

# Webservices API Manual

## WebService Interface Description

### 1. Introduction

This reference explains possibilities for integrating BackupAgent with other IT and/or administrative services. It contains technical documentation describing the public WebService interface for managing user accounts.

In this case BackupAgent uses the following specifications for their WebService:

- Version 4: Native SOAP/XML interface based on Microsoft WSE 2.0 sp3
- Version 5: Native SOAP/XML interface based on Microsoft WCF

The native interface is completely open and offers full BackupAgent Provider functionality.

This document only demonstrates functionality for:

- User account management
- Storage group management

This document will explain both SOAP/ XML integration. Technical references will be provided on the following subjects:

- Interface access and function specifications
- Code samples
- Exception codes

### 2. SOAP/XML interface - Version 4

BackupAgent's core technology is a WebService. For security and authentication control this interface is protected using Microsoft WSE 2.0 sp3. All WebService functions are available for integration.

## 2.1 Access

To access the interface, choose a programming language or software package that supports client consumption of a WSDL which is protected by WSE 2.0. By default C# allows easy and reliable access to BackupAgent WebServices. Following step-by-step instructions show how to access BackupAgent WebServices.

1. Find the WSDL. In the normal case the WSDL is provided on an url like ['https://yourdomain.com/CloudBackupService/BackupService.asmx?WSDL'](https://yourdomain.com/CloudBackupService/BackupService.asmx?WSDL)
2. Create a proxy class to represent the WebService. In C# this proxy class is called a 'web reference'.
3. Derive the proxy class from the Microsoft.Web.Services2.WebServicesClientProtocol
4. Attach a UsernameToken to object references based on the client proxy class using the RequestSoapContext.Security.Tokens collection. Add a MessageSignature based on the UsernameToken to the RequestSoapContext.Security.Elements collection.
5. Login for user/administrator access calling the CheckUserLogin function.

**Important:** Use the URL where the license is installed on. Otherwise you will receive a license error.

The UsernameToken must be based on an existing username/password combination in the BackupAgent Server system. For full access to administrative functions an administrator UsernameToken must be provided.

## 2.2 Code sample for connecting to a BackupAgent WebService

Deriving the proxy class from WSE 2.0 WebServiceClientProtocol in class definition:

```
public class BAWebService2 :  
Microsoft.Web.Services2.WebServicesClientProtocol{ ... }
```

Creating an object reference to attach a token:

```
StorageXS.BAWebService2 server = new StorageXS.BAWebService2();  
UsernameToken token = new UsernameToken(username,password>PasswordOption.SendPlainText);
```

```
server.RequestSoapContext.Security.Tokens.Clear();
server.RequestSoapContext.Security.Tokens.Add(token);
server.RequestSoapContext.Security.Elements.Add(new MessageSignature(token))
return server;
```

Login the user:

```
StorageXS.LoginInfo login = server.CheckUserLogin(username.Trim(),
password.Trim(), "clientname");
if(login.LoginStatus > 0) return true;
else return false;
```

**Note:** StorageXS is the local reference name used in the above example.

**Note:** In case you use the WSE 3.0 libraries, you need to manually set the encryption to be 128 bits:

```
ISecurityTokenManager stm3 =
Microsoft.Web.Services3.Security.Tokens.UsernameTokenManager.GetSecurityTokenManagerByToken
Type(WSTrust.TokenTypes.UsernameToken);
    stm3.DefaultKeyAlgorithm = "AES128";
```

After logging in, this client can have full access to BackupAgent Server functions. Depending on common use cases, BackupAgent can support and develop custom interfaces or support client-side development of custom functionality. The working of the WebService is proprietary. Therefore documentation is limited to this document and the WSDL.

## 2. SOAP/XML interface - Version 5

In Version 5, the API interface is a WCF interface. By default C# allows easy and reliable access to BackupAgent WebServices. Following step-by-step instructions show how to access BackupAgent WebServices.

