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Partie 1: Méthodes et procédures

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Contents

Page

Foreword ... **xix**

Introduction ... **xx**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Abbreviated terms ... **3**

5 Conformance ... **3**

6 Conformance testing methodology ... **4**
6.1 General ... 4
6.1.1 Implementation under test ... 4
6.1.2 Test method ... 5
6.1.3 Standard BioAPI components and standard BioAPI interfaces ... 6
6.1.4 Physical architectures ... 7
6.2 Conformance testing models ... 8
6.3 Abstract test engine ... 13

7 General properties of the assertion language ... **14**
7.1 General ... 14
7.2 Variables ... 17
7.3 Built-in variables ... 18
7.4 Representation of integers ... 18
7.5 Representation of Booleans ... 19
7.6 Representation of universally unique identifiers (UUIDs) ... 19
7.7 Representation of octet strings ... 19
7.8 XML documents ... 20

8 Elements of the assertion language ... **20**
8.1 Element <package> ... 20
8.1.1 Syntax ... 20
8.1.2 Semantics ... 20
8.1.3 Example (non-normative) ... 21
8.2 Element <assertion> (child of <package>) ... 21
8.2.1 Syntax ... 21
8.2.2 Semantics ... 22
8.2.3 Example (non-normative) ... 22
8.3 Element <input> (child of <assertion>) ... 23
8.3.1 Syntax ... 23
8.3.2 Semantics ... 23
8.3.3 Example (non-normative) ... 23
8.4 Element <invoke> (child of <assertion>) ... 23
8.4.1 Syntax ... 23
8.4.2 Semantics ... 24
8.4.3 Example (non-normative) ... 24
8.5 Element <input> (child of <invoke>) ... 24
8.5.1 Syntax ... 24
8.5.2 Semantics ... 25
8.5.3 Example (non-normative) ... 25
8.6 Element <output> (child of <invoke>) ... 25
8.6.1 Syntax ... 25
8.6.2 Semantics ... 26
8.7 Element <return> (child of <invoke>) ... 26
8.7.1 Syntax ... 26
8.7.2 Semantics ... 27

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8.8 Element <bind> (child of <assertion>) 27
8.8.1 Syntax 27
8.8.2 Semantics 27
8.9 Element <activity> (child of <package>) 28
8.9.1 Syntax 28
8.9.2 Semantics 29
8.9.3 Example (non-normative) 32
8.10 Element <input> (child of <activity>) 35
8.10.1 Syntax 35
8.10.2 Semantics 35
8.11 Element <output> (child of <activity>) 35
8.11.1 Syntax 35
8.11.2 Semantics 35
8.12 Element <set> 36
8.12.1 Syntax 36
8.12.2 Semantics 36
8.13 Element <add> 37
8.13.1 Syntax 37
8.13.2 Semantics 37
8.14 Element <subtract> 38
8.14.1 Syntax 38
8.14.2 Semantics 38
8.15 Element <invoke> (child of <activity>) 39
8.15.1 Syntax 39
8.15.2 Semantics 39
8.15.3 Example (non-normative) 42
8.16 Element <only_if> 42
8.16.1 Syntax 42
8.16.2 Semantics 43
8.17 Element <wait_until> 43
8.17.1 Syntax 43
8.17.2 Semantics 44
8.18 Element <assert_condition> 45
8.18.1 Syntax 45
8.18.2 Semantics 45
8.19 Element <and> 46
8.19.1 Syntax 46
8.19.2 Semantics 46
8.20 Element <or> 47
8.20.1 Syntax 47
8.20.2 Semantics 47
8.21 Element <xor> 47
8.21.1 Syntax 47
8.21.2 Semantics 48
8.22 Element <not> 48
8.22.1 Syntax 48
8.22.2 Semantics 48
8.23 Element <equal_to> 49
8.23.1 Syntax 49
8.23.2 Semantics 49
8.24 Element <not_equal_to> 50
8.24.1 Syntax 50
8.24.2 Semantics 50
8.25 Element <greater_than> 50
8.25.1 Syntax 50
8.25.2 Semantics 50
8.26 Element <greater_than_or_equal_to> 50
8.26.1 Syntax 50

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8.26.2 Semantics 50
8.27 Element <less_than> 50
8.27.1 Syntax 50
8.27.2 Semantics 50
8.28 Element <less_than_or_equal_to> 51
8.28.1 Syntax 51
8.28.2 Semantics 51
8.29 Element <same_as> 51
8.29.1 Syntax 51
8.29.2 Semantics 51
8.30 Element <not_same_as> 52
8.30.1 Syntax 52
8.30.2 Semantics 52
8.31 Element <existing> 52
8.31.1 Syntax 52
8.31.2 Semantics 52
8.32 Element <not_existing> 53
8.32.1 Syntax 53
8.32.2 Semantics 53

