

# Index

## • Symbols •

- \* (asterisk), 72
- = (equals sign), 73
- >= (greater than or equal to operator), 73
- <= (less than or equal to operator), 73
- != (not equal operator), 73
- <>= (not equal operator), 73
- % (percent sign), 147
- ' (single quote), 73

## • A •

- access, concurrent, 30
- account login
  - Module Execution Context, 170
  - new, adding, 41, 224
  - password policy enforcement, turning on or off, 22
  - principals security hierarchy, 159
  - Principle of Least Privileges, 158
  - security, 160, 166
  - as specified user, 226–227
  - SQL password policy, enforcing, 170–172
  - Windows Integrated Security
    - authentication mechanism, 170
- ACID (atomicity, consistency, isolation, and durability), 186
- actions, grouping or paired. *See* transactions
- activation process, Service Broker, 304
- Active Directory stored procedures, 134
- administrator
  - connection, dedicated, 28
  - replication roles, 286
  - server, assuming control, 15–16
  - SQL Server Agent jobs, 238–240
- ADO (ActiveX Data Object) connection manager, 311
- agent. *See* SQL Server Agent
- agent security, 286
- aggregate transform, 312
- alert, 249. *See also* message, error
- ALTER ANY X permission, 162
- ALTER permission, 162, 163
- Analysis Services
  - cube, creating from data source view, 350–355
  - data mining, 358
  - data source, defining, 344–346
  - data source view, creating, 346–350
  - deploying project, 356–357
  - described, 33, 337–338
  - event provider, 256–257
  - KPI, 339–340
  - managing, 340–341
  - new features, 338–339
  - new project, starting, 342–343
  - sales by year by territory, simple display, 357–358
- Analysis Services Scripting Language (ASSL), 338
- application
  - asynchronous message-based, creating, 28, 283
  - availability problems, 174
  - data connection, building, 92–96
  - debugging, 98
  - definitions, 257–259
  - design, 88–90
  - new project, building, 90–92
  - Notification Services, creating, 255–256
  - user interface, 96–97
  - Windows Forms, creating, 90–92
- Application Definition file, 257–259
- assembly, loading, 123
- ASSL (Analysis Services Scripting Language), 338
- asterisk (\*), 72
- asynchronous messaging, 28, 283

atomicity, 185, 186  
 atomicity, consistency, isolation, and durability (ACID), 186  
 attributes, XML  
   adding, 102  
   order, 103  
 audit transform, 312  
 auditing  
   DDL changes, 203–205  
   DML triggers, 190, 201–208  
   importance, 196  
 authentication, 170, 285–286  
 authorization, 285–286  
 availability. *See also* backups; database mirroring; database snapshots  
   checkpointing, 178–179  
   described, 173–174  
   failover clustering, 179–180  
   features listed edition, 15  
   SQL Server enhancements, 29–31

## • B •

backups  
   checking, 184  
   list of databases, 16–17  
   Management Studio, 49, 262–270  
   responsibility, 174  
   restoring, 184  
   risks, assessing, 183  
   scripts and statements, 28, 183–184  
   verifying, 31  
 Base Class Library, 126  
 BETWEEN operator, 73  
 BIDS (Business Intelligence Development Studio)  
   Data Flow task, reviewing, 319  
   events, functions responding to (Event Handlers tab), 315, 319–320  
   Package Explorer tab, 320  
   program logic, designing (Control Flow tab), 317–319  
   projects supported by, 316–317  
   report model, creating, 373–375  
   scalability, 14  
   Solution Explorer, 321  
   Toolbox, 321

binary data, 25. *See also* XML  
 blocking. *See also* constraints  
   reading unwritten memory, 127  
   undesired changes, 201–203  
 Books Online, 379–380  
 buffer, cache (checkpointing)  
   automatic, 178–179  
   creating, 178  
   recovery interval, setting, 179  
 bulk-logged recovery model, 177  
 Business Intelligence  
   data warehouses, 11, 308–309  
   SQL Server Agent, 237  
   tools, 308  
   upgrades over 2004, 32–33  
   workflow, 308  
 Business Intelligence Analysis Services  
   cube, creating from data source view, 350–355  
   data mining, 358  
   data source, defining, 341, 344–346  
   data source view, creating, 346–350  
   deploying project, 356–357  
   described, 33, 337–338  
   event provider, 256–257  
   KPI, 339–340  
   managing, 340–341  
   new features, 338–339  
   new project, starting, 342–343  
   sales by year by territory, simple display, 357–358  
 Business Intelligence Development Studio (BIDS)  
   Data Flow task, reviewing, 319  
   events, functions responding to (Event Handlers tab), 315, 319–320  
   Package Explorer tab, 320  
   program logic, designing (Control Flow tab), 317–319  
   projects supported by, 316–317  
   report model, creating, 373–375  
   scalability, 14  
   Solution Explorer, 321  
   Toolbox, 321  
 Business Intelligence Integration Services.  
   *See also* Import/Export Wizard  
   creating package, 310  
   creating project, 329–336

- deploying project, 336
- described, 33
- designing, 317
- destinations, 314
- Developer Center Web site, 381
- digital signing, 316
- error flows, 315
- ETL approach, 309
- Event Handlers, 315, 319–320
- Import/Export Wizard, 322–329
- logging options, 315–316
- package components, viewing, 321
- restarting package, 316
- sources, supported, 311–312
- task flows, 315
- Toolbox, 321
- transformations, 312–314
- Business Intelligence Reporting Services
  - creating report with Report Wizard, 362–370
  - database mirroring and database views, 176, 361
  - described, 33, 359–361
  - distributing reports, 372
  - Management Studio, 372
  - RDL, 372–373
  - replicating to server, 361
  - Report Builder, 373–375
  - Report Manager, 371
  - ReportViewer controls, 375
  - tool to create reports, 361–362
  - viewing reports in Report Manager, 370–371
  - Web site, 381
- Business Intelligence Web site, 381
- C •
- cache buffer (checkpointing)
  - automatic, 178–179
  - creating, 178
  - recovery interval, setting, 179
- caller, executing as, 170
- calling stored procedures, 141
- catalog
  - full-text search, 28
  - security, 22, 160, 170
  - stored procedures, 134
- changes
  - auditing DDL, 203–205
  - blocking undesired, 201–203
  - confirming, 190
  - database mirroring, 175
  - high level of, 10–11
  - transactions log, 11, 186, 270
- Channel 9 Web site, 382
- character map transform, 312
- characters, sequences of, 25
- check constraints
  - adding, 64
  - described, 63, 192, 196–197
  - dropping, 200
  - T-SQL, creating with, 200–201
  - visual tools, creating with, 197–200
- checking data after backing up and restoring, 184
- checkpointing
  - automatic, 178–179
  - creating, 178
  - recovery interval, setting, 179
- checksums, 31
- client computer
  - SQL Server Configuration Manager, configuring, 223
  - transparent redirect, database mirroring, 30, 176
- CLR (Common Language Runtime)
  - benefits, 125–127
  - Code Access Security, 129
  - described, 121–122
  - development, 123
  - extended stored procedures, 128
  - manual coding and development, 123–125
  - middle tier comparison, 128–129
  - .NET language integration, 121, 122
  - security, 172
  - SQL Server 2005 support, 24
  - stored procedures, 132, 141
  - T-SQL versus, 127–128
- clustering
  - database mirroring versus failover, 176–177
  - failover, 179–180
  - installation, 31
  - need for, 15
  - table, 60
  - tree, displaying in Object Explorer, 38, 57

