

# ISO/IEC 9075-10:2023-06 (E)

## Information technology - Database languages SQL - Part 10: Object language bindings (SQL/OLB)

---

Contents	Page
Foreword.....	xviii
Introduction.....	xx
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>2</b>
<b>3 Terms and definitions.....</b>	<b>3</b>
<b>4 Concepts.....</b>	<b>6</b>
4.1 Notations and conventions.....	6
4.1.1 Notations.....	6
4.1.2 First term usage.....	6
4.1.3 Java-related conventions.....	6
4.1.4 Specification of translator-generated classes.....	7
4.2 Character strings.....	8
4.2.1 Unicode support.....	8
4.3 Embedded syntax.....	8
4.4 Introduction to SQLJ.....	8
4.4.1 Overview.....	8
4.4.2 SQL constructs.....	9
4.4.3 SQLJ clauses.....	9
4.4.4 Binary portability.....	10
4.4.4.1 Binary portability requirements.....	10
4.4.4.2 Components of binary portable applications.....	11
4.4.5 Profile overview.....	11
4.4.5.1 Introduction to profiles.....	11
4.4.5.2 EntryInfo overview.....	12
4.4.5.3 TypeInfo overview.....	14
4.4.5.4 SQLJ datatype properties.....	16
4.4.6 Host variables.....	18
4.4.7 Host expressions.....	18
4.4.8 Connection contexts.....	18
4.4.9 Default connection context.....	18
4.4.10 Schema checking using exemplar schemas.....	19
4.4.11 Using multiple SQLJ contexts and connections.....	19
4.4.12 Dynamic SQL and JDBC/SQLJ Connection interoperability.....	20
4.4.12.1 Introduction to connection interoperability.....	20
4.4.12.2 Creating an SQLJ ConnectionContext from a java.sql.Connection object.....	20
4.4.12.3 Obtaining a java.sql.Connection object from an SQLJ ConnectionContext.....	20
4.4.12.4 Connection sharing.....	20
4.4.12.5 Connection resource management.....	20

4.4.13	SQL execution control and status.	21
4.4.14	Iterators.	21
4.4.15	Input and output assignability.	22
4.4.16	Multiple <code>java.sql.ResultSet</code> objects from SQL-invoked procedure calls.	36
4.4.16.1	Introduction to multiple result sets.	36
4.4.16.2	Resource management with multiple results.	36
4.4.17	JDBC/SQLJ <code>ResultSet</code> interoperability.	36
4.4.17.1	Introduction to interoperability.	36
4.4.17.2	Creating an SQLJ iterator from a <code>java.sql.ResultSet</code> object.	36
4.4.17.3	Obtaining a <code>java.sql.ResultSet</code> object from an SQLJ iterator object.	37
4.4.17.4	Obtaining a <code>java.sql.ResultSet</code> object from an untyped iterator object.	37
4.4.17.5	Iterator and <code>java.sql.ResultSet</code> object resource management.	37
4.4.18	Multi-threading considerations.	38
4.4.19	User-defined data types.	38
4.4.20	Batch updates.	39
4.4.20.1	Introduction to batch updates.	39
4.4.20.2	Batchable statements and batch compatibility.	39
4.4.20.3	Statement batching API.	39
4.4.20.4	Execution status and update counts.	40
4.4.20.5	Program semantics and exceptions.	40
4.4.20.6	Batch cancellation and disabling.	41
4.4.20.7	Specification of a batching limit.	41
4.4.21	SQLJ language elements.	42
4.4.21.1	Introduction to SQLJ language elements.	42
4.4.21.2	<cursor name>.	42
4.4.21.3	SQL-schema, SQL-data, and SQL-transaction statements.	43
4.4.21.4	<SQL dynamic statement>.	43
4.4.21.5	<SQL connection statement>.	43
4.4.21.6	<host variable definition>.	43
4.4.21.7	<embedded exception declaration>.	43
4.4.21.8	<SQL diagnostics statement>.	44
4.4.21.9	Cursor declaration.	44
4.4.21.10	Input parameters to SQL-statements.	44
4.4.21.11	Extracting column values from SQLJ iterators.	44
4.4.21.12	<open statement> and cursors.	44
4.4.22	SQLJ, JDBC, and <code>SQLExceptions</code> and <code>SQLWarnings</code> .	45
4.4.23	Profile generation and naming.	45
4.4.24	SQLJ application packaging.	46
4.4.25	Profile customizer interface.	46
4.4.26	Customization interface.	47
4.4.26.1	Introduction to customization interfaces.	47
4.4.26.2	Customization usage.	47
4.4.26.3	Customization registration.	48
<b>5</b>	<b>Lexical elements.</b>	<b>50</b>
5.1	<SQL terminal character>.	50
5.2	<token> and <separator>.	51
<b>6</b>	<b>Scalar expressions.</b>	<b>52</b>