### 2.1 Access

To access the interface, choose a programming language or software package that supports client consumption of a WSDL

1. Find the WSDL. In the normal case the WSDL is provided on an url like ['https://yourdomain.com/CloudBackupService/BackupService.svc'](https://yourdomain.com/CloudBackupService/BackupService.svc)
2. Add a Service Reference, which connects to the above Address.
3. Give the namespace a friendly name such as 'BackupService'
4. Add a valid administrator or group username and password to the Credentials.
5. Set the Authentication.CertificateValidationMode = X509CertificateValidationMode.None
6. Login for user/administrator access calling the CheckUserLogin function.

## 2.2 Code sample for connecting to a BackupAgent WebService using WCF

The following is a code sample which works using the .Net Framework v4:

### **Step 1 - include the ServiceModel libraries and the reference to the Service:**

```
using System.ServiceModel;  
using System.ServiceModel.Security;  
using ConsoleApplicationWCF.BackupService;
```

### **Step 2 - add credentials**

```
namespace ConsoleApplicationWCF  
{  
    class Program  
    {  
        static void Main(string[] args)  
        {  
            EndpointAddress endpointAddress = new EndpointAddress(new  
Uri("https://yourcompany/CloudBackupService/BackupService.svc"));  
  
            CloudBackupServiceClient client = new  
CloudBackupServiceClient("BasicHttpBinding_ICloudBackupService", endpointAddress);
```

```

client.ClientCredentials.UserName.UserName = "username";
client.ClientCredentials.UserName.Password = "password";

client.ClientCredentials.ServiceCertificate.Authentication.CertificateValidationMode =
System.ServiceModel.Security.X509CertificateValidationMode.None;

    }
}
}

```

**Step 3 - call the CheckUserLogin function:**

```
LoginInfo login = client.CheckUserLogin_Ex("robbert.demo", "testtest");
```

### 3. Available functions

The following functions are available for integration purposes and will be described here in further detail. Some functions will require public structures (objects or enumerations) as parameters. The following table shows functions for retrieving server information:

Function	Result	Required parameters	Explanation
GetUsersAdmin	An array of strings containing either usernames or a summary of user statistics	bool Total bool Top10Recent string Criteria	The function returns either a set of usernames or a summary of total users given the criteria and parameters
GetOwnerInfo	An array of OwnerInfo objects containing all information on storage groups	string Owner	The function returns all storage group info or info for a single storage group
GetAccountTypes	An array of AccountType objects	enum TypesToRetrieve enum DescriptionType	The function returns all account types based on the

			enum parametersq
GetUserInfoAdmin	An UserInfo object	string Username	Returns all user information of a user
GetAccountInfoAdmin	An AccountInfo object	string Username	Returns all account information of a user
GetChildAccountInfo	An array of UserAccountInfo objects	string ParentUser (group user)enum AccountDescriptionTypebool getAllAccountsenum RequestType	Returns a collection of user and account information objects of multiple users
GetUserBackupResults	An array of BackupReportInfo objects	string Usernamestring Language	Returns a collection of backup report objects
GetFullBackupReportInfo	A more detailed BackupReportInfo object	Int BackupReportID (DBID)	Returns a more detailed BackupReportInfo object including logs
GetResellers <sup>2</sup>	An array of strings containing all group names	bool TotalResellerCount (false)	Returns all groups in the systems
GetResellerInfo	A ResellerInfo object	string ResellerName	Returns all detailed information of a group
GetResellersUsageInfo	Array of ResellerUsageInfo objects		Returns usage info of all groups

<sup>1</sup>A storage group is represented in the API as an 'owner'

<sup>2</sup>BackupAgent groups are represented as 'resellers' in the API

Next to functions to retrieve information the following functions allow an administrator to integrate account management (create, change accounts):

