

INDEX

SYMBOLS

- { } (brackets), 34**
- operator, 77**
- ^ operator, 79**
- * operator, 77**
- + operator, 50, 77**
- . operator, 78**
- / operator, 43**
- := operator, 40**
- = operator, 41**
- ; (semicolon), 1741**
- 2-tier client/server model, 1542**
- 3-tier applications**
 - client tracker, 1786
 - client main form, 1800-1807*
 - customer data module, 1789-1797*
 - error reconciliation, 1798-1799*
 - initial wiring, 1797-1798*
 - online and offline data manipulation, 1799*
 - online and offline persistence, 1800*
 - record filtering, 1800*
 - remote data module, 1786-1788*
 - server-side filtering, 1789*
 - client/server model, 1542-1543
- 16-bit programs**
 - porting to 32-bit systems, 53
 - upgrading, 771
- 32-bit address space, 767**
- 32-bit applications, 772**
- 32-bit integers, 748**
- 32-bit math, 763**
- 32-bit resources, 768**
- 64-bit integers, 750**

A

- Abort dialog box, 433**
- Abort() function, 421, 433**
- Aborted TPrinter property, 420**
- aborting printing, 433**
- About dialog box, 253, 270**
- AboutBox() function, 253, 270**
- abstract classes, 253**
- abstract idea of printing, 434**
- abstract functions, 227**
- ABWizard.pas unit, 1403**
- Access databases, connecting to, 1523-1527**
- access components (ADO), 1529**

- access functions, 228, 888-889**
- access rights**
 - granting, 1559-1560
 - revoking, 1561
- accessing data**
 - access functions, 228, 888-889
 - access rights
 - granting, 1559-1560
 - revoking, 1561
 - ADO access component, 1529
 - record-oriented data access, 1544
 - set-oriented data access, 1544
- ActionFrm.pas, 1828-1829**
- actions (bug-reporting application), 1827-1829**
- Active property (TApplication class), 155**
- ActiveForms**
 - properties, 1346-1354
 - UrlMon functions, 1356-1364
- ActiveX controls, 237-268, 1092, 1298-1299**
 - ADO (ActiveX Data Objects), 1527-1528
 - access components, 1529
 - compatibility components, 1529-1530
 - connectivity components, 1529
 - data stores, 1530-1532
 - deployment, 1533
 - example, 1532-1533
 - compared to OLE and COM, 1091
 - Control Wizard, 1300
 - documents, 1092
 - encapsulating VCL controls, 1301
 - frame control, 1331
 - invoking, 270
 - licensing, 1332-1333
 - Listview control, 1157-1162
 - Memo control
 - implementation file, 1317-1328
 - project file, 1302
 - type library file, 1305-1316
 - OCX application example, 256
 - property pages, 1334-1335
 - shipping, 256
 - System Registry, 256
 - Web browser interaction, 1355-1356
 - Web deployment, 1365-1368
- Add Data Breakpoint dialog box, 872**
- add-in forms, 998**
- add-in packages, 998-1003**
- AddAction() function, 1827**
- AddAssignToNames() function, 1858**
- AddEmUp() function, 91**
- AddErrorToClient() function, 1807**
- AddFooter() function, 1844**
- AddHeader() function, 1844**
- AddInts() function, 36**
- AddItemToSale() function, 1757**
- AddModU.pas unit, 1387**
- AddRef() function, 1097**
- address breakpoints, 872**
- Address Not Found error message, 1867**
- address space, 767**
- addresses**
 - address space, 767
 - preferred base, 373
 - virtual memory, 130
- AddStatusTitle() function, 1858**
- AddUser() function, 1825**
- AdjustSpeedButtons() function, 853**
- administration tools (VisiBroker), 1415**
- ADO (ActiveX Data Objects), 1527-1528**
 - access components, 1529
 - compatibility components, 1529-1530
 - connectivity components, 1529
 - data stores, 1530-1532
 - deployment, 1533
 - example, 1532-1533
- advanced fonts, 352**
- advantages of Delphi Windows development, 10**
- advertising services, 1687**
- aggregation, 1108**
- aliases**
 - functions, 1101
 - types, 81
- alignment of records, 762**
- allocating AnsiStrings, 52**
- AllocRecordBuffer() function, 1618**
- ancestry of objects, 912**
- and operator, 41-43, 350**
- animation**
 - animated components, 1012
 - graphics programming, 342, 350-352
- Animation Project main form, 342-348**
- AnsiStrings, 754**
 - allocating, 52
 - length, 52
 - types, 48
 - Win32 compatibility, 52
- Apartment threading, 1686**
- ApBarFrm.pas unit, 1245-1247**
- API (application programming interface) functions, 315**
 - BDE, 1588
 - compatibility, 770
 - obsolete, 769-770
 - PlaySound(), 840
 - printing functions
 - copies, 452
 - TDeviceMode structure, 450-452
 - upgrading, 768
- API (application programming interface) window procedures, 609**
- APIs (application programming interfaces)**
 - functions, 315
 - BDE, 1588
 - compatibility, 770
 - obsolete, 769-770
 - PlaySound(), 840
 - printing functions, 450-452
 - upgrading, 768
 - Open Tools, 1372
 - Win32, 124
 - window procedures, 609
- AppBar Wizard**
 - AEWizard.pas unit, 1403
 - CodeGen.txt template, 1409
- AppBars**
 - AppBar Wizard
 - AEWizard.pas unit, 1403
 - CodeGen.txt template, 1409
 - ApBarFrm.pas unit, 1245-1247
 - AppBars.pas unit, 1238-1244
 - dwMessage parameter, 1234
 - notification messages, 1237-1238
 - pData parameter, 1235
 - SHAppBarMessage() function, 1234
 - TAppBar form, 1236
- Append() function, 538-540**
- appending**
 - text files, 540-541
 - typed files, 545
- AppendRec() function, 550**
- appEvMainIdle() function, 349**
- application desktop toolbars. See AppBars**
- application-level database connections, 1563-1564**
- application partitioning packages, 995**
- application programming interfaces. See APIs**