6.1	<value specification> and <target specification>.....	52
<b>7</b>	<b>Additional common rules.....</b>	<b>53</b>
7.1	Invoking an SQL-invoked routine.....	53
<b>8</b>	<b>Data manipulation.....</b>	<b>54</b>
8.1	<fetch statement>.....	54
8.2	<select statement: single row>.....	57
8.3	<delete statement: positioned>.....	61
8.4	<update statement: positioned>.....	63
<b>9</b>	<b>Control statements.....</b>	<b>65</b>
9.1	<call statement>.....	65
9.2	<compound statement>.....	67
9.3	<assignment statement>.....	69
<b>10</b>	<b>Transaction management.....</b>	<b>71</b>
10.1	<set transaction statement>.....	71
10.2	<savepoint statement>.....	72
10.3	<release savepoint statement>.....	73
10.4	<commit statement>.....	74
10.5	<rollback statement>.....	75
<b>11</b>	<b>Embedded SQL.....</b>	<b>76</b>
11.1	<embedded SQL host program>.....	76
11.2	<embedded SQL Java program>.....	78
<b>12</b>	<b>SQLJ reserved names.....</b>	<b>79</b>
12.1	Introduction to reserved names.....	79
12.2	Naming runtime library components.....	79
12.3	Temporary variable names.....	79
12.4	Class and resource file names.....	79
12.4.1	Introduction.....	79
12.4.2	Generated classes.....	79
12.4.3	Resource files and profiles.....	80
<b>13</b>	<b>Common subelements.....</b>	<b>81</b>
13.1	<modifiers>.....	81
13.2	<java class name>.....	82
13.3	<java id>.....	83
13.4	<java datatype>.....	84
13.5	<java constant expression>.....	85
13.6	<embedded Java expression>.....	86
13.7	<implements clause>.....	89
13.8	<declaration with clause>.....	90
<b>14</b>	<b>&lt;SQLJ specific clause&gt; and contents.....</b>	<b>93</b>
14.1	<SQLJ specific clause>.....	93
14.2	<connection declaration clause>.....	94
14.3	Generated connection class.....	95
14.4	<iterator declaration clause>.....	100
14.5	<positioned iterator>.....	102
14.6	Generated positioned iterator class.....	103

14.7	<named iterator>.....	105
14.8	Generated named iterator class.....	106
14.9	<executable clause>.....	108
14.10	<context clause>.....	114
14.11	<statement clause>.....	115
14.12	<assignment clause>.....	116
14.13	<query clause>.....	118
14.14	<function clause>.....	122
14.15	<iterator conversion clause>.....	124
<b>15</b>	<b>Package sqlj.runtime.....</b>	<b>127</b>
15.1	Overview.....	127
15.2	SQLJ runtime interfaces.....	127
15.2.1	sqlj.runtime.ConnectionContext.....	127
15.2.1.1	Interface overview.....	127
15.2.1.2	Variables.....	128
15.2.1.2.1	CLOSE_CONNECTION.....	128
15.2.1.2.2	KEEP_CONNECTION.....	128
15.2.1.3	Methods.....	128
15.2.1.3.1	close ()......	128
15.2.1.3.2	close (boolean).....	129
15.2.1.3.3	getConnectedProfile (Object).....	129
15.2.1.3.4	getConnection ()......	130
15.2.1.3.5	getExecutionContext ()......	130
15.2.1.3.6	getTypeMap ()......	130
15.2.1.3.7	isClosed ()......	131
15.2.2	sqlj.runtime.ForUpdate.....	131
15.2.2.1	Interface overview.....	131
15.2.2.2	Methods.....	131
15.2.2.2.1	getCursorName ()......	131
15.2.3	sqlj.runtime.NamedIterator.....	131
15.2.4	sqlj.runtime.PositionedIterator.....	132
15.2.4.1	Interface overview.....	132
15.2.4.2	Methods.....	132
15.2.4.2.1	endFetch ()......	132
15.2.5	sqlj.runtime.ResultSetIterator.....	133
15.2.5.1	Interface overview.....	133
15.2.5.2	Variables.....	133
15.2.5.2.1	ASENSITIVE.....	133
15.2.5.2.2	FETCH_FORWARD.....	133
15.2.5.2.3	FETCH_REVERSE.....	133
15.2.5.2.4	FETCH_UNKNOWN.....	133
15.2.5.2.5	INSENSITIVE.....	133
15.2.5.2.6	SENSITIVE.....	134
15.2.5.3	Methods.....	134
15.2.5.3.1	Note about methods.....	134
15.2.5.3.2	clearWarnings ()......	134
15.2.5.3.3	close ()......	134

