Index

A
access control, 490
See also authentication
Access Plan Graph dialog, 683
access plans, 419
db2exfmt output tool and, 421–427, 425–427
(See also db2exfmt output tool)
Explain Facility and, 420–421
operators of, 426–427
See also access plan with details
access plan with details
arguments of, 429–430
cost of, 428–429
fetch operation and, use of, 431–432
index ANDing and, recognition of, 436–438
index ORing and, recognition of, 435–436
index scan of, 432–433
input stream(s) of, 430–431
list (sequential) prefetch and, recognition of, 434–435
predicates of, 430
sort operation of, use of, 433
table scan operation of, use of, 433–434
See also access plans
ACTIVATE DATABASE command, 44
Activating Visual Explain, 692–693
Add Database dialog, 586, 586–588
Add Database Partitions Launchpad, 157–159
ADD DPARTITIONNUM command, 154–155, 156, 157
ADD SECURITY POLICY clause, 556
Administration Balanced Configuration Unit (BCU), 203, 205
administrative view and table function, 453–455
ADMINTABCOMPRESSINFO, 453, 453–454
ADVISE_INDEX table, 197
AdviseType command, 197–198
aggregation, 181
AIX platform, 8, 11
Balanced Configuration Unit (BCU) and, 204
db2nodes.cfg file and, 149
raw logical volumes and, 82
REDIRECT DATABASE command and, 263
Alias command, 49, 587, 593
ALLOW OVERFLOW clause, 174, 175
Alter Buffer Pool dialog, 68–69
ALTER BUFFERPOOL SQL statement, 59
buffer pool, 65, 66, 67–68, 68
syntax for, 65, 65–66
ALTER DATABASE PARTITION GROUP SQL statement, 156, 163–166
ALTER DATABASE statement, 293
alterin privilege, 513
alter privilege, 514, 518, 522
ALTER TABLESPACE SQL statement, 94–97, 98, 157, 264, 445

Note: Boldface numbers indicate figures; t indicates tables
ALTER TABLE SQL statement, 168–169, 417, 544, 551–552
ALTER VIEW statement, 400
ANY value, 142–143
append mode, 395
ApplicationHandle command, 441
Application Requester, 585
Applications dialog, 439–440, 440
APPLY DB AND DBM clause, 380
APPLY DB ONLY clause, 380
APPLY NONE clause, 380
archival logging, 227, 229–230, 230
ARCHIVE LOG command, 235
array, defined, 539
associated subagents, 405
AS TEMPLATE option, 123
asynchronous table queues, 407
ATTACH PARTITION clause, 176, 181
audit_buf_sz configuration, 564
audit_buf_sz DB2 Database Manager, role of, 563–565
audit facility, 557–563, 564–565
authentication, 490
CLIENT, 498–499
environments of, 491–495
LDAP-based, 497–498
security plug-ins and methods of, 495–497
SERVER_ENCRYPT, 499–500
AuthenticationType command, 588
authorities, 46–47
common tasks for, 530–531
database administrator, 507–508
granting and revoking of, 527–529, 528t
levels of, 500–502, 501
load, 509–510
objectives of, common, 530–531t
security administrator, 508–509
system administrator, 502–503
system control, 503–505
system maintenance, 505–506
system monitor, 506–507
See also privileges
AUTOCONFIGURE command, 50, 377–371, 377–381, 378–379t
Automatic Client Reroute, 291, 298–300
automatic features, 47
AUTOMATIC keyword, 363, 370
Automatic Maintenance, 47
automatic storage table space, 50, 51
CREATE TABLESPACE SQL statement, 90
database managed space (DMS) and, 84
defined, 55
partitioned databases and, creation of, 55–56
system managed (SMS) table space and, 84
Automatic Summary Tables, 650–651
AUTOMATIC value, 75–76, 373, 374, 382
autorestart database, 247
AVGCOLLEN, 401
B
backup and recovery of databases, 249, 249–284
images and, integrity of, 276–281
partitioned databases and method of, 274–276
recovery history file and importance of, 269–271
redirected restore and method of, 259–263
restore utility and method of, 253–259, 271–274
roll-forward utility and method of, 263–269
split mirroring and, 281–284
utility, 250–253
BACKUP DATABASE command, 240, 250, 252, 280
Backup utility, 146, 249
Backup Wizard, 252–253, 253, 254
Balanced Configuration Unit (BCU), 139, 140, 201, 201–206
AIX, Version 2.1 and required components of, 204–205
layers of, 202–204
Linux, Version 2.1 and required components of, 206
nodes, types of, 203
Balanced Partition Unit (BPU), 202–203
“big block” read, 108
BINDADD privilege, 47, 511, 595
BIND command, 420, 596, 685
bind files, 46
BIND privilege, 47, 520
BLAST search algorithm, 114
block-based area
- buffer pool, 64, 66, 67, 73, 108
- input/output (I/O) controller and enabling of, 62, 63, 74
- pages and, storage of, 66
- prefetching and, sequential, 62, 73, 74
- block-based buffer pool, 64, 66, 67–74, 108
- block identifiers (BIDs), 192
- block map, 80
- block predicate, 681
- block size, 64
- BlockSize command, 62, 66
- Boolean values, 535
- broadcast table join, 415, 675–680
- broadcast table queue (BTQ), 407, 415, 677
- B2 ReleaseLevel command, 287
- buffer pool, 59–60
- ALTER BUFFERPOOL SQL statement and, execution of, 65, 66, 67–68
- block-based, 64, 66, 67–74, 108
- cleaners, 60
- Create Buffer Pool and creation of, 64
- CREATE BUFFERPOOL SQL statement and, execution of, 61, 62–63, 69, 73
- creation of new, 61–65
- databases and, 59–76
- data hit ratio, 631
- data reads of, 625
- data writes of, asynchronous, 626
- DEFERRED clause and creation of, use of, 70
- defined, 44, 59
- hidden, 69–70
- hit ratio, 629–630
- index hit ratio, 630
- index reads of, asynchronous, 625–626
- index writes of, 626
- Linux platform, 44, 59
- modifications of existing, 65–69
- multiple, benefits of, 71–72
- page cleaners and, use of, 74–76, 374, 635–637
- pages and, determination of, 59–60, 67
- pages per write and use of, asynchronous, 638
- PARTGRP_BP, 67
- PGRP2, 67
- prefetching and improved performance of, 60, 73, 74, 627
- purpose of, 59
- quantity of, decision making on, 70–73
- read rate of, physical, 633–634
- read ratio of, asynchronous, 631–634
- read requests of, asynchronous, 627
- read time of, 626, 634–635
- Self-Tuning Memory Manager (STMM), 381
- single, benefits of, 70–71, 72–73
- size of, 375
- size of, overall, 59
- syntax for creation of new, 61
- tuning of, 628–629
- UNIX platform, 44, 59
- user-defined, 70
- write time of, 626, 627

See also: table space
BufferPoolName command, 61, 66, 88–89, 97
Buffer Pools menu, 67
BufferSize command, 251, 257
build table, 658
business intelligence (BI), 202