<b>Function</b>	<b>Result</b>	<b>Parameters</b>	<b>Explanation</b>
CreateAccount	Creates a new user with an account in the BackupAgent Server and returns an integer	string ParentUserUserInfo userInfoAccountInfo accInfostring Usernamestring Passwordstring [Obsolete]string [Obsolete]bool SendEmail	The function creates an account. Return codes:  1: User Ok -1: Unexpected error -2: User exists -5: Wrong Owner
ChangeUserInfoAdmin	Changes UserInfo for a user and returns an integer	string ChangedUserUserInfo newInfo	The function overwrites UserInfo based on the new UserInfo object. Returns 1 if Ok, else returns a negative integer
ChangeAccountInfoAdmin	Changes AccountInfo for a user and returns an integer	string ChangedUserAccountInfo newInfo	The function overwrites AccountInfo based on the new AccountInfo object. Returns 1 if Ok, else returns a negative integer
ActivateAccount	Activates a new or deactivated account and returns an integer	string Usernamestring Passwordbool Encrypted	The function activates an account. As administrator the account can be activated without Password
DeactivateAccount	Deactivates one or more accounts and returns an integer	string[] Usernames	The function deactivates all accounts in the string array
DeleteAccount	Deletes one or more accounts and returns an integer	string[] Usernames bool isReseller	The function deletes all accounts and removes all data in the accounts. Set 'isReseller' to true to indicate that the deleted users are resellers/groups
ResetPassword	Resets password and	string Username	The function resets the password for a user to 'Backup01'

	returns an integer		
ChangePassword	Allows a user to change a password and returns an integer	string OldPasswordstring NewPassword	If the token of request is a normal user, this user can change his/her own password
CreateOwner	Creates a new storage group and returns an integer	OwnerInfo NewInfobool SetAsDefault	The function creates a new storage group Returns 1 if Ok, else returns a negative integer
ChangeOwner	Changes a storage group and returns an integer	OwnerInfo NewInfo	The function changes a storage group based on an existing OwnerID in the OwnerInfo object.
ChangeDefaultOwner	Sets a storage group as default group	string ResellerNamestring Ownername	The function sets a default group for an administrator/reseller
CreateReseller	Creates a group	UserInfo newInfoResellerInfo newInfostring ResellerNamestring Password	The function creates a (whitelabel) group in the BackupAgent system
ChangeResellerInfo_Ex	Changes settings of a group	String ResellerNameUserInfo newInfoResellerInfo newInfo	The function can change certain settings of a(whitelabel) group

**Note:** The used credentials for authentication and access (see 3.1.) will also determine ownership and hierarchy of a group or user. You can overrule this for CreateAccount by setting the ParentUser property and for CreateReseller by setting the ParentReseller property of the UserInfo object.

## 4. Supportive structures

Some functions require objects that are based on public structures (classes or enumerations) which are part of the Webservice public interface.



## 4.1 Enumerations

### AccountTypesToRetrieve:

- All\_AccountTypes
- Only\_Active
- Only\_NonActive

### ChildAccountRequestType:

- Normal
- Active
- New

### AccountDescriptionTypes:

- Normal\_Account
- Trial\_Account
- Free\_Account
- Normal\_And\_Trial\_Account

### UserProfileTypes:

- Professional = 1 (“Professional” is called in the user interface “Server”)
- Home = 2 (“Home” is called in the user interface “Workstation”)

### LanguageType:

- LanguageType\_NL (Dutch)
- LanguageType\_EN (English)
- LanguageType\_FR (French)
- LanguageType\_ES (Spanish)
- LanguageType\_DE (German)
- LanguageType\_IT (Italian)
- LanguageType\_DK (Danish)

- LanguageType\_PL (Polish)
- LanguageType\_HU (Hungarian)
- LanguageType\_RO (Romanian)
- LanguageType\_PT (Portuguese)
- LanguageType\_RU (Russian)
- LanguageType\_TR (Turkish)
- LanguageType\_JA (Japanese)

#### BackupReportStatus:

- Completed\_Successfully
- Completed\_Successfully\_NonExistentResources
- Completed\_Successfully\_Skipped\_NonExistentResources
- Completed\_UnSuccessfully
- Completed\_UnSuccessfully\_Skipped
- Completed\_UnSuccessfully\_NonExistentResources
- Completed\_UnSuccessfully\_Skipped\_NonExistentResources
- UserCancelled

## 4.2 Classes

The following descriptions show the required fields when creating or changing information:

#### UserInfo:

- ID (int) - must be set to 0 when editing - Read-only
- ParentResellerID (int) - Read-only
- UserTypeID (int) - Read-only
- ActiveDirectoryGUID - Read-only
- ParentReseller (string) - Optional
- City (string) - Mandatory
- Company (string) - Mandatory
- CountryID (integer, 133 is Netherlands) - Mandatory
- StateID (integer) - *Mandatory if country is US* - Optional