applications

- attaching to Clipboard viewer chain, 342
- Border Style/Icon, 150-151
- bug-reporting application
 - actions, 1827-1829
 - adding users to, 1825-1827
 - application initialization and login, 1823-1824
 - browsing bugs, 1850-1854
 - browsing/filtering bugs, 1825
 - bug-manipulation routines, 1825
 - data module, 1811-1823, 1841
 - displaying bug detail, 1854-1855
 - enabling for Web, 1837
 - general requirements, 1810-1811
 - headers/footers, 1844
 - helper routines, 1843-1844
 - introduction page, 1844-1846
 - main form, 1829-1837
 - page layout, 1840-1841
 - Paradox keys, 1824
 - project file, 1823-1824
 - retrieving bug data, 1856-1858
 - TActionItem instances, 1843
 - TDataSetTableProducer component, 1841-1842
 - TWebDispatcher component, 1842-1843
 - user form, 1826-1827
 - user logon, 1810
 - username retrieval, 1846-1847
 - username verification, 1847-1849
 - verifying bug insertion, 1858-1861
- CallC main unit, 655-657
- Capitals Project, 542-543
- ClassInfo.dpr, 907-911
- client tracker application
 - client main form, 1800-1807
 - customer data module, 1789-1797
 - error reconciliation, 1798-1799
 - initial wiring, 1797-1798
 - online and offline data manipulation, 1799
 - online and offline persistence, 1800
 - overview, 1786
 - record filtering, 1800
 - remote data module, 1786-1788
 - server-side filtering, 1789
- CopyData
 - main unit, 672
 - read unit, 674, 676
- custom Clipboard, 833-835
- DirSrch.dpr, 586-589
- cursors, 177
- DelSrch, 511-515, 521
 - priorities, 522
 - search threads, 516-518
- designing, 161-162
- DLLs, 373
 - Callback functions, 397, 400-403
 - custom controls, 377
 - entry/exit events, 390-395
 - exceptions, 396-397
 - explicit loading, 387-389
 - exporting objects, 412-416
 - hiding implementation, 376
 - implicit linking, 385-387
 - interface units, 378-379
 - modal forms, 381-382
 - modeless forms, 383-384
 - PenniesToCoins, 377
 - shared memory, 405-411
 - sharing code, 376
- dynamic linking, 375
- exception handling, 180-182
- exiting Windows, 186
- EZThrd, 487
- File-Search, 575-579
- FileOfRec.dpr, 550-555
- files, 137
 - backup files, 140
 - desktop options, 140
 - form files, 138-139
 - package files, 141
 - project options files, 140
 - resource files, 139
 - unit files, 138
- formless, 186
- framework classes, 145
- HookWnd, 614
- Internet-enabled, 1644
 - CGI(Common Gateway Interface), 1645-1646
 - cookies, 1665-1669
 - data streaming, 1673-1677
 - HTML forms, 1671-1673
 - ISAPI, 1646
 - NSAPI, 1646
 - redirecting users, 1670-1671
- TDataSetTableProducer class, 1658-1665
- TPageProducer class, 1655-1658
- TQueryTableProducer class, 1658-1665
- TWebDispatcher class, 1647-1651
- TWebModule class, 1647-1651
- TWebRequest class, 1651-1655
- TWebResponse class, 1651-1655
- Web servers, 1646-1647
- WebModuleIWebActionItem
 - Action event handler, 1649
- Inventory Manager application, 1732-1733
 - access to data-access component events, 1757
 - customer functions, 1755
 - domains, 1734-1735
 - generators, 1737
 - layout, 1758
 - login/logout functions, 1753-1755
 - part functions, 1755
 - permissions, 1741
 - sales functions, 1755-1756
 - stored procedures, 1738-1740
 - tables, 1735-1737
 - TCustomerForm (customer entry), 1764-1768
 - TCustomerSearchForm (customer searches), 1778-1783
 - TDDGSalesDataModule, 1742-1753
 - temporary table functions, 1756-1757
 - TMainForm, 1758-1763
 - TNewSalesForm (sales entry), 1774-1778
 - TPartsForm (inventory entry), 1768-1773
 - triggers, 1737-1738
 - TSalesForm (sales browsing), 1773
- MDI, 773-821
 - child forms, 776-779, 815-818
 - child windows, 818
 - client window, 808
 - main form, 798-805
 - menus, 806-807