C
- cache
  - file system, 81–82
  - global package, 420
  - package, 381, 409
- Call Level Interface (CLI), 595
- card, 401
- Cartesian Product, 653–654
- catalog Balanced Partition Unit (BPU), 203
- CATALOG DATABASE command, 586, 587
  - 587–588
- CATALOG DCS DATABASE command, 592–594
- cataloging
  - Database Connection Services (DCS)
  - database and, 592–594
  - DB2 database, 585–588
  - defined, 585
  - remote servers (nodes) and, 588–591
  - CATALOG LDAP NODE command, 589
CATALOG LOCAL NODE command, 589
CATALOG NAMED PIPE NODE command, 589
CATALOG...NODE command, 588–589
catalog partition, 153
CATALOG TCPIP NODE command, 589, 590–591, 592
cell density, 192
certification exams
arrangements for processing of, 20–22
preparation for, 18–20
processing of, 22–37
roles within, 1–17
(See also specific exams)
Certification Navigator tool, 18, 19, 20
changeable media, 290
Check Backup utility, 277
circular logging, 227–229, 229
checkers, buffer pool, 60
CLIENT authentication, 492, 495, 497, 498–499
clustering index, 169, 389, 391–394
clustering of partitioned database, 195–196
clustering storage, 386
cluster management server, 205
CLUSTER option, 391
CmdFileName command, 306
CodeSet command, 49
COLCARD, 401
CollateType command, 49
collating sequence, 49, 52
collocated join, 663
collocated tables, 172, 172–173, 415, 661–667
collocation, 643–648, 644
column distribution statistics, 401–402
ColumnName command, 168, 174, 177, 397
column statistics, 401
COLVALUE statistics, 401, 402
Command Line Processor (CLP), 246, 302, 594
COMMIT frequency, 7
COMMIT statement, 224, 226–227
common-level label-based access control (LBAC), 548–549, 555–557
communication
errors in, troubleshooting, 604–605
manual configuration of, 578–581
protocols of, 577–578
TCP/IP dialog, configuring, 579
complete site failure, 291
ComponentName command, 540, 542, 543
composite block indexes, 183
composite indexes, 389
Comprehensive Explain Data, 685
COMPRESS attribute, 447, 448
compression dictionary, 445–447
COMPRESS option, 281
ComputerName command, 150, 155
ConfigFile command, 283
configuration, 359
database, 366–373
DB2 Database Manager (instance), 360–365, 366–366
num_tocleaners database, 374–375
num_toservers database, 373–374
Configuration Advisor, 48, 360, 375–377, 376, 377
Configuration Advisor Wizard, 375–377, 380
Configuration Assistant, 347–348, 386
configuration parameters, 295–296, 372
connection (coordinating agent), 405–406
connection (idle agent) pooling, 403–405
connectivity, 623
connect privilege, 47, 510, 511
Constant command, 178
consumers, memory, 383
Container command, 51, 87, 96, 99, 261
ContainerPages command, 87, 96
ContainerSize command, 87, 96, 261
container tag file, 79, 81
contiguous pages, 73
CONTINUE option, 262
Control Center, 53, 54, 64, 68, 90, 157, 365, 372, 398
control privilege, 514, 515, 516, 520, 521, 523
Coordinated Universal Time (UTC), 267
coordinating agent (connection), 405–406
coordinator Balanced Partition Unit (BPU), 203
coordinator partitions, 153–154
Coordinator Subsection Explain snapshot, 664, 664–666, 670–671, 678
COPY NO option, 293, 301
COPY YES option, 300, 301
CorrelationName command, 655
Count command, 304, 306
CPU cycle, 82, 141, 146, 159, 202
crash recovery, 238–240, 239–247–248, 248, 290
CREATE BUFFERPOOL SQL statement, 61, 64–66, 68–69, 73
CREATE DATABASE command, 40–41, 45, 46
catalog partition and, 153
characteristics of, 48
DB2 database and, construction of, 53, 54
directory tree and, creation of, 57
execution of, 53
partitioned database and use of, creation of, 55–56, 147
screen shot of, 54
syntax of, complete, 48
CREATE DATABASE PARTITION GROUP
SQL statement, 162–163
Create Database Wizard, 40, 45, 46, 53, 55
catalog partition and, 153
partitioned databases and, 147
table spaces and creation of, 90, 91
create_external_routine privilege, 511
CREATE FUNCTION MAPPING SQL
statement, 123
CREATE FUNCTION statement, 123
CREATE INDEX SQL statement, 124, 180, 386–388, 390–392, 394
CREATE INDEX SQL statement, 124, 180, 386–388, 390–392, 394
Create Index Wizard, 387–388, 388
createin privilege, 511
CREATE NICKNAME SQL statement, 119–121, 122
create_not_fenced privilege, 47
create_not_fenced_routine privilege, 511
CREATE SECURITY LABEL COMPONENT
SQL statement, 539–541, 549–551
CREATE SECURITY LABEL SQL statement, 542–544
CREATE SECURITY POLICY statement, 549–550, 557
CREATE SERVER SQL statement, 118–119
CREATE TABLESPACE SQL statement, 85–86, 157
automatic storage table space and, 90
database managed space (DMS) and, 94
DB2 9 certification exams and, 90
deep compression and, 445
partitioned databases and, 94
system managed (SMS) table space and, 89–90
CREATE TABLE SQL statement, 165, 167, 174, 175, 177, 179
CREATE TABLE statement, 544
createin privilege, 511
CREATE MAPPING SQL statement, 122
createin privilege, 511
CREATE TYPE MAPPING SQL statement, 122
CREATE USER MAPPING SQL statement, 124
CREATE EVENT MONITOR SQL statement, 303
CREATE WRAPPER SQL statement, 115–116, 117
CREATE SECURITY POLICY SQL statement, 541–542
Cref, Vinton, 591
CTLIB wrapper, 122
Cumulative First Row Cost, 429
CURRENT DEGREE database manager
configuration, 142–143
CURRENT EXPLAIN MODE register, 420, 685
CURRENT EXPLAIN SNAPSHOT register, 420, 685
CURRENT REFRESH AGE option, 650

D
DASNode command, 344
data (DMS) predicate, 681
data, Explain, 685
data Balanced Configuration Unit (BCU), 203, 205
data Balanced Partition Unit (BPU), 203
Database Administrator (DBADM) authority, 47, 502, 507–508
Database Administrator, role of, 438, 441–442
authorities and, 507–508
FORCE APPLICATION command and, use of, 441–442
LIST APPLICATIONS command and, use of, 439–440, 440
database agents (DAs), 404–405