- Email (string) - Mandatory
- FirstName (string) - Mandatory
- LastName (string) - Mandatory
- Sex (character: 'm' or 'f') - Obsolete
- Occupation (string) - Obsolete
- Zipcode (string) - Mandatory
- TelephoneNr (string) - Mandatory
- DefaultEmailLanguage (LanguageType) - Mandatory

#### AccountInfo:

- AccountInfoID (int) - must be set to 0 when editing - Read-only
- UserInfoID (int) - must be set to 0 when editing - Read-only
- Status (int) – must be set to 1 - Mandatory
- Active (boolean) - Read-only
- ChangedBy (string) - Read-only
- AccountTypeName (string) - Read-only
- AccountType (int) - Mandatory
- OwnerID (int) - Mandatory
- TrialUser (boolean) - Mandatory
- FreeAccount (boolean) - Mandatory
- MaxSize (int) - Read-only
- UsedSize (long) - must be set to 0 when editing - Read-only
- UserProfile (UserProfileType) - Mandatory
- StartDate (DateTime) - Mandatory
- EndDate (DateTime) - Mandatory
- MaxBandwidthUsage (int) - 0 is recommended value - Mandatory
- Period (int) – Mandatory in case of provisioning a trial account - Optional
- RestoreActive (boolean) – recommended to set to false - Mandatory
- HasDigiNotarKey (int) – must be set to 0 when editing - Read-only
- DigiNotarKeysStored (boolean) - Obsolete
- ObjDigiNotarKey (object) - Obsolete

- HasEncryptionKey (boolean) – must be set to false - Mandatory
- MaxVersions (int) – must be set, value 10 is recommended - Obsolete

UserAccountInfo (return objects for GetChildAccountInfo function and is Read-only):

- parentUser (string)
- username (string)
- firstName (string)
- lastName (string)
- userAccountTypeName (string)
- isTrial (boolean)
- period (int)
- company (string)
- email (string)
- objUserStatus (StatusInfo)
- userProfileType (UserProfileType)
- accountStartDate (DateTime)

StatusInfo (Read-only object):

- usageSizePercentage (double)
- isFull (boolean)
- inProgress (boolean)
- latestBackup (DateTime)
- backupClientVersionNr (string)
- backupStatusEnum (BackupReportStatus)
- latestRestore (DateTime)
- restoreClientVersionNr (string)
- restoreStatusEnum (BackupReportStatus)

OwnerInfo:

- OwnerID (int) - Read-only

- UserCount (int) - Read-only
- ResellerCount (int) - Read-only
- OwnerName (string) - Mandatory
- StorageLocation (string, path to storage location) - Mandatory
- LoginName (string) - Obsolete
- LoginPassword (string) - Obsolete
- DomainName (string) - Obsolete
- UseDriveMapping (Boolean) – must be False - Obsolete
- ResellerName (string) - Optional

#### AccountType:

- AccountTypeID (integer) - must be set to 0 when editing - Read-only
- TypeName (string) - Mandatory
- DescriptionType (string) - Mandatory
- IsActive (boolean) - Mandatory
- MaxSize (integer) – must be 0 in case of trial account - Mandatory

#### BackupReportInfo (Read-only object):

- userName (string)
- completeText (string)
- isBackup (boolean)
- status (string)
- longDate (string)
- computer (string)
- clientVersionNr (string)
- operatingSystem (string)
- startDate (DateTime)
- endDate (DateTime)
- duration (string)
- totalFiles (int)
- totalSize (string)

- restoreSizeDownloaded (string)
- restoreSkippedResources (string)
- restorePath (string)
- backupChangedFiles (int)
- backupSizeChangedFiles (string)
- backupSizeUploaded (string)
- backupSkippedResources (int)
- backupNonExistentResources (int)
- backupResources (array of strings)
- nonExistentResources (array of strings)
- NbNewFiles (int)
- NbNewFilesUploadedSize (long)
- NbPatches (int)
- NbPatchesUploadedSize (long)
- NbUnchangedFiles (int)
- DBID (int)
- ClientLogs (string)
- statusEnum (BackupReportStatus)

