Index

A

Administration notification log, 163–164
AIX and DB2 UDB, 4
AIX5.2B support, 172
ALLOW READ ACCESS, 103–104
ALTER TABLESPACE statement, 141, 142f
    and rebalancer, 162
ANDing, 40–42
APIs (administrative application programming interfaces), 149
    snapshot functions, 191–194
Apply enhancements
    program optimization, 343–344
    target-key columns (replicating changes), 342
    transaction commit frequency, 342
ARAM (Automatic Relationship and Association), 94
ASNLOAD exit routine, 343

B

BCP (Bulk Copy Program)/Sybase text file format and data movement utilities, 169
BERNOULLI sampling, 209–211
BI (business intelligence), 3
    IBM's direction, 8
    see also DB2 UDB Data Warehouse Edition
BID (Block ID), 30
BIND command, 260
Bit-filters selection, 95
Block-based buffer pools, 92–93
Buffer pools *see* Dynamic memory allocation/online reconfiguration

C

CA (Configuration Assistant), 115–118
CALL statement, 200–201
Capture enhancements
    concurrent, 340
    multiple instances, 340–342
    operational parameters overrides, 337–338
    program control, 337
    pruning data, 340
    recapturing control from replicas, 339
    replication definitions/source tables and columns dynamic update, 338–339
    row capture (individual replication sources), 339
    start modes, 338
CIM (Common Information Model), 298
Clustering index, 24
Compression, 57–58
    COMPRESS SYSTEM DEFAULT option, 58
    example, 60–63
    identification of, 65
    NULL, 57
    row record format, 59–60
    savings estimation, 66
    supported data types, 64
    VALUE COMPRESSION, 58–59
Configuration *see* DB2 database project/project configuration and properties

Connection concentrator, 6
activation, 76
and connection management, 75–76
max_connections, 76
max_coordagents, 76
num_poolagents, 76
operation, 76–77
Consistency token, 259
Container operations, 141
adding containers/no rebalancing, 145–146
dropping containers from DMS table space, 143–144
size reduction in DMS table space, 144–145
table space maps, 141–143
CREATE INDEX statement, 52–54
CREATE/ALTER TABLE commands, 33, 58–59, 70, 80, 173
CRM (customer relationship management), 3
Cube Views, 10–11
CURSOR file type, 109

D

DADX (Document Access Definition Extension) files, 320, 322
SQL operations, 320
XML operations, 321
DAS (DB2 Administration Server), configuration parameters (online), 150
Data Connections folder *see* DB2 Data Connections folder
Data movement utilities, and OEM products, 169
Database monitoring, 83
collection of timestamps issues, 83
and Control Center performance monitor capability, 89
CREATE EVENT MONITOR statement, 84–85
deadlock monitoring, 84
SQL access to event monitor data, 84–85
SQL access to snapshot monitor data, 86–88
Database project *see* DB2 database project
DATABASE_MEMORY (dynamic memory allocation/online reconfiguration), 148
DB2 Connect ASE (DB2 Connect Application Server Edition), 12
DB2 Data Connections folder, 270–271
procedures and functions, 272
and ADO.NET code, 272–273
tables and views folder, 271
and ADO.NET code, 272
DB2 database project, 268–269, 282, 296–297
adding a database project, 283
advanced scripting/script options, 290
data grid output options, 291
ignoring error options, 291
platform restriction option, 292
scripts and database transactions, 290
statement separator option, 292
test scripts, 290
build order, 296
project items build order, 296
DB2 project scripts, 284–285
procedure scripts, 285
DB2 reference section for a project, 283–284
function scripts, 287–289
generic scripts, 289–290
project configuration and properties, 292–293
file extensions, 294
item properties, 294
persisting properties, 294–295
project properties, 293
project dependencies, 295–296
script template files, 269
procedure script templates, 286
script wizards, 269–270
procedure script wizard, 287
DB2 UDB Data Warehouse Edition, 8
BI platform, 8
EE and SE editions, 11
infrastructure, 9–10
see also Cube Views; MOLAP
DB2 UDB Enterprise Server Edition, 8
Connect component, 12–13
DB2 UDB Express, 5–6
capabilities and benefits, 6–7
DB2 UDB Personal Edition, 5
DB2 UDB V8.1.2, 3
extensibility features changes, 14
DB2 Information Integrator (II), 15–16
Query Patroller, 16–17
Spatial Extender, 15
text searching extenders, 14
XML Extender, 14
licensing and packaging changes, 5, 6f, 12, 13–14, 17
operating systems, 4, 4t–5t
release-specific data, 4