Note: Boldface numbers indicate figures; t indicates tables
### Index

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Alias command</td>
<td>246, 250, 256, 283, 296, 370, 371</td>
</tr>
<tr>
<td>database configuration dialog</td>
<td>366–373, 372, 373</td>
</tr>
<tr>
<td>database configuration file</td>
<td>46</td>
</tr>
<tr>
<td>Database Connection Services (DCS) database</td>
<td>577, 584–585, 592–594</td>
</tr>
<tr>
<td>Database Connection Services (DCS) directory</td>
<td>581</td>
</tr>
<tr>
<td>database context area</td>
<td>422–423</td>
</tr>
<tr>
<td>database heap (dbheap)</td>
<td>73</td>
</tr>
<tr>
<td>database level authorities</td>
<td>527–528</td>
</tr>
<tr>
<td>database managed space (DMS)</td>
<td>50, 78–79, 79t, 80</td>
</tr>
<tr>
<td>ALTER TABLESPACE command and</td>
<td>99</td>
</tr>
<tr>
<td>ALTER TABLESPACE SQL statement and</td>
<td>94–95, 97</td>
</tr>
<tr>
<td>automatic storage table space</td>
<td>84</td>
</tr>
<tr>
<td>CREATE TABLESPACE SQL statement and</td>
<td>94</td>
</tr>
<tr>
<td>database partitions and</td>
<td>93</td>
</tr>
<tr>
<td>DEVICE container</td>
<td>51</td>
</tr>
<tr>
<td>FILE container</td>
<td>51</td>
</tr>
<tr>
<td>FILE table space</td>
<td>45, 52</td>
</tr>
<tr>
<td>high-water mark concept of</td>
<td>100</td>
</tr>
<tr>
<td>large, 83</td>
<td></td>
</tr>
<tr>
<td>modification of, 94</td>
<td></td>
</tr>
<tr>
<td>NO FILE SYSTEM CACHING option and</td>
<td>82</td>
</tr>
<tr>
<td>types of, 82</td>
<td></td>
</tr>
<tr>
<td>USERSPACE1 table space and</td>
<td>83</td>
</tr>
<tr>
<td>Database Manager configuration file</td>
<td>360, 361–362t, 363–366</td>
</tr>
<tr>
<td>parameters of, 367–369t</td>
<td></td>
</tr>
<tr>
<td>database_memory configuration</td>
<td>381</td>
</tr>
<tr>
<td>DatabaseName command</td>
<td>48, 99, 171, 197, 287, 306, 560, 587</td>
</tr>
<tr>
<td>database node. See partitioned database</td>
<td></td>
</tr>
<tr>
<td>database partitions, 154–159</td>
<td></td>
</tr>
<tr>
<td>databases, 39</td>
<td></td>
</tr>
<tr>
<td>access control of, 490</td>
<td></td>
</tr>
<tr>
<td>(See also authentication)</td>
<td></td>
</tr>
<tr>
<td>buffer pools and, use of, 59–76</td>
<td></td>
</tr>
<tr>
<td>DB2 9.x, creation of non-partitioned, 40–54</td>
<td></td>
</tr>
<tr>
<td>federated systems and, use of, 112–125, 114–115</td>
<td></td>
</tr>
<tr>
<td>(See also federated systems)</td>
<td></td>
</tr>
<tr>
<td>hierarchies of, 40</td>
<td></td>
</tr>
<tr>
<td>partitioned, creation of, 55–58, 58</td>
<td></td>
</tr>
<tr>
<td>recovery concepts of, 237–274</td>
<td></td>
</tr>
<tr>
<td>(See also recovery of databases)</td>
<td></td>
</tr>
<tr>
<td>table space and, use of, 76–111</td>
<td></td>
</tr>
<tr>
<td>(See also table space)</td>
<td></td>
</tr>
<tr>
<td>database shared memory</td>
<td>381</td>
</tr>
<tr>
<td>Database System Monitor</td>
<td>302</td>
</tr>
<tr>
<td>memory tracker utility of</td>
<td>303–305</td>
</tr>
<tr>
<td>problem determination tool of</td>
<td>305–309</td>
</tr>
<tr>
<td>Data Control Language (DCL), 6, 9</td>
<td></td>
</tr>
<tr>
<td>data definition language (DDL), 6, 9, 267, 297, 521</td>
<td></td>
</tr>
<tr>
<td>Data Definition Language SQL statement</td>
<td>519</td>
</tr>
<tr>
<td>data design</td>
<td>621</td>
</tr>
<tr>
<td>data_encrypt authentication</td>
<td>493</td>
</tr>
<tr>
<td>data_encrypt_cmp authentication</td>
<td>493</td>
</tr>
<tr>
<td>Data Explain, types of</td>
<td>685</td>
</tr>
<tr>
<td>DATAFILE.DEL file</td>
<td>453</td>
</tr>
<tr>
<td>data hit ratio</td>
<td>631</td>
</tr>
<tr>
<td>DATA INITIALLY DEFERRED clause</td>
<td>640</td>
</tr>
<tr>
<td>data manipulation language</td>
<td>6, 9, 297, 407, 521</td>
</tr>
<tr>
<td>data partitioning and clustering</td>
<td>621–622</td>
</tr>
<tr>
<td>data reads</td>
<td>625</td>
</tr>
<tr>
<td>data retrieving</td>
<td>410</td>
</tr>
<tr>
<td>data SARGable predicates</td>
<td>411–412</td>
</tr>
<tr>
<td>data security</td>
<td>531–532</td>
</tr>
<tr>
<td>DataSourceName command</td>
<td>120</td>
</tr>
<tr>
<td>data sources within federated systems</td>
<td>113–114</td>
</tr>
<tr>
<td>data type conversions</td>
<td>414</td>
</tr>
<tr>
<td>data type mappings</td>
<td>121–122</td>
</tr>
<tr>
<td>data writes. asynchronous</td>
<td>626</td>
</tr>
<tr>
<td>Date command</td>
<td>560</td>
</tr>
<tr>
<td>DBM Configuration dialog</td>
<td>365–366, 365-366</td>
</tr>
<tr>
<td>DBMS instance</td>
<td>113</td>
</tr>
<tr>
<td>DBPartition command</td>
<td>87, 96</td>
</tr>
<tr>
<td>DBPartitionEnd command</td>
<td>88, 96</td>
</tr>
<tr>
<td>DBPartitionNum command</td>
<td>154, 155–156, 384</td>
</tr>
<tr>
<td>DBPath command</td>
<td>49</td>
</tr>
<tr>
<td>DB_SERVER, 441</td>
<td></td>
</tr>
<tr>
<td>db2advise command</td>
<td>197, 198t, 199</td>
</tr>
<tr>
<td>db2audit.cfg file</td>
<td>558–563, 560–564t</td>
</tr>
<tr>
<td>db2ckbkp command</td>
<td>278, 278–279t</td>
</tr>
<tr>
<td>DB2COMM instance</td>
<td>346–347</td>
</tr>
<tr>
<td>DB2COMM registry</td>
<td>580</td>
</tr>
<tr>
<td>db2dart command</td>
<td>104–105</td>
</tr>
</tbody>
</table>
Index

DB2 database, 53, 54, 585–588
DB2 database cataloging, 585–588
DB2 Database Manager (instance) configuration, 58, 360–365
DB2 Data Warehouse Edition (DWE) V9.1 exam (Exam 716), 15
DB2 Data Warehouse Edition V9.1, 13–15
DB2_DISABLE_FLUSH_LOG registry, 235
DB2 Discovery, 598–602, 599–600t
DB2 DWE application server, 205
DB2EVENT subdirectory, 44
db2exfmt output tool
  access plans and, 421–427, 425–427
  (See also db2exfmt output tool)
  database context area of, 422–423
  optimized statement area of, 424–425
  original statement area of, 424
  overview area of, 422
  package context area of, 423–424
  db2exfmt tool, 421–422, 687, 690–691
db2expn tool, 421, 687–690
DB2 9 Command Reference, 50
DB2 9 database, 58
DB2 9 Database Administrator (DBA), 3
DB2 9 Family Application Development exam (Exam 733)
DB2 9 Family Fundamentals exam (Exam 700) and, 10
IBM Certified Application Developer - DB2 9 Family certification and, 10
IBM Certified Database Administrator - DB2 V8.1 Family certification and, 10
online tutorials for, 18
DB2 9 Family Fundamentals exam (Exam 730)
IBM Certified Application Developer - DB2 9 Family certification and, 10
IBM Certified Solution Developer - DB2 9.5 SQL Procedure Developer certification and, 17
DB2 9.5 SQL Procedure Developer exam (Exam 735), 16–17
DB2 9 for Linux, UNIX, and Windows Advanced Database Administration Exam (Exam 734)
  connectivity and networking, 623
data design, 621
data partitioning and clustering, 621–622
high availability and diagnostics, 622
performance and scalability, 339, 622
security, 622–623
DB2 9 for Linux, UNIX, and Windows Advanced Database Administration exam (Exam 734)
  connectivity/networking and, 623
data design and, 621
data partitioning/clustering and, 621–622
exam objectives of, 20
high availability/diagnostics and, 622
IBM Certified Advanced Database Administrator - DB2 9 for Linux, UNIX, and Windows certification and, 13
performance and scalability, 622
purpose of, 39, 139, 223, 489
security and, 622–623

Note: Boldface numbers indicate figures; t indicates tables
DB2 9 for Linux, UNIX, and Windows
Database Administration exam (Exam 731)
DB2 Version 8.1 Database Administrator,
accelerated approach to knowledge of, 5
IBM Certified Database Administrator - DB2
9 for Linux, UNIX, and Windows
certification and, 4
online tutorials for, 18
DB2 9 for Linux, UNIX, and Windows
Database Administration Upgrade exam
(Exam 736)
cost of, 22
IBM Certified Database Administrator - DB2
9 for Linux, UNIX, and Windows
Database Administration exam (Exam
731) and, 5
questions/time allotted for completion of, 24
DB2 9 for Linux, UNIX, and Windows program
IBM Certified Advanced Database
Administrator, certification of, 11–13
IBM Certified Database Administrator, certification of, 3–5
DB2 9 for z/OS Database Administration exam
(Exam 732), 6–7
DB2 9 Fundamentals, 2
DB2 9.x, creation of non-partitioned, 40
CREATE DATABASE command and,
xecution of, 48–53
Create Database Wizard and construction of,
53, 54
databases, 40–54
process of, 41–48
DB2 node configuration file.
See db2nodes.cfg file
db2nodes.cfg file, 55, 57, 147–152, 154
DB2 Optimizer, 106, 123, 142, 196, 386, 389
DB2_PARALLEL, IO registry, 106, 108,
110–111, 140–141, 357–359
db2pd command, 305–309, 307–308

db2rhist.asc file, 43
db2rhist.bak file, 43
db2set system command, 344–347, 345

db2uext2.ctsm, 286
db2uext2.exe file, 289
DB2 V8.1 Family Fundamentals exam (Exam 700)
DB2 9 Family Application Development
exam (Exam 733) and, 10
DB2 9 for Linux, UNIX, and Windows
Database Administration exam (Exam
731) and, 4
DB2 9 for z/OS Database Administration
exam (Exam 732), 7
IBM Certified Database Administrator and,
acquiring of, 7
DB2 V8.1 Family Fundamentals exam (Exam 730)
IBM Certified Database Administrator - DB2
9 for Linux, UNIX, and Windows
certification and, 4
IBM Certified Database Administrator - DB2
9 for z/OS certification and, acquiring of, 7
online tutorials for, 18
Declared Global Temporary Tables, 17
DecompressLib command, 277
DecompressOpts command, 278
DECRYPT_BIN() function, 532, 535–536
DECRYPT_CHAR() function, 532, 535–536
deep compression
administrative view and table function of,
453–455
ALTER TABLESPACE SQL statement
and, 445
Automatic Dictionary Creation (ADC)
feature of, 449–451, 451
compression dictionary and use of, building
of, 445–447
CREATE TABLESPACE SQL statement
and, 445
load utility of, enabling of, 452–453
purpose of, 442–444, 444
storage savings from, estimation of, 447–449
tables for, enabling of, 445
default extent size, 50
DefaultExtSize command, 50
default value, 75–76
DEFERRED clause, 62, 63, 66, 70, 364, 370
DEGREE database manager configuration,
142–143
Index