#### ResellerInfo:

- ResellerConfigID (int) - Read-only
- ParentReseller (string) - Optional
- accountUpgrade (boolean) - Mandatory
- accountDowngrade (boolean) - Mandatory
- automaticDigiNotar (boolean) – must be False - Obsolete
- allowWhiteLabeling (boolean) - Mandatory
- allowResellerCreation (boolean) - Mandatory
- allowHighlighDataRow (boolean) – must be False - Mandatory
- defaultOwner (int) - Mandatory
- ResellerUserName (string) - Optional
- supportEMail (string) – we recommend to set this - Optional

- supportURL (string) - Optional
- termsURL (string) - Optional
- registrationURL (string) - Optional
- logoURL (string) - Optional
- trialUpgradeURL (string) - Optional
- stylesheetURL (string) - Optional
- homepageURL (string) - Optional
- clientdownloadURL (string) - Optional
- serviceName (string) - Optional
- HTMLHeader (string) - Optional
- HTMLFooter (string) - Optional
- usagePercentageBeforeEmail (double) - Mandatory
- dataGridRowCount (int) - recommended setting is 10 - Mandatory
- ownerIDs (array of string) - Mandatory
- defaultRegistrationCountry (int) - Mandatory
- daysWithNoBackupBeforeWarning (int) - Mandatory
- maxHomeCALs (int) – set it to -1 for unlimited accounts - Mandatory
- maxProfessionalCALs (int) – set it to -1 for unlimited accounts - Mandatory
- maxStorageGB (int) – set it to -1 for unlimited accounts - Mandatory
- allowTrials (boolean) - Mandatory
- sendLogs (boolean) - Mandatory
- accountUpgradeByGroup (boolean) - Mandatory
- accountDowngradeByGroup (boolean) - Mandatory
- isAllowedRestore (boolean) – must be True - Mandatory
- AllowAccountDeletion (string) - Optional

ResellerUsageInfo (Read-only object):

- ResellerUserName (string)
- maxHomeUsers (int)
- usedHomeUsers (int)
- maxProfessionalUsers (int)

- usedProfessionalUsers (int)
- maxStorageGB (int)
- assignedStorageMB (int)
- usedStorage (long)
- assignedStorageLocation (array of int)

## 5. Public exceptions

This paragraph describes important public exception codes that can be thrown if functions are called incorrectly or the server is not configured properly.

If an exception occurs within BackupAgent logic, the exception type will always be an inherited SOAPException of type BAServiceException. The Exception message will contain a series of numbers in the following format:

“BAWSxxx::xxx:: error message”. The first three digits (xxx) will represent the exception type and is an indicator for the problem. These next three digits will be the specific exception code.

The following table shows all exception codes that can occur in the functions described in this document:

<b>Exception code</b>	<b>Exception subcode</b>	<b>Nature</b>
999	999	Unknown exception
013	001	License is missing on server
013	002	Mismatch between license and requested URL
013	003	Mismatch for trial license IP address
014		Input sanitation exceptions
015	001	Wrong username
015	002	Wrong password
016	001	The credentials are not sufficient to delete a user
016	other	An exception occurred while creating or updating a user



017	001	Error occurred creating an account. Most likely cause is that one of the strings in the UserInfo or AccountInfo object is too long to store in the database.
017	017	License does not allow for account creation through the API
017	other	An exception occurred while creating or updating the account for a user. Most likely cause is that the token username is not an administrator or group user.
018		There was a problem sending a notification email, please check the email server settings.
004	Bitmap of missing arguments	Some arguments are missing calling the function
005	Bitmap of empty string arguments that are required	Some required string content is missing or empty
001		Can only happen if the Webservice call is not a SOAP request
002		A problem occurred caching the user
003	Function indicator	A problem occurred creating a user session. This occurs if BackupAgent Management Service is not running

All the information on exceptions is limited to indicate the problem. This is for security reasons.

If the exception information is insufficient, please contact BackupAgent support.

