-----|
| 3.3.4.6.3.2.1 | ArrayOfActiveDirectoryNameTranslateResult/ActiveDirectoryNameTranslateResult | 108 |
| 3.3.4.6.3.3 | TranslateNameFault | 108 |
| 3.3.4.6.4 | Simple Types | 108 |
| 3.3.4.6.4.1 | ActiveDirectoryNameFormat | 108 |
| 3.3.4.6.5 | Attributes | 109 |
| 3.3.4.6.6 | Groups | 109 |
| 3.3.4.6.7 | Attribute Groups | 109 |
| 3.3.4.6.8 | TranslateName SOAP Faults | 109 |
| 3.3.4.6.8.1 | Bad Parameter Error | 110 |
| 3.3.4.6.8.2 | Directory Error | 111 |
| 3.3.4.6.8.3 | Authentication Error | 111 |
| 3.3.5 | Timer Events | 112 |
| 3.3.6 | Other Local Events | 112 |
| 3.4 | TopologyManagement Server Details | 112 |
| 3.4.1 | Abstract Data Model | 113 |
| 3.4.2 | Timers | 113 |
| 3.4.3 | Initialization | 113 |
| 3.4.4 | Message Processing Events and Sequencing Rules | 113 |
| 3.4.4.1 | ChangeOptionalFeature | 113 |
| 3.4.4.1.1 | Messages | 114 |
| 3.4.4.1.1.1 | ChangeOptionalFeatureRequest | 114 |
| 3.4.4.1.1.2 | ChangeOptionalFeatureResponse | 115 |
| 3.4.4.1.1.3 | TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage | 115 |
| 3.4.4.1.2 | Elements | 115 |
| 3.4.4.1.2.1 | ChangeOptionalFeatureFault | 115 |
| 3.4.4.1.2.2 | ChangeOptionalFeatureRequest | 116 |
| 3.4.4.1.2.3 | ChangeOptionalFeatureRequest/DistinguishedName | 116 |
| 3.4.4.1.2.4 | ChangeOptionalFeatureRequest/Enable | 116 |
| 3.4.4.1.2.5 | ChangeOptionalFeatureRequest/FeatureId | 116 |
| 3.4.4.1.2.6 | ChangeOptionalFeatureResponse | 117 |
| 3.4.4.1.3 | Complex Types | 117 |
| 3.4.4.1.3.1 | ChangeOptionalFeatureFault | 117 |
| 3.4.4.1.4 | Simple Types | 117 |
| 3.4.4.1.5 | Attributes | 117 |
| 3.4.4.1.6 | Groups | 118 |
| 3.4.4.1.7 | Attribute Groups | 118 |
| 3.4.4.1.8 | ChangeOptionalFeature SOAP Faults | 118 |
| 3.4.4.1.8.1 | Bad Parameter Error | 119 |
| 3.4.4.1.8.2 | Bad DistinguishedName Error | 119 |
| 3.4.4.1.8.3 | Bad FeatureId Error | 120 |
| 3.4.4.1.8.4 | Directory Error | 121 |
| 3.4.4.1.8.5 | Authorization Error | 121 |
| 3.4.4.1.8.6 | Authentication Error | 122 |
| 3.4.4.2 | GetADDomain | 123 |
| 3.4.4.2.1 | Messages | 124 |
| 3.4.4.2.1.1 | GetADDomainRequest | 124 |
| 3.4.4.2.1.2 | GetADDomainResponse | 124 |

| | | |
|----------------|--|-----|
| 3.4.4.2.1.3 | TopologyManagement_GetADDomain_GetADDomainFault_FaultMess age | 124 |
| 3.4.4.2.2 | Elements | 125 |
| 3.4.4.2.2.1 | GetADDomainFault | 125 |
| 3.4.4.2.2.2 | GetADDomainRequest | 125 |
| 3.4.4.2.2.3 | GetADDomainResponse | 125 |
| 3.4.4.2.2.4 | GetADDomainResponse/Domain | 126 |
| 3.4.4.2.3 | Complex Types | 126 |
| 3.4.4.2.3.1 | ActiveDirectoryDomain | 126 |
| 3.4.4.2.3.1.1 | ActiveDirectoryDomain/AllowedDNSSuffixes | 127 |
| 3.4.4.2.3.1.2 | ActiveDirectoryDomain/AppliedGroupPolicies | 127 |
| 3.4.4.2.3.1.3 | ActiveDirectoryDomain/ChildDomains | 128 |
| 3.4.4.2.3.1.4 | ActiveDirectoryDomain/ComputersContainer | 128 |
| 3.4.4.2.3.1.5 | ActiveDirectoryDomain/DomainControllersContainer | 129 |
| 3.4.4.2.3.1.6 | ActiveDirectoryDomain/DomainMode | 129 |
| 3.4.4.2.3.1.7 | ActiveDirectoryDomain/DomainSID | 129 |
| 3.4.4.2.3.1.8 | ActiveDirectoryDomain/ForeignSecurityPrincipalsContainer | 130 |
| 3.4.4.2.3.1.9 | ActiveDirectoryDomain/Forest | 130 |
| 3.4.4.2.3.1.10 | ActiveDirectoryDomain/InfrastructureMaster | 131 |
| 3.4.4.2.3.1.11 | ActiveDirectoryDomain/LastLogonReplicationInterval | 131 |
| 3.4.4.2.3.1.12 | ActiveDirectoryDomain/ManagedBy | 131 |
| 3.4.4.2.3.1.13 | ActiveDirectoryDomain/NetBIOSName | 131 |
| 3.4.4.2.3.1.14 | ActiveDirectoryDomain/ParentDomain | 132 |
| 3.4.4.2.3.1.15 | ActiveDirectoryDomain/PDCEmulator | 132 |
| 3.4.4.2.3.1.16 | ActiveDirectoryDomain/RIDMaster | 133 |
| 3.4.4.2.3.1.17 | ActiveDirectoryDomain/SystemsContainer | 133 |
| 3.4.4.2.3.1.18 | ActiveDirectoryDomain/UsersContainer | 133 |
| 3.4.4.2.3.2 | ActiveDirectoryPartition | 134 |
| 3.4.4.2.3.2.1 | ActiveDirectoryPartition/DeletedObjectsContainer | 135 |
| 3.4.4.2.3.2.2 | ActiveDirectoryPartition/DistinguishedName | 135 |
| 3.4.4.2.3.2.3 | ActiveDirectoryPartition/DNSRoot | 135 |
| 3.4.4.2.3.2.4 | ActiveDirectoryPartition/LostAndFoundContainer | 136 |
| 3.4.4.2.3.2.5 | ActiveDirectoryPartition/Name | 136 |
| 3.4.4.2.3.2.6 | ActiveDirectoryPartition/ObjectClass | 136 |
| 3.4.4.2.3.2.7 | ActiveDirectoryPartition/ObjectGuid | 137 |
| 3.4.4.2.3.2.8 | ActiveDirectoryPartition/ObjectTypes | 137 |
| 3.4.4.2.3.2.9 | ActiveDirectoryPartition/SubordinateReferences | 137 |
| 3.4.4.2.3.2.10 | ActiveDirectoryPartition/QuotasContainer | 137 |
| 3.4.4.2.3.2.11 | ActiveDirectoryPartition/ReadOnlyReplicaDirectoryServer | 138 |
| 3.4.4.2.3.2.12 | ActiveDirectoryPartition/ReferenceServer | 138 |
| 3.4.4.2.3.2.13 | ActiveDirectoryPartition/ReplicaDirectoryServer | 139 |
| 3.4.4.2.3.3 | GetADDomainFault | 139 |
| 3.4.4.2.4 | Simple Types | 139 |
| 3.4.4.2.5 | Attributes | 139 |
| 3.4.4.2.6 | Groups | 139 |
| 3.4.4.2.7 | Attribute Groups | 140 |
| 3.4.4.2.8 | GetADDomain SOAP Faults | 140 |
| 3.4.4.2.8.1 | Bad Parameter Error | 140 |
| 3.4.4.2.8.2 | Directory Error | 141 |
| 3.4.4.2.8.3 | Bad Principal Error | 142 |
| 3.4.4.2.8.4 | Authentication Error | 143 |
| 3.4.4.3 | GetADDomainController | 143 |

| | | |
|----------------|--|-----|
| 3.4.4.3.1 | Messages | 144 |
| 3.4.4.3.1.1 | GetADDomainControllerRequest | 145 |
| 3.4.4.3.1.2 | GetADDomainControllerResponse | 145 |
| 3.4.4.3.1.3 | TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage | 145 |
| 3.4.4.3.2 | Elements | 145 |
| 3.4.4.3.2.1 | GetADDomainControllerFault | 146 |
| 3.4.4.3.2.2 | GetADDomainControllerRequest | 146 |
| 3.4.4.3.2.3 | GetADDomainControllerRequest/NtdsSettingsDN | 146 |
| 3.4.4.3.2.4 | GetADDomainControllerResponse | 146 |
| 3.4.4.3.2.5 | GetADDomainControllerResponse/DomainControllers | 147 |
| 3.4.4.3.3 | Complex Types | 147 |
| 3.4.4.3.3.1 | ActiveDirectoryDirectoryServer | 147 |
| 3.4.4.3.3.1.1 | ActiveDirectoryDirectoryServer/DefaultPartition | 148 |
| 3.4.4.3.3.1.2 | ActiveDirectoryDirectoryServer/HostName | 148 |
| 3.4.4.3.3.1.3 | ActiveDirectoryDirectoryServer/InvocationId | 148 |
| 3.4.4.3.3.1.4 | ActiveDirectoryDirectoryServer/LdapPort | 149 |
| 3.4.4.3.3.1.5 | ActiveDirectoryDirectoryServer/Name | 149 |
| 3.4.4.3.3.1.6 | ActiveDirectoryDirectoryServer/NTDSSettingsObjectDN | 149 |
| 3.4.4.3.3.1.7 | ActiveDirectoryDirectoryServer/OperationMasterRole | 149 |
| 3.4.4.3.3.1.8 | ActiveDirectoryDirectoryServer/Partitions | 150 |
| 3.4.4.3.3.1.9 | ActiveDirectoryDirectoryServer/ServerObjectDN | 150 |
| 3.4.4.3.3.1.10 | ActiveDirectoryDirectoryServer/ServerObjectGuid | 151 |
| 3.4.4.3.3.1.11 | ActiveDirectoryDirectoryServer/Site | 151 |
| 3.4.4.3.3.1.12 | ActiveDirectoryDirectoryServer/SslPort | 151 |
| 3.4.4.3.3.2 | ActiveDirectoryDomainController | 152 |
| 3.4.4.3.3.2.1 | ActiveDirectoryDomainController/ComputerDN | 152 |
| 3.4.4.3.3.2.2 | ActiveDirectoryDomainController/Domain | 152 |
| 3.4.4.3.3.2.3 | ActiveDirectoryDomainController/Enabled | 153 |
| 3.4.4.3.3.2.4 | ActiveDirectoryDomainController/Forest | 153 |
| 3.4.4.3.3.2.5 | ActiveDirectoryDomainController/IsGlobalCatalog | 153 |
| 3.4.4.3.3.2.6 | ActiveDirectoryDomainController/IsReadOnly | 154 |
| 3.4.4.3.3.2.7 | ActiveDirectoryDomainController/OSHotFix | 154 |
| 3.4.4.3.3.2.8 | ActiveDirectoryDomainController/OSName | 154 |
| 3.4.4.3.3.2.9 | ActiveDirectoryDomainController/OSServicepack | 155 |
| 3.4.4.3.3.2.10 | ActiveDirectoryDomainController/OSVersion | 155 |
| 3.4.4.3.3.3 | ArrayOfActiveDirectoryDomainController | 155 |
| 3.4.4.3.3.4 | ArrayOfActiveDirectoryOperationMasterRole | 156 |
| 3.4.4.3.3.5 | GetADDomainControllerFault | 156 |
| 3.4.4.3.4 | Simple Types | 156 |
| 3.4.4.3.5 | Attributes | 156 |
| 3.4.4.3.6 | Groups | 156 |
| 3.4.4.3.7 | Attribute Groups | 156 |
| 3.4.4.3.8 | GetADDomainController SOAP Faults | 156 |
| 3.4.4.3.8.1 | Bad Parameter Error | 157 |
| 3.4.4.3.8.2 | Invalid NtdsSettingsDN Error | 158 |
| 3.4.4.3.8.3 | Directory Error | 159 |
| 3.4.4.3.8.4 | Authentication Error | 159 |
| 3.4.4.4 | GetADForest | 160 |
| 3.4.4.4.1 | Messages | 161 |
| 3.4.4.4.1.1 | GetADForestRequest | 161 |
| 3.4.4.4.1.2 | GetADForestResponse | 161 |

| | | |
|----------------|--|-----|
| 3.4.4.4.1.3 | TopologyManagement_GetADForest_GetADForestFault_FaultMessage | 162 |
| 3.4.4.4.2 | Elements | 162 |
| 3.4.4.4.2.1 | GetADForestFault | 162 |
| 3.4.4.4.2.2 | GetADForestRequest | 162 |
| 3.4.4.4.2.3 | GetADForestResponse | 163 |
| 3.4.4.4.2.4 | GetADForestResponse/Forest | 163 |
| 3.4.4.4.3 | Complex Types | 163 |
| 3.4.4.4.3.1 | ActiveDirectoryForest | 163 |
| 3.4.4.4.3.1.1 | ActiveDirectoryForest/ApplicationPartitions | 164 |
| 3.4.4.4.3.1.2 | ActiveDirectoryForest/CrossForestReferences | 164 |
| 3.4.4.4.3.1.3 | ActiveDirectoryForest/DomainNamingMaster | 165 |
| 3.4.4.4.3.1.4 | ActiveDirectoryForest/Domains | 165 |
| 3.4.4.4.3.1.5 | ActiveDirectoryForest/ForestMode | 166 |
| 3.4.4.4.3.1.6 | ActiveDirectoryForest/GlobalCatalogs | 166 |
| 3.4.4.4.3.1.7 | ActiveDirectoryForest/Name | 166 |
| 3.4.4.4.3.1.8 | ActiveDirectoryForest/RootDomain | 167 |
| 3.4.4.4.3.1.9 | ActiveDirectoryForest/SchemaMaster | 167 |
| 3.4.4.4.3.1.10 | ActiveDirectoryForest/Sites | 167 |
| 3.4.4.4.3.1.11 | ActiveDirectoryForest/SPNSuffixes | 168 |
| 3.4.4.4.3.1.12 | ActiveDirectoryForest/UPNSuffixes | 168 |
| 3.4.4.4.3.2 | GetADForestFault | 168 |
| 3.4.4.4.4 | Simple Types | 168 |
| 3.4.4.4.5 | Attributes | 168 |
| 3.4.4.4.6 | Groups | 168 |
| 3.4.4.4.7 | Attribute Groups | 169 |
| 3.4.4.4.8 | GetADForest SOAP Faults | 169 |
| 3.4.4.4.8.1 | Bad Parameter Error | 169 |
| 3.4.4.4.8.2 | Directory Error | 170 |
| 3.4.4.4.8.3 | Authentication Error | 171 |
| 3.4.4.5 | GetVersion | 172 |
| 3.4.4.5.1 | Messages | 172 |
| 3.4.4.5.1.1 | GetVersionRequest | 172 |
| 3.4.4.5.1.2 | GetVersionResponse | 173 |
| 3.4.4.5.1.3 | TopologyManagement_GetVersion_GetVersionFault_FaultMessage | 173 |
| 3.4.4.5.2 | Elements | 173 |
| 3.4.4.5.2.1 | GetVersionFault | 173 |
| 3.4.4.5.2.2 | GetVersionRequest | 174 |
| 3.4.4.5.2.3 | GetVersionResponse | 174 |
| 3.4.4.5.2.4 | GetVersionResponse/VersionMajor | 174 |
| 3.4.4.5.2.5 | GetVersionResponse/VersionMinor | 174 |
| 3.4.4.5.2.6 | GetVersionResponse/VersionString | 175 |
| 3.4.4.5.3 | Complex Types | 175 |
| 3.4.4.5.3.1 | GetVersionFault | 175 |
| 3.4.4.5.4 | Simple Types | 175 |
| 3.4.4.5.5 | Attributes | 175 |
| 3.4.4.5.6 | Groups | 175 |
| 3.4.4.5.7 | Attribute Groups | 176 |
| 3.4.4.5.8 | GetVersion SOAP Faults | 176 |
| 3.4.4.6 | MoveADOperationMasterRole | 176 |
| 3.4.4.6.1 | Messages | 177 |
| 3.4.4.6.1.1 | MoveADOperationMasterRoleRequest | 177 |
| 3.4.4.6.1.2 | MoveADOperationMasterRoleResponse | 178 |

| | | |
|---------------|---|------------|
| 3.4.4.6.1.3 | TopologyManagement_MoveADOperationMasterRole_MoveADOperati onMasterRoleFault_FaultMessage..... | 178 |
| 3.4.4.6.2 | Elements..... | 178 |
| 3.4.4.6.2.1 | MoveADOperationMasterRoleFault | 178 |
| 3.4.4.6.2.2 | MoveADOperationMasterRoleRequest | 179 |
| 3.4.4.6.2.3 | MoveADOperationMasterRoleRequest/OperationMasterRole..... | 179 |
| 3.4.4.6.2.3.1 | Transferring a FSMO Role..... | 179 |
| 3.4.4.6.2.3.2 | Seizing a FSMO Role..... | 180 |
| 3.4.4.6.2.4 | MoveADOperationMasterRoleRequest/Seize | 180 |
| 3.4.4.6.2.5 | MoveADOperationMasterRoleResponse | 181 |
| 3.4.4.6.2.6 | MoveADOperationMasterRoleResponse/WasSeized | 181 |
| 3.4.4.6.3 | Complex Types | 181 |
| 3.4.4.6.3.1 | MoveADOperationMasterRoleFault | 181 |
| 3.4.4.6.4 | Simple Types..... | 181 |
| 3.4.4.6.5 | Attributes..... | 182 |
| 3.4.4.6.6 | Groups..... | 182 |
| 3.4.4.6.7 | Attribute Groups | 182 |
| 3.4.4.6.8 | MoveADOperationMasterRole SOAP Faults | 182 |
| 3.4.4.6.8.1 | Bad Parameter Error | 183 |
| 3.4.4.6.8.2 | Unwilling to Perform Error | 183 |
| 3.4.4.6.8.3 | Directory Error | 184 |
| 3.4.4.6.8.4 | Authorization Error | 185 |
| 3.4.4.6.8.5 | Authentication Error..... | 186 |
| 3.4.5 | Timer Events | 186 |
| 3.4.6 | Other Local Events | 186 |
| 4 | Protocol Examples..... | 187 |
| 4.1 | AccountManagement Examples..... | 187 |
| 4.1.1 | Example of ChangePassword | 187 |
| 4.1.2 | Example of GetADGroupMember | 189 |
| 4.1.3 | Example of GetADPrincipalAuthorizationGroup | 190 |
| 4.1.4 | Example of GetADPrincipalGroupMembership | 194 |
| 4.1.5 | Example of SetPassword | 197 |
| 4.1.6 | Example of TranslateName | 199 |
| 4.2 | TopologyManagement Examples | 200 |
| 4.2.1 | Example of ChangeOptionalFeature | 200 |
| 4.2.2 | Example of GetADDomain | 201 |
| 4.2.3 | Example of GetADDomainController..... | 204 |
| 4.2.4 | Example of GetADForest | 206 |
| 4.2.5 | Example of GetVersion..... | 207 |
| 4.2.6 | Example of MoveADOperationMasterRole..... | 208 |
| 5 | Security..... | 210 |
| 5.1 | Security Considerations for Implementers..... | 210 |
| 5.2 | Index of Security Parameters | 210 |
| 6 | Appendix A: Full WSDL..... | 211 |
| 7 | Appendix B: Product Behavior..... | 231 |
| 8 | Change Tracking..... | 243 |
| 9 | Index | 245 |

1 Introduction

The Active Directory Web Services: Custom Action Protocol is used for directory access in identity management and topology management. Examples of these operations are managing **groups** and passwords (identity management, section [3.3](#)) and retrieving information about the **forest** and **domain** (topology management, section [3.4](#)). A portion of Microsoft's implementation of the Active Directory Web Services: Custom Action Protocol is used to communicate between servers; for example the implementation of server-to-server **FSMO** transfers or the implementation of server-to-server methods for retrieving group memberships from other servers. Those server-to-server communications are not used by Microsoft to communicate with Microsoft Windows® client operating systems and are not included in this specification. Licensees can implement those server-to-server communications using any protocol they choose. This specification describes the client-to-server portions of the Active Directory Web Services: Custom Action Protocol that are used between Windows servers and Windows client operating systems to manage **Active Directory** identities and topologies. In some cases, the client-to-server communications include status of the success or failure of server-to-server communication, to give administrators the ability to assist in diagnosing or monitoring the server-to-server implementation. However, the specific content of these communications is not understood by Windows client operating systems, and the semantics are not prescribed by this specification. Interoperation with Windows client operating systems does not require an understanding of the status of the server-to-server implementation. Licensees can implement the Active Directory Web Services: Custom Action Protocol to provide and accept any status that is meaningful for diagnosing or monitoring their server-to-server communications, or no data at all, as they choose.

The goal of this specification is to enable the transition of client applications that are currently using non-Web services protocols such as **Lightweight Directory Access Protocol (LDAP)** version 3 [[RFC2251](#)] for managing information held in **directory services** to using Web services protocols.

1.1 Glossary

The following terms are defined in [[MS-GLOS](#)]:

- Active Directory**
- Active Directory Domain Services (AD DS)**
- application NC**
- attribute**
- computer object**
- configuration naming context (config NC)**
- crossRef object**
- directory object**
- directory service (DS)**
- distinguished name (DN)**
- domain**
- domain controller (DC)**
- domain local group**
- Domain Name System (DNS)**
- domain naming context (domain NC)**
- domain naming service name**
- domain tree**
- flexible single master operation (FSMO)**
- forest**
- forest functional level**
- fully qualified domain name (FQDN)(1)(2)**

FSMO role
global catalog (GC)
global group
globally unique identifier (GUID)
group
group object
Group Policy
Group Policy object (GPO)
Lightweight Directory Access Protocol (LDAP)
naming context (NC)
NetBIOS name
object class
object class inheritance
principal
read-only domain controller (RODC)
relative identifier (RID)
root directory system agent-specific entry (rootDSE)
root domain
schema naming context (schema NC)
Secure Sockets Layer (SSL)
security identifier (SID)
security principal
site
SOAP
SOAP action
SOAP body
SOAP fault
SOAP fault code
SOAP fault detail
SOAP header
SOAP header block
SOAP message
SOAP mustUnderstand attribute
Uniform Resource Locator (URL)
universal group
user object
Web Services Description Language (WSDL)
WSDL message
WSDL operation
WSDL port type
XML
XML namespace

The following terms are defined in [\[MS-ADTS\]](#):

security-enabled group

The following terms are specific to this document:

Active Directory Lightweight Directory Services (AD LDS): A general-purpose network **directory service** that is an independent mode of **Active Directory** and that provides dedicated **directory services** for applications. See [\[MS-ADTS\]](#).

Active Directory Web Services (ADWS): Provides a Web Service interface to **Active Directory Domain Services (AD DS)** and **Active Directory Lightweight Directory Services (AD LDS)** instances.

authenticable principal: In **AD DS**, a **directory object** of class user or of a class derived from user. In **AD LDS**, a **directory object** of a class that statically links to the msDS-BindableObject auxiliary class. See [\[MS-ADTS\]](#) section 3.1.1.2.4.

child domain: A **domain** that is a member of a **domain tree** but is not the **root domain** of the **domain tree**.

directory instance: The **directory service** referred to by the **SOAP header** in the Active Directory Web Services: Custom Action Protocol custom action **XML** operation, which is the target of the custom action request. This **directory service** is assumed to be running locally on the server. This may be an **Active Directory directory service** instance, or an **Active Directory Lightweight Directory Service** instance (one of possibly many). For more detail on the format of the **SOAP header** see [\[MS-ADDM\]](#) section 2.5.1.

endPoint: In the context of a Web service, a network target to which a **SOAP message** can be addressed. See [\[WSADDR\]](#).

non-authenticable principal: A reference identifying a **directory object** that is not an **authenticable principal** object.

non-user principal: A reference identifying a **directory object** that is not a **user object**.

non-group principal: A reference identifying a **directory object** that is not a **group object**.

non-security principal: A reference identifying a **directory object** that is not a **security principal** object.

nonexistent naming context (nonexistent NC): A reference that does not identify an **NC** in the specified **directory instance**.

nonexistent principal: A reference that does not identify a **security principal** in the specified **directory instance**.

nTDSDSA object: Each **domain controller** in a **domain** has an nTDSDSA object. See [\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1.

parent domain: A **domain** that is part of a **domain tree** and has **child domains** is a parent of those **child domains**.

primary group: The **group object** identified by the primaryGroupID attribute ([\[MS-ADA3\]](#) section 2.119) of a user object ([\[MS-ADSC\]](#) section 2.233). The **primary group's** objectSid equals the user's objectSid, with its **relative identifier (RID)** portion replaced by the primaryGroupID value. The user is considered a member of its **primary group**.

snapshot store instance: A read-only copy of an **Active Directory Domain Services** instance or an **Active Directory Lightweight Directory Services** instance at some point in time.

SOAP fault subcode: An element of a **SOAP fault**, defined in [\[SOAP1.2-1/2003\]](#).

Uniform Resource Identifier (URI): A string of characters in a standardized format that identifies a resource on a network [\[RFC2396\]](#).

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as described in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

References to Microsoft Open Specification documents do not include a publishing year because links are to the latest version of the documents, which are updated frequently. References to other documents include a publishing year when one is available.

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[MS-ADA1] Microsoft Corporation, "[Active Directory Schema Attributes A-L](#)".

[MS-ADA2] Microsoft Corporation, "[Active Directory Schema Attributes M](#)".

[MS-ADA3] Microsoft Corporation, "[Active Directory Schema Attributes N-Z](#)".

[MS-ADDM] Microsoft Corporation, "[Active Directory Web Services: Data Model and Common Elements](#)".

[MS-ADLS] Microsoft Corporation, "[Active Directory Lightweight Directory Services Schema](#)".

[MS-ADSC] Microsoft Corporation, "[Active Directory Schema Classes](#)".

[MS-ADTS] Microsoft Corporation, "[Active Directory Technical Specification](#)".

[MS-DRDM] Microsoft Corporation, "[Directory Replication and Data Management \(DRDM\) Remote Protocol Specification](#)".

[MS-DTYP] Microsoft Corporation, "[Windows Data Types](#)".

[MS-ERREF] Microsoft Corporation, "[Windows Error Codes](#)".

[MS-NNS] Microsoft Corporation, "[.NET NegotiateStream Protocol Specification](#)".

[MS-SAMR] Microsoft Corporation, "[Security Account Manager \(SAM\) Remote Protocol Specification \(Client-to-Server\)](#)".

[MS-WSDS] Microsoft Corporation, "[WS-Enumeration: Directory Services Protocol Extensions](#)".

[MS-WSO] Microsoft Corporation, "[Windows System Overview](#)".

[MS-WSPELD] Microsoft Corporation, "[WS-Transfer and WS-Enumeration Protocol Extension for Lightweight Directory Access Protocol v3 Controls Specification](#)".

[MS-WSTIM] Microsoft Corporation, "[WS-Transfer: Identity Management Operations for Directory Access Extensions](#)".

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.rfc-editor.org/rfc/rfc2119.txt>

[RFC2251] Wahl, M., Howes, T., and Kille, S., "Lightweight Directory Access Protocol (v3)", RFC 2251, December 1997, <http://www.ietf.org/rfc/rfc2251.txt>

[RFC2396] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998, <http://www.ietf.org/rfc/rfc2396.txt>

[RFC3296] Zeilenga, K., "Named Subordinate References in Lightweight Directory (LDAP) Directories", RFC 3296, July 2002, <http://www.ietf.org/rfc/rfc3296.txt>

[RFC4122] Leach, P., Mealling, M., and Salz, R., "A Universally Unique Identifier (UUID) URN Namespace", RFC 4122, July 2005, <http://www.ietf.org/rfc/rfc4122.txt>

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., et al., "Simple Object Access Protocol (SOAP) 1.1", May 2000, <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>

[SOAP1.2-1/2003] Gudgin, M., Hadley, M., Mendelsohn, N., et al., "SOAP Version 1.2 Part 1: Messaging Framework", W3C Recommendation, June 2003, <http://www.w3.org/TR/2003/REC-soap12-part1-20030624>

[WSADDR] Gudgin, M., Hadley, M., and Rogers, T., "Web Services Addressing (WS-Addressing) 1.0", W3C Recommendation, May 2006, <http://www.w3.org/2005/08/addressing>

[WSASB] Gudgin, M., Hadley, M., and Rogers, T., "Web Services Addressing 1.0 - SOAP Binding", W3C Recommendation, May 2006, <http://www.w3.org/TR/2006/REC-ws-addr-soap-20060509/>

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, <http://www.w3.org/TR/2001/NOTE-wsdl-20010315>

[WSDLSOAP] Angelov, D., Ballinger, K., Butek, R., et al., "WSDL 1.1 Binding Extension for SOAP 1.2", W3C Member Submission, April 2006, <http://www.w3.org/Submission/wsdl11soap12/>

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, <http://www.w3.org/TR/REC-xml-names/>

[XMLSCHEMA1] Thompson, H.S., Ed., Beech, D., Ed., Maloney, M., Ed., and Mendelsohn, N., Ed., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/>

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>

1.2.2 Informative References

[MS-DISO] Microsoft Corporation, "[Domain Interactions System Overview](#)".

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)".

1.3 Overview

The Active Directory Web Services: Custom Action Protocol is one of the protocols that make up the set of **Active Directory Web Services (ADWS)** protocols. The Active Directory Web Services: Custom Action Protocol permits access to Active Directory [\[MS-ADTS\]](#) via the use of common **SOAP**-based Web services.

This protocol adds a protocol to ADWS to permit it to do such operations as changing passwords, expanding groups, retrieving domain, forest and **site** information, and translating names.

To do so, this protocol defines the following **Web Services Description Language (WSDL)** operations: <1>

- [ChangeOptionalFeature](#)
- [ChangePassword](#)
- [GetADDomain](#)
- [GetADDomainController](#)
- [GetADForest](#)
- [GetADGroupMember](#)
- [GetADPrincipalAuthorizationGroup](#)
- [GetADPrincipalGroupMembership](#)
- [GetVersion](#)
- [MoveADOperationMasterRole](#)
- [SetPassword](#)
- [TranslateName](#)

Requests that make use of the Active Directory Web Services: Custom Action Protocol can be identified by the presence of a protocol-specific **SOAP header**.

The Active Directory Web Services: Custom Action Protocol specifies a set of **SOAP faults** that a server is permitted to return to the client to indicate that an error occurred while processing the request. The intent is to allow interoperability between clients and servers by providing a standardized set of errors that both sides of the communication session can understand. This protocol specifies SOAP faults for the custom actions as specified in section 3.

1.4 Relationship to Other Protocols

The Active Directory Web Services: Custom Action Protocol uses transports that support the sending of **SOAP messages**, as described in section 2.1 and as shown in the following layering diagram.

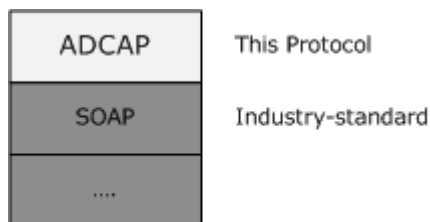


Figure 1: Protocol layering diagram

The information in this document is used by the Active Directory Web Services: Custom Action Protocol in the set of ADWS protocols. The ADWS protocol documentation set comprises this document and the following documents: [\[MS-WSDS\]](#), [\[MS-WSPELD\]](#), [\[MS-WSTIM\]](#), and [\[MS-ADDM\]](#).

Active Directory Web Services: Custom Action Protocol uses the Microsoft.NET NegotiateStream Protocol Specification [\[MS-NNS\]](#) to establish the security context of the operations as described in section [3.1.4.3](#).

1.5 Prerequisites/Preconditions

The Active Directory Web Services: Custom Action Protocol assumes that the client is able to discover the server by means not specified in this protocol. [<2>](#)

1.6 Applicability Statement

The Active Directory Web Services: Custom Action Protocol is suitable for use when the implementer desires to retrieve and manipulate data stored in a directory service via an **XML**-based model. It is used to manage access to Active Directory data (setting and retrieving) which is not easily done via the other protocols specified in this documentation set, including [\[MS-WSDS\]](#), [\[MS-WSTIM\]](#), and [\[MS-WSPELD\]](#). Examples of the capabilities provided by this protocol include retrieving and changing user passwords and retrieving information about the Active Directory domain and Active Directory forest.

1.7 Versioning and Capability Negotiation

This document covers versioning issues in the following areas:

Supported Transports: This protocol can be implemented using transports that support sending SOAP messages as described in section [2.1](#).

Protocol Versions: This protocol is not versioned.

Capability Negotiation: This protocol does not support version negotiation.

Localization: This protocol includes text strings in various SOAP faults. Localization considerations for such strings are specified in the SOAP faults section of each operation described in section [3.3.4](#). See, for example, section [3.3.4.1.8](#) for the ChangePassword operation.

1.8 Vendor-Extensible Fields

There are no vendor-extensible fields.

1.9 Standards Assignments

| Parameter | Value | Reference |
|-----------|-------|-----------|
| TCP Port | 9389 | IANA |

Note **XML namespaces** used by SOAP-based protocols are listed in section [2.2.1](#).

2 Messages

2.1 Transport

The Active Directory Web Services: Custom Action Protocol MUST use a transport binding that supports either SOAP 1.1 [\[SOAP1.1\]](#) or SOAP 1.2 [\[SOAP1.2-1/2003\]](#). All messages MUST be formatted as specified in either SOAP 1.1 or SOAP 1.2. [<3>](#)

2.2 Common Message Syntax

This section contains common definitions used by this protocol. The syntax of the definitions uses **XML schema** as defined in [\[XMLSCHEMA1\]](#) and [\[XMLSCHEMA2\]](#), and Web Services Description Language as defined in [\[WSDL\]](#).

2.2.1 Namespaces

This specification defines and references various XML namespaces using the mechanisms specified in [\[XMLNS\]](#). Although this specification associates a specific XML namespace prefix for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

| Prefix | Namespace URI | Reference |
|---------|---|------------------------------|
| ca: | http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions | This specification |
| ser: | http://schemas.microsoft.com/2003/10/Serialization/ | This specification. |
| sera: | http://schemas.microsoft.com/2003/10/Serialization/Arrays | This specification. |
| soap12: | http://schemas.xmlsoap.org/wsdl/soap12/ | [WSDLSOAP] |
| wsam: | http://www.w3.org/2007/05/addressing/metadata | This specification. |
| wsdl: | http://schemas.xmlsoap.org/wsdl/ | [WSDL] |
| xs: | http://www.w3.org/2001/XMLSchema | [XMLSCHEMA1] |
| xsi: | http://www.w3.org/2001/XMLSchema-instance | [XMLSCHEMA1] |

2.2.2 Messages

This protocol does not contain any **WSDL messages** that are used in more than one operation.

2.2.3 Elements

The following table summarizes the set of common XML schema element definitions defined by this specification. XML schema element definitions that are specific to a particular operation are described with the operation.

| Element | Description |
|-----------------------|---|
| ActiveDirectoryGroup | An extension of the ActiveDirectoryPrincipal element to include a GroupScope and a GroupType. |
| ActiveDirectoryObject | The base object for the ActiveDirectoryPrincipal element. |

| Element | Description |
|--------------------------|--|
| ActiveDirectoryPrincipal | Represents a principal. |
| CustomActionFault | The base fault for all the Custom Action faults. |
| Server | Specifies which directory service a request is intended for. |

2.2.3.1 ActiveDirectoryObject

The **ActiveDirectoryObject** element represents an object in the directory. This element **MUST NOT** be returned in any messages in the Active Directory Web Services: Custom Action Protocol, because the complex type **ActiveDirectoryObject** is used only as a base type, with no elements created from that type. The **ActiveDirectoryObject** element **MUST NOT** be null.

```
<xs:element
  name="ActiveDirectoryObject"
  nillable="true" type="ca:ActiveDirectoryObject" />
```

2.2.3.2 ActiveDirectoryPrincipal

The **ActiveDirectoryPrincipal** element represents a **principal** ([MS-ADTS] section 5.1.1.5). It is an extension of the **ActiveDirectoryObject** (section 2.2.3.1) element to include a **SamAccountName** (section 2.2.4.2.1) and a **SID** (section 2.2.4.2.2). The **ActiveDirectoryPrincipal** element **MUST NOT** be null.

```
<xs:element
  name="ActiveDirectoryPrincipal" nillable="true"
  type="ca:ActiveDirectoryPrincipal" />
```

2.2.3.3 ActiveDirectoryGroup

The **ActiveDirectoryGroup** element is contained in the response for group information. It is an extension of the **ActiveDirectoryPrincipal** element (section 2.2.3.2) to include a **GroupScope** (section 2.2.4.3.1) and a **GroupType** (section 2.2.4.3.2). The **ActiveDirectoryGroup** element **MUST NOT** be null.

```
<xs:element
  name="ActiveDirectoryGroup" nillable="true"
  type="ca:ActiveDirectoryGroup" />
```

2.2.3.4 CustomActionFault

The **CustomActionFault** element is the base fault for all the Custom Action faults. This fault **MUST NOT** be returned directly by any Custom Actions. Only the derived children fault of this element is to be returned.

```
<xs:element name="CustomActionFault" nillable="true" type="ca:CustomActionFault" />
```

2.2.3.5 Server

An implementation MAY [4](#) allow multiple directory services to be accessed via a single **endpoint**. Therefore, when sending a SOAP request message (for example, to change a password), the requestor MUST specify which directory service the request is intended for. The Server SOAP header, which is located in the `http://schemas.microsoft.com/2008/1/ActiveDirectory/Customactions` XML namespace, is used to accomplish this. It MUST be specified by the requestor in any SOAP request message that is intended to target a specific directory service.

The contents of the Server header are the string literal "ldap:" followed by an integer (expressed as a string in base 10) that specifies the TCP port number of the desired directory service's LDAP interface.

In the following example, the requestor is asking that the operation (ADCAP ChangePassword) that is specified in the SOAP message be performed against the directory service that listens on port 3268.

```
<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      AccountManagement/ChangePassword</wsa:Action>
    <ca:Server
      xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"

      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:3268</ca:Server>

    <wsa:MessageID>urn:uuid:a541d67c-707d-41f0-b27e-78d40b5a8293</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To
      soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Windows/AccountManagement</wsa:To>
    </soapenv:Header>
    <soapenv:Body
      xmlns:xs="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <ChangePasswordRequest
        xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
        <AccountDN>CN=Guest,CN=Users,DC=fabrikam,DC=com</AccountDN>
        <NewPassword>Password2</NewPassword>
        <OldPassword>Password1</OldPassword>
        <PartitionDN>DC=fabrikam,DC=com</PartitionDN>
      </ChangePasswordRequest>
    </soapenv:Body>
  </soapenv:Envelope>
```

2.2.4 Complex Types

The following table summarizes the set of common XML schema complex type definitions defined by this specification. XML schema complex type definitions that are specific to a particular operation are described with the operation.

| Complex Type | Description |
|-----------------------------|---|
| ActiveDirectoryObject | The base type for the ActiveDirectoryPrincipal complex type and the ActiveDirectoryPartition complex type. Represents a directory object. |
| ActiveDirectoryPrincipal | An extension of an ActiveDirectoryObject complex type definition, adding a SID element and a SamAccountName element. |
| ActiveDirectoryGroup | Extends the ActiveDirectoryPrincipal complex type definition to specify group results. |
| ArrayOfActiveDirectoryGroup | Defines an array of ActiveDirectoryGroup complex types. |
| ArgumentErrorDetailCA | Indicates that one or more of the parameters supplied were invalid. |
| CustomActionFault | The base type for all Active Directory Web Services: Custom Action Protocol faults. |
| DirectoryErrorDetailCA | Supplies details about the directory or LDAP error that was returned. |
| sera:ArrayOfString | Defines an array of strings. |

2.2.4.1 ActiveDirectoryObject

The **ActiveDirectoryObject** complex type represents a **directory object**.

```
<xs:complexType name="ActiveDirectoryObject">
  <xs:sequence>
    <xs:element name="DistinguishedName" nillable="true" type="xs:string" />
    <xs:element name="Name" nillable="true" type="xs:string" />
    <xs:element name="ObjectClass" nillable="true" type="xs:string" />
    <xs:element name="ObjectGuid" type="ser:guid" />
    <xs:element name="ObjectTypes" nillable="true" type="sera:ArrayOfstring" />
    <xs:element name="ReferenceServer" nillable="true" type="xs:string" />
  </xs:sequence>
</xs:complexType>
```

2.2.4.1.1 ActiveDirectoryObject/DistinguishedName

The **DistinguishedName** element specifies the distinguished name of the ActiveDirectoryObject directory object.

```
<xs:element name="DistinguishedName" nillable="true" type="xs:string" />
```

2.2.4.1.2 ActiveDirectoryObject/Name

The **Name** element specifies the name of the ActiveDirectoryObject directory object.

```
<xs:element name="Name" nillable="true" type="xs:string" />
```

2.2.4.1.3 ActiveDirectoryObject/ObjectClass

The **ObjectClass** element specifies the object class of the ActiveDirectoryObject directory object.

```
<xs:element name="ObjectClass" nillable="true" type="xs:string" />
```

2.2.4.1.4 ActiveDirectoryObject/ObjectGuid

The **ObjectGuid** element specifies the **GUID** of the ActiveDirectoryObject directory object. GUID is defined in [\[MS-DTYP\]](#) section 2.3.2.

```
<xs:element name="ObjectGuid" type="ser:guid" />
```

2.2.4.1.5 ActiveDirectoryObject/ObjectTypes

The **ObjectTypes** element specifies an array of **object class** strings (the objectClass hierarchy) that form the **object class inheritance** of the ActiveDirectoryObject directory object.

```
<xs:element name="ObjectTypes" nillable="true" type="ser:ArrayOfstring" />
```

2.2.4.1.6 ActiveDirectoryObject/ReferenceServer

When the directory service is **AD DS**, the **ReferenceServer** element is the **fully qualified domain name (FQDN) (1)** of the domain for this ActiveDirectoryObject, ActiveDirectoryPrincipal, or ActiveDirectoryGroup directory object. If the directory service is **AD LDS**, this element is a string "servername:port", where *servername* is the name of the AD LDS server hosting the **NC** for this ActiveDirectoryObject, ActiveDirectoryPrincipal, or ActiveDirectoryGroup directory object, and *port* is the base-10 representation of the TCP port number that the AD LDS instance is using for LDAP.

```
<xs:element name="ReferenceServer" nillable="true" type="xs:string" />
```

2.2.4.2 ActiveDirectoryPrincipal

The **ActiveDirectoryPrincipal** complex type is an extension of an **ActiveDirectoryObject** complex type definition (section [2.2.4.1](#)), adding a **SID** element and a **SamAccountName** element.

```
<xs:complexType name="ActiveDirectoryPrincipal">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:ActiveDirectoryObject">
      <xs:sequence>
        <xs:element name="SID" nillable="true" type="xs:base64Binary" />
        <xs:element name="SamAccountName" nillable="true" type="xs:string" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.2.1 ActiveDirectoryPrincipal/SamAccountName

The **SamAccountName** element specifies the account name of the principal specified by the ActiveDirectoryPrincipal or ActiveDirectoryGroup directory object.

```
<xs:element name="SamAccountName" nillable="true" type="xs:string" />
```


2.2.4.2.2 ActiveDirectoryPrincipal/SID

The **SID** element specifies the object security identifier (SID) on the principal specified by the ActiveDirectoryPrincipal or ActiveDirectoryGroup directory object. The SID is encoded in base64Binary format ([\[XMLSCHEMA2\]](#) section 3.2.16).

```
<xs:element name="SID" nillable="true" type="xs:base64Binary" />
```

2.2.4.3 ActiveDirectoryGroup

The **ActiveDirectoryGroup** complex type extends the **ActiveDirectoryPrincipal** (section [2.2.4.2](#)) complex type definition, adding the elements **GroupScope** and **GroupType**.

```
<xs:complexType name="ActiveDirectoryGroup">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:ActiveDirectoryPrincipal">
      <xs:sequence>
        <xs:element name="GroupScope" type="ca:ActiveDirectoryGroupScope" />
        <xs:element name="GroupType" type="ca:ActiveDirectoryGroupType" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

2.2.4.3.1 ActiveDirectoryGroup/GroupScope

The [GroupScope](#) element contains the Group Scope (Unknown, DomainLocal, Global or Universal; see section [2.2.5.1](#)) of the ActiveDirectoryGroup directory object.

```
<xs:element name="GroupScope" type="ca:ActiveDirectoryGroupScope" />
```

2.2.4.3.2 ActiveDirectoryGroup/GroupType

The **GroupType** element contains the group type (Unknown, Distribution or Security, see section [2.2.5.2](#)) of the ActiveDirectoryGroup directory object.

```
<xs:element name="GroupType" type="ca:ActiveDirectoryGroupType" />
```

2.2.4.4 ArrayOfActiveDirectoryGroup

The **ArrayOfActiveDirectoryGroup** complex type defines an array of **ActiveDirectoryGroup** (section [2.2.4.3](#)) complex types.

```
<xs:complexType name="ArrayOfActiveDirectoryGroup">
  <xs:sequence>
    <xs:element
      minOccurs="0"
      maxOccurs="unbounded"
      name="ActiveDirectoryGroup"
      nillable="true"
      type="ca:ActiveDirectoryGroup" />
  </xs:sequence>
```

```
</xs:complexType>
```

2.2.4.5 ArgumentErrorDetailCA

The **ArgumentErrorDetailCA** complex type definition SHOULD be used in a SOAP fault to indicate that one or more of the parameters supplied were invalid.

```
<xs:complexType name="ArgumentErrorDetailCA">
  <xs:sequence>
    <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string" />
    <xs:element minOccurs="0" name="ParameterName" nillable="true" type="xs:string" />
    <xs:element minOccurs="0" name="ShortMessage" nillable="true" type="xs:string" />
  </xs:sequence>
</xs:complexType>
```

2.2.4.5.1 ArgumentErrorDetailCA/Message

The **Message** element contains a human-readable error string explaining the nature of the argument error that occurred. [5](#) The value of this element is implementation-specific; therefore a client MUST NOT rely on the value.

```
<xs:element
  minOccurs="0" name="Message" nillable="true" type="xs:string" />
```

2.2.4.5.2 ArgumentErrorDetailCA/ParameterName

The **ParameterName** element contains a human-readable error string containing the name of the argument that caused the error. [6](#) The value of this element is implementation specific; therefore, a client MUST NOT rely on the value.

```
<xs:element
  minOccurs="0" name="ParameterName"
  nillable="true" type="xs:string" />
```

2.2.4.5.3 ArgumentErrorDetailCA/ShortMessage

The **ShortMessage** element contains a human-readable error string that explains the nature of the argument error that occurred. [7](#) The value of this element is implementation specific; therefore, a client MUST NOT rely on the value.

```
<xs:element
  minOccurs="0" name="ShortMessage" nillable="true" type="xs:string" />
```

2.2.4.6 CustomActionFault

The **CustomActionFault** complex type definition SHOULD be the base type for all Active Directory Web Services: Custom Action Protocol faults.

```
<xs:complexType name="CustomActionFault">
  <xs:sequence>
```

```

<xs:element minOccurs="0"
  name="ArgumentError" nillable="true" type="ca:ArgumentErrorDetailCA" />
<xs:element minOccurs="0"
  name="DirectoryError" nillable="true" type="ca:DirectoryErrorDetailCA" />
<xs:element minOccurs="0"
  name="Error" nillable="true" type="xs:string" />
<xs:element minOccurs="0"
  name="ShortError" nillable="true" type="xs:string" />
</xs:sequence>
</xs:complexType>

```

The ADCAP protocol implementation MUST return only one of the following elements: **ArgumentError**, **DirectoryError**, or **Error**.

2.2.4.6.1 CustomActionFault/ArgumentError

The **ArgumentError** element SHOULD be used in a SOAP fault to indicate that one or more of the parameters supplied were invalid.

```

<xs:element
  minOccurs="0" name="ArgumentError"
  nillable="true" type="ca:ArgumentErrorDetailCA" />

```

2.2.4.6.2 CustomActionFault/DirectoryError

The **DirectoryError** element SHOULD be used in a SOAP fault to supply details about the directory error that was returned.

```

<xs:element
  minOccurs="0" name="DirectoryError"
  nillable="true" type="ca:DirectoryErrorDetailCA" />

```

2.2.4.6.3 CustomActionFault/Error

The **Error** element contains a human-readable error string explaining the nature of the error that occurred. [8](#) The value of this element is implementation specific; therefore, a client MUST NOT rely on the value.

```

<xs:element
  minOccurs="0" name="Error" nillable="true" type="xs:string" />

```

2.2.4.6.4 CustomActionFault/ShortError

The **ShortError** element contains a human-readable error string explaining the nature of the error that occurred. [9](#) The value of this element is implementation specific; therefore, a client MUST NOT rely on the value.

```

<xs:element
  minOccurs="0" name="ShortError" nillable="true" type="xs:string" />

```

2.2.4.7 DirectoryErrorDetailCA

The **DirectoryErrorDetailCA** complex type definition SHOULD be used in a SOAP fault to supply details about the directory or LDAP error that was returned.

```
<xs:complexType name="DirectoryErrorDetailCA">
  <xs:sequence>
    <xs:element minOccurs="0"
      name="ErrorCode" nillable="true" type="xs:string" />
    <xs:element minOccurs="0"
      name="ExtendedErrorMessage" nillable="true" type="xs:string" />
    <xs:element minOccurs="0"
      name="MatchedDN" nillable="true" type="xs:string" />
    <xs:element minOccurs="0"
      name="Message" nillable="true" type="xs:string" />
    <xs:element minOccurs="0"
      name="Referral" nillable="true" type="xs:ArrayOfstring" />
    <xs:element minOccurs="0"
      name="ShortMessage" nillable="true" type="xs:string" />
    <xs:element minOccurs="0"
      name="Win32ErrorCode" nillable="true" type="xs:string" />
  </xs:sequence>
</xs:complexType>
```

2.2.4.7.1 DirectoryErrorDetailCA/ErrorCode

The **ErrorCode** element contains a numeric error code, in string form, representing the cause of the error.

```
<xs:element
  minOccurs="0" name="ErrorCode" nillable="true" type="xs:string" />
```

2.2.4.7.2 DirectoryErrorDetailCA/ExtendedErrorMessage

The **ExtendedErrorMessage** element contains a human-readable error string explaining the nature of the error that occurred. The value of this element is implementation-specific; therefore a client MUST NOT rely on the value.

```
<xs:element
  minOccurs="0" name="ExtendedErrorMessage"
  nillable="true" type="xs:string" />
```

2.2.4.7.3 DirectoryErrorDetailCA/MatchedDN

The **MatchedDN** element contains an LDAP matchedDN as specified in [\[RFC2251\]](#).

```
<xs:element
  minOccurs="0" name="MatchedDN" nillable="true" type="xs:string" />
```

2.2.4.7.4 DirectoryErrorDetailCA/Message

The **Message** element contains a human-readable error string that explains the nature of the directory error that occurred. [<10>](#) The value of this element is implementation specific; therefore, a client MUST NOT rely on the value.

```
<xs:element
  minOccurs="0" name="Message" nillable="true" type="xs:string" />
```

2.2.4.7.5 DirectoryErrorDetailCA/Referral

The **Referral** element contains an LDAP referral **URL** as specified in [\[RFC2251\]](#).

```
<xs:element
  minOccurs="0" name="Referral"
  nillable="true" type="sera:ArrayOfstring" />
```

2.2.4.7.6 DirectoryErrorDetailCA/ShortMessage

The **ShortMessage** element contains a human-readable error string explaining the nature of the error that occurred. [<11>](#) The value of this element is implementation specific; therefore, a client MUST NOT rely on the value.

```
<xs:element
  minOccurs="0" name="ShortMessage" nillable="true" type="xs:string" />
```

2.2.4.7.7 DirectoryErrorDetailCA/Win32ErrorCode

When [DirectoryErrorDetailCA/errorCode](#) (section [2.2.4.7.1](#)) is an LDAP error code, the **Win32ErrorCode** element SHOULD contain the Win32 error code ([\[MS-ERREF\]](#) section 2.2), in string form, translated from the error contained in **ErrorCode**. [<12>](#) When **ErrorCode** is a non-LDAP error code, the **Win32ErrorCode** element SHOULD contain the error contained in **ErrorCode**.

```
<xs:element
  minOccurs="0" name="Win32ErrorCode"
  nillable="true" type="xs:string" />
```

2.2.4.8 sera:ArrayOfString

The **sera:ArrayOfString** complex type defines an array of strings.

```
<xs:complexType name="ArrayOfstring">
  <xs:sequence>
    <xs:element
      minOccurs="0" maxOccurs="unbounded"
      name="string" nillable="true" type="xs:string" />
  </xs:sequence>
</xs:complexType>
```

2.2.5 Simple Types

The following table summarizes the set of common XML schema simple type definitions defined by this specification. XML schema simple type definitions that are specific to a particular operation are described with the operation.

| Simple type | Description |
|------------------------------------|---|
| ActiveDirectoryGroupScope | Specifies the type of the GroupScope element. |
| ActiveDirectoryGroupType | Defines the allowable types of groups. |
| ActiveDirectoryOperationMasterRole | Represents the FSMO roles that a directory service may hold. |
| ser:duration | Defines a type to express a duration of time. |
| ser:guid | Defines a globally unique identifier (GUID) using a pattern. |

2.2.5.1 ActiveDirectoryGroupScope

This enumeration simple type is used to specify the type of the **GroupScope** element. It indicates the type of group that is specified in the **ActiveDirectoryGroup** element.

```
<xs:simpleType name="ActiveDirectoryGroupScope">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Unknown" />
    <xs:enumeration value="DomainLocal" />
    <xs:enumeration value="Global" />
    <xs:enumeration value="Universal" />
  </xs:restriction>
</xs:simpleType>
```

| Value | Meaning |
|-------------|--|
| Unknown | The group membership is unknown. |
| DomainLocal | The group membership is in a domain local group . |
| Global | The group membership is in a global group . |
| Universal | The group membership is in a universal group . |

2.2.5.2 ActiveDirectoryGroupType

The **ActiveDirectoryGroupType** simple type defines the three allowable types of groups (Unknown, Distribution, and Security).