delete privilege, 515, 516, 523
DELETE SQL statement, 516
Delimiter command, 559–560
delta backup, 243
delta backup recovery, 242–243
Description command, 50, 588, 590, 593
Design Advisor, 381, 390
Design Advisor Wizard, 196–197, 200–201
DETACH PARTITION clause, 176, 181
dfdbspath DB2 Database Manager configuration, 41, 57
DFT_DEGREE database manager configuration, 142–143
dimensional block indexes, 183
directed inner table join, 415, 669–675, 674
directed outer table join, 667–668, 668, 673–675, 674
directed table queues (DTQ), 407, 415
directory files (directories)
  Database Connection Services (DCS), 584–585
  local database, 583
  node, 584
  system database, 582–583
types of, 581
directory hierarchy tree, 41–42, 42
  CREATE DATABASE command and creation of, 57
  for DB2 9 database with multiple partitions, 58
  partitioned databases and use of, creation of, 57–58, 58
“dirty” pages, 60, 74–75
DISALLOW OVERFLOW clause, 175
DiskLimit command, 198
disk partition, 80
disk-seek latency time, 52
DISK value, 285
DISTCOUTN, 401
DISTINCT clause, 408–409
Distributed Data Facility (DDF), 590
distribution key. See partition keys
distribution maps. See partition maps
Domain Name Server (DNS), 590
DRDA communication protocols, 113, 122
DRDA wrapper, 122
DROP DATABASE PARTITION GROUP statement, 161, 162
dropin privilege, 513
DROPPED TABLE RECOVERY ON option, 89
DROP PENDING TABLESPACES ([TS_Name]) option, 246
DurationLabel command, 178
dynexpln tool, 421
E
EARLYOUT, 429
ENABLE OPTIMIZATION clause, 400
EncryptedValue command, 536
ENCRYPT() function, 532–534, 538
ENCRYPT() function of encryption, 532–534
encryption
data security and use of, 531–532
DECRYPT_BIN() function of, 535–536
DECRYPT_CHAR() function of, 535–536
ENCRYPT() function of, 532–534
GETHINT() function of, password hints using, 536–537
SET ENCRYPTION PASSWORD function of, 537–538
End command, 174, 178
EndPartitionNum command, 162–163, 163–164
“End” push button, 34
environment variables, 343
errors in communication, troubleshooting, 604–605
Estimated Bufferpool Buffers, 429
Event command, 559
event monitor, 302, 303
exam results panel, 35–36
EXCLUSIVE (X) mode, 418, 419
EXCLUSIVE option, 178–179
ExecMode command, 454–455
EXECUTE IMMEDIATE statement, 113
execute privileges, 47, 520, 595
EXECUTE statement, 113
EXECUTE WITH GRANT privilege, 47
exhibit question panels, 29
exhibits, 28–30

Note: Boldface numbers indicate figures; t indicates tables
Index

Explain
  data, types of, 685
  db2exfmt tool and, use of, 690–691
  db2expin tool and, use of, 687–690
  SQL statement, syntax of, 685–686
  tables, creation of, 683–685, 684t
  Visual, 421, 691–698
EXPLAIN bind option, 420, 685
EXPLAIN.DDL script, 420
Explain Facility, 424
Explain Query dialog, 692–693
Explain Snapshot Data, 685
EXPLAIN SQL statement, 420, 685–686
EXPLAIN tables, 420
Explain utility, 375
explicit authority, 528
EXPLSNAP bind option, 420
Expression command, 654
ExtentPages command, 88
  extents, 76
ExtentSize command, 51, 88
extract, transform and load (ETL) server, 205
user mappings and identification of, 124
wrappers and, use of, 115–117
FETCH, 428
FETCH FIRST n ROWS clause, 413–414
FETCHMAX, 430
FETCH ONLY clause, 407
fetch operation, 431–432
FETCH request, 413
FETCH statement, 407
file container, 80
FileName command, 278
file system cache, 81–82
FILE SYSTEM CACHING option, 89
  first in, first out (FIFO) manner, 106
fix packs, 292
FORCE APPLICATION command, 441–442
FOR FETCH ONLY clause, 407, 414
FOR READ ONLY clause, 414
FOR UPDATE clause, 413, 414
Free Space Control Records (FSCRs), 394
function mappings, 122–123
function template, 123

F
failback operation, 291
fast communications manager (FCM)
  communication, 151, 152–153, 602–604
federated databases, 114–115
federated servers, 113
federated systems
  databases and, 112–125, 114–115
  data sources within, 113–114
  data type mappings and identification of,
    121–122
  defined, 112
federated databases within, 114–115
federated servers within, 113
function mappings and identification of,
  122–123
index specifications and use of, 123–124
nicknames used for identification of, 119–121
pass-through sessions and, use of, 124–125
server definitions and use of, 117–119

G
Generic Security Service Application Program
  Interface (GSS-API) plug-in, 494
Generic Security Service Application Program
  Interface, Version 2 (IETF RFC2743), 496
Generic Security Service Application Program
  Interface Version 2: C-Bindings (IETF
  RFC2744), 496
GET DATABASE CONFIGURATION
  command, 230, 369–373, 383
GET DATABASE MANAGER
  CONFIGURATION command, 363
GETHINT() function, 532, 536–537
GET SNAPSHOT command, 302
GET SNAPSHOT FOR TABLESPACES
  command, 104
global catalog, 114
global package cache, 420
GRANT EXEMPTION ON RULE SQL
  statement, 553–554
GRANT statement, 545–547, 550–551
  graphical user interface (GUI), 40, 375, 377
Greenwich Mean Time (GMT), 267
GSS-API authentication, 496
gssplugin authentication, 494, 496, 499
gss_server_encrypt authentication, 494, 499

H
hadr_remote_host database, 299–300
hadr_remote_svc database, 299–300
hashing algorithm, 170
hash join, 415, 655, 658–659, 660
“hate stacks,” 71
Health Monitor, 47
hidden buffer pool, 69–70
hierarchies of databases, 40
High Availability Disaster Recover (HADR) Database Wizard, 297, 298, 298–299, 299
high availability disaster recovery (HADR) environment, 223, 290
Automatic Client Reroute feature of, 298–300
configuration parameters of, 295–296
load operations and, 300–302
process of setting up, 293–298
requirements for, 291–293
high-availability, 205, 622
high-priority tables, 72
HIGH2KEY, 401
high-usage tables, 72
high-water mark concept, 100–103, 103
Hint command, 533
history table, 72
hit ratio, 629–630
home entry, 582
HostName command, 148, 150, 155, 589
HP-UX platform, 8, 11, 149
human resources (HR) manager, 527

I
IBM, 20
IBMCATGROUP database, 92
IBMCATGROUP group, 161, 162
IBM Certification Agreement, 37
IBM Certification Exam testing software exam results panel of, 35–36
item (question) review panel of, 31
refresher course on, 25
screen shot of, 23
section scores panel of, 35–36
See also question panels
IBM Certification Group, 37
IBM Certified Advanced Database Administrator - DB2 9 for Linux, UNIX, and Windows certification, 11, 13, 13
IBM Certified Application Developer - DB2 9 Family certification, 8, 10, 11
IBM Certified Database Administrator - DB2 9 for Linux, UNIX and Windows certification, 4–5, 13
IBM Certified Database Administrator - DB2 9 for z/OS and OS/390 certification, 7, 8
IBM Certified Database Administrator - DB2 V8.1 Family certification, 10
IBM Certified Database Administrator - DB2 V8.1 for Linux, UNIX, and Windows, 4–5, 5f, 6
IBM Certified Database Associate - DB2 9 for Linux, UNIX and Windows certification, 2–3, 3
IBM Certified Database Associate - DB2 9 for z/OS certification, 6, 7
“IBM Certified” mark, 37
IBM Certified Solution Designer - DB2 Data Warehouse Edition (DWE) V9.1 certification, 13, 15, 16
IBM Certified Solution Developer - DB2 9.5 SQL Procedure Developer certification, 16–17, 17
IBMDEFAULTBP buffer pool, 44, 59, 69
memory of, 70
table space and, creation of new, 85
IBMDEFAULTGROUP database, 92
IBMDEFAULTGROUP group, 161
IBM InfoSphere Balanced Warehousing, 140
IBM Learning Services, 18
IBM Professional Certification Member Web site, 22
IBM pSeries P690, 159, 160
IBMTEMPGROUP database, 92, 162
identity theft, 490
idle agent pooling, 403–405