- rich text editor form*, 788-795
- text editor form*, 779-787
- messages, 194-195, 208-209, 212-214
 - between*, 206
 - broadcasting*, 207
 - handling*, 197-199, 608
 - notification*, 203
 - result values*, 200
 - sending*, 201
 - user-defined*, 205
- MIDAS applications
 - advertising services*, 1687
 - architecture*, 1680-1684
 - benefits of*, 1681-1683
 - briefcase model*, 1682, 1699
 - centralized business logic*, 1681
 - client connections*, 1687-1689
 - client optimization*, 1697-1698
 - client-side transactions*, 1694
 - common mistakes*, 1683
 - data access*, 1686
 - data editing*, 1692-1693
 - data packet limitations*, 1698-1699
 - data reconciliation*, 1694-1696
 - data retrieval*, 1691-1692
 - DCOMconfiguration*, 1724-1725
 - deploying*, 1723-1727
 - dynamic SQL*, 1699-1700
 - error reconciliation*, 1682, 1696-1697
 - fault tolerance*, 1682
 - firewalls*, 1726-1727
 - HTML presentation*, 1705-1709
 - InternetExpress*, 1709-1713
 - joins*, 1702
 - licensing issues*, 1723-1724
 - load balancing*, 1682-1683
 - master-detail linking*, 1714-1721
 - master/detail relationships*, 1701-1702
 - multitable updates*, 1703-1704
 - nested datasets*, 1702, 1713-1714
 - one-table updates*, 1702-1703
 - providers*, 1690-1691
- RDM (Remote DataModule)*, 1689-1690
- record contention*, 1700
- server options*, 1700-1701
- server registration*, 1691
- servers*, 1684-1687
- thin clients*, 1681-1682
- threading*, 1686
- two-tier applications*, 1721-1723
- undoing changes*, 1693-1694
- multithreaded graphics, 530-532
- mutexes, 503-506
- OLE containers, 1202-1204
- owner-draw list boxes, 401
- PackInfo, 678-679
- paint, 326, 340
- passwords, 179
- porting 16-bit to 32-bit system, 53
- preventing multiple instances, 616-620
- project files, 24, 137
- resource files, 175-176
- sample application
 - project file*, 25
 - source code*, 23
- scalability, 1538
- semaphores, 507-510
- small example, 25
- source code units, 23
- splash screens, 182-183
- SRF database example
 - data module*, 1505
 - filter form*, 1513-1516
 - key search form*, 1510-1512
 - main form*, 1506-1510
- subclassing windows, 608-610
- SysInfo, 684
- TestDLL.dpr, 667
- TestSend, 640, 642
- TextUpper.dpr, 567-571
- threads, 477-480
 - critical sections*, 500-503
 - priorities*, 488
 - resuming*, 491
 - scheduling*, 488
 - suspending*, 491
 - synchronization*, 483-486, 497, 500
 - terminating*, 481-483
 - timing*, 491-492
- tic-tac-toe example, 1182-1193
- using C/C++ files, 643-644
- VerInfo.dpr, 601-603
- ApplyRange() function**, 1500
- ApplyUpdates() function**, 1694-1695
- arithmetic operators**, 42
- arrays**
 - accessing, 73
 - Automation, 1154-1155
 - of constants, 91-93
 - dynamic, 72
 - for loops, 71
 - indexing strings as, 756
 - multidimensional, 72-74
 - open parameters, 91
 - types, 223
 - variants, 67-70, 1170
- ascenders**, 353
- ascent**, 354
- assembly language**
 - power versus complexity, 13
 - upgrading, 764
- assembly-written procedures**, 624
- Assign() function**, 296
- AssignFile() function**, 538
- assignment operators**, 40
- AssignPrn() procedure**, 422
- audio**
 - AVI (audio-video interleave), 841
 - CD players, 847
 - initializing*, 849
 - source*, 854
 - splash screens*, 847, 851
 - time-conversion routines*, 852
 - updating information*, 851
- audio-video interleave (AVI)**, 841
- auto-creating forms**, 231
- automatic logins**, 1564-1565
- automation**, 1109
 - arrays, 1154-1155
 - clients, 1146-1148
 - collections, 1154-1155
 - controllers
 - in-process servers*, 1138-1140
 - out-of-process servers*, 1133-1136
 - early binding, 1111
 - events, 1141-1143, 1149-1153
 - exchanging binary data, 1164-1167
 - late binding, 1170
 - object registration, 1112
 - safe arrays, 1164-1167

servers, 752, 1144-1145
creating, 1112
in-process, 1128-1132,
1138-1140
out-of-process, 1112-1126,
1133-1136
sinks, 1144
sources, 1144
SQL aggregate functions,
1604-1605
type libraries, 1111
available drives, listing, 580
AVI (audio-video interleave)
files, 841