This enumeration simple type is used to specify the type of the [GroupType](#) element. It indicates the type of group that is specified in the [ActiveDirectoryGroup](#) element.

```
<xs:simpleType name="ActiveDirectoryGroupType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Unknown" />
    <xs:enumeration value="Distribution" />
    <xs:enumeration value="Security" />
  </xs:restriction>
</xs:simpleType>
```

```
</xs:simpleType>
```

| Value | Meaning |
|--------------|--|
| Unknown | The type of group represented is unknown. |
| Distribution | The group does not represent a group of security principals . |
| Security | The group represents a group of security principals. |

2.2.5.3 ActiveDirectoryOperationMasterRole

The **ActiveDirectoryOperationMasterRole** simple type is an enumeration, representing the FSMO roles that a directory service may hold.

```
<xs:simpleType name="ActiveDirectoryOperationMasterRole">
  <xs:restriction base="xs:string">
    <xs:enumeration value="PDCEmulator" />
    <xs:enumeration value="RIDMaster" />
    <xs:enumeration value="InfrastructureMaster" />
    <xs:enumeration value="SchemaMaster" />
    <xs:enumeration value="DomainNamingMaster" />
  </xs:restriction>
</xs:simpleType>
```

The enumeration values specify a FSMO role, according to the following table.

| Value | Description |
|------------------------|---|
| "PDCEmulator" | PDC Emulator FSMO role, per [MS-ADTS] section 7.1.5.4. |
| "RIDMaster" | relative identifier (RID) Master FSMO role, per [MS-ADTS] section 7.1.5.3. |
| "InfrastructureMaster" | Infrastructure Master FSMO role, per [MS-ADTS] section 7.1.5.5. |
| "SchemaMaster" | Schema Master FSMO role, per [MS-ADTS] section 7.1.5. |
| "DomainNamingMaster" | Domain Naming Master FSMO role, per [MS-ADTS] section 7.1.5.2. |

2.2.5.4 ser:duration

The **ser:duration** simple type defines a type to express a duration of time.

```
<xs:simpleType name="duration">
  <xs:restriction base="xs:duration">
    <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?" />
    <xs:minInclusive value="-P10675199DT2H48M5.4775808S" />
    <xs:maxInclusive value="P10675199DT2H48M5.4775807S" />
  </xs:restriction>
</xs:simpleType>
```

2.2.5.5 ser:guid

The **ser:guid** simple type defines a GUID using a pattern.

```

<xs:simpleType name="guid">
  <xs:restriction base="xs:string">
    <xs:pattern
      value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{12}" />
    </xs:restriction>
  </xs:simpleType>

```

2.2.6 Attributes

This specification does not define any common XML schema **attribute** definitions.

2.2.7 Groups

This specification does not define any common XML schema group definitions.

2.2.8 Attribute Groups

This specification does not define any common XML schema attribute group definitions.

2.3 Directory Service Schema Elements

The protocol accesses the directory service schema classes and attributes listed in the following table.

For the syntactic specifications of the following <Class> or <Class> <Attribute> pairs, refer either to:

Active Directory Domain Services (AD DS) ([\[MS-ADA1\]](#), [\[MS-ADA2\]](#), [\[MS-ADA3\]](#), and [\[MS-ADSC\]](#)).

Or to:

Active Directory Lightweight Directory Services (AD LDS) [\[MS-ADLS\]](#).

| Class | Attribute |
|----------|--|
| computer | dnsHostName memberOf name objectSID operatingSystemHotFix operatingSystem operatingSystemServicePack operatingSystemVersion sAMAccountName userAccountControl |
| crossRef | distinguishedName dnsRoot Enabled nETBIOSName ncName objectGUID |

| Class | Attribute |
|--------------------------|---|
| | systemFlags trustParent |
| crossRefContainer | fSMORoleOwner msDS-Behavior-Version msDS-SPNSuffixes uPNSuffixes |
| dMD | fSMORoleOwner |
| domainDNS | distinguishedName fSMORoleOwner gpLink msDS-AllowedDNSSuffixes msDS-Behavior-Version msDS-LogonTimeSyncInterval managedBy name objectSID objectClass rIDManagerReference subRefs wellKnownObjects |
| foreignSecurityPrincipal | objectSID |
| group | groupType member memberOf name objectSID sAMAccountName |
| inetOrgPerson | unicodePwd userPassword |
| infrastructureUpdate | fSMORoleOwner |
| nTDSDSA | distinguishedName invocationId msDS-hasDomainNCs msDS-hasMasterNCs msDS-hasFullReplicaNCs hasPartialReplicaNCs msDS-PortLDAP msDS-PortSSL name objectCategory |

| Class | Attribute |
|------------|---|
| | options |
| rIDManager | fSMORoleOwner |
| rootDSE | becomeDomainMaster becomeInfrastructureMaster becomePdc becomeRidMaster becomeSchemaMaster defaultNamingContext disableOptionalFeature enableOptionalFeature isGlobalCatalogReady |
| server | distinguishedName dnsHostName objectGUID serverReference |
| site | cn |
| user | name memberOf objectSID primaryGroupID sAMAccountName userPassword unicodePwd |

3 Protocol Details

The following sections describe the behavior of the Active Directory Web Services: Custom Action Protocol. This protocol follows a client-server model, in which a client sends a SOAP message containing a request (a [ChangePassword](#), [GetADGroupMember](#), [GetADPrincipalAuthorizationGroup](#), [GetADPrincipalGroupMembership](#), [SetPassword](#), [TranslateName](#), [ChangeOptionalFeature](#), [GetADDomain](#), [GetADDomainController](#), [GetADForest](#), [GetVersion](#), or [MoveADOperationMasterRole](#) operation) to the server, and the server responds with a SOAP message containing the response (or a SOAP fault, if an error occurred during server processing).<13>

In the following sections, the operations are grouped by the two **WSDL port types** to which they apply, the AccountManagement (section 3.3) port type (on which ChangePassword, GetADGroupMember, GetADPrincipalAuthorizationGroup, GetADPrincipalGroupMembership, SetPassword and TranslateName operations are processed) and the TopologyManagement (section 3.4) port type (on which ChangeOptionalFeature, GetADDomain, GetADDomainController, GetADForest, GetVersion and MoveADOperationMasterRole operations are processed). Prior to discussing the operation-specific behaviors associated with each port type, a common server processing section is included that contains protocol details common to all operations on all port types.

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results returned by the transport are passed directly back to the higher-layer protocol or application.

3.1 Common Server Processing and Notational Conventions

This section describes processing that is common to all operations on all port types. Specifically, it discusses the SOAP header that is included by clients on SOAP messages to identify Active Directory Web Services: Custom Action Protocol requests. It also documents the abstract data model and initialization procedure common to all port types.

If *e* is an element, then the following list defines common states of the value of *e*:

- **Empty:** The string "<*e*></*e*>" is considered to specify an empty *e* element.
- **Null:** The string "<*e* nil='true'></*e*>" is considered to specify a null *e* element.
- **Not Present:** A SOAP block that does not contain the string "<*e*>" is considered to specify an element *e* that is not present.
- **Unspecific:** The string "<*e*>...</*e*>" is considered to specify any value permitted for the element *e*. The value can include null, empty, or not present, if permitted for *e*.

3.1.1 Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

An implementer should read [\[MS-ADTS\]](#) sections 3.1.1.1 and 3.1.1.2 to understand the data model in this specification. Specifically, the State Modeling Primitives and Notation Conventions in this document are per [\[MS-ADTS\]](#) section 3.1.1.1.2.

This protocol operates over an external directory instance that is composed of a set of named objects as described in [\[MS-ADTS\]](#) section 3.1.1.

Objects are retrieved from the directory database using the Active Directory Web Services: Custom Action Protocol Web Service Protocol by specifying attribute values that the object's attribute's values satisfy (for example, object!distinguishedName must match an input string). Sections [3.1.1.1](#) and [3.1.1.2](#) list the Active Directory attributes and classes that are relevant to this protocol.

When requesting or manipulating directory objects, the constraints on individual objects and their attributes MUST be honored as specified in [MS-ADTS].

3.1.1.1 Attribute List

The following attributes are referenced by this protocol (listed by ldapDisplayName). For a normative description of these attributes, see [\[MS-ADA1\]](#), [\[MS-ADA2\]](#), and [\[MS-ADA3\]](#).

- cn
- distinguishedName
- dNSHostName
- dnsRoot
- fSMORoleOwner
- gPLink
- groupType
- hasPartialReplicaNCs
- invocationId
- managedBy
- member
- memberOf
- msDS-AllowedDNSSuffixes
- msDS-Behavior-Version
- msDS-HasDomainNCs
- msDS-hasFullReplicaNCs
- msDS-hasMasterNCs
- msDS-LogonTimeSyncInterval
- msDS-SPNSuffixes
- name
- nCName
- nETBIOSTName

- objectCategory
- objectClass
- objectGUID
- objectSid
- operatingSystem
- operatingSystemHotFix
- operatingSystemServicePack
- operatingSystemVersion
- options
- rIDManagerReference
- sAMAccountName
- serverReference
- subRefs
- systemFlags
- trustParent
- unicodePwd
- uPNSuffixes
- userAccountControl
- userPassword
- wellKnownObjects

For the normative description of the following attributes, see [\[MS-ADLS\]](#).

- msDS-PortLDAP
- msDS-PortSSL

For the normative description of the following attributes, see [\[MS-ADTS\]](#) sections [3.1.1.3.2](#) and [3.1.1.3.3](#).

- becomeDomainMaster
- becomeInfrastructureMaster
- becomePdc
- becomeRidMaster
- becomeSchemaMaster
- defaultNamingContext

- disableOptionalFeature
- enableOptionalFeature
- isGlobalCatalogReady

3.1.1.2 Object Class List

The following classes are referenced by this protocol (listed by ldapDisplayName). For a normative description of these classes, see [\[MS-ADSC\]](#).

- classSchema
- computer
- configuration
- crossRef
- crossRefContainer
- dMD
- domainDNS
- foreignSecurityPrincipal
- group
- inetOrgPerson
- infrastructureUpdate
- nTDSDSA
- rIDManager
- server
- site
- sitesContainer
- user

3.1.1.3 Read and Write Operations

The Active Directory Web Services: Custom Action Protocol consists of 12 WSDL operations, on two ports (AccountManagement, section [3.3](#), and TopologyManagement, section [3.4](#)). Of these 12 WSDL operations, eight consist of reading information, and four consist of writing information. The eight read WSDL operations are listed in section [3.1.1.3.1](#), and the four write operations are listed in section [3.1.1.3.2](#).

3.1.1.3.1 Read Operations

- [GetVersion \(section 3.4.4.5\)](#)
- [GetADGroupMember \(section 3.3.4.2\)](#)

- [GetADDomain \(section 3.4.4.2\)](#)
- [GetADPrincipalAuthorizationGroup \(section 3.3.4.3\)](#)
- [GetADDomainController \(section 3.4.4.3\)](#)
- [GetADPrincipalGroupMembership \(section 3.3.4.4\)](#)
- [GetADForest \(section 3.4.4.4\)](#)
- [TranslateName \(section 3.3.4.6\)](#)

3.1.1.3.2 Write Operations

- [ChangePassword \(section 3.3.4.1\)](#)
- [ChangeOptionalFeature \(section 3.4.4.1\)](#)
- [SetPassword \(section 3.3.4.5\)](#)
- [MoveADOperationMasterRole \(section 3.4.4.6\)](#)

3.1.2 Timers

None.

3.1.3 Initialization

When this protocol initializes, it MUST begin listening on endpoints for the AccountManagement (section [3.3](#)) and TopologyManagement (section [3.4](#)) port types. The endpoints exposed, along with the transports and authentication mechanisms used by this protocol, are specified in [\[MS-ADDM\]](#) section 2.1.

3.1.4 Message Processing Events and Sequencing Rules

3.1.4.1 Header Processing Rules

With the exception of the GetVersion operation, a client MUST include the **Server** element (section [2.2.3.5](#)) as a SOAP header in all Active Directory Web Services: Custom Action Protocol requests. The client SHOULD set the **SOAP mustUnderstand attribute** to true on this element.

When the server receives an Active Directory Web Services: Custom Action Protocol request on which the **Server** element is present as a SOAP header, the server processes the request in accord with Active Directory Web Services: Custom Action Protocol operation(s) as described in this document. Otherwise, the server rejects the request entirely. If the server receives an Active Directory Web Services: Custom Action Protocol request where the SOAP header contains an empty, not present, invalid, null, or unknown **Server** element, the server returns a SOAP fault corresponding to the Custom Action that was requested as described in sections [3.3.4.1.8.1](#), [3.3.4.2.8.1](#), [3.3.4.3.8.1](#), [3.3.4.4.8.1](#), [3.3.4.5.8.1](#), [3.3.4.6.8.1](#), [3.4.4.1.8.1](#), [3.4.4.2.8.1](#), [3.4.4.3.8.1](#), [3.4.4.4.8.1](#), and [3.4.4.6.8.1](#). The interpretation of an invalid or unknown **Server** element is as follows.

- A Custom Action Protocol request with a SOAP header containing a **Server** element that does not conform to section [2.2.3.5](#) is considered to specify an invalid **Server** element.

- A Custom Action Protocol request with a SOAP header containing a **Server** element that conforms to the format constraints specified in section 2.2.3.5 but fails to identify an instance of a directory service is considered to specify an unknown **Server** element.

3.1.4.2 Common Response Elements Processing Rules

3.1.4.2.1 ActiveDirectoryGroup

The **GroupScope** element is populated from the group!groupType ([MS-ADTS] section 2.2.12), according to the table that follows. If group!groupType is not set, cannot be read, or does not contain one of the values listed in the table that follows, the **GroupScope** element SHOULD be populated with Unknown. <14>

| groupType contains (Symbolic name [MS-ADTS]) | Value of GroupScope element | Group scope |
|--|-----------------------------|--|
| GROUP_TYPE_BUILTIN_LOCAL_GROUP | DomainLocal | The group membership is in a domain local group. |
| GROUP_TYPE_RESOURCE_GROUP | DomainLocal | The group membership is in a domain local group. |
| GROUP_TYPE_ACCOUNT_GROUP | Global | The group membership is in a global group. |
| GROUP_TYPE_UNIVERSAL_GROUP | Universal | The group membership is in a universal group. |

The **GroupType** element is populated from the group!groupType flag GROUP_TYPE_SECURITY_ENABLED ([MS-ADTS] section 2.2.12), according to the following table. If group!groupType is not set or cannot be read, the **GroupType** element SHOULD be populated with Unknown. <15>

| GROUP_TYPE_SECURITY_ENABLED | Value of GroupType Element | Meaning |
|-----------------------------|----------------------------|--|
| Zero | Distribution | The group does not represent a group of security principals. |
| One | Security | The group represents a group of security principals. |

3.1.4.2.2 ActiveDirectoryObject

The **DistinguishedName** element is populated from the directory object's **distinguishedName** attribute. If the **DistinguishedName** attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, then the server MUST return a SOAP fault corresponding to the custom action that was requested as described in sections 3.4.4.2.8.1, 3.4.4.3.8.1, and 3.4.4.4.8.1. For the [GetADDomain \(section 3.4.4.2\)](#) custom action defined in section 3.4.4.2, however, if the **distinguishedName** attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, then the server returns a null [ActiveDirectoryObject/DistinguishedName](#) element. Therefore, except in the response to the GetADDomain custom action, the **DistinguishedName** element MUST NOT be null in any other custom action response.

The **Name** element is populated from the group!name, user!name, or computer!name attribute on the **group object**, **user object**, or **computer object** depending on which type of directory object a response encapsulates. If the attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, then the server returns a null [ActiveDirectoryObject/Name](#) element.

The **ObjectClass** element is populated from the directory object's **objectClass** attribute. This element contains the most specific structural object class ([\[MS-ADTS\]](#) section 3.1.1.4) among the set of classes in the multivalued **objectClass** attribute's values. If the **objectClass** attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, and:

- The custom action is GetADDomain or [GetADPrincipalAuthorizationGroup](#), then the server MUST return a SOAP fault corresponding to the custom action that was requested as described in sections [3.3.4.3.8.5](#) and [3.4.4.2.8.1](#).
- The custom action is [GetADGroupMember](#) or [GetADPrincipalGroupMembership](#), then the server omits the object when constructing the response (sections [3.3.4.2.2.6](#) and [3.3.4.4.2.7](#)).

The **ObjectClass** element MUST NOT be null in any custom action response.

The **ObjectGuid** element is populated from the directory object's **objectGUID** attribute, converted to UUID string form ([\[RFC4122\]](#) section 3). If the **objectGUID** attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, then the server MUST return a SOAP fault corresponding to the custom action that was requested as described in sections [3.3.4.2.8.1](#), [3.3.4.3.8.1](#), and [3.3.4.4.8.5](#). For the GetADDomain custom action defined in section [3.4.4.2](#), however, if the **objectGUID** attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, then the server populates the [ActiveDirectoryObject/ObjectGuid](#) element with a value of 00000000-0000-0000-0000-000000000000. The **ObjectGuid** element MUST NOT be null in any custom action response.

The **ObjectTypes** element is populated from the directory object's **objectClass** multivalued attribute. The values in the array are ordered in the same sequence as values in the **objectClass** attribute ([\[MS-ADTS\]](#) section 3.1.1.2.4.3). If the **objectClass** multivalued attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, and:

- The custom action is GetADDomain or GetADPrincipalAuthorizationGroup, then the server MUST return a SOAP fault corresponding to the custom action that was requested as described in sections [3.3.4.3.8.5](#) and [3.4.4.2.8.1](#).
- The custom action is GetADGroupMember or GetADPrincipalGroupMembership, then the server omits the object when constructing the response (sections [3.3.4.2.2.6](#) and [3.3.4.4.2.7](#)).

The **ObjectTypes** element MUST NOT be null in any custom action response.

The **ReferenceServer** element is populated as follows:

- If the directory instance is AD DS and:
 - The custom actions is not GetADDomain (section 3.4.4.2), then the element is populated by converting from the rootDSE!defaultNamingContext attribute (fully qualified domain name (FQDN)(1)) to a canonical name following the syntactic transformation described in [\[MS-ADTS\]](#) section 3.1.1.1.7, but with any trailing "/" omitted. If the rootDSE!defaultNamingContext attribute is not present or cannot be read due to the client lacking access rights to read the attribute, then the server MUST return a SOAP fault

corresponding to the custom action that was requested as described in sections [3.3.4.2.8.5](#), [3.3.4.3.8.5](#), and [3.3.4.4.8.6](#).

- The custom action is GetADDomain, then the element is populated with the value of the [ActiveDirectoryPartition/DNSRoot \(section 3.4.4.2.3.2.3\)](#) element of the response.
- If the directory instance is AD LDS, the element is populated from the server name, concatenated with a colon (:) followed by the base 10 representation of the TCP port number that AD LDS is using. Note that the port number string is equal to the **Server** element port number that was received in the message header. The server name is populated from the Active Directory instance's **computer!dNSHostName** attribute, for the computer object representing this **DC**. If the **dNSHostName** attribute is not present on the computer object or cannot be read due to the client lacking access rights to read the attribute, then the server MUST return a SOAP fault corresponding to the custom action that was requested as described in sections [3.3.4.2.8.5](#), [3.3.4.3.8.5](#), [3.3.4.4.8.6](#), and [3.4.4.2.8.2](#).

3.1.4.2.3 ActiveDirectoryPrincipal

The **SamAccountName** element is populated from the group!sAMAccountName or user!sAMAccountName attribute on the user object or group object. If the attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, then the server returns a null [ActiveDirectoryPrincipal/SamAccountName](#) element.

The **SID** element is populated from the group!objectSID, user!objectSID, or computer!objectSID attribute on the group object, user object, or computer object. If the attribute is not present on the directory object or cannot be read due to the client lacking access rights to read the attribute, then the server returns a null [ActiveDirectoryPrincipal/SID](#) element.

3.1.4.3 Security Context of Operations

When the server receives an Active Directory Web Services: Custom Action Protocol request, the operations are performed under the caller's security context. The caller's security context is established as specified in [\[MS-NNS\]](#) section 3.1.4. The client MUST allow the server to impersonate its credentials, otherwise; the server returns a SOAP fault corresponding to the custom action that was requested as described in sections [3.3.4.1.8.8](#), [3.3.4.5.8.8](#), [3.3.4.6.8.3](#), [3.4.4.1.8.6](#), [3.4.4.2.8.4](#), [3.4.4.3.8.4](#), [3.4.4.4.8.3](#), [3.4.4.5.8](#), and [3.4.4.6.8.5](#).

For the [GetADGroupMember](#), [GetADPrincipalAuthorizationGroup](#), and [GetADPrincipalGroupMembership](#) custom actions, if any of the following is true:

- The [GetADGroupMemberRequest/GroupDN](#) element of GetADGroupMember specifies a group from a domain that is different from what is hosted by the target server (specified by the [Server element \(section 2.2.3.5\)](#) in the SOAP header).
- The [GetADPrincipalAuthorizationGroupRequest/PrincipalDN](#) element of GetADPrincipalAuthorizationGroup specifies an object from a domain that is different from what is hosted by the target server (specified by the [Server element](#) in the SOAP header).
- The [GetADPrincipalGroupMembershipRequest/PrincipalDN](#) element of GetADPrincipalGroupMembership specifies an object from a domain that is different from what is hosted by the target server (specified by the [Server element](#) in the SOAP header).
- The group specified in GetADGroupMemberRequest/GroupDN contains security principals that are defined in a domain that is different from what is hosted by the target server (specified by the [Server element](#) in the SOAP header).

- The security principal specified in GetADPrincipalAuthorizationGroupRequest/PrincipalDN is part of a **security-enabled group** defined in a domain that is different from what is hosted by the target server (specified by the Server element in the SOAP header).
- The security principal specified in GetADPrincipalGroupMembershipRequest/PrincipalDN is part of a group defined in a domain that is different from what is hosted by the target server (specified by the Server element (section 2.2.3.5) in the SOAP header).

Then, these custom actions rely on implementation specific server-to-server protocol behavior to retrieve information from remote servers in order to populate their response elements. For such requests, in addition to allowing the server to impersonate the client's credentials, the client **MUST** allow the server to delegate its credentials and execute operations on remote servers using the client's security context. Otherwise, the server returns a SOAP fault corresponding to the custom action that was requested as described in sections [3.3.4.2.8.7](#), [3.3.4.3.8.7](#), and [3.3.4.4.8.8](#).

If none of the above is true, these custom actions populate their response elements by retrieving information from the target server (specified by the Server element in the SOAP header). For such requests, the client **MUST** allow the server to impersonate its credentials, otherwise; the server returns a SOAP fault corresponding to the custom action that was requested as described in sections [3.3.4.2.8.6](#), [3.3.4.3.8.6](#), and [3.3.4.4.8.7](#).

3.1.5 Timer Events

None.

3.1.6 Other Local Events

None.

3.2 Port Types

This protocol includes the following port types.

| Namespace | Port type |
|---|---|
| http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions | AccountManagement (section 3.3) |
| http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions | TopologyManagement (section 3.4) |

3.3 AccountManagement Server Details

This section describes the server behaviors of the Active Directory Web Services: Custom Action Protocol as they apply to the protocol's [AccountManagement](#) port type. In the Active Directory Web Services: Custom Action Protocol, this port type is used to process six **WSDL operations**:

- [ChangePassword](#)
- [GetADGroupMember](#)
- [GetADPrincipalAuthorizationGroup](#)
- [GetADPrincipalGroupMembership](#)
- [SetPassword](#)

- [TranslateName](#)

This protocol defines a SOAP message for each of these operations.

3.3.1 Abstract Data Model

See the abstract data model in the common processing section [3.1.1](#).

3.3.2 Timers

None.

3.3.3 Initialization

See the initialization in the common processing section [3.1.3](#).

3.3.4 Message Processing Events and Sequencing Rules

The following table summarizes the list of WSDL operations as defined by this specification.

| Operation | Description |
|--|---|
| ChangePassword | Changes the password for an account. |
| GetADGroupMember | Retrieves the recursive or non-recursive members of the specified group. |
| GetADPrincipalAuthorizationGroup | Retrieves the security-enabled groups that the specified user is a member of (recursively). |
| GetADPrincipalGroupMembership | Retrieves the direct (non-recursive) group membership of the specified principal. |
| SetPassword | Sets the password for an account. |
| TranslateName | Translates names specified in one format to another format. |

3.3.4.1 ChangePassword

A server processes a ChangePassword request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the ChangePasswordRequest_Headers header and that specifies the following **Uniform Resource Identifier (URI)** as the **SOAP action**:

<http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/ChangePassword>

This operation is specified by the following WSDL.

```
<wsdl:operation name="ChangePassword">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/ChangePassword"
    name="ChangePasswordRequest"
    message="ca:ChangePasswordRequest" />
  <wsdl:output
```

```

wsam:Action=
"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/ChangePa
sswordResponse"
  name="ChangePasswordResponse"
  message="ca:ChangePasswordResponse" />
<wsdl:fault
  wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
  name="ChangePasswordFault"
  message=
"ca:AccountManagement_ChangePassword_ChangePasswordFault_FaultMessage" />
</wsdl:operation>

```

Upon receiving the ChangePassword request, the server changes the password on the principal contained in the **ChangePasswordRequest/AccountDN** element (3.3.4.1.2.3), specified by the naming context (NC) that is contained in the **ChangePasswordRequest/PartitionDN** element (section 3.3.4.1.2.6). The current password is contained in the **ChangePasswordRequest/OldPassword** element (section 3.3.4.1.2.5), and the new password is contained in the **ChangePasswordRequest/NewPassword** element (section 3.3.4.1.2.4). Upon success, the server MUST return a [ChangePasswordResponse](#) message (section 3.3.4.1.1.3) with an empty [ChangePasswordResponse](#) element (section 3.3.4.1.2.7).

In the case of AD LDS, the ChangePassword custom action changes the value of the user!userPassword or the inetOrgPerson!userPassword attribute of the given security principal. In the case of AD DS, either the user!unicodePwd or the inetOrgPerson!unicodePwd attribute is changed. See [\[MS-ADTS\]](#) section 3.1.1.3.1.5 and [\[MS-SAMR\]](#) section 3.1.1.7.2 for additional processing considerations that apply.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition, as specified in section 3.3.4.1.8.

3.3.4.1.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|---|--|
| AccountManagement_ChangePassword_ChangePasswordFault_FaultMessage | Contains a ChangePasswordFault element. |
| ChangePasswordRequest | Used to change the password of a principal. |
| ChangePasswordResponse | The response to the ChangePasswordRequest message. |

3.3.4.1.1.1

AccountManagement_ChangePassword_ChangePasswordFault_FaultMessage

The AccountManagement_ChangePassword_ChangePasswordFault_FaultMessage message contains a [ChangePasswordFault](#) element.

```
<wsdl:message name=
```

```
"AccountManagement_ChangePassword_ChangePasswordFault_FaultMessage">
  <wsdl:part name="detail" element="ca:ChangePasswordFault " />
</wsdl:message>
```

detail: A **ChangePasswordFault** element, as specified in section [3.3.4.1.2.1](#).

3.3.4.1.1.2 ChangePasswordRequest

The ChangePasswordRequest message contains a [ChangePasswordRequest](#) element, and is sent by the client to the server to change the password of a principal.

```
<wsdl:message name="ChangePasswordRequest">
  <wsdl:part name="parameters" element="ca:ChangePasswordRequest" />
</wsdl:message>
```

parameters: A **ChangePasswordRequest** element, as specified in section [3.3.4.1.2.2](#).

3.3.4.1.1.3 ChangePasswordResponse

The ChangePasswordResponse message contains a [ChangePasswordResponse](#) element with the server response to the ChangePasswordRequest message.

```
<wsdl:message name="ChangePasswordResponse">
  <wsdl:part name="parameters" element="ca:ChangePasswordResponse " />
</wsdl:message>
```

parameters: A **ChangePasswordResponse** element, as specified in section [3.3.4.1.2.7](#).

3.3.4.1.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|------------------------|---|
| ChangePasswordFault | Forms the body of a ChangePasswordFault message. |
| ChangePasswordRequest | Forms the body of the ChangePassword request. |
| ChangePasswordResponse | Contains the response to a ChangePasswordRequest. |

3.3.4.1.2.1 ChangePasswordFault

The **ChangePasswordFault** element forms the body of a ChangePasswordFault message returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.3.4.1.3.1](#) for the definition of the type.

```
<xs:element name="ChangePasswordFault"
  nillable="true"
  type="ca:ChangePasswordFault" />
```

3.3.4.1.2.2 ChangePasswordRequest

The **ChangePasswordRequest** element forms the body of the ChangePassword request, and contains the *AccountDN*, *NewPassword*, *OldPassword*, and *PartitionDN* parameters.

```
<xs:element name="ChangePasswordRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="AccountDN" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="NewPassword" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="OldPassword" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.3.4.1.2.3 ChangePasswordRequest/AccountDN

The **AccountDN** element contains the **Distinguished Name (DN)** of the directory object representing the principal whose password should be changed.

```
<xs:element minOccurs="0" name="AccountDN" nillable="true" type="xs:string" />
```

3.3.4.1.2.4 ChangePasswordRequest/NewPassword

The **NewPassword** element contains a string that represents the desired new password that is to be assigned to the specified principal.

```
<xs:element minOccurs="0" name="NewPassword" nillable="true" type="xs:string" />
```

3.3.4.1.2.5 ChangePasswordRequest/OldPassword

The **OldPassword** element contains a string that represents the current password for the specified principal.

```
<xs:element minOccurs="0" name="OldPassword" nillable="true" type="xs:string" />
```

3.3.4.1.2.6 ChangePasswordRequest/PartitionDN

The **PartitionDN** element contains the DN of the root of the naming context (NC), which represents the NC that contains the principal specified in [ChangePasswordRequest/AccountDN](#).

```
<xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
```

The **PartitionDN** element refers to the directory instance root directory object of the NC ([\[MS-ADTS\]](#) section 7.1.1.1) that contains the directory object referenced by [ChangePasswordRequest/AccountDN](#).

3.3.4.1.2.7 ChangePasswordResponse

The **ChangePasswordResponse** element contains the response to a [ChangePasswordRequest](#), and contains no child elements and so conveys no information to the client other than that the [ChangePassword](#) operation requested by the client was performed successfully.

```
<xs:element name="ChangePasswordResponse">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>
```

3.3.4.1.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|---------------------|---|
| ChangePasswordFault | Extends a CustomActionFault complex type. Returned by the server when it is unable to process the ChangePassword request. |

3.3.4.1.3.1 ChangePasswordFault

The **ChangePasswordFault** complex type extends a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [ChangePassword](#) request.

```
<xs:complexType name="ChangePasswordFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.3.4.1.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.3.4.1.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.3.4.1.6 Groups

There are no XML schema group definitions specific to this operation.

3.3.4.1.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.3.4.1.8 ChangePassword SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [ChangePassword](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message, to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol that is defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the **SOAP fault code**.

[Subcode] is the **SOAP fault subcode**.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) specified in this section.

| Fault subcode | Description |
|---------------------|--|
| ChangePasswordFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| ChangePasswordFault | Bad Principal Error: The request contained a nonexistent principal or a non-user principal . |
| ChangePasswordFault | Bad Principal AD LDS Error: The request contained a non-authenticable principal . |
| ChangePasswordFault | Bad Password Error: The old password is not correct or the new password does not meet the password policy. |
| ChangePasswordFault | Bad Naming Context Error: The request contained a nonexistent NC . |
| ChangePasswordFault | Directory Error: Implementation specific errors. |
| ChangePasswordFault | Authorization Error: The client does not have sufficient rights for this operation to succeed. |
| ChangePasswordFault | Authentication Error: The server was unable to authenticate using the client's security context. |

3.3.4.1.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, unknown, or null **Server** element (section [3.1.4](#)).
- The request contains an empty, not present, or null AccountDN element.
- The request contains an empty, not present, or null PartitionDN element.
- The request contains a null or not present NewPassword element.
- The request contains a null or not present OldPassword element.

Then the server MUST return a SOAP fault with a [ChangePasswordFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre><soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail></pre> |

3.3.4.1.8.2 Bad Principal Error

If the client sends a request where all of the following are true:

- The **Server** element specifies an AD DS instance.
- The PartitionDN/AccountDN elements specify a nonexistent principal or a non-user principal.

Or where all of the following are true:

- The **Server** element specifies an AD LDS instance.
- The PartitionDN/AccountDN elements specify a nonexistent principal.

Then the server MUST return a SOAP fault with a [ChangePasswordFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </ChangePasswordFault> </soapenv:Detail> </pre> |

3.3.4.1.8.3 Bad Principal AD LDS Error

If the client sends a request where all of the following are true:

- The **Server** element specifies an AD LDS instance.
- The PartitionDN/AccountDN elements specify a non-authenticable principal.

Then the server MUST return a SOAP fault with a ChangePasswordFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>65</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> </DirectoryError> </ChangePasswordFault> </soapenv:Detail> </pre> |

| Field | Value |
|-------|--|
| | <pre> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8212</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail> </pre> |

3.3.4.1.8.4 Bad Password Error

If the client sends a request with the OldPassword element not matching the current password for the principal identified by the PartitionDN/AccountDN elements, or a request with the NewPassword element that does not meet the password policy ([\[MS-SAMR\]](#) section 3.1.1.7.1), then the server MUST return a SOAP fault with a ChangePasswordFault fault subcode. The **fault detail** SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>19</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8239</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail> </pre> |

3.3.4.1.8.5 Bad Naming Context Error

If the client sends a request with the PartitionDN element specifying a nonexistent NC, then the server MUST return a SOAP fault with a [ChangePasswordFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre><soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>32</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8240</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail></pre> |

3.3.4.1.8.6 Directory Error

If the server is unable to complete the request because the following is true:

- Implementation-specific errors were encountered while processing the request.

Then the server MUST return a SOAP fault with a [ChangePasswordFault](#) fault subcode. The fault detail SHOULD [be as specified in the following table](#).

| Field | Value |
|---------------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |

| Field | Value |
|----------|--|
| [Detail] | <pre> <soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail> </pre> |

3.3.4.1.8.7 Authorization Error

If the client sends a request where the principal contained in the [ChangePasswordRequest/AccountDN](#) element does not have the "User-Change-Password" control access right on itself (as described in [\[MS-ADTS\]](#) section 3.1.1.3.1.5), the server MUST return a SOAP fault with a ChangePasswordFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> < ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>19</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8239</Win32ErrorCode> </DirectoryError> </ChangePasswordFault> </soapenv:Detail> </pre> |

| Field | Value |
|-------|---|
| | <pre> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ ChangePasswordFault > </soapenv:Detail> </pre> |

3.3.4.1.8.8 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a ChangePasswordFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangePasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail> </pre> |

3.3.4.2 GetADGroupMember

A server processes a GetADGroupMember request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the GetADGroupMemberRequest_Headers header and that specifies the following URI as the SOAP action:

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADGroupMember

This operation is specified by the following WSDL.

```
<wsdl:operation name="GetADGroupMember">
  <wsdl:input
    wsam:Action=
"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADGroupMember"
    name="GetADGroupMemberRequest"
    message="ca:GetADGroupMemberRequest" />
  <wsdl:output
    wsam:Action=
"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADGroupMemberResponse"
    name="GetADGroupMemberResponse"
    message="ca:GetADGroupMemberResponse" />
  <wsdl:fault
    wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="GetADGroupMemberFault"
    message=
"ca:AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage" />
</wsdl:operation>
```

The GetADGroupMember custom action retrieves the members of the group (Local/Global/Universal and Security/Distribution) that is specified by [GetADGroupMemberRequest/GroupDN](#) (section [3.3.4.2.2.3](#)) in the NC specified in [GetADGroupMemberRequest/PartitionDN](#) (section [3.3.4.2.2.4](#)).

Members that are returned are security principals (see [\[MS-WSO\]](#) section 3.1.2.1.1 and [\[MS-ADTS\]](#) section 5.1.1.5) that meet one of the following criteria:

- Security principals identified by the group!member attribute of the group.
- Security principals whose membership is determined via the **primary group** (the user!primaryGroupID attribute).
- Foreign security principals (members with the value of user!objectSID, computer!objectSID, or group!objectSID equal to the value of foreignSecurityPrincipal!objectSID of the corresponding foreignSecurityPrincipal object), when the foreignSecurityPrincipal object is a member of a qualifying group. See [\[MS-SAMR\]](#) section 3.1.1.8.9.

If the group contains other members that are not security principals, they are ignored.

If the group contains other groups and element [GetADGroupMemberRequest/Recursive](#) (section [3.3.4.2.2.5](#)) is set to TRUE, then GetADGroupMember retrieves members of the child groups as well (recursively). The child groups themselves are not included in the returned members.

For every member previously specified, GetADGroupMember constructs an **ActiveDirectoryPrincipal** element (section [2.2.3.2](#)) with all the child elements populated and adds it to the **GetADGroupMemberResponse/Members** element (section [3.3.4.2.2.7](#)). Upon success, the **GetADGroupMemberResponse** element is returned. If a group has no members, then the server returns a **GetADGroupMemberResponse** with an empty **Members** element.

Members are returned without respect to the context supplied in GetADGroupMemberRequest/PartitionDN. If no members were returned by the server, then the **GetADGroupMemberResponse** element SHOULD have an empty **Members** element.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section [3.3.4.2.8](#).

3.3.4.2.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|---|--|
| AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage | Contains a GetADGroupMemberFault element. |
| GetADGroupMemberRequest | Specifies which group should be expanded. |
| GetADGroupMemberResponse | The response to a successful GetADGroupMember operation. |

3.3.4.2.1.1

AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage

The AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage message contains a [GetADGroupMemberFault](#) element.

```
<wsdl:message name="
AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADGroupMemberFault " />
</wsdl:message>
```

detail: A GetADGroupMemberFault element, as specified in section [3.3.4.2.2.1](#).

3.3.4.2.1.2 GetADGroupMemberRequest

The GetADGroupMemberRequest message is sent by the client to the server to specify which group should be expanded, the NC containing the group, and whether included groups should be expanded as well (recursively).

```
<wsdl:message name="GetADGroupMemberRequest">
  <wsdl:part name="parameters" element="ca:GetADGroupMemberRequest" />
</wsdl:message>
```

parameters: A [GetADGroupMemberRequest](#) element, as specified in section [3.3.4.2.2.2](#).

3.3.4.2.1.3 GetADGroupMemberResponse

The GetADGroupMemberResponse message is returned in response to a successful [GetADGroupMember](#) operation, and contains a [GetADGroupMemberResponse](#) element with the server response to the GetADGroupMember message. The body of the response is a [GetADGroupMemberResponse/Members](#) element containing an array of **ActiveDirectoryPrincipal** elements (section [2.2.4.2](#)), with the child elements filled in.

```

<wsdl:message name="GetADGroupMemberResponse">
  <wsdl:part name="parameters" element="ca:GetADGroupMemberResponse " />
</wsdl:message>

```

parameters: A GetADGroupMemberResponse element, as specified in section [3.3.4.2.2.6](#).

3.3.4.2.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|--------------------------|---|
| GetADGroupMemberFault | Forms the body of a GetADGroupMemberFault message. |
| GetADGroupMemberRequest | Forms the body of the GetADGroupMember request. |
| GetADGroupMemberResponse | Contains the response to a GetADGroupMemberRequest. |

3.3.4.2.2.1 GetADGroupMemberFault

The **GetADGroupMemberFault** element forms the body of a GetADGroupMemberFault message returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.3.4.2.3.2](#) for the type. The **GetADGroupMemberFault** element **MUST NOT** be null.

```

<xs:element name="GetADGroupMemberFault"
  nillable="true" type="ca:GetADGroupMemberFault" />

```

3.3.4.2.2.2 GetADGroupMemberRequest

The GetADGroupMemberRequest element forms the body of the GetADGroupMember request and contains the *GroupDN*, *PartitionDN*, and *Recursive* parameters.

```

<xs:element name="GetADGroupMemberRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="GroupDN" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="Recursive" type="xs:boolean" />
    </xs:sequence>
  </xs:complexType>
</xs:element>

```

3.3.4.2.2.3 GetADGroupMemberRequest/GroupDN

The **GroupDN** element contains the DN of the directory object that represents the group ([\[MS-WSO\]](#) section 3.1.2.1.4) whose membership should be returned.

```
<xs:element minOccurs="0" name="GroupDN" nillable="true" type="xs:string" />
```

3.3.4.2.2.4 GetADGroupMemberRequest/PartitionDN

The PartitionDN element contains the DN of the NC containing the group object ([\[MS-WSO\]](#) section 3.1.2.1.4) as specified in [GetADGroupMemberRequest/GroupDN](#) (section 3.3.4.2.2.3).

```
<xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
```

The PartitionDN element refers to the directory instance root directory object of the NC ([\[MS-ADTS\]](#) section 7.1.1.1) that contains the directory object by GetADGroupMemberRequest/GroupDN.

3.3.4.2.2.5 GetADGroupMemberRequest/Recursive

The Recursive element contains a Boolean flag, indicating to the server to recursively return all members of child groups of the group specified in [GetADGroupMemberRequest/GroupDN](#).

```
<xs:element minOccurs="0" name="Recursive" type="xs:boolean" />
```

If the GetADGroupMemberRequest/Recursive element is not specified, the server MUST treat this as if the element is specified, and contains the value FALSE.

3.3.4.2.2.6 GetADGroupMemberResponse

The GetADGroupMemberResponse contains the response to a [GetADGroupMemberRequest](#). It contains one child element, **GetADGroupMemberResponse/Members** (section 3.3.4.2.2.7), representing an array of **ActiveDirectoryPrincipal** elements (section 2.2.3.2), each representing the members of the group specified in [GetADGroupMemberRequest/GroupDN](#).

The **Members** element MUST NOT be null.

```
<xs:element name="GetADGroupMemberResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="Members" nillable="true"
        type="ca:ArrayOfActiveDirectoryPrincipal" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.3.4.2.2.7 GetADGroupMemberResponse/Members

The Members element contains an array of **ActiveDirectoryPrincipal** elements (section 2.2.3.2), each representing a member of the group specified in the [GetADGroupMemberRequest/GroupDN](#).

```
<xs:element
  minOccurs="0" name="Members" nillable="true"
  type="ca:ArrayOfActiveDirectoryPrincipal" />
```

See section [3.1.4.2.3](#) for information on how to populate the `ActiveDirectoryPrincipal` element and subelements.

3.3.4.2.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|--|--|
| <code>ArrayOfActiveDirectoryPrincipal</code> | Defines an array of <code>ActiveDirectoryPrincipal</code> elements. |
| <code>GetADGroupMemberFault</code> | An extension of a <code>CustomActionFault</code> complex type indicating that the server is unable to process the <code>GetADGroupMember</code> request. |

3.3.4.2.3.1 ArrayOfActiveDirectoryPrincipal

The **`ArrayOfActiveDirectoryPrincipal`** complex type defines an array of **`ActiveDirectoryPrincipal`** elements. See section [2.2.4.2](#) for detail on the `ActiveDirectoryPrincipal` complex type.

```
<xs:complexType name="ArrayOfActiveDirectoryPrincipal">
  <xs:sequence>
    <xs:element
      minOccurs="0" maxOccurs="unbounded" name="ActiveDirectoryPrincipal"
      nillable="true" type="ca:ActiveDirectoryPrincipal" />
  </xs:sequence>
</xs:complexType>
```

3.3.4.2.3.2 GetADGroupMemberFault

The **`GetADGroupMemberFault`** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server **MUST** return this fault when it is unable to process the [GetADGroupMember](#) request.

```
<xs:complexType name="GetADGroupMemberFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.3.4.2.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.3.4.2.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.3.4.2.6 Groups

There are no XML schema group definitions specific to this operation.

3.3.4.2.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.3.4.2.8 GetADGroupMember SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [GetADGroupMember](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|-----------------------|--|
| GetADGroupMemberFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| GetADGroupMemberFault | Bad Principal Error: The request contained a nonexistent group. |
| GetADGroupMemberFault | Multiple Matching Principals Error: Multiple matching principals were found. |
| GetADGroupMemberFault | Bad Naming Context Error: The request contained a nonexistent NC. |
| GetADGroupMemberFault | Directory Error: Implementation-specific errors. |
| GetADGroupMemberFault | Authentication Error: The server was unable to authenticate using the client's security context. |

| Fault subcode | Description |
|-----------------------|---|
| GetADGroupMemberFault | Remote Authentication Error: The server was unable to authenticate on a remote machine using the client's security context. |

3.3.4.2.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, unknown, or null **Server** element (section [3.1.4](#)).
- The request contains an empty, not present, or null GroupDN element.
- The request contains an empty, not present, or null PartitionDN element.

Or if, during the processing of the request by the server, the following is true:

- The server fails to populate the **DistinguishedName** or the **ObjectGuid** elements of ActiveDirectoryObject according to the processing rules documented in section [3.1.4.2.2](#).

Then the server MUST return a SOAP fault with a [GetADGroupMemberFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADGroupMemberFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADGroupMemberFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADGroupMemberFault> </soapenv:Detail> </pre> |

3.3.4.2.8.2 Bad Principal Error

If the client sends a request with the PartitionDN/GroupDN elements specifying a nonexistent principal or a **non-group principal**, then the server MUST return a SOAP fault with a [GetADGroupMemberFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADGroupMemberFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADGroupMemberFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </GetADGroupMemberFault> </soapenv:Detail> </pre> |

3.3.4.2.8.3 Multiple Matching Principals Error

If the client sends a request with a GroupDN element that matches more than one security principal, then the server MUST return a SOAP fault with a [GetADGroupMemberFault](#) fault subcode. The fault detail SHOULD be as specified in the following table. [<17>](#)

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADGroupMemberFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Multiple matching security principals were found. |
| [Detail] | <pre> <soapenv:Detail> <GetADGroupMemberFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </GetADGroupMemberFault> </soapenv:Detail> </pre> |

3.3.4.2.8.4 Bad Naming Context Error

If the client sends a request with the PartitionDN element specifying a nonexistent NC, then the server MUST return a SOAP fault with a [GetADGroupMemberFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADGroupMemberFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADGroupMemberFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>-2147016656</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>-2147016656</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </GetADGroupMemberFault > </soapenv:Detail> </pre> |

3.3.4.2.8.5 Directory Error

If any of the following conditions are true, the server MUST return a SOAP fault with a [GetADGroupMemberFault](#) fault subcode:

- The client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request.
- During the processing of the request, the server fails to populate the **ReferenceServer** element of the **ActiveDirectoryObject** according to the processing rules documented in section [3.1.4.2.2](#).

The fault detail SHOULD be as specified in the following table.

| Field | Value |
|---------------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADGroupMemberFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADGroupMemberFault </pre> |

| Field | Value |
|-------|---|
| | <pre> xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADGroupMemberFault> </soapenv:Detail> </pre> |

3.3.4.2.8.6 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a GetADGroupMemberFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADGroupMemberFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The Lightweight Directory Access Protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <GetADGroupMemberFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> </DirectoryError> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADGroupMemberFault> </pre> |

| Field | Value |
|-------|-------------------|
| | </soapenv:Detail> |

3.3.4.2.8.7 Remote Authentication Error

If the server receiving the request needs to contact another server to service the request, but the client does not allow the server to delegate its credentials for execution of the request on the remote server using the client's security context (as specified in section [3.1.4.3](#)), the server MUST return a SOAP fault with a GetADGroupMemberFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADGroupMemberFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADGroupMemberFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADGroupMemberFault> </soapenv:Detail> </pre> |

3.3.4.3 GetADPrincipalAuthorizationGroup

A server processes a GetADPrincipalAuthorizationGroup request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the GetADPrincipalAuthorizationGroupRequest_Headers header and that specifies the following URI as the SOAP action:

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalAuthorizationGroup

This operation is specified by the following WSDL.

```

<wsdl:operation name="GetADPrincipalAuthorizationGroup">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalAuthorizationGroup"
    name="GetADPrincipalAuthorizationGroupRequest"
    message="ca:GetADPrincipalAuthorizationGroupRequest" />
  <wsdl:output
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalAuthorizationGroupResponse"
    name="GetADPrincipalAuthorizationGroupResponse"
    message="ca:GetADPrincipalAuthorizationGroupResponse" />
  <wsdl:fault
    wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="GetADPrincipalAuthorizationGroupFault"
    message=
      "ca:AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage" />
</wsdl:operation>

```

The `GetADPrincipalAuthorizationGroup` custom action retrieves information for all security-enabled groups that contain, as a member, the **authenticable principal** specified in [GetADPrincipalAuthorizationGroupRequest/PrincipalDN \(section 3.3.4.3.2.4\)](#) in the NC specified in [GetADPrincipalAuthorizationGroupRequest/PartitionDN \(section 3.3.4.3.2.3\)](#).

For each security-enabled group in which the specified authenticable principal is a member, the `GetADPrincipalAuthorizationGroup` operation constructs an [ActiveDirectoryGroup](#) object (section [2.2.3.3](#)) with all the elements populated and adds it to the **GetADPrincipalAuthorizationGroupResponse/MemberOf** (section [3.3.4.3.2.6](#)) element. Upon success, the [GetADPrincipalAuthorizationGroupResponse](#) element is returned. If an authenticable principal is not a member of any security-enabled groups, then the server returns a `GetADPrincipalAuthorizationGroupResponse` with an empty **MemberOf** element.

Groups are returned without respect to the context supplied in `GetADPrincipalAuthorizationGroupRequest/PartitionDN` (section 3.3.4.3.2.3).

Note Returned groups include the **primary group** of the authenticable principal specified in `GetADPrincipalAuthorizationGroupRequest/PrincipalDN`.

If an error occurs while processing this operation, the server **MUST** return the appropriate SOAP fault for the particular error condition as specified in section [3.3.4.3.8](#).

3.3.4.3.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|---|--|
| AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage | Contains a <code>GetADPrincipalAuthorizationGroupFault</code> element. |
| GetADPrincipalAuthorizationGroupRequest | Sent by the client to the server to retrieve a list of all |

| Message | Description |
|--|---|
| | the groups of a specified NC that contain the specified principal as a member (via direct or recursive group membership). |
| GetADPrincipalAuthorizationGroupResponse | Contains a GetADPrincipalAuthorizationGroupResponse element with the server response to the GetADPrincipalAuthorizationGroup message. |

3.3.4.3.1.1

AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage

The AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage message contains a [GetADPrincipalAuthorizationGroupFault](#) element.

```
<wsdl:message name=
"AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADPrincipalAuthorizationGroupFault " />
</wsdl:message>
```

detail: A GetADPrincipalAuthorizationGroupFault element, as specified in section [3.3.4.3.2.1](#).