Note: Boldface numbers indicate figures; t indicates tables
Index

images, integrity of, 276–281
IMMEDIATE clause, 62, 67, 69, 371
implicit authority, 527–528
IMPLICIT_SCHEMA privilege, 47
implicit_schema privilege, 511
IN clause, 435
IncreaseSize command, 52
INCREMENTAL AUTOMATIC option, 257
INCREMENTAL AUTO option, 257
incremental backup, 243
INCREMENTAL option, 251, 257
incremental recovery, 242–243
IncSize command, 88, 97
index ANDing, 436–438
indexes
  analyzation of, 389–390
  benefits of, 385–386
  clustering, 391–394
  composite block, 183
  create index wizard, 388
  defined, 385, 517
  dimensional block, 183
  importance of, 385–386
  insert performance and, use of, 394–395
  partition keys and, 169
  purpose of, 386–389
  simple, 385
  unique, 390–391
index hit ratio, 630
IndexName command, 387, 397
index ORing, 435–436
index predicate, 681
index privilege, 515, 517, 517, 517, 523
index reads, asynchronous, 625–626
index SARGable predicates, 411–412
index scan, 432–433
index specifications, 123–124
index writes, 626
indirect authority, 528
indirect entry, 582
InFile command, 197
infinite logging of transactions, 231–232
Informix, 112, 113
INFORMIX wrapper, 122
InfoSphere Balanced Warehouse. See Balanced
  Configuration Unit (BCU)
InitialSize command, 52
InitSize command, 88
inner table, 658
input/output (I/O) controller, 52, 59
  block-based, 62, 63, 74
  cache and, reading of, 81
  FILE SYSTEM CACHING option and, 89
  memory and, 81
  page-based, 73
  prefetching and, 60, 106
  table space and, 72
input/output parallelism, 140–141, 357, 357–358
input stream(s), 430–431
insert performance, 394–395
insert privilege, 514, 516, 522
INSERT SQL statement, 516
INSPECT command, 447–448, 449
Inspect utility, 449
instance configuration file, 360, 361–362t, 363–365
InstanceName command, 344, 590
International DB2 User’s Group North
  American conference, 20
Internet Engineering Task Force (IETF), 591
inter-partition parallelism, 141
inter-process communication (IPC), 405
inter-query parallelism, 141, 144–145
Interval command, 304, 306
INTRA_PARALLEL database manager
  configuration, 142, 144
 intra-partition parallelism, 141, 142, 143, 145, 405–406
INVENTORY table, 181, 182
I/O operation, 373
IPAddress command, 589
IPv4 of Internet Protocol (IP), 591–592
IPv6 of Internet Protocol (IP), 591–592
ISCANMAX, 430
iSeries (AS/400) platforms, 8
item (question) review panel, 31–33
JDBC programming, 9
join, 414–415
  broadcast table, 675–680
collocated table, 661–667
directed inner table, 669–675
directed outer table, 667–668, 673–675
hash, 658–659
merge, 657–658
nested loop, 656, 656–657
partitioned database, strategies, 680–681
partitioned databases and operation of, 660–661
replicated materialized query table (MQT) and, use of, 643–648
  techniques of, 655, 659–660
types of, 653–655
JoinCondition command, 655
journal, 72
K
  Kahn, Robert, 591
KEEPDICTIONARY command, 445, 447
kerberos authentication, 492–493, 495, 496
  Keyword command, 50, 378
  krb_server_encrypt authentication, 493, 495, 499
L
  label-based access control (LBAC), 13, 489–490
  common-level, 548–549, 555–557
  CREATE SECURITY LABEL
    COMPONENT function of, 549–551
    DB2LBACRULES function of, 552–553
    granting exemptions of, 553–554
    privileges, 523, 523–524
    protection and use of, 544–545, 551–552
    revoking exemptions of, 554–555
    row-level, 539, 545–548, 556–557
    securing of data with, 538
    security label component of, 539–541
    security labels and, 542–544
    security policy and determination of, 541–542
  LabelName command, 543, 545
  LAN-based databases, 585
  large object (LOB) data, 83, 244
  LastPartitionNum command, 61–62
  LDAP-based authentication, 497–498
  LDAP entry, 582
  LibraryName command, 116, 593
  Lightweight Directory Access Protocol (LDAP), 490–491
  LIKE DBPARTITIONNUM option, 156, 164
  Linux on IA32, 497
  Linux on x64, 497
  Linux on zSeries, 497
  Linux platform, 8, 11
    Balanced Configuration Unit (BCU) and, 206
    buffer pool, 44, 59
    db2nodes.cfg file and, 148
    prefetching and, 81
    raw device container and, mapping of, 80
    raw devices and, 81
    sqldbdir file and, 46
    user exit program and, 288
  list (sequential) prefetch, 434–435
  LIST APPLICATIONS command, 309, 439, 440, 441
  LIST DATABASE DIRECTORY command, 582–583
  LIST DCS DIRECTORY command, 585
  LIST NODES command, 274
  list prefetching, 307
  LIST TABLESPACES SHOW DETAIL command, 267
  Load (LOAD) authority, 502, 509–510
  load authorities, 509–510
  LOAD command, 181
  LOAD INSERT option, 452
  load library, 301
  load operations, 293, 300–302
  load privilege, 47, 511
  LOAD REPLACE operation, 452
  load utility, 146, 270, 386, 452–453
  LOB columns, 80
  local catalog, 114
  local database directory files (directories), 581, 583
  local table queue (LTQ), 406

Note: Boldface numbers indicate figures; t indicates tables

825
Location command, 251
lock granularity, 419
locking memory, 381
locklist, 381
lock method, 415–416
acquiring of, 417–418
row-level vs. table-level (lock granularity), concurrency and, 418–419
LOCK TABLE SQL statement, 417–418, 419
LogExtentSize command, 287
LogExtentStartPage command, 287
LogFileName command, 287
LogFilePath command, 287
log file size, 290
logfilsiz parameters, 227
logging of transactions, 224–226
archival, 229–230
considerations when, 231
files and, size of, 233–234
infinite, 231–232
mirrored, 232–233
NOT LOGGED INITIALLY and reduction of, 234
raw device and storing of, 235–237
strategies for, 227
truncation of files and, 234–235
user exit program and management of, 284–290
(See also user exit program)
logical agents (LAs), 404–405
logical partitions (LPARs), 159–160
LogicalPort command, 148, 150–151, 155
logindexbuild database, 301–302
log path, 232–233
logprimary database, 227, 236
log retention logging, 229–230
LOGRETRAIN value, 229
logsecond database configuration, 231
Log Sequence Number (LSN), 235
LogsLocation command, 257
log storage device, 290
LOW2KEY, 401
LSN Gap situation, 75
LUW, 357

M
manageability, 81, 82
MANAGED BY AUTOMATIC STORAGE clause, 90
MANAGED BY SYSTEM statement, 89
manual configuration of communication, 578–581
MANUAL value, 384
MapFileName command, 171
materialized query table (MQT), 9, 15, 140, 389
calculations and, avoidance repeat, 639–641
defined, 639
joins and use of replicated, enabling of colocated, 643–648
optimizer to use, decision of, 649–650
REFRESH IMMEDIATE vs. REFRESH DEFERRED, 648–649
resource intensive scans and, avoidance of, 641–643
subdomain and, use of, 651–652
MaxAdviseTime command, 198
MAXCAGENTS configuration, 364
max_coordagents configuration, 404
maxlocks, 381
max_log configuration, 231–232
MAX_QUERYDEGREE database manager configuration, 142
MaxSize command, 52, 88, 97
MDC table. See multidimensional clustering (MDC) tables
memory
cache and, file system, 82
collectors, 383
database shared, 381
IBMDEFAULTBP buffer pool and, 70
input/output (I/O) controller and, 81
insufficient, 71
locking, 381
sort, 381
table space and insufficient, 71
memory tracker utility, 303–305
memory tuner, 382
memory tuning log file, 383
merge join, 415, 655, 657–658, 658, 660
merging table queues, 407
Microsoft Active Directory, 496
Microsoft SQL Server, 113
mirrored logging, 232–233
mirroring, defined, 281
MIRROR option, 294
Modification command, 118
multidimensional clustering (MDC) tables, 139, 182–187
cell in, 188
choosing of design for, 191–193
CUSTOMER slice in, 186
guidelines for design of, 188–191
“natural” uses of, 193–194
partitioned database, 182–194, 196
REGION slice in, 187
simple, 184, 185
YEAR slice in, 187
multiple buffer pools, benefits of, 71–72
multiple question panels, 28
multi-user environments, 386