- Code Access Security, 129
- code reuse. *See also* triggers
  - calling, 141
  - CLR, 141
  - creating with parameters, 139–140
  - creating without parameters, 138–139
  - described, 131–132
  - extended, 121, 128
  - naming, 140
  - .NET class, 123
  - permissions, 138
  - reasons to use, 133–134
  - system, categories of, 134–137
  - types, 132
  - unavailable statements, 137
  - uses, 132–133
  - xml datatype, creating, 104
  - XML document, parsing, 120
- codes, error functions, 147–148
- coding, CLR
  - benefits, 125–127
  - Code Access Security, 129
  - described, 121–122
  - development, 123
  - extended stored procedures, 128
  - manual coding and development, 123–125
  - middle tier comparison, 128–129
  - .NET language integration, 122
  - security, 172
  - SQL Server 2005 support, 24
  - stored procedures, 132, 141
  - T-SQL versus, 127–128
- column
  - default database object, binding to, 192–194
  - described, 58
  - exploring all, 72
  - foreign key, 61
  - naming rules, 60–61
  - rule, binding, 194
  - transforms, 312–313
  - xml datatype, creating, 104
- command-line tool, SQLCMD
  - connecting, 223–225
  - described, 28
  - remote instance, connecting, 227–228
  - T-SQL script, executing, 226
  - user, logging in as specified, 226–227
- Common Language Runtime (CLR)
  - benefits, 125–127
  - Code Access Security, 129
  - described, 121–122
  - development, 123
  - extended stored procedures, 128
  - manual coding and development, 123–125
  - middle tier comparison, 128–129
  - .NET language integration, 121, 122
  - security, 172
  - SQL Server 2005 support, 24
  - stored procedures, 132, 141
  - T-SQL versus, 127–128
- computer. *See also* server
  - client, 30, 176, 223
  - publisher and distributor, setting up, 286–293
  - publisher, setting up, 286–293
  - remote, connecting, 219–221, 227–228
- concurrent data access, 30
- conditional actions, 255
- conditional split transform, 312
- configuration, 27. *See also* Configuration Manager; Management Studio; SQLCMD command-line utility
- Configuration Manager
  - adding to MMC console, 213–215
  - client computers, configuring, 223
  - described, 26, 211–212
  - network protocols, configuring, 221–222
  - remote computer, connecting, 219–221
  - services, managing, 216–219
- connecting
  - Analysis Services, 344–345
  - data source, 92–96, 311–312, 332
  - instance and displaying node tree, 38
  - Management Studio, 36
  - remote computer, 219–221, 227–228
  - SQLCMD, 223–225
- connection manager, 311–312, 331
- consistency, transactional, 186
- constraints. *See also* DDL triggers; DML triggers
  - adding, 63–64
  - described, 191, 192
  - precedence, task flows, 315
  - XSD schema, 108

- constraints, check
    - adding, 64
    - described, 63, 192, 196–197
    - dropping, 200
    - T-SQL, creating with, 200–201
    - visual tools, creating with, 197–200
  - CONTROL permission, 162, 163
  - conversation group, 302
  - converting data to and from XML, 118–120
  - copy column transform, 312
  - CPU, dynamic configuration, 27
  - CREATE permissions, 162
  - cube
    - creating from data source view, 350–355
    - described, 11, 342
  - cursor stored procedures, 134
  - customizing Management Studio environment, 46–49
- D •
- DAC (Dedicated Administrator Connection), 15–16
  - data
    - adding to database, 65
    - concurrent access, 30
    - connection, 92–96
    - consistent state, OLTP, 10
    - converting to and from XML, 118–120
    - OLAP database, 11
    - partitioning, 31–32
    - pipeline, Integration Services, 310
    - Windows Performance Manager, importing and displaying, 27
  - data conversion transform, 313
  - Data Definition Language (DDL) triggers
    - auditing changes, 203–205
    - inability to combine in transactions, 190
    - preventing undesired changes, 201–203
    - statements, 201
  - data entry constraints. *See also* check constraints; DDL triggers; DML triggers
    - adding, 63–64
    - described, 191, 192
    - precedence, task flows, 315
    - XSD schema, 108
  - Data Flow task, reviewing, 319
  - data mining
    - Analysis Services, 342, 358
    - query, creating, 313, 314
  - Data Mining Extensions (DMX) query, creating, 313
  - Data Mining Model Training, 314
  - Data Modification Language (DML) triggers
    - auditing, 206–208
    - inserted and deleted tables, 206
    - statements, 205
  - data modification language, XML, 116–117
  - data source
    - Analysis Services, defining, 341, 344–346
    - Analysis Services view, creating, 342, 346–350
    - Import/Export Wizard, 321
    - Integration Services, supported, 311–312
    - view, creating cube from, 350–355
  - Data Source Configuration Wizard, 92–96
  - data viewers, 315
  - data warehouse, 11, 308–309
  - database
    - adding data, 65
    - availability during maintenance, 30–31
    - creating, 57–58
    - destinations, 314
    - granular permissions control, 161
    - partitioning, 31
    - principals security hierarchy, 159
    - securables hierarchy, 160
    - snapshots, 30
    - specifying (USE statement), 70
    - system, 58
    - views, Reporting Services, 361
  - database administrator
    - connection, dedicated, 28
    - replication roles, 286
    - server, assuming control, 15–16
    - SQL Server Agent jobs, 238–240
  - database engine stored procedures, 134
  - Database Engine Tuning Advisor (DTA), 32, 280–281
  - database level configuration, 229–230
  - Database Mail, 29, 134
  - Database Maintenance Plan stored procedure, 134

