

HANSER



Bernd Müller, Harald Wehr

Java Persistence API 2

Hibernate, EclipseLink, OpenJPA und Erweiterungen

ISBN: 978-3-446-42693-1

Weitere Informationen oder Bestellungen unter

<http://www.hanser.de/978-3-446-42693-1>

sowie im Buchhandel.

Stichwortverzeichnis

A

Abfragesprache 188
ABS 196
@Access 37
<access> 248, 249
AccessType 37
ACID 59, 149, 323
Aggregationsfunktion 199
alias() 218
ALL 65, 94
allocationSize 32
@ApplicationScoped 173
array() 218
AS 188
ASC 115, 202, 268
@AssertFalse 229
@AssertTrue 229
<association-override> 257
@AssociationOverride 257
Atomicity 149
<attribute-override> 257
@AttributeOverride 48, 49, 128, 257
@AttributeOverrides 48, 49, 128
<attributes> 258
@Audited 293
Auditierung 293
AuditQuery 295
AuditQueryCreator 295
AuditReader 295
AuditReaderFactory 295
AuditStrategy 299
Aufzählungstyp 41
AUTO 28, 261
Auto-Commit-Modus 149
Automatic Dirty-Checking 61, 75, 282
AVG 199

B

@Basic 38, 39, 232, 262
<basic> 258, 262
Batch
– Delete 202
– Update 202
Bean Validation
– anwendungsdefinierte Constraints 239
begin() 27, 58, 176
Besitzer 90
Beziehung 89
– 1:n- 96, 98
– Besitzer einer 91
– bidirektionale 90
– mit Assoziationsklasse 109
– n:1 96
– n:m 104, 107
– rekursive 113
– Richtung einer 90
– unidirektionale 90
BigDecimal 33, 42, 262
BigInteger 33, 262
BLOB 39
Bridges 290
BYPASS 169
Byte-Code-Manipulation 282

C

Cache
– First-Level- 108, 166
– Second-Level 166
@Cacheable 167, 278, 301
CacheRetrieveMode 169
CacheStoreMode 169
Calendar 33, 38, 262
Callback-Methode 77
Canonical Model 209
<cascade> 264

- CascadeType 65, 94, 248
 - CASE 196
 - CDI 172
 - <class> 50, 67, 70, 245
 - ClassFileTransformer 308
 - ClassTransformer 308
 - clear() 56, 63, 65
 - CLOB 39
 - close() 64
 - CMP 16
 - COALESCE 196
 - Collection 96, 115
 - <collection-table> 260
 - @CollectionTable 124, 127, 260
 - @Column 42, 82, 119, 185, 259
 - <column> 259
 - columnDefinition 42, 43
 - @ColumnResult 187, 252
 - <column-result> 252
 - commit() 58, 153
 - CONCAT 196
 - Consistency 149
 - @Constraint 239
 - ConstraintValidator 239
 - ConstraintViolation 230, 235
 - ConstraintViolationException 229
 - construct() 218
 - contain() 58
 - contains() 64, 167
 - Convention over Configuration 34, 138, 143, 240, 320
 - Conversation 176
 - @ConversationScoped 76, 173, 176
 - Correlated Subquery 220
 - COUNT 199
 - createEntityManager() 66, 68
 - createEntityManagerFactory() 66, 68, 234, 310
 - createNamedQuery() 178
 - createNativeQuery() 178, 184
 - createQuery() 178, 295
 - CrossTypeRevisionChangesReader 298
 - CRUD 15, 63
 - CURRENT_DATE 196
 - CURRENT_TIME 196
 - CURRENT_TIMESTAMP 196
- D**
- Date 33, 38, 262
 - DateBridge 290
 - DDL 15
 - @DecimalMax 229
 - @DecimalMin 229
 - Default 236
 - Default-Listener 80
 - DefaultAuditStrategy 299
 - DefaultRevisionEntity 296
 - <delimited-identifiers> 248
 - DESC 115, 202, 268
 - <description> 244
 - DETACH 65, 94
 - detach() 63–65, 76
 - Detached Object 56
 - @Digits 229
 - Dirty Reads 150
 - <discriminator-column> 256
 - <discriminator-value> 254, 256
 - @DiscriminatorColumn 135, 256
 - DiscriminatorType 135, 257
 - @DiscriminatorValue 136, 254
 - Diskriminator 135
 - -spalte 133
 - distinct 191
 - DistributionPolicy 321
 - DML 15
 - @DocumentId 286
 - Domain-Model
 - Anemic 101
 - Rich 101
 - DRY 227
 - DTO 35
 - DTYPE 138
 - Durability 149
- E**
- EAGER 84, 102, 131, 190, 263
 - eclipselink.read-only 61
 - @EJB 175
 - <element-collection> 259
 - @ElementCollection 122, 123, 259
 - @Embeddable 48, 50, 270
 - <embeddable> 270
 - @Embedded 269
 - <embedded> 258, 269
 - <embedded-id> 262
 - @EmbeddedId 48, 262
 - end() 27
 - Enhancement 60, 318
 - Entity 25
 - Serialisierbarkeit 35
 - @Entity 26, 34, 252
 - <entity> 252
 - Entity-Listener 77, 79
 - <entity-listener> 80, 271