B

back end (Inventory Manager), 1732-1733
access to data-access component events, 1757
customer functions, 1755
domains, 1734-1735
generators, 1737
layout, 1758
login/logout functions,
1753-1755
part functions, 1755
permissions, 1741
sales functions, 1755-1756
stored procedures, 1738-1740
tables
CUSTOMER, 1735-1736
ITEMS, 1736-1737
PART, 1736
SALES, 1736
TDDGSalesDataModule,
1742-1753
temporary table functions,
1756-1757
triggers, 1737-1738
background queries, 524, 527
base mode forms, 165
baseline, 354
BASIC, 15
BASM (built-in assembler),
622-625
BDE. See Borland Database
Engine
begin keyword, 84
begin..end pair, 219
BeginDoc TPrinter function,
421
between application mes-
sages, 206
bibliography, 1928-1929
bidirectional cursors, 1580

binary files
Automation exchanges,
1164-1167
defined, 538
Binary Large Object fields.
See BLOB fields
binding, 1111, 1170. See also
early-bound CORBA client;
late-bound CORBA client
bit flags (TDeviceMode struc-
ture), 451-452
bitmap viewer, 796
bitmaps, 276
copying, 342
drawing, 808
image, 277
mask, 277
pasting to Clipboard, 341
printing, 424
viewer, 796
bitwise operators, 43
BLOB (Binary Large Object)
fields, 1487
data types, 1487
examples, 1488-1492
TBlobField class, 1487
blocks, try..finally, 63
BOF property, 1469-1470
bookmarks, 1470-1471, 1622
books, 1928-1929
Boolean types, 221, 262, 750-
751
Border Style/Icon project, 150-
151
borders (forms), 149
Borland Database Engine
(BDE), 1588
Check() procedure, 1588
cursors, 1589
error codes, 1901-1926
handles, 1589
unit, 1588
Borland Multitier Distributed
Application Services Suite.
See MIDAS applications
BPL files, 141
Break() procedure, 88
Breakpoint List dialog box,
870
breakpoints, 869
address, 872
conditional, 869
data, 871
groups, 873
module load breakpoints, 872
briefcase model, 1682, 1699
broadcasting messages, 207

browsing bugs (bug-reporting
application), 1825
all bugs, 1850-1854
user-entered bugs, 1852-1854
wbdpBugswaBrowseBugs
Action() function, 1850
brushes, 288, 293
btn type prefix, 235
btnAppendClick() function,
555
btnUpdateClick() function, 555
bug-reporting application
actions, 1827-1829
adding users to, 1825-1827
application initialization and
login, 1823-1824
browsing bugs
all bugs, 1850-1854
user-entered bugs,
1852-1854
wbdpBugswaBrowseBugs
Action() function, 1850
browsing/filtering bugs, 1825
bug-manipulation routines,
1825
data module, 1811-1823, 1841
displaying bug detail,
1854-1855
enabling for Web, 1837
general requirements,
1810-1811
headers/footers, 1844
helper routines, 1843-1844
introduction page, 1844-1846
main form, 1829-1837
page layout, 1840-1841
Paradox keys, 1824
project file, 1823-1824
retrieving bug data, 1856-1858
TActionItem instances, 1843
TDataSetTableProducer component,
1841-1842
TWebDispatcher component,
1842-1843
user form, 1826-1827
user logon, 1810
username retrieval, 1846-1847
username verification,
1847-1849
verifying bug insertion,
1858-1861
bugs. See also bug-reporting
application
browsing
all bugs, 1850-1854
user-entered bugs,
1852-1854
wbdpBugswaBrowseBugs
Action() function, 1850