15.2.5.3.4	getFetchSize ()	134
15.2.5.3.5	getResultSet ()	135
15.2.5.3.6	getRow ()	135
15.2.5.3.7	getSensitivity ()	135
15.2.5.3.8	getWarnings ()	136
15.2.5.3.9	isClosed ()	136
15.2.5.3.10	next ()	137
15.2.5.3.11	setFetchSize (int)	137
15.2.6	sqlj.runtime.Scrollable	138
15.2.6.1	Interface overview	138
15.2.6.2	Variables	138
15.2.6.3	Methods	138
15.2.6.3.1	absolute (int)	138
15.2.6.3.2	afterLast ()	138
15.2.6.3.3	beforeFirst ()	138
15.2.6.3.4	first ()	139
15.2.6.3.5	getFetchDirection ()	139
15.2.6.3.6	isAfterLast ()	139
15.2.6.3.7	isBeforeFirst ()	140
15.2.6.3.8	isFirst ()	140
15.2.6.3.9	isLast ()	140
15.2.6.3.10	last ()	140
15.2.6.3.11	previous ()	141
15.2.6.3.12	relative (int)	141
15.2.6.3.13	setFetchDirection (int)	141
15.3	SQLJ runtime classes	143
15.3.1	sqlj.runtime.AsciiStream	143
15.3.1.1	Class overview	143
15.3.1.2	Constructors	143
15.3.1.2.1	AsciiStream (InputStream)	143
15.3.1.2.2	AsciiStream (InputStream, int)	143
15.3.2	sqlj.runtime.BinaryStream	144
15.3.2.1	Class overview	144
15.3.2.2	Constructors	144
15.3.2.2.1	BinaryStream (InputStream)	144
15.3.2.2.2	BinaryStream (InputStream, int)	144
15.3.3	sqlj.runtime.DefaultRuntime	145
15.3.3.1	Class overview	145
15.3.3.2	Constructors	145
15.3.3.2.1	DefaultRuntime ()	145
15.3.3.3	Methods	145
15.3.3.3.1	getDefaultConnection ()	145
15.3.3.3.2	getLoaderForClass (Class)	145
15.3.4	sqlj.runtime.ExecutionContext	146
15.3.4.1	Class overview	146
15.3.4.2	Variables	147
15.3.4.2.1	ADD_BATCH_COUNT	147