9 Standard interface functions 53
9.1 General 53
9.2 Parameter groups 60
9.2.1 General 60
9.2.2 Parameter group “Biometric type” 60
9.2.3 Parameter group “Operations” 62
9.2.4 Parameter group “Options” 64
9.2.5 Parameter group “Events” 66
9.2.6 Parameter group “Biometric data type” 67
9.2.7 Parameter group “Biometric subtype” 68
9.2.8 Parameter group “Date” 69
9.2.9 Parameter group “Date and time” 70
9.2.10 Parameter group “Framework schema” 71
9.2.11 Parameter group “BSP schema” 72
9.2.12 Parameter group “BFP schema” 76
9.2.13 Parameter group “Unit schema” 78
9.2.14 Parameter group “BIR header” 81
9.2.15 Parameter group “BIR” 84
9.2.16 Parameter group “Input BIR” 85
9.2.17 Parameter group “Identify population” 86
9.2.18 Parameter group “Candidate” 88
9.2.19 Parameter group “GUI state” 90
9.2.20 Parameter group “Access type” 90
9.2.21 Parameter group “GUI Event Subscription” 91
9.2.22 Parameter group “Key Information” 92
9.2.23 Parameter group “Key Transport” 93
9.2.24 Parameter group “MAC Algorithm Information” 93
9.2.25 Parameter group “Security Options Mask” 94
9.2.26 Parameter group “Security Profile” 95
9.2.27 Parameter group “ACBio parameters” 97
9.2.28 Parameter group “BFP List Element parameters” 98
9.2.29 Parameter group “Biometric subtype mask” 98
9.2.30 Parameter group “ENCRYPTION INFO” 100
9.3 BioAPI_Init 101
9.3.1 Function invocation scheme 101
9.3.2 Constraints on the parameters 101
9.3.3 Function invocation input 101
9.3.4 Function invocation output 101
9.3.5 Bound activity invocation input 101

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9.3.6 Bound activity invocation output 102
9.4 BioAPI_Terminate 102
9.4.1 Function invocation scheme 102
9.4.2 Constraints on the parameters 102
9.4.3 Function invocation input 102
9.4.4 Function invocation output 102
9.4.5 Bound activity invocation input 102
9.4.6 Bound activity invocation output 102
9.5 BioAPI_GetFrameworkInfo 103
9.5.1 Function invocation scheme 103
9.5.2 Constraints on the parameters 103
9.5.3 Function invocation input 103
9.5.4 Function invocation output 103
9.5.5 Bound activity invocation input 104
9.5.6 Bound activity invocation output 104
9.6 BioAPI_EnumBSPs 104
9.6.1 Function invocation scheme 104
9.6.2 Constraints on the parameters 105
9.6.3 Function invocation input 105
9.6.4 Function invocation output 105
9.6.5 Bound activity invocation input 105
9.6.6 Bound activity invocation output 106
9.7 BioAPI_BSPLoad 106
9.7.1 Function invocation scheme 106
9.7.2 Constraints on the parameters 106
9.7.3 Function invocation input 106
9.7.4 Function invocation output 107
9.7.5 Bound activity invocation input 107
9.7.6 Bound activity invocation output 107
9.8 BioAPI_BSPUnload 107
9.8.1 Function invocation scheme 107
9.8.2 Constraints on the parameters 108
9.8.3 Function invocation input 108
9.8.4 Function invocation output 108
9.8.5 Bound activity invocation input 108
9.8.6 Bound activity invocation output 109
9.9 BioAPI_BSPAttach 109
9.9.1 Function invocation scheme 109
9.9.2 Constraints on the parameters 109
9.9.3 Function invocation input 110
9.9.4 Function invocation output 110
9.9.5 Bound activity invocation input 110
9.9.6 Bound activity invocation output 111
9.10 BioAPI_BSPDetach 111
9.10.1 Function invocation scheme 111
9.10.2 Constraints on the parameters 111
9.10.3 Function invocation input 111
9.10.4 Function invocation output 112
9.10.5 Bound activity invocation input 112
9.10.6 Bound activity invocation output 112
9.11 BioAPI_QueryUnits 112
9.11.1 Function invocation scheme 112
9.11.2 Constraints on the parameters 113
9.11.3 Function invocation input 113
9.11.4 Function invocation output 114
9.11.5 Bound activity invocation input 114
9.11.6 Bound activity invocation output 114
9.12 BioAPI_EnumBFPs 114

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9.12.1 Function invocation scheme 114
9.12.2 Constraints on the parameters 115
9.12.3 Function invocation input 115
9.12.4 Function invocation output 116
9.12.5 Bound activity invocation input 116
9.12.6 Bound activity invocation output 116
9.13 BioAPI_QueryBFPs 116
9.13.1 Function invocation scheme 116
9.13.2 Constraints on the parameters 117
9.13.3 Function invocation input 117
9.13.4 Function invocation output 118
9.13.5 Bound activity invocation input 118
9.13.6 Bound activity invocation output 118
9.14 BioAPI_ControlUnit 118
9.14.1 Function invocation scheme 118
9.14.2 Constraints on the parameters 119
9.14.3 Function invocation input 119
9.14.4 Function invocation output 119
9.14.5 Bound activity invocation input 120
9.14.6 Bound activity invocation output 120
9.15 BioAPI_LinkToEndpoint 120
9.15.1 Function invocation scheme 120
9.15.2 Constraints on the parameter 120
9.15.3 Function invocation input 121
9.15.4 Function invocation output 121
9.15.5 Bound activity invocation input 121
9.15.6 Bound activity invocation output 121
9.16 BioAPI_UnlinkFromEndpoint 121
9.16.1 Function invocation scheme 121
9.16.2 Constraints on the parameter 121
9.16.3 Function invocation input 122
9.16.4 Function invocation output 122
9.16.5 Bound activity invocation input 122
9.16.6 Bound activity invocation output 122
9.17 BioAPI_EnumFrameworks 122
9.17.1 Function invocation scheme 122
9.17.2 Constraints on the parameters 123
9.17.3 Function invocation input 123
9.17.4 Function invocation output 123
9.17.5 Bound activity invocation input 123
9.17.6 Bound activity invocation output 123
9.18 BioAPI_FreeBIRHandle 124
9.18.1 Function invocation scheme 124
9.18.2 Constraints on the parameters 124
9.18.3 Function invocation input 124
9.18.4 Function invocation output 124
9.18.5 Bound activity invocation input 124
9.18.6 Bound activity invocation output 125
9.19 BioAPI_GetBIRFromHandle 125
9.19.1 Function invocation scheme 125
9.19.2 Constraints on the parameters 125
9.19.3 Function invocation input 126
9.19.4 Function invocation output 126
9.19.5 Bound activity invocation input 126
9.19.6 Bound activity invocation output 126
9.20 BioAPI_GetHeaderFromHandle 126
9.20.1 Function invocation scheme 126
9.20.2 Constraints on the parameters 127