- database mirroring
  - availability, 30
  - database views, 176
  - described, 174–176
  - failover clustering versus, 176–177
  - recovery models, 177–178
  - Reporting Services, 361
  - transparent client redirect, 30, 176
- database objects
  - described, 38–39
  - Replication node, 42–43
  - Security nodes, 41–42
  - viewing and modifying database properties, 39–41
- database snapshots
  - creating, 181
  - deleting unwanted, 182
  - described, 30, 180
  - naming, 181
  - replication, 284, 294–296
  - reverting to, 182–183
- DataReader
  - data destination, 314
  - data source, 311
- datatypes
  - new in SQL Server 2005, 25
  - table columns, specified, 58
- date
  - current, retrieving, 226
  - inserting to table, 243–244
  - retrieving, 115
- DDL (Data Definition Language) triggers
  - auditing changes, 203–205
  - inability to combine in transactions, 190
  - preventing undesired changes, 201–203
  - statements, 201
- debugging
  - application, 98
  - Visual Studio features, 123
- declaration, XML, 103
- Dedicated Administrator Connection (DAC), 15–16
- default
  - described, 192–194
  - Management Studio configuration, restoring, 49
- deleted tables, DML triggers, 206
- deleting
  - check constraints, 200
  - unwanted database snapshots, 182
- DENY permission, 161–162
- deploying Integration Services project, 336
- Derived Column transform, 313
- destinations, Integration Services, 310, 314, 333–334
- Developer Edition, SQL Server, 1
- development, manual CLR, 123–125
- dialog group, 302
- dialogs, Service Broker, 303–304
- differential backup, 270
- digital signing, Integration Services, 316
- Dimension Processing, 314
- dimensions, cube, 11, 342
- display, Query Results, 47–48
- Distributed Management Objects (DMO), 25
  - distributed queries stored procedure, 135
  - distributing reports, 372
- distributor computer, setting up, 286–293
- DML (Data Modification Language) triggers
  - auditing, 206–208
  - inserted and deleted tables, 206
  - statements, 205
- DMO (Distributed Management Objects), 25
- DMX (Data Mining Extensions) query, creating, 313
- document element, 103
- Document Type Definition (DTD), 102
- document, XML
  - editors' view of, 105
  - rules, 102
  - shredding into rowsets (OPENXML keyword), 120
- downtime, reducing, 15
- DTA (Database Engine Tuning Advisor) scalability, 32, 280–281
- DTD (Document Type Definition), 102
- durability, transactional, 186

## • E •

- editor, query
  - basic queries, 68
  - JOIN syntax, 81–83
  - multiple tables, retrieving data from, 77–81
  - opening, 67–68
  - ORDER BY clause, sorting with, 75–76
  - SELECT statement, 69–72
  - WHERE clause, filtering with, 72–75
- editor, XML, 104–105
- e-mail
  - addresses, retrieving, 138–141
  - reports, 372
- empty elements, XML, 103
- encryption
  - described, 286
  - turning off, 304
- end tag, XML, 102–103
- Enterprise Edition, SQL Server
  - availability, 15
  - business intelligence functions, 19
  - database snapshots, 180–183
  - described, 1
  - manageability, 17
  - scalability, 14
- equals sign (=), 73
- @Error function
  - described, 143, 151–153
  - transaction, checking, 189–190
- error functions
  - available listed, 145
  - codes, 147–148
  - @Error function, 143, 151–153, 189–190
  - nested TRY . . . CATCH constructs, 150–151
  - numbers and messages, 146
  - severity, 146–147
  - user-defined message (RAISERROR), 148–149
- error handling, T-SQL
  - described, 23, 143
  - TRY . . . CATCH construct, 144–145
- error log files
  - Management Studio, 270–273
  - SQL Agent, checking with Log File Viewer, 248
- error message
  - numbers, listed by, 145, 146
  - severity levels, 144–145
  - user-defined (RAISERROR), 148–149
- errors
  - flows, Integration Services, 315
  - operator, 174
- ETL (Extract, Transform, and Load) tool, Integration Services as, 309
- events
  - handling, Integration Services, 315, 319–320
  - notification services, 254
  - providers, Notification Services, 256–257
- Excel (Microsoft)
  - data destination, 314
  - data source and connection manager, 311
- EXECUTE permission, 163
- expiration, password, 171
- Export Column transform, 313
- Export Wizard. *See* Import/Export Wizard
- Express Edition, SQL Server
  - availability, 15
  - business intelligence functions, 19
  - described, 1
  - manageability, 17
  - scalability, 14
- extended stored procedures
  - CLR comparison, 128
  - described, 121, 132
  - General, 135
  - SQL Server Agent, enabling, 242–243
- eXtensible Markup Language (XML)
  - converting data to and from, 118–120
  - data modification language, 116–117
  - data source, 311
  - declaration, 103
  - described, 101–102
  - document rules, 102
  - document, shredding into rowsets (OPENXML keyword), 120

eXtensible Markup Language (XML)

(continued)

- editor, benefits of using, 104–105
  - Notification Services, 255–256, 258–259
  - querying, 113–116
  - Schema Definition Language, 108–110
  - SQL Server 2000, 103
  - SQL Server 2005, 103–104
  - stored procedures, 135, 136
  - Transact-2005 support, 23
  - typed, 105
  - typed, associating schema with, 110–113
  - untyped, 105–107
  - xml datatype, 104
- External Access setting, CLR, 172
- Extract, Transform, and Load (ETL) tool, Integration Services as, 309