N
named pipe, 578
NAS disk subsystems, 92
“natural” uses of multidimensional clustering (MDC) tables, 193–194
nested loop join (NLJOIN), 415, 428–429, 655, 656, 656–657, 660
NetBios, 578
NetName command, 148, 151, 155
networking, 623
Network Working Group, 591
NewColumnName command, 654
NEWFILE.TSF file, 97
NEXT VALUE expression, 518
Nickname command, 120
nickname privileges, 119–121, 521–523, 521–523, 522
nnn sequence, 274–275
node, 588 partitioned database
node database directory, 581
node directory files (directories), 584
NodeName command, 588, 589
node-name directory, 41, 57
NodeNumber command, 287
NO FILE SYSTEM CACHING option, 82
non-contiguous pages, 73
nonlogged operations, 298
nonmerging table queues, 407
NONRECOVERABLE option, 301
normalization, 181
NOT LOGGED INITIALLY, 234
NULL password, 491
NumberOfPages command, 51, 61, 66
NumBlockPages command, 62, 66
NumBuffers command, 251, 257
num_iocleaners database configuration, 75, 374–375
num_ioservers database configuration, 111, 373–374
num_log configuration, 231–232
NUMNULLS, 401
num_poolagents configuration, 597
NumSegments command, 50
NumSessions command, 251, 256

O
ObjectName command, 120
object privileges, 512–524
object statistics, 396
RUNSTATS utility and, use of, 396–400
statistical views based on, 400–402
ODBC/CLI programming, 9
ODBC Driver, 113, 114
offline backup, 244
offline reorganization, 297
OLTP database, 72, 380, 406
online vs. offline backup recovery of databases, 242
online reorganization, 297
On-Line Transactional Processing (OLTP), 389
operand node, 694
OperatingSystem command, 287
operating system directories, 79
operator details dialog, 696–697
operator node, 694
operators, common, 694–695
optimized statement area, 424–425
OPTIMIZE FOR clause, 413

Note: Boldface numbers indicate figures; t indicates tables
OPTIMIZE FOR n ROWS clause, 413
optimizer
materialized query table (MQT) and use of, 649–650
queries and, use of, 410–414
(See also queries)
role of, 407–409
techniques of, 409–410
Option command, 116, 118, 120
Oracle, 112, 113, 117, 119, 122
ORGANIZE BY KEY SEQUENCE clause, 174, 175
original statement area, 424
OS/390 certification, 7
OutFile command, 198, 307
OutputFile command, 559
OVERFLOW LOG PATH command, 285
Overhead command, 52
overview area, 422

P
package cache, 381, 409
package context area, 423–424
package parts, 143
package privileges, 519–521, 520
page-based area, 73
page cleaners
buffer pool, 74–75, 374
“dirty” pages and, 74, 75
LSN Gap Situation and, 75
triggering events of, 74–75
use of, 74–76, 635–637
pages
block-based area and storage of, 66
buffer pool and determination of, 59–60, 67
contiguous, 73
determination of, 59–60, 67
“dirty,” 60, 74
(See also “dirty” pages)
prefetching and, improved performance of, 60
roll-forward operation and size of, 70
threshold value and setting of, 76
“victim,” 60, 71, 73, 74
PageSize command, 49–50, 61, 62, 87
pages per write, asynchronous, 638
parallelism
connection (idle agent) pooling and, 403–405
hardware configurations supported by types of, 146–147
input/output, 140–141, 357
inter-partition, 141, 144–145, 144–145
inter-query, 141, 144–145
intra-partition, 141, 142, 143, 145
partitioned database and, 140–147
pipeline, 143
query, 141
table queues and, 406–407
types of, 140, 146, 402–403, 403t
utility, 146
ParallelNum command, 251, 257
Parameter command, 363, 370
ParameterString command, 593
PartGroupName command, 162, 163
PARTGRP_BP buffer pool, 67, 68
partial site failure, 291
PARTITION BY clause, 165, 177
partitioned database, 139, 160–162, 161, 274–276
Balanced Configuration Unit (BCU) of, role of, 201–206
(See also Balanced Configuration Unit (BCU))
catalog, 153
clustering of, combination of, 195–195, 196
coordinator, 153–154
CREATE DATABASE command and
creation of, use of, 55, 147
Create Database Wizard and, 147
CREATE TABLESPACE SQL statement and, 94
creation of, 55–58, 58, 162–163
database managed space (DMS) and, 93
database partitions within, adding of, 154–159
db2nodes.cfg configuration file and defining, 104–105, 147–152
defined, 55
design advisor within, role of, 196–201
design advisor within, role of, 196–201
of expression arguments, recognized forms of, 56
groups of, 160–165
join, strategies, 680–681
keys and maps of, 165–173
(See also partition keys; partition maps)
modification of existing database, 163–165
multidimensional clustering of, 182–194,
184, 185
(See also multidimensional clustering (MDC) tables)
NumberOfPages command and, default size of, 61
operation of join, 660–661
parallelism and, 140–147
(See also parallelism)
port range of, default, 152–153
range clustering of, 173–175
range partitioned tables of, 173, 175–180, 180
rolling-in and rolling-out of, 180–182
single servers and creation of multiple, 159–160
SMP server and use of, large, 160
system catalog table space and, 85
system managed (SMS) table spaces and, 93
table spaces and, 92–93, 93
partitioned database environment (DPF), 563
PartitionGroup command, 61, 66, 87, 171
partition keys, 165
choosing of, 166
collocated tables and, 172–173, 173
indexes and, 169
partition maps
changing of, 166–168
collocated tables and, 172–173
distribution of, 169–172
PartitionName command, 177
PartitionNumber command, 148, 150
PartitionNum command, 61, 66
pass-through mode, 113
pass-through operations, 521
pass-through sessions, 124–125
PASSTHRU privilege, 521
Password command, 118, 197, 246, 251, 256, 296, 344, 533, 537
Path command, 560, 588
pckcachesz configuration, 381
PCTFREE option, 392, 394
Pearson VUE, 20
PercentFree command, 174, 387
performance, 81, 82, 622
performance tuning
basic, 340–342
guidelines for, 341–342
of registry variables (environments), 343–359
(See also registry variables (environments))
PG_123 group, 171–172
PGRP2 buffer pool, 67
pipeline parallelism, 143
PolicyName command, 542, 553, 555
PortName command, 152
PortNumber command, 152, 589
port range, 152–153
PRECOMPILE command, 685
PRECOMPILE command, 420
predicates
access plan with details and, 430
handling of, 681
queries and use of, 411–412
sargable vs. residual, 682
types of, 681
prefetching, 105
block-based area and sequential, 62, 73, 74
buffer pool, 60, 74, 627
DB2_PARALLEL_IO registry and, 140–141
functioning of, 106–109
input/output (I/O) controller and, 60, 106
Linux platform and, 81
list, 107
non-contiguous pages and, 73
numbers and, choosing of, 111
pages and improved performance of, 60
range, 107
size and, choosing of, 109–111
trigger point of, 107
UNIX platform and, 81
utilities and, 373
PrefetchPages command, 88, 96
PrefetchSize command, 51, 88, 96–97
PREPARE statement, 113
PREVIOUS VALUE expression, 518
PriColumnName command, 387
primary log files, 227–228, 228
primary source database, 290, 292–293, 294
Index

Priority command, 251, 397
privileges, 46–47
database, 501, 510–511, 511
index, 517, 517
LBAC, 523, 523
nickname, 521–523, 522
object, 512–524
package, 519–520, 520
purpose of, 510
routine, 518, 518–519
schema, 512–513, 513
sequence, 517–518, 518
server, 520–521, 521
table, 513–515, 514
table space, 512, 512
view, 515–516, 516
XSR, 524, 524
See also authorities
problem determination tool, 303, 305–309
ProcessID command, 306
Professional Certification Program from IBM
certification exams software and, 24
purpose of development of, 1
roles within (See specific exams)
web site for, 18, 19, 20
Protocol command, 346
PRUNE HISTORY command, 271
PUBLIC privilege, 47
pureXML, 442