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9.20.3 Function invocation input 127
9.20.4 Function invocation output 127
9.20.5 Bound activity invocation input 128
9.20.6 Bound activity invocation output 128
9.21 BioAPI_EnableEvents 128
9.21.1 Function invocation scheme 128
9.21.2 Constraints on the parameters 128
9.21.3 Function invocation input 129
9.21.4 Function invocation output 129
9.21.5 Bound activity invocation input 129
9.21.6 Bound activity invocation output 129
9.22 BioAPI_NotifyGUIProgressEvent 130
9.22.1 Function invocation scheme 130
9.22.2 Constraints on the parameters 131
9.22.3 Function invocation input 131
9.22.4 Function invocation output 131
9.22.5 Bound activity invocation input 132
9.22.6 Bound activity invocation output 132
9.23 BioAPI_NotifyGUISelectEvent 132
9.23.1 Function invocation scheme 132
9.23.2 Constraints on the parameters 133
9.23.3 Function invocation input 134
9.23.4 Function invocation output 134
9.23.5 Bound activity invocation input 134
9.23.6 Bound activity invocation output 135
9.24 BioAPI_NotifyGUIStateEvent 135
9.24.1 Function invocation scheme 135
9.24.2 Constraints on the parameters 136
9.24.3 Function invocation input 137
9.24.4 Function invocation output 137
9.24.5 Bound activity invocation input 137
9.24.6 Bound activity invocation output 138
9.25 BioAPI_QueryGUIEventSubscriptions 138
9.25.1 Function invocation scheme 138
9.25.2 Constraints on the parameters 139
9.25.3 Function invocation input 139
9.25.4 Function invocation output 139
9.25.5 Bound activity invocation input 139
9.25.6 Bound activity invocation output 139
9.26 BioAPI_RedirectGUIEvents 140
9.26.1 Function invocation scheme 140
9.26.2 Constraints on the parameters 140
9.26.3 Function invocation input 141
9.26.4 Function invocation output 141
9.26.5 Bound activity invocation input 141
9.26.6 Bound activity invocation output 141
9.27 BioAPI_SubscribeToGUIEvents 142
9.27.1 Function invocation scheme 142
9.27.2 Constraints on the parameters 142
9.27.3 Function invocation input 143
9.27.4 Function invocation output 143
9.27.5 Bound activity invocation input 143
9.27.6 Bound activity invocation output 144
9.28 BioAPI_UnredirctGUIEvents 144
9.28.1 Function invocation scheme 144
9.28.2 Constraints on the parameters 144
9.28.3 Function invocation input 145
9.28.4 Function invocation output 145

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9.28.5 Bound activity invocation input 145
9.28.6 Bound activity invocation output 145
9.29 BioAPI_UnsubscribeFromGUIEvents 146
9.29.1 Function invocation scheme 146
9.29.2 Constraints on the parameters 146
9.29.3 Function invocation input 147
9.29.4 Function invocation output 147
9.29.5 Bound activity invocation input 147
9.29.6 Bound activity invocation output 147
9.30 BioAPI_SetGUICallbacks 148
9.30.1 Function invocation scheme 148
9.30.2 Constraints on the parameters 148
9.30.3 Function invocation input 148
9.30.4 Function invocation output 149
9.30.5 Bound activity invocation input 149
9.30.6 Bound activity invocation output 149
9.31 BioAPI_Capture 150
9.31.1 Function invocation scheme 150
9.31.2 Constraints on the parameters 150
9.31.3 Function invocation input 151
9.31.4 Function invocation output 151
9.31.5 Bound activity invocation input 151
9.31.6 Bound activity invocation output 152
9.32 BioAPI_CreateTemplate 152
9.32.1 Function invocation scheme 152
9.32.2 Constraints on the parameters 153
9.32.3 Function invocation input 154
9.32.4 Function invocation output 154
9.32.5 Bound activity invocation input 155
9.32.6 Bound activity invocation output 155
9.33 BioAPI_Process 155
9.33.1 Function invocation scheme 155
9.33.2 Constraints on the parameters 156
9.33.3 Function invocation input 156
9.33.4 Function invocation output 157
9.33.5 Bound activity invocation input 157
9.33.6 Bound activity invocation output 157
9.34 BioAPI_ProcessUsingAuxBIRs 158
9.34.1 Function invocation scheme 158
9.34.2 Constraints on the parameters 158
9.34.3 Function invocation input 159
9.34.4 Function invocation output 159
9.34.5 Bound activity invocation input 159
9.34.6 Bound activity invocation output 160
9.35 BioAPI_VerifyMatch 160
9.35.1 Function invocation scheme 160
9.35.2 Constraints on the parameters 161
9.35.3 Function invocation input 162
9.35.4 Function invocation output 162
9.35.5 Bound activity invocation input 163
9.35.6 Bound activity invocation output 163
9.36 BioAPI_VerifyMatchUsingAuxBIRs 163
9.36.1 Function invocation scheme 163
9.36.2 Constraints on the parameters 164
9.36.3 Function invocation input 165
9.36.4 Function invocation output 165
9.36.5 Bound activity invocation input 166
9.36.6 Bound activity invocation output 166