- common, 865
 - class instances*, 866
 - class variable*, 865
 - nil pointer dereferencing*, 868
 - PChar-type variables*, 868
 - wild pointer*, 867
 - displaying information about, 1854-1855
 - business rules**, 1539
 - centralizing, 1681
 - defined, 1537
 - business tier**, 1680
 - buttons**
 - forms, 25
 - ModalResult property, 146
 - mouse click responses, 26
 - width, 26
- C
- C/C++**, 15
 - classes, 653
 - comments, 34
 - in Delphi projects, 643-644
 - functions, 644
 - power versus complexity, 13
 - sharing data, 645-646
 - syntax highlighting, 31
 - C++ Builder 1**, 744
 - C++ Builder 3**, 744
 - C++ Builder 4**, 744
 - cache**
 - cached updates, 1581
 - internal caching, 1786
 - calculated fields**, 1484
 - call stack**, 875
 - Callback functions**, 397, 400-403
 - CallC project**, 655-657
 - calling functions**, 253
 - CallNextHookEx() function**, 628
 - CallWindowProc() function**, 609
 - CancelSale() function**, 1756
 - CancelUpdates() function**, 1694
 - Canvas**, 276, 280, 295, 420
 - canvas pen**, 287
 - Capitals project**, 542-544
 - captionless resizable forms**, 150
 - CardImpl.pas unit**, 1336-1341
 - Cardinal type**, 46, 761
 - CardPP.pas unit**, 1343-1345
 - case statements**, 85, 224
 - cbdata unit**, 828-830
 - ccode.c module**, 647
 - CD players**
 - audio, 847
 - components, 847
 - initializing, 849
 - source, 854
 - splash screen, 847, 851
 - time-conversion routines, 852
 - updating information, 851
 - cdll.cpp module**, 653
 - cells**, 353
 - centralized business logic**, 1681-1683
 - centralized data control**, 1540-1541
 - CGI (Common Gateway Interface)**, 1645-1646
 - character cells**, 353
 - Character menu items**, 787
 - characters**
 - measurements, 354
 - types, 47
 - upgrading, 753-759
 - Check() function**, 1588
 - child forms**, 162
 - constructors, 164
 - hidden, 815-818
 - MDI applications, 776-779, 1204-1206
 - child windows**
 - forms, 165
 - MDI applications, 775, 818
 - Chord() function**, 302
 - ciInternal value**, 1685
 - ciMultiInstance value**, 1685
 - circular references**, 96
 - ciSingleInstance value**, 1685
 - class completion**, 29
 - class factories**, 1102-1103
 - class keyword**, 109
 - class variable**, 865
 - classes**, 100. *See also specific class names (for example, TDeviceMode class)*
 - ancestor, 932
 - C++, 653
 - common program bug, 866
 - container, 278
 - control wrapper, 252
 - descendant, 227
 - exceptions, 116-117
 - field names, 227
 - formatting, 226
 - friend, 107
 - naming, 226
 - process priority, 488-489
 - project framework, 145
 - properties, 105
 - property categories, 1059
 - specifiers, 106
 - ClassInfo() function**, 905
 - ClassInfo.dpr project**, 907-911
 - ClearCanvas() function**, 287, 292, 310
 - client area (MDI applications)**, 775
 - client tracker application**
 - client main form, 1800-1807
 - customer data module, 1789-1797
 - error reconciliation, 1798-1799
 - initial wiring, 1797-1798
 - online and offline data manipulation, 1799
 - online and offline persistence, 1800
 - overview, 1786
 - record filtering, 1800
 - remote data module, 1786-1788
 - server-side filtering, 1789
 - client window (MDI)**, 775
 - client-area coordinates**, 315
 - client/server programming**
 - advantages, 1536-1537
 - application-level connections, 1563-1564
 - architecture, 1537
 - business rules*, 1539
 - clients*, 1537-1538
 - servers*, 1538-1539
 - business rules, 1537
 - cached updates, 1581
 - centralized data control, 1540-1541
 - client tracker application
 - client main form*, 1800-1807
 - customer data module*, 1789-1797
 - error reconciliation*, 1798-1799
 - initial wiring*, 1797-1798
 - online and offline data manipulation*, 1799
 - online and offline persistence*, 1800
 - overview*, 1786
 - record filtering*, 1800
 - remote data module*, 1786-1788
 - server-side filtering*, 1789
 - data integrity, 1540, 1545, 1555-1557

- data security, 1539-1540, 1544
- database objects, 1548
 - domains, 1551-1552
 - indexes, 1550
 - privileges/access rights, 1559-1561
 - stored procedures, 1553-1557
 - tables, 1549-1551
 - triggers, 1557-1559
 - views, 1552
- Inventory Manager application, 1732-1733
 - access to data-access component events, 1757
 - TCustomerForm (customer entry), 1768
 - customer functions, 1755
 - domains, 1734-1735
 - generators, 1737
 - layout, 1758
 - login/logout functions, 1753-1755
 - part functions, 1755
 - permissions, 1741
 - sales functions, 1755-1756
 - stored procedures, 1738-1740
 - tables, 1735-1737
 - TCustomerForm (customer entry), 1764-1767
 - TCustomerSearchForm (customer searches), 1778-1783
 - TDDGSalesDataModule, 1742-1753
 - temporary table functions, 1756-1757
 - TMainForm, 1758-1763
 - TNewSalesForm (sales entry), 1774-1778
 - TPartsForm (inventory entry), 1768-1773
 - triggers, 1737-1738
 - TSalesForm (sales browsing), 1773
- logins
 - automatic, 1564-1565
 - customized login displays, 1565
 - login/logoff logic example, 1566-1568
- logoffs, 1566-1568
- record locking, 1544-1545
- record-oriented data access, 1544
- set-oriented data access, 1544
- SQL (Standard Query Language), 1546-1547
 - dynamic SQL, 1573, 1576-1579
 - pass-through mode, 1570-1571
- TDatabase class
 - functions, 1563
 - properties, 1561-1563
- three-tier model, 1542-1543
- TQuery class, 1573
 - Params property, 1575
 - Params property editor, 1574
 - ParamsByName function, 1575-1576
 - result sets, 1579-1581
 - stored procedure execution, 1583-1585
 - UniDirectional property, 1580
- transactions
 - explicit, 1568
 - handling, 1568-1570
 - implicit, 1568
 - orientation, 1546
- TStoredProc class, 1581-1583
- TTable class, 1571-1573
- two-tier model, 1542
- work distribution, 1541
- client-side master-detail linking, 1714-1721**
- client-side transactions, 1694**
- clients, 1537-1538. See also client/server programming**
- Automation, 1146-1148
- client tracker application
 - customer data module, 1789-1797
 - error reconciliation, 1798-1799
 - initial wiring, 1797-1798
 - main form, 1800-1807
 - online and offline data manipulation, 1799
 - online and offline persistence, 1800
 - record filtering, 1800
- CORBA early-bound client, 1445-1446
 - connecting to server, 1447-1448
 - creating, 1446
- CORBA late-bound client, 1449-1451
- fat clients, 1538-1539, 1681
- MIDAS applications
 - client optimization, 1697-1698
 - client-side transactions, 1694
 - connections, 1687-1689
 - data editing, 1692-1693
 - data packet limitations, 1698-1699
 - data reconciliation, 1694-1696
 - data retrieval, 1691-1692
 - error reconciliation, 1696-1697
 - master-detail linking, 1714-1721
 - undoing changes, 1693-1694
- tic-tac-toe client, 1195-1197, 1200
- thin clients, 1681
- Clipboard, 798, 824**
- attaching applications to, 342
- customizing, 828, 831
- graphics operations, 826-827
- OLE object operations, 1207
- pasting data to, 341
- text operations, 825
- Close() function, 1469**
- CloseFile() function, 539**
- CloseFile() procedure, 422**
- CloseHandle() function, 127, 567**
- closing**
 - datasets, 1469
 - text files, 539
- CLSIDs (class IDs), 1096**
- Code Editor, 22, 869**
 - navigating code, 29
 - viewing source code, 23
- Code Explorer, 22**
- Code Insight, 17, 32**
- code. See source code**
- CodeGen.txt template, 1409**
- coherence (memory-mapped files), 571**
- collections**
 - Automation, 1154-1155
 - TRunButtons, 1076, 1079-1084
- color printing, 454**
- color property, 280**
- Columnar Report demo, 427-431**
- columns, computed, 1550**
- COM (Component Object Model), 124, 1090**
 - aggregation, 1108
 - class factories, 1102-1103
 - CLSIDs (class IDs), 1096
 - connection points, 1143
 - differences from OLE and ActiveX, 1091