15.3.4.2.2	AUTO_BATCH.....	147
15.3.4.2.3	EXEC_BATCH_COUNT.....	147
15.3.4.2.4	EXCEPTION_COUNT.....	147
15.3.4.2.5	NEW_BATCH_COUNT.....	147
15.3.4.2.6	QUERY_COUNT.....	148
15.3.4.2.7	UNLIMITED_BATCH.....	148
15.3.4.3	Constructors.....	148
15.3.4.3.1	ExecutionContext ().....	148
15.3.4.4	Methods.....	148
15.3.4.4.1	cancel ().....	148
15.3.4.4.2	execute ().....	149
15.3.4.4.3	executeBatch ().....	150
15.3.4.4.4	executeQuery ().....	151
15.3.4.4.5	executeUpdate ().....	151
15.3.4.4.6	getBatchLimit ().....	152
15.3.4.4.7	getBatchUpdateCounts ().....	152
15.3.4.4.8	getFetchDirection ().....	153
15.3.4.4.9	getFetchSize ().....	153
15.3.4.4.10	getMaxFieldSize ().....	153
15.3.4.4.11	getMaxRows ().....	154
15.3.4.4.12	getNextResultSet ().....	154
15.3.4.4.13	getNextResultSet (int).....	154
15.3.4.4.14	getQueryTimeout ().....	155
15.3.4.4.15	getUpdateCount ().....	156
15.3.4.4.16	getWarnings ().....	156
15.3.4.4.17	isBatching ().....	156
15.3.4.4.18	registerStatement (ConnectionContext, Object, int).....	157
15.3.4.4.19	releaseStatement ().....	158
15.3.4.4.20	setBatching (boolean).....	158
15.3.4.4.21	setBatchLimit (int).....	159
15.3.4.4.22	setFetchDirection (int).....	159
15.3.4.4.23	setFetchSize (int).....	160
15.3.4.4.24	setMaxFieldSize (int).....	160
15.3.4.4.25	setMaxRows (int).....	160
15.3.4.4.26	setQueryTimeout (int).....	161
15.3.5	sqlj.runtime.RuntimeContext.....	161
15.3.5.1	Class overview.....	161
15.3.5.2	Variables.....	161
15.3.5.2.1	DEFAULT_DATA_SOURCE.....	161
15.3.5.2.2	DEFAULT_RUNTIME.....	161
15.3.5.2.3	PROPERTY_KEY.....	162
15.3.5.3	Constructors.....	162
15.3.5.3.1	RuntimeContext ().....	162
15.3.5.4	Methods.....	162
15.3.5.4.1	getDefaultConnection ().....	162
15.3.5.4.2	getLoaderForClass (Class).....	162
15.3.5.4.3	getRuntime ().....	163

15.3.6	sqlj.runtime.StreamWrapper. . . . .	163
15.3.6.1	Class overview. . . . .	163
15.3.6.2	Constructors. . . . .	164
15.3.6.2.1	StreamWrapper (InputStream). . . . .	164
15.3.6.2.2	StreamWrapper (InputStream, int). . . . .	164
15.3.6.3	Methods. . . . .	164
15.3.6.3.1	getInputStream (). . . . .	164
15.3.6.3.2	getLength (). . . . .	164
15.3.6.3.3	setLength (int). . . . .	165
15.3.7	sqlj.runtime.UnicodeStream. . . . .	165
15.3.7.1	Class overview. . . . .	165
15.3.7.2	Constructors. . . . .	165
15.3.7.2.1	UnicodeStream (InputStream). . . . .	165
15.3.7.2.2	UnicodeStream (InputStream, int). . . . .	166
15.3.8	sqlj.runtime.CharacterStream. . . . .	166
15.3.8.1	Class overview. . . . .	166
15.3.8.2	Constructors. . . . .	166
15.3.8.2.1	CharacterStream (Reader). . . . .	166
15.3.8.2.2	CharacterStream (Reader, int). . . . .	166
15.3.8.3	Methods. . . . .	167
15.3.8.3.1	getReader (). . . . .	167
15.3.8.3.2	getLength (). . . . .	167
15.3.8.3.3	setLength (int). . . . .	167
15.3.9	sqlj.runtime.SQLNullException. . . . .	167
15.3.9.1	Class overview. . . . .	167
15.3.9.2	Constructors. . . . .	168
15.3.9.2.1	SQLException (). . . . .	168
<b>16</b>	<b>Package sqlj.runtime.profile. . . . .</b>	<b>169</b>
16.1	Overview. . . . .	169
16.2	SQLJ sqlj.runtime.profile interfaces. . . . .	169
16.2.1	sqlj.runtime.profile.BatchContext. . . . .	169
16.2.1.1	Interface overview. . . . .	169
16.2.1.2	Methods. . . . .	169
16.2.1.2.1	clearBatch (). . . . .	169
16.2.1.2.2	executeBatch (). . . . .	169
16.2.1.2.3	setBatchLimit (int). . . . .	170
16.2.2	sqlj.runtime.profile.ConnectedProfile. . . . .	170
16.2.2.1	Interface overview. . . . .	170
16.2.2.2	Methods. . . . .	171
16.2.2.2.1	close (). . . . .	171
16.2.2.2.2	getConnection (). . . . .	171
16.2.2.2.3	getProfileData (). . . . .	172
16.2.2.2.4	getStatement (int, Map). . . . .	172
16.2.2.2.5	getStatement (int, BatchContext, Map). . . . .	173
16.2.3	sqlj.runtime.profile.Customization. . . . .	173
16.2.3.1	Interface overview. . . . .	173
16.2.3.2	Methods. . . . .	174