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9.37 BioAPI_IdentifyMatch 167
9.37.1 Function invocation scheme 167
9.37.2 Constraints on the parameters 168
9.37.3 Function invocation input 169
9.37.4 Function invocation output 169
9.37.5 Bound activity invocation input 170
9.37.6 Bound activity invocation output 170
9.38 BioAPI_Decide 170
9.38.1 Function invocation scheme 170
9.38.2 Constraints on the parameters 171
9.38.3 Function invocation input 171
9.38.4 Function invocation output 171
9.38.5 Bound activity invocation input 172
9.38.6 Bound activity invocation output 172
9.39 BioAPI_Fuse 172
9.39.1 Function invocation scheme 172
9.39.2 Constraints on the parameters 173
9.39.3 Function invocation input 173
9.39.4 Function invocation output 173
9.39.5 Bound activity invocation input 173
9.39.6 Bound activity invocation output 174
9.40 BioAPI_Enroll 174
9.40.1 Function invocation scheme 174
9.40.2 Constraints on the parameters 175
9.40.3 Function invocation input 176
9.40.4 Function invocation output 176
9.40.5 Bound activity invocation input 177
9.40.6 Bound activity invocation output 177
9.41 BioAPI_Verify 177
9.41.1 Function invocation scheme 177
9.41.2 Constraints on the parameters 178
9.41.3 Function invocation input 179
9.41.4 Function invocation output 179
9.41.5 Bound activity invocation input 180
9.41.6 Bound activity invocation output 181
9.42 BioAPI_Identify 181
9.42.1 Function invocation scheme 181
9.42.2 Constraints on the parameters 182
9.42.3 Function invocation input 183
9.42.4 Function invocation output 183
9.42.5 Bound activity invocation input 184
9.42.6 Bound activity invocation output 184
9.43 BioAPI_Import 184
9.43.1 Function invocation scheme 184
9.43.2 Constraints on the parameters 185
9.43.3 Function invocation input 185
9.43.4 Function invocation output 186
9.43.5 Bound activity invocation input 186
9.43.6 Bound activity invocation output 187
9.44 BioAPI_Export 187
9.44.1 Function invocation scheme 187
9.44.2 Constraints on the parameters 187
9.44.3 Function invocation input 188
9.44.4 Function invocation output 188
9.44.5 Bound activity invocation input 188
9.44.6 Bound activity invocation output 189
9.45 BioAPI_PresetIdentifyPopulation 189
9.45.1 Function invocation scheme 189

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9.45.2 Constraints on the parameters 189
9.45.3 Function invocation input 189
9.45.4 Function invocation output 190
9.45.5 Bound activity invocation input 190
9.45.6 Bound activity invocation output 190
9.46 BioAPI_Transform 190
9.46.1 Function invocation scheme 190
9.46.2 Constraints on the parameters 191
9.46.3 Function invocation input 191
9.46.4 Function invocation output 192
9.46.5 Bound activity invocation input 192
9.46.6 Bound activity invocation output 192
9.47 BioAPI_DbOpen 192
9.47.1 Function invocation scheme 192
9.47.2 Constraints on the parameters 193
9.47.3 Function invocation input 193
9.47.4 Function invocation output 194
9.47.5 Bound activity invocation input 194
9.47.6 Bound activity invocation output 194
9.48 BioAPI_DbClose 195
9.48.1 Function invocation scheme 195
9.48.2 Constraints on the parameters 195
9.48.3 Function invocation input 195
9.48.4 Function invocation output 195
9.48.5 Bound activity invocation input 195
9.48.6 Bound activity invocation output 196
9.49 BioAPI_DbCreate 196
9.49.1 Function invocation scheme 196
9.49.2 Constraints on the parameters 196
9.49.3 Function invocation input 197
9.49.4 Function invocation output 197
9.49.5 Bound activity invocation input 197
9.49.6 Bound activity invocation output 197
9.50 BioAPI_DbDelete 198
9.50.1 Function invocation scheme 198
9.50.2 Constraints on the parameters 198
9.50.3 Function invocation input 198
9.50.4 Function invocation output 198
9.50.5 Bound activity invocation input 198
9.50.6 Bound activity invocation output 199
9.51 BioAPI_DbSetMarker 199
9.51.1 Function invocation scheme 199
9.51.2 Constraints on the parameters 199
9.51.3 Function invocation input 200
9.51.4 Function invocation output 200
9.51.5 Bound activity invocation input 200
9.51.6 Bound activity invocation output 200
9.52 BioAPI_DbFreeMarker 200
9.52.1 Function invocation scheme 200
9.52.2 Constraints on the parameters 201
9.52.3 Function invocation input 201
9.52.4 Function invocation output 201
9.52.5 Bound activity invocation input 201
9.52.6 Bound activity invocation output 201
9.53 BioAPI_DbStoreBIR 202
9.53.1 Function invocation scheme 202
9.53.2 Constraints on the parameters 202
9.53.3 Function invocation input 203