see also Container operations; Development Center; Dynamic memory allocation/online reconfiguration; Information Integrator; Package version identifiers; Replication enhancements; Tools; Utilities (online); Web services
DB2 UDB Workgroup Server/Workgroup Server Unlimited Editions, 7
`db2fm`, 139
`db2Inspect` API *see* `INSPECT`
`db2stop`, 138
`DEADLOCKS`, 84
Debugging/testing *see* Development Center
`DECLARE GLOBAL TEMPORARY TABLE` statement, 51
`DECLARE` statement, 55
Deferred binding, 259
Development Center, 217–218
areas, 234–235
debugging/testing, 236–238
Java stored procedures, 239–240
SQL PL debugging, 239
launching, 218–219
Project View, 219–224
object creation/manipulation, 235–236
stored procedure creation, 231
steps, 232–234
UDF creation, 224–225
definition panel, 226–228
function name panel, 225
options panel, 229–230
parameters panel, 228–229
return value panel, 228
summary panel, 230–231
see also SQL Assist tool
DGTT (declared global temporary table), 51–52
creating a temporary index, 53–54
default logging for rollback support, 54–55
index restrictions, 52–53
index support, 52
statistics support, 55
Distributed catalog cache, 91–92
DMTF (Desktop Management Task Force), 298
DPF (database partitioning feature), *see* DB2 UDB Enterprise Server Edition
`DROP` utility, 80
DSD (Dynamic System Domain) support, 172–173
Dynamic memory allocation/online reconfiguration, 147
configuration parameters (online), 149–150
`CREATE/ALTER BUFFERPOOL` statement, 147–148
memory customization, 148–149

E

ERP (enterprise resource planning), 3

F

Fault Monitor facility, 138–139
Federated Data Server, 307
Federated systems enhancements
Control Center administration of federated objects, 310, 311f
data manipulation (on data sources), 308
MQTs for data sources, 310
supported federated server platforms, 311
table manipulation (on data sources), 308
altering tables, 309–310
dropping tables, 310
table creation, 308–309
transparent DDL transaction restrictions, 310
see also WebSphere MQ integration enhancements
`FLUSH PACKAGE CACHE`, 261
FMC (fault monitor coordinator), 138

G

`GRANT` package privilege, 260

H

Health Center, 118–119
health indicator thresholds, 119–119
recommended actions, 123t–124t
recommended actions/example, 121–122
health monitor, 119
health snapshots, 194–196
High-water mark, 143
`HISTORY` command, 173–174
HP-UX and DB2 UDB, 4

I

IBM.Data.DB2, 278
Identity column support, 196
    identity column, 196–198
    sequences, 198–199
    uniqueness considerations, 199–200
Impact policy, 162
IMPORT utility, 80
Index reorganization, 153
    renaming existing indexes, 153
    see also Clustering index; MDC tables/and indexes
Indoubt Transaction Manager, 135
    actions available, 137
    container, 136–137
    user interface, 135–136
Information Integrator, 307–308
    data sources available, 311–312
    see also Federated systems enhancements
Informational constraints, 67, 70
    and complex queries, 70
    considerations, 73
    example, 70–72
    redundancies, 69
    Star Schema, 68–69
    usage, 67–68
INSERT operator, with UNION ALL, 177–180
INSPECT, 153–154
    authority requirements, 154
    and customized error reporting, 155
    example, 155–156
    syntax, 154
INSTANCE_MEMORY (dynamic memory allocation/online reconfiguration), 148
INSTEAD OF triggers, 183–185

J

Java
    debugging/testing Java stored procedures, 239–240
    enhancements, 257–258
    Java-based routines/multithreading, 93–94
JDBC Universal Driver, 257–258
    and Type 2 connectivity, 258
    and Type 4 connectivity, 258
Join variations (new), 95

L

Linux, LDAP (Lightweight Directory Access Protocol) support, 171–172
Linux and DB2 UDB, 4
Load functions
    data loading from cursor, 109
    data loading into partitioned databases, 106–108
    LOAD IN PROGRESS table state, 105
    LOAD QUERY command, 106
    LOAD utility, 80
        online load, 103–104
    Load wizard, 109–114
LOCK WITH FORCE, 105
Logging, 99
    diagnostic (improvements in), 102
    log chaining, 173
    transactional (improvements in), 99
        infinite active log space, 99–100
        log space, 99
        log space consumption, 100
        mirroring, 101
        performance improvements, 100
        transaction blocking (full logs), 101–102
    see also Administration notification log
LPAR/DLPAR (dynamic) support, 172