- dispinterfaces, 1173
- DllCanUnloadNow() function, 1106
- DllGetClassObject() function, 1106
- DllRegisterServer() function, 1105
- DllUnregisterServer() function, 1105
- GUIDs, 1095
- IDispatch interface, 1110
- IIDs (interface IDs), 1096
- in-proc servers, 1104-1106
- interfaces, 1090, 1094, 1171-1173
- IUnknown interface, 1095
 - HResult return type*, 1102
 - IIDs*, 1101
 - variables*, 1097-1100
- Object Pascal support, 1168
- Object Wizard, 1270
- objects, 1091
- out-of-process servers, 1107
 - instanting*, 1108
 - registering*, 1107
- TComObject class, 1103-1104
- TComObjectFactory class, 1103-1104
- TGUID records, 1096
- threading models, 1093
- variant arrays, 1170
- variants, 1168
- vtables, 1094
- Com-based programming, 223**
- CombineRgn() function, 1011**
- command-line parameters, debugging, 869**
- commands. See also functions**
 - Editor Options, Tools, 218
 - Import ActiveX Control, Component menu, 240
- comments, 34**
- committed memory, 131**
- committed transactions, 1546**
- Common Object Request Broker Architecture. See CORBA**
- comparison operators, 41**
- compatibility components (ADO), 1529-1530**
- compiled units, 746**
- compilers, 15**
 - conditional defines, 744
 - directives, 996
- Idl2Pas, 1454
 - interface definitions*, 1455-1456
 - stub and helper classes*, 1456-1461
 - speed and compiled code efficiency, 12
- complexity of languages versus power, 13**
- component classes, 1091**
- component editors, 1041-1045**
- Component menu commands, Import ActiveX, 240**
- Component Palette, 20, 234, 238, 276**
 - ActiveX controls, 239, 242
 - QReport page, 420
- component units, 230, 234**
- Component wrapper, 242-251**
- ComponentCount property (TApplication class), 155**
- components, 885. See also classes**
 - ancestor classes, 932
 - animated, 1012
 - AppBar
 - AppBar Wizard*, 1403, 1409
 - AppBarFrm.pas unit*, 1245-1247
 - AppBar.pas unit*, 1238-1244
 - dwMessage parameter*, 1234
 - notification messages*, 1237-1238
 - pData parameter*, 1235
 - SHAppBarMessage() function*, 1234
 - TAppBar form*, 1236
 - application partitioning packages, 995
 - array properties, 941-942
 - CD players, 847
 - custom, 886
 - customizing, 28
 - default array properties, 944
 - default property values, 943
 - design packages, 992-995
 - elliptical hint window, 1008
 - enumerated properties, 936
 - event handlers, 890-891
 - event properties, 946
 - events, 21, 890
 - extensibility, 28
 - forms, 984-985
 - graphical, 886
 - hierarchy, 894
 - icons, 958
 - lists of components, 1065-1076, 1079-1083
 - major, 234
 - marquee, 1012-1014, 1017-1024
 - animating*, 1016
 - copying text*, 1015
 - testing*, 1026, 1028
 - functions, 890, 950
 - naming, 234
 - nonvisual, 887
 - object properties, 937-940
 - overriding constructors, 951-952
 - overriding destructors, 953
 - ownership, 892
 - packages, 987-988, 996
 - parenthood, 893
 - properties, 21, 887-889
 - access functions*, 888-889
 - categories*, 1058-1059
 - custom categories*, 1061-1063
 - property editors, 1029-1034
 - dialog style*, 1037-1040
 - registering*, 1035-1036
 - pseudo-visual, 1008
 - qualifier names, 235
 - registering, 954-955
 - runtime packages, 992-993
 - set properties, 936
 - simple properties, 935
 - standard, 885
 - states, 952
 - streaming, 892, 1046-1049
 - TddgButtonEdit, 976-979
 - TddgDigitalClock, 980-983
 - TddgExtendedMemo, 959-961
 - TddgHalfMinute, 946-948
 - TddgLaunchPad, 1066-1076
 - TddgPasswordDialog, 986
 - TddgRunButton, 969-975
 - TddgTabListbox., 962-967
 - TddgWaveFile, 1050-1057, 1061-1063
 - testing, 955-957
 - TImage, 341
 - tray-notification icon, 1218
 - handling mouse clicks*, 1222-1224
 - Hide Task property*, 1224
 - Icon property*, 1222