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9.53.4 Function invocation output 203
9.53.5 Bound activity invocation input 203
9.53.6 Bound activity invocation output 203
9.54 BioAPI_DbGetBIR 204
9.54.1 Function invocation scheme 204
9.54.2 Constraints on the parameters 204
9.54.3 Function invocation input 205
9.54.4 Function invocation output 205
9.54.5 Bound activity invocation input 205
9.54.6 Bound activity invocation output 206
9.55 BioAPI_DbGetNextBIR 206
9.55.1 Function invocation scheme 206
9.55.2 Constraints on the parameters 206
9.55.3 Function invocation input 207
9.55.4 Function invocation output 207
9.55.5 Bound activity invocation input 207
9.55.6 Bound activity invocation output 208
9.56 BioAPI_DbDeleteBIR 208
9.56.1 Function invocation scheme 208
9.56.2 Constraints on the parameters 208
9.56.3 Function invocation input 209
9.56.4 Function invocation output 209
9.56.5 Bound activity invocation input 209
9.56.6 Bound activity invocation output 209
9.57 BioAPI_SetPowerMode 209
9.57.1 Function invocation scheme 209
9.57.2 Constraints on the parameters 210
9.57.3 Function invocation input 210
9.57.4 Function invocation output 210
9.57.5 Bound activity invocation input 210
9.57.6 Bound activity invocation output 210
9.58 BioAPI_SetIndicatorStatus 211
9.58.1 Function invocation scheme 211
9.58.2 Constraints on the parameters 211
9.58.3 Function invocation input 211
9.58.4 Function invocation output 211
9.58.5 Bound activity invocation input 211
9.58.6 Bound activity invocation output 212
9.59 BioAPI_GetIndicatorStatus 212
9.59.1 Function invocation scheme 212
9.59.2 Constraints on the parameters 212
9.59.3 Function invocation input 213
9.59.4 Function invocation output 213
9.59.5 Bound activity invocation input 213
9.59.6 Bound activity invocation output 213
9.60 BioAPI_CalibrateSensor 213
9.60.1 Function invocation scheme 213
9.60.2 Constraints on the parameters 214
9.60.3 Function invocation input 214
9.60.4 Function invocation output 214
9.60.5 Bound activity invocation input 214
9.60.6 Bound activity invocation output 214
9.61 BioAPI_Cancel 215
9.61.1 Function invocation scheme 215
9.61.2 Constraints on the parameters 215
9.61.3 Function invocation input 215
9.61.4 Function invocation output 215
9.61.5 Bound activity invocation input 215

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9.61.6 Bound activity invocation output 215
9.62 BioAPI_Free 216
9.62.1 Function invocation scheme 216
9.62.2 Constraints on the parameters 216
9.62.3 Function invocation input 216
9.62.4 Function invocation output 216
9.62.5 Bound activity invocation input 216
9.62.6 Bound activity invocation output 216
9.63 BioAPI_Util_InstallBSP 217
9.63.1 Function invocation scheme 217
9.63.2 Constraints on the parameters 217
9.63.3 Function invocation input 218
9.63.4 Function invocation output 218
9.63.5 Bound activity invocation input 218
9.63.6 Bound activity invocation output 218
9.64 BioAPI_Util_InstallBFP 219
9.64.1 Function invocation scheme 219
9.64.2 Constraints on the parameters 219
9.64.3 Function invocation input 220
9.64.4 Function invocation output 220
9.64.5 Bound activity invocation input 220
9.64.6 Bound activity invocation output 220
9.65 BioSPI_BSPLoad 220
9.65.1 Function invocation scheme 220
9.65.2 Constraints on the parameters 221
9.65.3 Function invocation input 221
9.65.4 Function invocation output 222
9.65.5 Bound activity invocation input 222
9.65.6 Bound activity invocation output 222
9.65.7 Default output 222
9.66 BioSPI_BSPUnload 222
9.66.1 Function invocation scheme 222
9.66.2 Constraints on the parameters 222
9.66.3 Function invocation input 223
9.66.4 Function invocation output 223
9.66.5 Bound activity invocation input 223
9.66.6 Bound activity invocation output 223
9.66.7 Default output 223
9.67 BioSPI_BSPAttach 223
9.67.1 Function invocation scheme 223
9.67.2 Constraints on the parameters 224
9.67.3 Function invocation input 224
9.67.4 Function invocation output 225
9.67.5 Bound activity invocation input 225
9.67.6 Bound activity invocation output 225
9.67.7 Default output 225
9.68 BioSPI_BSPDetach 225
9.68.1 Function invocation scheme 225
9.68.2 Constraints on the parameters 226
9.68.3 Function invocation input 226
9.68.4 Function invocation output 226
9.68.5 Bound activity invocation input 226
9.68.6 Bound activity invocation output 226
9.68.7 Default output 226
9.69 BioSPI_QueryUnits 226
9.69.1 Function invocation scheme 226
9.69.2 Bound activity invocation output 227
9.69.3 Default output 228