## ● F ●

- failover clustering
  - availability, 179–180
  - database mirroring versus, 176–177
- File System Watcher event provider, 256
- File Transfer Protocol (FTP) connection manager, 311
- filtering
  - data for security reasons, 286
  - name and e-mail addresses, retrieving with stored procedure, 139–140
  - Query Editor, 72–75
  - simple transaction update, 187
  - SQL Server log file, 271–273
  - XPath expressions combined with, 115, 116
- Flat File
  - data destination, 314
  - data source and connection manager, 311, 332–333
- FLWOR expression (XQuery syntax), 114
- folder, 57
- FOR XML clause of SELECT statement, 119–120
- foreign key
  - column, 61
  - constraint, 63
  - deleting before primary key, 64
  - described, 61
- forums, Microsoft, 380
- fragment, XML, 102

FTP (File Transfer Protocol) connection manager, 311

- full backup, 270
- full differential backup, 270
- full recovery model, 177
- full-text search stored procedure, 135
- functions. *See also* error functions
  - business intelligence, 19
  - events, responding to (Event Handlers tab), 315, 319–320
  - .NET class, 123
  - stored procedure versus, 131
  - visual designer, 261–262
- Fuzzy Grouping transform, 313
- Fuzzy Lookup transform, 313

## ● G ●

- General Extended stored procedures, 135
- GRANT permission, 161–162
- grantee, permission, 162
- granular permission control, 161
- greater than or equal to operator (>=), 73

## ● H ●

- hardware
  - availability problems, 174
  - database mirroring and failover clustering, 176
- Harinath, Sivakumar (*Professional SQL Server Analysis Services 2005 with MDX*), 337
- hierarchical data, representing. *See* XML
- hot-add memory support, 32
- HTTP (HyperText Transfer Protocol) connection manager, 311
- endpoints, 26

## ● I ●

- IIS (Internet Information Services), 361
- IMPERSONATE permission, 162
- implicit transactions, 190
- Import Column transform, 313
- Import/Export Wizard
  - creating project, 322–327
  - data sources, 321

- running project, 327–328
  - viewing data, 328–329
  - IN operator, 74
  - indexes
    - Management Studio, 274–276
    - online, 15, 16, 30
    - partitioning, 32
    - querying XML, 116
    - table, clustered and nonclustered, 60
  - InfoPath 2003 (Microsoft), 384
  - information, sending (Notification Services)
    - application, creating, 255–256
    - Application Definition file, 257–259
    - described, 253–254
    - event providers, 256–257
    - Instance Configuration file, 259–260
    - new features in SQL Server 2005, 255
    - stored procedure, 135
  - injection attack, protecting against, 133–134
  - inner joins, 81–83
  - INSERT permission, 163
  - inserted tables, DML triggers, 206
  - inserting XML, 117–118
  - installation
    - cluster, 31
    - IIS, required for Reporting Services, 361
  - instance
    - configuration, 228–229
    - connecting and displaying node tree, 38
    - connection, choosing, 67–68
    - Database Engine, registering, 56
    - Notification Services configuration file, 259–260
    - principals security hierarchy, 159
    - Profiler, 18, 27, 278–280
    - registering, 37
    - second query, running, 68
    - Security nodes, 41–42
  - Integration Services. *See also*
    - Import/Export Wizard
    - creating package, 310
    - creating project, 329–336
    - deploying project, 336
    - described, 33
    - designing, 317
    - destinations, 314
    - Developer Center Web site, 381
    - digital signing, 316
    - error flows, 315
    - ETL approach, 309
    - Event Handlers, 315, 319–320
    - Import/Export Wizard, 322–329
    - logging options, 315–316
    - package components, viewing, 321
    - restarting package, 316
    - sources, supported, 311–312
    - task flows, 315
    - Toolbox, 321
    - transformations, 312–314
  - integrity, maintaining. *See* constraints; transactions; triggers
  - intelligence, business. *See also* Analysis Services; Integration Services; Reporting Services
    - data warehouses, 11, 308–309
    - SQL Server Agent, 237
    - tools, 308
    - upgrades over 2004, 32–33
    - workflow, 308
  - Internet Information Services (IIS), 361
  - interval, setting recovery, 179
  - invoices, hierarchical information, 101
  - I/O, dynamic configuration, 27
  - isolation, transactional, 186
- **I** ●
- job, SQL Server Agent, 243–248
  - JOIN syntax, Query Editor, 81–83
- **K** ●
- keyboard shortcuts, customizing, 48
  - keywords, permission, 161–162
  - KPI (Key Performance Indicator), 339–340
- **L** ●
- layout, business report, 369–370
  - less than or equal to operator (<=), 73

- LIKE keyword, wildcard characters and, 74, 147
  - line, error occurrence, 145
  - locking out accounts, 171
  - log
    - auditing changes, 203–205
    - error, 270–273
    - Integration Services, 315–316
    - transaction, 11, 186, 270
  - log shipping stored procedure, 135
  - login
    - Module Execution Context, 170
    - new, adding, 41, 224
    - password policy enforcement, turning on or off, 22
    - principals security hierarchy, 159
    - Principle of Least Privileges, 158
    - security, 160, 166
    - as specified user, 226–227
    - SQL password policy, enforcing, 170–172
    - Windows Integrated Security
      - authentication mechanism, 170
  - Lookup transform, 313
- **M** ●
- maintenance
    - Control Flow tasks, 319
    - database availability during, 30–31
  - Maintenance Plan Wizard, 250–252
  - managed code, 121
  - Management Studio
    - backups and restorations, 49, 262–270
    - connecting, 36
    - customizing environment, 46–49
    - Database Engine Tuning Advisor, 280–281
    - database level configuration, 229–230
    - database objects (Object Explorer), 38–43
    - described, 13–14, 18, 26, 35
    - error log files, 270–273
    - indexes, 274–276
    - instance, checking performance of (Profiler), 278–280
    - instance level configuration, 228–229
    - overview (Summary tab), 43–44
    - query, 45–46
    - Registered Servers pane, 36–38
    - replication, 29
    - Reporting Services, managing, 372
    - runaway queries, halting, 277–278
    - SQL Server Agent, managing, 232–233
    - starting, 36, 55
    - visual designer functions, 261–262
  - managing
    - Analysis Services, 340–341
    - in Report Manager, 371
    - tools new to SQL Server 2005, 26–27
  - manual coding and development, CLR, 123–125
  - MDAC (Microsoft Data Access Components), 30
  - memory
    - adding, 15
    - blocking reading unwritten, 127
    - dynamic configuration, 27
    - hot-add support, 32
  - Merge Join transform, 313
  - merge replication, 284
  - Merge transform, 313
  - message, error
    - numbers, listed by, 145, 146
    - severity levels, 144–145
    - user-defined (RAISERROR), 148–149
  - message, Service Broker, 302–303
  - Microsoft, 379–380. *See also individual products listed by name*
  - Microsoft Data Access Components (MDAC), 30
  - Microsoft Management Console (MMC), 213–215
  - middle tier comparison, CLR, 128–129
  - mining data
    - Analysis Services, 342, 358
    - query, creating, 313, 314
  - mirroring, database
    - availability, 30
    - database views, 176
    - described, 174–176
    - failover clustering versus, 176–177
    - recovery models, 177–178
    - Reporting Services, 361
    - transparent client redirect, 30, 176