16.2.3.2.1	acceptsConnection (Connection).....	174
16.2.3.2.2	getProfile (Connection, Profile).....	174
16.2.4	sqlj.runtime.profile.Loader.....	175
16.2.4.1	Interface overview.....	175
16.2.4.2	Methods.....	175
16.2.4.2.1	getResourceAsStream (String).....	175
16.2.4.2.2	loadClass (String).....	175
16.2.5	sqlj.runtime.profile.RTResultSet.....	176
16.2.5.1	Interface overview.....	176
16.2.5.2	Methods.....	179
16.2.5.2.1	clearWarnings ()......	179
16.2.5.2.2	close ()......	179
16.2.5.2.3	findColumn (String).....	179
16.2.5.2.4	getArray (int).....	180
16.2.5.2.5	getAsciiStreamWrapper (int).....	180
16.2.5.2.6	getBigDecimal (int).....	181
16.2.5.2.7	getBinaryStreamWrapper (int).....	182
16.2.5.2.8	getBlob (int).....	183
16.2.5.2.9	getBooleanNotNull (int).....	183
16.2.5.2.10	getBooleanWrapper (int).....	184
16.2.5.2.11	getByteNotNull (int).....	185
16.2.5.2.12	getBytes (int).....	185
16.2.5.2.13	getByteWrapper (int).....	186
16.2.5.2.14	getCharacterStreamWrapper (int).....	187
16.2.5.2.15	getClob (int).....	188
16.2.5.2.16	getColumnCount ()......	188
16.2.5.2.17	getCursorName ()......	189
16.2.5.2.18	getDate (int).....	189
16.2.5.2.19	getDoubleNotNull (int).....	190
16.2.5.2.20	getDoubleWrapper (int).....	191
16.2.5.2.21	getFloatNotNull (int).....	191
16.2.5.2.22	getFloatWrapper (int).....	192
16.2.5.2.23	getIntNotNull (int).....	193
16.2.5.2.24	getIntWrapper (int).....	193
16.2.5.2.25	getJDBCResultSet ()......	194
16.2.5.2.26	getLongNotNull (int).....	194
16.2.5.2.27	getLongWrapper (int).....	195
16.2.5.2.28	getObject (int, Class).....	196
16.2.5.2.29	getRef (int).....	197
16.2.5.2.30	getShortNotNull (int).....	197
16.2.5.2.31	getShortWrapper (int).....	198
16.2.5.2.32	getString (int).....	199
16.2.5.2.33	getSQLXML(int).....	199
16.2.5.2.34	getTime (int).....	200
16.2.5.2.35	getTimestamp (int).....	201
16.2.5.2.36	getUnicodeStreamWrapper (int).....	201
16.2.5.2.37	getURL (int).....	202

16.2.5.2.38	getWarnings ()	203
16.2.5.2.39	isClosed ()	203
16.2.5.2.40	isValidRow ()	203
16.2.5.2.41	next ()	204
16.2.6	sqlj.runtime.profile.RTStatement	204
16.2.6.1	Interface overview	204
16.2.6.2	Methods	209
16.2.6.2.1	cancel ()	209
16.2.6.2.2	clearWarnings ()	209
16.2.6.2.3	execute ()	210
16.2.6.2.4	executeComplete ()	210
16.2.6.2.5	executeRTQuery ()	210
16.2.6.2.6	executeUpdate ()	211
16.2.6.2.7	getArray (int)	211
16.2.6.2.8	getBatchContext ()	212
16.2.6.2.9	getBigDecimal (int)	213
16.2.6.2.10	getBlob (int)	213
16.2.6.2.11	getBooleanNotNull (int)	214
16.2.6.2.12	getBooleanWrapper (int)	215
16.2.6.2.13	getByteNotNull (int)	215
16.2.6.2.14	getBytes (int)	216
16.2.6.2.15	getByteWrapper (int)	217
16.2.6.2.16	getClob (int)	217
16.2.6.2.17	getDate (int)	218
16.2.6.2.18	getDoubleNotNull (int)	219
16.2.6.2.19	getDoubleWrapper (int)	219
16.2.6.2.20	getFloatNotNull (int)	220
16.2.6.2.21	getFloatWrapper (int)	221
16.2.6.2.22	getIntNotNull (int)	221
16.2.6.2.23	getIntWrapper (int)	222
16.2.6.2.24	getJDBC CallableStatement ()	223
16.2.6.2.25	getJDBC PreparedStatement ()	223
16.2.6.2.26	getLongNotNull (int)	223
16.2.6.2.27	getLongWrapper (int)	224
16.2.6.2.28	getMaxFieldSize ()	225
16.2.6.2.29	getMaxRows ()	225
16.2.6.2.30	getMoreResults (int)	225
16.2.6.2.31	getObject (int, Class)	226
16.2.6.2.32	getQueryTimeout ()	227
16.2.6.2.33	getRef (int)	228
16.2.6.2.34	getResultSet ()	228
16.2.6.2.35	getShortNotNull (int)	229
16.2.6.2.36	getShortWrapper (int)	229
16.2.6.2.37	getString (int)	230
16.2.6.2.38	getSQLXML (int)	231
16.2.6.2.39	getTime (int)	231
16.2.6.2.40	getTimestamp (int)	232