M

MDC (multidimensional clustering) tables, 21–22, 31–33, 32f, 48–49
    benefits, 22
    creation, 33–34
    and DELETE operations, 46–47
    dimensions, 22
        selection of, 47–48
    and indexes, 35
        ANDing, 40–42
        composite block indexes, 38–40
        dimension block indexes, 35, 36f, 37–38
        operations, 40
        ORing, 42
    and INSERT operations, 44–46
    organization, 24–25, 25f
    and query SELECT operations, 43–44
    terminology, 26, 27f
        block, 29
        Block ID (BID), 30

block index, 29–30
block size/blocking factor, 29
cell, 28, 29f
dimension, 26, 28f
generated column, 30–31
MDC table, 26
montonicity, 31
and OLAP, 22
slice, 26, 28, 28f
vs. traditional tables, 23–26
and UPDATE operations, 46
utilities, 48
Memory Tracker, 127–128
Memory Visualizer, 124–125
history view, 127
tree view, 126–127
MERGE SQL, 201–203
authorization, 208–209
error conditions, 207–208
IGNORING records, 206
MERGE syntax, 203–205
WHEN MATCHED logic, 205–206
Microsoft environment and DB2, 4, 263–264, 303; Windows process model for replication enhancements, 335
ADO.NET sample code, 279
DB2 managed provider ADO.NET objects, 278
DB2 managed provider tools, 280
Command text editor, 281–282
Data Adapter Configuration Wizard, 280–281
Data Connection editor, 280
native managed .NET providers, 278
Visual Studio .NET, 265–266, 278
DB2 objects, 278–279
development overview, 267–268
development tools customization, 275–276
dynamic help, 274
launch (development and administrative tools), 276–277
output views, 274–275
product availability, 266
registering Add-Ins, 266–267
Server Explorer, 270–273
Solution Explorer, 268–270
SQL editor, 273
Windows 2003 support, 264–265
see also DB2 Data Connections folder; DB2 database project; WMI; XA interface
MIGRATE DATABASE command, 323
MOLAP (multidimensional online analytical processing), 9–10, 21
see also MDC tables
Monotonicity, 31
Moore's law, 21
MQT (materialized query table), 79, 156
creation, 80
for data sources, 310
incremental refresh, 157–159
performance considerations, 81
populating, 80
restrictions, 79–80
see also Summary table

N

Nicknames, 308
NOT LOGGED, 54–55
NULL compression *see* Compression

O

Object creation/manipulation *see* Development Center
OLE DB Provider, 301
enhancements, 301–302
restrictions, 302
ORDER BY enhancements, 186
FETCH FIRST clause, 186, 187–188
ORDER BY ORDER OF clause, 186–187
ORing, 42

P

Package version identifiers, 259
FLUSH PACKAGE CACHE, 261
package overview, 259
package privileges, 260
VERSION example, 260
Page cleaner I/O improvements, 93
PARTITIONED DB CONFIG, 107–108
Performance enhancements, 91
prefetching *see* Block-based buffer pools
see also ARAM; Bit-filters selection; Distributed catalog cache; Java-based routines/multithreading; Join variations (new); Page cleaner I/O improvements; 64-bit support

PLM (planning and logistics management), 3
Pool relative addressing, 141
PRECOMPILE command, 260

Q

QUIESCE command, 166–167

R

READ ACCESS table state, 105–106
Rebalancing, 143
Reconfiguration *see* Dynamic memory allocation/online reconfiguration
REFRESH TABLE statement, 79
Relational databases
  and complex queries, 209
  multidimension issues, 21
  and SQL, 177
  see also MDC tables; MOLAP
REORG INDEXES command, 151
REORG TABLE command, 151
REORGCHK utility, 151
REPEATABLE sampling, 214–215
Replication enhancements, 329
  64-bit support, 336
  and data links values, 336
  migration utility, 336
  monitoring, 332
    current status (replication programs), 333–334
    historical data analysis (replication programs), 334–335
    Replication Alert Monitor, 332–333
  name length extension, 336
  password encryption, 336
  performance, 343
  Replication Center, 329
    Launchpad, 330
    Operations folder, 331
    Replication Definitions folder, 330, 331f
    starting, 329–330
  Replication Server, 307
  trace facility, 336
  Windows process model, 335
  see also Apply enhancements; Capture enhancements
REVOKE package privilege, 260
ROLLFORWARD DATABASE command, 168
RUNCMD command, 173–174
RUNSTATS, 55
  enhancements, 167–168
RUNSTATS utility, 151