Q
queries
data retrieving and use of, 410
data type conversions and use of, 414
FETCH FIRST n ROWS clause and use of, 413–414
FOR FETCH ONLY clause and use of, 414
OPTIMIZE FOR n ROWS clause and use of, 413
optimizer and, 410–414
parallelism, 141
predicates and use of, types of, 411–412
processing of, 176
FOR UPDATE clause and use of, 413
query dialog, 692
query statement dialog, 693
QUERY STATUS option, 285
question (item) review panel, 31–33
question panels
exhibit, 29
IBM Certification Exam testing software
typical, 25
multiple question, 28
typical, 25
quiesce_connect privilege, 510

R
RAID device, 140
RAID-protected disks, 245
range-clustered table (RCT), 173–175
range clustering, 173–175
range delimiting predicates, 411
range partitioned tables, 173, 175–180, 180
range prefetching, 107
raw devices, 80–82, 235–237
raw logical volume, 80, 82
read-only lookup table, 419
read rate, physical, 633–634
read ratio, asynchronous, 631–634
read requests, asynchronous, 627
read time, 626, 634–635
read time of buffer pool, 626, 634–635
record identifiers (RID), 83, 108
RECOVER DATABASE command, 272–273
RECOVER DROPPED TABLE option, 89
Recover utility, 249
recovery concepts, 237–234
See also recovery of databases
recovery history file, 269–271
recovery of databases, 237
backup and, 249–284
(See also backup and recovery of databases)
crash, 238–240, 239, 245–249, 248
incremental and delta backup and, 242–243
online vs. offline backup and, 242
plan for backup and, 244–245
roll-forward, 238, 241, 241, 241, 294
soft checkpoints and, 248–249
storage space and, required, 245
version, 240, 240
Index

Recovery utility, 271, 273–274
RedBooks manuals, 19
RedBook Web site, 19
redirected restore, 259–263
REDIRECT GENERATE SCRIPT option, 263
REDIRECT option, 262
references privilege, 515, 523
REFRESH DEFERRED clause, 640, 641–642, 650
REFRESH IMMEDIATE clause, 650
REFRESH IMMEDIATE vs. REFRESH DEFERRED command, 648–649
REFRESH TABLE statement, 640
Registry management tool, 347–348, 347–348
registry variables (environments), 349–357
DB2_PARALLEL_IO, 357–359
performance of, 348–357
types of, 343–348
“regular” table queues, 407
relation scan, 426
Release command, 118
RELOCATE USING option, 294
RemoteAuthID command, 118
remote catalog, 114
remote database server, 604–605
remote entry, 582
remote servers (nodes), 588–591
reorganization, table, 101, 101–103, 103
REORGCHK utility, 400
REORG command, 271, 445–446, 446, 447
REPLACE HISTORY FILE command, 294
REPLACE KEEPDICITIONARY option, 452
REPLACE option, 301
REPLACE RESTDICTIOANRY option, 452
replicated materialized query table (MQT), 454–458, 644
Request command, 287
RESET DATABASE CONFIGURATION command, 371
RESET DATABASE MANAGER
   CONFIGURATION command, 364–365
   RESTDICTIOANRY option, 445, 447
residual predicates (RES), 411, 681
resource intensive scans, 641–643
ResourceSetName command, 149
RESTART command, 246–247
RESTART DATABASE command, 246, 247
Restore Data Wizard, 259–261, 260, 261
263–264, 269–270
restore utility, 249, 253–259, 271–274
restraint data, 83
RESTRICT_ACCESS database configuration, 52
RESTRICTIVE clause, 52
Re-Total Cost, 429
RETRIEVE request, 285
retry logic, 291
return code values, 288, 290
RETURNS option, 123
“Review Incomplete” push button, 33
“Review Item” push button, 32–33
“Review Marked” push button, 32–33
revoked exemptions, 554–555
REVOKE EXEMPTION ON RULE SQL statement, 554–555
rewrite facility, 408
REXX user exit program, 288
RID Scan (RIDS) operation, 435, 436, 438
roles, 524–526
rollback operation, 290
ROLLBACK SQL statement, 224, 226
ROLLBACK TO SAVEPOINT option, 234
ROLLFORWARD DATABASE command, 89, 241, 265–267, 271, 284–285, 294
roll-forward operation, 70
“roll-forward pending” state, 264
roll-forward recovery, 238, 241, 241, 294
roll-forward utility, 249, 263–269
Roll-forward Wizard, 267–269, 268–270
rolling-in and rolling-out, 180–182
rolling upgrades, 292
roll-in of data, 176
roll-out of data, 176
round-robin manner, 76, 77, 84
routine privileges, 518, 518–519, 518–519
ROWCOMPESTIMATE command, 447
row identifiers (RIDs), 100, 435, 436, 437, 438
row-level label-based access control (LBAC), 539, 545–548, 556–557

Note: Boldface numbers indicate figures; t indicates tables
row-level vs. table-level (lock granularity) lock method, 418–419
Rule command, 553, 555
Run Statistics dialog, 398, 399
RUNSTATS command, 271, 396–399, 396–401, 399
RUNTIME DEGREE database manager configuration, 142–143

S
sample questions/exams, 20
SAN disk subsystems, 92
sargable predicate (SARG), 681
sargable vs. residual predicates, 682
scalability, 622
SchemaName command, 120
schema privileges, 512–513, 513
schemas, 46
ScriptFile command, 257
search discovery, 598
SecColumnName command, 387
section scores panel, 36, 36–37
security, 622–623
Security Administrator (SECADM) authority, 502, 508–509
security labels, 539–541, 542–544
security plug-ins, 495–497
security policy, 541–542
SECURITY POLICY clause, 544, 550, 556
select privilege, 47, 514, 515, 516, 522
SELECT statement, 407, 413
self-study books, 19
self-tuning, 61, 66
self_tuning_mem database configuration, 384
Self-Tuning Memory Manager (STMM), 47, 293, 381–384
seqdetect database, 106
SEQNO, 401
sequence privilege, 517–518, 517–518, 518
sequential scan, 409
server authentication, 492
server definitions, 117–119
SERVER_ENCRYPT authentication, 492, 494, 495, 499, 499–500
ServerName command, 118, 595
server privileges, 520–521, 520–521, 521
ServerType command, 118
ServiceName command, 589
set, defined, 539
SET ENCRYPTION PASSWORD function, 537–538
SET ENCRYPTION PASSWORD SQL statement, 537–538
SET EVENT MONITOR SQL statement, 303
SET INTEGRITY SQL statement, 181, 182
SET TABLESPACE CONTAINERS command, 260, 262
Setup communication dialog, 578–581
SET WRITE command, 282–283
SET WRITE SUSPEND FOR DATABASE command, 282
Share (s) lock, 418
shared file system, 57
SHEAPTHRES configuration, 381
sheapthes_shr configuration, 381
SHOW DETAIL option, 383
signal handler, 305
single buffer pool, benefits of, 70–71, 72–73
single servers, 159–160
SMALL_DPG group, 164
SMP server, 160
snapshot monitor, 302–303
SNAPSHOT option, 294
snapshot output, 665, 670, 672, 679
soft checkpoints, 248–249
softmax configuration, 75, 637
Solaris, 497
sortheap configuration, 381
sort memory, 381
sort memory heap database configuration parameter (SORTHEAP), 381
sort operation, 433
SourceLocation command, 256
space occupied per cell (SPC), 190–191
split mirroring, 281–284, 294
SQLBP.1 file, 43
SQLBP.2 file, 43
SQL Compiler, 115
SQLDBCONF file, 43
SQLDBCON file, 43
| SQLdbdir file, 46 | Sun Solaris platform, 8, 11 |
| sqldbins file, 57 | SVCENAME configuration, 364 |
| SQLINSLK file, 43 | Sybase Open Client, 113, 122 |
| SQLJ programming, 9 | symmetric multi-processor (SMP) server, 141, 144 |
| sqllib directory, 46 | synchronization modes, 291 |
| SQL-name directory, 42 | synchronous table queues, 407 |
| SQL[ObjectID].BKM file, 80 | SYSCAT schema, 46 |
| SQL[ObjectID].DAT file, 79, 80 | SYSCATSSPACE.DAT, 52 |
| SQL[ObjectID].INX file, 79, 80 | SYSCATSSPACE table space, 44, 45, 50, 85 |
| SQL[ObjectID].LBA file, 80 | SYSFUN schema, 46, 47 |
| SQL[ObjectID].LB file, 80 | SYSIBM schema, 46 |
| SQL[ObjectID].LF file, 79, 80 | Sysplex, 596–597 |
| SQL[ObjectID].TDA file, 80 | SYSSTAT schema, 46 |
| SQLLOGCTL.LFH file, 43 | System Administrator (SYSDM) authority, 254, 261, 270, 498, 500, 502–503 |
| SQLLOGDIR subdirectory, 44 | System Administrator (SYSDM), 439, 498 |
| SQLLOGMIR.LFH file, 43 | system catalog table space, 85 |
| SQLStatement command, 197, 686 | System Control (SYSCTR) authority, 254, 261, 270, 439, 498, 500, 503–505 |
| SQLTAG.NAM file, 79 | system database directory files (directories), 581, 582–583 |
| SQLTMPLK file, 43 | System Maintenance (SYSCMAINT) authority, 254, 261, 270, 498, 502, 505–506 |
| SQLSF.G.1 file, 43 | system managed (SMS) table space, 45, 50, 51, 78–79, 79t, 81t |
| SQLSF.G.2 file, 43 | automatic storage table space and, 84 |
| SQLSPCS.1 file, 43 | CREATE TABLESPACE SQL statement and, 89–90 |
| SQLSPCS.2 file, 43 | modification of, 94 |
| SQLStatement command, 197, 686 | partitioned databases and, 93 |
| SYSCAT space, 44, 45, 50, 85 | system catalog table space, 85 |
| SYSCATSPACE.DAT, 52 | types of, 82 |
| SYSCATSPACE table space, 44, 45, 50, 85 | USERSPACE1 table space and, 83 |
| SYSCAT schema, 46 | System Monitor (SYSCMN) authority, 502, 506–507 |
| SYSCFUN schema, 46, 47 | SystemName command, 590 |
| SYSPMTL schema, 46 | system temporary table, 84 |
| System Administrator (SYSADM) authority, 254, 261, 270, 498, 500, 502–503 | SystemType command, 590 |
| System Administrator (SYSDM), 439, 498 | system z and system i database servers |
| system catalog table space, 85 | binding process and, utilities and application, 594–596 |
| System Control (SYSCTR) authority, 254, 261, 270, 439, 498, 500, 503–505 | communication of, steps to determination of, 594 |
| system database directory files (directories), 581, 582–583 | db2schema.bnd bind file and, use of, 596 |
| System Maintenance (SYSCMAINT) authority, 254, 261, 270, 498, 502, 505–506 | Sysplex of, 596–597 |
| System Monitor (SYSCMN) authority, 502, 506–507 | SystemName command, 590 |
| SystemName command, 590 | system temporary table, 84 |
| SystemType command, 590 | System z and system i database servers |
| System z and system i database servers | binding process and, utilities and application, 594–596 |
| SUB_COUNT, 401 | communication of, steps to determination of, 594 |
| SUB_DELIM_LENGTH, 401 | db2schema.bnd bind file and, use of, 596 |
| subdomains and materialized query table (MQT), 651–652 | Sysplex of, 596–597 |
Index