- MMC (Microsoft Management Console), 213–215
- Mobile Edition, SQL Server  
 connection manager, 312  
 data destination, 314  
 features listed, 1
- module execution context permissions, 161, 170
- MSOLAP90 connection manager, 311
- Multicast transform, 313
- MULTIFILE connection manager, 312
- MULTIFLATFILE connection manager, 312
- multiple servers. *See* replication; Service Broker
- **N** •
- name and e-mail addresses  
 stored procedure retrieving, 138–139, 141  
 with WHERE clause, 139–140
- namespace declaration, 110
- naming  
 collisions, avoiding with schemas, 71, 90, 140  
 database snapshots, 181  
 schedules, 246  
 stored procedures, 140  
 tables and columns, 60–61
- .NET (Microsoft)  
 ADO connection manager, 311  
 CLR language integration, 121, 122  
 security levels, 24
- network protocols  
 configuring, 221–222  
 connection manager, 311  
 endpoints, 26
- new project  
 Analysis Services, starting, 342–343  
 application, building, 90–92
- newsgroups, public, 380
- NMO (Notification Services Management Objects), 255
- node, cluster  
 described, 15  
 installation, 31  
 tree, displaying in Object Explorer, 38, 57
- not equal operator (!=), 73
- not equal operator (<>=), 73
- NOT NULL constraint, 63
- NOT operator, 73
- Notification Services  
 application, creating, 255–256  
 Application Definition file, 257–259  
 described, 253–254  
 event providers, 256–257  
 Instance Configuration file, 259–260  
 new features in SQL Server 2005, 255  
 stored procedure, 135
- Notification Services Management Objects (NMO), 255
- NULL value  
 constraint barring, 63  
 described, 72
- numbers, error, 146
- nvarchar (max) datatype, 25
- **O** •
- Object Explorer  
 data, adding to database, 65  
 described, 38–39  
 hierarchy, 38, 57  
 replication, 42–43  
 Security nodes, 41–42  
 servers, accessing, 56  
 viewing, 39–41, 55
- objects  
 described, 53  
 granular permissions control, 161  
 registered server, displaying, 56–57  
 system, 29  
 T-SQL, creating, 123
- objects, database  
 described, 38–39  
 Replication node, 42–43  
 Security nodes, 41–42  
 viewing and modifying database properties, 39–41
- ODBC connection manager, 312
- OLAP (Online Analytical Processing) database, 11
- OLE Automation stored procedure, 135

- OLE DB
    - Command transform, 313
    - connection manager, 312
    - data destination, 314, 333–334
    - data source, 311
  - Online Analytical Processing (OLAP)
    - database, 11
  - online indexing, 15, 16, 30
  - online page and file restore, 16
  - Online Transaction Processing (OLTP)
    - database, 10–11
  - OPENXML keyword, 120
  - operator error, 174
  - ORDER BY clause, sorting with, 75–76
  - owner, executing as specified, 170
- p •**
- Package Explorer tab, BIDS, 320
  - package, Integration Services
    - components, viewing, 321
    - creating, 310
    - restart, 316
  - PAL (Publication Access List), 286
  - parameters, stored procedures
    - creating with, 139–140
    - creating without, 138–139
  - parsing XML document, 120
  - partition processing data destination, 314
  - partitioning data, 31–32
  - password
    - characters, typing without concealing, 227
    - policy enforcement, 22, 161, 170–172
  - PATH
    - FOR XML clause option, 119
    - secondary index, XML, 116
  - percent sign (%), 147
  - Percentage Sampling transform, 313
  - performance
    - CLR integration, benefit of, 126
    - instance, checking, 278–280
    - KPI, 339–340
    - problems, analyzing, 27
    - tools, 18
  - permissions
    - control, granular, 161
    - granting to user, 167, 168–169
    - keywords, 161–162
    - levels, 162
    - module execution context, 161, 170
    - Principle of Least Privileges, 158
    - securables affected by, 162–165
    - SQL Server Agent, 237–240
    - stored procedures, 138
  - pipeline, Integration Services data
    - processing, 310
  - Pivot transform, 313
  - precedence constraints, 315
  - predictions. *See* data mining
  - primary key
    - changing, 64
    - constraint, 63, 192
    - described, 61
  - primary XML index, 116
  - principals security hierarchy, 159
  - Principle of Least Privileges, 158
  - private key/public key pair, 304
  - process execution, monitoring, 128
  - Profiler, 18, 27, 278–280
  - program logic, designing, 317–319
  - programmers, key support features, 13
  - PromptSQL, 385
  - properties, database, 39–41
  - public newsgroups, 380
  - Publication Access List (PAL), 286
  - publication, replication
    - creating, 293–297
    - described, 42
    - viewing, 43
  - publisher computer, setting up, 286–293
  - purchase order, sample XML
    - adding single purchase order, 106–107
    - creating, 102–103
    - query retrieving selected parts, 114–116
    - typed XML, 110–113
    - XSD schema, 108–110

## • Q •

### query

- creating, 45–46
- data mining, 313, 314
- instance, connecting, 38
- result display, altering, 47–48
- runaway, halting, 277–278
- templates, 24, 49

### Query Editor

- basic queries, 68
- JOIN syntax, 81–83
- multiple tables, retrieving data from, 77–81
- opening, 67–68
- ORDER BY clause, sorting with, 75–76
- SELECT statement, 69–72
- WHERE clause, filtering with, 72–75