## Appendix A - Country codes:

*ID CountryName CountryCode*

- 1 Uruguay UY
- 2 Portugal PT
- 3 Bolivia BO
- 4 Fiji Islands FJ
- 5 Sri Lanka LK
- 6 Botswana BW
- 7 Cameroon CM
- 8 Senegal SN

- 9 Guadeloupe GP
- 10 Romania RO
- 11 Paraguay PY
- 12 Mauritius MU
- 13 Hungary HU
- 14 Iceland IS
- 15 Slovakia SK
- 16 Barbados BB
- 17 North Korea KP
- 18 Algeria DZ
- 19 Lithuania LT
- 20 Thailand TH
- 21 Guernsey GG
- 22 Spain ES
- 23 United Arab Emirates AE
- 24 Egypt EG
- 25 Togo TG
- 26 Isle of Man IM
- 27 Ghana GH
- 28 Peru PE
- 29 South Africa ZA
- 30 New Zealand NZ
- 31 Mali ML
- 32 Gambia, the GM
- 33 Central African Republic CF
- 34 Cocos (Keeling) Islands CC
- 35 Bahamas BS
- 36 Cyprus CY
- 37 Wallis and Futuna WF
- 38 Bulgaria BG
- 39 Turkmenistan TM
- 40 Russia RU

- 41 Puerto Rico PR
- 42 Germany DE
- 43 Guinea GN
- 44 Antarctica AQ
- 45 United Kingdom GB
- 46 Pitcairn Islands PN
- 47 Rwanda RW
- 48 Greece GR
- 49 Afghanistan AF
- 50 Morocco MA
- 51 Tristan da Cunha TA
- 52 Haiti HT
- 53 Maldives MV
- 54 Jordan JO
- 55 Slovenia SI
- 56 Greenland GL
- 57 Turkey TR
- 58 Estonia EE
- 59 Mauritania MR
- 60 Bermuda BM
- 61 Vanuatu VU
- 62 Venezuela VE
- 63 Tonga TO
- 64 Nigeria NG
- 65 Iran IR
- 66 Trinidad and Tobago TT
- 67 Cambodia KH
- 68 Georgia GE
- 69 St. Helena SH
- 70 Falkland Islands (Islas Malvinas) FK
- 71 El Salvador SV
- 72 Ireland IE

- 73 Guam GU
- 74 Cayman Islands KY
- 75 Palau PW
- 76 Norfolk Island NF
- 77 Bahrain BH
- 78 Grenada GD
- 79 Sierra Leone SL
- 80 Nicaragua NI
- 81 Brunei BN
- 82 Malaysia MY
- 83 Nauru NR
- 84 Ascension Island AC
- 85 Gibraltar GI
- 86 China CN
- 87 Jersey JE
- 88 Czech Republic CZ
- 89 Switzerland CH
- 90 Antigua and Barbuda AG
- 91 Argentina AR
- 92 Montserrat MS
- 93 Belgium BE
- 94 Ethiopia ET
- 95 Jamaica JM
- 96 St. Vincent and The Grenadines VC
- 97 Belize BZ
- 98 Myanmar MM
- 99 Chad TD
- 100 Mongolia MN
- 101 Madagascar MG
- 102 Tanzania TZ
- 103 Macedonia, former Yugoslav Republic of MK
- 104 Australia AU

105 Indonesia ID  
106 San Marino SM  
107 Luxembourg LU  
108 Guatemala GT  
109 Kyrgyzstan KG  
110 Benin BJ  
111 Liechtenstein LI  
112 St. Kitts and Nevis KN  
113 Heard Island and Mcdonald Islands HM  
114 Dominica DM  
115 Timor-leste TP  
116 American Samoa AS  
117 St. Lucia LC  
118 Côte d'Ivoire CI  
119 Denmark DK  
120 British Indian Ocean Territory IO  
121 Virgin Islands, British VG  
122 Norway NO  
123 Malawi MW  
124 Reunion RE  
125 Honduras HN  
126 Japan JP  
127 Tuvalu TV  
128 Costa Rica CR  
129 Qatar QA  
130 Palestinian Authority PS  
131 Samoa WS  
132 Libya LY  
133 Papua New Guinea PG  
134 Equatorial Guinea GQ  
135 Syria SY  
136 Comoros KM