T

table function, 453–455
Table/Index Statistics dialog, 697, 698
TableName command, 167, 168, 171, 387, 395, 397, 417, 454, 654
table partitioning. See range partitioned tables
table privileges, 513–514, 513–515, 514
TableSpaceName command, 87, 96, 178
table scan, 409, 410, 426, 433–434
TableSchema command, 454
tables, Explain, 683–685
table space, 76–79
automatic storage, 84, 99
block-based buffer pools and assigned, 64
containers, 50, 76–78
Create Database Wizard and, creation of, 90, 91
creation of new, 85–90, 91
database managed space (DMS), 78–79, 79t
definition, 44
hidden buffer pools and use of, 69
high-water mark and, representation of, 100–105
IBMDEFAULTBP buffer pool and creation of new, 85
input/output (I/O) controller, 72
memory and, insufficient, 71
modification of existing, 94–97, 98
multiple buffer pools and use of, 71–72
multiple database partitions and creation, 92–94
partitioned databases and, 92–93, 93
partition groups and, 161
prefetching and, function of, 105–111
(See also prefetching)
privileges, 512, 512
properties of, 293
purpose of, 76
raw devices vs. files and, use of, 81–82
reorganization/compression operation and,
101, 101–103, 103
round-robin manner and, data written in, 76, 77, 84
scan, 410
storage containers and, use of, 79–81
automatic storage and creation of new, 99

SYSCATSPACE and, use of, 85
system catalog, 85
system managed space (SMS), 78–79, 79t
temporary, 72, 84, 101, 101–102, 102
types of, 78, 82, 82–84
user-defined buffer pools and use of, 70
TableSpaceName command, 87, 96, 178
table statistics, 401
tagged file, 114
TargetAlias command, 257
TargetLocation command, 256
TargetName command, 593
TargetPath command, 256
TBSPI table space, 93, 179, 180
TEMPSPACE1 table space, 45, 50, 83
Territory command, 49
Thompson Prometric, 20, 22
threshold value, 76
“Time Remaining” information, 26
Timestamp command, 256
time stamps, 383
Tivoli Storage Manager (TSM), 205, 286
total physical read time of buffer pool, 626
transaction log files, 290, 292
transaction/resource locking, 416, 416
transactions, 224–237
See also logging of transactions
TransferRate command, 52
Transmission Control Protocol/Internet Protocol (TCP/IP), 578–580, 591
dialog setup, 579
port, 364
protocol, 299
tree, defined, 539
truncation of files, 234–235
trust_allcints parameter, 498–499
trusted contexts, 526–527
TS_Definition command, 50
TS_ID command, 260
TSMOptions command, 251, 256
TSMPassword command, 287
TSM value, 285
TS_Name command, 246, 251, 256
tuning, 342, 628–629
tuning log file, memory, 383

tuning partition, 383–384

TYPE Q, 401

U

Uncommitted Read (UR) isolation level, 418

UNIQUE clause, 390

unique indexes, 390–391

United States/Canada code set, 52

unit of work. See transactions

UNIX platform

buffer pool, 44, 59

db2nodes.cfg file and, 148, 150

mirrored logging and, 232

prefetching and, 81

raw device container and, mapping of, 80

raw devices and, 81

sqlbdir file and, 46

system database directory and, 57

user exit program and, 289

unused agents, 403–404

UPDATE ALTERNATE SERVER FOR DATABASE command, 299

UPDATE DATABASE CONFIGURATION command, 370, 371

UPDATE DATABASE MANAGER CONFIGURATION command, 363, 364, 580–581

UPDATE DATABASE MANAGER CONFIGURATION USING SHEAPTHRES command, 381

update privilege, 515, 516, 522

UPDATE SQL statement, 516

usage privilege, 47, 512, 518

user-defined buffer pool, 70

user-defined functions (UDFs), 10, 238, 249, 297–298

unfenced, 511

user-defined objects, 161

user exit program

configuration of databases and use of, 289

considerations of, 289–290

construction of, 285–289

logging of transactions and, 284–290

USEREXIT value, 289

UserID command, 197, 344

user ID/password authentication, 496, 497

user indexes, 71, 72

user mappings, 124

UserName command, 246, 250, 256, 296, 545, 553, 555

USERSPACE1 table space, 44, 45, 47, 50, 83

user tables, 71, 84

utilities

backup and recovery of database, 250–253

parallelism, 146

prefetchers and, 373

programs, 46

throttling, 47

V

VALCOUNT, 402

Value command, 50, 116, 118, 120, 344, 363, 370, 378, 533

VARCHAR FOR BIT DATA, 533

Variable command, 344

vendor-supplied interface, 288

Version command, 118

version recovery, 238, 240, 245, 250

“victim” pages, 60, 71, 73, 74

“View Exhibit” message, 29

view privileges, 515–516, 516

VIPA address, 590

Visual Explain

operator details, 696–697

output, 693–698

table/index statistics from, 697, 698

tables, 421

tool, 687, 691–698

VSAM DEFINE tool, 6

VSAM DELETE tool, 6

W

WebSphere Classic Federation server, 114

WHERE clause, 409, 435

Windows platform, 8, 11

db2nodes.cfg file and, 150–151

raw device container and, mapping of, 80

Note: Boldface numbers indicate figures; t indicates tables
Windows platform, continued
sqlbdir file and, 46
user exit programs and, 289
WITHOUT TABLESPACE statement, 156, 164
workload, 375, 389–390
Workload Manager (WLM), 597
WorkloadName command, 197
workstations, 40
WrapperName command, 116, 118
wrappers, 115–117
defined, 115
federated systems and, 115–117
names, predefined, 116

types of, 122
“write-ahead logging,” 225–226
WRITE RESUME option, 246
write time, 626, 627

X
XBSA Draft 0.8, 286
XML data, 444
XML schema repository (XSR) privileges, 524
X/Open group, 286
XSR privileges, 524, 524

Z
zSeries (z/OS, OS/390) platforms, 8