### querying XML

- indexes, 116
- XQuery, 113–116

### Quest Software, 384–385

### queue, Service Broker, 302

### quote single ('), 73

## • R •

### Raw File

- data destination, 314
- data source, 311

### RDL (Report Definition Language), 372–373

### read-only mirror database, 361

### RECEIVE permission, 163

### recordset data destination, 314

### recovery interval, checkpoint, 179

### recovery models, database mirroring, 177–178

### Red-Gate tools, 384

### REFERENCES permission, 163–164

### Registered Servers pane, Management Studio, 36–38

### registering Database Engine instance, 56

### relationships

- defining, 61–63
- many-to-many, 79–81

### remote computer, connecting

- SQL Server Configuration Manager, 219–221
- SQLCMD, 227–228

### removing

- check constraints, 200
- unwanted database snapshots, 182

### replication

- database objects (Object Explorer), 42–43
- described, 17, 283
- jargon, 284
- Management Studio, 29
- merge, 284
- publication, 42, 43, 293–297
- publisher and distributor computers, setting up, 286–293
- Reporting Services to server, 360
- scalability, 32
- security, 285–286
- SQL Server 2005 enhancements, 29, 285
- stored procedures, 135, 136
- subscription, creating, 297–301

### Report Builder, 373–375

### Report Definition Language (RDL), 372–373

### Report Manager, 370–371

### Report Wizard, 362–370

### Reporting Services

- creating report with Report Wizard, 361–370
  - database mirroring and database views, 176, 361
  - described, 33, 359–361
  - distributing reports, 372
  - Management Studio, 372
  - RDL, 372–373
  - replicating to server, 361
  - Report Builder, 373–375
  - Report Manager, 371
  - ReportViewer controls, 375
  - tool to create reports, 361–362
  - viewing reports in Report Manager, 370–371
  - Web site, 381
- reports, e-mail, 372
- resource group
- availability, 179–180
  - database mirroring versus, 176–177

- restorations
    - checking, 184
    - with Management Studio, 49, 262–270
    - restoring, 184
    - risks, assessing, 183
    - scripts and statements, 28, 183–184
  - reusing code. *See also* triggers
    - calling, 141
    - CLR, 141
    - creating with parameters, 139–140
    - creating without parameters, 138–139
    - described, 131–132
    - extended, 121, 128
    - naming, 140
    - .NET class, 123
    - permissions, 138
    - reasons to use, 133–134
    - system, categories of, 134–137
    - types, 132
    - unavailable statements, 137
    - uses, 132–133
    - xml datatype, creating, 104
    - XML document, parsing, 120
  - reverting to database snapshots, 182–183
  - REVOKE permission, 161
  - risk assessment, 183
  - roles, Analysis Services security, 342
  - root element, 103
  - Row Count transform, 313
  - Row Sampling transform, 313
  - rows
    - addition, confirming, 115
    - BETWEEN operator, 73
    - change, confirming, 190
    - described, 59
    - IN operator, 74
    - inserting with allowed value (rule), 195
    - LIKE operator, 74
    - output, transforming, 313
    - primary key, 61
    - sorting in ascending or descending order, 76
  - rowsets
    - document, shredding into (OPENXML keyword), 120
    - retrieving as XML, 119–120
  - rules
    - described, 194–195
    - names of tables and columns, 60–61
    - TRY . . . CATCH construct, 144
    - XML document, 102
  - runaway processes, halting, 28
  - runaway queries, halting, 277–278
- S •**
- Safe setting, CLR, 172
  - sales by year by territory, simple display, 357–358
  - scalability
    - cluster, installing in, 31
    - data partitioning, 31–32
    - DTA, 32
    - hot-add memory support, 32
    - issues, 14
    - replication, 32
  - scheduling jobs
    - reports, 372
    - support for, 27
  - schema
    - default security, 167–168
    - granular permissions control, 161
    - naming collisions, avoiding, 71, 90, 140
    - securables hierarchy, 159–160
    - typed XML, associating, 105, 110–113
    - users, separating, 22, 160, 166–167
    - XML, 102
    - XSD, 108
  - Schema Definition Language (XSD), 108–110
  - Script Component transform, 313
  - scripts
    - backing up and restoring data, 28, 183–184
    - SQL Server 2005 actions, 25
  - search, full-text, 28
  - secondary XML index, 116
  - securables
    - hierarchy, 159–160
    - permissions, 162–165
  - Secure Sockets Layer (SSL) automated certificate creation, 23

- security. *See also* permissions
  - Analysis Services roles, 342
  - CLR integration, 126
  - database objects (Object Explorer), 41–42
  - default schema, 167–168
  - design, default, and deployment, 158–159
  - key features, summarized, 11–12
  - logins and users, 160, 166
  - new or changed features in SQL Server 2005, 160–161
  - password policy enforcement, 22, 161, 170–172
  - principals hierarchy, 159
  - replication, 285–286
  - scheduling jobs, 243–248
  - schema and user separation, 22
  - securables hierarchy, 159–160
  - Service Broker (private key/public key pair), 304
  - SQL injection attack, protecting against, 133–134
  - SQL Server 2005, 21–23
  - SSL automated certificate creation, 23
  - stored procedure, 135
  - system catalog, 22, 160, 170
  - terminology, 159
  - users and schemas, separating, 166–167
- SELECT permission, 164
- SELECT statement
  - FOR XML clause of, 119–120
  - Query Editor, 69–72
- self, executing as specified, 170
- semi-structured XML, 101
- sending information (Notification Services)
  - application, creating, 255–256
  - Application Definition file, 257–259
  - described, 253–254
  - event providers, 256–257
  - Instance Configuration file, 259–260
  - new features in SQL Server 2005, 255
  - stored procedure, 135
- server
  - administrator taking control of, 15–16, 28
  - clustering, need for, 15
  - dynamic configuration, 27
  - failure, availability after, 30
  - granular permissions control, 161
  - multiple copies of SQL Server 2005, 55
  - Registered Servers pane, Management Studio, 36–38
  - registered, viewing, 56
  - Reporting Services, replicating, 361
  - virtual, 176–177, 179–180
- Service Broker
  - described, 28, 283, 301–302
  - dialogs and transport protocol, 303–304
  - messages, 302–303
  - queues, 302
  - security (private key/public key pair), 304
- services
  - SQL Server Configuration Manager, managing, 26–27, 216–219
  - window, opening, 54
- severity, error message, 144–147
- Simple Mail Transfer Protocol (SMTP)
  - connection manager, 312
- simple recovery model, 177
- simple transaction, 187–190
- simple update, 187
- single quote ('), 73
- Slowly Changing Dimension transform, 313
- SMO (SQL Management Objects), 25
- SMOServer connection manager, 312
- SMTP (Simple Mail Transfer Protocol)
  - connection manager, 312
- snapshots, database
  - creating, 181
  - deleting unwanted, 182
  - described, 30, 180
  - naming, 181
  - replication, 284, 294–296
  - reverting to, 182–183
- software application
  - asynchronous message-based, creating, 28, 283
  - availability problems, 174
  - data connection, building, 92–96
  - debugging, 98
  - definitions, 257–259
  - design, 88–90