- <entity-listeners> 271
- Entity-Manager 27, 55
 - anwendungsverwaltet 55, 56, 64, 76
 - container-verwaltet 55, 68, 76
- <entity-mappings> 247
- <entity-result> 252
- @EntityField 187
- @EntityListener 271
- @EntityListeners 79, 271
- EntityManager 27, 55, 57, 65, 275
- EntityManagerFactory 55, 65, 244
- EntityNotFoundException 60, 154
- @EntityResult 187, 252
- EntityTransaction 58, 153
- entrySet() 120
- enum 41
- @Enumerated 41, 262
- <enumerated> 262
- Enumeration 41
- EnumType 41
- Envers 293
- equals() 25, 46, 108, 111
- evict() 167
- evictAll() 167
- @ExcludeDefaultListeners 82, 101
- <exclude-default-listeners> 254
- @ExcludeSuperclassListeners 80
- <exclude-superclass-listeners> 254
- <exclude-unlisted-classes> 245

F

- <f:validateBean> 238
- fetch 38, 102, 123, 283
- Fetch Join 192
- FetchType 102, 131, 263
- FIELD 37, 249
- @Field 289
- <field-result> 252
- @FieldResult 252
- find() 27, 56, 59–61, 169, 177
- FinderTargetPolicy 323
- First-Level-Cache 166
- flush() 58
- FlushModeType 204
- forEntitiesAtRevision() 295
- forEntitiesModifiedAtRevision() 295
- forRevisionsOfEntity() 295
- from 188
- FullTextSession 287, 292
- function() 223
- @Future 229

G

- Gelöschtes Objekt 56
- <generated-value> 261
- @GeneratedValue 27, 47, 261
- GenerationType 28
- Geronimo 77
- getCache() 167
- getConstraintViolations() 230
- getDelegate() 77, 275
- getPersistenceUnitUtil() 83
- getPersistenceUtil() 83
- getReference() 56, 59, 60, 177
- getResultList() 179
- getRevisionDate() 298
- getRevisionNumberForDate() 298
- getRevisions() 298
- getRollbackOnly() 58
- getSingleResult() 179
- getTransaction() 58, 153
- GlassFish 68
- Group By 200
- groups 237, 239

H

- hashCode() 25, 46, 111
- Having 200
- Hibernate
 - -Search 284
- Hint 59
- Historische Datenverarbeitung 293

I

- @Id 26, 36, 46, 81, 261
- <id> 258, 261
- <id-class> 271
- @IdClass 47, 111, 271
- Identitätsoperator 25
- IDENTITY 28, 32, 78, 261
- Impedance Mismatch 16
- Implizite Joins 189
- IN 195
- INDEX 196
- @Indexed 286
- @IndexedEmbedded 289
- @Inheritance 135, 272
- @Inheritance-Kombination 146
- <inheritance> 272
- initialize() 240
- @Inject 175
- insertable 42–44
- Instrumentation 60, 282
- Instrumentation 308

InvalidClassException 122
 isActive() 58
 Isolation 149
 Isolation-Level 152
 isValid() 240
 Iterator 115

J

<jar-file> 245
 Java-Agent 318
 Java-EE 35
 java.lang.instrument
 – -Package 308
 java.persistence.metamodel
 – -Package 26
 java.sql-Package 39
 javaagent 309, 319
 javax.enterprise.context
 – -Package 173, 176
 javax.persistence
 – -Package 26
 – Hint-Präfix 61
 – Präfix für Property-Namen 67
 javax.persistence.jdbc.driver 66
 javax.persistence.jdbc.password 66
 javax.persistence.jdbc.url 66
 javax.persistence.jdbc.user 66
 javax.persistence.lock.scope 165
 javax.persistence.lock.timeout 163, 165
 javax.persistence.spi
 – -Package 66, 308
 javax.persistence.validation.mode-
 Property
 234
 javax.validation
 – -Package 229
 javax.validation.groups-Package 236
 JBoss-AS 68
 JCP 17
 JDBC 15, 149
 JDO 16
 JNDI 245
 JNDI-Name 69
 Join 188
 Join-Tabelle 105
 @JoinColumn 91, 93, 99, 106, 264
 <join-column> 264
 JOINED 135, 139, 256
 @JoinTable 106, 269
 <join-table> 269
 JpaEntityManager 276
 JPQL 145, 188