S

SELECT statement, TABLESAMPLE clause, 209–215
SIGNAL command, 207–208
64-bit support, 94
Snapshot API functions, 191, 192t–193t
  general form, 193–194
Snapshot monitor, 86
  DB2_SNAPSHOT_NOAUTH registry variable, 88
  SNAPSHOT_FILEW file capture, 87–88
  SNAPSHOT_FILEW request types, 86–87
SOAP (Simple Object Access Protocol), 315
  UDF installation, 316
  UDF signatures, 316–317
  UDF tasks, 316
  UDF usage examples, 317–319
Solaris and DB2 UDB, 4
SQL Assist tool, 240, 257
  sample session, 246–257
  start points, 240–241
  structure, 241, 242f
    details area, 243–245
    outline view, 242–243
    panel buttons, 246
    SQL Code window, 245–246
SQL (Structured Query Language), 177, 215–216
  editor (Microsoft environment), 273
  functions, 188–189
  health snapshots, 194–196
  INSTEAD OF triggers, 183–185
  MERGE SQL, 201–203
    authorization, 208–209
    error conditions, 207–208
    IGNORING records, 206
    MERGE syntax, 203–205
    WHEN MATCHED logic, 205–206
  operations, 320
  ORDER BY enhancements, 186–188
  sampling, 209, 215
    BERNOULLI sampling, 209–211
    REPEATABLE sampling, 214–215
    SYSTEM sampling, 211–213

and snapshot API functions, 191, 192t–193t
general format, 193–194
stored procedure debugging, 239
UNION ALL (insert), 177–180
and XML publishing functions, 190–191, 190t
see also CALL statement; Identity column support
Star Schema, 68–69
Storage Management tool, 128
Storage Management view, 128, 132–133
columns, 133–135
Specify Threshold Settings notebook, 128–132
Stored procedure creation *see* Development Center
Stripe, 141
stripe set, 145
Summary table, 156–157
example (with incremental refresh), 157–159
SYSCAT.INDEXES, queries, 152
SYSCAT.TABLES, queries, 152
SYSTABLES, 91
SYSTEM sampling, 211–213

T

Table reorganization, 151
determination of need, 151–152
and type-2 indexes, 152–153
see also Index reorganization
Table space
adding containers/no rebalancing, 145–146
ALTER TABLESPACE statement, 141, 142f
dropping containers from, 143–144
history file change, 164–166
maps, 141–143
rebalancing, 143
size reduction, 144–145
with UNION ALL, 180–182
Table states, 105–106
Tables, traditional vs. MDC, 23–26
TABLESAMPLE clause (SELECT statement), 209–215
Throttling utilities, 161–162
TIMESTAMP, 83
TIMESTAMP_FORMAT function, 188–189
Tivoli focused options, 171
Tools
Configuration Assistant (CA), 115–118
Fault Monitor facility, 138–139
Health Center, 118–124
Indoubt Transaction Manager, 135–137
Memory Tracker, 127–128
Memory Visualizer, 124–127
Storage Management, 128–133
see also SQL Assist tool
Trace facility enhancements, 169–170
Transaction log space usage, 173
Transaction support, 297–298
Type-2 indexes, 152–153

U

UDF creation *see* Development Center
UNION ALL, 177–180
and table spaces, 180–182
UNION query, 67–68
Universal Driver *see* JDBC Universal Driver
UNIX, and multiple service level install, 170
User-maintained summary tables *see* MQT (materialized query table)
util_impact_lim, 162
Utilities (online), 151
database inspection tool, 153–156
index reorganization, 153
table reorganization, 151–153

V

VARCHAR_FORMAT function, 188–189
VARGRAPHIC, 173
VERSION example, 260
Visual Studio .NET *see* Microsoft environment and DB2

W

WBEM (Web-Based Enterprise Management), 298
Web services, 315
application server, 322
DB2 as consumer, 315–319
DB2 as provider, 319
architecture, 319–320
DADX files, 320–322
Web Tools, 322
see also XML enhancements
WebSphere MQ integration enhancements, 312
asynchronous MQ listener utility, 312–313

message queues (transactional support), 313
nontransactional MQ functions, 314
single-phase commit transactional MQ functions, 313–314
Windows and DB2 UDB *see* Microsoft environment and DB2
WMI (Microsoft) Windows Management Instrumentation, 298–299
architecture, 299
benefits, 300–301
WMI SDK (Software Development Kit), 300
WORF (Web Object Runtime Framework), 319–320
installation/configuration, 322
WSDL (Web Service Definition Language) file, 315

X

XA interface, 297–298
XBSA (X/Open Backup Services API) support, 168
XML enhancements
migrating XML-enabled databases, 323
new UDFs, 324–325
timestamp normalization, 325
validating XML documents, 323–324
XML extender, 322–323
in partitioned database environments, 325
XML MQ stored procedures, 327t
XML MQ UDFs, 326, 326t