- software application (*continued*)
  - new project, building, 90–92
  - Notification Services, creating, 255–256
  - user interface, 96–97
  - Windows Forms, creating, 90–92
- software availability problems, 174
- Solution Explorer, 321
- sorting
  - input data, transforming, 313
  - ORDER BY clause, 75–76
- source
  - Analysis Services, defining, 341, 344–346
  - Analysis Services view, creating, 342, 346–350
  - Import/Export Wizard, 321
  - Integration Services, supported, 311–312
  - view, creating cube from, 350–355
- sp\_ prefix, avoiding, 140
- SQL Management Object (SMO), 25
- SQL Server 2000 (Microsoft)
  - rules, 194–195
  - security problems, 21
  - XML in, 103
- SQL Server 2005 (Microsoft)
  - availability, 15, 29–31
  - business intelligence functions, 19, 32–33
  - CLR support, 24
  - configuration changes, dynamic, 27
  - constraints, adding, 63–64
  - data, adding to database, 65
  - data destination, 314
  - Database Mail, 29
  - databases, creating, 57–58
  - editions listed, 1
  - full-text search, 28
  - HTTP endpoints, 26
  - manageability, 17–18
  - management tools, new, 26–27
  - new datatypes, 25
  - Notification Services, 255
  - Object Explorer, 55–57
  - performance problems, analyzing (Profiler), 27
  - relationships, defining, 61–63
  - replication, 29, 285
  - scalability, 14, 31–32
  - scripting actions, 25
  - security features new to, 21–23, 160–161
  - SMO, 25
  - SQL Server Service Broker, 28
  - SQLCMD command-line utility, 28
  - SQLMail problems, 29
  - starting, 54–55
  - tables, creating, 58–61
  - Transact-2005 enhancements, 23–24
  - updates, easier, 29
  - WMI configuration, 29
  - XML, 103–104
- SQL Server Agent
  - alert, creating, 249
  - automatic start, 234–236
  - in business intelligence, 237
  - described, 18, 231–232
  - extended stored procedures, enabling, 242–243
  - job, creating, 243–248
  - Maintenance Plan Wizard, 250–252
  - managing from Management Studio, 232–233
  - permissions, 237–238
  - starting and stopping, 234
  - stored procedure, 135
  - T-SQL, 250
  - user permissions, 238–240
  - Windows permissions, 240–242
- SQL Server Authentication, 237
- SQL Server Configuration Manager
  - adding to MMC console, 213–215
  - client computers, configuring, 223
  - described, 26, 211–212
  - network protocols, configuring, 221–222
  - remote computer, connecting, 219–221
  - services, managing, 216–219
- SQL Server Development Center Web site, 381
- SQL Server Management Studio
  - backups and restorations, 49, 262–270
  - connecting, 36
  - customizing environment, 46–49
  - Database Engine Tuning Advisor, 280–281
  - database level configuration, 229–230
  - database objects (Object Explorer), 38–43
  - described, 13–14, 18, 26, 35

- error log files, 270–273
- indexes, 274–276
- instance, checking performance of (Profiler), 278–280
- instance level configuration, 228–229
- overview (Summary tab), 43–44
- query, 45–46
- Registered Servers pane, 36–38
- replication, 29
- Reporting Services, managing, 372
- runaway queries, halting, 277–278
- SQL Server Agent, managing, 232–233
- starting, 36, 55
- visual designer functions, 261–262
- SQL Server Mobile
  - connection manager, 312
  - data destination, 314
  - features listed, 1
- SQL Server Profile stored procedure, 135
- SQL Server Profiler, 18, 27, 278–280
- SQL Server Service Broker, 28
- SQL (Structured Query Language). *See also SQL Server products*
  - described, 13
  - injection attack, protecting against, 133–134
- SQLCMD command-line utility
  - connecting, 223–225
  - described, 28
  - remote instance, connecting, 227–228
  - T-SQL script, executing, 226
  - user, logging in as specified, 226–227
- SQLMail, 29, 135
- SSL (Secure Sockets Layer) automated certificate creation, 23
- Standard Edition, SQL Server
  - availability, 15
  - business intelligence functions, 19
  - described, 1
  - manageability, 17
  - scalability, 14
- start tag, XML, 102–103
- starting
  - automatic, SQL Server Agent, 234–236
  - Management Studio, 36, 55
  - SQL Server 2005, 54–55
  - SQL Server Agent, 234
  - Startup options, Management Studio, 47
  - statements. *See also* SELECT statement
    - backing up and restoring data, 28, 183–184
    - database, specifying (USE statement), 70
    - DDL triggers, 201
    - DML triggers, 205
    - SELECT, 69–72, 119–120
    - unavailable to stored procedures, 137
  - stopping
    - runaway queries, 277–278
    - running service, 217
    - SQL Server Agent, 234
  - stored procedures. *See also* triggers
    - calling, 141
    - CLR, 141
    - creating with parameters, 139–140
    - creating without parameters, 138–139
    - described, 131–132
    - extended, 121, 128
    - naming, 140
    - .NET class, 123
    - permissions, 138
    - reasons to use, 133–134
    - system, categories of, 134–137
    - types, 132
    - unavailable statements, 137
    - uses, 132–133
    - xml datatype, creating, 104
    - XML document, parsing, 120
- Structured Query Language. *See also* SQL Server products
  - described, 13
  - injection attack, protecting against, 133–134
- subscribers, sending notices to (Notification Services)
  - application, creating, 255–256
  - Application Definition file, 257–259
  - described, 253–254
  - event providers, 256–257
  - Instance Configuration file, 259–260
  - new features in SQL Server 2005, 255
  - stored procedure, 135