- main unit, 1232-1234*
 - message handling, 1221*
 - parameters, 1219*
- type prefixes, 235
- units, 933-934
- user-defined, 234
- writing, 930-931, 1013
- Components property (TApplication class), 155**
- compound documents, 1092**
- computed columns, 1550**
- COMPUTEDBYclause, 1550**
- Concat() function, 50**
- concatenating strings, 50**
- conditional breakpoints, 869**
- conditional defines, 744**
- connecting**
 - ADP connectivity components, 1529
 - COM connection points, 1143
 - to CORBA servers, 1447-1448
 - with ODBC (Open Database Connectivity), 1522
 - connecting to MSAccess, 1523-1527*
 - drivers, 1522*
- constant parameters, 91, 221**
- constants, 38-40**
- constructors**
 - child forms, 164
 - components, overriding, 951-952
 - objects, 101
- contact-free programming, 27**
- container classes, 278**
- containers (OLE), 1091, 1202-1204**
- Contains folder, 991**
- context menu handlers, 1276-1279**
 - ContMain.pas unit, 1282-1285
 - registering, 1280
- Continue() procedures, 88**
- ContMain.pas unit, 1282-1285**
- control interfaces, 252**
- control wrappers, 252**
- controllers, Automation, 1109**
 - in-process servers, 1138-1140
 - out-of-process servers, 1133-1136
- controls**
 - ActiveX, 237-268, 1298-1299, 1302. *See also* ActiveX controls
 - controls
 - Component Palette, 239, 242*
 - invoking, 270*
 - licensing, 1332-1333*
 - OCX application, 256*
 - shipping, 256*
 - System Registry, 256*
- custom, 377
- frame, 1331
- Listview, 1157-1160, 1162
- Memo, 1302, 1305-1328
- VBX, 238
- VCL, 1609
- converting types, 82**
- cookies, 1665-1669**
- cooperative multitasking, 476**
- coordinates**
 - client-area, 315
 - coordinate mapping, 315
 - coordinate systems, 313
 - device coordinates, 313*
 - form coordinates, 314*
 - mapping, 315, 318*
 - mapping mode, 320*
 - screen coordinates, 314*
 - Window extents, 318*
 - device, 313
 - logical, 313-314
 - window, 314
 - world, 313
- copy hook handlers, 1270, 1273-1275**
- Copy() function, 73**
- CopyCallback() function, 1270-1272**
- CopyCut() function, 342**
- CopyData project**
 - main unit, 672
 - read unit, 674-676
- CopyDirectoryTree() function, 604-605**
- copying**
 - bitmaps, 342
 - directories, 604-605
 - directory trees, 589-590
 - tables, 1606
 - untyped files, 557-560
- CopyMain.pas unit, 1273-1275**
- CopyMode property, 296**
- CopyPasteBoxToImage() function, 342**
- CopyRect() function, 279**
- CopyToClipboard() function, 831**
- CORBA (Common Object Request Broker Architecture), 117, 412**
 - classes, 1440-1443
 - Delphi-generated object implementation, 1425-1426
 - Delphi TypeLibrary Editor, 1426-1428
 - early-bound client, 1445-1446
 - connecting to server, 1447-1448*
 - creating, 1446*
 - Idl2Pas compiler, 1454
 - interface definitions, 1455-1456*
 - stub and helper classes, 1456-1461*
 - interfaces, 1412-1413
 - IDispatch, 1415-1417*
 - IQueryServer, 1429-1440, 1444*
 - IUnknown, 1415-1417*
 - Java server
 - accessing, 1452-1454*
 - IDL, 1452*
 - late-bound client, 1449-1451
 - Object Wizard, 1418-1419, 1427-1428
 - ORBs (Object Request Brokers), 1412
 - server implementation
 - connecting to, 1447-1448*
 - IQueryServer IDL, 1444*
 - IQueryServer interface functions, 1429-1430*
 - IQueryServer stub and skeleton, 1430-1440*
 - Object Wizard, 1427*
 - running, 1445*
 - TQueryServer implementation unit, 1440-1443*
 - Type Library Editor, 1428*
 - skeletons
 - defined, 1413*
 - Delphi-generated skeleton example, 1420-1424*
 - IQueryServer stub and skeleton unit, 1430-1440*
 - stubs
 - defined, 1413*
 - Delphi-generated stub example, 1420-1424*
 - Idl2Pas-generated stubs, 1456-1461*
 - IQueryServer stub and skeleton unit, 1430-1440*
 - support classes, 1417-1418
 - threading models, 1420
 - VisiBroker
 - administration tools, 1415*
 - deploying, 1461-1462*
 - IREP (Interface Repository), 1414-1415*