JTA 70, 244
 JTA-Data-Source 69
 <jta-data-source> 70, 245

K

Kanonisches Modell 209
 Kardinalität 90
 Kartesisches Produkt 193
 Komposition 121
 Konversation 172

L

L2-Cache 166
 label 240
 LAZY 102, 131, 190, 192, 263, 318
 Legacy 51
 LENGTH 197
 length 42, 43
 Link-Tabelle 105
 List 96, 115
 Loading
 – -Lazy 232
 – Eager 102
 – Lazy 102, 282, 283
 @Lob 39, 262, 283
 <lob> 262
 LOCATE 197
 lock() 166
 LockModeType 182, 251
 – OPTIMISTIC 157
 – OPTIMISTIC_FORCE_INCREMENT 160
 – PESSIMISTIC_FORCE_INCREMENT 161
 – PESSIMISTIC_READ 161
 – PESSIMISTIC_WRITE 161
 LockTimeoutException 154
 Losgelöstes Objekt 56
 Lost-Update-Problem 157
 LOWER 197
 Lucene 284

M

Managed Object 56
 @ManagedBean 174
 @ManyToOne 104, 105, 265, 267
 <many-to-many> 258, 267
 @ManyToOne 99, 100, 113, 265, 266
 <many-to-one> 258, 266
 Map 96, 115
 @MapKey 119, 120, 272
 <map-key> 272
 @MapKeyClass 273
 <map-key-class> 273

@MapKeyColumn 273
<map-key-column> 273
@MapKeyEnumerated 273
<map-key-enumerated> 273
MapKeyJoinColumn 129
@MapKeyJoinColumn 130, 273
<map-key-join-column> 273
MapKeyJoinColumns 129
@MapKeyTemporal 273
<map-key-temporal> 273
<mapped-by> 265
<mapped-superclass> 270
mappedBy 95, 107, 113
@MappedSuperclass 145, 270
<mapping-file> 245
MAX 199
@Max 229
Meet-in-the-Middle-Variante 45
MERGE 65, 94
merge() 63, 64, 74
message 230, 239
META-INF 87
META-INF (Verzeichnis) 244
metadata-complete 252
MIN 199
@Min 229
MOD 197
@Multitenant 310

N

n+1-Select-Problem 131
name 42, 43, 99
<named-native-query> 251
<named-query> 251
@NamedNativeQuery 187, 251
NamedParameter 183
@NamedQueries 181
@NamedQuery 181, 182, 251
Non-Correlated Subquery 220
<non-jta-data-source> 245
Non-repeatable Read 150
NonUniqueResultException 154, 179
NoResultException 154, 179
@NotNull 227, 229
@Null 229
nullable 42, 43, 92
NULLIF 197

O

Objektmodell
– feinkörniges 51
@OneToMany 96, 97, 113, 265, 266

<one-to-many> 258, 266
@OneToOne 90, 93, 265
<one-to-one> 258, 265
OpenJPAEntityManager 276
Optimizer-Hint 182
optional 38, 99
OR-Mapping 16
Oracle
– Isolation Level 152
Order By 201
<order-by> 268
<order-column> 272
@OrderBy 115, 268
@OrderColumn 116, 117, 272
org.apache.openjpa.slice 321
org.hibernate.envers
– -Package 293
orm.xml 80, 88, 245
Orphan-Removal 94
orphanRemoval 94, 101
Outer Join 132

P

<package> 248
Paradigm Mismatch 16
ParameterizedBridge 291
@Past 227, 229
@Pattern 227, 229
payload 239
Performanz
– -risiko durch EAGER 132
PERSIST 65, 94, 248
persist() 27, 57, 93
Persistence
– by Reachability 59, 93
Persistence 65, 83, 234
<persistence> 66
Persistence Context 55
persistence.xml 50, 55, 65, 68, 69, 72, 233,
243, 320
@PersistenceContext 68, 72–74
@PersistenceUnit 68, 73, 74
<persistence-unit> 66, 244
<persistence-unit-metadata> 248
PersistenceUnitTransactionType 66
PersistenceUnitUtil 83
PersistenceUtil 83
Persistenz
– transitive 59, 93
Persistenzeinheit 28, 55, 65, 76, 86, 320
– Name der 66
Persistenzkontext 55, 65, 76