- 137 Nepal NP
- 138 French Southern and Antarctic Lands TF
- 139 Namibia NA
- 140 Malta MT
- 141 Bhutan BT
- 142 Philippines PH
- 143 Iraq IQ
- 144 French Polynesia PF
- 145 India IN
- 146 Northern Mariana Islands MP
- 147 Ecuador EC
- 148 Canada CA
- 149 Poland PL
- 150 Italy IT
- 151 St. Pierre and Miquelon PM
- 152 Taiwan TW
- 153 Kazakhstan KZ
- 154 Andorra AD
- 155 Liberia LR
- 156 Anguilla AI
- 157 Congo (drc) CD
- 158 Guyana GY
- 159 Bangladesh BD
- 160 Cook Islands CK
- 161 Djibouti DJ
- 162 São Tomé and Príncipe ST
- 163 Austria AT
- 164 Niue NU
- 165 Uganda UG
- 166 Bosnia and Herzegovina BA
- 167 Monaco MC
- 168 French Guiana GF

169 Bouvet Island BV  
170 Cape Verde CV  
171 Zambia ZM  
172 South Georgia and The South Sandwich Islands GS  
173 Sudan SD  
174 Kuwait KW  
175 United States Minor Outlying Islands UM  
176 Guinea-Bissau GW  
177 Christmas Island CX  
178 Latvia LV  
179 Belarus BY  
180 Solomon Islands SB  
181 Seychelles SC  
182 Kiribati KI  
183 Lebanon LB  
184 Turks and Caicos Islands TC  
185 Suriname SR  
186 Finland FI  
187 Uzbekistan UZ  
188 Croatia HR  
189 Lesotho LS  
190 Albania AL  
191 Virgin Islands, British VG  
192 Congo CG  
193 Yemen YE  
194 France FR  
195 Moldova MD  
196 Laos LA  
197 Panama PA  
198 Vietnam VN  
199 Mayotte YT  
200 Mozambique MZ

201 Pakistan PK  
202 Serbia and Montenegro YU  
203 Netherlands Antilles AN  
204 Eritrea ER  
205 Burkina Faso BF  
206 Cuba CU  
207 Sweden SE  
208 Tajikistan TJ  
209 Brazil BR  
210 Netherlands NL  
211 Azerbaijan AZ  
212 Svalbard and Jan Mayen SJ  
213 Armenia AM  
214 United States US  
215 Israel IL  
216 Gabon GA  
217 Aruba AW  
218 Singapore SG  
219 Tokelau TK  
220 Mexico MX  
221 Vatican City VA  
222 Faroe Islands FO  
223 Swaziland SZ  
224 Ukraine UA  
225 Dominican Republic DO  
226 Korea KR  
227 Oman OM  
228 Kenya KE  
229 New Caledonia NC  
230 Saudi Arabia SA  
231 Somalia SO  
232 Angola AO



- 233 Burundi BI
- 234 Tunisia TN
- 235 Zimbabwe ZW
- 236 Marshall Islands MH
- 237 Hong Kong Sar HK
- 238 Micronesia FM
- 239 Niger NE
- 240 Colombia CO
- 241 Chile CL
- 242 Martinique MQ
- 243 Macao Sar MO
- 244 So Tom and Prncipe ST

## Appendix B - US State codes:

ID StateName

- 1 Alabama
- 2 Alaska
- 3 Arizona
- 4 Arkansas
- 5 California
- 6 Colorado
- 7 Connecticut
- 8 Delaware
- 9 Florida
- 10 Georgia
- 11 Hawaii
- 12 Idaho
- 13 Illinois
- 14 Indiana
- 15 Iowa
- 16 Kansas

- 17 Kentucky
- 18 Louisiana
- 19 Maine
- 20 Maryland
- 21 Massachusetts
- 22 Michigan
- 23 Minnesota
- 24 Mississippi
- 25 Missouri
- 26 Montana
- 27 Nebraska
- 28 Nevada
- 29 New Hampshire
- 30 New Jersey
- 31 New Mexico
- 32 New York
- 33 North Carolina
- 34 North Dakota
- 35 Ohio
- 36 Oklahoma
- 37 Oregon
- 38 Pennsylvania
- 39 Rhode Island
- 40 South Carolina
- 41 South Dakota
- 42 Tennessee
- 43 Texas
- 44 Utah
- 45 Vermont
- 46 Virginia
- 47 Washington
- 48 West Virginia

49 Wisconsin

50 Wyoming

51 District of Columbia