3.3.4.3.1.2 GetADPrincipalAuthorizationGroupRequest

The GetADPrincipalAuthorizationGroupRequest message is sent by the client to the server to retrieve a list of all the groups of a specified NC that contain the specified principal as a member (via direct or recursive group membership).

```
<wsdl:message name="GetADPrincipalAuthorizationGroupRequest">
  <wsdl:part name="parameters" element="ca:GetADPrincipalAuthorizationGroupRequest" />
</wsdl:message>
```

parameters: A [GetADPrincipalAuthorizationGroupRequest](#) element, as specified in section [3.3.4.3.2.2](#).

3.3.4.3.1.3 GetADPrincipalAuthorizationGroupResponse

The GetADPrincipalAuthorizationGroupResponse message contains a [GetADPrincipalAuthorizationGroupResponse](#) element with the server response to the GetADPrincipalAuthorizationGroup message.

```
<wsdl:message name="GetADPrincipalAuthorizationGroupResponse">
  <wsdl:part name="parameters" element="ca:GetADPrincipalAuthorizationGroupResponse " />
</wsdl:message>
```

parameters: A `GetADPrincipalAuthorizationGroupResponse` element, as specified in section [3.3.4.3.2.5](#).

3.3.4.3.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|---|---|
| <code>GetADPrincipalAuthorizationGroupFault</code> | Forms the body of a <code>GetADPrincipalAuthorizationGroupFault</code> message. |
| <code>GetADPrincipalAuthorizationGroupRequest</code> | Forms the body of the <code>GetADPrincipalAuthorizationGroup</code> request. |
| <code>GetADPrincipalAuthorizationGroupResponse</code> | Contains the response to a <code>GetADPrincipalAuthorizationGroupRequest</code> . |

3.3.4.3.2.1 `GetADPrincipalAuthorizationGroupFault`

The **`GetADPrincipalAuthorizationGroupFault`** element forms the body of a `GetADPrincipalAuthorizationGroupFault` message that is returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.3.4.3.3.1](#) for the type definition. The `GetADPrincipalAuthorizationGroupFault` element **MUST NOT** be null.

```
<xs:element name="GetADPrincipalAuthorizationGroupFault"
  nillable="true"
  type="ca:GetADPrincipalAuthorizationGroupFault" />
```

3.3.4.3.2.2 `GetADPrincipalAuthorizationGroupRequest`

The **`GetADPrincipalAuthorizationGroupRequest`** element is the body of the [GetADPrincipalAuthorizationGroup](#) request and contains the *PartitionDN* and *PrincipalDN* parameters.

```
<xs:element name="GetADPrincipalAuthorizationGroupRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="PartitionDN" nillable="true"
        type="xs:string" />
      <xs:element
        minOccurs="0" name="PrincipalDN" nillable="true"
        type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.3.4.3.2.3 `GetADPrincipalAuthorizationGroupRequest/PartitionDN`

The **`PartitionDN`** element contains the DN of the NC that contains the principal specified in `GetADPrincipalAuthorizationGroupRequest/PrincipalDN`.

```
<xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
```

The **PartitionDN** element refers to the directory instance root directory object of the NC ([\[MS-ADTS\]](#) section 7.1.1.1) that contains the directory object referenced by `GetADPrincipalAuthorizationGroupRequest/PrincipalDN`.

3.3.4.3.2.4 GetADPrincipalAuthorizationGroupRequest/PrincipalDN

The **PrincipalDN** element contains the DN of the directory object representing the authenticable principal whose group memberships should be returned.

```
<xs:element minOccurs="0" name="PrincipalDN" nillable="true" type="xs:string" />
```

The **PrincipalDN** element refers to a directory object that is an authenticable principal.

3.3.4.3.2.5 GetADPrincipalAuthorizationGroupResponse

The **GetADPrincipalAuthorizationGroupResponse** element contains the response to a [GetADPrincipalAuthorizationGroupRequest](#). It contains one child element, **GetADPrincipalAuthorizationGroupResponse/MemberOf** (section [3.3.4.3.2.6](#)) that represents an array of **ActiveDirectoryGroup** elements (section [2.2.3.3](#)), each representing a group that contains the authenticable principal specified in [GetADAuthorizationGroupRequest/PrincipalDN](#). The complex type [ArrayOfActiveDirectoryGroup](#) (section [2.2.4.4](#)) describes the array of **ActiveDirectoryGroup** elements returned in **GetADPrincipalAuthorizationGroupResponse/MemberOf**.

```
<xs:element name="GetADPrincipalAuthorizationGroupResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="MemberOf" nillable="true"
        type="ca:ArrayOfActiveDirectoryGroup" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.3.4.3.2.6 GetADPrincipalAuthorizationGroupResponse/MemberOf

The **MemberOf** element contains an array of **ActiveDirectoryGroup** elements (section [2.2.3.3](#)), each representing a group that contains the authenticable principal specified in [GetADAuthorizationGroupRequest/PrincipalDN](#). The **MemberOf** element MUST NOT be null.

```
<xs:element
  minOccurs="0" name="MemberOf" nillable="true"
  type="ca:ArrayOfActiveDirectoryGroup" />
```

See section [3.1.4.2.1](#) for information on how to populate the **ActiveDirectoryGroup** element and subelements.

3.3.4.3.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|---------------------------------------|--|
| GetADPrincipalAuthorizationGroupFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the GetADPrincipalAuthorizationGroup request. |

3.3.4.3.3.1 GetADPrincipalAuthorizationGroupFault

The **GetADPrincipalAuthorizationGroupFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [GetADPrincipalAuthorizationGroup](#) request.

```
<xs:complexType name="GetADPrincipalAuthorizationGroupFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.3.4.3.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.3.4.3.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.3.4.3.6 Groups

There are no XML schema group definitions specific to this operation.

3.3.4.3.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.3.4.3.8 GetADPrincipalAuthorizationGroup SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [GetADPrincipalAuthorizationGroup](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document **MUST** be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|---------------------------------------|---|
| GetADPrincipalAuthorizationGroupFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| GetADPrincipalAuthorizationGroupFault | Bad Principal Error: The request contained a nonexistent principal. |
| GetADPrincipalAuthorizationGroupFault | Multiple Matching Principals Error: Multiple matching principals were found. |
| GetADPrincipalAuthorizationGroupFault | Bad Naming Context Error: The request contained a nonexistent NC. |
| GetADPrincipalAuthorizationGroupFault | Directory Error: Implementation specific errors. |
| GetADPrincipalAuthorizationGroupFault | Authentication Error: The server was unable to authenticate using the client's security context. |
| GetADPrincipalAuthorizationGroupFault | Remote Authentication Error: The server was unable to authenticate on a remote machine using the client's security context. |

3.3.4.3.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, unknown, or null **Server** element (section [3.1.4](#)).
- The request contains an empty, not present, or null PartitionDN element.
- The request contains an empty, not present, or null PrincipalDN element.

Or if, during the processing of the request by the server, the following is true:

- The server fails to populate the **DistinguishedName** element of ActiveDirectoryObject according to the processing rules documented in section [3.1.4.2.2](#) .

Then the server MUST return a SOAP fault with a [GetADPrincipalAuthorizationGroupFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalAuthorizationGroupFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalAuthorizationGroupFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

3.3.4.3.8.2 Bad Principal Error

If the client sends a request with the PartitionDN/PrincipalDN elements specifying a nonexistent principal or a non-authenticable principal, then the server MUST return a SOAP fault with a [GetADPrincipalAuthorizationGroupFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalAuthorizationGroupFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalAuthorizationGroupFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

| Field | Value |
|-------|--|
| | <pre> <ShortError>...</ShortError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

3.3.4.3.8.3 Multiple Matching Principals Error

If the client sends a request with a PrincipalDN element that matches more than one security principal, then the server MUST return a SOAP fault with a [GetADPrincipalAuthorizationGroupFault](#) fault subcode. The fault detail SHOULD be as specified in the following table. <18>

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalAuthorizationGroupFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Multiple matching security principals were found. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalAuthorizationGroupFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

3.3.4.3.8.4 Bad Naming Context Error

If the client sends a request with the PartitionDN element specifying a nonexistent NC, then the server MUST return a SOAP fault with a [GetADPrincipalAuthorizationGroupFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalAuthorizationGroupFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> </pre> |

| Field | Value |
|-------|--|
| | <pre> <GetADPrincipalAuthorizationGroupFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>-2147016656</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>-2147016656</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

3.3.4.3.8.5 Directory Error

If any of the following conditions are true:

- The client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request.
- During the processing of the request, the server fails to populate any one of the ObjectClass, ObjectTypes, or the ReferenceServer elements of ActiveDirectoryObject according to the processing rules documented in section [3.1.4.2.2](#).

Then the server MUST return a SOAP fault with a [GetADPrincipalAuthorizationGroupFault](#) fault subcode. The fault detail SHOULD [<19>](#) be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADPrincipalAuthorizationGroupFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalAuthorizationGroupFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> </DirectoryError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

| Field | Value |
|-------|---|
| | <pre> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

3.3.4.3.8.6 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a GetADPrincipalAuthorizationGroupFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADPrincipalAuthorizationGroupFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalAuthorizationGroupFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

3.3.4.3.8.7 Remote Authentication Error

If the server receiving the request needs to contact another server to service the request, but the client does not allow the server to delegate its credentials for execution of the request on the remote server using the client's security context (as specified in section [3.1.4.3](#)), the server MUST

return a SOAP fault with a GetADPrincipalAuthorizationGroupFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADPrincipalAuthorizationGroupFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalAuthorizationGroupFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral > <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalAuthorizationGroupFault> </soapenv:Detail> </pre> |

3.3.4.4 GetADPrincipalGroupMembership

A server processes a GetADPrincipalGroupMembership request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the GetADPrincipalGroupMembershipRequest_Headers header and that specifies the following URI as the SOAP action:

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalGroupMembership

This operation is specified by the following WSDL.

```

<wsdl:operation name="GetADPrincipalGroupMembership">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalGroupMembership"
    name="GetADPrincipalGroupMembershipRequest"
    message="ca:GetADPrincipalGroupMembershipRequest" />
  <wsdl:output
    wsam:Action=

```

```

"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalGroupMembershipResponse"
  name="GetADPrincipalGroupMembershipResponse"
  message="ca:GetADPrincipalGroupMembershipResponse" />
<wsdl:fault
  wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
  name="GetADPrincipalGroupMembershipFault"
  message=
"ca:AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage" />
</wsdl:operation>

```

The **GetADPrincipalGroupMembership** custom action retrieves a set of groups associated with the principal specified by the **GetADPrincipalGroupMembershipRequest/PrincipalDN** element (section [3.3.4.4.2.4](#)).

The elements [GetADPrincipalGroupMembershipRequest/ResourceContextServer](#) (section [3.3.4.4.2.6](#)) and [GetADPrincipalGroupMembershipRequest/ResourceContextPartition](#) (section [3.3.4.4.2.5](#)) are optional. If specified, they are specified together. That is, if one is non-null then the other is also non-null, otherwise the server **MUST** return the appropriate SOAP fault for this particular condition as specified in section [3.3.4.4.8](#).

Depending on the parameters of **GetADPrincipalGroupMembershipRequest**, the group membership of the principal specified by **GetADPrincipalGroupMembershipRequest/PrincipalDN** is retrieved according to the following rules:

1. If **GetADPrincipalGroupMembershipRequest/ResourceContextServer** and **GetADPrincipalGroupMembershipRequest/ResourceContextPartition** elements are not specified in the **GetADPrincipalGroupMembershipRequest** then:
 - If the [Server](#) element specified in the **GetADPrincipalGroupMembershipRequest** SOAP message envelope (section [2.2.3.5](#)) identifies an AD DS instance then the set of groups contains:
 - All domain local and global groups from the domain of the principal specified by **GetADPrincipalGroupMembershipRequest/PrincipalDN** element that have that principal as a member.
 - All universal groups from the forest of the principal specified by **GetADPrincipalGroupMembershipRequest/PrincipalDN** element that have that principal as a member.
 - The primary group of the principal specified by **GetADPrincipalGroupMembershipRequest/PrincipalDN** element.
 - If the **Server** element specified in the **GetADPrincipalGroupMembershipRequest** SOAP message envelope (section [2.2.3.5](#)) identifies an AD LDS instance, then the set of groups contains all groups, in the AD LDS forest ([\[MS-ADTS\]](#) section 3.1.1.1.7) in which the principal specified by the **GetADPrincipalGroupMembershipRequest/PrincipalDN** element is defined, that have the principal as member.

The server-to-server methods required to implement retrieving group memberships, including possibly contacting other servers, are not included in this document. Any failure of this method specific to the server-to-server implementation **MUST** return the SOAP fault as described in

section [3.3.4.4.8.5](#). The fault MAY have meaning to peer servers or administrators of those servers.

2. If **GetADPrincipalGroupMembershipRequest/ResourceContextServer** and **GetADPrincipalGroupMembershipRequest/ResourceContextPartition** elements are specified in the **GetADPrincipalGroupMembershipRequest**, then the domain controller specified by the **GetADPrincipalGroupMembershipRequest/ResourceContextServer** element is used to retrieve a set of groups from the NC specified by **GetADPrincipalGroupMembershipRequest/ResourceContextPartition** which have the principal specified by **GetADPrincipalGroupMembershipRequest/PrincipalDN** element as a member. The NC specified by the **GetADPrincipalGroupMembershipRequest/ResourceContextPartition** can exist either in the same forest or in a different forest than the principal specified by the **GetADPrincipalGroupMembershipRequest/PrincipalDN**.

The server-to-server methods required to implement retrieving group memberships from **GetADPrincipalGroupMembershipRequest/ResourceContextPartition**, are not included in this document. Any failure of this method specific to the server-to-server implementation MUST return the SOAP fault as described in section [3.3.4.4.8.5](#). The fault MAY have meaning to peer servers or administrators of those servers.

For each group in the set retrieved using the above rules, the **GetADPrincipalGroupMembership** custom action constructs an **ActiveDirectoryGroup** element with all the properties populated, and adds it to the **GeADPrincipalGroupMembershipResponse/MemberOf** element (section [3.3.4.4.2.8](#)). Upon success, the **GeADPrincipalGroupMembershipResponse** (section [3.3.4.4.2.7](#)) element is returned. If no groups satisfy the above rules, then the server returns a **GeADPrincipalGroupMembershipResponse** with an empty **MemberOf** element.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section [3.3.4.4.8](#).

Note The set of groups returned contains only those that have the principal specified by **GetADPrincipalGroupMembershipRequest/PrincipalDN** element as a direct member. No transitive group membership evaluation is done.

Note The [GetADPrincipalGroupMembershipRequest/PartitionDN](#) element, together with the **GetADPrincipalGroupMembershipRequest/PrincipalDN** element, is used only to verify the existence of the principal. The **GetADPrincipalGroupMembershipRequest/PartitionDN** element does not affect the set of groups returned in **GeADPrincipalGroupMembershipResponse**.

3.3.4.4.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|---|---|
| AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage | Contains a GetADPrincipalGroupMembershipFault element. |
| GetADPrincipalGroupMembershipRequest | Sent by the client to the server to retrieve all groups that contain the specified principal. |

| Message | Description |
|---------------------------------------|---|
| GetADPrincipalGroupMembershipResponse | Contains a GetADPrincipalGroupMembershipResponse element with the server response to the GetADPrincipalGroupMembership message. |

3.3.4.4.1.1

AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage

The AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage message contains a [GetADPrincipalGroupMembershipFault](#) element.

```
<wsdl:message name="
  AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADPrincipalGroupMembershipFault " />
</wsdl:message>
```

detail: A GetADPrincipalGroupMembershipFault element, as specified in section [3.3.4.4.2.1](#).

3.3.4.4.1.2 GetADPrincipalGroupMembershipRequest

The GetADPrincipalGroupMembershipRequest message is sent by the client to the server to retrieve all groups that contain, as a member, the specified principal.

```
<wsdl:message name="GetADPrincipalGroupMembershipRequest">
  <wsdl:part name="parameters" element="ca:GetADPrincipalGroupMembershipRequest" />
</wsdl:message>
```

parameters: A [GetADPrincipalGroupMembershipRequest](#) element, as specified in section [3.3.4.4.2.2](#).

3.3.4.4.1.3 GetADPrincipalGroupMembershipResponse

The GetADPrincipalGroupMembershipResponse message contains a [GetADPrincipalGroupMembershipResponse](#) element with the server response to the GetADPrincipalGroupMembership message.

```
<wsdl:message name="GetADPrincipalGroupMembershipResponse">
  <wsdl:part name="parameters" element="ca:GetADPrincipalGroupMembershipResponse " />
</wsdl:message>
```

parameters: A GetADPrincipalGroupMembershipResponse element, as specified in section [3.3.4.4.2.7](#).

3.3.4.4.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|---------------------------------------|---|
| GetADPrincipalGroupMembershipFault | Forms the body of a GetADPrincipalGroupMembershipFault message. |
| GetADPrincipalGroupMembershipRequest | Forms the body of the GetADPrincipalGroupMembership request. |
| GetADPrincipalGroupMembershipResponse | The response to a GetADPrincipalGroupMembershipRequest. |

3.3.4.4.2.1 GetADPrincipalGroupMembershipFault

The **GetADPrincipalGroupMembershipFault** element forms the body of a GetADPrincipalGroupMembershipFault message that is returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.3.4.4.3.1](#) for the type definition.

```
<xs:element name="GetADPrincipalGroupMembershipFault"
  nillable="true"
  type="ca:GetADPrincipalGroupMembershipFault" />
```

3.3.4.4.2.2 GetADPrincipalGroupMembershipRequest

The **GetADPrincipalGroupMembershipRequest** element is the body of the [GetADPrincipalGroupMembership](#) request and contains the *PartitionDN*, *PrincipalDN*, *ResourceContextPartition*, and *ResourceContextServer* parameters.

```
<xs:element name="GetADPrincipalGroupMembershipRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="PrincipalDN" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="ResourceContextPartition" nillable="true"
        type="xs:string" />
      <xs:element
        minOccurs="0" name="ResourceContextServer" nillable="true"
        type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.3.4.4.2.3 GetADPrincipalGroupMembershipRequest/PartitionDN

The **PartitionDN** element contains the DN of any ancestor object of the principal specified in GetADPrincipalGroupMembershipRequest/PrincipalDN.

```
<xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
```

3.3.4.4.2.4 GetADPrincipalGroupMembershipRequest/PrincipalDN

The **PrincipalDN** element contains the DN of the directory object representing the principal whose group memberships should be returned.

```
<xs:element minOccurs="0" name="PrincipalDN" nillable="true" type="xs:string" />
```

The **PrincipalDN** element refers to a directory object that is a security principal ([\[MS-ADTS\]](#) section 5.1.1.5).

3.3.4.4.2.5 GetADPrincipalGroupMembershipRequest/ResourceContextPartition

If non-null, the **ResourceContextPartition** element contains the DN string that is used to limit the set of returned groups. Only groups that have their DN string ending with the string specified by the **GetADPrincipalGroupMembershipRequest/ResourceContextPartition** and have the principal specified by [GetADPrincipalGroupMembershipRequest/PrincipalDN](#) element as a direct member are returned.

```
<xs:element minOccurs="0" name="ResourceContextPartition" nillable="true" type="xs:string" />
```

3.3.4.4.2.6 GetADPrincipalGroupMembershipRequest/ResourceContextServer

If non-null, the **ResourceContextServer** element contains the FQDN (1) of a server/domain.

```
<xs:element minOccurs="0" name="ResourceContextServer" nillable="true" type="xs:string" />
```

3.3.4.4.2.7 GetADPrincipalGroupMembershipResponse

The **GetADPrincipalGroupMembershipResponse** element contains the response to a [GetADPrincipalGroupMembershipRequest](#). It contains one child element, **GetADPrincipalGroupMembershipResponse/MemberOf** (section [3.3.4.4.2.8](#)) that represents an array of **ActiveDirectoryGroup** elements (section [2.2.3.3](#)), each representing a group that contains the principal specified in [GetADPrincipalGroupMembershipRequest/PrincipalDN](#). The complex type [ArrayOfActiveDirectoryGroup](#) (section [2.2.4.4](#)) describes the array of **ActiveDirectoryGroup** elements returned in **GetADPrincipalGroupMembershipResponse/MemberOf**.

```
<xs:element name="GetADPrincipalGroupMembershipResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0"
        name="MemberOf"
        nillable="true"
        type="ca:ArrayOfActiveDirectoryGroup" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.3.4.4.2.8 GetADPrincipalGroupMembershipResponse/MemberOf

The **MemberOf** element contains an array of **ActiveDirectoryGroup** elements (section [2.2.3.3](#)), each representing a group that contains the principal specified in [GetADPrincipalGroupMembershipRequest/PrincipalDN](#). The **MemberOf** element MUST NOT be null.

```
<xs:element
  minOccurs="0" name="MemberOf" nillable="true"
  type="ca:ArrayOfActiveDirectoryGroup" />
```

See section [3.1.4.2.1](#) for information on how to populate the ActiveDirectoryGroup element and subelements.

3.3.4.4.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|------------------------------------|---|
| GetADPrincipalGroupMembershipFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the GetADPrincipalGroupMembership request. |

3.3.4.4.3.1 GetADPrincipalGroupMembershipFault

The **GetADPrincipalGroupMembershipFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [GetADPrincipalGroupMembership](#) request.

```
<xs:complexType name="GetADPrincipalGroupMembershipFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.3.4.4.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.3.4.4.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.3.4.4.6 Groups

There are no XML schema group definitions specific to this operation.

3.3.4.4.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.3.4.4.8 GetADPrincipalGroupMembership SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [GetADPrincipalGroupMembership](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|------------------------------------|--|
| GetADPrincipalGroupMembershipFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| GetADPrincipalGroupMembershipFault | Bad Principal Error: The request contained a nonexistent principal. |
| GetADPrincipalGroupMembershipFault | Multiple Matching Principals Error: Multiple matching principals were found. |
| GetADPrincipalGroupMembershipFault | Bad Naming Context Error: The request contained a nonexistent NC. |
| GetADPrincipalGroupMembershipFault | ObjectGuid Error: The server failed to populate the ObjectGuid element of an ActiveDirectoryObject. |
| GetADPrincipalGroupMembershipFault | Directory Error: Implementation specific errors. |
| GetADPrincipalGroupMembershipFault | Authentication Error: The server was unable to authenticate using the client's security context. |
| GetADPrincipalGroupMembershipFault | Remote Authentication Error: The server was unable to authenticate on a remote machine using the client's security |

| Fault subcode | Description |
|---------------|-------------|
| | context. |

3.3.4.4.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, unknown, or null **Server** element (section [3.1.4](#)).
- The request contains an empty, not present, or null PartitionDN element.
- The request contains an empty, not present, or null PrincipalDN element.
- The request contains an empty ResourceContextPartition element.
- The request contains an empty ResourceContextServer element.
- The ResourceContextPartition element is present and not null, and the ResourceContextServer element is null or not present.
- The ResourceContextServer element is present and not null, and the ResourceContextPartition element is null or not present.

Or if, during the processing of the request by the server, the following is true:

- The server fails to populate the DistinguishedName element of ActiveDirectoryObject as per the processing rules documented in section [3.1.4.2.2](#).

Then the server MUST return a SOAP fault with a [GetADPrincipalGroupMembershipFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalGroupMembershipFault> </pre> |

| Field | Value |
|-------|-------------------|
| | </soapenv:Detail> |

3.3.4.4.8.2 Bad Principal Error

If the client sends a request with the PartitionDN/PrincipalDN element specifying a nonexistent principal or a **non-security principal**, then the server MUST return a SOAP fault with a [GetADPrincipalGroupMembershipFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </GetADPrincipalGroupMembershipFault> </soapenv:Detail> </pre> |

3.3.4.4.8.3 Multiple Matching Principals Error

If the client sends a request with PartitionDN/AccountDN that specifies multiple security principals, then the server MUST return a SOAP fault with a [GetADPrincipalGroupMembershipFault](#) fault subcode. The fault detail SHOULD [<20>](#) be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Multiple matching security principals were found. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> </pre> |

| Field | Value |
|-------|---|
| | <pre> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </GetADPrincipalGroupMembershipFault> </soapenv:Detail> </pre> |

3.3.4.4.8.4 Bad Naming Context Error

If the client sends a request with the PartitionDN element specifying a nonexistent NC, then the server MUST return a SOAP fault with a [GetADPrincipalGroupMembershipFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>-2147016656</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>-2147016656</Win32ErrorCode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </GetADPrincipalGroupMembershipFault> </soapenv:Detail> </pre> |

3.3.4.4.8.5 ObjectGuid Error

If the server fails to populate the **ObjectGuid** element of [ActiveDirectoryObject](#) as per the processing rules documented in section [3.1.4.2.2](#), then the server MUST return a SOAP fault with a GetADPrincipalGroupMembershipFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|--------|----------------|
| [Code] | soapenv:Sender |

| Field | Value |
|-----------|--|
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>-2147463155</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>-2147463155</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </GetADPrincipalGroupMembershipFault> </soapenv:Detail> </pre> |

3.3.4.4.8.6 Directory Error

If any of the following conditions are true:

- The client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request.
- If, during the processing of the request, the server fails to populate the **ReferenceServer** element of the **ActiveDirectoryObject** as per the processing rules documented in section [3.1.4.2.2](#).

Then the server MUST return a SOAP fault with a [GetADPrincipalGroupMembershipFault](#) fault subcode. The fault detail SHOULD [<21>](#) be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" </pre> |

| Field | Value |
|-------|--|
| | <pre> xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalGroupMembershipFault> </soapenv:Detail> </pre> |

3.3.4.4.8.7 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a GetADPrincipalGroupMembershipFault fault subcode. The fault detail SHOULD be as specified in the following table

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed |
| [Detail] | <pre> <soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalGroupMembershipFault> </soapenv:Detail> </pre> |

3.3.4.4.8 Remote Authentication Error

If the server receiving the request needs to contact another server to service the request, but the client does not allow the server to delegate its credentials for execution of the request on the remote server using the client's security context (as specified in section 3.1.4.3), the server MUST return a SOAP fault with a GetADPrincipalGroupMembershipFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADPrincipalGroupMembershipFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre><soapenv:Detail> <GetADPrincipalGroupMembershipFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADPrincipalGroupMembershipFault> </soapenv:Detail></pre> |

3.3.4.5 SetPassword

A server processes a SetPassword request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the SetPasswordRequest_Headers header and that specifies the following URI as the SOAP action:

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/SetPassword

This operation is specified by the following WSDL.

```
<wsdl:operation name="SetPassword">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/SetPassword"
    name="SetPasswordRequest">
```

```

        message="ca:SetPasswordRequest" />
    <wsdl:output
        wsam:Action=
"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/SetPasswordResponse"
        name="SetPasswordResponse"
        message="ca:SetPasswordResponse" />
    <wsdl:fault
        wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
        name="SetPasswordFault"
        message=
"ca:AccountManagement_SetPassword_SetPasswordFault_FaultMessage" />
</wsdl:operation>

```

Upon receiving the SetPassword request, the server sets the password on the principal contained in the **SetPasswordRequest/AccountDN** element (section 3.3.4.5.2.3), specified by the NC contained in the **SetPasswordRequest/PartitionDN** element (section 3.3.4.5.2.5). The new password is contained in the **SetPasswordRequest/NewPassword** element (section 3.3.4.5.2.4). Upon success, the server MUST return a [SetPasswordResponse](#) message (section 3.3.4.5.1.3) with an empty [SetPasswordResponse](#) element (section 3.3.4.5.2.6).

In the case of AD LDS, the SetPassword custom action sets the value of the user!userPassword or the inetOrgPerson!userPassword attribute of the given security principal. In the case of AD DS, either the user!unicodePwd or the inetOrgPerson!unicodePwd attribute is set. See [\[MS-ADTS\]](#) section 3.1.1.3.1.5 and [\[MS-SAMR\]](#) section 3.1.1.7.2 for additional processing considerations.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section 3.3.4.5.8.

3.3.4.5.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|---|--|
| AccountManagement_SetPassword_SetPasswordFault_FaultMessage | Contains a SetPasswordFault element. |
| SetPasswordRequest | Sent by the client to the server to set the password of a principal. |
| SetPasswordResponse | Contains a SetPasswordResponse element. |

3.3.4.5.1.1 AccountManagement_SetPassword_SetPasswordFault_FaultMessage

The AccountManagement_SetPassword_SetPasswordFault_FaultMessage message contains a [SetPasswordFault](#) element.

```

<wsdl:message name=
"AccountManagement_SetPassword_SetPasswordFault_FaultMessage">
    <wsdl:part name="detail" element="ca:SetPasswordFault" />
</wsdl:message>

```

detail: A **SetPasswordFault** element, as specified in section [3.3.4.5.2.1](#).

3.3.4.5.1.2 SetPasswordRequest

The SetPasswordRequest message is sent by the client to the server to set the password of a principal.

```
<wsdl:message name="SetPasswordRequest">
  <wsdl:part name="parameters" element="ca:SetPasswordRequest" />
</wsdl:message>
```

parameters: A **SetPasswordRequest** element, as specified in section [3.3.4.5.2.2](#).

3.3.4.5.1.3 SetPasswordResponse

The SetPasswordResponse message contains a [SetPasswordResponse](#) element with the server response to the SetPassword message.

```
<wsdl:message name="SetPasswordResponse">
  <wsdl:part name="parameters" element="ca:SetPasswordResponse" />
</wsdl:message>
```

parameters: A **SetPasswordResponse** element, as specified in section [3.3.4.5.2.6](#).

3.3.4.5.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|---------------------|--|
| SetPasswordFault | Forms the body of a SetPasswordFault message. |
| SetPasswordRequest | Forms the body of the SetPassword request. |
| SetPasswordResponse | Indicates that the SetPassword operation requested by the client was performed successfully. |

3.3.4.5.2.1 SetPasswordFault

The **SetPasswordFault** element forms the body of a SetPasswordFault message returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.3.4.5.3.1](#) for the type definition.

```
<xs:element name="SetPasswordFault"
  nillable="true"
  type="ca:SetPasswordFault" />
```

3.3.4.5.2.2 SetPasswordRequest

The **SetPasswordRequest** element is the body of the [SetPassword](#) request, and contains the *AccountDN*, *NewPassword*, and *PartitionDN* parameters.

```

<xs:element name="SetPasswordRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="AccountDN" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="NewPassword" nillable="true" type="xs:string" />
      <xs:element
        minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>

```

3.3.4.5.2.3 SetPasswordRequest/AccountDN

The **AccountDN** element contains the DN of the directory object representing the principal whose password should be changed.

```

<xs:element minOccurs="0" name="AccountDN" nillable="true" type="xs:string" />

```

3.3.4.5.2.4 SetPasswordRequest/NewPassword

The **NewPassword** element contains a string representing the desired new password to be assigned to the specified principal.

```

<xs:element minOccurs="0" name="NewPassword" nillable="true" type="xs:string" />

```

3.3.4.5.2.5 SetPasswordRequest/PartitionDN

The **PartitionDN** element contains the DN of the NC that contains the principal specified in SetPasswordRequest/AccountDN.

```

<xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />

```

The **PartitionDN** element refers to the directory instance root directory object of the NC ([\[MS-ADTS\]](#) section 7.1.1.1) that contains the directory object referenced by SetPasswordRequest/AccountDN.

3.3.4.5.2.6 SetPasswordResponse

The **SetPasswordResponse** element contains no child elements and so conveys no information to the client other than that the [SetPassword](#) operation requested by the client was performed successfully.

```

<xs:element name="SetPasswordResponse">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>

```

3.3.4.5.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|------------------|---|
| SetPasswordFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the SetPassword request. |

3.3.4.5.3.1 SetPasswordFault

The **SetPasswordFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server **MUST** return this fault when it is unable to process the [SetPassword](#) request.

```
<xs:complexType name="SetPasswordFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.3.4.5.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.3.4.5.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.3.4.5.6 Groups

There are no XML schema group definitions specific to this operation.

3.3.4.5.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.3.4.5.8 SetPassword SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [SetPassword](#) operation. These faults **SHOULD** be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations **SHOULD** make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document **MUST** be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|------------------|--|
| SetPasswordFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| SetPasswordFault | Bad Principal Error: The request contained a nonexistent principal or a non-authenticable principal. |
| SetPasswordFault | Bad Principal AD LDS Error: The request contained a non-authenticable principal. |
| SetPasswordFault | Bad Password Error: The new password does not meet the password policy. |
| SetPasswordFault | Bad Naming Context Error: The request contained a nonexistent NC. |
| SetPasswordFault | Directory Error: Implementation specific errors. |
| SetPasswordFault | Authorization Error: The client does not have sufficient rights for this operation to succeed. |
| SetPasswordFault | Authentication Error: The server was unable to authenticate using the client's security context. |

3.3.4.5.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, null, or unknown **Server** element (section [3.1.4](#)).
- The request contains an empty, not present, or null AccountDN element.
- The request contains an empty, not present, or null PartitionDN element.
- The request contains a null or not present NewPassword element.

Then the server **MUST** return a SOAP fault with a [SetPasswordFault](#) fault subcode. The fault detail **SHOULD** be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <SetPasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </SetPasswordFault> </soapenv:Detail> </pre> |

3.3.4.5.8.2 Bad Principal Error

If the client sends a request where all of the following are true:

- The **Server** element specifies an AD DS instance.
- The PartitionDN/AccountDN elements specify a nonexistent principal or a non-authenticable principal.

Or where all of the following are true:

- The **Server** element specifies an AD LDS instance.
- The PartitionDN/AccountDN elements specify a nonexistent principal.

Then the server MUST return a SOAP fault with a [SetPasswordFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <SetPasswordFault </pre> |

| Field | Value |
|-------|--|
| | <pre> xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </SetPasswordFault> </soapenv:Detail> </pre> |

3.3.4.5.8.3 Bad Principal AD LDS Error

If the client sends a request where all of the following are true:

- The **Server** element specifies an AD LDS instance.
- The PartitionDN/AccountDN elements specify a non-authenticable principal.

Then the server MUST return a SOAP fault with a [SetPasswordFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <SetPasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>65</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8212</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </SetPasswordFault> </soapenv:Detail> </pre> |

3.3.4.5.8.4 Bad Password Error

If the client sends a request with the NewPassword element that does not meet the password policy ([MS-SAMR] section 3.1.1.7.1), then the server MUST return a SOAP fault with a SetPasswordFault fault subcode.

For AD DS, the fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre><soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>53</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8245</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail></pre> |

For AD LDS, the fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre><soapenv:Detail> <ChangePasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError></pre> |

| Field | Value |
|-------|---|
| | <pre> <DirectoryError> <ErrorCode>19</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8239</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </ChangePasswordFault> </soapenv:Detail> </pre> |

3.3.4.5.8.5 Bad Naming Context Error

If the client sends a request with the PartitionDN element specifying a nonexistent NC, then the server MUST return a SOAP fault with a [SetPasswordFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <SetPasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>32</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b=http://schema.microsoft.com/2003/10/Serialization/Arrays></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8240</Win32Errorcode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </SetPasswordFault> </soapenv:Detail> </pre> |

3.3.4.5.8.6 Directory Error

If the server is unable to complete the request because the following is true:

- Implementation-specific errors were encountered while processing the request.

Then the server MUST return a SOAP fault with a [SetPasswordFault](#) fault subcode. The fault detail SHOULD [<22>](#) be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre><soapenv:Detail> <SetPasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </SetPasswordFault> </soapenv:Detail></pre> |

3.3.4.5.8.7 Authorization Error

If the client sends a request where the client does not have the "User-Force-Change-Password" control access right on the principal contained in the SetPasswordRequest/AccountDN element (as described in [\[MS-ADTS\]](#) section 3.1.1.3.1.5), the server MUST return a SOAP fault with a SetPasswordFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |

| Field | Value |
|----------|--|
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> < SetPasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>50</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>5</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ SetPasswordFault > </soapenv:Detail> </pre> |

3.3.4.5.8.8 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a SetPasswordFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | SetPasswordFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <SetPasswordFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> </SetPasswordFault> </soapenv:Detail> </pre> |

| Field | Value |
|-------|--|
| | <pre> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </SetPasswordFault> </soapenv:Detail> </pre> |

3.3.4.6 TranslateName

A server processes a TranslateName request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the TranslateNameRequest_Headers header and that specifies the following URI as the SOAP action:

<http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/TranslateName>

This operation is specified by the following WSDL.

```

<wsdl:operation name="TranslateName">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/TranslateName"
    name="TranslateNameRequest"
    message="ca:TranslateNameRequest" />
  <wsdl:output
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/TranslateNameResponse"
    name="TranslateNameResponse"
    message="ca:TranslateNameResponse" />
  <wsdl:fault
    wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="TranslateNameFault"
    message=
      "ca:AccountManagement_TranslateName_TranslateNameFault_FaultMessage" />
</wsdl:operation>

```

For every string element found in the [TranslateNameRequest/Names](#) (section [3.3.4.6.2.5](#)) element array, TranslateName constructs an **ActiveDirectoryNameTranslateResult** element (section [3.3.4.6.3.1](#)) with all child elements populated, and adds it to the **TranslateNameResponse/NameTranslateResult** element (section [3.3.4.6.2.7](#)). Upon success, the [TranslateNameResponse](#) (section [3.3.4.6.2.6](#)) element is returned.

The number and order of **ActiveDirectoryNameTranslateResult** elements in the **TranslateNameResponse/NameTranslateResult** array MUST match the number and order of **TranslateNameRequest/Names** array elements specified in the request.

If the directory service performing this request is a **global catalog**, the scope of the name translation includes all domains.

The translation is done using the IDL_DRSCrackNames method ([\[MS-DRDM\]](#) section [4.1.3](#)).

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section [3.3.4.6.8](#).

3.3.4.6.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|---|---|
| AccountManagement_TranslateName_TranslateNameFault_FaultMessage | Contains a TranslateNameFault element. |
| TranslateNameRequest | Sent by the client to the server to convert an array of string elements representing names to another, alternate name format. |
| TranslateNameResponse | Contains a TranslateNameResponse element with the server response to the TranslateName message. |

3.3.4.6.1.1

AccountManagement_TranslateName_TranslateNameFault_FaultMessage

The AccountManagement_TranslateName_TranslateNameFault_FaultMessage message contains a [TranslateNameFault](#) element.

```
<wsdl:message name=
"AccountManagement_TranslateName_TranslateNameFault_FaultMessage">
  <wsdl:part name="detail" element="ca:TranslateNameFault " />
</wsdl:message>
```

detail: A [TranslateNameFault](#) element, as specified in section [3.3.4.6.2.1](#).

3.3.4.6.1.2 TranslateNameRequest

The TranslateNameRequest message is sent by the client to the server to convert an array of string elements representing names to another, alternate name format. The two allowed formats (DistinguishedName and CanonicalName) are defined by the simple type [ActiveDirectoryNameFormat](#) (section [3.3.4.6.4.1](#)).

```
<wsdl:message name="TranslateNameRequest">
  <wsdl:part name="parameters" element="ca:TranslateNameRequest" />
</wsdl:message>
```

parameters: A [TranslateNameRequest](#) element, as specified in section [3.3.4.6.2.2](#).

3.3.4.6.1.3 TranslateNameResponse

The TranslateNameResponse message contains a [TranslateNameResponse](#) element with the server response to the TranslateName message.

```
<wsdl:message name="TranslateNameResponse">
```

```
<wsdl:part name="parameters" element="ca:TranslateNameResponse " />
</wsdl:message>
```

parameters: A TranslateNameResponse element, as specified in section [3.3.4.6.2.6](#).

3.3.4.6.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|-----------------------|--|
| TranslateNameFault | Forms the body of a TranslateNameFault message. |
| TranslateNameRequest | Forms the body of the TranslateName request. |
| TranslateNameResponse | Contains the response to a TranslateNameRequest. |

3.3.4.6.2.1 TranslateNameFault

The **TranslateNameFault** element forms the body of a TranslateNameFault message returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.3.4.6.3.3](#) for the type definition.

```
<xs:element name="TranslateNameFault"
  nillable="true"
  type="ca:TranslateNameFault" />
```

3.3.4.6.2.2 TranslateNameRequest

The **TranslateNameRequest** element is the body of the TranslateName request, and contains the *FormatDesired*, *FormatOffered*, and *Names* parameters.

```
<xs:element name="TranslateNameRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="FormatDesired"
        type="ca:ActiveDirectoryNameFormat" />
      <xs:element
        minOccurs="0" name="FormatOffered"
        type="ca:ActiveDirectoryNameFormat" />
      <xs:element
        minOccurs="0" name="Names"
        nillable="true" type="sera:ArrayOfstring" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.3.4.6.2.3 TranslateNameRequest/FormatDesired

The FormatDesired element contains either DistinguishedName or CanonicalName, per the [ActiveDirectoryNameFormat](#) simple type defined in section [3.3.4.6.4.1](#), indicating the format of the

desired resultant

[TranslateNameResponse/NameTranslateResult/ActiveDirectoryNameTranslateResult/Name](#) elements array.

Note that there MUST be one, and only one, **FormatDesired** element. Each string element in the [TranslateNamesRequest/Names](#) array element is converted to that specified type.

```
<xs:element minOccurs="0" name="FormatDesired" type="ca:ActiveDirectoryNameFormat" />
```

The **FormatDesired** element is either DS_FQDN_1779_Name or DS_CANONICAL_NAME, as specified in [\[MS-DRDM\]](#) section [4.1.3.1.3](#). See also section [3.3.4.6.3.1.1](#).

3.3.4.6.2.4 TranslateNameRequest/FormatOffered

The **FormatOffered** element contains either DistinguishedName or CanonicalName, per the [ActiveDirectoryNameFormat](#) simple type defined in section [3.3.4.6.4.1](#), indicating the format of the name in the supplied string element in the corresponding **TranslateNameRequest/Names** element (section [3.3.4.6.2.5](#)).

Note that there MUST be one, and only one, **FormatOffered** element. All string elements in the **TranslateNameRequest/Names** array element MUST be of the format specified.

```
<xs:element minOccurs="0" name="FormatOffered" type="ca:ActiveDirectoryNameFormat" />
```

The **FormatOffered** element is either DS_FQDN_1779_Name or DS_CANONICAL_NAME, as specified in [\[MS-DRDM\]](#) section [4.1.3.1.3](#). See also section [3.3.4.6.3.1.1](#).

3.3.4.6.2.5 TranslateNameRequest/Names

The **Names** element contains the array of string elements representing names to translate in the [TranslateNameRequest/FormatOffered](#) format.

```
<xs:element minOccurs="0" name="Names" nillable="true" type="sera:ArrayOfstring" />
```

The string elements that are contained by the **Names** array are formatted as either DS_FQDN_1779_Name or DS_CANONICAL_NAME, as specified in [\[MS-DRDM\]](#) section [4.1.3.1.3](#). See also section [3.3.4.6.3.1.1](#).

3.3.4.6.2.6 TranslateNameResponse

The **TranslateNameResponse** contains the response to a [TranslateNameRequest](#). It defines one child element, **TranslateNameResponse/NameTranslateResult** (section [3.3.4.6.2.7](#)), representing an array of **ActiveDirectoryNameTranslateResult** elements (section [3.3.4.6.3.1](#)).

```
<xs:element name="TranslateNameResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0"
        name="NameTranslateResult"
        nillable="true"
        type="ca:ArrayOfActiveDirectoryNameTranslateResult" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

```

    </xs:complexType>
  </xs:element>

```

3.3.4.6.2.7 TranslateNameResponse/NameTranslateResult

The **NameTranslateResult** element defines an array of ActiveDirectoryNameTranslateResult elements (section [3.3.4.6.3.1](#)), each representing the results (if successful) of the name conversion, and an error code if the name was unable to be converted. The result MUST be of same size (number of elements) and order as the [TranslateNameRequest/Names](#) input, because the assumption is that the result of TranslateNameRequest/Name[N] will be returned, on success, in TranslateNameResponse/NameTranslateResult[N].

```

<xs:element
  minOccurs="0" name="NameTranslateResult"
  nillable="true"
  type="ca:ArrayOfActiveDirectoryNameTranslateResult" />

```

3.3.4.6.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|---|---|
| ActiveDirectoryNameTranslateResult | Defines an element containing a Result element and a Name element. |
| ArrayOfActiveDirectoryNameTranslateResult | Creates an array of ActiveDirectoryNameTranslateResult elements. |
| TranslateNameFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the TranslateName request. |

3.3.4.6.3.1 ActiveDirectoryNameTranslateResult

The **ActiveDirectoryNameTranslateResult** complex type defines an element containing a **Result** (section [3.3.4.6.3.1.1](#)) element and a **Name** (section [3.3.4.6.3.1.2](#)) element.

```

<xs:complexType name="ActiveDirectoryNameTranslateResult">
  <xs:sequence>
    <xs:element name="Name" nillable="true" type="xs:string" />
    <xs:element name="Result" type="xs:unsignedInt" />
  </xs:sequence>
</xs:complexType>

```

3.3.4.6.3.1.1 ActiveDirectoryNameTranslateResult/Result

The **Result** element contains an integer with the translation result code.

```

<xs:element name="Result" type="xs:unsignedInt" />

```

The **Result** element is populated from the status result of calling IDL_DRSCrackNames ([MS-DRDM] section 4.1.3) with the FormatOffered (section 3.3.4.6.2.4), FormatDesired (section 3.3.4.6.2.3), and Names (section 3.3.4.6.2.5) elements as parameters*. The IDL_DRSCrackNames *FormatOffered* and *FormatDesired* parameters are translated according to the following table. See [MS-DRDM] section 4.1.3.1.8.

| FormatOffered/FormatDesired enumeration | IDL_DRSCrackNames enumeration** |
|---|---------------------------------|
| DistinguishedName | DS_FQDN_1779_NAME |
| CanonicalName | DS_CANONICAL_NAME |

* IDL_DRSCrackNames also requires an additional parameter, *dwFlags* ([MS-DRDM] section 4.1.3.1.2). The DS_NAME_FLAG_GCVVERIFY bit MUST be set to 1 when the directory instance is a global catalog, and 0 otherwise. The rootDSE!isGlobalCatalogReady attribute ([MS-ADTS] section 3.1.1.3.2.10) is used to determine if the directory instance is a global catalog.

** See [MS-DRDM] section 4.1.3.1.3.

3.3.4.6.3.1.2 ActiveDirectoryNameTranslateResult/Name

The **Name** element contains the results of the translation. If the translation was successful, the ActiveDirectoryNameTranslateResult/Result should be "0". If the translation could not be performed, the ActiveDirectoryNameTranslateResult/Name element should be empty, and the ActiveDirectoryNameTranslateResult/Result should be nonzero.

```
<xs:element name="Name" nillable="true" type="xs:string" />
```

The **Name** element is populated from the FormatOffered (section 3.3.4.6.2.4) name format converted to FormatDesired (section 3.3.4.6.2.3) using IDL_DRSCrackNames ([MS-DRDM] section 4.1.3) when IDL_DRSCrackNames returns DS_NAME_NO_ERROR.

3.3.4.6.3.2 ArrayOfActiveDirectoryNameTranslateResult

The **ArrayOfActiveDirectoryNameTranslateResult** complex type creates an array of **ActiveDirectoryNameTranslateResult** elements (section 3.3.4.6.3.1).

```
<xs:complexType name="ArrayOfActiveDirectoryNameTranslateResult">
  <xs:sequence>
    <xs:element
      minOccurs="0"
      maxOccurs="unbounded"
      name="ActiveDirectoryNameTranslateResult"
      nillable="true"
      type="ca:ActiveDirectoryNameTranslateResult" />
  </xs:sequence>
</xs:complexType>
```

3.3.4.6.3.2.1

ArrayOfActiveDirectoryNameTranslateResult/ActiveDirectoryNameTranslateResult

The **ActiveDirectoryNameTranslateResult** element contains the results of one name translation. It contains two child elements, **Result** (section [3.3.4.6.3.1.1](#)) and **Name** (section [3.3.4.6.3.1.2](#)).

```
<xs:element
  name="ActiveDirectoryNameTranslateResult"
  nillable="true"
  type="ca:ActiveDirectoryNameTranslateResult" />
```

3.3.4.6.3.3 TranslateNameFault

The **TranslateNameFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [TranslateName](#) request.

```
<xs:complexType name="TranslateNameFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.3.4.6.4 Simple Types

The following table summarizes the XML schema simple type definitions that are specific to this operation.

| Simple Type | Description |
|---------------------------|---|
| ActiveDirectoryNameFormat | Contains the type of format for the FormatDesired and FormatOffered elements. |

3.3.4.6.4.1 ActiveDirectoryNameFormat

The **ActiveDirectoryNameFormat** simple type MUST contain the type of format (DistinguishedName or CanonicalName) for the **TranslateNameRequest/FormatDesired** (section [3.3.4.6.2.3](#)) and **TranslateNameRequest/FormatOffered** (section [3.3.4.6.2.4](#)) elements.

```
<xs:simpleType name="ActiveDirectoryNameFormat">
  <xs:restriction base="xs:string">
    <xs:enumeration value="DistinguishedName">
      <xs:annotation>
        <xs:appinfo>
          <EnumerationValue
            xmlns="http://schemas.microsoft.com/2003/10/Serialization/">
            1
          </EnumerationValue>
        </xs:appinfo>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
```

```

</xs:enumeration>
<xs:enumeration value="CanonicalName">
  <xs:annotation>
    <xs:appinfo>
      <EnumerationValue
        xmlns="http://schemas.microsoft.com/2003/10/Serialization/">
        2
      </EnumerationValue>
    </xs:appinfo>
  </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

```

| Value | Enumeration |
|-------|-------------------|
| 1 | DistinguishedName |
| 2 | CanonicalName |

3.3.4.6.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.3.4.6.6 Groups

There are no XML schema group definitions specific to this operation.

3.3.4.6.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.3.4.6.8 TranslateName SOAP Faults

This section documents the SOAP faults specified for use by servers which implement the Active Directory Web Services: Custom Action Protocol [TranslateName](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|--------------------|--|
| TranslateNameFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| TranslateNameFault | Directory Error: Implementation specific errors. |
| TranslateNameFault | Authentication Error: The server was unable to authenticate using the client's security context. |

3.3.4.6.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, null, or unknown **Server** element (section [3.1.4](#)).
- The request contains a null or not present **Names** element.
- The request contains a **Names** element containing a null string element.
- The request contains a null or not present **FormatDesired** element.
- The request contains a null or not present **FormatOffered** element.

Then the server MUST return a SOAP fault with a [TranslateNameFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | TranslateNameFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre><soapenv:Detail> <TranslateNameFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError></pre> |

| Field | Value |
|-------|---|
| | <pre> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </TranslateNameFault> </soapenv:Detail> </pre> |

3.3.4.6.8.2 Directory Error

If the client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request, then the server MUST return SOAP fault with a [TranslateNameFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | TranslateNameFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <TranslateNameFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </TranslateNameFault> </soapenv:Detail> </pre> |

3.3.4.6.8.3 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a TranslateNameFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | TranslateNameFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <TranslateNameFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </TranslateNameFault> </soapenv:Detail> </pre> |

3.3.5 Timer Events

None.

3.3.6 Other Local Events

None.

3.4 TopologyManagement Server Details

This section describes the server behaviors of the Active Directory Web Services: Custom Action Protocol as they apply to the protocol's [TopologyManagement](#) port type. In the Active Directory Web Services: Custom Action Protocol, this port type is used to process six WSDL operations:

- [ChangeOptionalFeature](#)
- [GetADDomain](#)
- [GetADDomainController](#)
- [GetADForest](#)
- [GetVersion](#)
- [MoveADOperationMasterRole](#)

This protocol defines a SOAP message for each of these operations.

3.4.1 Abstract Data Model

See the abstract data model in the common processing section [3.1.1](#).

3.4.2 Timers

There are no timers in this protocol.

3.4.3 Initialization

See the initialization in the common processing section [3.1.3](#).