16.2.6.2.41	getUpdateCount ()	233
16.2.6.2.42	getURL ()	233
16.2.6.2.43	getWarnings ()	234
16.2.6.2.44	isBatchable ()	234
16.2.6.2.45	isBatchCompatible ()	235
16.2.6.2.46	setArray (int, Array)	236
16.2.6.2.47	setAsciiStreamWrapper (int, AsciiStream)	236
16.2.6.2.48	setBigDecimal (int, BigDecimal)	237
16.2.6.2.49	setBinaryStreamWrapper (int, BinaryStream)	238
16.2.6.2.50	setBlob (int, Blob)	238
16.2.6.2.51	setBoolean (int, boolean)	239
16.2.6.2.52	setBooleanWrapper (int, Boolean)	239
16.2.6.2.53	setByte (int, byte)	240
16.2.6.2.54	setBytes (int, byte)	241
16.2.6.2.55	setByteWrapper (int, Byte)	241
16.2.6.2.56	setCharacterStreamWrapper (int, CharacterStream)	242
16.2.6.2.57	setClob (int, Clob)	242
16.2.6.2.58	setDate (int, Date)	243
16.2.6.2.59	setDouble (int, double)	244
16.2.6.2.60	setDoubleWrapper (int, Double)	244
16.2.6.2.61	setFloat (int, float)	245
16.2.6.2.62	setFloatWrapper (int, Float)	245
16.2.6.2.63	setInt (int, int)	246
16.2.6.2.64	setIntWrapper (int, Integer)	247
16.2.6.2.65	setLong (int, long)	247
16.2.6.2.66	setLongWrapper (int, Long)	248
16.2.6.2.67	setMaxFieldSize (int)	248
16.2.6.2.68	setMaxRows (int)	249
16.2.6.2.69	setObject ()	249
16.2.6.2.70	setQueryTimeout (int)	250
16.2.6.2.71	setRef (int, Ref)	250
16.2.6.2.72	setShort (int, short)	251
16.2.6.2.73	setShortWrapper (int, Short)	251
16.2.6.2.74	setString (int, String)	252
16.2.6.2.75	setSQLXML (int, SQLXML)	253
16.2.6.2.76	setTime (int, Time)	253
16.2.6.2.77	setTimestamp (int, Timestamp)	254
16.2.6.2.78	setUnicodeStreamWrapper (int, UnicodeStream)	254
16.2.6.2.79	setURL (int, URL)	255
16.2.7	sqlj.runtime.profile.SerializedProfile	256
16.2.7.1	Interface overview	256
16.2.7.2	Methods	256
16.2.7.2.1	getProfileAsStream ()	256
16.3	SQLJ sqlj.runtime.profile classes	257
16.3.1	sqlj.runtime.profile.DefaultLoader	257
16.3.1.1	Class overview	257
16.3.1.2	Constructors	257