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9.70 BioSPI_QueryBFPs 228
9.70.1 Function invocation scheme 228
9.70.2 Bound activity invocation output 229
9.70.3 Default output 229
9.71 BioSPI_ControlUnit 229
9.71.1 Function invocation scheme 229
9.71.2 Bound activity invocation output 230
9.71.3 Default output 230
9.72 BioSPI_SetConfiguration 231
9.72.1 Function invocation scheme 231
9.72.2 Bound activity invocation output 231
9.72.3 Default output 231
9.73 BioSPI_FreeBIRHandle 232
9.73.1 Function invocation scheme 232
9.73.2 Bound activity invocation output 232
9.73.3 Default output 232
9.74 BioSPI_GetBIRFromHandle 232
9.74.1 Function invocation scheme 232
9.74.2 Bound activity invocation output 233
9.74.3 Default output 233
9.75 BioSPI_GetHeaderFromHandle 233
9.75.1 Function invocation scheme 233
9.75.2 Bound activity invocation output 234
9.75.3 Default output 234
9.76 BioSPI_SubscribeToGUIEvents 234
9.76.1 Function invocation scheme 234
9.76.2 Bound activity invocation output 235
9.76.3 Default output 235
9.77 BioSPI_UnsubscribeFromGUIEvents 235
9.77.1 Function invocation scheme 235
9.77.2 Bound activity invocation output 235
9.77.3 Default output 236
9.78 BioSPI_EnableEvents 236
9.78.1 Function invocation scheme 236
9.78.2 Bound activity invocation output 236
9.78.3 Default output 236
9.79 BioSPI_SetGUICallbacks 237
9.79.1 Function invocation scheme 237
9.79.2 Bound activity invocation output 237
9.79.3 Default output 237
9.80 BioSPI_Capture 238
9.80.1 Function invocation scheme 238
9.80.2 Bound activity invocation output 238
9.80.3 Default output 239
9.81 BioSPI_CreateTemplate 239
9.81.1 Function invocation scheme 239
9.81.2 Bound activity invocation output 240
9.81.3 Default output 240
9.82 BioSPI_Process 241
9.82.1 Function invocation scheme 241
9.82.2 Bound activity invocation output 241
9.82.3 Default output 242
9.83 BioSPI_ProcessUsingAuxBIRs 242
9.83.1 Function invocation scheme 242
9.83.2 Bound activity invocation output 243
9.83.3 Default output 243
9.84 BioSPI_VerifyMatch 243
9.84.1 Function invocation scheme 243

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9.84.2 Bound activity invocation output 244
9.84.3 Default output 245
9.85 BioSPI_VerifyMatchUsingAuxBIRs 245
9.85.1 Function invocation scheme 245
9.85.2 Bound activity invocation output 246
9.85.3 Default output 247
9.86 BioSPI_IdentifyMatch 247
9.86.1 Function invocation scheme 247
9.86.2 Bound activity invocation output 248
9.86.3 Default output 249
9.87 BioSPI_Decide 249
9.87.1 Function invocation scheme 249
9.87.2 Bound activity invocation output 250
9.87.3 Default output 250
9.88 BioSPI_Fuse 251
9.88.1 Function invocation scheme 251
9.88.2 Bound activity invocation output 251
9.88.3 Default output 252
9.89 BioSPI_Enroll 252
9.89.1 Function invocation scheme 252
9.89.2 Bound activity invocation output 253
9.89.3 Default output 254
9.90 BioSPI_Verify 254
9.90.1 Function invocation scheme 254
9.90.2 Bound activity invocation output 255
9.90.3 Default output 256
9.91 BioSPI_Identify 256
9.91.1 Function invocation scheme 256
9.91.2 Bound activity invocation output 257
9.91.3 Default output 258
9.92 BioSPI_Import 258
9.92.1 Function invocation scheme 258
9.92.2 Bound activity invocation output 259
9.92.3 Default output 259
9.93 BioSPI_Export 260
9.93.1 Function invocation scheme 260
9.93.2 Bound activity invocation output 260
9.93.3 Default output 261
9.94 BioSPI_PresetIdentifyPopulation 261
9.94.1 Function invocation scheme 261
9.94.2 Bound activity invocation output 261
9.94.3 Default output 262
9.95 BioSPI_Transform 262
9.95.1 Function invocation scheme 262
9.95.2 Bound activity invocation output 262
9.95.3 Default output 263
9.96 BioSPI_DbOpen 263
9.96.1 Function invocation scheme 263
9.96.2 Bound activity invocation output 264
9.96.3 Default output 264
9.97 BioSPI_DbClose 265
9.97.1 Function invocation scheme 265
9.97.2 Bound activity invocation output 265
9.97.3 Default output 265
9.98 BioSPI_DbCreate 265
9.98.1 Function invocation scheme 265
9.98.2 Bound activity invocation output 266
9.98.3 Default output 266

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9.99 BioSPI_DbDelete 267
9.99.1 Function invocation scheme 267
9.99.2 Bound activity invocation output 267
9.99.3 Default output 267
9.100 BioSPI_DbSetMarker 267
9.100.1 Function invocation scheme 267
9.100.2 Bound activity invocation output 268
9.100.3 Default output 268
9.101 BioSPI_DbFreeMarker 268
9.101.1 Function invocation scheme 268
9.101.2 Bound activity invocation output 269
9.101.3 Default output 269
9.102 BioSPI_DbStoreBIR 269
9.102.1 Function invocation scheme 269
9.102.2 Bound activity invocation output 269
9.102.3 Default output 270
9.103 BioSPI_DbGetBIR 270
9.103.1 Function invocation scheme 270
9.103.2 Bound activity invocation output 271
9.103.3 Default output 271
9.104 BioSPI_DbGetNextBIR 271
9.104.1 Function invocation scheme 271
9.104.2 Bound activity invocation output 272
9.104.3 Default output 272
9.105 BioSPI_DbDeleteBIR 273
9.105.1 Function invocation scheme 273
9.105.2 Bound activity invocation output 273
9.105.3 Default output 273
9.106 BioSPI_SetPowerMode 273
9.106.1 Function invocation scheme 273
9.106.2 Bound activity invocation output 274
9.106.3 Default output 274
9.107 BioSPI_SetIndicatorStatus 274
9.107.1 Function invocation scheme 274
9.107.2 Bound activity invocation output 275
9.107.3 Default output 275
9.108 BioSPI_GetIndicatorStatus 275
9.108.1 Function invocation scheme 275
9.108.2 Bound activity invocation output 275
9.108.3 Default output 276
9.109 BioSPI_CalibrateSensor 276
9.109.1 Function invocation scheme 276
9.109.2 Bound activity invocation output 276
9.109.3 Default output 276
9.110 BioSPI_Cancel 277
9.110.1 Function invocation scheme 277
9.110.2 Bound activity invocation output 277
9.110.3 Default output 277
9.111 BioSPI_Free 277
9.111.1 Function invocation scheme 277
9.111.2 Bound activity invocation output 278
9.111.3 Default output 278
9.112 BioAPI_GUI_STATE_EVENT_HANDLER 278
9.112.1 Function invocation scheme 278
9.112.2 Bound activity invocation output 279
9.112.3 Default output 280
9.113 BioSPI_EventHandler 280
9.113.1 Function invocation scheme 280