3.4.4 Message Processing Events and Sequencing Rules

The following table summarizes the list of WSDL operations as defined by this specification:

| Operation | Description |
|---|--|
| ChangeOptionalFeature | Enables or disables a specified optional feature (such as Undelete). |
| GetADDomain | Returns information about a domain. |
| GetADDomainController | Returns information about one or more domain controllers. |
| GetADForest | Returns information about a forest. |
| GetVersion | Returns information about the ADWS version. |
| MoveADOperationMasterRole | Moves the specified FSMO role. Optionally, it may try to seize the FSMO if the transfer fails. |

3.4.4.1 ChangeOptionalFeature

A server processes a ChangeOptionalFeature request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the ChangeOptionalFeatureRequest_Headers header and that specifies the following URI as the SOAP action:

<http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/ChangeOptionalFeature>

This operation is specified by the following WSDL.

```
<wsdl:operation name="ChangeOptionalFeature">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/ChangeOptionalFeature"
    name="ChangeOptionalFeatureRequest"
    message="ca:ChangeOptionalFeatureRequest" />
  <wsdl:output
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/ChangeOptionalFeatureResponse"
  />
</wsdl:operation>
```

```

        name="ChangeOptionalFeatureResponse"
        message="ca:ChangeOptionalFeatureResponse" />
<wsdl:fault
    wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="ChangeOptionalFeatureFault"
    message=
"ca:TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage" />
</wsdl:operation>

```

Upon receiving the ChangeOptionalFeature custom action request, the server enables or disables the **directory instance** feature specified by the [ChangeOptionalFeatureRequest/FeatureId](#) (section 3.4.4.1.2.5) element in the naming context (NC) identified by the distinguished name (DN) specified in the [ChangeOptionalFeatureRequest/DistinguishedName](#) (section 3.4.4.1.2.3) element. The feature is enabled when the **ChangeOptionalFeatureRequest/Enable** (section 3.4.4.1.2.4) Boolean element is TRUE, and disabled when the element is either FALSE or not present.

To enable an optional feature, the server writes the rootDSE attribute enableOptionalFeature of the directory instance ([MS-ADTS] section 3.1.1.3.3.26). To disable an optional feature, the server writes the rootDSE attribute disableOptionalFeature of the directory instance ([MS-ADTS] section 3.1.1.3.3.25). In both cases, the content of the write is a string formed from the concatenation of the ChangeOptionalFeatureRequest/DistinguishedName element, a colon (':'), and the contents of the ChangeOptionalFeatureRequest/FeatureId element.

For more information on optional features, see [MS-ADTS] section 3.1.1.8.

Upon success, the server MUST return a [ChangeOptionalFeatureResponse](#) message (section 3.4.4.1.1.2) with an empty ChangeOptionalFeatureResponse element (section 3.4.4.1.2.6).

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section 3.4.4.1.8.

3.4.4.1.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|--|---|
| ChangeOptionalFeatureRequest | Sent by the client to the server to specify which optional feature is to be enabled or disabled by the request. |
| ChangeOptionalFeatureResponse | Contains a ChangeOptionalFeatureResponse element. |
| TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage | Contains a ChangeOptionalFeatureFault element. |

3.4.4.1.1.1 ChangeOptionalFeatureRequest

The ChangeOptionalFeatureRequest message is sent by the client to the server to specify which optional feature is to be enabled or disabled by the request.

```
<wsdl:message name="ChangeOptionalFeatureRequest">
  <wsdl:part name="parameters" element="ca:ChangeOptionalFeatureRequest" />
</wsdl:message>
```

parameters: A [ChangeOptionalFeatureRequest](#) element, as specified in section [3.4.4.1.2.2](#).

3.4.4.1.1.2 ChangeOptionalFeatureResponse

The ChangeOptionalFeatureResponse message contains a [ChangeOptionalFeatureResponse](#) element with the server response to the [ChangeOptionalFeature](#) message.

```
<wsdl:message name="ChangeOptionalFeatureResponse">
  <wsdl:part name="parameters" element="ca:ChangeOptionalFeatureResponse" />
</wsdl:message>
```

parameters: A ChangeOptionalFeatureResponse element, as specified in section [3.4.4.1.2.6](#).

3.4.4.1.1.3

TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage

The TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage message contains a [ChangeOptionalFeatureFault](#) element.

```
<wsdl:message name=
"TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage">
  <wsdl:part name="detail" element="ca:ChangeOptionalFeatureFault" />
</wsdl:message>
```

detail: A ChangeOptionalFeatureFault element, as specified in section [3.4.4.1.2.1](#).

3.4.4.1.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|-------------------------------|--|
| ChangeOptionalFeatureFault | Forms the body of a ChangeOptionalFeatureFault message. |
| ChangeOptionalFeatureRequest | Forms the body of the ChangeOptionalFeature request. |
| ChangeOptionalFeatureResponse | Indicates that the ChangeOptionalFeature operation requested by the client was performed successfully. |

3.4.4.1.2.1 ChangeOptionalFeatureFault

The **ChangeOptionalFeatureFault** element is the body of a ChangeOptionalFeatureFault message returned by the server in response to a client request, and **MUST** be returned when the request could not be performed.

```
<xs:element name="ChangeOptionalFeatureFault"
```

```
nillable="true" type="ca:ChangeOptionalFeatureFault" />
```

3.4.4.1.2.2 ChangeOptionalFeatureRequest

The **ChangeOptionalFeatureRequest** element is the body of the [ChangeOptionalFeature](#) request, and contains the *DistinguishedName*, *Enable*, and *FeatureId* parameters.

```
<xs:element name="ChangeOptionalFeatureRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0" name="DistinguishedName" nillable="true"
        type="xs:string" />
      <xs:element
        minOccurs="0" name="Enable" type="xs:boolean" />
      <xs:element
        minOccurs="0" name="FeatureId" type="ser:guid" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.4.4.1.2.3 ChangeOptionalFeatureRequest/DistinguishedName

The **DistinguishedName** element contains the distinguished name of the naming context in which to enable/disable the feature.

```
<xs:element minOccurs="0" name="DistinguishedName" nillable="true" type="xs:string" />
```

The **DistinguishedName** element refers to the directory instance root directory object of the NC ([\[MS-ADTS\]](#) section 7.1.1.1) whose rootDSE disableOptionalFeature or enableOptionalFeature attribute should be written to. See [\[MS-ADTS\]](#) sections [3.1.1.3.3.25](#) and [3.1.1.3.3.26](#). The attribute to write is determined by the ChangeOptionalFeatureRequest/Enable Boolean, while the value to write is determined by the ChangeOptionalFeatureRequest/FeatureId element.

For more information on optional features, see [\[MS-ADTS\]](#) section 3.1.1.8.

3.4.4.1.2.4 ChangeOptionalFeatureRequest/Enable

The **Enable** element, when set to TRUE, indicates that the feature MUST be enabled. Otherwise, if the element is set to FALSE or the element is not present, it indicates that the feature MUST be disabled.

```
<xs:element minOccurs="0" name="Enable" type="xs:boolean" />
```

The **Enable** element indicates the rootDSE attribute to write to: enableOptionalFeature (TRUE) or disableOptionalFeature (FALSE or not present) ([\[MS-ADTS\]](#) sections [3.1.1.3.3.25](#) and [3.1.1.3.3.26](#)).

3.4.4.1.2.5 ChangeOptionalFeatureRequest/FeatureId

The **FeatureId** element contains the GUID of the feature to enable or disable.

```
<xs:element minOccurs="0" name="FeatureId" type="ser:guid" />
```

The **FeatureId** contains a GUID in string form, according to [\[RFC4122\]](#) section 3, to write to the rootDSE!enableOptionFeature or rootDSE!disableOptionalFeature, as determined by the ChangeOptionalFeatureRequest/Enable element Boolean (section [3.4.4.1.2.4](#)). The contents of the write is a string formed from the concatenation of the ChangeOptionalFeatureRequest/DistinguishedName element (section [3.4.4.1.2.3](#)), a colon (':'), and the FeatureId element.

3.4.4.1.2.6 ChangeOptionalFeatureResponse

The **ChangeOptionalFeatureResponse** element contains no parameters, and so conveys no information to the client other than that the [ChangeOptionalFeature](#) operation requested by the client was performed successfully.

```
<xs:element name="ChangeOptionalFeatureResponse">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>
```

3.4.4.1.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|----------------------------|---|
| ChangeOptionalFeatureFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the ChangeOptionalFeature request. |

3.4.4.1.3.1 ChangeOptionalFeatureFault

The **ChangeOptionalFeatureFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [ChangeOptionalFeature](#) request.

```
<xs:complexType name="ChangeOptionalFeatureFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.1.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.4.4.1.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.4.4.1.6 Groups

There are no XML schema group definitions specific to this operation.

3.4.4.1.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.4.4.1.8 ChangeOptionalFeature SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [ChangeOptionalFeature](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|----------------------------|---|
| ChangeOptionalFeatureFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| ChangeOptionalFeatureFault | Directory Error: Implementation specific errors. |
| ChangeOptionalFeatureFault | Authorization Error: The client does not have sufficient rights for this operation to succeed. |
| ChangeOptionalFeatureFault | Authentication Error: The server was unable to authenticate using the client's security context. |
| ChangeOptionalFeatureFault | Bad DistinguishedName Error: The value specified in the request for the DistinguishedName element refers to a nonexistent NC. |

| Fault subcode | Description |
|----------------------------|--|
| ChangeOptionalFeatureFault | Bad FeatureId Error: The value specified in the request for the FeatureId element refers to a nonexistent feature. |

3.4.4.1.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, unknown, or null **Server** element (section [3.1.4](#)).
- The request contains an empty, not present, or null **DistinguishedName** element.
- The request contains an empty or not present **FeatureId** element.

Then the server MUST return a SOAP fault with a [ChangeOptionalFeatureFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | ChangeOptionalFeatureFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <ChangeOptionalFeatureFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ChangeOptionalFeatureFault> </soapenv:Detail> </pre> |

3.4.4.1.8.2 Bad DistinguishedName Error

If the client sends a request with the **DistinguishedName** element specifying a nonexistent NC, then the server MUST return a SOAP fault with a [ChangeOptionalFeatureFault](#) (section [3.4.4.1.3.1](#)) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|--------|------------------|
| [Code] | soapenv:Receiver |

| Field | Value |
|-----------|---|
| [Subcode] | ChangeOptionalFeatureFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> soapenv:Detail> <ChangeOptionalFeatureFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:i="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError i:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>1</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>8224</Win32ErrorCode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </ChangeOptionalFeatureFault> </soapenv:Detail> </pre> |

3.4.4.1.8.3 Bad FeatureId Error

If the client sends a request with the **FeatureId** element specifying a nonexistent feature, then the server MUST return a SOAP fault with a [ChangeOptionalFeatureFault \(section 3.4.4.1.3.1\)](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangeOptionalFeatureFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <ChangeOptionalFeatureFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:i="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError i:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>1</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:b="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> </DirectoryError> </ChangeOptionalFeatureFault> </soapenv:Detail> </pre> |

| Field | Value |
|-------|--|
| | <pre> <Win32ErrorCode>8224</Win32ErrorCode> </DirectoryError> <Error i:nil="true"></Error> <ShortError i:nil="true"></ShortError> </ChangeOptionalFeatureFault> </soapenv:Detail> </pre> |

3.4.4.1.8.4 Directory Error

If the client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request, then the server MUST return a SOAP fault with a [ChangeOptionalFeatureFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangeOptionalFeatureFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <ChangeOptionalFeatureFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ChangeOptionalFeatureFault> </soapenv:Detail> </pre> |

3.4.4.1.8.5 Authorization Error

If the client sends a request where the client does not have the "Manage OptionalFeatures" control access right on the object contained in the [ChangeOptionalFeatureRequest/DistinguishedName](#) element (representing the feature's scope as described in [\[MS-ADTS\]](#) section 3.1.1.3.3.26), the server MUST return **soap fault** with a ChangeOptionalFeatureFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangeOptionalFeatureFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> < ChangeOptionalFeatureFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>50</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>5</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ ChangeOptionalFeatureFault > </soapenv:Detail> </pre> |

3.4.4.1.8.6 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a ChangeOptionalFeatureFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | ChangeOptionalFeatureFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <ChangeOptionalFeatureFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> </pre> |

| Field | Value |
|-------|---|
| | <pre> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </ChangeOptionalFeatureFault> </soapenv:Detail> </pre> |

3.4.4.2 GetADDomain

A server processes a GetADDomain request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the GetADDomain SOAP header and that specifies the following URI as the SOAP action:

<http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomain>

This operation is specified by the following WSDL.

```

<wsdl:operation name="GetADDomain">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDo
      main"
    name="GetADDomainRequest"
    message="ca:GetADDomainRequest" />
  <wsdl:output
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDo
      mainResponse"
    name="GetADDomainResponse"
    message="ca:GetADDomainResponse" />
  <wsdl:fault
    wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="GetADDomainFault"
    message="ca:TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage" />
</wsdl:operation>

```

The GetADDomain custom action retrieves information for the domain that contains the directory service specified in the [GetADDomainRequest](#) SOAP header [Server](#) element. If the Server element specifies an AD LDS instance, the server MUST return a fault as specified in section [3.4.4.2.8.1](#). Upon success, the server MUST return a [GetADDomainResponse](#) with the [GetADDomainResponse/Domain](#) element (including child elements) filled in.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section [3.4.4.2.8](#).

3.4.4.2.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|--|--|
| GetADDomainRequest | Contains a SOAP header with a Server element specifying a directory service. |
| GetADDomainResponse | The response to a successful GetADDomain operation. |
| TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage | Contains a GetADDomainFault element. |

3.4.4.2.1.1 GetADDomainRequest

The GetADDomainRequest message is sent by the client to the server. It MUST contain a SOAP header with a [Server](#) element specifying a directory service.

```
<wsdl:message name="GetADDomainRequest">
  <wsdl:part name="parameters" element="ca:GetADDomainRequest" />
</wsdl:message>
```

parameters: A [GetADDomainRequest](#) element, as specified in section [3.4.4.2.2.2](#).

3.4.4.2.1.2 GetADDomainResponse

The GetADDomainResponse message is returned in response to a successful [GetADDomain](#) operation and contains a [GetADDomainResponse](#) element, with the server response to the GetADDomainRequest message. The body of the response is a filled-in [GetADDomainResponse/Domain](#) element containing information about the domain.

```
<wsdl:message name="GetADDomainResponse">
  <wsdl:part name="parameters" element="ca:GetADDomainResponse" />
</wsdl:message>
```

parameters: A GetADDomainResponse element, as specified in section [3.4.4.2.2.3](#).

3.4.4.2.1.3

TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage

The TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage message contains a [GetADDomainFault](#) element.

```
<wsdl:message name=
"TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADDomainFault" />
</wsdl:message>
```

detail: A GetADDomainFault element, as specified in section [3.4.4.2.2.1](#).

3.4.4.2.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|---------------------|---|
| GetADDomainFault | Forms the body of a GetADDomainFault message. |
| GetADDomainRequest | Contains the request for a GetADDomain operation. |
| GetADDomainResponse | Contains the response to a GetADDomainRequest. |

3.4.4.2.2.1 GetADDomainFault

The **GetADDomainFault** element forms the body of a GetADDomainFault message returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.4.4.2.3.3](#) for type details.

```
<xs:element
  name="GetADDomainFault" nillable="true" type="ca:GetADDomainFault" />
```

3.4.4.2.2.2 GetADDomainRequest

The **GetADDomainRequest** element contains the request for a [GetADDomain](#) operation. It contains no child elements and so conveys no information to the server other than that a GetADDomain request was made.

```
<xs:element name="GetADDomainRequest">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>
```

3.4.4.2.2.3 GetADDomainResponse

The GetADDomainResponse contains the response to a [GetADDomainRequest](#). It contains one child element, [GetADGroupMemberResponse/Domain](#) (as specified in section [3.4.4.2.2.4](#)), containing details about the domain.

```
<xs:element name="GetADDomainResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0"
        name="Domain"
        nillable="true"
        type="ca:ActiveDirectoryDomain" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.4.4.2.2.4 GetADDomainResponse/Domain

The **Domain** element contains the body of the response to the [GetADDomainRequest](#) message. It contains the child elements specified in sections [3.4.4.2.3.1.1](#) through [3.4.4.2.3.1.18](#).

```
<xs:element minOccurs="0" name="Domain" nillable="true" type="ca:ActiveDirectoryDomain" />
```

The Domain element is always present in the response and it is null when all its child elements are null.

3.4.4.2.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|--------------------------|---|
| ActiveDirectoryDomain | An extension of the ActiveDirectoryPartition complex type defining the body of the response from the GetADDomain method. |
| ActiveDirectoryPartition | Extends the ActiveDirectoryObject complex type. |
| GetADDomainFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the GetADDomain request. |

3.4.4.2.3.1 ActiveDirectoryDomain

The **ActiveDirectoryDomain** complex type is an extension of the [ActiveDirectoryPartition](#) complex type, and defines the body of the response from the [GetADDomain](#) method. It contains elements holding the body of the GetADDomain response.

```
<xs:complexType name="ActiveDirectoryDomain">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:ActiveDirectoryPartition">
      <xs:sequence>
        <xs:element
          name="AllowedDNSSuffixes" nillable="true"
          type="sera:ArrayOfstring" />
        <xs:element
          name="AppliedGroupPolicies" nillable="true"
          type="sera:ArrayOfstring" />
        <xs:element
          name="ChildDomains" nillable="true"
          type="sera:ArrayOfstring" />
        <xs:element
          name="ComputersContainer" nillable="true"
          type="xs:string" />
        <xs:element
          name="DomainControllersContainer" nillable="true"
          type="xs:string" />
        <xs:element
          name="DomainMode" type="xs:int" />
        <xs:element
          name="DomainSID" nillable="true"
          type="xs:base64Binary" />
        <xs:element
```

```

        name="ForeignSecurityPrincipalsContainer" nillable="true"
        type="xs:string" />
<xs:element
    name="Forest" nillable="true"
    type="xs:string" />
<xs:element
    name="InfrastructureMaster" nillable="true"
    type="xs:string" />
<xs:element
    name="LastLogonReplicationInterval" nillable="true"
    type="ser:duration" />
<xs:element
    name="ManagedBy" nillable="true" type="xs:string" />
<xs:element
    name="NetBIOSName" nillable="true"
    type="xs:string" />
<xs:element
    name="PDCEmulator" nillable="true"
    type="xs:string" />
<xs:element
    name="ParentDomain" nillable="true"
    type="xs:string" />
<xs:element
    name="RIDMaster" nillable="true"
    type="xs:string" />
<xs:element
    name="SystemsContainer" nillable="true"
    type="xs:string" />
<xs:element
    name="UsersContainer" nillable="true"
    type="xs:string" />
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

```

3.4.4.2.3.1.1 ActiveDirectoryDomain/AllowedDNSSuffixes

The **AllowedDNSSuffixes** element contains an array of **DNS** suffixes for this domain.

```

<xs:element
    name="AllowedDNSSuffixes" nillable="true" type="ser:ArrayOfstring" />

```

The **AllowedDNSSuffixes** element is populated from the domainDNS!msDS-AllowedDNSSuffixes multivalued attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). If the domainDNS!msDS-AllowedDNSSuffixes attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/AllowedDNSSuffixes element.

3.4.4.2.3.1.2 ActiveDirectoryDomain/AppliedGroupPolicies

The **AppliedGroupPolicies** element contains an array of distinguished names representing the **group policy objects (GPOs)** to apply to this domain.

```

<xs:element

```

```
name="AppliedGroupPolicies" nillable="true" type="sera:ArrayOfstring" />
```

The **AppliedGroupPolicies** element is populated from the domainDNS!gpLink attribute on the **domain NC** root object ([MS-ADTS] section 7.1.1.1.4). The domainDNS!gpLink attribute has the format for gpLink attributes described in [MS-GPOL] section 2.2.2. The **AppliedGroupPolicies** element is populated with an array of the GPO DNs in this attribute, excluding the initial "LDAP://" portion of each GPO DN. If the domainDNS!gpLink attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/AppliedGroupPolicies element.

3.4.4.2.3.1.3 ActiveDirectoryDomain/ChildDomains

The **ChildDomains** element contains an array of FQDNs (2) of the **child domains** of the domain.

```
<xs:element
  name="ChildDomains" nillable="true" type="sera:ArrayOfstring" />
```

The **ChildDomains** element is populated from the crossRef!dnsRoot attribute of all **crossRef objects** ([MS-ADTS] section 7.1.1.2.1.1.4) that meet the following criteria:

- The crossRef!trustParent attribute is equal to the DN of the domain and the client has access rights to read the attribute.
- The crossRef!systemFlags attribute's bits FLAG_CR_NTDS_NC and FLAG_CR_NTDS_DOMAIN are set to 1 and the client has access rights to read the attribute. See [MS-ADTS] section 7.1.1.2.1.1.
- The crossRef!dnsRoot attribute is present, and the client has access rights to read the attribute.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If the crossRef!dnsRoot attribute on a crossRef object satisfying the above requirements has multiple values, then only one of the values MUST be chosen, but any of the values MAY be chosen<23> to populate the element. If no crossRef objects satisfy the above requirements, the server returns a null ActiveDirectoryDomain/ChildDomains element.

3.4.4.2.3.1.4 ActiveDirectoryDomain/ComputersContainer

The **ComputersContainer** element contains the distinguished name of the computer object container of the domain.

```
<xs:element
  name="ComputersContainer" nillable="true" type="xs:string" />
```

The **ComputersContainer** element is populated from the DN portion ([MS-ADTS] section 7.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object that meets the following criteria.

- The Binary portion of value is equal to GUID_COMPUTERS_CONTAINER_W. See [MS-ADTS] section 7.1.1.4.

If multiple values satisfy the above requirements, then only one of the values MUST be chosen, but any of the values MAY be chosen [24](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryDomain/ComputersContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.1.5 ActiveDirectoryDomain/DomainControllersContainer

The **DomainControllersContainer** element contains the distinguished name of the Domain Controllers OU ([\[MS-ADTS\]](#) section 7.1.1.4.5) directory object that contains the domain controllers for this domain.

```
<xs:element
  name="DomainControllersContainer" nillable="true" type="xs:string" />
```

The **DomainControllersContainer** element is populated from the DN portion ([\[MS-ADTS\]](#) section 7.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object which meets the following criteria:

- The Binary portion of the value is equal to GUID_DOMAIN_CONTROLLERS_CONTAINER_W. See [\[MS-ADTS\]](#) section 7.1.1.4.

If multiple values satisfy the above requirements, then only one of the values MUST be chosen, but any of the values MAY be chosen [25](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryDomain/DomainControllersContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.1.6 ActiveDirectoryDomain/DomainMode

The **DomainMode** element contains an integer representing the functional level of the domain.

```
<xs:element name="DomainMode" type="xs:int" />
```

The **DomainMode** element is populated from the domainDNS!msDS-Behavior-Version on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). See [\[MS-ADTS\]](#) section 7.1.4.3. If the domainDNS!msDS-Behavior-Version attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server populates the ActiveDirectoryDomain/DomainMode element with a value of 0.

3.4.4.2.3.1.7 ActiveDirectoryDomain/DomainSID

The **DomainSID** element contains the SID of the domain, encoded in base-64 binary format.

```
<xs:element name="DomainSID" nillable="true" type="xs:base64Binary" />
```

The **DomainSID** element is populated from the domainDNS!objectSID attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). If the domainDNS!objectSID attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/DomainSID element.

3.4.4.2.3.1.8 ActiveDirectoryDomain/ForeignSecurityPrincipalsContainer

The **ForeignSecurityPrincipalsContainer** is the distinguished name of the Foreign Security Principals Container ([\[MS-ADTS\]](#) section 7.1.1.4.10) directory object in the domain.

```
<xs:element
  name="ForeignSecurityPrincipalsContainer" nillable="true" type="xs:string" />
```

The **ForeignSecurityPrincipalsContainer** element is populated from the DN portion ([\[MS-ADTS\]](#) section 7.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object which meets the following criteria:

- The Binary portion of value of the value is equal to GUID_FOREIGNSECURITYPRINCIPALS_CONTAINER_W. See [\[MS-ADTS\]](#) section 7.1.1.4.

If multiple values satisfy the above requirements, then only one of the values MUST be chosen, but any of the values MAY be chosen [<26>](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryDomain/ForeignSecurityPrincipalsContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault as described in section [3.4.4.2.8.1](#).

3.4.4.2.3.1.9 ActiveDirectoryDomain/Forest

The **Forest** element contains the FQDN (2) of the forest of which the domain is a member.

```
<xs:element name="Forest" nillable="true" type="xs:string" />
```

The **Forest** element is populated from the crossRef!dnsRoot attribute on the domain crossRef object ([\[MS-ADTS\]](#) section 7.1.1.2.1.1.4) which meets the following criteria:

- The crossRef!ncName attribute is equal to the rootDSE!rootDomainNamingContext attribute and the client has access rights to read the attributes.
- The crossRef!systemFlags attribute's FLAG_CR_NTDS_NC and FLAG_CR_NTDS_DOMAIN bits are set to 1 and the client has access rights to read the attribute. See [\[MS-ADTS\]](#) section 7.1.1.2.1.1.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef objects satisfy the above requirements, the server returns the SOAP fault described in section [3.4.4.2.8.1](#). If multiple crossRef objects satisfy the above requirements, then only one of the crossRef object MUST be chosen, but any of the objects MAY be chosen [<27>](#) in constructing the response. If the crossRef!dnsRoot attribute on the chosen crossRef object satisfying the above requirements has multiple values, then only one of the values MUST be chosen, but any of the values MAY be chosen [<28>](#) to populate the element. If the crossRef!dnsRoot attribute on the chosen crossRef object satisfying the above requirements is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/Forest element.

3.4.4.2.3.1.10 ActiveDirectoryDomain/InfrastructureMaster

The **InfrastructureMaster** element contains the FQDN (1) of the server holding the Infrastructure FSMO role for this domain. See [\[MS-ADTS\]](#) section 7.1.5.

```
<xs:element
  name="InfrastructureMaster" nillable="true" type="xs:string" />
```

The **InfrastructureMaster** element is populated from the server!dnsHostName attribute on the parent of the Infrastructure Master's nTDSDSA object. The Infrastructure Master's nTDSDSA object is the object referenced by the infrastructureUpdate!fsmoRoleOwner attribute on the infrastructureUpdate object directly under the domain NC root. See [\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1 for information on the nTDSDSA object. See [\[MS-ADTS\]](#) sections [3.1.1.1.11](#) and [7.1](#) for information on FSMO roles and the fsmoRoleOwner attribute. If the infrastructureUpdate!fsmoRoleOwner or server!dnsHostName attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/InfrastructureMaster element.

3.4.4.2.3.1.11 ActiveDirectoryDomain/LastLogonReplicationInterval

The **LastLogonReplicationInterval** element represents the duration, in days, during which the last logon time for a principal is replicated. See [\[MS-DRDM\]](#).

```
<xs:element
  name="LastLogonReplicationInterval" nillable="true" type="ser:duration" />
```

The LastLogonReplicationInterval element is populated from the domainDNS!msDS-LogonTimeSyncInterval attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). If this attribute is present, the element is populated with domainDNS!msDS-LogonTimeSyncInterval days, 0 hours, 0 minutes, and 0 seconds, encoded in ser:duration format (a restricted form of xs:duration (see [\[XMLSCHEMA2\]](#), section 2.2.5.4), [<29>](#) otherwise the server returns a null ActiveDirectoryDomain/LastLogonReplicationInterval element.

3.4.4.2.3.1.12 ActiveDirectoryDomain/ManagedBy

The **ManagedBy** element contains information on who manages this domain if the administrator has specified the value of the managedBy attribute on the domainDNS object. See [\[MS-ADA2\]](#) section 2.8.

```
<xs:element name="ManagedBy" nillable="true" type="xs:string" />
```

The **ManagedBy** element is populated from the domainDNS!managedBy attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). If the domainDNS!managedBy attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/ManagedBy element.

3.4.4.2.3.1.13 ActiveDirectoryDomain/NetBIOSName

The **NetBIOSName** element contains the **NetBIOS name** of the domain.

```
<xs:element name="NetBIOSName" nillable="true" type="xs:string" />
```

The **NetBIOSName** element is populated from crossRef!netBIOSName attribute on the domain crossRef object ([\[MS-ADTS\]](#) section 7.1.1.2.1.1.4) that meets the following criteria:

- The crossRef!ncName attribute is equal to the rootDSE!defaultNamingContext attribute and the client has access rights to read the attributes
- The crossRef!systemFlags attribute's FLAG_CR_NTDS_NC and FLAG_CR_NTDS_DOMAIN bits are set to 1 and the client has access rights to read the attribute. See [\[MS-ADTS\]](#) section 7.1.1.2.1.1.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef objects satisfy the above requirements, the server returns the SOAP fault described in section [3.4.4.2.8.1](#). If multiple crossRef objects satisfy the above requirements, then only one of the crossRef objects MUST be chosen, but any of the objects MAY be chosen [<30>](#) in constructing the response. If the crossRef!netBIOSName attribute on the chosen crossRef object satisfying the above requirements is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/NetBIOSName element.

3.4.4.2.3.1.14 ActiveDirectoryDomain/ParentDomain

The **ParentDomain** element contains the FQDN (2) of the **parent domain** for this domain, if any.

```
<xs:element name="ParentDomain" nillable="true" type="xs:string" />
```

The **ParentDomain** element is populated from crossRef!dnsRoot attribute on domain crossRef object ([\[MS-ADTS\]](#) section 7.1.1.2.1.1.4) that meets the following criteria.

- The crossRef!ncName attribute is equal to the crossRef!trustParent attribute on the domain NC's crossRef object and the client has access rights to read the attributes.
- The crossRef!systemFlags attribute's FLAG_CR_NTDS_NC and FLAG_CR_NTDS_DOMAIN bits are set to 1 and the client has access rights to read the attribute. See [\[MS-ADTS\]](#) section 7.1.1.2.1.1.
- The crossRef!dnsRoot attribute is present and the client has access rights to read the attribute.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef objects satisfy the above requirements, the server returns a null ActiveDirectoryDomain/ParentDomain element. If multiple crossRef objects satisfy the above requirements, then only one of the crossRef object MUST be chosen, but any of the objects MAY be chosen [<31>](#) in constructing the response. If the crossRef!dnsRoot attribute on the chosen crossRef object satisfying the above requirements has multiple values, then only one of the values MUST be chosen, but any of the values MAY be chosen [<32>](#) to populate the element.

3.4.4.2.3.1.15 ActiveDirectoryDomain/PDCEmulator

The **PDCEmulator** element contains the FQDN (1) of the server holding the PDC Emulator FSMO role for this domain. See [\[MS-ADTS\]](#) section 7.1.5.

```
<xs:element name="PDCEmulator" nillable="true" type="xs:string" />
```

The **PDCEmulator** element is populated from the server!dnsHostName attribute on the parent of the PDC Master's nTDSDSA object. The PDC Master's nTDSDSA object is the object referenced by the domainDNS!fSMORoleOwner on the domain NC root. See [\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1 for information on the nTDSDSA object. See [\[MS-ADTS\]](#) sections [3.1.1.1.11](#) and [7.1](#) for information on FSMO roles and the fSMORoleOwner attribute. If the domainDNS!fSMORoleOwner or server!dnsHostName attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/PDCEmulator element.

3.4.4.2.3.1.16 ActiveDirectoryDomain/RIDMaster

The **RIDMaster** element contains the FQDN (1) of the server holding the RID Master FSMO role for this domain. See [\[MS-ADTS\]](#) section 7.1.5.

```
<xs:element name="RIDMaster" nillable="true" type="xs:string" />
```

The **RIDMaster** element is populated from the server!dnsHostName attribute on the parent of the RID Master's nTDSDSA object. The RID Master's nTDSDSA object is the object referenced by the rIDManager!fSMORoleOwner attribute on the rIDManager object referenced by the domain NC root's domainDNS!rIDManagerReference attribute. See [\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1 for information on the nTDSDSA object. See [\[MS-ADTS\]](#) sections [3.1.1.1.11](#) and [7.1](#) for information on FSMO roles and the fSMORoleOwner attribute. If the domainDNS!rIDManagerReference, rIDManager!fSMORoleOwner, or server!dnsHostName attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomain/RIDMaster element.

3.4.4.2.3.1.17 ActiveDirectoryDomain/SystemsContainer

The **SystemsContainer** element contains the distinguished name of the System Container ([\[MS-ADTS\]](#) section 7.1.1.4.11) directory object of the domain.

```
<xs:element name="SystemsContainer" nillable="true" type="xs:string" />
```

The **SystemsContainer** element is populated from the DN portion ([\[MS-ADTS\]](#) section 7.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object that meets the following criteria:

- The Binary portion of the value is equal to GUID_SYSTEMS_CONTAINER_W. See [\[MS-ADTS\]](#) section 7.1.1.4.

If multiple values satisfy the above requirements, then only one of the values **MUST** be chosen, but any of the values **MAY** be chosen [<33>](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryDomain/SystemsContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.1.18 ActiveDirectoryDomain/UsersContainer

The **UsersContainer** element contains the distinguished name of the Users Container ([\[MS-ADTS\]](#) section 7.1.1.4.6) directory object of the domain.

```
<xs:element name="UsersContainer" nillable="true" type="xs:string" />
```

The **UsersContainer** element is populated from the DN portion ([\[MS-ADTS\]](#) section 7.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object that meets the following criteria:

- The Binary portion of value of the value is equal to GUID_USERS_CONTAINER_W. See [\[MS-ADTS\]](#) section 7.1.1.4.

If multiple values satisfy the above requirements, then only one of the values MUST be chosen, but any of the values MAY be chosen [<34>](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryDomain/UsersContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.2 ActiveDirectoryPartition

The **ActiveDirectoryPartition** complex type extends the [ActiveDirectoryObject](#) complex type (section [2.2.4.1](#)).

```
<xs:complexType name="ActiveDirectoryPartition">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:ActiveDirectoryObject">
      <xs:sequence>
        <xs:element
          name="DNSRoot"
          nillable="true"
          type="xs:string" />
        <xs:element
          name="DeletedObjectsContainer"
          nillable="true"
          type="xs:string" />
        <xs:element
          name="LostAndFoundContainer"
          nillable="true"
          type="xs:string" />
        <xs:element
          name="QuotasContainer"
          nillable="true"
          type="xs:string" />
        <xs:element
          name="ReadOnlyReplicaDirectoryServer"
          nillable="true"
          type="sera:ArrayOfstring" />
        <xs:element
          name="ReplicaDirectoryServer"
          nillable="true"
          type="sera:ArrayOfstring" />
        <xs:element
          name="SubordinateReferences"
          nillable="true"
          type="sera:ArrayOfstring" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.2.3.2.1 ActiveDirectoryPartition/DeletedObjectsContainer

The **DeletedObjectsContainer** element contains the distinguished name of the container object that contains deleted objects (see [\[MS-ADTS\]](#) section 7.1.1.4.2) of the domain.

```
<xs:element name="DeletedObjectsContainer" nillable="true" type="xs:string" />
```

The **DeletedObjectsContainer** element is populated from the DN portion ([\[MS-ADTS\]](#) section 7.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object which meets the following criteria:

- The Binary portion of the value is equal to GUID_DELETED_OBJECTS_CONTAINER_W. See [\[MS-ADTS\]](#) section 7.1.1.4.

If multiple values satisfy the above requirements, then only one of the values MUST be chosen, but any of the values MAY be chosen [<35>](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryPartition/DeletedObjectsContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#)

3.4.4.2.3.2.2 ActiveDirectoryPartition/DistinguishedName

The **DistinguishedName** element contains the distinguished name of the domain.

```
<xs:element name="DistinguishedName" nillable="true" type="xs:string" />
```

The **DistinguishedName** element is populated from the domainDNS!distinguishedName attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.4). If the domainDNS!distinguishedName attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryPartition/DistinguishedName.

3.4.4.2.3.2.3 ActiveDirectoryPartition/DNSRoot

The **DNSRoot** element contains the FQDN (2) of the **root domain** of the **domain tree** that contains the domain.

```
<xs:element name="DNSRoot" nillable="true" type="xs:string" />
```

The DNSRoot element is populated from the crossRef!dnsRoot attribute on the domain crossRef object ([\[MS-ADTS\]](#) section 7.1.1.2.1.1.4) that meets the following criteria:

- The crossRef!ncName attribute is equal to the rootDSE!defaultNamingContext attribute and the client has access rights to read the attributes.
- The crossRef!systemFlags attribute's FLAG_CR_NTDS_NC and FLAG_CR_NTDS_DOMAIN bits are set to 1 and the client has access rights to read the attribute. See [\[MS-ADTS\]](#) section 7.1.1.2.1.1.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef objects satisfy the above requirements, the server returns the SOAP fault described in section [3.4.4.2.8.1](#). If multiple crossRef objects satisfy the above requirements, then only one of the crossRef object MUST be chosen, but any of the objects MAY be chosen [<36>](#) in constructing the response. If the crossRef!dnsRoot attribute on the chosen crossRef object that satisfies the above requirements has multiple values, then only one of the values MUST be chosen, but any of the values MAY be chosen [<37>](#) to populate the element. If the crossRef!dnsRoot attribute on the chosen crossRef object that satisfies the above requirements is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryPartition/DNSRoot element.

3.4.4.2.3.2.4 ActiveDirectoryPartition/LostAndFoundContainer

The **LostAndFoundContainer** element contains the distinguished name of the Lost And Found Container ([\[MS-ADTS\]](#) section 7.1.1.4.1) directory object of the domain.

```
<xs:element name="LostAndFoundContainer" nillable="true" type="xs:string" />
```

The LostAndFoundContainer element is populated from the DN portion ([\[MS-ADTS\]](#) section 7.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object that meets the following criteria:

- The Binary portion of the value is equal to GUID_LOSTANDFOUND_CONTAINER_W. See [\[MS-ADTS\]](#) section 7.1.1.4.

If multiple values satisfy the above requirements, then only one of the values MUST be chosen, but any of the values MAY be chosen [<38>](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryPartition/LostAndFoundContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.2.5 ActiveDirectoryPartition/Name

The **Name** element contains the name of the domain.

```
<xs:element name="Name" nillable="true" type="xs:string" />
```

The **Name** element is populated from the domainDNS!name attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). If the domainDNS!name attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryPartition/Name element.

3.4.4.2.3.2.6 ActiveDirectoryPartition/ObjectClass

The **ObjectClass** element contains the most-derived object class of the directory object that represents the naming context for this domain.

```
<xs:element name="ObjectClass" nillable="true" type="xs:string" />
```

The **ObjectClass** element is populated from the domainDNS!objectClass multivalued attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). This element contains the most specific structural object class ([\[MS-ADTS\]](#) section 3.1.1.4) among the set of classes in the multivalued

domainDNS!objectClass attribute's values. If the domainDNS!objectClass attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.2.7 ActiveDirectoryPartition/ObjectGuid

The **ObjectGuid** element contains the GUID representing this domain.

```
<xs:element name="ObjectGuid" type="ser:guid" />
```

The **ObjectGuid** element is populated from the domainDNS!objectGUID attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). If the domainDNS!objectGUID attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server populates the ActiveDirectoryPartition /ObjectGuid element with a value of 00000000-0000-0000-0000-000000000000.

3.4.4.2.3.2.8 ActiveDirectoryPartition/ObjectTypes

The **ObjectTypes** element contains the full object class hierarchy of the directory object that represents the naming context for this domain.

```
<xs:element name="ObjectTypes" nillable="true" type="sera:ArrayOfstring" />
```

The **ObjectTypes** element is populated from the domainDNS!objectClass multivalued attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). The values in the array are ordered in the same sequence as values in the objectClass attribute ([\[MS-ADTS\]](#) section 3.1.1.2.4.3). If the domainDNS!objectClass attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.2.9 ActiveDirectoryPartition/SubordinateReferences

The **SubordinateReferences** element contains an array of distinguished names of subordinate references (referrals) (see [\[RFC3296\]](#)) that this directory service returns.

```
<xs:element  
  name="SubordinateReferences" nillable="true" type="sera:ArrayOfstring" />
```

The **SubordinateReferences** element is populated from the domainDNS!subRefs multivalued attribute on the domain NC root object ([\[MS-ADTS\]](#) section 7.1.1.1.4). If the domainDNS!subRefs attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryPartition/SubordinateReferences element.

3.4.4.2.3.2.10 ActiveDirectoryPartition/QuotasContainer

The **QuotasContainer** element contains the distinguished name of the NTDS Quotas Container ([\[MS-ADTS\]](#) section 7.1.1.4.3) directory object of the domain.

```
<xs:element name="QuotasContainer" nillable="true" type="xs:string" />
```

The **QuotasContainer** element is populated from the DN portion ([\[MS-ADTS\]](#) section 7.1.1.1.4) of one of the values of the multivalued attribute domainDNS!wellKnownObjects on the domain NC root object, which meets the following criteria:

- The Binary portion of the value is equal to GUID_NTDS_QUOTAS_CONTAINER_W. See [[MS-ADTS](#)] section 7.1.1.1.4.

If multiple values satisfy the above requirements, then only one of the values MUST be chosen, but any of the values MAY be chosen [<39>](#) to populate the element. If no values satisfy the above requirements, the server returns a null ActiveDirectoryDomain/QuotasContainer element. If the domainDNS!wellKnownObjects attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.2.8.1](#).

3.4.4.2.3.2.11 ActiveDirectoryPartition/ReadOnlyReplicaDirectoryServer

The **ReadOnlyReplicaDirectoryServer** element contains the FQDNs (1) of the read-only directory servers in the domain.

```
<xs:element
  name="ReadOnlyReplicaDirectoryServer" nillable="true"
  type="sera:ArrayOfstring" />
```

The **ReadOnlyReplicaDirectoryServer** element is populated from the server!dnsHostName attribute on the parent object of all nTDSDSA objects ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) which meet the following criteria:

- The objectClass attribute of the object is nTDSDSA and the client has access rights to read the attribute.
- The nTDSDSA!msDS-hasDomainNCs attribute is equal to the rootDSE!defaultNamingContext attribute ([\[MS-ADTS\]](#) section 3.1.1.3.2.3) and the client has access rights to read the attributes.
- The nTDSDSA!objectCategory attribute ([\[MS-ADTS\]](#) section 7.1.6.7.6) refers to the classSchema object for the nTDSDSRO class and the client has access rights to read the attribute.
- The server!dnsHostName attribute is present on the parent of the nTDSDSA object and the client has access rights to read the attribute

If no nTDSDSA objects satisfy the above requirements, the server returns a null ActiveDirectoryPartition/ReadOnlyReplicaDirectoryServer element.

3.4.4.2.3.2.12 ActiveDirectoryPartition/ReferenceServer

When the directory service is AD DS, the **ReferenceServer** element is the FQDN of the domain for this ActiveDirectoryPartition directory object. If the directory service is AD LDS, this element is a string "servername: port", where *servername* is the name of the AD LDS server hosting the NC for this ActiveDirectoryPartition directory object, and *port* is the base-10 representation of the TCP port number that the AD LDS instance is using for LDAP.

```
<xs:element name="ReferenceServer" nillable="true" type="xs:string" />
```

The **ReferenceServer** element is populated as per the processing rules documented in section [3.1.4.2.2](#).

3.4.4.2.3.2.13 ActiveDirectoryPartition/ReplicaDirectoryServer

The **ReplicaDirectoryServer** element contains an array of FQDNs (1) representing the servers that replicate this domain, including the target server itself.

```
<xs:element name="ReplicaDirectoryServer" nillable="true" type="sera:ArrayOfstring" />
```

The **ReplicaDirectoryServer** element is populated from the server!dnsHostName attribute on the parent object of all nTDSDSA objects ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) that meet the following three criteria:

- The objectClass attribute of the object is nTDSDSA and the client has access rights to read the attribute.
- The nTDSDSA!msDS-hasDomainNCs attribute is equal to the rootDSE!defaultNamingContext attribute ([\[MS-ADTS\]](#) section 3.1.1.3.2.3) and the client has access rights to read the attributes.
- The nTDSDSA!objectCategory attribute ([\[MS-ADTS\]](#) section 7.1.6.7.6) refers to the classSchema object for the nTDSDSA class and the client has access rights to read the attribute.
- The server!dnsHostName attribute is present on the parent of the nTDSDSA object and the client has access rights to read the attribute.

If no nTDSDSA objects satisfy the above requirements, the server returns a null ActiveDirectoryPartition/ReplicaDirectoryServer element.

3.4.4.2.3.3 GetADDomainFault

The **GetADDomainFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [GetADDomain](#) request.

```
<xs:complexType name="GetADDomainFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.2.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.4.4.2.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.4.4.2.6 Groups

There are no XML schema group definitions specific to this operation.

3.4.4.2.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.4.4.2.8 GetADDomain SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [GetADDomain](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault Subcode | Description |
|------------------|--|
| GetADDomainFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| GetADDomainFault | Directory Error: Implementation specific errors. |
| GetADDomainFault | Bad Principal Error: The request contained a nonexistent domain. |
| GetADDomainFault | Authentication Error: The server was unable to authenticate using the client's security context. |

3.4.4.2.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, null, or unknown **Server** element (section [3.1.4](#)).

- The SOAP header contains a **Server** element that specifies an AD LDS instance.
- The domainDNS!wellKnownObjects attribute on the domain NC root object is not present or cannot be read due to the client lacking access rights to read the attribute. See sections [3.4.4.2.3.1.4](#), [3.4.4.2.3.1.5](#), [3.4.4.2.3.1.8](#), [3.4.4.2.3.1.17](#), [3.4.4.2.3.1.18](#), [3.4.4.2.3.2.1](#), [3.4.4.2.3.2.4](#), and [3.4.4.2.3.2.10](#).
- No crossRef objects satisfy the requirements given in sections [3.4.4.2.3.1.9](#), [3.4.4.2.3.1.13](#), and [3.4.4.2.3.2.3](#) for populating the Forest, NetBIOSName, and DNSRoot elements.
- If, during the processing of the request, the server fails to populate the ObjectClass or ObjectTypes elements of the ActiveDirectoryPartiton as per the processing rules documented in sections [3.4.4.2.3.2.6](#) and [3.4.4.2.3.2.8](#).

Then the server MUST return a SOAP fault with a [GetADDomainFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADDomainFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADDomainFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADDomainFault> </soapenv:Detail> </pre> |

3.4.4.2.8.2 Directory Error

If the client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request, then the server MUST return a SOAP fault with a [GetADDomainFault](#) fault subcode. The fault detail SHOULD [≤40>](#) be as specified in the following table.

| Field | Value |
|-----------|------------------|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADDomainFault |

| Field | Value |
|----------|--|
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADDomainFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADDomainFault> </soapenv:Detail> </pre> |

3.4.4.2.8.3 Bad Principal Error

If the client sends a request that the server is unable to complete because it cannot populate the `ObjectClass` or `ObjectTypes` elements of the `ActiveDirectoryObject` as per the processing rules documented in [3.1.4.2.2](#), then the server MUST return a SOAP fault with a [GetADDomainFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADDomainFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADDomainFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </GetADDomainFault> </soapenv:Detail> </pre> |

3.4.4.2.8.4 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a GetADDomainFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADDomainFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre><soapenv:Detail> <GetADDomainFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADDomainFault> </soapenv:Detail></pre> |

3.4.4.3 GetADDomainController

A server processes a GetADDomainController request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the GetADDomainController SOAP header and that specifies the following URI as the SOAP action:

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomainController

This operation is specified by the following WSDL.

```
<wsdl:operation name="GetADDomainController">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomainController"
    name="GetADDomainControllerRequest"
    message="ca:GetADDomainControllerRequest" />
  <wsdl:output
```

```

        wsam:Action=
"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDo
mainControllerResponse"
        name="GetADDomainControllerResponse"
        message="ca:GetADDomainControllerResponse" />
    <wsdl:fault
        wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
        name="GetADDomainControllerFault"
        message=
"ca:TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage" />
</wsdl:operation>

```

The GetADDomainController custom action retrieves information for the domain controllers in the domain that contain the directory service specified in the [GetADDomainControllersRequest \(section 3.4.4.3.1.1\)](#) SOAP header [Server \(section 2.2.3.5\)](#) element. If the Server element specifies an AD LDS instance, then the server MUST return a fault, as specified in section [3.4.4.3.8.1](#). Upon success, the server MUST return a [GetADDomainControllerResponse \(section 3.4.4.3.2.4\)](#) element with the [GetADDomainControllerResponse/DomainControllers \(section 3.4.4.3.2.5\)](#) element (including child elements) filled in.

Upon receiving a GetADDomainControllerRequest message, the GetADDomainController custom action retrieves information on all domain controllers in the domain as specified by the input array of distinguished names of **nTDSDSA objects** (see [\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) in the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) element.

For every domain controller represented by the GetADDomainControllerRequest/NtdsSettingsDN array, the GetADDomainController custom action constructs an [ActiveDirectoryDomainController \(section 3.4.4.3.3.2\)](#) object (with all its elements populated) and adds it to the GetADDomainControllerResponse/DomainControllers array. When complete, the GetADDomainControllerResponse element MUST be returned.

The number and order of ActiveDirectoryDomainController elements in the GetADDomainControllerResponse/DomainControllers array MUST match the number and order of **GetADDomainControllerRequest/NtdsSettingsDN** elements specified in the request.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section [3.4.4.3.8](#).

3.4.4.3.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|--|---|
| GetADDomainControllerRequest | Retrieves information about domain controllers. |
| GetADDomainControllerResponse | Contains a GetADDomainControllerResponse element. |
| TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage | Contains a GetADDomainControllerFault element. |

3.4.4.3.1.1 GetADDomainControllerRequest

The GetADDomainControllerRequest message is sent by the client to the server to retrieve information about domain controllers in the domain as specified by the input array [GetADDomainControllerRequest/NtdsSettingsDN](#).

```
<wsdl:message name="GetADDomainControllerRequest">
  <wsdl:part name="parameters" element="ca:GetADDomainControllerRequest" />
</wsdl:message>
```

parameters: A **GetADDomainControllerRequest** element, as specified in section [3.4.4.3.2.2](#).

3.4.4.3.1.2 GetADDomainControllerResponse

The GetADDomainControllerResponse message contains a **GetADDomainControllerResponse** element with the server response to the [GetADDomainController](#) message.

```
<wsdl:message name="GetADDomainControllerResponse">
  <wsdl:part name="parameters" element="ca:GetADDomainControllerResponse" />
</wsdl:message>
```

parameters: A [GetADDomainControllerResponse](#) element, as specified in section [3.4.4.3.2.4](#).

3.4.4.3.1.3

TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage

The TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage message contains a [GetADDomainControllerFault](#) element.

```
<wsdl:message name=
"TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADDomainControllerFault" />
</wsdl:message>
```

detail: A GetADDomainControllerFault element, as specified in section [3.4.4.3.2.1](#).

3.4.4.3.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|-------------------------------|--|
| GetADDomainControllerFault | Forms the body of a GetADDomainControllerFault message. |
| GetADDomainControllerRequest | Forms the body of the GetADDomainController request. |
| GetADDomainControllerResponse | Contains the response to a GetADDomainControllerRequest. |

3.4.4.3.2.1 GetADDomainControllerFault

The **GetADDomainControllerFault** element forms the body of a GetADDomainControllerFault message returned by the server in response to a client request, and MUST be returned when the request could not be performed. See section [3.4.4.3.3.5](#) for type details.

```
<xs:element name="GetADDomainControllerFault"
  nillable="true"
  type="ca:GetADDomainControllerFault" />
```

3.4.4.3.2.2 GetADDomainControllerRequest

The **GetADDomainControllerRequest** element is the body of the [GetADDomainController](#) request and contains one child element, the **NtdsSettingsDN** element (section [3.4.4.3.2.3](#)), representing an array of distinguished names of nTDSDSA objects ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) of the domain controllers on which to retrieve information.

```
<xs:element name="GetADDomainControllerRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0"
        name="NtdsSettingsDN"
        nillable="true"
        type="sera:ArrayOfstring" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.4.4.3.2.3 GetADDomainControllerRequest/NtdsSettingsDN

The **NtdsSettingsDN** element contains an array of distinguished names specifying the nTDSDSA objects ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) of the domain controllers on which to retrieve information.

```
<xs:element minOccurs="0" name="NtdsSettingsDN" nillable="true" type="sera:ArrayOfstring" />
```

The **NtdsSettingsDN** elements refers to domain controller nTDSDSA objects in the config NC of the directory instance indicated by the server element in the message header (section [2.2.3.5](#)).

3.4.4.3.2.4 GetADDomainControllerResponse

The <GetADDomainControllerResponse> element contains the response to a [GetADDomainControllerRequest](#). It defines one child element, [GetADDomainControllerResponse/DomainControllers \(section 3.4.4.3.2.5\)](#), representing an array of [ActiveDirectoryDomainController](#) elements, as specified in section [3.4.4.3.3.2](#).