16.3.1.2.1	DefaultLoader (ClassLoader).....	257
16.3.1.3	Methods.....	257
16.3.1.3.1	getResourceAsStream (String).....	257
16.3.1.3.2	loadClass (String).....	258
16.3.2	sqlj.runtime.profile.EntryInfo.....	258
16.3.2.1	Class overview.....	258
16.3.2.2	Variables.....	258
16.3.2.2.1	BLOCK.....	258
16.3.2.2.2	CALL.....	259
16.3.2.2.3	CALLABLE_STATEMENT.....	259
16.3.2.2.4	COMMIT.....	259
16.3.2.2.5	EXECUTE.....	259
16.3.2.2.6	EXECUTE_QUERY.....	260
16.3.2.2.7	EXECUTE_UPDATE.....	260
16.3.2.2.8	ITERATOR_CONVERSION.....	260
16.3.2.2.9	NAMED_RESULT.....	260
16.3.2.2.10	NO_RESULT.....	261
16.3.2.2.11	OTHER.....	261
16.3.2.2.12	POSITIONED.....	261
16.3.2.2.13	POSITIONED_RESULT.....	261
16.3.2.2.14	PREPARED_STATEMENT.....	262
16.3.2.2.15	QUERY.....	262
16.3.2.2.16	QUERY_FOR_UPDATE.....	262
16.3.2.2.17	RELEASE_SAVEPOINT.....	262
16.3.2.2.18	ROLLBACK.....	263
16.3.2.2.19	SAVEPOINT.....	263
16.3.2.2.20	SET_TRANSACTION.....	263
16.3.2.2.21	SINGLE_ROW_QUERY.....	263
16.3.2.2.22	STATEMENT.....	264
16.3.2.2.23	UNTYPED_SELECT.....	264
16.3.2.2.24	VALUES.....	264
16.3.2.3	Constructors.....	264
16.3.2.3.1	EntryInfo ()......	264
16.3.2.4	Methods.....	264
16.3.2.4.1	executeTypeToString (int).....	264
16.3.2.4.2	getDescriptor ()......	265
16.3.2.4.3	getExecuteType ()......	265
16.3.2.4.4	getLineNumber ()......	266
16.3.2.4.5	getParamCount ()......	266
16.3.2.4.6	getParamInfo (int).....	266
16.3.2.4.7	getResultSetCount ()......	266
16.3.2.4.8	getResultSetInfo (int).....	267
16.3.2.4.9	getResultSetName ()......	267
16.3.2.4.10	getResultSetType ()......	268
16.3.2.4.11	getRole ()......	268
16.3.2.4.12	getSQLString ()......	269
16.3.2.4.13	getStatementType ()......	269

16.3.2.4.14	getTransactionDescriptor ()	270
16.3.2.4.15	isDefinedRole (int)	270
16.3.2.4.16	isValidDescriptor (Object, int)	270
16.3.2.4.17	isValidExecuteType (int)	271
16.3.2.4.18	isValidResultSetType (int)	271
16.3.2.4.19	isValidRole (int)	271
16.3.2.4.20	isValidStatementType (int)	272
16.3.2.4.21	resultSetTypeToString (int)	272
16.3.2.4.22	roleToString (int)	273
16.3.2.4.23	statementTypeToString (int)	273
16.3.2.4.24	validateObject ()	274
16.3.3	sqlj.runtime.profile.Profile	274
16.3.3.1	Class overview	274
16.3.3.2	Constructors	274
16.3.3.2.1	Profile (Loader)	274
16.3.3.3	Methods	275
16.3.3.3.1	deregisterCustomization (Customization)	275
16.3.3.3.2	getConnectedProfile (Connection)	275
16.3.3.3.3	getContextName ()	276
16.3.3.3.4	getCustomizations ()	276
16.3.3.3.5	getJavaType (String)	276
16.3.3.3.6	getJavaType (TypeInfo)	277
16.3.3.3.7	getLoader ()	277
16.3.3.3.8	getProfileData ()	277
16.3.3.3.9	getProfileName ()	277
16.3.3.3.10	getTimestamp ()	278
16.3.3.3.11	instantiate (Loader, InputStream)	278
16.3.3.3.12	instantiate (Loader, String)	279
16.3.3.3.13	registerCustomization (Customization)	280
16.3.3.3.14	registerCustomization (Customization, Customization)	280
16.3.3.3.15	replaceCustomization (Customization, Customization)	281
16.3.4	sqlj.runtime.profile.ProfileData	281
16.3.4.1	Class overview	281
16.3.4.2	Constructors	281
16.3.4.2.1	ProfileData ()	281
16.3.4.3	Methods	282
16.3.4.3.1	getEntryInfo (int)	282
16.3.4.3.2	getProfile ()	282
16.3.4.3.3	getSourceFile ()	282
16.3.4.3.4	size ()	282
16.3.5	sqlj.runtime.profile.SetTransactionDescriptor	283
16.3.5.1	Class overview	283
16.3.5.2	Variables	283
16.3.5.2.1	READ_NONE	283
16.3.5.2.2	READ_ONLY	283
16.3.5.2.3	READ_WRITE	283
16.3.5.3	Constructors	284