- subscription, replication
  - creating, 297–301
  - described, 42
  - viewing, 43
- Surface Area Configuration tool, 11, 158
- system catalog, 22, 160, 170
- system databases, 58
- system objects, 29

## • T •

- tables
  - creating, 58–61
  - date and time, inserting, 243–244
  - hiding with system catalog security, 22, 160, 170
  - inserted and deleted, DML triggers, 206
  - multiple, retrieving data from, 77–81
  - primary key, creating at onset, 63
- tags, XML, 102–103
- TAKE OWNERSHIP permission, 162, 164
- tasks
  - Control Flow, 319
  - creating Integration Services package with, 310
  - flows, Integration Services, 315
  - T-SQL templates, 24, 49
- Term Extraction transform, 313
- Term Lookup transform, 314
- time
  - current, retrieving, 226
  - retrieving, 115
- Toolbox
  - BIDS, 321
  - Control Flow tab, 317–318
  - Integration Services, 321
- tools
  - business intelligence, 308
  - to create reports, 361–362
- trace, creating new, 278–280
- transactional replication, 284
- transactions
  - ACID, 186
  - atomicity, 185, 186
  - committed but not written, 178–179
  - database mirroring, 175

- implicit, 190
- log, 11, 186, 270
- OLTP, 10–11
- simple transaction, 187–190
- simple update, 187
- Transact-SQL. *See* T-SQL
- transformations, Integration Services, 310, 312–314
- transparent client redirect, 30, 176
- transport protocol, Service Broker, 303–304
- triggers
  - DDL, 203–205
  - described, 191, 195–196
  - DML, 205–208
  - .NET class, 123
- TRY . . . CATCH construct
  - described, 23, 143
  - error message severity levels, 144–145
  - nested, 150–151
  - rules, 144
- T-SQL (Transact-SQL)
  - backing up hard drive, 184
  - check constraints, creating, 200–201
  - CLR versus, 127–128
  - code templates, modifying, 49, 83–85
  - described, 13
  - error handling, 23
  - running query, 68
  - script, executing, 226
  - SELECT statement, 69–72, 119–120
  - SQL Server Agent, 250
  - SQLCMD command-line utility, 28, 223–228
  - stored procedures, 132
  - templates, 24
  - XML support, 23
- typed XML, 105, 110–113
- types, stored procedures, 132

## • U •

- Unicode characters, sequence of, 25
- Union All transform, 314
- unique constraint, 63, 192

Unpivot transform, 314  
 Unsafe setting, CLR, 172  
 untyped XML, 105–107  
 UPDATE permission, 164  
 updates  
   simple, 187  
   SQL Server 2005, 29  
 URI, namespace, 110  
 user  
   adding, 225  
   application design considerations, 88–89  
   database, creating, 41–42  
   errors, availability problems and, 174  
   login as specified, 226–227  
   Module Execution Context, 170  
   permissions, granting, 168–169  
   principals security hierarchy, 159, 160  
   schemas, separating, 22, 160, 166–167  
   security, 166  
   specifying, 167  
   SQLCMD, logging in as specified, 226–227  
 user interface, 96–97  
 user-defined items  
   error message (RAISERROR), 148–149  
   stored procedures, 137–138  
   types and aggregates, 123  
 username, executing as specified, 170

## • U •

varbinary (max) datatype, 25  
 varchar (max) datatype, 25  
 view  
   Analysis Services, creating, 342, 346–350  
   database, 176  
   database snapshots, 182  
   installed services on local machine,  
     216–217  
   Object Explorer, 55  
   reports in Report Manager, 370–371  
 VIEW DEFINITION permission, 164  
 virtual server  
   availability, 179–180  
   database mirroring versus, 176–177

Visual C# sample, creating and deploying,  
 123–125  
 visual designer functions, 261–262  
 Visual Studio 2005 (Microsoft)  
   CLR, 122–123  
   editions, 87–88  
   keyboard shortcuts, 48  
   need for, 383  
   Reporting Services projects, 361–362  
   XSD schema, creating, 108–110  
 visual tools  
   creating check constraints, 197–200  
   dropping check constraints, 200  
 volume, high level, 10–11

## • W •

warehouse, data, 11, 308–309  
 W3C XML Schema Definition Language  
 (XSD), 102  
 Web, continuous availability needs. *See*  
   availability  
 Web site resources, 379–381  
 Web task stored procedure, 135  
 WHERE clause  
   name and e-mail addresses, retrieving  
     with stored procedure, 139–140  
   Query Editor, 72–75  
   simple transaction update, 187  
   XPath expressions combined with, 115,  
     116  
 WHILE loop, runaway queries, 277  
 wildcard characters  
   \* (asterisk), 72  
   % (percent sign), 147  
   rows, LIKE keyword and, 74  
 Windows Management Instrumentation  
 (WMI), 27, 29, 312  
 Windows (Microsoft)  
   Authentication, 237  
   Forms application, creating, 90–92  
   Integrated Security authentication  
     mechanism, 170

Windows (Microsoft) *(continued)*

Performance Manager data, importing  
and displaying, 27

permissions, 240–242

principals security hierarchy, 159

WMI (Windows Management

Instrumentation), 27, 29, 312

workflow, business intelligence, 308

Workgroup Edition, SQL Server

availability, 15

business intelligence functions, 19

described, 1

manageability, 17

scalability, 14



XDR (XML Data Reduced) schema

language, 108

`xml` datatype, 23, 104

XML (eXtensible Markup Language)

converting data to and from, 118–120

data modification language, 116–117

data source, 311

declaration, 103

described, 101–102

document rules, 102

document, shredding into rowsets

(`OPENXML` keyword), 120

editor, benefits of using, 104–105

Notification Services, 255–256, 258–259

querying, 113–116

Schema Definition Language, 108–110

SQL Server 2000, 103

SQL Server 2005, 103–104

stored procedures, 135, 136

Transact-2005 support, 23

typed, 105

typed, associating schema with, 110–113

untyped, 105–107

`xml` datatype, 104

XML for Analysis (XMLA), 338

XML Path Language (XPath), 114

XML Query Language (XQuery)

draft status of, 113

sample using, 114–115

syntax, 114

WHERE clause with

XSD (W3C XML Schema Definition  
Language), 102