The number and order of **ActiveDirectoryDomainController** elements in the **GetADDomainControllerResponse/DomainControllers** array MUST match the number and order of [GetADDomainControllerRequest/NtdsSettingsDN](#) elements specified in the request.

```
<xs:element name="GetADDomainControllerResponse">
  <xs:complexType>
```

```

<xs:sequence>
  <xs:element
    minOccurs="0"
    name="DomainControllers"
    nillable="true"
    type="ca:ArrayOfActiveDirectoryDomainController" />
</xs:sequence>
</xs:complexType>
</xs:element>

```

3.4.4.3.2.5 GetADDomainControllerResponse/DomainControllers

The **DomainControllers** element defines an array of **ActiveDirectoryDomainController** elements (section [3.4.4.3.3.2](#)), each representing a result for a domain controller. The DomainControllers array **MUST** be of the same size and order as the [GetADDomainControllerRequest/NtdsSettingsDN](#) (section [3.4.4.3.2.3](#)) input.

```

<xs:element
  minOccurs="0" name="DomainControllers" nillable="true"
  type="ca:ArrayOfActiveDirectoryDomainController" />

```

3.4.4.3.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|---|---|
| ActiveDirectoryDirectoryServer | The base type for the ActiveDirectoryDomainController complex type; a representation of a server. |
| ActiveDirectoryDomainController | Extends the ActiveDirectoryDirectoryServer base complex type; a representation of a domain controller. |
| ArrayOfActiveDirectoryDomainController | An array of ActiveDirectoryDomainController elements. |
| ArrayOfActiveDirectoryOperationMasterRole | An array of ActiveDirectoryOperationMasterRole elements. |
| GetADDomainControllerFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the GetADDomainController request. |

3.4.4.3.3.1 ActiveDirectoryDirectoryServer

The **ActiveDirectoryDirectoryServer** is the base type for the **ActiveDirectoryDomainController** complex type (see section [3.4.4.3.3.2](#)). It is a representation of a server.

```

<xs:complexType name="ActiveDirectoryDirectoryServer">
  <xs:sequence>
    <xs:element name="DefaultPartition" nillable="true" type="xs:string" />
    <xs:element name="HostName" nillable="true" type="xs:string" />
    <xs:element name="InvocationId" type="ser:guid" />
    <xs:element name="LdapPort" type="xs:int" />
    <xs:element name="NTDSSettingsObjectDN" nillable="true" type="xs:string" />
  </xs:sequence>
</xs:complexType>

```

```

<xs:element name="Name" nillable="true" type="xs:string" />
<xs:element name="OperationMasterRole"
  nillable="true"
  type="ca:ArrayOfActiveDirectoryOperationMasterRole" />
<xs:element name="Partitions" nillable="true" type="sera:ArrayOfstring" />
<xs:element name="ServerObjectDN" nillable="true" type="xs:string" />
<xs:element name="ServerObjectGuid" type="ser:guid" />
<xs:element name="Site" nillable="true" type="xs:string" />
<xs:element name="SslPort" type="xs:int" />
</xs:sequence>
</xs:complexType>

```

3.4.4.3.3.1.1 ActiveDirectoryDirectoryServer/DefaultPartition

The **DefaultPartition** element contains the distinguished name of the domain naming context of the directory service.

```

<xs:element name="DefaultPartition" nillable="true" type="xs:string" />

```

The **DefaultPartition** element is populated from the **nTDSDSA!msDS-hasDomainNCs** attribute on the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **nTDSDSA!msDS-hasDomainNCs** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDirectoryServer/DefaultPartition** element.

3.4.4.3.3.1.2 ActiveDirectoryDirectoryServer/HostName

The **HostName** element contains the FQDN (1) of the domain controller.

```

<xs:element name="HostName" nillable="true" type="xs:string" />

```

The **HostName** element is populated from the **computer!dnsHostName** attribute on the Directory Server's computer object. The Directory Server's computer object is referenced by the **server!serverReference** attribute ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1) on the parent of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **server!serverReference** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the **computer!dnsHostName** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDirectoryServer/HostName** element.

3.4.4.3.3.1.3 ActiveDirectoryDirectoryServer/InvocationId

The **InvocationId** element contains the GUID that represents the domain containing the domain controller.

```

<xs:element name="InvocationId" type="ser:guid" />

```

The **InvocationId** element is populated from the **nTDSDSA!invocationId** attribute of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **nTDSDSA!invocationId** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server populates the

ActiveDirectoryDirectoryServer/InvocationId element with a value of 00000000-0000-0000-0000-000000000000.

3.4.4.3.3.1.4 ActiveDirectoryDirectoryServer/LdapPort

The **LdapPort** contains the TCP port number, as a base-10 integer, that the directory service on that domain controller is using.

```
<xs:element name="LdapPort" type="xs:int" />
```

The **LdapPort** element is populated from the **nTDSDSA!msDS-PortLDAP** attribute of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **nTDSDSA!msDs-PortLDAP** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server populates the **ActiveDirectoryDirectoryServer/LdapPort** element with a value of "389".

3.4.4.3.3.1.5 ActiveDirectoryDirectoryServer/Name

The **Name** element contains the NetBIOS name of this domain controller.

```
<xs:element name="Name" nillable="true" type="xs:string" />
```

The **Name** element is populated from the **computer!sAMAccountName** attribute, with any trailing "\$" omitted, on the Directory Server's computer object. The Directory Server's computer object is referenced by the **server!serverReference** attribute ([\[MS-ADTS\] section 7.1.1.2.2.1.2.1](#)) on the parent object of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **server!serverReference** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the **computer!sAMAccountName** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDirectoryServer/Name** element.

3.4.4.3.3.1.6 ActiveDirectoryDirectoryServer/NTDSSettingsObjectDN

The **NTDSSettingsObjectDN** contains the distinguished name of the NTDSSettingsObject directory object that represents this domain controller.

```
<xs:element name="NTDSSettingsObjectDN" nillable="true" type="xs:string" />
```

The **NTDSSettingsObjectDN** element is populated from the **nTDSDSA!distinguishedName** attribute on the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **nTDSDSA!distinguishedName** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server retruns a null **ActiveDirectoryDirectoryServer/NTDSSettingsObjectDn** element.

3.4.4.3.3.1.7 ActiveDirectoryDirectoryServer/OperationMasterRole

The **OperationMasterRole** element contains an array of **ActiveDirectoryOperationMasterRole** (section [2.2.5.3](#)) elements representing the FSMO roles held by this domain controller.

```
<xs:element
```

```
name="OperationMasterRole" nillable="true"
type="ca:ArrayOfActiveDirectoryOperationMasterRole" />
```

The **OperationMasterRole** element is populated by comparing the **nTDSDSA!distinguishedName** attribute on the nTDSDSA object specified in the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element with the FSMO roles held in the domain. The **fsmoRoleOwner** attribute on each of the following objects contains the DN of the FSMO role holder. If the DN of the FSMO role holder is equal to the **nTDSDSA!distinguishedName** attribute, the **OperationMasterRole** array contains a corresponding <ActiveDirectoryOperationMasterRole> element. If the **nTDSDSA!distinguishedName** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDirectoryServer/OperationMasterRole** element. If the **nTDSDSA!distinguishedName** attribute is not equal to any of the **fsmoRoleOwner** attributes, either because the **fsmoRoleOwner** attribute has a different value or because the attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns an empty **ActiveDirectoryDirectoryServer/OperationMasterRole** element.

The fsmoRoleOwner attributes, and the corresponding FSMO role, are listed in the following table.

| Object | Object!attribute | nTDSDSA object |
|---------------------------------------|------------------------------------|----------------------|
| Domain NC | domainDNS!fsmoRoleOwner | PDCEmulator |
| Domain NC!rIDManagerReference | rIDManager!fsmoRoleOwner | RIDMaster |
| Infrastructure container in Domain NC | infrastructureUpdate!fsmoRoleOwner | InfrastructureMaster |
| Schema NC | dMD!fsmoRoleOwner | SchemaMaster |
| Config NC | crossRefContainer!fsmoRoleOwner | DomainNamingMaster |

3.4.4.3.3.1.8 ActiveDirectoryDirectoryServer/Partitions

The **Partitions** element contains an array of distinguished names of all naming contexts hosted by the directory service on the domain controller.

```
<xs:element name="Partitions" nillable="true" type="sera:ArrayOfstring" />
```

The **Partitions** element is populated from the union, with all duplicates removed, of the **nTDSDSA!msDS-hasMasterNCs** multivalued attribute, the **nTDSDSA!msDS-hasFullReplicaNCs** multivalued attribute and the **nTDSDSA!hasPartialReplicaNCs** multivalued attribute on the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the union of these attribute values is empty because the **nTDSDSA!msDS-hasMasterNCs**, **nTDSDSA!msDS-hasFullReplicaNCs** and **nTDSDSA!hasPartialReplicaNCs** attributes are not present or cannot be read due to the client lacking access rights to read the attributes, the server returns an empty **ActiveDirectoryDirectoryServer/Partitions** element.

3.4.4.3.3.1.9 ActiveDirectoryDirectoryServer/ServerObjectDN

The **ServerObjectDN** contains the distinguished name of the server that is the domain controller hosting the directory service.

```
<xs:element name="ServerObjectDN" nillable="true" type="xs:string" />
```

The **ServerObjectDN** element is populated from the **server!distinguishedName** attribute on the parent of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **server!distinguishedName** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDirectoryServer/ServerObjectDN** element.

3.4.4.3.3.1.10 ActiveDirectoryDirectoryServer/ServerObjectGuid

The **ServerObjectGuid** contains a GUID that represents the server that is the domain controller hosting the directory service.

```
<xs:element name="ServerObjectGuid" type="ser:guid" />
```

The **ServerObjectGuid** element is populated from the **server!objectGUID** attribute on the parent of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **server!objectGUID** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server populates the **ActiveDirectoryDirectoryServer/ServerObjectGuid** element with a value of 00000000-0000-0000-0000-000000000000.

3.4.4.3.3.1.11 ActiveDirectoryDirectoryServer/Site

The **Site** element contains the distinguished name (DN) of the site in which this domain controller is located.

```
<xs:element name="Site" nillable="true" type="xs:string" />
```

The **Site** element is populated from the **nTDSDSA!name** attribute on the grandparent of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **nTDSDSA!name** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDirectoryServer/Site** element. If the server returns a null [ActiveDirectoryDirectoryServer/ServerObjectDN \(section 3.4.4.3.3.1.9\)](#) element, then the server also returns a null **ActiveDirectoryDirectoryServer/Site** element.

3.4.4.3.3.1.12 ActiveDirectoryDirectoryServer/SslPort

The **SslPort** element contains the TCP port number of the **SSL** port, as a base-10 integer, that the directory service on that domain controller is using.

```
<xs:element name="SslPort" type="xs:int" />
```

The **SslPort** element is populated from the **nTDSDSA!msDs-PortSSL** attribute of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the **nTDSDSA!msDs-PortSSL** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server populates the **ActiveDirectoryDirectoryServer/SslPort** element with a value of "636".

3.4.4.3.3.2 ActiveDirectoryDomainController

An **ActiveDirectoryDomainController** complex type extends the [ActiveDirectoryDirectoryServer](#) base complex type. It is a representation of a domain controller.

```
<xs:complexType name="ActiveDirectoryDomainController">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:ActiveDirectoryDirectoryServer">
      <xs:sequence>
        <xs:element name="ComputerDN" nillable="true" type="xs:string" />
        <xs:element name="Domain" nillable="true" type="xs:string" />
        <xs:element name="Enabled" type="xs:boolean" />
        <xs:element name="Forest" nillable="true" type="xs:string" />
        <xs:element name="IsGlobalCatalog" type="xs:boolean" />
        <xs:element name="IsReadOnly" type="xs:boolean" />
        <xs:element name="OSHotFix" nillable="true" type="xs:string" />
        <xs:element name="OSName" nillable="true" type="xs:string" />
        <xs:element name="OSServicepack" nillable="true" type="xs:string" />
        <xs:element name="OSVersion" nillable="true" type="xs:string" />
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.3.3.2.1 ActiveDirectoryDomainController/ComputerDN

The **ComputerDN** element contains the distinguished name of the domain controller.

```
<xs:element name="ComputerDN" nillable="true" type="xs:string" />
```

The **ComputerDN** element is populated from the **computer!distinguishedName** attribute on the Directory Server's computer object. The Directory Server's computer object is referenced by the **server!serverReference** attribute ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1) on the parent of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN](#) (section [3.4.4.3.2.3](#)) input parameter element. If the **server!serverReference** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the **computer!distinguishedName** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDomainController/ComputerDN** element.

3.4.4.3.3.2.2 ActiveDirectoryDomainController/Domain

The **Domain** element contains the FQDN (2) of the domain containing the domain controller.

```
<xs:element name="Domain" nillable="true" type="xs:string" />
```

The **Domain** element is populated from the **nTDSDSA!msDS-hasDomainNCs** attribute on the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN](#) (section [3.4.4.3.2.3](#)) input parameter element, converted from a DN to a canonical name following the syntactic transformation described in [\[MS-ADTS\]](#) section 3.1.1.1.7, but with any trailing "/" omitted. If the **nTDSDSA!msDS-hasDomainNCs** attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null **ActiveDirectoryDomainController/Domain** element.

3.4.4.3.2.3 ActiveDirectoryDomainController/Enabled

The **Enabled** element contains a Boolean element indicating that the domain controller's computer account is enabled (TRUE) or is disabled (FALSE).

```
<xs:element name="Enabled" type="xs:boolean" />
```

The **Enabled** element is populated from the ADS_UF_ACCOUNT_DISABLE bit of the computer!userAccountControl attribute on the directory server's computer object. The Directory Server's computer object is referenced by the server!serverReference attribute ([\[MS-ADTS\] section 7.1.1.2.2.1.2.1](#)) on the parent of the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the server!serverReference attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the ADS_UF_ACCOUNT_DISABLE bit of the computer!userAccountControl attribute (see [\[MS-ADTS\] section 2.2.15](#)) is set to 1 and the client has access rights to read the attribute, the server populates the ActiveDirectoryDomainController/Enabled element with a value of FALSE; otherwise, the server populates the element with a value of TRUE.

3.4.4.3.2.4 ActiveDirectoryDomainController/Forest

The **Forest** element contains the FQDN (2) of the forest that contains the domain controller.

```
<xs:element name="Forest" nillable="true" type="xs:string" />
```

The **Forest** element is populated from the crossRef!dnsRoot attribute on the Configuration crossRef object ([\[MS-ADTS\] section 7.1.1.2.1.1.2](#)) in the config NC that meets the following criteria:

- The objectClass attribute of the object is crossRef and the client has access rights to read the attribute.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef object satisfies the above requirements, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the crossRef!dnsRoot attribute has multiple values, then only one of the values MUST be chosen, but any of the values MAY be chosen [<41>](#) to populate the element. If crossRef!dnsRoot is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomainController/Forest element.

3.4.4.3.2.5 ActiveDirectoryDomainController/IsGlobalCatalog

The **IsGlobalCatalog** element contains a Boolean indicating that the domain controller is a global catalog (TRUE) or is not a global catalog (FALSE).

```
<xs:element name="IsGlobalCatalog" type="xs:boolean" />
```

The **IsGlobalCatalog** element is populated from the NTDSDSA_OPT_IS_GC bit of the nTDSDSA!options attribute on the nTDSDSA object specified by the [GetADDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the NTDSDSA_OPT_IS_GC ([\[MS-ADTS\] section 7.1.1.2.2.1.2.1.1](#)) bit of the nTDSDSA!options attribute is set to 1 and the client has access rights to read the attribute, the server populates the

ActiveDirectoryDomainController/IsGlobalCatalog element with a value of TRUE; otherwise, the server populates the element with a value of FALSE.

3.4.4.3.3.2.6 ActiveDirectoryDomainController/IsReadOnly

The **IsReadOnly** element contains a Boolean indicating that the domain controller is a **read-only domain controller** (TRUE) or is not a read-only domain controller (FALSE).

```
<xs:element name="IsReadOnly" type="xs:boolean" />
```

The **IsReadOnly** element is populated from the nTDSDSA!objectCategory attribute on the nTDSDSA object specified by the [GetAddDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the nTDSDSA!objectCategory attribute ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) refers to the classSchema object for the nTDSDSARO class and the client has access rights to read the attribute, the server populates the ActiveDirectoryDomainController/IsReadOnly element with a value of TRUE; otherwise, the server populates the element with a value of FALSE.

3.4.4.3.3.2.7 ActiveDirectoryDomainController/OSHotFix

The **OSHotFix** element contains a string representing the hotfixes applied to this domain controller.

```
<xs:element name="OSHotFix" nillable="true" type="xs:string" />
```

The **OSHotFix** element is populated from the computer!operatingSystemHotFix attribute on the directory server's computer object. The directory server's computer object is referenced by the server!serverReference attribute ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1) on the parent of the nTDSDSA object specified by the [GetAddDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the server!serverReference attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the computer!operatingSystemHotFix attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomainController/OSHotFix element.

3.4.4.3.3.2.8 ActiveDirectoryDomainController/OSName

The **OSName** element contains the name of the operating system running on the domain controller.

```
<xs:element name="OSName" nillable="true" type="xs:string" />
```

The **OSName** element is populated from the computer!operatingSystem attribute on the Directory Server's computer object. The directory server's computer object is referenced by the server!serverReference attribute ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1) on the parent of the nTDSDSA object specified by the [GetAddDomainControllerRequest/NtdsSettingsDN \(section 3.4.4.3.2.3\)](#) input parameter element. If the server!serverReference attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the computer!operatingSystem attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomainController/OSName element.

3.4.4.3.3.2.9 ActiveDirectoryDomainController/OSServicepack

The **OSServicepack** element contains a string indicating the service pack that has been applied to the domain controller.

```
<xs:element name="OSServicepack" nillable="true" type="xs:string" />
```

The **OSServicepack** element is populated from the computer!operatingSystemServicePack attribute on the Directory Server's computer object. The Directory Server's computer object is referenced by the server!serverReference attribute ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1) on the parent of the nTDSDSA object specified by the [GetAddDomainControllerRequest/NtdsSettingsDN](#) (section [3.4.4.3.2.3](#)) input parameter element. If the server!serverReference attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the computer!operatingSystemServicePack attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomainController/OSServicePack element.

3.4.4.3.3.2.10 ActiveDirectoryDomainController/OSVersion

The **OSVersion** element contains the version of the operating system running on the domain controller.

```
<xs:element name="OSVersion" nillable="true" type="xs:string" />
```

The **OSVersion** element is populated from the computer!operatingSystemVersion attribute on the directory server's computer object. The Directory Server's computer object is referenced by the server!serverReference attribute ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1) on the parent of the nTDSDSA object specified by the [GetAddDomainControllerRequest/NtdsSettingsDN](#) (section [3.4.4.3.2.3](#)) input parameter element. If the server!serverReference attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns the SOAP fault described in section [3.4.4.3.8.1](#). If the computer!operatingSystemVersion attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryDomainController/OSVersion element.

3.4.4.3.3.3 ArrayOfActiveDirectoryDomainController

The **ArrayOfActiveDirectoryDomainController** complex type is an array of **ActiveDirectoryDomainController** (section [3.4.4.3.3.2](#)) elements, representing the domain controllers for which information was requested in the [GetAddDomainController](#) request.

```
<xs:complexType name="ArrayOfActiveDirectoryDomainController">
  <xs:sequence>
    <xs:element
      minOccurs="0"
      maxOccurs="unbounded"
      name="ActiveDirectoryDomainController"
      nillable="true"
      type="ca:ActiveDirectoryDomainController" />
  </xs:sequence>
</xs:complexType>
```

3.4.4.3.3.4 ArrayOfActiveDirectoryOperationMasterRole

The **ArrayOfActiveDirectoryOperationMasterRole** complex type is an array of **ActiveDirectoryOperationMasterRole** elements (section [2.2.5.3](#)), representing the FSMO roles that the domain controller holds.

```
<xs:complexType name="ArrayOfActiveDirectoryOperationMasterRole">
  <xs:sequence>
    <xs:element
      minOccurs="0"
      maxOccurs="unbounded"
      name="ActiveDirectoryOperationMasterRole"
      type="ca:ActiveDirectoryOperationMasterRole" />
  </xs:sequence>
</xs:complexType>
```

3.4.4.3.3.5 GetADDomainControllerFault

The **GetADDomainControllerFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [GetADDomainController](#) request.

```
<xs:complexType name="GetADDomainControllerFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.3.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.4.4.3.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.4.4.3.6 Groups

There are no XML schema group definitions specific to this operation.

3.4.4.3.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.4.4.3.8 GetADDomainController SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol GetADDomainController operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|----------------------------|--|
| GetADDomainControllerFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| GetADDomainControllerFault | Invalid NtdsSettingsDN Error: NtdsSettingsDN element contains values that are not the distinguished name of the nTDSDSA object in the config NC. |
| GetADDomainControllerFault | Directory Error: Implementation specific errors. |
| GetADDomainControllerFault | Authentication Error: The server was unable to authenticate using the client's security context. |

3.4.4.3.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, null, or unknown Server element (section [3.1.4](#)).
- The SOAP header contains a Server element that specifies an AD LDS instance.
- The request contains a null or not present [NtdsSettingsDN](#) element.
- The request contains an NtdsSettingsDN element containing at least one empty or null element.
- The server!serverReference attribute on the parent of the nTDSDSA object specified by the GetADDomainControllerRequest/NtdsSettingsDN (section 3.4.4.3.2.3) input parameter element is not present or cannot be read due to the client lacking access rights to read the attribute. See sections [3.4.4.3.3.1.2](#), [3.4.4.3.3.1.5](#), [3.4.4.3.3.2.1](#), [3.4.4.3.3.2.3](#), [3.4.4.3.3.2.7](#), [3.4.4.3.3.2.8](#), [3.4.4.3.3.2.9](#), and [3.4.4.3.3.2.10](#).

- No crossRef objects satisfy the requirements given in section [3.4.4.3.3.2.4](#) for populating the **Forest** element.

Then the server MUST return a SOAP fault with a [GetADDomainControllerFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADDomainControllerFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADDomainControllerFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADDomainControllerFault> </soapenv:Detail> </pre> |

3.4.4.3.8.2 Invalid NtdsSettingsDN Error

If the client sends a request with an invalid NtdsSettingsDN element (contains any values that are not the distinguished name of an nTDSDSA object in the config NC of the directory instance indicated by the server element in the message header), then the server MUST return a SOAP fault with a [GetADDomainControllerFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADDomainControllerFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADDomainControllerFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> </pre> |

| Field | Value |
|-------|--|
| | <pre> <Error>...</Error> <ShortError>...</ShortError> </GetADDomainControllerFault> </soapenv:Detail> </pre> |

3.4.4.3.8.3 Directory Error

If the client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request, then the server MUST return a SOAP fault with a [GetADDomainControllerFault](#) fault subcode. The fault detail SHOULD [<42>](#) be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADDomainControllerFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADDomainControllerFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADDomainControllerFault> </soapenv:Detail> </pre> |

3.4.4.3.8.4 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a GetADDomainControllerFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|--------|------------------|
| [Code] | soapenv:Receiver |

| Field | Value |
|-----------|--|
| [Subcode] | GetADDomainControllerFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <GetADDomainControllerFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADDomainControllerFault> </soapenv:Detail> </pre> |

3.4.4.4 GetADForest

A server processes a GetADForest request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message containing the GetADForest SOAP header and specifying the following URI as the SOAP action:

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADForest

This operation is specified by the following WSDL.

```

<wsdl:operation name="GetADForest">
  <wsdl:input
    wsam:Action=
"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADForest"
    name="GetADForestRequest"
    message="ca:GetADForestRequest" />
  <wsdl:output
    wsam:Action=
"http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADForestResponse"
    name="GetADForestResponse"
    message="ca:GetADForestResponse" />
  <wsdl:fault
    wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="GetADForestFault"
  />
</wsdl:operation>

```



```

    message="ca:TopologyManagement_GetADForest_GetADForestFault_FaultMessage" />
</wsdl:operation>

```

The GetADForest custom action retrieves information for the forest that contains the directory service specified in the GetADForestRequest SOAP header **Server** (section [2.2.3.5](#)) element. If the **Server** element specifies an AD LDS instance, then the server MUST return a fault as specified in section [3.4.4.4.8.1](#). Upon success, the server MUST return a **GetADForestResponse** (section [3.4.4.4.2.3](#)) with the **GetADForestResponse/Forest** (section [3.4.4.4.2.4](#)) element (including child elements) filled in.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section [3.4.4.4.8](#).

3.4.4.4.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|--|--|
| GetADForestRequest | Contains a SOAP header with a Server element specifying a directory service. |
| GetADForestResponse | The response to a successful GetADForest operation. |
| TopologyManagement_GetADForest_GetADForestFault_FaultMessage | Contains a GetADForestFault element. |

3.4.4.4.1.1 GetADForestRequest

The GetADForestRequest message is sent by the client to the server. It MUST contain a SOAP header with a [Server](#) element specifying a directory service.

```

<wsdl:message name="GetADForestRequest">
  <wsdl:part name="parameters" element="ca:GetADForestRequest" />
</wsdl:message>

```

parameters: A [GetADForestRequest](#) element, as specified in section [3.4.4.4.2.2](#).

3.4.4.4.1.2 GetADForestResponse

The GetADForestResponse message is returned in response to a successful [GetADForest](#) operation and contains a [GetADForestResponse](#) element with the server response to the [GetADForestRequest](#) message. The body of the response is a filled-in **GetADForestResponse/Forest** (section [3.4.4.4.2.4](#)) element containing information about the forest.

```

<wsdl:message name="GetADForestResponse">
  <wsdl:part name="parameters" element="ca:GetADForestResponse" />
</wsdl:message>

```

parameters: A GetADForestResponse element, as specified in section [3.4.4.4.2.3](#).

3.4.4.4.1.3 TopologyManagement_GetADForest_GetADForestFault_FaultMessage

The TopologyManagement_GetADForest_GetADForestFault_FaultMessage message contains a [GetADForestFault](#) element.

```
<wsdl:message name=
  "TopologyManagement_GetADForest_GetADForestFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADForestFault" />
</wsdl:message>
```

detail: A GetADForestFault element, as specified in section [3.4.4.4.2.1](#).

3.4.4.4.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|---------------------|---|
| GetADForestFault | Forms the body of a GetADForestFault message. |
| GetADForestRequest | Contains the request for a GetADForest operation. |
| GetADForestResponse | Contains the response to a GetADForestRequest. |

3.4.4.4.2.1 GetADForestFault

The **GetADForestFault** element forms the body of a GetADForestFault message returned by the server in response to a client request, and **MUST** be returned when the request could not be performed. See section [3.4.4.4.3.2](#) for type details.

```
<xs:element name="GetADForestFault"
  nillable="true" type="ca:GetADForestFault" />
```

3.4.4.4.2.2 GetADForestRequest

The **GetADForestRequest** element contains the request for a [GetADForest](#) operation. It contains no child elements and so conveys no information to the server other than that a GetADForest request was made.

```
<xs:element name="GetADForestRequest">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>
```

3.4.4.4.2.3 GetADForestResponse

The **GetADForestResponse** contains the response to a [GetADForestRequest](#). It contains one child element, **GetADForestResponse/Forest** (section [3.4.4.4.2.4](#)), that contains detail about the forest.

```
<xs:element name="GetADForestResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0"
        name="Forest"
        nillable="true"
        type="ca:ActiveDirectoryForest" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.4.4.4.2.4 GetADForestResponse/Forest

The **Forest** element contains the body of the response to the [GetADForestRequest](#) message. It contains the child elements specified in sections [3.4.4.4.3.1.1](#) through [3.4.4.4.3.1.12](#).

```
<xs:element minOccurs="0" name="Forest" nillable="true" type="ca:ActiveDirectoryForest" />
```

3.4.4.4.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|-----------------------|---|
| ActiveDirectoryForest | Defines the body of the response from the GetADForest method. |
| GetADForestFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the GetADForest request. |

3.4.4.4.3.1 ActiveDirectoryForest

The **ActiveDirectoryForest** complex type defines the body of the response from the [GetADForest](#) method.

```
<xs:complexType name="ActiveDirectoryForest">
  <xs:sequence>
    <xs:element
      name="ApplicationPartitions" nillable="true" type="sera:ArrayOfstring" />
    <xs:element
      name="CrossForestReferences" nillable="true" type="sera:ArrayOfstring" />
    <xs:element
      name="DomainNamingMaster" nillable="true" type="xs:string" />
    <xs:element
      name="Domains" nillable="true" type="sera:ArrayOfstring" />
    <xs:element
      name="ForestMode" type="xs:int" />
  </xs:sequence>
</xs:complexType>
```

```

<xs:element
  name="GlobalCatalogs" nillable="true" type="sera:ArrayOfstring" />
<xs:element
  name="Name" nillable="true" type="xs:string" />
<xs:element
  name="RootDomain" nillable="true" type="xs:string" />
<xs:element
  name="SPNSuffixes" nillable="true" type="sera:ArrayOfstring" />
<xs:element
  name="SchemaMaster" nillable="true" type="xs:string" />
<xs:element
  name="Sites" nillable="true" type="sera:ArrayOfstring" />
<xs:element
  name="UPNSuffixes" nillable="true" type="sera:ArrayOfstring" />
</xs:sequence>
</xs:complexType>

```

3.4.4.4.3.1.1 ActiveDirectoryForest/ApplicationPartitions

The **ApplicationPartitions** element contains an array of distinguished names of the **application NCs** in the forest.

```

<xs:element name="ApplicationPartitions" nillable="true" type="sera:ArrayOfstring" />

```

The **ApplicationPartitions** element is populated from the `crossRef!ncName` attribute of all `crossRef` objects ([\[MS-ADTS\]](#) section 7.1.1.2.1.1) under the Partitions container ([\[MS-ADTS\]](#) section 7.1.1.2.1) which meet the following criteria:

- The `objectClass` attribute of the object is `crossRef` and the client has access rights to read the attribute.
- The `FLAG_CR_NTDS_NC` and `FLAG_CR_NTDS_NOT_GC_REPLICATED` bits of the `crossRef!systemFlags` attribute ([\[MS-ADTS\]](#) section 7.1.1.2.1.1) are set to 1 and the client has access rights to read the attribute.
- The `crossRef!ncName` attribute is present and the client has access rights to read the attribute.
- The `crossRef!Enabled` attribute is not present, is not equal to `FALSE`, or cannot be read due to the client lacking access rights to read the attribute.

If no `crossRef` objects satisfy the above requirements, the server returns a null `ActiveDirectoryForest/ApplicationPartitions` element.

3.4.4.4.3.1.2 ActiveDirectoryForest/CrossForestReferences

The **CrossForestReferences** element contains an array of distinguished names of the `crossRef` objects that represent naming contexts in other forests.

```

<xs:element
  name="CrossForestReferences" nillable="true" type="sera:ArrayOfstring" />

```

The **CrossForestReferences** element is populated from the `crossRef!distinguishedName` attribute of all `crossRef` objects ([\[MS-ADTS\]](#) section 7.1.1.2.1.1.1) under the Partitions container ([\[MS-ADTS\]](#) section 7.1.1.2.1) which meet the following criteria:

- The objectClass attribute of the object is crossRef and the client has access rights to read the attribute.
- The crossRef!systemFlags attribute is 0, is not present, or cannot be read due to the client lacking access rights to read the attribute.
- The crossRef!distinguishedName attribute is present and the client has access rights to read the attribute.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef objects satisfy the above requirements, the server returns a null ActiveDirectoryForest/CrossForestReferences element.

3.4.4.4.3.1.3 ActiveDirectoryForest/DomainNamingMaster

The **DomainNamingMaster** element contains the FQDN (1) of the server holding the Domain Naming Master FSMO role for this forest. See [\[MS-ADTS\]](#) section 7.1.5.

```
<xs:element name="DomainNamingMaster" nillable="true" type="xs:string" />
```

The **DomainNamingMaster** element is populated from the server!dnsHostName attribute on the parent object of the Domain Master's nTDSDSA object. The Domain Master's nTDSDSA object referenced by the crossRefContainer!fSMORoleOwner attribute on the crossRefContainer object directly under the config NC root. See [\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1 for information on the nTDSDSA object. See [\[MS-ADTS\]](#) sections [3.1.1.1.11](#) and [7.1](#) for information on FSMO roles and the fSMORoleOwner attribute. If the crossRefContainer!fSMORoleOwner or server!dnsHostName attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryForest/DomainNamingMaster element.

3.4.4.4.3.1.4 ActiveDirectoryForest/Domains

The **Domains** element contains an array of FQDNs (2) of the domains in the forest.

```
<xs:element
  name="Domains" nillable="true" type="sera:ArrayOfstring" />
```

The **Domains** element is populated from the crossRef!dnsRoot attribute of all crossRef objects ([\[MS-ADTS\]](#) section 7.1.1.2.1.1) under the Partitions container ([\[MS-ADTS\]](#) section 7.1.1.2.1) that meet the following criteria:

- The objectClass attribute of the object is crossRef and the client has access rights to read the attribute.
- The FLAG_CR_NTDS_NC and FLAG_CR_NTDS_NOT_GC_REPLICATED bits of the crossRef!systemFlags attribute ([\[MS-ADTS\]](#) section 7.1.1.2.1.1) are set to 1 and the client has access rights to read the attribute.
- The crossRef!dnsRoot attribute is present and the client has access rights to read the attribute.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef objects satisfy requirements 1 and 2, the server returns the SOAP fault described in section [3.4.4.4.8.1](#). If no crossRef objects satisfy all of the above requirements, the server returns a null ActiveDirectoryForest/Domains element. If the crossRef!dnsRoot attribute on a crossRef object satisfying all of the above requirements has multiple values, then only one of the values MUST be chosen; but any of the values MAY be chosen [<43>](#) to populate the element.

3.4.4.4.3.1.5 ActiveDirectoryForest/ForestMode

The **ForestMode** element contains an integer representing the **forest functional level** of the forest.

```
<xs:element name="ForestMode" type="xs:int" />
```

The **ForestMode** element is populated from the crossRefContainer!msDS-Behavior-Version attribute on the Partitions Container object ([\[MS-ADTS\]](#) section 7.1.1.2.1). If the crossRefContainer!msDS-Behavior-Version attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server populates the ActiveDirectoryForest/ForestMode element with a value of 0.

3.4.4.4.3.1.6 ActiveDirectoryForest/GlobalCatalogs

The **GlobalCatalogs** element contains an array of FQDNs (1) of the global catalogs in the forest.

```
<xs:element name="GlobalCatalogs" nillable="true" type="sera:ArrayOfstring" />
```

The **GlobalCatalogs** element is populated from the server!dnsHostName attribute on the parent object of all nTDSDSA objects ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) which meet the following criteria:

1. The objectClass attribute of the object is nTDSDSA and the client has access rights to read the attribute.
2. The NTDSDSA_OPT_IS_GC ([\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1) bit of the nTDSDSA!options attribute is set to 1 and the client has access rights to read the attribute.
3. The server!dnsHostName attribute is present on the parent of the nTDSDSA object and the client has access rights to read the attribute.

If no nTDSDSA objects satisfy the above requirements, the server returns a null ActiveDirectoryForest/GlobalCatalogs element.

3.4.4.4.3.1.7 ActiveDirectoryForest/Name

The **Name** element contains the FQDN (2) of the forest.

```
<xs:element name="Name" nillable="true" type="xs:string" />
```

The **Name** element is populated from the crossRef!dnsRoot attribute on domain crossRef object ([\[MS-ADTS\]](#) section 7.1.1.2.1.1.4) which meets the following criteria:

- The **crossRef!ncName** attribute is equal to the **rootDSE!rootDomainNamingContext** attribute and the client has access rights to read the attributes.

- The **crossRef!systemFlags** attribute's FLAG_CR_NTDS_NC and FLAG_CR_NTDS_DOMAIN bits are set to 1 and the client has access rights to read the attribute. See [\[MS-ADTS\]](#) section 7.1.1.2.1.1.
- The crossRef!Enabled attribute is not present, is not equal to FALSE, or cannot be read due to the client lacking access rights to read the attribute.

If no crossRef objects satisfy the above requirements, the server returns the SOAP fault described in section [3.4.4.4.8.1](#). If multiple crossRef objects satisfy the above requirements, then only one of the crossRef object MUST be chosen, but any of the objects MAY be chosen [<44>](#) in constructing the response. If the **crossRef!dnsRoot** attribute on the chosen crossRef object satisfying the above requirements has multiple values, then only one of the values MUST be chosen, but any of the values MAY be chosen [<45>](#) to populate the element. If the crossRef!dnsRoot attribute on the chosen crossRef object satisfying the above requirements is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryForest/Name element.

3.4.4.4.3.1.8 ActiveDirectoryForest/RootDomain

The **RootDomain** element contains the FQDN (2) of the root domain of the forest.

```
<xs:element name="RootDomain" nillable="true" type="xs:string" />
```

The **RootDomain** element is populated with the value of the [ActiveDirectoryForest/Name](#) (section [3.4.4.4.3.1.7](#)) element of the response.

3.4.4.4.3.1.9 ActiveDirectoryForest/SchemaMaster

The **SchemaMaster** element contains the FQDN (1) of the server holding the Schema Master FSMO role for this forest. See [\[MS-ADTS\]](#) section 7.1.5.

```
<xs:element name="SchemaMaster" nillable="true" type="xs:string" />
```

The **SchemaMaster** element is populated from the server!dnsHostName attribute on the parent of the Schema Master's nTDSDSA object. The Schema Master's nTDSDSA object is the object referenced by the dMD!fSMORoleOwner attribute on the schema NC root. See [\[MS-ADTS\]](#) section 7.1.1.2.2.1.2.1.1 for information on the nTDSDSA object. See [\[MS-ADTS\]](#) sections [3.1.1.1.11](#) and [7.1](#) for information on FSMO roles and the fSMORoleOwner attribute. If the dMD!fSMORoleOwner or server!dnsHostName attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null ActiveDirectoryForest/SchemaMaster element.

3.4.4.4.3.1.10 ActiveDirectoryForest/Sites

The **Sites** element contains the DNs of the sites in the forest.

```
<xs:element name="Sites" nillable="true" type="sera:ArrayOfstring" />
```

The **Sites** element is populated from the site!cn attribute of all site objects ([\[MS-ADTS\]](#) section 7.1.1.2.2.1) which meet the following criteria:

- The site!cn attribute is present and the client has access rights to read the attribute.

If no site objects satisfy the above requirements, the server returns a null `ActiveDirectoryForest/Sites` element.

3.4.4.4.3.1.11 **ActiveDirectoryForest/SPNSuffixes**

The **SPNSuffixes** element contains the SPN suffixes for the forest.

```
<xs:element name="SPNSuffixes" nillable="true" type="sera:ArrayOfstring" />
```

The **SPNSuffixes** element is populated from the `crossRefContainer!msDS-SPNSuffixes` multivalued attribute on the Partitions Container object ([\[MS-ADTS\]](#) section 7.1.1.2.1). If the `crossRefContainer!msDS-SPNSuffixes` attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null `ActiveDirectoryForest/UPNSuffixes` element.

3.4.4.4.3.1.12 **ActiveDirectoryForest/UPNSuffixes**

The **UPNSuffixes** element contains the UPN suffixes for the forest.

```
<xs:element name="UPNSuffixes" nillable="true" type="sera:ArrayOfstring" />
```

The **UPNSuffixes** element is populated from the `crossRefContainer!uPNSuffixes` multivalued attribute on the Partitions Container object ([\[MS-ADTS\]](#) section 7.1.1.2.1). If the `crossRefContainer!uPNSuffixes` attribute is not present or cannot be read due to the client lacking access rights to read the attribute, the server returns a null `ActiveDirectoryForest/UPNSuffixes` element.

3.4.4.4.3.2 **GetADForestFault**

The **GetADForestFault** complex type is an extension of a [CustomActionFault \(section 2.2.4.6\)](#) complex type. The server MUST return this fault when it is unable to process the [GetADForest](#) request.

```
<xs:complexType name="GetADForestFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.4.4 **Simple Types**

There are no XML schema simple type definitions specific to this operation.

3.4.4.4.5 **Attributes**

There are no XML schema attribute definitions specific to this operation.

3.4.4.4.6 **Groups**

There are no XML schema group definitions specific to this operation.

3.4.4.4.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.4.4.4.8 GetADForest SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [GetADForest](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text maintain, to the extent possible, the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|------------------|--|
| GetADForestFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| GetADForestFault | Directory Error: Implementation specific errors. |
| GetADForestFault | Authentication Error: The server was unable to authenticate using the client's security context. |

3.4.4.4.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, null, or unknown **Server** element (section [3.1.4](#)).
- The SOAP header contains a **Server** element that specifies an AD LDS instance.

- No crossRef objects satisfy the requirements given in sections [3.4.4.4.3.1.4](#) and [3.4.4.4.3.1.7](#) for populating the **Domains** and **Name** elements.

Then the server MUST return a SOAP fault with a [GetADForestFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | GetADForestFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <GetADForestFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADForestFault> </soapenv:Detail> </pre> |

3.4.4.4.8.2 Directory Error

If the client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request, then the server MUST return a SOAP fault with a [GetADForestFault](#) fault subcode. The fault detail SHOULD [<46>](#) be as specified in the following table.

| Field | Value |
|---------------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADForestFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADForestFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> </pre> |

| Field | Value |
|-------|---|
| | <pre> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADForestFault> </soapenv:Detail> </pre> |

3.4.4.4.8.3 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a GetADForestFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADForestFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre> <soapenv:Detail> <GetADForestFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </GetADForestFault> </soapenv:Detail> </pre> |

3.4.4.5 GetVersion

A server processes a GetVersion request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message containing the GetVersion SOAP header and specifying the following URI as the SOAP action:

<http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetVersion>

This operation is specified by the following WSDL.

```
<wsdl:operation name="GetVersion">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetVersion"
    name="GetVersionRequest"
    message="ca:GetVersionRequest" />
  <wsdl:output
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetVersionResponse"
    name="GetVersionResponse"
    message="ca:GetVersionResponse" />
  <wsdl:fault
    wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="GetVersionFault"
    message="ca:TopologyManagement_GetVersion_GetVersionFault_FaultMessage" />
</wsdl:operation>
```

The GetVersion custom action retrieves version information on the Active Directory Web Service: Custom Action Protocol. Upon success, the server MUST return a [GetVersionResponse \(section 3.4.4.5.2.3\)](#) with the [GetVersionResponse/VersionMajor \(section 3.4.4.5.2.4\)](#), [GetVersionResponse/VersionMinor \(section 3.4.4.5.2.5\)](#), and [GetVersionResponse/VersionString \(section 3.4.4.5.2.6\)](#) elements filled in.

3.4.4.5.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|--|--|
| GetVersionRequest | The request for the GetVersion operation. |
| GetVersionResponse | The response to a successful GetVersion operation. |
| TopologyManagement_GetVersion_GetVersionFault_FaultMessage | Contains a GetVersionFault element. |

3.4.4.5.1.1 GetVersionRequest

The GetVersionRequest message is sent by the client to the server.

```
<wsdl:message name="GetVersionRequest">
```

```
<wsdl:part name="parameters" element="ca:GetVersionRequest" />
</wsdl:message>
```

parameters: A [GetVersionRequest](#) element, as specified in section [3.4.4.5.2.2](#).

3.4.4.5.1.2 GetVersionResponse

The GetVersionResponse message is returned in response to a successful [GetVersion](#) operation and contains a [GetVersionResponse](#) element with the server response to the [GetVersionRequest](#) message.

```
<wsdl:message name="GetVersionResponse">
  <wsdl:part name="parameters" element="ca:GetVersionResponse" />
</wsdl:message>
```

parameters: A GetVersionResponse element, as specified in section [3.4.4.5.2.3](#).

3.4.4.5.1.3 TopologyManagement_GetVersion_GetVersionFault_FaultMessage

The TopologyManagement_GetVersion_GetVersionFault_FaultMessage message contains a [GetVersionFault](#) element. [<47>](#)

```
<wsdl:message
  name="TopologyManagement_GetVersion_GetVersionFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetVersionFault" />
</wsdl:message>
```

detail: A GetVersionFault element, as specified in section [3.4.4.5.2.1](#).

3.4.4.5.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|--------------------|--|
| GetVersionFault | Forms the body of a GetVersionFault message. |
| GetVersionRequest | Contains the request for a GetVersion operation. |
| GetVersionResponse | Contains the response to a GetVersionRequest. |

3.4.4.5.2.1 GetVersionFault

The GetVersionFault element forms the body of a GetVersionFault message returned by the server in response to a client request. This fault, while defined, is not used by the protocol. See section [3.4.4.5.3.1](#) for type details.

```
<xs:element name="GetVersionFault"
  nillable="true" type="ca:GetVersionFault" />
```

3.4.4.5.2.2 GetVersionRequest

The **GetVersionRequest** element contains the request for a [GetVersion](#) operation. It contains no child elements and so conveys no information to the server other than that a GetVersion request was made.

```
<xs:element name="GetVersionRequest">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>
```

3.4.4.5.2.3 GetVersionResponse

The **GetVersionResponse** contains the response to a [GetVersionRequest](#). It contains the child elements specified in sections [3.4.4.5.2.4](#), [3.4.4.5.2.5](#), and [3.4.4.5.2.6](#)

```
<xs:element name="GetVersionResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="VersionMajor" type="xs:int" />
      <xs:element minOccurs="0" name="VersionMinor" type="xs:int" />
      <xs:element minOccurs="0" name="VersionString" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.4.4.5.2.4 GetVersionResponse/VersionMajor

The **VersionMajor** element contains the Active Directory Web Services: Custom Action Protocol major version number.

```
<xs:element minOccurs="0" name="VersionMajor" type="xs:int" />
```

The **VersionMajor** levels are defined in the following table. [<48>](#) Note that other values are reserved for future use.

| Possible VersionMajor values |
|------------------------------|
| 1 |

3.4.4.5.2.5 GetVersionResponse/VersionMinor

The **VersionMinor** element contains the Active Directory Web Services: Custom Action Protocol minor version number.

```
<xs:element minOccurs="0" name="VersionMinor" type="xs:int" />
```

The **VersionMinor** levels are defined in the following table. [<49>](#) Note that other values are reserved for future use.

| Possible VersionMinor values |
|------------------------------|
| 1 |

3.4.4.5.2.6 GetVersionResponse/VersionString

The **VersionString** element contains a human-readable Active Directory Web Services: Custom Action Protocol string containing information about the version.

```
<xs:element minOccurs="0" name="VersionString" nillable="true" type="xs:string" />
```

The **VersionString** values are defined in the following table. [<50>](#) Note that other values SHOULD NOT be sent.

| Possible VersionString values |
|--------------------------------------|
| "Active Directory Web Services v1.1" |

3.4.4.5.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|-----------------|---|
| GetVersionFault | An extension of the CustomActionFault complex type. |

3.4.4.5.3.1 GetVersionFault

The **GetVersionFault** complex type is an extension of the [CustomActionFault](#) complex type defined in section [2.2.4.6](#). This fault, while defined, is not returned by this protocol.

```
<xs:complexType name="GetVersionFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.5.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.4.4.5.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.4.4.5.6 Groups

There are no XML schema group definitions specific to this operation.

3.4.4.5.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.4.4.5.8 GetVersion SOAP Faults

There are no SOAP faults specific to this operation.

3.4.4.6 MoveADOperationMasterRole

A server processes a MoveADOperationMasterRole request using the Active Directory Web Services: Custom Action Protocol upon receiving a SOAP message that contains the MoveADOperationMasterRole SOAP header and that specifies the following URI as the SOAP action:

<http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/MoveADOperationMasterRole>

This operation is specified by the following WSDL.

```
<wsdl:operation name="MoveADOperationMasterRole">
  <wsdl:input
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/MoveADOperationMasterRole"
    name="MoveADOperationMasterRoleRequest"
    message="ca:MoveADOperationMasterRoleRequest" />
  <wsdl:output
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/MoveADOperationMasterRoleResponse"
    name="MoveADOperationMasterRoleResponse"
    message="ca:MoveADOperationMasterRoleResponse" />
  <wsdl:fault
    wsam:Action=
      "http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
    name="MoveADOperationMasterRoleFault"
    message=
      "ca:TopologyManagement_MoveADOperationMasterRole_MoveADOperationMasterRoleFault_FaultMessage"
    />
</wsdl:operation>
```

The MoveADOperationMasterRole custom action moves the FSMO role specified by element **MoveADOperationMasterRoleRequest/OperationMasterRole** (section [3.4.4.6.2.3](#)) to the directory service specified by the SOAP header **Server** element (section [2.2.3.5](#)) in the [MoveADOperationMasterRoleRequest](#).

If the [MoveADOperationMasterRoleRequest/Seize](#) element is set to TRUE, then the MoveADOperationMasterRole custom action seizes (section [3.4.4.6.2.3.2](#)) the FSMO role only after first attempting a regular transfer (section [3.4.4.6.2.3.1](#)) which has failed.

On successful completion of the FSMO role transfer (or seizure), the MoveADOperationMasterRole custom action MUST create a [MoveADOperationMasterRoleResponse](#) element, set the [MoveADOperationMasterRoleResponse/WasSeized](#) element to TRUE or FALSE, and return the MoveADOperationMasterRoleResponse object. The WasSeized element indicates whether the FSMO role was seized (TRUE) or transferred (FALSE).

To transfer a FSMO role, the server writes the appropriate rootDSE attribute of the directory instance ([MS-ADTS] section [3.1.1.3.3](#)). The table under section [3.4.4.6.2.3.1](#) contains information on the rootDSE attribute to modify to transfer a role.

For more information on transferring FSMO roles, see [MS-ADTS] sections [3.1.1.3.3.1](#) through [3.1.1.3.3.6](#). The server-to-server methods required to implement any aspect of a FSMO role, or to transfer a FSMO role from one DC to another DC, are not included in this document. Any failure of this method specific to the server-to-server implementation, for example concerning the atomicity of this method or any other implementation-specific condition, MUST return the SOAP fault as described in section [3.4.4.6.8.2](#). The fault MAY have meaning to peer servers or administrators of those servers.

To seize a FSMO role, the server writes the distinguishedName of the nTDSDSA object of the new role owner. The table under section [3.4.4.6.2.3.2](#) contains information about which object attribute to write to seize a role.

For more information on seizing FSMO roles, see [MS-ADTS] sections [3.1.1.5.3.1.2](#) and [3.1.1.5.3.2](#). The server-to-server methods required to implement any aspect of a FSMO role, or to seize a FSMO role, are not included in this document. Any failure of this method specific to the server-to-server implementation, for example concerning the atomicity of this method or any other implementation-specific condition, MUST return the SOAP fault as described in section [3.4.4.6.8.2](#). The fault MAY have meaning to peer servers or administrators of those servers.

If an error occurs while processing this operation, the server MUST return the appropriate SOAP fault for the particular error condition as specified in section [3.4.4.6.8](#).

3.4.4.6.1 Messages

The following table summarizes the set of WSDL message definitions that are specific to this operation.

| Message | Description |
|--|---|
| MoveADOperationMasterRoleRequest | Contains a MoveADOperationMasterRoleRequest element. |
| MoveADOperationMasterRoleResponse | Contains a MoveADOperationMasterRoleResponse element. |
| TopologyManagement_MoveADOperationMasterRole_MoveADOperationMasterRoleFault_FaultMessage | Contains a MoveADOperationMasterRoleFault element. |

3.4.4.6.1.1 MoveADOperationMasterRoleRequest

The MoveADOperationMasterRoleRequest message contains a [MoveADOperationMasterRoleRequest](#) element and MUST contain a header with a [Server](#) element.

```
<wsdl:message name="MoveADOperationMasterRoleRequest">
  <wsdl:part name="parameters" element="ca:MoveADOperationMasterRoleRequest" />
</wsdl:message>
```

parameters: A MoveADOperationMasterRoleRequest element, as specified in section [3.4.4.6.2.2](#).

3.4.4.6.1.2 MoveADOperationMasterRoleResponse

The MoveADOperationMasterRoleResponse message contains a [MoveADOperationMasterRoleResponse](#) element.

```
<wsdl:message name="MoveADOperationMasterRoleResponse">
  <wsdl:part
    name="parameters"
    element="ca:MoveADOperationMasterRoleResponse" />
</wsdl:message>
```

parameters: A MoveADOperationMasterRoleResponse element, as specified in section [3.4.4.6.2.5](#).

3.4.4.6.1.3

TopologyManagement_MoveADOperationMasterRole_MoveADOperationMasterRoleFault_FaultMessage

The TopologyManagement_MoveADOperationMasterRole_MoveADOperationMasterRoleFault_FaultMessage message contains a [MoveADOperationMasterRoleFault](#) element.

```
<wsdl:message name=
  "TopologyManagement_MoveADOperationMasterRole_MoveADOperationMasterRoleFault_FaultMessage">
  <wsdl:part name="detail" element="ca:MoveADOperationMasterRoleFault" />
</wsdl:message>
```

detail: A MoveADOperationMasterRoleFault element, as specified in section [3.4.4.6.2.1](#).