16.3.5.3.1	SetTransactionDescriptor (int, int).....	284
16.3.5.4	Methods.....	284
16.3.5.4.1	getAccessMode ()......	284
16.3.5.4.2	getIsolationLevel ()......	284
16.3.6	sqlj.runtime.profile.TypeInfo.....	285
16.3.6.1	Class overview.....	285
16.3.6.2	Variables.....	285
16.3.6.2.1	IN.....	285
16.3.6.2.2	INOUT.....	285
16.3.6.2.3	OUT.....	285
16.3.6.3	Constructors.....	286
16.3.6.3.1	TypeInfo ()......	286
16.3.6.4	Methods.....	286
16.3.6.4.1	getJavaTypeName ()......	286
16.3.6.4.2	getMarkerIndex ()......	286
16.3.6.4.3	getMode ()......	287
16.3.6.4.4	getName ()......	287
16.3.6.4.5	getSQLType ()......	287
16.3.6.4.6	getSQLTypeName ()......	288
16.3.6.4.7	isValidMode (int).....	288
16.3.6.4.8	isValidSQLType (int).....	289
16.3.6.4.9	modeToString (int).....	289
16.3.6.4.10	SQLTypeToString (int).....	290
16.3.6.4.11	validateObject ()......	290
<b>17</b>	<b>sqlj.runtime.profile.util.ProfileCustomizer.....</b>	<b>291</b>
17.1	Interface overview.....	291
17.2	Methods.....	293
17.2.1	acceptsConnection (Connection).....	293
17.2.2	customize (Profile, Connection, ErrorLog).....	293
<b>18</b>	<b>Status codes.....</b>	<b>295</b>
18.1	SQLSTATE.....	295
<b>19</b>	<b>Conformance.....</b>	<b>296</b>
19.1	Claims of conformance to SQL/OLB.....	296
19.2	Additional conformance requirements for SQL/OLB.....	296
19.3	Implied feature relationships of SQL/OLB.....	296
<b>Annex A</b>	<b>(informative) SQL conformance summary.....</b>	<b>297</b>
<b>Annex B</b>	<b>(informative) Implementation-defined elements.....</b>	<b>300</b>
<b>Annex C</b>	<b>(informative) Implementation-dependent elements.....</b>	<b>304</b>
<b>Annex D</b>	<b>(informative) SQL optional feature taxonomy.....</b>	<b>308</b>
<b>Annex E</b>	<b>(informative) Deprecated features.....</b>	<b>310</b>
<b>Annex F</b>	<b>(informative) Incompatibilities with ISO/IEC 9075:2016.....</b>	<b>311</b>
<b>Annex G</b>	<b>(informative) Defect Reports not addressed in this edition of this document.....</b>	<b>312</b>
<b>Bibliography</b>	<b>.....</b>	<b>313</b>

<b>Index</b> .....	<b>314</b>
--------------------	------------

## Tables

<b>Table</b>	<b>Page</b>
1 Association of roles with SQLJ <executable clause>s. ....	13
2 SQLJ type properties. ....	16
3 SQLJ output assignability (data type group 1). ....	23
4 SQLJ output assignability (data type group 2). ....	25
5 SQLJ output assignability (data type group 3). ....	26
6 SQLJ output assignability (data type group 4). ....	28
7 SQLJ input assignability (data type group 1). ....	30
8 SQLJ input assignability (data type group 2). ....	31
9 SQLJ input assignability (data type group 3). ....	33
10 SQLJ input assignability (data type group 4). ....	34
11 Methods retained from java.sql.ResultSet. ....	177
12 Methods not retained from java.sql.ResultSet. ....	177
13 Additional methods unique to RTResultSet. ....	179
14 Methods retained from java.sql.Statement. ....	205
15 Methods not retained from java.sql.Statement. ....	206
16 Methods retained from java.sql.PreparedStatement. ....	206
17 Methods not retained from java.sql.PreparedStatement. ....	207
18 Methods retained from java.sql.CallableStatement. ....	208
19 Methods not retained from java.sql.CallableStatement. ....	208
20 Additional methods unique to RTStatement. ....	209
21 Customize Result Interpretation. ....	292
22 SQLSTATE class and subclass codes. ....	295
23 Implied feature relationships of SQL/OLB. ....	296
A.1 Feature definitions outside of Conformance Rules. ....	297
D.1 Feature taxonomy for optional features. ....	308