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9.113.2 Constraints on the parameters 281
9.113.3 Function invocation input 281
9.113.4 Function invocation output 281
9.113.5 Bound activity invocation input 282
9.113.6 Bound activity invocation output 282
9.113.7 Default output 282
9.114 BioAPI_GUI_STATE_CALLBACK 282
9.114.1 Function invocation scheme 282
9.114.2 Constraints on the parameters 283
9.114.3 Bound activity invocation input 284
9.114.4 Bound activity invocation output 284
9.114.5 Default output 284
9.115 BioAPI_GUI_STREAMING_CALLBACK 285
9.115.1 Function invocation scheme 285
9.115.2 Constraints on the parameters 285
9.115.3 Bound activity invocation input 285
9.115.4 Bound activity invocation output 286
9.115.5 Default output 286
9.116 BioSPI_EventHandler 286
9.116.1 Function invocation scheme 286
9.116.2 Constraints on the parameters 286
9.116.3 Function invocation input 287
9.116.4 Function invocation output 287
9.116.5 Bound activity invocation input 287
9.116.6 Bound activity invocation output 287
9.116.7 Default output 287
9.117 BioSPI_GUI_STATE_CALLBACK 288
9.117.1 Function invocation scheme 288
9.117.2 Function invocation input 288
9.117.3 Function invocation output 289
9.118 BioSPI_GUI_STREAMING_CALLBACK 289
9.118.1 Function invocation scheme 289
9.118.2 Function invocation input 290
9.118.3 Function invocation output 290
9.119 BioSPI_BFP_ENUMERATION_HANDLER 290
9.119.1 Function invocation scheme 290
9.119.2 Constraints on the parameters 291
9.119.3 Function invocation input 291
9.119.4 Function invocation output 291
9.119.5 Bound activity invocation input 292
9.119.6 Bound activity invocation output 292
9.119.7 Default output 292
9.120 BioSPI_MEMORY_FREE_HANDLER 292
9.120.1 Function invocation scheme 292
9.120.2 Constraints on the parameters 293
9.120.3 Function invocation input 293
9.120.4 Function invocation output 293
9.120.5 Bound activity invocation input 293
9.120.6 Bound activity invocation output 293
9.120.7 Default output 293
9.121 BioSPI_GUI_PROGRESS_EVENT_HANDLER 293
9.121.1 Function invocation scheme 293
9.121.2 Bound activity invocation output 294
9.121.3 Default output 294
9.122 BioSPI_GUI_SELECT_EVENT_HANDLER 295
9.122.1 Function invocation scheme 295
9.122.2 Bound activity invocation output 296
9.122.3 Default output 296

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9.123 BioSPI_GUI_STATE_EVENT_HANDLER ... 296
9.123.1 Function invocation scheme ... 296
9.123.2 Bound activity invocation output ... 297
9.123.3 Default output ... 297

10 Built-in variables ... 297
10.1 Variables whose value never changes ... 297
10.2 Variables whose value may change ... 309

11 Test log ... 310

12 Test report ... 312

13 BioAPI conformance test suite ... 313
13.1 General concepts ... 313
13.2 BioAPI conformance test suite structure ... 314

Annex A (normative) **XML schema of the assertion language ... 316**

Annex B (normative) **ASN.1 schema of the assertion language ... 320**

Annex C (normative) **XML schema for the test log ... 323**

Annex D (informative) **Test method implementation guidelines ... 325**

Annex E (informative) **XML diagrams of the assertion language ... 331**

Bibliography ... 352

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

This second edition cancels and replaces the first edition (ISO/IEC 24709-1:2007), which has been technically revised.

A list of all parts in the ISO/IEC 24709 series can be found on the ISO website.

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Introduction

This document defines a conformance testing methodology for ISO/IEC 19784-1. It specifies three conformance testing models that enable conformance testing of each of the following BioAPI components: an application, a framework, or a BSP. It also specifies an assertion language that is used for the definition of test assertions. Actual test assertions for each of the BioAPI components are defined in the subsequent parts of the ISO/IEC 24709 series.

This document also contains informative guidelines regarding general concepts related to establishing and administering a BioAPI conformance assessment and certification program. These informative guidelines identify the types of activities, responsibilities, services, and documentation recommended for conducting conformity assessment and certification of BioAPI-conformant implementations. Further, this document provides informative guidelines for establishing a complete conformity assessment methodology for BioAPI specification.