3.4.4.6.2 Elements

The following table summarizes the XML schema element definitions that are specific to this operation.

| Element | Description |
|-----------------------------------|--|
| MoveADOperationMasterRoleFault | Forms the body of a MoveADOperationMasterRoleFault message. |
| MoveADOperationMasterRoleRequest | The request for the MoveADOperationMasterRole operation. |
| MoveADOperationMasterRoleResponse | Contains the response to a MoveADOperationMasterRoleRequest. |

3.4.4.6.2.1 MoveADOperationMasterRoleFault

The **MoveADOperationMasterRoleFault** element forms the body of a MoveADOperationMasterRoleFault message returned by the server in response to a client request, and MUST be returned when the request could not be performed. See section [3.4.4.6.3.1](#) for the type definition.

```
<xs:element name="MoveADOperationMasterRoleFault"
  nillable="true"
  type="ca:MoveADOperationMasterRoleFault" />
```

3.4.4.6.2.2 MoveADOperationMasterRoleRequest

The **MoveADOperationMasterRoleRequest** element contains an [OperationMasterRole](#) element indicating the role to transfer or seize, and a [Seize](#) element indicating whether to attempt to seize the indicated role if the transfer fails.

```
<xs:element name="MoveADOperationMasterRoleRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element
        minOccurs="0"
        name="OperationMasterRole"
        type="ca:ActiveDirectoryOperationMasterRole" />
      <xs:element
        minOccurs="0"
        name="Seize"
        type="xs:boolean" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.4.4.6.2.3 MoveADOperationMasterRoleRequest/OperationMasterRole

The **OperationMasterRole** element contains the role to transfer. See the **ActiveDirectoryOperationMasterRole** (section [2.2.5.3](#)) simple type for the allowable values.

```
<xs:element
  minOccurs="0" name="OperationMasterRole"
  type="ca:ActiveDirectoryOperationMasterRole" />
```

If the **OperationMasterRole** element is not specified, the server SHOULD treat this as if the **PDCEmulator** role is being requested to be transferred.

3.4.4.6.2.3.1 Transferring a FSMO Role

The **OperationMasterRole** element contains a string as specified in section [2.2.5.3](#). Each role triggers a write to the appropriate **rootDSE** attribute, as listed in the following table.

Not all DCs/instances support all FSMO roles. The following table also lists which types of DCs/instances support which roles.

| Role to transfer | rootDSE!attribute | Value | (AD DS DC)/(AD DS RODC)/(AD LDS) |
|----------------------------|------------------------------------|--------------|----------------------------------|
| Domain Naming Master FSMO | rootDSE!becomeDomainMaster | 1 | Yes/No/Yes |
| Infrastructure Master FSMO | rootDSE!becomeInfrastructureMaster | 1 | Yes/No/No |
| PDC Emulator FSMO | rootDSE!becomePdc | Domain SID** | Yes/No/No |
| RID Master FSMO | rootDSE!becomeRidMaster | 1 | Yes/No/No |

| Role to transfer | rootDSE!attribute | Value | (AD DS DC)/(AD DS RODC)/(AD LDS) |
|--------------------|----------------------------|-------|----------------------------------|
| Schema Master FSMO | rootDSE!becomeSchemaMaster | 1 | Yes/No/Yes |

Additional constraints, such as control access rights, apply to AD DS and AD LDS; see [\[MS-ADTS\]](#) section 3.1.1.3.3.

** The domain SID must be in binary format ([\[MS-DTYP\]](#) section 2.4.2). The domain SID is the domainDNS!objectSID attribute on the domain NC root object. See also [\[MS-ADTS\]](#) section 3.1.1.3.3.3.

3.4.4.6.2.3.2 Seizing a FSMO Role

The **OperationMasterRole** element contains a string as specified in section [2.2.5.3](#). To seize a role, the server writes the distinguishedName of the nTDSDSA object of the new role owner. The fsmoRoleOwner attribute to write, by role, is indicated in the following table, along with which types of DCs/instances support which roles.

Not all DCs/instances support all FSMO roles.

| Role | Object | Object!attribute | (AD DS DC)/(AD DS RODC)/(AD LDS) |
|----------------------------|---------------------------------------|------------------------------------|----------------------------------|
| Domain Naming Master FSMO | Config NC root | crossRefContainer!fsmoRoleOwner | Yes/No/Yes |
| Infrastructure Master FSMO | Infrastructure container in Domain NC | infrastructureUpdate!fsmoRoleOwner | Yes/No/No |
| PDC Emulator FSMO | Domain NC root | domainDNS!fsmoRoleOwner | Yes/No/No |
| RID Master FSMO | Domain NC!rIDManagerReference | rIDManager!fsmoRoleOwner | Yes/No/No |
| Schema Master FSMO | Schema NC root | dMD!fsmoRoleOwner | Yes/No/Yes |

Additional constraints, such as control access rights, apply to AD DS and AD LDS. See [\[MS-ADTS\]](#) sections [3.1.1.5.3.1.2](#) and [3.1.1.5.3.2](#).

3.4.4.6.2.4 MoveADOperationMasterRoleRequest/Seize

The **Seize** element indicates whether the role MUST be seized (TRUE) if a transfer attempt fails. If FALSE or not present, the operation MUST not attempt to seize the role.

```
<xs:element minOccurs="0" name="Seize" type="xs:boolean" />
```

3.4.4.6.2.5 MoveADOperationMasterRoleResponse

The **MoveADOperationMasterRoleResponse** element contains the response parameter *WasSeized*.

```
<xs:element name="MoveADOperationMasterRoleResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="WasSeized" type="xs:boolean" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

3.4.4.6.2.6 MoveADOperationMasterRoleResponse/WasSeized

The **WasSeized** element indicates whether the role was seized (TRUE). If FALSE, the operation did not seize the role.

```
<xs:element minOccurs="0" name="WasSeized" type="xs:boolean" />
```

The **WasSeized** element MUST be populated according to whether the FSMO role was transferred (FALSE) or seized (TRUE).

3.4.4.6.3 Complex Types

The following table summarizes the XML schema complex type definitions that are specific to this operation.

| Complex Type | Description |
|--------------------------------|---|
| MoveADOperationMasterRoleFault | An extension of a CustomActionFault complex type indicating that the server is unable to process the MoveADOperationMasterRole request. |

3.4.4.6.3.1 MoveADOperationMasterRoleFault

The **MoveADOperationMasterRoleFault** complex type is an extension of a [CustomActionFault](#) complex type, defined in section [2.2.4.6](#). The server MUST return this fault when it is unable to process the [MoveADOperationMasterRole](#) request.

```
<xs:complexType name="MoveADOperationMasterRoleFault">
  <xs:complexContent mixed="false">
    <xs:extension base="ca:CustomActionFault">
      <xs:sequence />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

3.4.4.6.4 Simple Types

There are no XML schema simple type definitions specific to this operation.

3.4.4.6.5 Attributes

There are no XML schema attribute definitions specific to this operation.

3.4.4.6.6 Groups

There are no XML schema group definitions specific to this operation.

3.4.4.6.7 Attribute Groups

There are no XML schema attribute group definitions specific to this operation.

3.4.4.6.8 MoveADOperationMasterRole SOAP Faults

This section documents the SOAP faults specified for use by servers that implement the Active Directory Web Services: Custom Action Protocol [MoveADOperationMasterRole](#) operation. These faults SHOULD be used by servers while processing an Active Directory Web Services: Custom Action Protocol message to indicate to the client that a server-side error has occurred. This protocol assigns these faults a specific meaning within the context of an Active Directory Web Services: Custom Action Protocol operation using the protocol defined in this document.

Server implementations are permitted to return additional faults beyond those described below. However, to maximize interoperability, implementations SHOULD make use of the below faults where applicable.

Some of the SOAP faults documented below specify English-language text in their fault reason. Server implementations are permitted to localize this text to other languages. It is important that localized text, to the extent possible, maintain the same meaning as the English text supplied in this document.

All SOAP faults defined in this document MUST be sent as described in [\[WSASB\]](#) section 6.

In the tables in the following sections:

[Code] is the SOAP fault code.

[Subcode] is the SOAP fault subcode.

[Action] is the SOAP action URI for the fault.

[Reason] is an illustrative example of a human-readable explanation of the error.

[Details] is the fault detail.

The following table summarizes the faults (grouped by fault subcode) that are specified in this section.

| Fault subcode | Description |
|--------------------------------|--|
| MoveADOperationMasterRoleFault | Bad Parameter Error: One or more parameters in the request was invalid. |
| MoveADOperationMasterRoleFault | Unwilling to Perform Error: Error trying to seize a server FSMO role for AD DS instance. |
| MoveADOperationMasterRoleFault | Directory Error: Implementation specific errors. |

| Fault subcode | Description |
|--------------------------------|--|
| MoveADOperationMasterRoleFault | Authorization Error: The client does not have sufficient rights for this operation to succeed. |
| MoveADOperationMasterRoleFault | Authentication Error: The server was unable to authenticate using the client's security context. |

3.4.4.6.8.1 Bad Parameter Error

If the client sends a request where any of the following is true:

- The SOAP header (section [2.2.3.5](#)) contains an empty, not present, invalid, null, or unknown Server element (section [3.1.4](#)).
- The SOAP header contains a Server element that specifies an AD LDS instance and the client is requesting to transfer (section [3.4.4.6.2.3.1](#)) or seize (section [3.4.4.6.2.3.2](#)) a FSMO role that the DC does not support.

Then the server MUST return a SOAP fault with a [MoveADOperationMasterRoleFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Sender |
| [Subcode] | MoveADOperationMasterRoleFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <MoveADOperationMasterRoleFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError> <Message>...</Message> <ParameterName>...</ParameterName> <ShortMessage>...</ShortMessage> </ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </MoveADOperationMasterRoleFault> </soapenv:Detail> </pre> |

3.4.4.6.8.2 Unwilling to Perform Error

If the client sends a request where the SOAP header contains a [Server](#) element that specifies an AD DS instance, and the request is to transfer (section [3.4.4.6.2.3.1](#)) or seize (section [3.4.4.6.2.3.2](#)) a FSMO role that the DC does not support, the server MUST return a SOAP fault with a [MoveADOperationMasterRoleFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | MoveADOperationMasterRoleFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre> <soapenv:Detail> <MoveADOperationMasterRoleFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </MoveADOperationMasterRoleFault> </soapenv:Detail> </pre> |

3.4.4.6.8.3 Directory Error

If the client sends a request that the server is unable to complete because of implementation-specific errors encountered while processing the request, then the server MUST return a SOAP fault with a [MoveADOperationMasterRoleFault](#) fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | MoveADOperationMasterRoleFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <MoveADOperationMasterRoleFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage>...</ExtendedErrorMessage> <MatchedDN>...</MatchedDN> <Message>...</Message> <Referral xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">...</Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> </MoveADOperationMasterRoleFault> </soapenv:Detail> </pre> |

| Field | Value |
|-------|---|
| | <pre> <ShortError xsi:nil="true"></ShortError> </MoveADOperationMasterRoleFault> </soapenv:Detail> </pre> |

3.4.4.6.8.4 Authorization Error

If the client sends a request where any of the following are true:

- The FSMO role specified by the [MoveADOperationMasterRoleRequest/OperationMasterRole](#) element is the "DomainNamingMaster" and the client does not have the "Change-Domain-Master" control access right on the Partitions container in the **config NC** (as described in [\[MS-ADTS\]](#) section 3.1.1.3.3.1).
- The FSMO specified by the MoveADOperationMasterRoleRequest/OperationMasterRole element is the "InfrastructureMaster" and the client does not have the "Change-Infrastructure-Master" control access right on the Infrastructure container in the domain NC (as described in [\[MS-ADTS\]](#) section 3.1.1.3.3.2).
- The FSMO specified by the element MoveADOperationMasterRoleRequest/OperationMasterRole is the "PDCEmulator" and the client does not have the "Change-PDC" control access right on the root of the domain NC (as described in [\[MS-ADTS\]](#) section 3.1.1.3.3.3).
- The FSMO specified by the MoveADOperationMasterRoleRequest/OperationMasterRole element is the "RIDMaster" and the client does not have the "Change-Rid-Master" control access right on the RID Manager object, or the client does not have read permission on the RIDManagerReference attribute on the root of the domain NC (as described in [\[MS-ADTS\]](#) section 3.1.1.3.3.5).
- The FSMO specified by the element MoveADOperationMasterRoleRequest/OperationMasterRole is the "SchemaMaster" and the client does not have the "Change-Schema-Master" control access right on the root of the **schema NC** (as described in [\[MS-ADTS\]](#) section 3.1.1.3.3.6).

Then the server MUST return a SOAP fault with a MoveADOperationMasterRoleFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | MoveADOperationMasterRoleFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> < MoveADOperationMasterRoleFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError i:nil="true"></ArgumentError> <DirectoryError i:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </pre> |

| Field | Value |
|-------|--|
| | <pre></ MoveADOperationMasterRoleFault > </soapenv:Detail></pre> |

3.4.4.6.8.5 Authentication Error

If the client does not allow the server to impersonate its credentials, the server MUST return a SOAP fault with a MoveADOperationMasterRoleFault fault subcode. The fault detail SHOULD be as specified in the following table.

| Field | Value |
|-----------|--|
| [Code] | soapenv:Receiver |
| [Subcode] | MoveADOperationMasterRoleFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The lightweight directory access protocol (LDAP) operation failed. |
| [Detail] | <pre><soapenv:Detail> <MoveADOperationMasterRoleFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError> <ErrorCode>...</ErrorCode> <ExtendedErrorMessage i:nil="true"></ExtendedErrorMessage> <MatchedDN i:nil="true"></MatchedDN> <Message>...</Message> <Referral i:nil="true" xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral> <ShortMessage>...</ShortMessage> <Win32ErrorCode>...</Win32ErrorCode> </DirectoryError> <Error xsi:nil="true"></Error> <ShortError xsi:nil="true"></ShortError> </MoveADOperationMasterRoleFault> </soapenv:Detail></pre> |

3.4.5 Timer Events

None.

3.4.6 Other Local Events

None.

4 Protocol Examples

In this section, several sample Active Directory Web Services: Custom Action Protocol operations are presented.

4.1 AccountManagement Examples

4.1.1 Example of ChangePassword

In this section, there is an example of a ChangePassword request, a ChangePassword response, and a ChangePassword fault.

ChangePassword SOAP request:

```
<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      AccountManagement/ChangePassword</wsa:Action>
    <ca:Server
      xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"

      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server
    >
    <wsa:MessageID>urn:uuid:a541d67c-707d-41f0-b27e-78d40b5a8293</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To
      soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
      ndows/AccountManagement</wsa:To>
    </wsa:Header>
    <soapenv:Body>
      <ChangePasswordRequest
        xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
        <AccountDN>CN=Guest,CN=Users,DC=fabrikam,DC=com</AccountDN>
        <NewPassword>Password2</NewPassword>
        <OldPassword>Password1</OldPassword>
        <PartitionDN>DC=fabrikam,DC=com</PartitionDN>
      </ChangePasswordRequest>
    </soapenv:Body>
  </soapenv:Envelope>
```

ChangePassword SOAP response:

```
<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      AccountManagement/ChangePassword</wsa:Action>
```

```

    <wsa:RelatesTo>urn:uuid:a541d67c-707d-41f0-b27e-78d40b5a8293</wsa:RelatesTo>
    <wsa:To
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <ChangePassword
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"></ChangePassword>
  </soapenv:Body>
</soapenv:Envelope>

```

ChangePassword SOAP fault:

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault</wsa:Action>
    <wsa:RelatesTo>urn:uuid:a541d67c-707d-41f0-b27e-78d40b5a8293</wsa:RelatesTo>
    <wsa:To
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <soapenv:Fault>
      <soapenv:Code>
        <soapenv:Value>soapenv:Receiver</soapenv:Value>
        <soapenv:Subcode>
          <soapenv:Value
xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ca:ChangePasswordFault</soapenv:Value>
        </soapenv:Subcode>
      </soapenv:Code>
      <soapenv:Reason>
        <soapenv:Text xml:lang="en-US">Active Directory returned an error processing the operation.</soapenv:Text>
      </soapenv:Reason>
      <soapenv:Detail>
        <ChangePasswordFault
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ArgumentError xsi:nil="true"></ArgumentError>
          <DirectoryError>
            <ErrorCode>19</ErrorCode>
            <ExtendedErrorMessage>
              0000052D: AtrErr: DSID-03190F64, #1:
              0: 0000052D: DSID-03190F64, problem 1005 (CONSTRAINT_ATT_TYPE), data 0, Att
              9005a (unicodePwd)
            </ExtendedErrorMessage>
            <MatchedDN></MatchedDN>
            <Message>A value in the request is invalid.</Message>
            <Referral
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral>
            <ShortMessage>EDirectoryOperation</ShortMessage>
            <Win32ErrorCode>8239</Win32ErrorCode>
          </DirectoryError>
          <Error xsi:nil="true"></Error>
          <ShortError xsi:nil="true"></ShortError>
        </ChangePasswordFault>
      </soapenv:Detail>
    </soapenv:Fault>
  </soapenv:Body>
</soapenv:Envelope>

```

```

        </ChangePasswordFault>
    </soapenv:Detail>
</soapenv:Fault>
</soapenv:Body>
</soapenv:Envelope>

```

4.1.2 Example of GetADGroupMember

In this section, there is an example of a GetADGroupMember request and a GetADGroupMember response. In this example, Group1 contains User1 and Group2 as members. Group2 contains User2 as a member. The request sets the [GetADGroupMemberRequest/Recursive](#) element to true to indicate that recursive group membership is being requested.

GetADGroupMember SOAP request

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      AccountManagement/GetADGroupMember</wsa:Action>
    <ca:Server
      xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server
    >
    <wsa:MessageID>urn:uuid:3f761fc3-4cff-48a8-8670-873ee7363e6a</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To
      soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
      ndows/AccountManagement</wsa:To>
    </soapenv:Header>
    <soapenv:Body
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <GetADGroupMemberRequest
        xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
        <GroupDN>CN=Group1,CN=Users,DC=fabrikam,DC=com</GroupDN>
        <PartitionDN>DC=fabrikam,DC=com</PartitionDN>
        <Recursive>true</Recursive>
      </GetADGroupMemberRequest>
    </soapenv:Body>
  </soapenv:Envelope>

```

GetADGroupMember SOAP response

```

<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>

```

```

    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
AccountManagement/GetADGroupMemberResponse</wsa:Action>
    <wsa:RelatesTo>urn:uuid:3f761fc3-4cff-48a8-8670-873ee7363e6a</wsa:RelatesTo>
    <wsa:To
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
</soapenv:Header>
<soapenv:Body>
    <GetADGroupMemberResponse
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
    <Members xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <ActiveDirectoryPrincipal>
    <DistinguishedName>CN=User1,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
    <Name>User1</Name>
    <ObjectClass>user</ObjectClass>
    <ObjectGuid>959ef0cb-78ab-4f79-8f65-044ab059eda8</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
    <sera:string>top</sera:string>
    <sera:string>person</sera:string>
    <sera:string>organizationalPerson</sera:string>
    <sera:string>user</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQUAAAAAAAAUVAAAAfoPolY9ew2y2Bh7y9AEAAA==</SID>
    <SamAccountName>User1</SamAccountName>
    </ActiveDirectoryPrincipal>
    <ActiveDirectoryPrincipal>
    <DistinguishedName>CN=User2,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
    <Name>User2</Name>
    <ObjectClass>user</ObjectClass>
    <ObjectGuid>ccb22c0e-91f3-4fb5-b790-fef0523de6f5</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
    <sera:string>top</sera:string>
    <sera:string>person</sera:string>
    <sera:string>organizationalPerson</sera:string>
    <sera:string>user</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQIAAAAAAAAAUgAAAIQIAAA==</SID>
    <SamAccountName>User2</SamAccountName>
    </ActiveDirectoryPrincipal>

    </Members>
    </GetADGroupMemberResponse>
</soapenv:Body>
</soapenv:Envelope>

```

4.1.3 Example of GetADPrincipalAuthorizationGroup

In this section, there is an example of a GetADPrincipalAuthorizationGroup request and a GetADPrincipalAuthorizationGroup response.

GetADPrincipalAuthorizationGroup SOAP request:

```

<soapenv:Envelope
xmlns:wsa="http://www.w3.org/2005/08/addressing"

```

```

    xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
<soapenv:Header>
  <wsa:Action soapenv:mustUnderstand="1">

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrin
cipalAuthorizationGroup
  </wsa:Action>
  <ca:Server
    xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
    xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
    ldap:389
  </ca:Server>
  <wsa:MessageID>
    urn:uuid:b32c2fe6-2a13-441a-b141-b398ca0fd08b
  </wsa:MessageID>
  <wsa:ReplyTo>
    <wsa:Address>
      http://www.w3.org/2005/08/addressing/anonymous
    </wsa:Address>
  </wsa:ReplyTo>
  <wsa:To
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
ndows/AccountManagement</wsa:To>
  </soapenv:Header>
  <soapenv:Body
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <GetADPrincipalAuthorizationGroupRequest
      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
      <PartitionDN>
        DC=fabrikam,DC=com
      </PartitionDN>
      <PrincipalDN>
        CN=server01,OU=Domain Controllers,DC=fabrikam,DC=com
      </PrincipalDN>
    </GetADPrincipalAuthorizationGroupRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

GetADPrincipalAuthorizationGroup SOAP response:

```

<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action soapenv:mustUnderstand="1">

http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrin
cipalAuthorizationGroupResponse
  </wsa:Action>
  <wsa:RelatesTo>urn:uuid:b32c2fe6-2a13-441a-b141-b398ca0fd08b</wsa:RelatesTo>
  <wsa:To soapenv:mustUnderstand="1">
    http://www.w3.org/2005/08/addressing/anonymous
  </wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <GetADPrincipalAuthorizationGroupResponse

```

```

xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
<MemberOf xmlns:xs="http://www.w3.org/2001/XMLSchema-instance">
  <ActiveDirectoryGroup>
    <DistinguishedName>CN=Domain
Controllers,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Domain Controllers</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>88425dd0-3ef9-4765-a03e-884b9f2eebb5</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
      <sera:string>top</sera:string>
      <sera:string>group</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQUAAAAAAAAUVAfPoly9ew2y2Bh7yBAIAAA==</SID>
    <SamAccountName>Domain Controllers</SamAccountName>
    <GroupScope>Global</GroupScope>
    <GroupType>
      Security
    </GroupType>
  </ActiveDirectoryGroup>
  <ActiveDirectoryGroup>
    <DistinguishedName xs:nil="true">
</DistinguishedName>
    <Name>Everyone</Name>
    <ObjectClass xs:nil="true">
</ObjectClass>
    <ObjectGuid>00000000-0000-0000-0000-000000000000</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
      </ObjectTypes><ReferenceServer>fabrikam.com
</ReferenceServer>
    <SID>AQEAAAAAAAAEAAAA</SID>
    <SamAccountName>Everyone</SamAccountName>
    <GroupScope>DomainLocal</GroupScope>
    <GroupType>Security</GroupType>
  </ActiveDirectoryGroup>
  <ActiveDirectoryGroup>
    <DistinguishedName>CN=Pre-Windows 2000 Compatible
Access,CN=Builtin,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Pre-Windows 2000 Compatible Access</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>5d854clb-9f36-4132-8628-8dd9930c6dc9</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
      <sera:string>top</sera:string>
      <sera:string>group</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQIAAAAAAAAAUgAAAKgIAAA==</SID>
    <SamAccountName>Pre-Windows 2000 Compatible Access</SamAccountName>
    <GroupScope>DomainLocal</GroupScope>
    <GroupType>Security</GroupType>
  </ActiveDirectoryGroup>
  <ActiveDirectoryGroup>
    <DistinguishedName>CN=Users,CN=Builtin,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Users</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>ccb22c0e-91f3-4fb5-b790-fef0523de6f5</ObjectGuid>

```



```

        <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
        <sera:string>top</sera:string>
        <sera:string>group</sera:string>
        </ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <SID>AQIAAAAAAUGAAAAIQIAAA==</SID>
        <SamAccountName>Users</SamAccountName>
        <GroupScope>DomainLocal</GroupScope>
        <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
        <DistinguishedName>CN=Windows Authorization Access
Group, CN=Builtin, DC=fabrikam, DC=com</DistinguishedName>
        <Name>Windows Authorization Access Group</Name>
        <ObjectClass>group</ObjectClass>
        <ObjectGuid>9c6b0e66-7e63-4c36-8ec8-b02132112877</ObjectGuid>
        <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
        <sera:string>top</sera:string>
        <sera:string>group</sera:string>
        </ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <SID>AQIAAAAAAUGAAAAIAIAAA==</SID>
        <SamAccountName>Windows Authorization Access Group</SamAccountName>
        <GroupScope>DomainLocal</GroupScope>
        <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
        <DistinguishedName xs:nil="true"></DistinguishedName>
        <Name>Authenticated Users</Name>
        <ObjectClass xs:nil="true"></ObjectClass>
        <ObjectGuid>00000000-0000-0000-0000-000000000000</ObjectGuid>
        <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <SID>AQEAAAAAAULAAAA</SID>
        <SamAccountName>Authenticated Users</SamAccountName>
        <GroupScope>DomainLocal</GroupScope>
        <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
        <DistinguishedName xs:nil="true"></DistinguishedName>
        <Name>This Organization</Name>
        <ObjectClass xs:nil="true"></ObjectClass>
        <ObjectGuid>00000000-0000-0000-0000-000000000000</ObjectGuid>
        <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <SID>AQEAAAAAAUPAAAA</SID>
        <SamAccountName>This Organization</SamAccountName>
        <GroupScope>DomainLocal</GroupScope>
        <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
        <DistinguishedName xs:nil="true"></DistinguishedName>
        <Name>ENTERPRISE DOMAIN CONTROLLERS</Name>
        <ObjectClass xs:nil="true"></ObjectClass>
        <ObjectGuid>00000000-0000-0000-0000-000000000000</ObjectGuid>

```

```

        <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <SID>AQEAAAAAAAAUJAAAA</SID>
        <SamAccountName>ENTERPRISE DOMAIN CONTROLLERS</SamAccountName>
        <GroupScope>DomainLocal</GroupScope>
        <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
        <DistinguishedName>CN=Denied RODC Password Replication
Group,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
        <Name>Denied RODC Password Replication Group</Name>
        <ObjectClass>group</ObjectClass>
        <ObjectGuid>61c2546b-9511-41a1-834b-7f1e10129b87</ObjectGuid>
        <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
            <sera:string>top</sera:string>
            <sera:string>group</sera:string>
        </ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <SID>AQUAAAAAAAAUVAAAAfoPoly9ew2y2Bh7yPAIAAA==</SID>
        <SamAccountName>Denied RODC Password Replication Group</SamAccountName>
        <GroupScope>DomainLocal</GroupScope>
        <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
        <DistinguishedName xs:nil="true"></DistinguishedName>
        <Name>Medium Plus Mandatory Level</Name>
        <ObjectClass xs:nil="true"></ObjectClass>
        <ObjectGuid>00000000-0000-0000-0000-000000000000</ObjectGuid>
        <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <SID>AQEAAAAAAAABAAIQAA</SID>
        <SamAccountName>Medium Plus Mandatory Level</SamAccountName>
        <GroupScope>DomainLocal</GroupScope>
        <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    </MemberOf>
</GetADPrincipalAuthorizationGroupResponse>
</soapenv:Body>
</soapenv:Envelope>

```

4.1.4 Example of GetADPrincipalGroupMembership

In this section, there is an example of a GetADPrincipalGroupMembership request and a GetADPrincipalGroupMembershipResponse.

GetADPrincipalGroupMembership SOAP request:

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      AccountManagement/GetADPrincipalGroupMembership</wsa:Action>
    <ca:Server

```

```

        xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"

xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server
>
    <wsa:MessageID>urn:uuid:4d9a0454-098e-4ff6-aa7c-b1e36c517e08</wsa:MessageID>
    <wsa:ReplyTo>
        <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To>
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
ndows/AccountManagement</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <GetADPrincipalGroupMembershipRequest
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
            <PartitionDN>DC=fabrikam,DC=com</PartitionDN>
            <PrincipalDN>CN=Administrator,CN=Users,DC=fabrikam,DC=com</PrincipalDN>
            <ResourceContextPartition xsi:nil="true"></ResourceContextPartition>
            <ResourceContextServer xsi:nil="true"></ResourceContextServer>
        </GetADPrincipalGroupMembershipRequest>
    </soapenv:Body>
</soapenv:Envelope>

```

GetADPrincipalGroupMembership SOAP response:

```

<soapenv:Envelope
    xmlns:wsa="http://www.w3.org/2005/08/addressing"
    xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
    <soapenv:Header>
        <wsa:Action>
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
AccountManagement/GetADPrincipalGroupMembershipResponse</wsa:Action>
        <wsa:RelatesTo>urn:uuid:4d9a0454-098e-4ff6-aa7c-b1e36c517e08</wsa:RelatesTo>
        <wsa:To>
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
        <GetADPrincipalGroupMembershipResponse
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
            <MemberOf xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
                <ActiveDirectoryGroup>
                    <DistinguishedName>CN=Domain Users,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
                    <Name>Domain Users</Name>
                    <ObjectClass>group</ObjectClass>
                    <ObjectGuid>dfc6c0e3-fccf-4149-8fe0-c284fff4cd89</ObjectGuid>
                    <ObjectTypes>
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
                        <sera:string>top</sera:string>
                        <sera:string>group</sera:string>
                    </ObjectTypes>
                    <ReferenceServer>fabrikam.com</ReferenceServer>
                    <SID>AQUAAAAAAAAUVAAAAAoo3LXgjlYlVI2hAQIAAA==</SID>
                    <SamAccountName>Domain Users</SamAccountName>
                    <GroupScope>Global</GroupScope>
                    <GroupType>Security</GroupType>
                </ActiveDirectoryGroup>
            </MemberOf>
        </GetADPrincipalGroupMembershipResponse>
    </soapenv:Body>
</soapenv:Envelope>

```

```

    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>

    <DistinguishedName>CN=Administrators,CN=Builtin,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Administrators</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>2b8118dc-3c2d-41a7-b0eb-4aa394fb991c</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
    <sera:string>top</sera:string>
    <sera:string>group</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQIAAAAAUgAAAAIAIAA==</SID>
    <SamAccountName>Administrators</SamAccountName>
    <GroupScope>DomainLocal</GroupScope>
    <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
    <DistinguishedName>CN=Schema Admins,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Schema Admins</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>ee95c61f-b971-4b07-9936-6814ec8bcb57</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
    <sera:string>top</sera:string>
    <sera:string>group</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQUAAAAAUVAAAAAoo3LXgjlrY1VI2hBgIAAA==</SID>
    <SamAccountName>Schema Admins</SamAccountName>
    <GroupScope>Universal</GroupScope>
    <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
    <DistinguishedName>CN=Enterprise
Admins,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Enterprise Admins</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>021a8f3c-7406-40ec-8ce9-5d431cff8e71</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
    <sera:string>top</sera:string>
    <sera:string>group</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQUAAAAAUVAAAAAoo3LXgjlrY1VI2hBwIAAA==</SID>
    <SamAccountName>Enterprise Admins</SamAccountName>
    <GroupScope>Universal</GroupScope>
    <GroupType>Security</GroupType>
    </ActiveDirectoryGroup>
    <ActiveDirectoryGroup>
    <DistinguishedName>CN=Domain Admins,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Domain Admins</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>20c934d9-a6e0-45b2-b26b-8a4948f333b2</ObjectGuid>
    <ObjectTypes
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
    <sera:string>top</sera:string>

```

```

        <sera:string>group</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQUAAAAAAAAUVA AAAAoo3LXgjl rY1VI2hAAIAAA==</SID>
    <SamAccountName>Domain Admins</SamAccountName>
    <GroupScope>Global</GroupScope>
    <GroupType>Security</GroupType>
</ActiveDirectoryGroup>
<ActiveDirectoryGroup>
    <DistinguishedName>CN=Group Policy Creator
Owners,CN=Users,DC=fabrikam,DC=com</DistinguishedName>
    <Name>Group Policy Creator Owners</Name>
    <ObjectClass>group</ObjectClass>
    <ObjectGuid>fe80c15c-07b2-4184-a163-1ecebed3bd48</ObjectGuid>
    <ObjectTypes>
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
        <sera:string>top</sera:string>
        <sera:string>group</sera:string>
    </ObjectTypes>
    <ReferenceServer>fabrikam.com</ReferenceServer>
    <SID>AQUAAAAAAAAUVA AAAAoo3LXgjl rY1VI2hCAIAAA==</SID>
    <SamAccountName>Group Policy Creator Owners</SamAccountName>
    <GroupScope>Global</GroupScope>
    <GroupType>Security</GroupType>
</ActiveDirectoryGroup>
</MemberOf>
</GetADPrincipalGroupMembershipResponse>
</soapenv:Body>
</soapenv:Envelope>

```

4.1.5 Example of SetPassword

In this section, there is an example of a SetPassword request, a SetPassword response, and a SetPassword fault.

SetPassword SOAP request:

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
AccountManagement/SetPassword</wsa:Action>
    <ca:Server
      xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server
    >
    <wsa:MessageID>urn:uuid:926ae408-bee6-4922-8f9a-0cd61e1e470b</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
ndows/AccountManagement</wsa:To>
    </soapenv:Header>
    <soapenv:Body>

```

```

        xmlns:xs="http://www.w3.org/2001/XMLSchema-instance"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <SetPasswordRequest
    xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
        <AccountDN>CN=Guest,CN=Users,DC=fabrikam,DC=com</AccountDN>
        <NewPassword>Password</NewPassword>
        <PartitionDN>DC=fabrikam,DC=com</PartitionDN>
    </SetPasswordRequest>
</soapenv:Body>
</soapenv:Envelope>

```

SetPassword SOAP response:

```

<soapenv:Envelope
    xmlns:wsa="http://www.w3.org/2005/08/addressing"
    xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
    <soapenv:Header>
        <wsa:Action
        soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
        AccountManagement/SetPassword</wsa:Action>
        <wsa:RelatesTo>urn:uuid:926ae408-bee6-4922-8f9a-0cd61e1e470b</wsa:RelatesTo>
        <wsa:To
        soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
        <SetPasswordResponse
        xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"></SetPasswordRespon
        se>
    </soapenv:Body>
</soapenv:Envelope>

```

SetPassword SOAP fault:

```

<soapenv:Envelope
    xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
    xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <soapenv:Header>
        <wsa:Action
        soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault</ws
        a:Action>
        <wsa:RelatesTo>urn:uuid:926ae408-bee6-4922-8f9a-0cd61e1e470b</wsa:RelatesTo>
        <wsa:To
        soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
        <soapenv:Fault>
            <soapenv:Code>
                <soapenv:Value>soapenv:Sender</soapenv:Value>
                <soapenv:Subcode>
                    <soapenv:Value
                    xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ca:SetPasswordFa
                    ult</soapenv:Value>
                </soapenv:Subcode>
            </soapenv:Code>
            <soapenv:Reason>

```

```

        <soapenv:Text xml:lang="en-US">The operation failed because of a bad
parameter.</soapenv:Text>
    </soapenv:Reason>
    <soapenv:Detail>
        <SetPasswordFault
            xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <ArgumentError xsi:nil="true"></ArgumentError>
            <DirectoryError xsi:nil="true"></DirectoryError>
            <Error>The specified Authenticable principal was not found.</Error>
            <ShortError>NoSuchAuthenticablePrincipal</ShortError>
        </SetPasswordFault>
    </soapenv:Detail>
</soapenv:Fault>
</soapenv:Body>
</soapenv:Envelope>

```

4.1.6 Example of TranslateName

In this section, there is an example of a TranslateName request and a TranslateName response.

TranslateName SOAP request:

```

<soapenv:Envelope
    xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
    xmlns:wsa="http://www.w3.org/2005/08/addressing">
    <soapenv:Header>
        <wsa:Action
            soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
            AccountManagement/TranslateName</wsa:Action>
        <ca:Server
            xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
            xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server
        >
        <wsa:MessageID>urn:uuid:c7618f87-f31d-40d5-a2c2-e5db3860fba9</wsa:MessageID>
        <wsa:ReplyTo>
            <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
        </wsa:ReplyTo>
        <wsa:To
            soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
            ndows/AccountManagement</wsa:To>
        </wsa:Header>
        <soapenv:Body
            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
            xmlns:xs="http://www.w3.org/2001/XMLSchema">
            <TranslateNameRequest
                xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
                <FormatDesired>DistinguishedName</FormatDesired>
                <FormatOffered>CanonicalName</FormatOffered>
                <Names>
                    <string
                        xmlns="http://schemas.microsoft.com/2003/10/Serialization/Arrays">DomainDnsZones.fabrikam.com
                    </string>
                </Names>
            </TranslateNameRequest>
        </soapenv:Body>
    </soapenv:Envelope>

```

```
</soapenv:Envelope>
```

TranslateName SOAP response:

```
<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      AccountManagement/TranslateNameResponse</wsa:Action>
    <wsa:RelatesTo>urn:uuid:c7618f87-f31d-40d5-a2c2-e5db3860fba9</wsa:RelatesTo>
    <wsa:To
      soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <TranslateNameResponse
      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
      <NameTranslateResult xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <ActiveDirectoryNameTranslateResult>
          <Name>DC=DomainDnsZones,DC=fabrikam,DC=com</Name>
          <Result>0</Result>
        </ActiveDirectoryNameTranslateResult>
      </NameTranslateResult>
    </TranslateNameResponse>
  </soapenv:Body>
</soapenv:Envelope>
```

4.2 TopologyManagement Examples

4.2.1 Example of ChangeOptionalFeature

In this section, there is an example of a ChangeOptionalFeature request and a ChangeOptionalFeature response.

ChangeOptionalFeature SOAP request:

```
<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      TopologyManagement/ChangeOptionalFeature</wsa:Action>
    <ca:Server
      xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server
    >
    <wsa:MessageID>urn:uuid:f7ed5b9b-7376-4c6c-9d31-5a3a31c2e472</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
```



```

    <wsa:To
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
ndows/TopologyManagement</wsa:To>
</soapenv:Header>
<soapenv:Body
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xs="http://www.w3.org/2001/XMLSchema">
    <ChangeOptionalFeatureRequest
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">

    <DistinguishedName>CN=Partitions,CN=Configuration,DC=fabrikam,DC=com</DistinguishedName>
      <Enable>true</Enable>
      <FeatureId>766ddcd8-acd0-445e-f3b9-a7f9b6744f2a</FeatureId>
    </ChangeOptionalFeatureRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

ChangeOptionalFeature SOAP response:

```

<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/ChangeOptionalFeatureResponse</wsa:Action>
    <wsa:RelatesTo>urn:uuid:f7ed5b9b-7376-4c6c-9d31-5a3a31c2e472</wsa:RelatesTo>
    <wsa:To
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <ChangeOptionalFeatureResponse
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"></ChangeOptionalFea
tureResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

4.2.2 Example of GetADDomain

In this section, there is an example of a GetADDomain request, a GetADDomain response, and a GetADDomain fault.

GetADDomain SOAP request:

```

<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/GetADDomain</wsa:Action>
    <ca:Server
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"

```

```

xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server>
  <wsa:MessageID>urn:uuid:d4f595a4-0437-40e8-9f2e-48cea7709acc</wsa:MessageID>
  <wsa:ReplyTo>
  <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
  </wsa:ReplyTo>
  <wsa:To
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Windows/TopologyManagement</wsa:To>
  </soapenv:Header>
  <soapenv:Body
    xmlns:xs="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <GetADDomainRequest
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"></GetADDomainRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

GetADDomain SOAP response message:

```

<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomainResponse</wsa:Action>
    <wsa:RelatesTo>urn:uuid:d4f595a4-0437-40e8-9f2e-48cea7709acc</wsa:RelatesTo>
    <wsa:To
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <GetADDomainResponse
      xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
      <Domain
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <DistinguishedName>DC=fabrikam,DC=com</DistinguishedName>
        <Name>fabrikam</Name>
        <ObjectClass>domainDNS</ObjectClass>
        <ObjectGuid>cd971818-a64e-4c56-b42b-55deff480ad3</ObjectGuid>
        <ObjectTypes
          xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
            <sera:string>top</sera:string>
            <sera:string>domain</sera:string>
            <sera:string>domainDNS</sera:string>
          </ObjectTypes>
        <ReferenceServer>fabrikam.com</ReferenceServer>
        <DNSRoot>fabrikam.com</DNSRoot>
        <DeletedObjectsContainer>CN=Deleted
Objects,DC=fabrikam,DC=com</DeletedObjectsContainer>
        <LostAndFoundContainer>CN=LostAndFound,DC=fabrikam,DC=com</LostAndFoundContainer>
        <QuotasContainer>CN=NTDS Quotas,DC=fabrikam,DC=com</QuotasContainer>
        <ReadOnlyReplicaDirectoryServer xsi:nil="true"

xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></ReadOnlyReplicaDirectoryServer>

```

```

    <ReplicaDirectoryServer
      xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
        <sera:string>server01.fabrikam.com</sera:string>
      </ReplicaDirectoryServer>
    <SubordinateReferences
      xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
        <sera:string>DC=ForestDnsZones,DC=fabrikam,DC=com</sera:string>
        <sera:string>DC=DomainDnsZones,DC=fabrikam,DC=com</sera:string>
        <sera:string>CN=Configuration,DC=fabrikam,DC=com</sera:string>
      </SubordinateReferences>
    <AllowedDNSSuffixes xsi:nil="true"

xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></AllowedDNSSuffixes>
    <AppliedGroupPolicies
      xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
        <sera:string>CN={31B2F340-016D-11D2-945F-
00C04FB984F9},CN=Policies,CN=System,DC=fabrikam,DC=com</sera:string>
      </AppliedGroupPolicies>
    <ChildDomains xsi:nil="true"

xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></ChildDomains>
    <ComputersContainer>CN=Computers,DC=fabrikam,DC=com</ComputersContainer>
    <DomainControllersContainer>OU=Domain
Controllers,DC=fabrikam,DC=com</DomainControllersContainer>
    <DomainMode>3</DomainMode>
    <DomainSID>AQQAAAAAAAAUVAARAtI/J1BHmmbFJPq</DomainSID>

<ForeignSecurityPrincipalsContainer>CN=ForeignSecurityPrincipals,DC=fabrikam,DC=com</ForeignS
ecurityPrincipalsContainer>
    <Forest>fabrikam.com</Forest>
    <InfrastructureMaster>server01.fabrikam.com</InfrastructureMaster>
    <LastLogonReplicationInterval xsi:nil="true"></LastLogonReplicationInterval>
    <ManagedBy xsi:nil="true"></ManagedBy>
    <NetBIOSName>FABRIKAM</NetBIOSName>
    <PDCEmulator>server01.fabrikam.com</PDCEmulator>
    <ParentDomain xsi:nil="true"></ParentDomain>
    <RIDMaster>server01.fabrikam.com</RIDMaster>
    <SystemsContainer>CN=System,DC=fabrikam,DC=com</SystemsContainer>
    <UsersContainer>CN=Users,DC=fabrikam,DC=com</UsersContainer>
  </Domain>
</GetADDomainResponse>
</soapenv:Body>
</soapenv:Envelope>

```

GetADDomain SOAP fault message:

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault
    </wsa:Action>
    <wsa:RelatesTo>urn:uuid:a176367c-7cf6-4df9-a6ac-aa4ab37bfb05</wsa:RelatesTo>
    <wsa:To
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>

```

```

<soapenv:Body>
  <soapenv:Fault>
    <soapenv:Code>
      <soapenv:Value>soapenv:Receiver</soapenv:Value>
      <soapenv:Subcode>
        <soapenv:Value>
xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ca:GetADDomainFa
ult</soapenv:Value>
        </soapenv:Subcode>
      </soapenv:Code>
      <soapenv:Reason>
        <soapenv:Text xml:lang="en-US">The lightweight directory access protocol (LDAP)
operation failed.</soapenv:Text>
      </soapenv:Reason>
      <soapenv:Detail>
        <GetADDomainFault
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ArgumentError xsi:nil="true"></ArgumentError>
          <DirectoryError>
            <ErrorCode>81</ErrorCode>
            <ExtendedErrorMessage xsi:nil="true"></ExtendedErrorMessage>
            <MatchedDN xsi:nil="true"></MatchedDN>
            <Message>The LDAP server is unavailable.</Message>
            <Referral xsi:nil="true"
xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></Referral>
              <ShortMessage>ELdap</ShortMessage>
              <Win32ErrorCode>8250</Win32ErrorCode>
            </DirectoryError>
            <Error xsi:nil="true"></Error>
            <ShortError xsi:nil="true"></ShortError>
          </GetADDomainFault>
        </soapenv:Detail>
      </soapenv:Fault>
    </soapenv:Body>
  </soapenv:Envelope>

```

4.2.3 Example of GetADDomainController

In this section, there is an example of a GetADDomainController request and a GetADDomainController response.

GetADDomainController SOAP request message:

```

<soapenv:Envelope
xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/GetADDomainController</wsa:Action>
    <ca:Server
xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Ser
ver>
    <wsa:MessageID>urn:uuid:9661bd85-c47f-4e62-bca6-da5c27ec60bf</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
  </soapenv:Header>
  <soapenv:Body>
    <ca:Server
xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Ser
ver>
  </soapenv:Body>
</soapenv:Envelope>

```

```

    </wsa:ReplyTo>
    <wsa:To
soapenv:mustUnderstand="1">net.tcp://server01:9389/ActiveDirectoryWebServices/Windows/TopologyManagement</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
      <GetADDomainControllerRequest
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
        <NtdsSettingsDN
          xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <sera:string>CN=NTDS Settings,CN=server01,CN=Servers,CN=Default-First-Site-Name,CN=Sites,CN=Configuration,DC=fabrikam,DC=com</sera:string>
          </NtdsSettingsDN>
        </GetADDomainControllerRequest>
      </soapenv:Body>
    </soapenv:Envelope>

```

GetADDomainController SOAP response message:

```

<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomainControllerResponse</wsa:Action>
    <wsa:RelatesTo>urn:uuid:9661bd85-c47f-4e62-bca6-da5c27ec60bf</wsa:RelatesTo>
    <wsa:To
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <GetADDomainControllerResponse
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
      <DomainControllers xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <ActiveDirectoryDomainController>
          <DefaultPartition>DC=fabrikam,DC=com</DefaultPartition>
          <HostName>server01.fabrikam.com</HostName>
          <InvocationId>a5671348-acc7-48b9-b9e5-249bc35a4aca</InvocationId>
          <LdapPort>389</LdapPort>
          <NTDSSettingsObjectDN>CN=NTDS Settings,CN=server01,CN=Servers,CN=Default-First-Site-Name,CN=Sites,CN=Configuration,DC=fabrikam,DC=com</NTDSSettingsObjectDN>
          <Name>SERVER01</Name>
          <OperationMasterRole>
            <ActiveDirectoryOperationMasterRole>SchemaMaster</ActiveDirectoryOperationMasterRole>
            <ActiveDirectoryOperationMasterRole>DomainNamingMaster</ActiveDirectoryOperationMasterRole>
            <ActiveDirectoryOperationMasterRole>PDCEmulator</ActiveDirectoryOperationMasterRole>
            <ActiveDirectoryOperationMasterRole>RIDMaster</ActiveDirectoryOperationMasterRole>
            <ActiveDirectoryOperationMasterRole>InfrastructureMaster</ActiveDirectoryOperationMasterRole>
          </OperationMasterRole>
          <Partitions xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
            <sera:string>CN=Schema,CN=Configuration,DC=fabrikam,DC=com</sera:string>

```

```

        <sera:string>CN=Configuration,DC=fabrikam,DC=com</sera:string>
        <sera:string>DC=fabrikam,DC=com</sera:string>
    </Partitions>
    <ServerObjectDN>CN=server01,CN=Servers,CN=Default-First-Site-
Name,CN=Sites,CN=Configuration,DC=fabrikam,DC=com</ServerObjectDN>
    <ServerObjectGuid>2836232f-a020-446a-a15d-94131dd8003c</ServerObjectGuid>
    <Site>Default-First-Site-Name</Site>
    <SslPort>636</SslPort>
    <ComputerDN>CN=server01,OU=Domain Controllers,DC=fabrikam,DC=com</ComputerDN>
    <Domain>fabrikam.com</Domain>
    <Enabled>true</Enabled>
    <Forest>fabrikam.com</Forest>
    <IsGlobalCatalog>true</IsGlobalCatalog>
    <IsReadOnly>false</IsReadOnly>
    <OSHotFix xsi:nil="true"></OSHotFix>
    <OSName>Windows Server 2008 R2 Enterprise</OSName>
    <OSServicepack xsi:nil="true"></OSServicepack>
    <OSVersion>6.1 (7068)</OSVersion>
</ActiveDirectoryDomainController>
</DomainControllers>
</GetADDomainControllerResponse>
</soapenv:Body>
</soapenv:Envelope>

```

4.2.4 Example of GetADForest

In this section, there is an example of a GetADForest request and a GetADForest response.

GetADForest SOAP request message:

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action

soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/GetADForest</wsa:Action>
    <ca:Server

xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Ser
ver>
    <wsa:MessageID>urn:uuid:4820e316-3396-432d-abcb-00dff37634bb</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
ndows/TopologyManagement</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <GetADForestRequest
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"></GetADForestReques
t>
  </soapenv:Body>
</soapenv:Envelope>

```

GetADForest SOAP response message:

```
<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
    <wsa:Action
      soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
      TopologyManagement/GetADForestResponse</wsa:Action>
    <wsa:RelatesTo>urn:uuid:4820e316-3396-432d-abcb-00dff37634bb</wsa:RelatesTo>
    <wsa:To
      soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
      <GetADForestResponse
        xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
        <Forest xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
          <ApplicationPartitions xsi:nil="true"
            xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></ApplicationPartitions>
          <CrossForestReferences xsi:nil="true"
            xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></CrossForestReferences>
          <DomainNamingMaster>server01.fabrikam.com</DomainNamingMaster>
          <Domains xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
            <sera:string>fabrikam.com</sera:string>
          </Domains>
          <ForestMode>0</ForestMode>
          <GlobalCatalogs
            xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
            <sera:string>server01.fabrikam.com</sera:string>
          </GlobalCatalogs>
          <Name>fabrikam.com</Name>
          <RootDomain>fabrikam.com</RootDomain>
          <SPNSuffixes xsi:nil="true"
            xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></SPNSuffixes>
          <SchemaMaster>server01.fabrikam.com</SchemaMaster>
          <Sites xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
            <sera:string>Default-First-Site-Name</sera:string>
          </Sites>
          <UPNSuffixes xsi:nil="true"
            xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"></UPNSuffixes>
        </Forest>
      </GetADForestResponse>
    </soapenv:Body>
  </soapenv:Envelope>
```

4.2.5 Example of GetVersion

In this section, there is an example of a GetVersion request and a GetVersion response.

The GetVersion SOAP request message.

```
<soapenv:Envelope
  xmlns:wsa="http://www.w3.org/2005/08/addressing"
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
  <soapenv:Header>
```

```

    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/GetVersion</wsa:Action>
    <wsa:MessageID>urn:uuid:680a119e-d421-41f6-8e84-b3d3d8887e49</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To>
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
ndows/TopologyManagement</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
      <GetVersionRequest
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"></GetVersionRequest
>
    </soapenv:Body>
  </soapenv:Envelope>

```

The GetVersion SOAP response message.

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/GetVersionResponse</wsa:Action>
    <wsa:RelatesTo>urn:uuid:680a119e-d421-41f6-8e84-b3d3d8887e49</wsa:RelatesTo>
    <wsa:To>
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
  </soapenv:Header>
  <soapenv:Body>
    <GetVersionResponse
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
      <VersionMajor>1</VersionMajor>
      <VersionMinor>1</VersionMinor>
      <VersionString>Active Directory Web Services v1.1</VersionString>
    </GetVersionResponse>
  </soapenv:Body>
</soapenv:Envelope>

```

4.2.6 Example of MoveADOperationMasterRole

In this section, there is an example of a MoveADOperationMasterRole request and a MoveADOperationMasterRole response.