- erweiterter 74, 77
- Synchronisation mit Datenbank 58
- transaktionaler 74, 76
- PessimisticLockScope 165
- Phantom Reads 151
- POJO 32, 33
- PositionalParameter 184
- @PostLoad 78, 271
- <post-load> 271
- @PostPersist 78, 271
- <post-persist> 271
- @PostRemove 78, 271
- <post-remove> 271
- @PostUpdate 78, 271
- <post-update> 271
- precision 42, 44, 101
- Predicate() 224
- @PrePersist 78, 271
- <pre-persist> 271
- @PreRemove 78, 271
- <pre-remove> 271
- @PreUpdate 78, 271
- <pre-update> 271
- Primärschlüssel
 - Erzeugung 26
- <primary-key-join-column> 256
- @PrimaryKeyJoinColumn 140, 256
- Projektion 188
- <properties> 67, 245
- PROPERTY 37, 249
- Property
 - Definition 33
 - read-only 44, 312
- <property> 67
- <provider> 245

Q

- Query 178
- Query Language 188
- QueryHint 182
- @QueryHint 182
- QueryTargetPolicy 323
- QueryTimeoutException 154

R

- Read Committed 152
- Read Uncommitted 152
- Referenztyp 25
- REFRESH 65, 94
- refresh() 62, 94, 166
- REMOVE 65, 94
- remove() 63, 94

- removed object 56
- Repeatable Read 152
- @RequestScoped 173
- RESOURCE_LOCAL 66, 244
- @Retention 239
- Revision 293
- RevisionType 294
- rollback() 58, 154
- Rolle 90

S

- scale 42, 44, 101
- <schema> 248
- Second-Level-Cache 166
- <secondary-table> 255
- @SecondaryTable 51, 52, 255
- @SecondaryTables 53, 256
- select 198
- select ... for share 164
- Selektion 188
- SEQUENCE 28, 143, 261
- Sequence 28
- <sequence-generator> 249
- @SequenceGenerator 29, 135, 249
- Serializable 152
- Serializable 121
- serialVersionUID 122
- Servlet-Container 56
- Session 275
- Session-Bean
 - Stateless 72
- @SessionScoped 173
- Set 96
 - Collection-Typ 114
- setFirstResult() 179
- setHint() 170, 324
- setLockMode() 166
- setMaxResults() 180
- setRollbackOnly() 58
- SFSB 75
- <shared-cache-mode> 167, 245
- SINGLE_TABLE 135, 256
- SIZE 197
- @Size 227, 229
 - für Collections 233
- Slice 320
- SLSB 72
- SQL 15
 - DDL 15
 - DML 15
- <sql-result-set-mapping> 252
- @SqlResultSetMapping 186, 252

@SqlResultSetMappings 187
SQRT 197
@Stateful 75, 176
@Stateless 72
@StaticMetamodel 26
StringBridge 291
SUBSTRING 197
SUM 199
Surrogatschlüssel 27

T

TABLE 28, 143, 261
@Table 35, 254
<table> 254
TABLE_PER_CLASS 141
TABLE_PER_SUBCLASS 135
@TableGenerator 30, 31, 250
<table-generator> 250
@Target 239
targetAuditMode 297
targetClass 123
targetEntity 97
@Temporal 39, 262
<temporal> 262
TemporalType 184
@TenantDiscriminatorColumn 311
@TenantDiscriminatorColumns 311
Theta-Join 193
Time 33, 262
Timestamp 33, 262
transaction-scoped 64
transaction-type 66
@TransactionAttribute 154, 176
Transaktion
– langlaufende 172
– Resource-Local 58
transaktionsbegrenzt 64
Transaktionsverwaltung 153
– deklarative 154
– Resource-Local 154
transform() 308
@Transient 37, 38
transient 37, 258
Transientes Objekt 56
TraversableResolver 232
TRIM 197
Tuple 218
TYPE 198

TypedQuery 178, 224

U

Union 141
unique 42, 43
Unique-Constraint 34
<unique-constraint> 255
@UniqueConstraint 255
uniqueConstraints 42
unwrap() 276
updatable 42–44
UPPER 198
USE 169
UUID 26

V

@Valid 232
validate() 235
validateProperty() 235
validateValue() 235, 236
Validation 234
<validation-mode> 233, 245
validation.xml 240
ValidationMode 233
Validator 234
ValidatorFactory 234
Validierung
– alternative 237
Validierungsgruppe 235, 236
ValidityAuditStrategy 299
ValidTimeAuditStrategy 299
Verbund 188
Vererbung 133
@Version 145, 157, 263
<version> 258, 263
Verwaltetes Objekt 56
@Volljaehrig 239

W

Weaving 60, 282, 307
WEB-INF 85
WebLogic 77
WebSphere 77
where 193

X

<xml-mapping-metadata-complete> 248