Clause 6 describes the general test method and conformance testing models for BioAPI.

Clause 7 defines the assertion language, based on XML, used for definition of conformance test assertion.

Clause 8 defines the elements of the assertion language.

Clause 9 specifies the use of the standard BioAPI interface functions of BioAPI in conformance testing.

Clause 10 defines the built-in variables of the assertion language.

Clause 11 defines the test log using XML syntax.

Clause 12 defines the test report using XML syntax.

Clause 13 describes the general concept and structure of a BioAPI conformance test suite.

Annex A defines the XML schema of the assertion language.

Annex B defines the ASN.1 schema of the assertion language.

Annex C defines the XML schema for the test log.

Annex D describes a primer of a BioAPI test method implementation, including elements of the conformance test process and description of the test categories.

Annex E provides the relationship diagrams for the assertion language.

The Bibliography references a number of standards organizations, including ISO, IEC, NIST, IEEE and other organizations, that have published a number of documents and white papers related to conformity assessment in general and conformance testing in particular.

NOTE Rather than make normative references to these documents, this document incorporates appropriate excerpts of their text, in some cases paraphrasing the text or adapting the provisions to the specific circumstances. Therefore, these documents are listed in the Bibliography or are referred in the body text explicitly as appropriate.

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Information technology — Conformance testing for the biometric application programming interface (BioAPI) —

Part 1: Methods and procedures

1 Scope

This document specifies the concepts, framework, test methods, and criteria required to test conformity of biometric products claiming conformance to BioAPI (see ISO/IEC 19784-1). Guidelines for specifying BioAPI conformance test suites, writing test assertions, and defining procedures to be followed during the conformance testing are provided.

This document is concerned with conformance testing of biometric products claiming conformance to BioAPI (see ISO/IEC 19784-1). It is not concerned with testing other characteristics of biometric products or other types of testing of biometric products (i.e. acceptance, performance, robustness, security, etc.) Testing by means of test methods, which are specific to particular biometric products, are not the subject of this document.

This document is applicable to the development and use of conformance test method specifications, BioAPI conformance test suites, and conformance testing programs for BioAPI-conformant products. It is intended primarily for use by testing organizations, but can be applied by developers and users of test assertions and test method implementations.

2 Normative references

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

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/IEC 19784-1, *Information technology — Biometric application program interface — Part 1: BioAPI specification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19784-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
abstract test engine
conceptual machine capable of performing conformance tests on an instance of a standard BioAPI component

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3.2
base standard
standard for which a *test method specification* (3.13) is written and/or a *test method implementation* (3.12) is developed

3.3
BioAPI conformity statement
statement that describes conformity of an IUT against relevant BioAPI requirements

3.4
BioAPI conformance test suite
test software used to ascertain *conformance* (3.6) to a specification or a standard that is in conformance to ISO/IEC 19784-1

3.5
certification
acknowledgement that a *validation* (3.17) has been completed and the criteria established by the certifying organization have been met

3.6
conformance
fulfillment by a product, process, or service of all relevant specified conformance requirements

3.7
conformity assessment
any activity concerned with determining directly or indirectly that relevant requirements are fulfilled

Note 1 to entry: See ISO/IEC Guide 2.

3.8
implementation under test
software and hardware, located on one or more system, which implement the standard(s) being tested

3.9
standard BioAPI interface
one of the interfaces specified in ISO/IEC 19784-1, which one standard BioAPI component exposes to another standard BioAPI component

Note 1 to entry: See 6.1.3.8.

3.10
test assertion
assertion
specification for testing a conformance requirement in an *implementation under test* (3.8) in the form of software or procedural methods that generate the test results (also named test outcomes or test verdicts) used for assessment of the conformance requirement

3.11
test case
specification of the actions required to achieve a specific *test purpose* (3.14) or combination of test purposes

[SOURCE: ISO/IEC 9646-1:1994, 3.3.3, modified — The definition has been revised.]

3.12
test method implementation
software, procedures, or other means used to measure *conformance* (3.6)

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3.13
test method specification
document that expresses the required functionality and behaviour of a *base standard* (3.2) as *assertions* (3.10) and provides the complete set of conforming *test result codes* (3.15)

[SOURCE: ISO/IEC 13210:1999, 2.2.2.30]

3.14
test purpose
prose description of a narrowly defined objective of testing, focusing on a single conformance requirement, as specified in the appropriate product specification

[SOURCE: ISO/IEC 13210:1999, 2.2.2.32, modified — The definition has been revised.]

3.15
test result code
value that describes the result of a test

3.16
test report
document that presents test results and other information relevant to the execution of the test methods against an *implementation under test* (3.8)

3.17
validation
process of testing software for *conformance* (3.6) to a specific specification

4 Abbreviated terms

API	Application Programming Interface
BCS	BioAPI Conformity Statement
BIR	Biometric Information Record
BSP	Biometric Service Provider
CBEFF	Common Biometric Exchange Formats Framework
CTS	BioAPI Conformance Test Suite
IUT	Implementation Under Test
SPI	Service Provider Interface
UUID	Universally Unique Indentifier

5 Conformance

5.1 A BioAPI conformance test suite conforming to this document shall support one or more conformance testing models (see 6.2) and shall be able to execute any valid test assertion for the testing model(s) that it supports, and that are written in the assertion language specified in Clause 7 to Clause 10.

NOTE There is no restriction on the form or structure of a BioAPI conformance test suite, in terms of the number of software components, the tasks performed by each software component, or the content and form of the information exchanged between software components.

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