MoveADOperationMasterRole SOAP request message:

```

<soapenv:Envelope
  xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsa="http://www.w3.org/2005/08/addressing">
  <soapenv:Header>
    <wsa:Action
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/MoveADOperationMasterRole</wsa:Action>
    <ca:Server

```



```

        xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"

xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">ldap:389</ca:Server
>
    <wsa:MessageID>urn:uuid:21a0874f-6dd7-426f-8449-aede7f0ffd61</wsa:MessageID>
    <wsa:ReplyTo>
        <wsa:Address>http://www.w3.org/2005/08/addressing/anonymous</wsa:Address>
    </wsa:ReplyTo>
    <wsa:To>
soapenv:mustUnderstand="1">net.tcp://server01.fabrikam.com:9389/ActiveDirectoryWebServices/Wi
ndows/TopologyManagement</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xmlns:xs="http://www.w3.org/2001/XMLSchema">
        <MoveADOperationMasterRoleRequest
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
            <OperationMasterRole>RIDMaster</OperationMasterRole>
            <Seize>false</Seize>
        </MoveADOperationMasterRoleRequest>
    </soapenv:Body>
</soapenv:Envelope>

```

MoveADOperationMasterRole SOAP response message:

```

<soapenv:Envelope
    xmlns:wsa="http://www.w3.org/2005/08/addressing"
    xmlns:soapenv="http://www.w3.org/2003/05/soap-envelope">
    <soapenv:Header>
        <wsa:Action>
soapenv:mustUnderstand="1">http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/
TopologyManagement/MoveADOperationMasterRoleResponse</wsa:Action>
        <wsa:RelatesTo>urn:uuid:21a0874f-6dd7-426f-8449-aede7f0ffd61</wsa:RelatesTo>
        <wsa:To>
soapenv:mustUnderstand="1">http://www.w3.org/2005/08/addressing/anonymous</wsa:To>
    </soapenv:Header>
    <soapenv:Body>
        <MoveADOperationMasterRoleResponse
xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions">
            <WasSeized>false</WasSeized>
        </MoveADOperationMasterRoleResponse>
    </soapenv:Body>
</soapenv:Envelope>

```

5 Security

5.1 Security Considerations for Implementers

There are no known additional security considerations for these protocol extensions, but server implementers are encouraged to use transport mechanisms that support encryption and integrity verification of the messages.

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

For ease of implementation, the full WSDL is provided below. Included in this WSDL is a sample binding for using the AccountManagement and Topology [port types](#) with SOAP 1.2 [\[SOAP1.2-1/2003\]](#). This binding is included for illustration purposes only and should not be construed to restrict servers from implementing this protocol using other versions of SOAP or over other transports.

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions
  xmlns:ca="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
  xmlns:ser="http://schemas.microsoft.com/2003/10/Serialization/"
  xmlns:sera="http://schemas.microsoft.com/2003/10/Serialization/Arrays"
  xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
  xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  name="ActiveDirectoryWebService"
  targetNamespace="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" >
<wsdl:types>

  <wsdl:documentation>
    XSD Schema for the http://schemas.microsoft.com/2003/10/Serialization/
    ("ser:") namespace. This contains the definitions for "ser:guid"
    and "ser:duration", used by the ADCAP protocol.
  </wsdl:documentation>
  <xs:schema
    elementFormDefault="qualified"
    targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/">
    <xs:element name="duration" nillable="true" type="ser:duration" />
    <xs:simpleType name="duration">
      <xs:restriction base="xs:duration">
        <xs:pattern value="\-?P(\d*D)?(T(\d*H)?(\d*M)?(\d*(\.\d*)?S)?)?" />
        <xs:minInclusive value="-P10675199DT2H48M5.4775808S" />
        <xs:maxInclusive value="P10675199DT2H48M5.4775807S" />
      </xs:restriction>
    </xs:simpleType>
    <xs:element name="guid" nillable="true" type="ser:guid" />
    <xs:simpleType name="guid">
      <xs:restriction base="xs:string">
        <xs:pattern value="[\da-fA-F]{8}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{4}-[\da-fA-F]{12}" />
      </xs:restriction>
    </xs:simpleType>
  </xs:schema>

  <wsdl:documentation>
    XSD Schema for the http://schemas.microsoft.com/2003/10/Serialization/Arrays
    ("sera:") namespace. This contains the definition for "sera:ArrayOfString", used
    throughout the ADCAP protocol.
  </wsdl:documentation>
  <xs:schema
    elementFormDefault="qualified"
    targetNamespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays">
    <xs:complexType name="ArrayOfstring">
      <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded" name="string" nillable="true"
          type="xs:string" />
      </xs:sequence>
    </xs:complexType>
  </xs:schema>
</wsdl:types>
```

```

        </xs:sequence>
    </xs:complexType>
    <xs:element name="ArrayOfstring" nillable="true" type="sera:ArrayOfstring" />
</xs:schema>

<wsdl:documentation>
    XSD Schema for the http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions
    ("ca:") namespace. This is the core schema for ADCAP, and includes all the request and
    response messages, and the types and elements used in those messages. It also contains the
    ADCAP SOAP Fault detail types and elements.
</wsdl:documentation>
<xs:schema
targetNamespace="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions"
    elementFormDefault="qualified">
    <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/" />
    <xs:import namespace="http://schemas.microsoft.com/2003/10/Serialization/Arrays" />
    <xs:element name="GetADGroupMemberRequest">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="GroupDN" nillable="true" type="xs:string" />
                <xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
                <xs:element minOccurs="0" name="Recursive" type="xs:boolean" />
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:element name="Server" nillable="true" type="xs:string" />
    <xs:element name="GetADGroupMemberResponse">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="Members" nillable="true"
type="ca:ArrayOfActiveDirectoryPrincipal" />
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:complexType name="ArrayOfActiveDirectoryPrincipal">
        <xs:sequence>
            <xs:element minOccurs="0" maxOccurs="unbounded" name="ActiveDirectoryPrincipal"
nillable="true" type="ca:ActiveDirectoryPrincipal" />
        </xs:sequence>
    </xs:complexType>
    <xs:element name="ArrayOfActiveDirectoryPrincipal" nillable="true"
type="ca:ArrayOfActiveDirectoryPrincipal" />
    <xs:complexType name="ActiveDirectoryPrincipal">
        <xs:complexContent mixed="false">
            <xs:extension base="ca:ActiveDirectoryObject">
                <xs:sequence>
                    <xs:element name="SID" nillable="true" type="xs:base64Binary" />
                    <xs:element name="SamAccountName" nillable="true" type="xs:string" />
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:element name="ActiveDirectoryPrincipal" nillable="true"
type="ca:ActiveDirectoryPrincipal" />
    <xs:complexType name="ActiveDirectoryObject">
        <xs:sequence>
            <xs:element name="DistinguishedName" nillable="true" type="xs:string" />
            <xs:element name="Name" nillable="true" type="xs:string" />
            <xs:element name="ObjectClass" nillable="true" type="xs:string" />
            <xs:element name="ObjectGuid" type="ser:guid" />
        </xs:sequence>
    </xs:complexType>

```

```

        <xs:element name="ObjectTypes" nillable="true" type="sera:ArrayOfstring" />
        <xs:element name="ReferenceServer" nillable="true" type="xs:string" />
    </xs:sequence>
</xs:complexType>
<xs:element name="ActiveDirectoryObject" nillable="true"
type="ca:ActiveDirectoryObject" />
<xs:complexType name="ActiveDirectoryGroup">
    <xs:complexContent mixed="false">
        <xs:extension base="ca:ActiveDirectoryPrincipal">
            <xs:sequence>
                <xs:element name="GroupScope" type="ca:ActiveDirectoryGroupScope" />
                <xs:element name="GroupType" type="ca:ActiveDirectoryGroupType" />
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="ActiveDirectoryGroup" nillable="true" type="ca:ActiveDirectoryGroup"
/>

<xs:simpleType name="ActiveDirectoryGroupScope">
    <xs:restriction base="xs:string">
        <xs:enumeration value="Unknown" />
        <xs:enumeration value="DomainLocal" />
        <xs:enumeration value="Global" />
        <xs:enumeration value="Universal" />
    </xs:restriction>
</xs:simpleType>
<xs:element name="ActiveDirectoryGroupScope" nillable="true"
type="ca:ActiveDirectoryGroupScope" />
<xs:simpleType name="ActiveDirectoryGroupType">
    <xs:restriction base="xs:string">
        <xs:enumeration value="Unknown" />
        <xs:enumeration value="Distribution" />
        <xs:enumeration value="Security" />
    </xs:restriction>
</xs:simpleType>
<xs:element name="ActiveDirectoryGroupType" nillable="true"
type="ca:ActiveDirectoryGroupType" />
<xs:complexType name="ActiveDirectoryPartition">
    <xs:complexContent mixed="false">
        <xs:extension base="ca:ActiveDirectoryObject">
            <xs:sequence>
                <xs:element name="DNSRoot" nillable="true" type="xs:string" />
                <xs:element name="DeletedObjectsContainer" nillable="true" type="xs:string" />
                <xs:element name="LostAndFoundContainer" nillable="true" type="xs:string" />
                <xs:element name="QuotasContainer" nillable="true" type="xs:string" />
                <xs:element name="ReadOnlyReplicaDirectoryServer" nillable="true"
type="sera:ArrayOfstring" />
                <xs:element name="ReplicaDirectoryServer" nillable="true"
type="sera:ArrayOfstring" />
                <xs:element name="SubordinateReferences" nillable="true"
type="sera:ArrayOfstring" />
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="ActiveDirectoryPartition" nillable="true"
type="ca:ActiveDirectoryPartition" />
<xs:complexType name="ActiveDirectoryDomain">
    <xs:complexContent mixed="false">
        <xs:extension base="ca:ActiveDirectoryPartition">

```

```

        <xs:sequence>
          <xs:element name="AllowedDNSSuffixes" nillable="true" type="sera:ArrayOfstring"
/>
          <xs:element name="AppliedGroupPolicies" nillable="true"
type="sera:ArrayOfstring" />
          <xs:element name="ChildDomains" nillable="true" type="sera:ArrayOfstring" />
          <xs:element name="ComputersContainer" nillable="true" type="xs:string" />
          <xs:element name="DomainControllersContainer" nillable="true" type="xs:string"
/>
          <xs:element name="DomainMode" type="xs:int" />
          <xs:element name="DomainSID" nillable="true" type="xs:base64Binary" />
          <xs:element name="ForeignSecurityPrincipalsContainer" nillable="true"
type="xs:string" />
          <xs:element name="Forest" nillable="true" type="xs:string" />
          <xs:element name="InfrastructureMaster" nillable="true" type="xs:string" />
          <xs:element name="LastLogonReplicationInterval" nillable="true"
type="ser:duration" />
          <xs:element name="ManagedBy" nillable="true" type="xs:string" />
          <xs:element name="NetBIOSName" nillable="true" type="xs:string" />
          <xs:element name="PDCEmulator" nillable="true" type="xs:string" />
          <xs:element name="ParentDomain" nillable="true" type="xs:string" />
          <xs:element name="RIDMaster" nillable="true" type="xs:string" />
          <xs:element name="SystemsContainer" nillable="true" type="xs:string" />
          <xs:element name="UsersContainer" nillable="true" type="xs:string" />
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="ActiveDirectoryDomain" nillable="true"
type="ca:ActiveDirectoryDomain" />
  <xs:complexType name="GetADGroupMemberFault">
    <xs:complexContent mixed="false">
      <xs:extension base="ca:CustomActionFault">
        <xs:sequence />
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <xs:element name="GetADGroupMemberFault" nillable="true"
type="ca:GetADGroupMemberFault" />
  <xs:complexType name="CustomActionFault">
    <xs:sequence>
      <xs:element minOccurs="0" name="ArgumentError" nillable="true"
type="ca:ArgumentErrorDetailCA" />
      <xs:element minOccurs="0" name="DirectoryError" nillable="true"
type="ca:DirectoryErrorDetailCA" />
      <xs:element minOccurs="0" name="Error" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="ShortError" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
  <xs:element name="CustomActionFault" nillable="true" type="ca:CustomActionFault" />
  <xs:complexType name="ArgumentErrorDetailCA">
    <xs:sequence>
      <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="ParameterName" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="ShortMessage" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>

  <xs:complexType name="DirectoryErrorDetailCA">

```

```

        <xs:sequence>
          <xs:element minOccurs="0" name="ErrorCode" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="ExtendedErrorMessage" nillable="true"
type="xs:string" />
          <xs:element minOccurs="0" name="MatchedDN" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="Message" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="Referral" nillable="true" type="sera:ArrayOfstring"
/>
          <xs:element minOccurs="0" name="ShortMessage" nillable="true" type="xs:string" />
          <xs:element minOccurs="0" name="Win32ErrorCode" nillable="true" type="xs:string" />
        </xs:sequence>
      </xs:complexType>

      <xs:complexType name="ChangeOptionalFeatureFault">
        <xs:complexContent mixed="false">
          <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
      <xs:element name="ChangeOptionalFeatureFault" nillable="true"
type="ca:ChangeOptionalFeatureFault" />
      <xs:complexType name="GetADForestFault">
        <xs:complexContent mixed="false">
          <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
      <xs:element name="GetADForestFault" nillable="true" type="ca:GetADForestFault" />
      <xs:complexType name="MoveADOperationMasterRoleFault">
        <xs:complexContent mixed="false">
          <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
      <xs:element name="MoveADOperationMasterRoleFault" nillable="true"
type="ca:MoveADOperationMasterRoleFault" />
      <xs:complexType name="GetADPrincipalGroupMembershipFault">
        <xs:complexContent mixed="false">
          <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
      <xs:element name="GetADPrincipalGroupMembershipFault" nillable="true"
type="ca:GetADPrincipalGroupMembershipFault" />
      <xs:complexType name="SetPasswordFault">
        <xs:complexContent mixed="false">
          <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
      <xs:element name="SetPasswordFault" nillable="true" type="ca:SetPasswordFault" />
      <xs:complexType name="ChangePasswordFault">
        <xs:complexContent mixed="false">

```

```

        <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="ChangePasswordFault" nillable="true" type="ca:ChangePasswordFault" />
<xs:complexType name="GetADPrincipalAuthorizationGroupFault">
    <xs:complexContent mixed="false">
        <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="GetADPrincipalAuthorizationGroupFault" nillable="true"
type="ca:GetADPrincipalAuthorizationGroupFault" />
<xs:complexType name="GetADDomainFault">
    <xs:complexContent mixed="false">
        <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="GetADDomainFault" nillable="true" type="ca:GetADDomainFault" />
<xs:complexType name="GetADDomainControllerFault">
    <xs:complexContent mixed="false">
        <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="GetADDomainControllerFault" nillable="true"
type="ca:GetADDomainControllerFault" />
<xs:complexType name="TranslateNameFault">
    <xs:complexContent mixed="false">
        <xs:extension base="ca:CustomActionFault">
            <xs:sequence />
        </xs:extension>
    </xs:complexContent>
</xs:complexType>
<xs:element name="TranslateNameFault" nillable="true" type="ca:TranslateNameFault" />
<xs:element name="GetADPrincipalGroupMembershipRequest">
    <xs:complexType>
        <xs:sequence>
            <xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
            <xs:element minOccurs="0" name="PrincipalDN" nillable="true" type="xs:string" />
            <xs:element minOccurs="0" name="ResourceContextPartition" nillable="true"
type="xs:string" />
            <xs:element minOccurs="0" name="ResourceContextServer" nillable="true"
type="xs:string" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
<xs:element name="GetADPrincipalGroupMembershipResponse">
    <xs:complexType>
        <xs:sequence>
            <xs:element minOccurs="0" name="MemberOf" nillable="true"
type="ca:ArrayOfActiveDirectoryGroup" />
        </xs:sequence>
    </xs:complexType>

```



```

</xs:element>
<xs:complexType name="ArrayOfActiveDirectoryGroup">
  <xs:sequence>
    <xs:element minOccurs="0" maxOccurs="unbounded" name="ActiveDirectoryGroup"
nillable="true" type="ca:ActiveDirectoryGroup" />
  </xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfActiveDirectoryGroup" nillable="true"
type="ca:ArrayOfActiveDirectoryGroup" />
<xs:element name="SetPasswordRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="AccountDN" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="NewPassword" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="SetPasswordResponse">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>
<xs:element name="ChangePasswordRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="AccountDN" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="NewPassword" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="OldPassword" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="ChangePasswordResponse">
  <xs:complexType>
    <xs:sequence />
  </xs:complexType>
</xs:element>
<xs:element name="GetADPrincipalAuthorizationGroupRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="PartitionDN" nillable="true" type="xs:string" />
      <xs:element minOccurs="0" name="PrincipalDN" nillable="true" type="xs:string" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="GetADPrincipalAuthorizationGroupResponse">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="MemberOf" nillable="true"
type="ca:ArrayOfActiveDirectoryGroup" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="TranslateNameRequest">
  <xs:complexType>
    <xs:sequence>
      <xs:element minOccurs="0" name="FormatDesired"
type="ca:ActiveDirectoryNameFormat" />
    </xs:sequence>
  </xs:complexType>
</xs:element>

```

```

        <xs:element minOccurs="0" name="FormatOffered"
type="ca:ActiveDirectoryNameFormat" />
        <xs:element minOccurs="0" name="Names" nillable="true" type="sera:ArrayOfstring"
/>
    </xs:sequence>
</xs:complexType>
</xs:element>
<xs:simpleType name="ActiveDirectoryNameFormat">
    <xs:restriction base="xs:string">
        <xs:enumeration value="DistinguishedName">
            <xs:annotation>
                <xs:appinfo>
                    <ser:EnumerationValue>1</ser:EnumerationValue>
                </xs:appinfo>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="CanonicalName">
            <xs:annotation>
                <xs:appinfo>
                    <ser:EnumerationValue>2</ser:EnumerationValue>
                </xs:appinfo>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>
<xs:element name="ActiveDirectoryNameFormat" nillable="true"
type="ca:ActiveDirectoryNameFormat" />
<xs:element name="TranslateNameResponse">
    <xs:complexType>
        <xs:sequence>
            <xs:element minOccurs="0" name="NameTranslateResult" nillable="true"
type="ca:ArrayOfActiveDirectoryNameTranslateResult" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
<xs:complexType name="ArrayOfActiveDirectoryNameTranslateResult">
    <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded"
name="ActiveDirectoryNameTranslateResult" nillable="true"
type="ca:ActiveDirectoryNameTranslateResult" />
    </xs:sequence>
</xs:complexType>
<xs:element name="ArrayOfActiveDirectoryNameTranslateResult" nillable="true"
type="ca:ArrayOfActiveDirectoryNameTranslateResult" />
<xs:complexType name="ActiveDirectoryNameTranslateResult">
    <xs:sequence>
        <xs:element name="Name" nillable="true" type="xs:string" />
        <xs:element name="Result" type="xs:unsignedInt" />
    </xs:sequence>
</xs:complexType>
<xs:element name="ActiveDirectoryNameTranslateResult" nillable="true"
type="ca:ActiveDirectoryNameTranslateResult" />
<xs:element name="GetADDomainControllerRequest">
    <xs:complexType>
        <xs:sequence>
            <xs:element minOccurs="0" name="NtdsSettingsDN" nillable="true"
type="sera:ArrayOfstring" />
        </xs:sequence>
    </xs:complexType>
</xs:element>

```

```

    <xs:element name="GetADDomainControllerResponse">
      <xs:complexType>
        <xs:sequence>
          <xs:element minOccurs="0" name="DomainControllers" nillable="true"
type="ca:ArrayOfActiveDirectoryDomainController" />
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:complexType name="ArrayOfActiveDirectoryDomainController">
      <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded"
name="ActiveDirectoryDomainController" nillable="true"
type="ca:ActiveDirectoryDomainController" />
      </xs:sequence>
    </xs:complexType>
    <xs:element name="ArrayOfActiveDirectoryDomainController" nillable="true"
type="ca:ArrayOfActiveDirectoryDomainController" />
    <xs:complexType name="ActiveDirectoryDomainController">
      <xs:complexContent mixed="false">
        <xs:extension base="ca:ActiveDirectoryDirectoryServer">
          <xs:sequence>
            <xs:element name="ComputerDN" nillable="true" type="xs:string" />
            <xs:element name="Domain" nillable="true" type="xs:string" />
            <xs:element name="Enabled" type="xs:boolean" />
            <xs:element name="Forest" nillable="true" type="xs:string" />
            <xs:element name="IsGlobalCatalog" type="xs:boolean" />
            <xs:element name="IsReadOnly" type="xs:boolean" />
            <xs:element name="OSHotFix" nillable="true" type="xs:string" />
            <xs:element name="OSName" nillable="true" type="xs:string" />
            <xs:element name="OSServicepack" nillable="true" type="xs:string" />
            <xs:element name="OSVersion" nillable="true" type="xs:string" />
          </xs:sequence>
        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
    <xs:element name="ActiveDirectoryDomainController" nillable="true"
type="ca:ActiveDirectoryDomainController" />
    <xs:complexType name="ActiveDirectoryDirectoryServer">
      <xs:sequence>
        <xs:element name="DefaultPartition" nillable="true" type="xs:string" />
        <xs:element name="HostName" nillable="true" type="xs:string" />
        <xs:element name="InvocationId" type="ser:guid" />
        <xs:element name="LdapPort" type="xs:int" />
        <xs:element name="NTDSSettingsObjectDN" nillable="true" type="xs:string" />
        <xs:element name="Name" nillable="true" type="xs:string" />
        <xs:element name="OperationMasterRole" nillable="true"
type="ca:ArrayOfActiveDirectoryOperationMasterRole" />
        <xs:element name="Partitions" nillable="true" type="sera:ArrayOfstring" />
        <xs:element name="ServerObjectDN" nillable="true" type="xs:string" />
        <xs:element name="ServerObjectGuid" type="ser:guid" />
        <xs:element name="Site" nillable="true" type="xs:string" />
        <xs:element name="SslPort" type="xs:int" />
      </xs:sequence>
    </xs:complexType>
    <xs:element name="ActiveDirectoryDirectoryServer" nillable="true"
type="ca:ActiveDirectoryDirectoryServer" />
    <xs:complexType name="ArrayOfActiveDirectoryOperationMasterRole">
      <xs:sequence>
        <xs:element minOccurs="0" maxOccurs="unbounded"
name="ActiveDirectoryOperationMasterRole" type="ca:ActiveDirectoryOperationMasterRole" />

```

```

        </xs:sequence>
    </xs:complexType>
    <xs:element name="ArrayOfActiveDirectoryOperationMasterRole" nillable="true"
type="ca:ArrayOfActiveDirectoryOperationMasterRole" />
    <xs:simpleType name="ActiveDirectoryOperationMasterRole">
        <xs:restriction base="xs:string">
            <xs:enumeration value="PDCEmulator" />
            <xs:enumeration value="RIDMaster" />
            <xs:enumeration value="InfrastructureMaster" />
            <xs:enumeration value="SchemaMaster" />
            <xs:enumeration value="DomainNamingMaster" />
        </xs:restriction>
    </xs:simpleType>
    <xs:element name="ActiveDirectoryOperationMasterRole" nillable="true"
type="ca:ActiveDirectoryOperationMasterRole" />
    <xs:element name="GetADDomainRequest">
        <xs:complexType>
            <xs:sequence />
        </xs:complexType>
    </xs:element>
    <xs:element name="GetADDomainResponse">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="Domain" nillable="true"
type="ca:ActiveDirectoryDomain" />
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:element name="MoveADOperationMasterRoleRequest">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="OperationMasterRole"
type="ca:ActiveDirectoryOperationMasterRole" />
                <xs:element minOccurs="0" name="Seize" type="xs:boolean" />
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:element name="MoveADOperationMasterRoleResponse">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="WasSeized" type="xs:boolean" />
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:element name="GetADForestRequest">
        <xs:complexType>
            <xs:sequence />
        </xs:complexType>
    </xs:element>
    <xs:element name="GetADForestResponse">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="Forest" nillable="true"
type="ca:ActiveDirectoryForest" />
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:complexType name="ActiveDirectoryForest">
        <xs:sequence>

```

```

        <xs:element name="ApplicationPartitions" nillable="true" type="sera:ArrayOfstring"
/>
        <xs:element name="CrossForestReferences" nillable="true" type="sera:ArrayOfstring"
/>
        <xs:element name="DomainNamingMaster" nillable="true" type="xs:string" />
        <xs:element name="Domains" nillable="true" type="sera:ArrayOfstring" />
        <xs:element name="ForestMode" type="xs:int" />
        <xs:element name="GlobalCatalogs" nillable="true" type="sera:ArrayOfstring" />
        <xs:element name="Name" nillable="true" type="xs:string" />
        <xs:element name="RootDomain" nillable="true" type="xs:string" />
        <xs:element name="SPNSuffixes" nillable="true" type="sera:ArrayOfstring" />
        <xs:element name="SchemaMaster" nillable="true" type="xs:string" />
        <xs:element name="Sites" nillable="true" type="sera:ArrayOfstring" />
        <xs:element name="UPNSuffixes" nillable="true" type="sera:ArrayOfstring" />
    </xs:sequence>
</xs:complexType>
<xs:element name="ActiveDirectoryForest" nillable="true"
type="ca:ActiveDirectoryForest" />
    <xs:element name="ChangeOptionalFeatureRequest">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="DistinguishedName" nillable="true"
type="xs:string" />
                <xs:element minOccurs="0" name="Enable" type="xs:boolean" />
                <xs:element minOccurs="0" name="FeatureId" type="ser:guid" />
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:element name="ChangeOptionalFeatureResponse">
        <xs:complexType>
            <xs:sequence />
        </xs:complexType>
    </xs:element>
    <xs:element name="GetVersionRequest">
        <xs:complexType>
            <xs:sequence />
        </xs:complexType>
    </xs:element>
    <xs:element name="GetVersionResponse">
        <xs:complexType>
            <xs:sequence>
                <xs:element minOccurs="0" name="VersionMajor" type="xs:int" />
                <xs:element minOccurs="0" name="VersionMinor" type="xs:int" />
                <xs:element minOccurs="0" name="VersionString" nillable="true" type="xs:string"
/>
            </xs:sequence>
        </xs:complexType>
    </xs:element>
    <xs:complexType name="GetVersionFault">
        <xs:complexContent mixed="false">
            <xs:extension base="ca:CustomActionFault">
                <xs:sequence />
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:element name="GetVersionFault" nillable="true" type="ca:GetVersionFault" />
</xs:schema>
</wsdl:types>

```

```

<wsdl:documentation>
  WSDL Messages for the ADCAP protocol.
</wsdl:documentation>
<wsdl:message name="GetADGroupMemberRequest">
  <wsdl:part name="parameters" element="ca:GetADGroupMemberRequest" />
</wsdl:message>
<wsdl:message name="GetADGroupMemberRequest_Headers">
  <wsdl:part name="Server" element="ca:Server" />
</wsdl:message>
<wsdl:message name="GetADGroupMemberResponse">
  <wsdl:part name="parameters" element="ca:GetADGroupMemberResponse" />
</wsdl:message>
<wsdl:message name="AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADGroupMemberFault" />
</wsdl:message>
<wsdl:message name="GetADPrincipalGroupMembershipRequest">
  <wsdl:part name="parameters" element="ca:GetADPrincipalGroupMembershipRequest" />
</wsdl:message>
<wsdl:message name="GetADPrincipalGroupMembershipRequest_Headers">
  <wsdl:part name="Server" element="ca:Server" />
</wsdl:message>
<wsdl:message name="GetADPrincipalGroupMembershipResponse">
  <wsdl:part name="parameters" element="ca:GetADPrincipalGroupMembershipResponse" />
</wsdl:message>
<wsdl:message
name="AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADPrincipalGroupMembershipFault" />
</wsdl:message>
<wsdl:message name="SetPasswordRequest">
  <wsdl:part name="parameters" element="ca:SetPasswordRequest" />
</wsdl:message>
<wsdl:message name="SetPasswordRequest_Headers">
  <wsdl:part name="Server" element="ca:Server" />
</wsdl:message>
<wsdl:message name="SetPasswordResponse">
  <wsdl:part name="parameters" element="ca:SetPasswordResponse" />
</wsdl:message>
<wsdl:message name="AccountManagement_SetPassword_SetPasswordFault_FaultMessage">
  <wsdl:part name="detail" element="ca:SetPasswordFault" />
</wsdl:message>
<wsdl:message name="ChangePasswordRequest">
  <wsdl:part name="parameters" element="ca:ChangePasswordRequest" />
</wsdl:message>
<wsdl:message name="ChangePasswordRequest_Headers">
  <wsdl:part name="Server" element="ca:Server" />
</wsdl:message>
<wsdl:message name="ChangePasswordResponse">
  <wsdl:part name="parameters" element="ca:ChangePasswordResponse" />
</wsdl:message>
<wsdl:message name="AccountManagement_ChangePassword_ChangePasswordFault_FaultMessage">
  <wsdl:part name="detail" element="ca:ChangePasswordFault" />
</wsdl:message>
<wsdl:message name="GetADPrincipalAuthorizationGroupRequest">
  <wsdl:part name="parameters" element="ca:GetADPrincipalAuthorizationGroupRequest" />
</wsdl:message>
<wsdl:message name="GetADPrincipalAuthorizationGroupRequest_Headers">
  <wsdl:part name="Server" element="ca:Server" />
</wsdl:message>

```

```

    <wsdl:message name="GetADPrincipalAuthorizationGroupResponse">
      <wsdl:part name="parameters" element="ca:GetADPrincipalAuthorizationGroupResponse" />
    </wsdl:message>
  <wsdl:message
name="AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage">
    <wsdl:part name="detail" element="ca:GetADPrincipalAuthorizationGroupFault" />
  </wsdl:message>
  <wsdl:message name="TranslateNameRequest">
    <wsdl:part name="parameters" element="ca:TranslateNameRequest" />
  </wsdl:message>
  <wsdl:message name="TranslateNameRequest_Headers">
    <wsdl:part name="Server" element="ca:Server" />
  </wsdl:message>
  <wsdl:message name="TranslateNameResponse">
    <wsdl:part name="parameters" element="ca:TranslateNameResponse" />
  </wsdl:message>
  <wsdl:message name="AccountManagement_TranslateName_TranslateNameFault_FaultMessage">
    <wsdl:part name="detail" element="ca:TranslateNameFault" />
  </wsdl:message>
  <wsdl:message name="GetADDomainControllerRequest">
    <wsdl:part name="parameters" element="ca:GetADDomainControllerRequest" />
  </wsdl:message>
  <wsdl:message name="GetADDomainControllerRequest_Headers">
    <wsdl:part name="Server" element="ca:Server" />
  </wsdl:message>
  <wsdl:message name="GetADDomainControllerResponse">
    <wsdl:part name="parameters" element="ca:GetADDomainControllerResponse" />
  </wsdl:message>
  <wsdl:message
name="TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage">
    <wsdl:part name="detail" element="ca:GetADDomainControllerFault" />
  </wsdl:message>
  <wsdl:message name="GetADDomainRequest">
    <wsdl:part name="parameters" element="ca:GetADDomainRequest" />
  </wsdl:message>
  <wsdl:message name="GetADDomainRequest_Headers">
    <wsdl:part name="Server" element="ca:Server" />
  </wsdl:message>
  <wsdl:message name="GetADDomainResponse">
    <wsdl:part name="parameters" element="ca:GetADDomainResponse" />
  </wsdl:message>
  <wsdl:message name="TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage">
    <wsdl:part name="detail" element="ca:GetADDomainFault" />
  </wsdl:message>
  <wsdl:message name="MoveADOperationMasterRoleRequest">
    <wsdl:part name="parameters" element="ca:MoveADOperationMasterRoleRequest" />
  </wsdl:message>
  <wsdl:message name="MoveADOperationMasterRoleRequest_Headers">
    <wsdl:part name="Server" element="ca:Server" />
  </wsdl:message>
  <wsdl:message name="MoveADOperationMasterRoleResponse">
    <wsdl:part name="parameters" element="ca:MoveADOperationMasterRoleResponse" />
  </wsdl:message>
  <wsdl:message
name="TopologyManagement_MoveADOperationMasterRole_MoveADOperationMasterRoleFault_FaultMessage">
    <wsdl:part name="detail" element="ca:MoveADOperationMasterRoleFault" />
  </wsdl:message>

```

```

<wsdl:message name="GetADForestRequest">
  <wsdl:part name="parameters" element="ca:GetADForestRequest" />
</wsdl:message>
<wsdl:message name="GetADForestRequest_Headers">
  <wsdl:part name="Server" element="ca:Server" />
</wsdl:message>
<wsdl:message name="GetADForestResponse">
  <wsdl:part name="parameters" element="ca:GetADForestResponse" />
</wsdl:message>
<wsdl:message name="TopologyManagement_GetADForest_GetADForestFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetADForestFault" />
</wsdl:message>
<wsdl:message name="ChangeOptionalFeatureRequest">
  <wsdl:part name="parameters" element="ca:ChangeOptionalFeatureRequest" />
</wsdl:message>
<wsdl:message name="ChangeOptionalFeatureRequest_Headers">
  <wsdl:part name="Server" element="ca:Server" />
</wsdl:message>
<wsdl:message name="ChangeOptionalFeatureResponse">
  <wsdl:part name="parameters" element="ca:ChangeOptionalFeatureResponse" />
</wsdl:message>
<wsdl:message
name="TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage">
  <wsdl:part name="detail" element="ca:ChangeOptionalFeatureFault" />
</wsdl:message>
<wsdl:message name="GetVersionRequest">
  <wsdl:part name="parameters" element="ca:GetVersionRequest" />
</wsdl:message>
<wsdl:message name="GetVersionResponse">
  <wsdl:part name="parameters" element="ca:GetVersionResponse" />
</wsdl:message>

<wsdl:documentation>
  AccountManagement port type for the ADCAP protocol.
</wsdl:documentation>
<wsdl:message name="TopologyManagement_GetVersion_GetVersionFault_FaultMessage">
  <wsdl:part name="detail" element="ca:GetVersionFault" />
</wsdl:message>
<wsdl:portType name="AccountManagement">
  <wsdl:operation name="GetADGroupMember">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagem
ent/GetADGroupMember" name="GetADGroupMemberRequest" message="ca:GetADGroupMemberRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagem
ent/GetADGroupMemberResponse" name="GetADGroupMemberResponse"
message="ca:GetADGroupMemberResponse" />
    <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="GetADGroupMemberFault"
message="ca:AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage" />
    </wsdl:operation>
    <wsdl:operation name="GetADPrincipalGroupMembership">
      <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagem
ent/GetADPrincipalGroupMembership" name="GetADPrincipalGroupMembershipRequest"
message="ca:GetADPrincipalGroupMembershipRequest" />
      <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagem

```



```

ent/GetADPrincipalGroupMembershipResponse" name="GetADPrincipalGroupMembershipResponse"
message="ca:GetADPrincipalGroupMembershipResponse" />
  <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="GetADPrincipalGroupMembershipFault"
message="ca:AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage" />
  </wsdl:operation>
  <wsdl:operation name="SetPassword">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/SetPassword" name="SetPasswordRequest" message="ca:SetPasswordRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/SetPasswordResponse" name="SetPasswordResponse" message="ca:SetPasswordResponse" />
    <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="SetPasswordFault"
message="ca:AccountManagement_SetPassword_SetPasswordFault_FaultMessage" />
    </wsdl:operation>
    <wsdl:operation name="ChangePassword">
      <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/ChangePassword" name="ChangePasswordRequest" message="ca:ChangePasswordRequest" />
      <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/ChangePasswordResponse" name="ChangePasswordResponse" message="ca:ChangePasswordResponse" />
      <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="ChangePasswordFault"
message="ca:AccountManagement_ChangePassword_ChangePasswordFault_FaultMessage" />
      </wsdl:operation>
      <wsdl:operation name="GetADPrincipalAuthorizationGroup">
        <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalAuthorizationGroup" name="GetADPrincipalAuthorizationGroupRequest"
message="ca:GetADPrincipalAuthorizationGroupRequest" />
        <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/GetADPrincipalAuthorizationGroupResponse" name="GetADPrincipalAuthorizationGroupResponse"
message="ca:GetADPrincipalAuthorizationGroupResponse" />
        <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="GetADPrincipalAuthorizationGroupFault"
message="ca:AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage" />
        </wsdl:operation>
        <wsdl:operation name="TranslateName">
          <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/TranslateName" name="TranslateNameRequest" message="ca:TranslateNameRequest" />
          <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManagement/TranslateNameResponse" name="TranslateNameResponse" message="ca:TranslateNameResponse" />
          <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="TranslateNameFault"
message="ca:AccountManagement_TranslateName_TranslateNameFault_FaultMessage" />
          </wsdl:operation>
        </wsdl:portType>
      <wsdl:documentation>
        TopologyManagement port type for the ADCAP protocol.

```

```

</wsdl:documentation>
<wsdl:portType name="TopologyManagement">
  <wsdl:operation name="GetADDomainController">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomainController" name="GetADDomainControllerRequest"
message="ca:GetADDomainControllerRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomainControllerResponse" name="GetADDomainControllerResponse"
message="ca:GetADDomainControllerResponse" />
    <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="GetADDomainControllerFault"
message="ca:TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage"
/>
  </wsdl:operation>
  <wsdl:operation name="GetADDomain">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomain" name="GetADDomainRequest" message="ca:GetADDomainRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADDomainResponse" name="GetADDomainResponse" message="ca:GetADDomainResponse" />
    <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="GetADDomainFault"
message="ca:TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage" />
  </wsdl:operation>
  <wsdl:operation name="MoveADOperationMasterRole">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/MoveADOperationMasterRole" name="MoveADOperationMasterRoleRequest"
message="ca:MoveADOperationMasterRoleRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/MoveADOperationMasterRoleResponse" name="MoveADOperationMasterRoleResponse"
message="ca:MoveADOperationMasterRoleResponse" />
    <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="MoveADOperationMasterRoleFault"
message="ca:TopologyManagement_MoveADOperationMasterRole_MoveADOperationMasterRoleFault_FaultMessage" />
  </wsdl:operation>
  <wsdl:operation name="GetADForest">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADForest" name="GetADForestRequest" message="ca:GetADForestRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/GetADForestResponse" name="GetADForestResponse" message="ca:GetADForestResponse" />
    <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="GetADForestFault"
message="ca:TopologyManagement_GetADForest_GetADForestFault_FaultMessage" />
  </wsdl:operation>
  <wsdl:operation name="ChangeOptionalFeature">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/ChangeOptionalFeature" name="ChangeOptionalFeatureRequest"
message="ca:ChangeOptionalFeatureRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagement/ChangeOptionalFeatureResponse" name="ChangeOptionalFeatureResponse"
message="ca:ChangeOptionalFeatureResponse" />
  </wsdl:operation>

```

```

ment/ChangeOptionalFeatureResponse" name="ChangeOptionalFeatureResponse"
message="ca:ChangeOptionalFeatureResponse" />
  <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="ChangeOptionalFeatureFault"
message="ca:TopologyManagement_ChangeOptionalFeature_ChangeOptionalFeatureFault_FaultMessage"
/>
  </wsdl:operation>
  <wsdl:operation name="GetVersion">
    <wsdl:input
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManage
ment/GetVersion" name="GetVersionRequest" message="ca:GetVersionRequest" />
    <wsdl:output
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManage
ment/GetVersionResponse" name="GetVersionResponse" message="ca:GetVersionResponse" />
    <wsdl:fault
wsam:Action="http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault"
name="GetVersionFault"
message="ca:TopologyManagement_GetVersion_GetVersionFault_FaultMessage" />
    </wsdl:operation>
  </wsdl:portType>

  <wsdl:documentation>
    WSDL Binding for the AccountManagement port type over the net.tcp transport using
    SOAP1.2.
  </wsdl:documentation>
  <wsdl:binding name="NetTcpBinding_AccountManagement" type="ca:AccountManagement">
    <soap12:binding transport="http://schemas.microsoft.com/soap/tcp" />
    <wsdl:operation name="GetADGroupMember">
      <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManageme
nt/GetADGroupMember" style="document" />
      <wsdl:input name="GetADGroupMemberRequest">
        <soap12:header message="ca:GetADGroupMemberRequest_Headers" part="Server"
use="literal" />
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output name="GetADGroupMemberResponse">
        <soap12:body use="literal" />
      </wsdl:output>
      <wsdl:fault name="GetADGroupMemberFault">
        <soap12:fault use="literal" name="GetADGroupMemberFault" namespace="" />
      </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetADPrincipalGroupMembership">
      <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManageme
nt/GetADPrincipalGroupMembership" style="document" />
      <wsdl:input name="GetADPrincipalGroupMembershipRequest">
        <soap12:header message="ca:GetADPrincipalGroupMembershipRequest_Headers"
part="Server" use="literal" />
        <soap12:body use="literal" />
      </wsdl:input>
      <wsdl:output name="GetADPrincipalGroupMembershipResponse">
        <soap12:body use="literal" />
      </wsdl:output>
      <wsdl:fault name="GetADPrincipalGroupMembershipFault">
        <soap12:fault use="literal" name="GetADPrincipalGroupMembershipFault" namespace="" />
      </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="SetPassword">

```

```

        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManageme
nt/SetPassword" style="document" />
        <wsdl:input name="SetPasswordRequest">
            <soap12:header message="ca:SetPasswordRequest_Headers" part="Server" use="literal" />
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="SetPasswordResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="SetPasswordFault">
            <soap12:fault use="literal" name="SetPasswordFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="ChangePassword">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManageme
nt/ChangePassword" style="document" />
        <wsdl:input name="ChangePasswordRequest">
            <soap12:header message="ca:ChangePasswordRequest_Headers" part="Server" use="literal"
/>
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="ChangePasswordResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="ChangePasswordFault">
            <soap12:fault use="literal" name="ChangePasswordFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetADPrincipalAuthorizationGroup">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManageme
nt/GetADPrincipalAuthorizationGroup" style="document" />
        <wsdl:input name="GetADPrincipalAuthorizationGroupRequest">
            <soap12:header message="ca:GetADPrincipalAuthorizationGroupRequest_Headers"
part="Server" use="literal" />
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="GetADPrincipalAuthorizationGroupResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="GetADPrincipalAuthorizationGroupFault">
            <soap12:fault use="literal" name="GetADPrincipalAuthorizationGroupFault" namespace=""
/>
            </wsdl:fault>
        </wsdl:operation>
    <wsdl:operation name="TranslateName">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/AccountManageme
nt/TranslateName" style="document" />
        <wsdl:input name="TranslateNameRequest">
            <soap12:header message="ca:TranslateNameRequest_Headers" part="Server" use="literal"
/>
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="TranslateNameResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="TranslateNameFault">

```

```

        <soap12:fault use="literal" name="TranslateNameFault" namespace="" />
    </wsdl:fault>
</wsdl:operation>
</wsdl:binding>

<wsdl:documentation>
    WSDL Binding for the TopologyManagement port type over the net.tcp transport using SOAP
1.2.
</wsdl:documentation>
<wsdl:binding name="NetTcpBinding_TopologyManagement" type="ca:TopologyManagement">
    <soap12:binding transport="http://schemas.microsoft.com/soap/tcp" />
    <wsdl:operation name="GetADDomainController">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagem
ent/GetADDomainController" style="document" />
        <wsdl:input name="GetADDomainControllerRequest">
            <soap12:header message="ca:GetADDomainControllerRequest_Headers" part="Server"
use="literal" />
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="GetADDomainControllerResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="GetADDomainControllerFault">
            <soap12:fault use="literal" name="GetADDomainControllerFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetADDomain">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagem
ent/GetADDomain" style="document" />
        <wsdl:input name="GetADDomainRequest">
            <soap12:header message="ca:GetADDomainRequest_Headers" part="Server" use="literal" />
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="GetADDomainResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="GetADDomainFault">
            <soap12:fault use="literal" name="GetADDomainFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="MoveADOperationMasterRole">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagem
ent/MoveADOperationMasterRole" style="document" />
        <wsdl:input name="MoveADOperationMasterRoleRequest">
            <soap12:header message="ca:MoveADOperationMasterRoleRequest_Headers" part="Server"
use="literal" />
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="MoveADOperationMasterRoleResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="MoveADOperationMasterRoleFault">
            <soap12:fault use="literal" name="MoveADOperationMasterRoleFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetADForest">

```

```

        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagem
ent/GetADForest" style="document" />
        <wsdl:input name="GetADForestRequest">
            <soap12:header message="ca:GetADForestRequest_Headers" part="Server" use="literal" />
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="GetADForestResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="GetADForestFault">
            <soap12:fault use="literal" name="GetADForestFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="ChangeOptionalFeature">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagem
ent/ChangeOptionalFeature" style="document" />
        <wsdl:input name="ChangeOptionalFeatureRequest">
            <soap12:header message="ca:ChangeOptionalFeatureRequest_Headers" part="Server"
use="literal" />
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="ChangeOptionalFeatureResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="ChangeOptionalFeatureFault">
            <soap12:fault use="literal" name="ChangeOptionalFeatureFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetVersion">
        <soap12:operation
soapAction="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions/TopologyManagem
ent/GetVersion" style="document" />
        <wsdl:input name="GetVersionRequest">
            <soap12:body use="literal" />
        </wsdl:input>
        <wsdl:output name="GetVersionResponse">
            <soap12:body use="literal" />
        </wsdl:output>
        <wsdl:fault name="GetVersionFault">
            <soap12:fault use="literal" name="GetVersionFault" namespace="" />
        </wsdl:fault>
    </wsdl:operation>
</wsdl:binding>
</wsdl:definitions>

```

7 Appendix B: Product Behavior

The information in this specification is applicable to the following Microsoft products or supplemental software. References to product versions include released service packs:

- Active Directory Management Gateway Service
- Remote Server Administration Tools for Windows® 7
- Windows Server® 2008 R2 operating system

Exceptions, if any, are noted below. If a service pack or Quick Fix Engineering (QFE) number appears with the product version, behavior changed in that service pack or QFE. The new behavior also applies to subsequent service packs of the product unless otherwise specified. If a product edition appears with the product version, behavior is different in that product edition.

Unless otherwise specified, any statement of optional behavior in this specification that is prescribed using the terms SHOULD or SHOULD NOT implies product behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that the product does not follow the prescription.

[<1> Section 1.3:](#) For Microsoft implementations of Active Directory Web Services: Custom Action Protocol operations that are intended to target a specific directory service, the following table defines the applicability of the operation against an Active Directory Domain Services (AD DS) instance, an Active Directory Lightweight Directory Services (AD LDS) instance, and a **snapshot store instance** (for either AD DS or AD LDS). The AD DS instance is further subdivided into a global catalog (GC) instance and a non-GC instance. In each cell below, "Y" means "Yes, is applicable" and "N" means "No, is not applicable".

| AD-CAP Operation | AD DS Instance | | AD LDS Instance | Snapshot Store Instance (AD DS or AD LDS) |
|----------------------------------|----------------|----|-----------------|---|
| | Non-GC | GC | | |
| ChangePassword | Y | N | Y | N |
| GetADGroupMember | Y | N | Y | N |
| GetADPrincipalAuthorizationGroup | Y | N | Y | N |
| GetADPrincipalGroupMembership | Y | N | Y | N |
| SetPassword | Y | N | Y | N |
| TranslateName | Y | Y | Y | N |
| ChangeOptionalFeature | Y | N | Y | N |
| GetADDomain | Y | N | N | N |
| GetADDomainController | Y | N | N | N |
| GetADForest | Y | N | N | N |
| MoveADOperationsMasterRole | Y | N | Y | N |

<2> [Section 1.5](#): Windows implementations use the domain locator protocol, as specified in [\[MS-DISO\]](#) section 5.3.2 and [\[MS-ADTS\]](#) section 7.3.3.2, to locate a DC server running an instance of the Active Directory Web Services: Custom Action Protocol.

<3> [Section 2.1](#): Microsoft implementations of Active Directory Web Services: Custom Action Protocol use SOAP 1.2 [\[SOAP1.2-1/2003\]](#). The transports used, as well as the authentication mechanisms supported and the endpoints exposed, are specified in [\[MS-ADDM\]](#) section 2.1.

<4> [Section 2.2.3.5](#): Microsoft implementations of Active Directory Web Services: Custom Action Protocol provide access to any Active Directory Domain Services (AD DS) or Active Directory Lightweight Directory Service (AD LDS) directory service that is running on the same computer as Active Directory Web Services. AD DS can be accessed via "ldap:389". If the machine is also an AD DS global catalog, then the global catalog can be accessed as "ldap:3268". An AD LDS instance can be accessed as "ldap:N", where N is the LDAP port number that the AD LDS instance has been configured to use.

<5> [Section 2.2.4.5.1](#): In some cases, Microsoft implementations of the Active Directory Web Services: Custom Action Protocol populate the **Message** element from the list of values shown in column B in Table 1 shown below. In some cases, Microsoft implementations of the Active Directory Web Services: Custom Action Protocol populate the Message element with null, empty, or not present values.

<6> [Section 2.2.4.5.2](#): The **ArgumentErrorDetailCA/ParameterName** element is null in the Active Directory Web Services: Custom Action Protocol implementation in Active Directory Management Gateway Service for Windows Server 2003 SP2, Windows Server 2003 R2 SP2, and Windows Server 2008. It is also null in the Active Directory Web Services: Custom Action Protocol implementation in Windows Server 2008 R2.

<7> [Section 2.2.4.5.3](#): Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the ShortMessage from the Message based on Table 1 shown below.

- If the value of Message is found in column B of Table 1, the ShortMessage is populated with text from column A.
- If the value of Message is not found in column B of Table 1, the ShortMessage is populated with the text from column A of Table 2 shown below, based on the error encountered, as described in column B of Table 2.

Table 1.

| A | B |
|---|--|
| AnonymousNotAllowed | Anonymous access to the directory is not permitted. |
| CantCrackNamesForTranslateName | A name translation operation could not be performed against the directory. |
| CouldNotRetrieveLocalDomainName | The DNS name of the local domain could not be retrieved. |
| CouldNotTransferPdcFsmo | The Primary Domain Controller Emulator role could not be transferred. |
| CouldntConvertDomainDnToDomainDnsNameForGetADDomainController | The domain distinguished |

| A | B |
|---|---|
| | name could not be converted to a DNS name. |
| CouldntRetrieveAddsFsmoRoles | The FSMO roles for Active Directory Domain Services could not be retrieved. |
| InvalidInstanceInTheHeader | The Instance present in the Request Header is invalid. |
| MustSupplyAccountDnForSetPasswordorChangePassword | A non-null, nonempty value for the AccountDN parameter must be supplied. |
| MustSupplyNewPasswordForSetPasswordorChangePassword | A non-null value for the NewPassword parameter must be supplied. |
| MustSupplyOldPasswordForChangePassword | A non-null value for the OldPassword parameter must be supplied. |
| MustSupplyPartitionDn | A non-null, nonempty value for the PartitionDN parameter must be supplied. |
| MustSupplyServerNameForCustomActions | A non-null, nonempty value for the Server parameter must be supplied. |
| NonNTDSOrADLDSInstanceInTheHeader | The specified value of Server does not name a Active Directory Domain Services or Active Directory Lightweight Directory Services instance. |
| NoSuchAuthenticablePrincipal | The specified Authenticable principal was not found. |
| ObjectSidCouldNotBeRetrievedForPdcFsmoTransfer | The SID of the domain could not be retrieved, preventing transfer of the Primary Domain Controller Emulator role. |
| OperationTimeout | The operation timed-out. |
| UnknownFormatForNameTranslate | The specified name format is unknown. |
| UnknownRoleForMoveADOperationMasterRole | The request specified an unknown operation master role to move. |

Table 2.

| A | B |
|-------------------------------------|---|
| EArgument | An ArgumentException was returned. |
| EAuthentication | An AuthenticationException was returned. |
| EDirectoryOperation | A DirectoryOperationException was returned. |
| EInvalidOperation | An InvalidOperationException was returned. |
| ENoConnection | A NoConnectionAvailableException was returned. |
| ENotSupported | A NotSupportedException was returned. |
| EOutOfMemory | An OutOfMemoryException was returned. |
| EWindows32 | A Win32Exception was returned. |
| ECOMServices | A DirectoryServicesCOMException was returned. |
| EObjectNotFound | An ActiveDirectoryObjectNotFoundException was returned. |
| EADirectoryOperation | An ActiveDirectoryOperationException was returned. |
| EServerDown | An ActiveDirectoryServerDownException was returned. |
| EMultipleMatchingSecurityPrincipals | A MultipleMatchesException was returned. |
| ESecurityPrincipalOperation | A PrincipalOperationException was returned. |
| ELdap | The LDAP server is unavailable. |

[<8> Section 2.2.4.6.3:](#) In some cases, Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the **Error** element from the list of values in column A of Table 2 shown above. In some cases, Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the **Error** element with null, empty, or not present values.

[<9> Section 2.2.4.6.4:](#) Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the ShortError from the Error based on Table 1 from the product behavior note in section [2.2.4.5.3](#), shown above.

- If the value of Error is found in column B of Table 1, the ShortError is populated with text from column A.
- If the value of Error is not found in column B of Table 1, the ShortError is populated with the text from column A of Table 2 from the product behavior note in section [2.2.4.5.3](#), shown above, based on the error encountered as described in column B of Table 2.

[<10> Section 2.2.4.7.4:](#) In some cases, Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the **Message** element from the list of values in column B of Table 1 shown above. In some cases, Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the **Message** element with null, empty, or not present values.

[<11> Section 2.2.4.7.6:](#) Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the ShortMessage from the Message based on Table 1 from the product behavior note in section [2.2.4.5.3](#), shown above.

- If the value of Message is found in column B of Table 1, the ShortMessage is populated with text from column A.
- If the value of Message is not found in column B of Table 1, the ShortMessage is populated with the text from column A of Table 2 from the product behavior note in section [2.2.4.5.3](#), shown above, based on the error encountered as described in column B of Table 2.

<12> [Section 2.2.4.7.7](#): Microsoft implementations of Active Directory Web Services: Custom Action Protocol translate LDAP error codes into Win32 error codes ([\[MS-ERREF\]](#) section 2.2) using the following table.

| LDAP Error | | Win32 Error | |
|-------------|---------------------------------|-------------|-------------------------------------|
| Code (Hex) | Name | Code (Dec) | Name |
| 0x00 | LDAP_SUCCESS | 0 | NO_ERROR |
| 0x01 | LDAP_OPERATIONS_ERROR | 8224 | ERROR_DS_OPERATIONS_ERROR |
| 0x02 | LDAP_PROTOCOL_ERROR | 8225 | ERROR_DS_PROTOCOL_ERROR |
| 0x03 | LDAP_TIMELIMIT_EXCEEDED | 8226 | ERROR_DS_TIMELIMIT_EXCEEDED |
| 0x04 | LDAP_SIZELIMIT_EXCEEDED | 8227 | ERROR_DS_SIZELIMIT_EXCEEDED |
| 0x05 | LDAP_COMPARE_FALSE | 8229 | ERROR_DS_COMPARE_FALSE |
| 0x06 | LDAP_COMPARE_TRUE | 8230 | ERROR_DS_COMPARE_TRUE |
| 0x07 | LDAP_AUTH_METHOD_NOT_SUPPORTED | 8231 | ERROR_DS_AUTH_METHOD_NOT_SUPPORTED |
| 0x08 | LDAP_STRONG_AUTH_REQUIRED | 8232 | ERROR_DS_STRONG_AUTH_REQUIRED |
| 0x09 | LDAP_PARTIAL_RESULTS | 299 | ERROR_PARTIAL_COPY |
| 0x0a | LDAP_REFERRAL | 8235 | ERROR_DS_REFERRAL |
| 0x0b | LDAP_ADMIN_LIMIT_EXCEEDED | 8228 | ERROR_DS_ADMIN_LIMIT_EXCEEDED |
| 0x0c | LDAP_UNAVAILABLE_CRIT_EXTENSION | 8236 | ERROR_DS_UNAVAILABLE_CRIT_EXTENSION |
| 0x0d | LDAP_CONFIDENTIALITY_REQUIRED | 8237 | ERROR_DS_CONFIDENTIALITY_REQUIRED |
| 0x0e | LDAP_SASL_BIND_IN_PROGRESS | 590610 | SEC_I_CONTINUE_NEEDED |
| 0x10 | LDAP_NO_SUCH_ATTRIBUTE | 8202 | ERROR_DS_NO_ATTRIBUTE_OR_VALUE |
| 0x11 | LDAP_UNDEFINED_TYPE | 8204 | ERROR_DS_ATTRIBUTE_TYPE_UNDEFINED |
| 0x12 | LDAP_INAPPROPRIATE_MATCHING | 8238 | ERROR_DS_INAPPROPRIATE_MATCHING |
| 0x13 | LDAP_CONSTRAINT_VIOLATION | 8239 | ERROR_DS_CONSTRAINT_VIOLATION |
| 0x14 | LDAP_ATTRIBUTE_OR_VALUE_EXISTS | 8205 | ERROR_DS_ATTRIBUTE_OR_VALUE_EXISTS |
| 0x15 | LDAP_INVALID_SYNTAX | 8203 | ERROR_DS_INVALID_ATTRIBUTE_SYNTAX |

| LDAP Error | | Win32 Error | |
|------------|------------------------------|-------------|-----------------------------------|
| 0x20 | LDAP_NO_SUCH_OBJECT | 8240 | ERROR_DS_NO_SUCH_OBJECT |
| 0x21 | LDAP_ALIAS_PROBLEM | 8241 | ERROR_DS_ALIAS_PROBLEM |
| 0x22 | LDAP_INVALID_DN_SYNTAX | 8242 | ERROR_DS_INVALID_DN_SYNTAX |
| 0x23 | LDAP_IS_LEAF | 8243 | ERROR_DS_IS_LEAF |
| 0x24 | LDAP_ALIAS_DEREF_PROBLEM | 8244 | ERROR_DS_ALIAS_DEREF_PROBLEM |
| 0x30 | LDAP_INAPPROPRIATE_AUTH | 8233 | ERROR_DS_INAPPROPRIATE_AUTH |
| 0x31 | LDAP_INVALID_CREDENTIALS | 1326 | ERROR_LOGON_FAILURE |
| 0x32 | LDAP_INSUFFICIENT_RIGHTS | 5 | ERROR_ACCESS_DENIED |
| 0x33 | LDAP_BUSY | 8206 | ERROR_DS_BUSY |
| 0x34 | LDAP_UNAVAILABLE | 8207 | ERROR_DS_UNAVAILABLE |
| 0x35 | LDAP_UNWILLING_TO_PERFORM | 8245 | ERROR_DS_UNWILLING_TO_PERFORM |
| 0x36 | LDAP_LOOP_DETECT | 8246 | ERROR_DS_LOOP_DETECT |
| 0x3C | LDAP_SORT_CONTROL_MISSING | 8261 | ERROR_DS_SORT_CONTROL_MISSING |
| 0x3D | LDAP_OFFSET_RANGE_ERROR | 8262 | ERROR_DS_OFFSET_RANGE_ERROR |
| 0x40 | LDAP_NAMING_VIOLATION | 8247 | ERROR_DS_NAMING_VIOLATION |
| 0x41 | LDAP_OBJECT_CLASS_VIOLATION | 8212 | ERROR_DS_OBJ_CLASS_VIOLATION |
| 0x42 | LDAP_NOT_ALLOWED_ON_NONLEAF | 8213 | ERROR_DS_CANT_ON_NON_LEAF |
| 0x43 | LDAP_NOT_ALLOWED_ON_RDN | 8214 | ERROR_DS_CANT_ON_RDN |
| 0x44 | LDAP_ALREADY_EXISTS | 5010 | ERROR_OBJECT_ALREADY_EXISTS |
| 0x45 | LDAP_NO_OBJECT_CLASS_MODS | 8215 | ERROR_DS_CANT_MOD_OBJ_CLASS |
| 0x46 | LDAP_RESULTS_TOO_LARGE | 8248 | ERROR_DS_OBJECT_RESULTS_TOO_LARGE |
| 0x47 | LDAP_AFFECTS_MULTIPLE_DSAS | 8249 | ERROR_DS_AFFECTS_MULTIPLE_DSAS |
| 0x4c | LDAP_VIRTUAL_LIST_VIEW_ERROR | 8341 | ERROR_DS_GENERIC_ERROR |
| 0x50 | LDAP_OTHER | 31 | ERROR_GEN_FAILURE |
| 0x51 | LDAP_SERVER_DOWN | 8250 | ERROR_DS_SERVER_DOWN |
| 0x52 | LDAP_LOCAL_ERROR | 8251 | ERROR_DS_LOCAL_ERROR |
| 0x53 | LDAP_ENCODING_ERROR | 8252 | ERROR_DS_ENCODING_ERROR |
| 0x54 | LDAP_DECODING_ERROR | 8253 | ERROR_DS_DECODING_ERROR |
| 0x55 | LDAP_TIMEOUT | 1460 | ERROR_TIMEOUT |
| 0x56 | LDAP_AUTH_UNKNOWN | 8234 | ERROR_DS_AUTH_UNKNOWN |

| LDAP Error | | Win32 Error | |
|------------|------------------------------|-------------|----------------------------------|
| 0x57 | LDAP_FILTER_ERROR | 8254 | ERROR_DS_FILTER_UNKNOWN |
| 0x58 | LDAP_USER_CANCELLED | 1223 | ERROR_CANCELLED |
| 0x59 | LDAP_PARAM_ERROR | 8255 | ERROR_DS_PARAM_ERROR |
| 0x5a | LDAP_NO_MEMORY | 8 | ERROR_NOT_ENOUGH_MEMORY |
| 0x5b | LDAP_CONNECT_ERROR | 1225 | ERROR_CONNECTION_REFUSED |
| 0x5c | LDAP_NOT_SUPPORTED | 8256 | ERROR_DS_NOT_SUPPORTED |
| 0x5e | LDAP_NO_RESULTS_RETURNED | 8257 | ERROR_DS_NO_RESULTS_RETURNED |
| 0x5d | LDAP_CONTROL_NOT_FOUND | 8258 | ERROR_DS_CONTROL_NOT_FOUND |
| 0x5f | LDAP_MORE_RESULTS_TO_RETURN | 234 | ERROR_MORE_DATA |
| 0x60 | LDAP_CLIENT_LOOP | 8259 | ERROR_DS_CLIENT_LOOP |
| 0x61 | LDAP_REFERRAL_LIMIT_EXCEEDED | 8260 | ERROR_DS_REFERRAL_LIMIT_EXCEEDED |

[<13> Section 3:](#) Of the products listed in the applicability list, Active Directory Management Gateway Service contains the server implementation of Active Directory Web Services: Custom Action Protocol, Remote Server Administration Tools for Windows 7 contains the client implementation, and Windows Server 2008 R2 has both the server and the client implementations.

Active Directory Management Gateway Service is available for the Windows Server 2003 SP2, Windows Server 2003 R2 with Service Pack 2 (SP2), and Windows Server 2008.

[<14> Section 3.1.4.2.1:](#) Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the **GroupScope** element with Universal if group!groupType is not set, cannot be read, or does not contain one of the values in the table in section [3.1.4.2.1](#). For example, if group!groupType contains GROUP_TYPE_APP_BASIC_GROUP, then the GroupScope element is set to Universal instead of Unknown.

[<15> Section 3.1.4.2.1:](#) Microsoft implementations of Active Directory Web Services: Custom Action Protocol populate the **GroupType** element with Distribution if group!groupType is not set or cannot be read.

[<16> Section 3.3.4.1.8.6:](#) In Microsoft implementations of Active Directory Web Services: Custom Action Protocol, if the client sends a request that the server is unable to perform because a directory attribute or attributes needed to complete the request are not present or cannot be read, then the fault returned is as specified in section [3.3.4.1.8.2](#).

[<17> Section 3.3.4.2.8.3:](#) Microsoft implementations of Active Directory Web Services: Custom Action Protocol will not return a fault with the reason "Multiple matching security principals were found". This is because it is not possible to have more than one security principal with the same distinguished name in these implementations.

[<18> Section 3.3.4.3.8.3:](#) Microsoft implementations of Active Directory Web Services: Custom Action Protocol will not return a fault with the reason "Multiple matching security principals were found". This is because it is not possible to have more than one security principal with the same distinguished name in these implementations.

[<19> Section 3.3.4.3.8.5:](#) In Microsoft implementations of Active Directory Web Services: Custom Action Protocol, if the client sends a request that the server is unable to perform because a directory attribute or attributes needed to complete the request are not present or cannot be read, then the fault returned is as specified in section [3.3.4.3.8.2](#).

[<20> Section 3.3.4.4.8.3:](#) Microsoft implementations of Active Directory Web Services: Custom Action Protocol will not return a fault with the reason "Multiple matching security principals were found". This is because it is not possible to have more than one security principal with the same distinguished name in these implementations.

[<21> Section 3.3.4.4.8.6:](#) In Microsoft implementations of Active Directory Web Services: Custom Action Protocol, if the client sends a request that the server is unable to perform because a directory attribute or attributes needed to complete the request are not present or cannot be read, then the fault returned is as specified in the second fault defined in section [3.3.4.4.8.2](#).

[<22> Section 3.3.4.5.8.6:](#) In Microsoft implementations of Active Directory Web Services: Custom Action Protocol, if the client sends a request that the server is unable to perform because a directory attribute or attributes needed to complete the request are not present or cannot be read, then the fault returned is as specified in section [3.3.4.5.8.2](#).

[<23> Section 3.4.4.2.3.1.3:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **dnsRoot** attribute. If the **dnsRoot** attribute has more than a single value, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values.

[<24> Section 3.4.4.2.3.1.4:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.1.4](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements.

[<25> Section 3.4.4.2.3.1.5:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.1.5](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements.

[<26> Section 3.4.4.2.3.1.8:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.1.8](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements.

[<27> Section 3.4.4.2.3.1.9:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple crossRef objects which satisfy the requirements given in section [3.4.4.2.3.1.9](#). If multiple crossRef objects satisfy these requirements, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single object randomly from the set of objects meeting the requirements.

[<28> Section 3.4.4.2.3.1.9:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value that

satisfies the requirements given in section [3.4.4.2.3.2.1](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements

<29> [Section 3.4.4.2.3.1.11](#): Microsoft implementations of Active Directory Web Services: Custom Action Protocol omit the time items (hours, minutes, seconds) and "T" designator from the response when all are zero as is permitted for xs:duration ([\[XMLSCHEMA2\]](#))

<30> [Section 3.4.4.2.3.1.13](#): No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple crossRef objects which satisfy the requirements given in section [3.4.4.2.3.1.13](#). If multiple crossRef objects satisfy these requirements, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single object randomly from the set of objects meeting the requirements.

<31> [Section 3.4.4.2.3.1.14](#): No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple crossRef objects that satisfy the requirements given in section [3.4.4.2.3.1.14](#). If multiple crossRef objects satisfy these requirements, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single object randomly from the set of objects meeting the requirements.

<32> [Section 3.4.4.2.3.1.14](#): No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **dnsRoot** attribute. If the **dnsRoot** attribute has more than a single value, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values.

<33> [Section 3.4.4.2.3.1.17](#): No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.1.17](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements.

<34> [Section 3.4.4.2.3.1.18](#): No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.1.18](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements

<35> [Section 3.4.4.2.3.2.1](#): No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.2.1](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements.

<36> [Section 3.4.4.2.3.2.3](#): No Microsoft implementations of the Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple crossRef objects that satisfy the requirements given in section [3.4.4.2.3.2.3](#). If multiple crossRef objects satisfy these requirements, the Microsoft implementations of the Active Directory Web Services: Custom Action Protocol choose a single object randomly from the set of objects meeting the requirements.

<37> [Section 3.4.4.2.3.2.3](#): No Microsoft implementations of the Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **dnsRoot** attribute. If the **dnsRoot** attribute has more than a single value, the Microsoft implementations of

the Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values.

[<38> Section 3.4.4.2.3.2.4:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.2.4](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements.

[<39> Section 3.4.4.2.3.2.10:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **wellKnownObjects** attribute. If the **wellKnownObjects** attribute has more than a single value which satisfies the requirements given in section [3.4.4.2.3.2.10](#), the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values meeting the requirements

[<40> Section 3.4.4.2.8.2:](#) In Microsoft implementations of Active Directory Web Services: Custom Action Protocol, if the client sends a request that the server is unable to perform because a directory attribute or attributes needed to complete the request are not present or cannot be read, then the following fault is returned.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Sender |
| [Subcode] | GetADDomainFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | The operation failed because of a bad parameter. |
| [Detail] | <pre><soapenv:Detail> <GetADDomainFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </GetADDomainFault> </soapenv:Detail></pre> |

[<41> Section 3.4.4.3.3.2.4:](#) No Microsoft implementations of the Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **dnsRoot** attribute. If the **dnsRoot** attribute has more than a single value, the Microsoft implementations of the Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values.

[<42> Section 3.4.4.3.8.3:](#) In Microsoft implementations of Active Directory Web Services: Custom Action Protocol, if the client sends a request that the server is unable to perform because a directory attribute or attributes needed to complete the request are not present or cannot be read, then the fault returned is as specified in section [3.4.4.3.8.2](#).

[<43> Section 3.4.4.4.3.1.4:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **dnsRoot** attribute. If the **dnsRoot** attribute has more than a single value, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values.

[<44> Section 3.4.4.4.3.1.7:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple crossRef objects which satisfy the requirements given in section [3.4.4.4.3.1.7](#). If multiple crossRef objects satisfy these requirements, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single object randomly from the set of objects meeting the requirements.

[<45> Section 3.4.4.4.3.1.7:](#) No Microsoft implementations of Active Directory Web Services: Custom Action Protocol have any specific logic to choose from multiple values of any **dnsRoot** attribute. If the **dnsRoot** attribute has more than a single value, the Microsoft implementations of Active Directory Web Services: Custom Action Protocol choose a single value randomly from the set of values.

[<46> Section 3.4.4.4.8.2:](#) In Microsoft implementations of Active Directory Web Services: Custom Action Protocol, if the client sends a request that the server is unable to perform because a directory attribute or attributes needed to complete the request are not present or cannot be read, then the following fault is returned.

| Field | Value |
|-----------|---|
| [Code] | soapenv:Receiver |
| [Subcode] | GetADForestFault |
| [Action] | http://schemas.microsoft.com/2008/1/ActiveDirectory/Data/fault |
| [Reason] | Active Directory returned an error processing the operation. |
| [Detail] | <pre> <soapenv:Detail> <GetADForestFault xmlns="http://schemas.microsoft.com/2008/1/ActiveDirectory/CustomActions" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <ArgumentError xsi:nil="true"></ArgumentError> <DirectoryError xsi:nil="true"></DirectoryError> <Error>...</Error> <ShortError>...</ShortError> </GetADForestFault> </soapenv:Detail> </pre> |

[<47> Section 3.4.4.5.1.3:](#) The TopologyManagement_GetVersion_GetVersionFault_FaultMessage message is not returned by this protocol.

[<48> Section 3.4.4.5.2.4:](#) The **VersioMajor** levels are available in product versions as indicated by the following table.

| Value | Available in product version |
|-------|--|
| 1 | Windows Server 2008 R2 and Active Directory Management Gateway Service |

<49> [Section 3.4.4.5.2.5:](#) The **VersionMinor** levels are available in product versions as indicated by the following table.

| Value | Available in product version |
|-------|--|
| 1 | Windows Server 2008 R2 and Active Directory Management Gateway Service |

<50> [Section 3.4.4.5.2.6:](#) The **VersionString** values are available in product versions as indicated by the following table.

| Value | Available in product version |
|--------------------------------------|--|
| "Active Directory Web Services v1.1" | Windows Server 2008 R2 and Active Directory Management Gateway Service |

8 Change Tracking

This section identifies changes that were made to the [MS-ADCAP] protocol document between the May 2011 and June 2011 releases. Changes are classified as New, Major, Minor, Editorial, or No change.

The revision class **New** means that a new document is being released.

The revision class **Major** means that the technical content in the document was significantly revised. Major changes affect protocol interoperability or implementation. Examples of major changes are:

- A document revision that incorporates changes to interoperability requirements or functionality.
- An extensive rewrite, addition, or deletion of major portions of content.
- The removal of a document from the documentation set.
- Changes made for template compliance.

The revision class **Minor** means that the meaning of the technical content was clarified. Minor changes do not affect protocol interoperability or implementation. Examples of minor changes are updates to clarify ambiguity at the sentence, paragraph, or table level.

The revision class **Editorial** means that the language and formatting in the technical content was changed. Editorial changes apply to grammatical, formatting, and style issues.

The revision class **No change** means that no new technical or language changes were introduced. The technical content of the document is identical to the last released version, but minor editorial and formatting changes, as well as updates to the header and footer information, and to the revision summary, may have been made.

Major and minor changes can be described further using the following change types:

- New content added.
- Content updated.
- Content removed.
- New product behavior note added.
- Product behavior note updated.
- Product behavior note removed.
- New protocol syntax added.
- Protocol syntax updated.
- Protocol syntax removed.
- New content added due to protocol revision.
- Content updated due to protocol revision.
- Content removed due to protocol revision.

- New protocol syntax added due to protocol revision.
- Protocol syntax updated due to protocol revision.
- Protocol syntax removed due to protocol revision.
- New content added for template compliance.
- Content updated for template compliance.
- Content removed for template compliance.
- Obsolete document removed.

Editorial changes are always classified with the change type **Editorially updated**.

Some important terms used in the change type descriptions are defined as follows:

- **Protocol syntax** refers to data elements (such as packets, structures, enumerations, and methods) as well as interfaces.
- **Protocol revision** refers to changes made to a protocol that affect the bits that are sent over the wire.

The changes made to this document are listed in the following table. For more information, please contact protocol@microsoft.com.

| Section | Tracking number (if applicable) and description | Major change (Y or N) | Change type |
|--------------------------------|---|-----------------------|------------------|
| 1.2 References | Added explanatory statement regarding the removal of the publishing year from Microsoft Open Specification document references. | N | Content updated. |

9 Index

A

- Abstract data model
 - [AccountManagement server](#) 44
 - [common server processing](#) 35
 - [TopologyManagement server](#) 113
- AccountManagement examples
 - [ChangePassword](#) 187
 - [GetADGroupMember](#) 189
 - [GetADPrincipalAuthorizationGroup](#) 190
 - [GetADPrincipalGroupMembership](#) 194
 - [SetPassword](#) 197
 - [TranslateName](#) 199
- AccountManagement server
 - [abstract data model](#) 44
 - [initialization](#) 44
 - message processing
 - [ChangePassword](#) 44
 - [GetADGroupMember](#) 55
 - [GetADPrincipalAuthorizationGroup](#) 66
 - [GetADPrincipalGroupMembership](#) 77
 - [overview](#) 44
 - [SetPassword](#) 90
 - [TranslateName](#) 102
 - [overview](#) 43
 - sequencing rules
 - [ChangePassword](#) 44
 - [GetADGroupMember](#) 55
 - [GetADPrincipalAuthorizationGroup](#) 66
 - [GetADPrincipalGroupMembership](#) 77
 - [overview](#) 44
 - [SetPassword](#) 90
 - [TranslateName](#) 102
 - [timers](#) 44
- [Applicability](#) 19

C

- [Capability negotiation](#) 19
- [Change tracking](#) 243
- [ChangeOptionalFeature example](#) 200
- ChangeOptionalFeature request
 - [attribute groups](#) 118
 - [attributes](#) 117
 - complex types
 - [ChangeOptionalFeatureFault](#) 117
 - [overview](#) 117
 - elements
 - [ChangeOptionalFeatureFault](#) 115
 - [ChangeOptionalFeatureRequest](#) 116
 - [ChangeOptionalFeatureRequest/DistinguishedName](#) 116
 - [ChangeOptionalFeatureRequest/Enable](#) 116
 - [ChangeOptionalFeatureRequest/FeatureId](#) 116
 - [ChangeOptionalFeatureResponse](#) 117
 - [overview](#) 115
 - [groups](#) 118
 - messages

- [ChangeOptionalFeatureRequest](#) 114
- [ChangeOptionalFeatureResponse](#) 115
- [overview](#) 114
- [TopologyManagement ChangeOptionalFeatureChangeOptionalFeatureFault FaultMessage](#) 115
- [simple types](#) 117
- SOAP faults
 - [Active Directory returned an error processing the operation](#) 121
 - [operation failed because of bad parameter](#) 119
 - [overview](#) 118
- [ChangePassword example](#) 187
- ChangePassword request
 - [attribute groups](#) 48
 - [attributes](#) 48
 - complex types
 - [ChangePasswordFault](#) 48
 - [overview](#) 48
 - elements
 - [ChangePasswordFault](#) 46
 - [ChangePasswordRequest](#) 47
 - [ChangePasswordRequest/AccountDN](#) 47
 - [ChangePasswordRequest/NewPassword](#) 47
 - [ChangePasswordRequest/OldPassword](#) 47
 - [ChangePasswordRequest/PartitionDN](#) 47
 - [ChangePasswordResponse](#) 48
 - [overview](#) 46
 - [groups](#) 48
 - messages
 - [AccountManagement ChangePassword ChangePasswordFault FaultMessage](#) 45
 - [ChangePasswordRequest](#) 46
 - [ChangePasswordResponse](#) 46
 - [overview](#) 45
 - [simple types](#) 48
- SOAP faults
 - [Active Directory returned error processing the operation](#) 53
 - [operation failed because of bad parameter](#) 50
 - [operation failed because of bad password](#) 52
 - [overview](#) 49
- Common message syntax
 - [attribute groups](#) 32
 - attributes
 - [overview](#) 32
 - complex types
 - [ActiveDirectoryGroup](#) 25
 - [ActiveDirectoryObject](#) 23
 - [ActiveDirectoryPrincipal](#) 24
 - [ArgumentErrorDetailCA](#) 26
 - [ArrayOfActiveDirectoryGroup](#) 25
 - [CustomActionFault](#) 26
 - [DirectoryErrorDetailCA](#) 28
 - [overview](#) 22
 - [sra:ArrayOfString](#) 29
 - elements
 - [ActiveDirectoryGroup](#) 21

- [ActiveDirectoryGroup/GroupScope](#) 25
- [ActiveDirectoryGroup/GroupType](#) 25
- [ActiveDirectoryObject](#) 21
- [ActiveDirectoryObject/DistinguishedName](#) 23
- [ActiveDirectoryObject/Name](#) 23
- [ActiveDirectoryObject/ObjectClass](#) 23
- [ActiveDirectoryObject/ObjectGuid](#) 24
- [ActiveDirectoryObject/ObjectTypes](#) 24
- [ActiveDirectoryObject/ReferenceServer](#) 24
- [ActiveDirectoryPrincipal](#) 21
- [ActiveDirectoryPrincipal/SamAccountName](#) 24
- [ActiveDirectoryPrincipal/SID](#) 25
- [ArgumentErrorDetailCA/Message](#) 26
- [ArgumentErrorDetailCA/ParameterName](#) 26
- [ArgumentErrorDetailCA/ShortMessage](#) 26
- [CustomActionFault](#) 21
- [CustomActionFault/ArgumentError](#) 27
- [CustomActionFault/DirectoryError](#) 27
- [CustomActionFault/Error](#) 27
- [CustomActionFault/ShortError](#) 27
- [DirectoryErrorDetailCA/ErrorCode](#) 28
- [DirectoryErrorDetailCA/ExtendedErrorMessage](#) 28
- [DirectoryErrorDetailCA/MatchedDN](#) 28
- [DirectoryErrorDetailCA/Message](#) 29
- [DirectoryErrorDetailCA/Referral](#) 29
- [DirectoryErrorDetailCA/ShortMessage](#) 29
- [DirectoryErrorDetailCA/Win32ErrorCode](#) 29
- [overview](#) 20
- [server](#) 22
- [groups](#) 32
- [messages](#) 20
- [namespaces](#) 20
- [overview](#) 20
- simple types
 - [ActiveDirectoryGroupScope](#) 30
 - [ActiveDirectoryGroupType](#) 30
 - [ActiveDirectoryOperationMasterRole](#) 31
 - [overview](#) 30
 - [ser:duration](#) 31
 - [ser:guid](#) 31
- Common server processing
 - [abstract data model](#) 35
 - [initialization](#) 39
 - [message processing - overview](#) 39
 - [overview](#) 35
 - [sequencing rules - overview](#) 39
 - [timers](#) 39

D

Data model - abstract

- [AccountManagement server](#) 44
- [common server processing](#) 35
- [TopologyManagement server](#) 113
- [Directory service schema elements](#) 32

E

Events

- local
 - [AccountManagement server](#) 112

- [common server processing](#) 43
- [TopologyManagement server](#) 186
- timer
 - [AccountManagement server](#) 112
 - [common server processing](#) 43
 - [TopologyManagement server](#) 186

Examples

AccountManagement examples

- [ChangePassword](#) 187
- [GetADGroupMember](#) 189
- [GetADPrincipalAuthorizationGroup](#) 190
- [GetADPrincipalGroupMembership](#) 194
- [SetPassword](#) 197
- [TranslateName](#) 199
- [overview](#) 187

TopologyManagement examples

- [ChangeOptionalFeature](#) 200
- [GetADDomain](#) 201
- [GetADDomainController](#) 204
- [GetADForest](#) 206
- [GetVersion](#) 207
- [MoveADOperationMasterRole](#) 208

F

- [Fields - vendor-extensible](#) 19
- [Full WSDL](#) 211

G

- [GetADDomain example](#) 201
- GetADDomain request
 - [attribute groups](#) 140
 - [attributes](#) 139
 - complex types
 - [ActiveDirectoryDomain](#) 126
 - [ActiveDirectoryPartition](#) 134
 - [GetADDomainFault](#) 139
 - [overview](#) 126
 - elements
 - [ActiveDirectoryDomain/AllowedDNSSuffixes](#) 127
 - [ActiveDirectoryDomain/AppliedGroupPolicies](#) 127
 - [ActiveDirectoryDomain/ChildDomains](#) 128
 - [ActiveDirectoryDomain/ComputersContainer](#) 128
 - [ActiveDirectoryDomain/DomainControllersContainer](#) 129
 - [ActiveDirectoryDomain/DomainMode](#) 129
 - [ActiveDirectoryDomain/DomainSID](#) 129
 - [ActiveDirectoryDomain/ForeignSecurityPrincipalContainer](#) 130
 - [ActiveDirectoryDomain/Forest](#) 130
 - [ActiveDirectoryDomain/InfrastructureMaster](#) 131
 - [ActiveDirectoryDomain/LastLogonReplicationInterval](#) 131
 - [ActiveDirectoryDomain/ManagedBy](#) 131
 - [ActiveDirectoryDomain/NetBIOSName](#) 131
 - [ActiveDirectoryDomain/ParentDomain](#) 132
 - [ActiveDirectoryDomain/PDCEmulator](#) 132

- [ActiveDirectoryDomain/RIDMaster](#) 133
- [ActiveDirectoryDomain/SystemsContainer](#) 133
- [ActiveDirectoryDomain/UsersContainer](#) 133
- [ActiveDirectoryPartition/DeletedObjectsContainer](#) 135
- [ActiveDirectoryPartition/DistinguishedName](#) 135
- [ActiveDirectoryPartition/DNSRoot](#) 135
- [ActiveDirectoryPartition/LostAndFoundContainer](#) 136
- [ActiveDirectoryPartition/Name](#) 136
- [ActiveDirectoryPartition/ObjectClass](#) 136
- [ActiveDirectoryPartition/ObjectGuid](#) 137
- [ActiveDirectoryPartition/ObjectTypes](#) 137
- [ActiveDirectoryPartition/QuotasContainer](#) 137
- [ActiveDirectoryPartition/ReadOnlyReplicaDirectoryServer](#) 138
- [ActiveDirectoryPartition/ReferenceServer](#) 138
- [ActiveDirectoryPartition/ReplicaDirectoryServer](#) 139
- [ActiveDirectoryPartition/SubordinateReferences](#) 137
- [GetADDomainFault](#) 125
- [GetADDomainRequest](#) 125
- [GetADDomainResponse](#) 125
- [GetADDomainResponse/Domain](#) 126
- [overview](#) 125
- [groups](#) 139
- messages
 - [GetADDomainRequest](#) 124
 - [GetADDomainResponse](#) 124
 - [overview](#) 124
 - [TopologyManagement_GetADDomain_GetADDomainFault_FaultMessage](#) 124
- [simple types](#) 139
- SOAP faults
 - [Active Directory returned an error processing the operation](#) 141
 - [operation failed because of bad parameter](#) 140
 - [overview](#) 140
- [GetADDomainController example](#) 204
- GetADDomainController request
 - [attribute groups](#) 156
 - [attributes](#) 156
 - complex types
 - [ActiveDirectoryDirectoryServer](#) 147
 - [ActiveDirectoryDomainController](#) 152
 - [ArrayOfActiveDirectoryDomainController](#) 155
 - [ArrayOfActiveDirectoryOperationMasterRole](#) 156
 - [GetADDomainControllerFault](#) 156
 - [overview](#) 147
 - elements
 - [ActiveDirectoryDirectoryServer/DefaultPartition](#) 148
 - [ActiveDirectoryDirectoryServer/HostName](#) 148
 - [ActiveDirectoryDirectoryServer/InvocationId](#) 148
 - [ActiveDirectoryDirectoryServer/LdapPort](#) 149
 - [ActiveDirectoryDirectoryServer/Name](#) 149

- [ActiveDirectoryDirectoryServer/NTDSSettingsObjectDN](#) 149
- [ActiveDirectoryDirectoryServer/OperationMasterRole](#) 149
- [ActiveDirectoryDirectoryServer/Partitions](#) 150
- [ActiveDirectoryDirectoryServer/ServerObjectDN](#) 150
- [ActiveDirectoryDirectoryServer/ServerObjectGuid](#) 151
- [ActiveDirectoryDirectoryServer/Site](#) 151
- [ActiveDirectoryDirectoryServer/SslPort](#) 151
- [ActiveDirectoryDomainController/ComputerDN](#) 152
- [ActiveDirectoryDomainController/Domain](#) 152
- [ActiveDirectoryDomainController/Enabled](#) 153
- [ActiveDirectoryDomainController/Forest](#) 153
- [ActiveDirectoryDomainController/IsGlobalCatalog](#) 153
- [ActiveDirectoryDomainController/IsReadOnly](#) 154
- [ActiveDirectoryDomainController/OSHotFix](#) 154
- [ActiveDirectoryDomainController/OSName](#) 154
- [ActiveDirectoryDomainController/OSServicePack](#) 155
- [ActiveDirectoryDomainController/OSVersion](#) 155
- [GetADDomainControllerFault](#) 146
- [GetADDomainControllerRequest](#) 146
- [GetADDomainControllerRequest/NtdsSettingsDN](#) 146
- [GetADDomainControllerResponse](#) 146
- [GetADDomainControllerResponse/DomainControllers](#) 147
- [overview](#) 145
- [groups](#) 156
- messages
 - [GetADDomainControllerRequest](#) 145
 - [GetADDomainControllerResponse](#) 145
 - [TopologyManagement_GetADDomainController_GetADDomainControllerFault_FaultMessage](#) 145
- [simple types](#) 156
- SOAP faults
 - [Active Directory returned an error processing the operation](#) 159
 - [operation failed because of bad parameter](#) 157
 - [overview](#) 156
- [GetADForest example](#) 206
- GetADForest request
 - [attribute groups](#) 169
 - [attributes](#) 168
 - complex types
 - [ActiveDirectoryForest](#) 163
 - [GetADForestFault](#) 168
 - [overview](#) 163
 - elements
 - [ActiveDirectoryForest/ApplicationPartitions](#) 164
 - [ActiveDirectoryForest/CrossForestReferences](#) 164
 - [ActiveDirectoryForest/DomainNamingMaster](#) 165

- [ActiveDirectoryForest/Domains](#) 165
- [ActiveDirectoryForest/ForestMode](#) 166
- [ActiveDirectoryForest/GlobalCatalogs](#) 166
- [ActiveDirectoryForest/Name](#) 166
- [ActiveDirectoryForest/RootDomain](#) 167
- [ActiveDirectoryForest/SchemaMaster](#) 167
- [ActiveDirectoryForest/Sites](#) 167
- [ActiveDirectoryForest/SPNSuffixes](#) 168
- [ActiveDirectoryForest/UPNSuffixes](#) 168
- [GetADForestFault](#) 162
- [GetADForestRequest](#) 162
- [GetADForestResponse](#) 163
- [GetADForestResponse/Forest](#) 163
- [overview](#) 162
- [groups](#) 168
- messages
 - [GetADForestRequest](#) 161
 - [GetADForestResponse](#) 161
 - [overview](#) 161
 - [TopologyManagement_GetADForest_GetADForestFault_FaultMessage](#) 162
- [simple types](#) 168
- SOAP faults
 - [Active Directory returned an error processing the operation](#) 170
 - [operation failed because of bad parameter](#) 169
 - [overview](#) 169
- [GetADGroupMember example](#) 189
- GetADGroupMember request
 - [attribute groups](#) 61
 - [attributes](#) 60
 - complex types
 - [ArrayOfActiveDirectoryPrincipal](#) 60
 - [GetADGroupMemberFault](#) 60
 - [overview](#) 60
 - elements
 - [GetADGroupMemberFault](#) 58
 - [GetADGroupMemberRequest](#) 58
 - [GetADGroupMemberRequest/GroupDN](#) 58
 - [GetADGroupMemberRequest/PartitionDN](#) 59
 - [GetADGroupMemberRequest/Recursive](#) 59
 - [GetADGroupMemberResponse](#) 59
 - [GetADGroupMemberResponse/Members](#) 59
 - [overview](#) 58
 - [groups](#) 61
 - messages
 - [AccountManagement_GetADGroupMember_GetADGroupMemberFault_FaultMessage](#) 57
 - [GetADGroupMemberRequest](#) 57
 - [GetADGroupMemberResponse](#) 57
 - [overview](#) 57
 - [simple types](#) 60
 - SOAP faults
 - [Active Directory returned an error processing the operation](#) 64
 - [multiple matching security principals were found](#) 63
 - [operation failed because of a bad parameter](#) 62
 - [operation failed because of a bad partition](#) 63
 - [overview](#) 61
- [GetADPrincipalAuthorizationGroup example](#) 190

- GetADPrincipalAuthorizationGroup request
 - [attribute groups](#) 71
 - [attributes](#) 71
 - complex types
 - [GetADPrincipalAuthorizationGroupFault](#) 71
 - [overview](#) 71
 - elements
 - [GetADPrincipalAuthorizationGroupFault](#) 69
 - [GetADPrincipalAuthorizationGroupRequest](#) 69
 - [GetADPrincipalAuthorizationGroupRequest/PartitionDN](#) 69
 - [GetADPrincipalAuthorizationGroupRequest/PrincipalDN](#) 70
 - [GetADPrincipalAuthorizationGroupResponse](#) 70
 - [GetADPrincipalAuthorizationGroupResponse/MemberOf](#) 70
 - [overview](#) 69
 - [groups](#) 71
 - messages
 - [AccountManagement_GetADPrincipalAuthorizationGroup_GetADPrincipalAuthorizationGroupFault_FaultMessage](#) 68
 - [GetADPrincipalAuthorizationGroupRequest](#) 68
 - [GetADPrincipalAuthorizationGroupResponse](#) 68
 - [overview](#) 67
 - [simple types](#) 71
 - SOAP faults
 - [Active Directory returned an error processing the operation](#) 75
 - [multiple matching security principals were found](#) 74
 - [operation failed because of bad parameter](#) 72
 - [overview](#) 71
- [GetADPrincipalGroupMembership example](#) 194
- GetADPrincipalGroupMembership request
 - [attribute groups](#) 83
 - [attributes](#) 83
 - complex types
 - [GetADPrincipalGroupMembershipFault](#) 83
 - [overview](#) 83
 - elements
 - [GetADPrincipalGroupMembershipFault](#) 81
 - [GetADPrincipalGroupMembershipRequest](#) 81
 - [GetADPrincipalGroupMembershipRequest/PartitionDN](#) 81
 - [GetADPrincipalGroupMembershipRequest/PrincipalDN](#) 82
 - [GetADPrincipalGroupMembershipRequest/ResourceContextPartition](#) 82
 - [GetADPrincipalGroupMembershipRequest/ResourceContextServer](#) 82
 - [GetADPrincipalGroupMembershipResponse](#) 82
 - [GetADPrincipalGroupMembershipResponse/MemberOf](#) 83
 - [overview](#) 81
 - [groups](#) 83
 - messages
 - [AccountManagement_GetADPrincipalGroupMembership_GetADPrincipalGroupMembershipFault_FaultMessage](#) 80
 - [GetADPrincipalGroupMembershipRequest](#) 80

- [GetADPrincipalGroupMembershipResponse](#) 80
- [overview](#) 79
- [simple types](#) 83
- SOAP faults
 - [Active Directory returned an error processing the operation](#) 88
 - [multiple matching principals error](#) 86
 - [operation failed because of bad parameter](#) 85
 - [overview](#) 84
- [GetVersion example](#) 207
- [Glossary](#) 13

I

- [Index of security parameters](#) 210
- [Informative references](#) 17
- Initialization
 - [AccountManagement server](#) 44
 - [common server processing](#) 39
 - [TopologyManagement server](#) 113
- [Introduction](#) 13

L

- Local events
 - [AccountManagement server](#) 112
 - [common server processing](#) 43
 - [TopologyManagement server](#) 186

M

- Message processing
 - AccountManagement server
 - [ChangePassword](#) 44
 - [GetADGroupMember](#) 55
 - [GetADPrincipalAuthorizationGroup](#) 66
 - [GetADPrincipalGroupMembership](#) 77
 - [overview](#) 44
 - [SetPassword](#) 90
 - [TranslateName](#) 102
 - [Common server processing - overview](#) 39
 - TopologyManagement server
 - [attribute groups](#) 176
 - [attributes](#) 175
 - [ChangeOptionalFeature](#) 113
 - [complex types](#) 175
 - [GetADDomain](#) 123
 - [GetADDomainController](#) 143
 - [GetADForest](#) 160
 - [GetVersion](#) 172
 - [groups](#) 175
 - [MoveADOperationMasterRole](#) 176
 - [overview](#) 113
 - [simple types](#) 175
 - [SOAP faults](#) 176
- Messages
 - common message syntax
 - [attribute groups](#) 32
 - [attributes](#) 32
 - [complex types](#) 22
 - [elements](#) 20
 - [groups](#) 32

- [messages](#) 20
- [namespaces](#) 20
- [overview](#) 20
- [simple types](#) 30
- [directory service schema elements](#) 32
- [transport](#) 20
- [MoveADOperationMasterRole example](#) 208
- MoveADOperationMasterRole request
 - [attribute groups](#) 182
 - [attributes](#) 182
 - complex types
 - [MoveADOperationMasterRoleFault](#) 181
 - [overview](#) 181
 - elements
 - [MoveADOperationMasterRoleFault](#) 178
 - [MoveADOperationMasterRoleRequest](#) 179
 - [MoveADOperationMasterRoleRequest/OperationMasterRole](#) 179
 - [MoveADOperationMasterRoleRequest/Seize](#) 180
 - [MoveADOperationMasterRoleResponse](#) 181
 - [MoveADOperationMasterRoleResponse/WasSeized](#) 181
 - [overview](#) 178
 - [groups](#) 182
 - messages
 - [MoveADOperationMasterRoleRequest](#) 177
 - [MoveADOperationMasterRoleResponse](#) 178
 - [overview](#) 177
 - [TopologyManagement MoveADOperationMasterRole MoveADOperationMasterRoleFault Fault Message](#) 178
 - [simple types](#) 181
 - SOAP faults
 - [Active Directory returned an error processing the operation](#) 184
 - [operation failed because of bad parameter](#) 183
 - [overview](#) 182
 - [multiple matching security principals were found](#) 86

N

- [Normative references](#) 16

O

- [Overview \(synopsis\)](#) 17

P

- [Parameters - security index](#) 210
- [Port types](#) 43
- [Preconditions](#) 19
- [Prerequisites](#) 19
- [Product behavior](#) 231

R

- References
 - [informative](#) 17
 - [normative](#) 16
 - [Relationship to other protocols](#) 18

S

Security

- [overview](#) 210
- [parameter index](#) 210

Sequencing rules

- AccountManagement server
 - [ChangePassword](#) 44
 - [GetADGroupMember](#) 55
 - [GetADPrincipalAuthorizationGroup](#) 66
 - [GetADPrincipalGroupMembership](#) 77
 - [overview](#) 44
 - [SetPassword](#) 90
 - [TranslateName](#) 102
- [Common server processing - overview](#) 39

TopologyManagement server

- [attribute groups](#) 176
- [attributes](#) 175
- [ChangeOptionalFeature](#) 113
- [complex types](#) 175
- [GetADDomain](#) 123
- [GetADDomainController](#) 143
- [GetADForest](#) 160
- [GetVersion](#) 172
- [groups](#) 175
- [MoveADOperationMasterRole](#) 176
- [overview](#) 113
- [simple types](#) 175

Server - AccountManagement

- [abstract data model](#) 44
- [initialization](#) 44
- [local events](#) 112
- message processing
 - [ChangePassword](#) 44
 - [GetADGroupMember](#) 55
 - [GetADPrincipalAuthorizationGroup](#) 66
 - [GetADPrincipalGroupMembership](#) 77
 - [overview](#) 44
 - [SetPassword](#) 90
 - [TranslateName](#) 102
- [overview](#) 43
- sequencing rules
 - [ChangePassword](#) 44
 - [GetADGroupMember](#) 55
 - [GetADPrincipalAuthorizationGroup](#) 66
 - [GetADPrincipalGroupMembership](#) 77
 - [overview](#) 44
 - [SetPassword](#) 90
 - [TranslateName](#) 102
- [timer events](#) 112
- [timers](#) 44

Server - TopologyManagement

- [abstract data model](#) 113
- [initialization](#) 113
- [local events](#) 186
- message processing
 - [attribute groups](#) 176
 - [attributes](#) 175
 - [ChangeOptionalFeature](#) 113
 - [complex types](#) 175
 - [GetADDomain](#) 123

- [GetADDomainController](#) 143
- [GetADForest](#) 160
- [GetVersion](#) 172
- [groups](#) 175
- [MoveADOperationMasterRole](#) 176
- [overview](#) 113
- [simple types](#) 175
- [SOAP faults](#) 176

sequencing rules

- [attribute groups](#) 176
- [attributes](#) 175
- [ChangeOptionalFeature](#) 113
- [complex types](#) 175
- [GetADDomain](#) 123
- [GetADDomainController](#) 143
- [GetADForest](#) 160
- [GetVersion](#) 172
- [groups](#) 175
- [MoveADOperationMasterRole](#) 176
- [overview](#) 113
- [simple types](#) 175
- [SOAP faults](#) 176
- [timer events](#) 186
- [timers](#) 113

Server processing - common

- [abstract data model](#) 35
- [initialization](#) 39
- [local events](#) 43
- [message processing - overview](#) 39
- [overview](#) 35
- [sequencing rules - overview](#) 39
- [timer events](#) 43
- [timers](#) 39

SetPassword example

SetPassword request

- [attribute groups](#) 94
- [attributes](#) 94
- complex types
 - [overview](#) 94
 - [SetPasswordFault](#) 94
- elements
 - [overview](#) 92
 - [SetPasswordFault](#) 92
 - [SetPasswordRequest](#) 92
 - [SetPasswordRequest/AccountDN](#) 93
 - [SetPasswordRequest/NewPassword](#) 93
 - [SetPasswordRequest/PartitionDN](#) 93
 - [SetPasswordResponse](#) 93
- [groups](#) 94

messages

- [AccountManagement_SetPassword_SetPasswordFault_FaultMessage](#) 91
- [overview](#) 91
- [SetPasswordRequest](#) 92
- [SetPasswordResponse](#) 92
- [simple types](#) 94
- SOAP faults
 - [Active Directory returned an error processing the operation](#) 100
 - [operation failed because of bad parameter](#) 95

- [operation failed because of bad password](#) 98
- [overview](#) 94
- [Standards assignments](#) 19
- Syntax
 - [attribute groups](#) 32
 - [attributes - overview](#) 32
 - complex types
 - [ActiveDirectoryGroup](#) 25
 - [ActiveDirectoryObject](#) 23
 - [ActiveDirectoryPrincipal](#) 24
 - [ArgumentErrorDetailCA](#) 26
 - [ArrayOfActiveDirectoryGroup](#) 25
 - [CustomActionFault](#) 26
 - [DirectoryErrorDetailCA](#) 28
 - [overview](#) 22
 - [sera:ArrayOfString](#) 29
 - elements
 - [ActiveDirectoryGroup](#) 21
 - [ActiveDirectoryGroup/GroupScope](#) 25
 - [ActiveDirectoryGroup/GroupType](#) 25
 - [ActiveDirectoryObject](#) 21
 - [ActiveDirectoryObject/DistinguishedName](#) 23
 - [ActiveDirectoryObject/Name](#) 23
 - [ActiveDirectoryObject/ObjectClass](#) 23
 - [ActiveDirectoryObject/ObjectGuid](#) 24
 - [ActiveDirectoryObject/ObjectTypes](#) 24
 - [ActiveDirectoryObject/ReferenceServer](#) 24
 - [ActiveDirectoryPrincipal](#) 21
 - [ActiveDirectoryPrincipal/SamAccountName](#) 24
 - [ActiveDirectoryPrincipal/SID](#) 25
 - [ArgumentErrorDetailCA/Message](#) 26
 - [ArgumentErrorDetailCA/ParameterName](#) 26
 - [ArgumentErrorDetailCA/ShortMessage](#) 26
 - [CustomActionFault](#) 21
 - [CustomActionFault/ArgumentError](#) 27
 - [CustomActionFault/DirectoryError](#) 27
 - [CustomActionFault/Error](#) 27
 - [CustomActionFault/ShortError](#) 27
 - [DirectoryErrorDetailCA/ErrorCode](#) 28
 - [DirectoryErrorDetailCA/ExtendedErrorMessage](#) 28
 - [DirectoryErrorDetailCA/MatchedDN](#) 28
 - [DirectoryErrorDetailCA/Message](#) 29
 - [DirectoryErrorDetailCA/Referral](#) 29
 - [DirectoryErrorDetailCA/ShortMessage](#) 29
 - [DirectoryErrorDetailCA/Win32ErrorCode](#) 29
 - [overview](#) 20
 - [server](#) 22
 - [groups](#) 32
 - [messages](#) 20
 - [namespaces](#) 20
 - [overview](#) 20
 - simple types
 - [ActiveDirectoryGroupScope](#) 30
 - [ActiveDirectoryGroupType](#) 30
 - [ActiveDirectoryOperationMasterRole](#) 31
 - [overview](#) 30
 - [ser:duration](#) 31
 - [ser:guid](#) 31

T

- Timer events
 - [AccountManagement server](#) 112
 - [common server processing](#) 43
 - [TopologyManagement server](#) 186
- Timers
 - [AccountManagement server](#) 44
 - [common server processing](#) 39
 - [TopologyManagement server](#) 113
- TopologyManagement examples
 - [ChangeOptionalFeature](#) 200
 - [GetADDomain](#) 201
 - [GetADDomainController](#) 204
 - [GetADForest](#) 206
 - [GetVersion](#) 207
 - [MoveADOperationMasterRole](#) 208
- TopologyManagement server
 - [abstract data model](#) 113
 - [initialization](#) 113
 - message processing
 - [attribute groups](#) 176
 - [attributes](#) 175
 - [ChangeOptionalFeature](#) 113
 - [complex types](#) 175
 - [GetADDomain](#) 123
 - [GetADDomainController](#) 143
 - [GetADForest](#) 160
 - [GetVersion](#) 172
 - [groups](#) 175
 - [MoveADOperationMasterRole](#) 176
 - [overview](#) 113
 - [simple types](#) 175
 - [SOAP faults](#) 176
 - [overview](#) 112
 - sequencing rules
 - [attribute groups](#) 176
 - [attributes](#) 175
 - [ChangeOptionalFeature](#) 113
 - [complex types](#) 175
 - [GetADDomain](#) 123
 - [GetADDomainController](#) 143
 - [GetADForest](#) 160
 - [GetVersion](#) 172
 - [groups](#) 175
 - [MoveADOperationMasterRole](#) 176
 - [overview](#) 113
 - [simple types](#) 175
 - [SOAP faults](#) 176
 - [timers](#) 113
- [Tracking changes](#) 243
- [TranslateName example](#) 199
- TranslateName request
 - [attribute groups](#) 109
 - [attributes](#) 109
 - complex types
 - [ActiveDirectoryNameTranslateResult](#) 106
 - [ArrayOfActiveDirectoryNameTranslateResult](#) 107
 - [overview](#) 106
 - [TranslateNameFault](#) 108
 - elements
 - [ActiveDirectoryNameTranslateResult/Name](#) 107

- [ActiveDirectoryNameTranslateResult/Result](#)
106
- [ArrayOfActiveDirectoryNameTranslateResult/ActiveDirectoryNameTranslateResult](#) 108
- [overview](#) 104
- [TranslateNameFault](#) 104
- [TranslateNameRequest](#) 104
- [TranslateNameRequest/FormatDesired](#) 104
- [TranslateNameRequest/FormatOffered](#) 105
- [TranslateNameRequest/Names](#) 105
- [TranslateNameResponse](#) 105
- [TranslateNameResponse/NameTranslateResult](#)
106
- [groups](#) 109
- messages
 - [AccountManagement_TranslateName_TranslateNameFault_FaultMessage](#) 103
 - [overview](#) 103
 - [TranslateNameRequest](#) 103
 - [TranslateNameResponse](#) 103
- simple types
 - [ActiveDirectoryNameFormat](#) 108
 - [overview](#) 108
- SOAP faults
 - [Active Directory returned an error processing the operation](#) 111
 - [operation failed because of bad parameter](#) 110
 - [overview](#) 109
- [Transport](#) 20

V

- [Vendor-extensible fields](#) 19
- [Versioning](#) 19

W

- [WSDL](#) 211