- OAD (Object Activation Daemon), 1414*
 - Smart Agent, 1414*
 - Count DrawText parameter, 312**
 - CPU view**
 - debugging, 879
 - Flag pane, 880
 - Memory Dump pane, 880
 - Register pane, 880
 - Stack pane, 880
 - Create() function, 157**
 - CREATEDOMAIN statement, 1551-1552**
 - CREATEEXCEPTION statement, 1557**
 - CreateFileMapping() function, 563**
 - CreateForm() functions, 156**
 - CREATEINDEX statement, 1550**
 - CreateMutex() function, 126**
 - CreateRoundRectRgn() function, 1011**
 - CREATETABLE statement, 1549-1550**
 - CreateToolhelp32Snapshot() function, 702**
 - CREATETRIGGER statement, 1557-1558**
 - CREATEVIEW statement, 1552**
 - creating**
 - memory-mapped files, 562-563
 - paint programs, 326, 340
 - text files, 540
 - critical sections (threads), 500-503**
 - cross-language CORBA**
 - Idl2Pas compiler, 1454
 - interface definitions, 1455-1456*
 - stub and helper classes, 1456-1461*
 - Java server
 - accessing, 1452-1454*
 - IDL, 1452*
 - curly-brace comments, 34**
 - Currency type, 71**
 - current directory, finding name of, 585-586**
 - cursors**
 - bidirectional, 1580
 - customizing, 177
 - handle, 1589
 - scrollable, 1544
 - synching, 1589
 - custom Clipboard project, 833-835**
 - custom components, 886**
 - application-level connections, 1563-1564
 - background queries, 524, 527
 - BDE data-access components, 1467-1468
 - cached updates, 1581
 - client/server. *See* client/server programming
 - datasets, 1466-1467
 - bookmarks, 1470-1471*
 - closing, 1469*
 - filtering, 1494-1497, 1514-1516*
 - navigating, 1469-1475*
 - opening, 1468*
 - refreshing, 1492-1493*
 - searching, 1496-1497*
 - states, 1493-1494*
 - TADODataSet, 1529*
 - defined, 1467
 - domains, 1551-1552
 - fields
 - accessing values of, 1476-1478*
 - adding, 1481*
 - BLOB fields, 1487-1492*
 - calculated fields, 1484*
 - data types, 1478*
 - drag-and-drop fields, 1486*
 - editing, 1479-1480*
 - Fields Editor, 1480-1481, 1484-1486*
 - lookup fields, 1484-1485*
 - names and numbers, 1478*
 - Object Inspector, 1483-1484*
 - TField descendants, 1481-1483*
 - indexes, 1467, 1550
 - Inventory Manager application, 1732-1733
 - access to data-access component events, 1757*
 - TCustomerForm (customer entry), 1768*
 - customer functions, 1755*
 - domains, 1734-1735*
 - generators, 1737*
 - layout, 1758*
 - login/logout functions, 1753-1755*
 - partr functions, 1755*
 - permissions, 1741*
 - sales functions, 1755-1756*
 - stored procedures, 1738-1740*
 - custom controls, 377**
 - customer entry (Inventory Manager), 1764-1768**
 - CUSTOMER table (Inventory Manager), 1735-1736**
 - customized login displays, 1565**
 - customizing**
 - Clipboard, 828, 831
 - components, 28
 - cursors, 177
 - hint window, 1008
 - property categories, 1061-1063
- ## D
- daemons, OAD (Object Activation Daemon), 1414**
 - DAO (Data Access Objects), 1528**
 - data access**
 - MIDAS applications, 1686
 - record-oriented, 1544
 - set-oriented, 1544
 - data breakpoints, 871**
 - data files (text file tables), 1520**
 - data integrity**
 - client/server programming, 1540
 - enforcing, 1555-1557
 - data-modeling tools, 1733**
 - data modules, 1504**
 - bug-reporting application, 1841
 - naming, 229-230
 - data packets, 1698-1699**
 - data reconciliation, 1694-1696**
 - data sources, TDataSource class, 1476**
 - data stores (ADO), 1530-1532**
 - data streaming. *See* streams**
 - data tier, 1680**
 - data types, 1549**
 - BLOB fields, 1487
 - fields, 1478
 - WideString, 1171
 - Database Form Expert, 29**
 - databases**
 - ADO, 1527-1528
 - access components, 1529*
 - compatibility components, 1529-1530*
 - connectivity components, 1529*
 - data stores, 1530-1532*
 - deployment, 1533*
 - example, 1532-1533*

- tables, 1735-1737
- TCustomerForm (customer entry), 1764-1767
- TCustomerSearchForm (customer searches), 1778-1783
- TDDGSalesDataModule, 1742-1753
- temporary table functions, 1756-1757
- TMainForm, 1758-1763
- TNewSalesForm (sales entry), 1774-1778
- TPartsForm (inventory entry), 1768-1773
- triggers, 1737-1738
- TSalesForm (sales browsing), 1773
- Jet, 1528
- logins
 - automatic, 1564-1565
 - customized login displays, 1565
 - login/logoff logic example, 1566-1568
- MIDAS applications
 - advertising services, 1687
 - architecture, 1680-1684
 - benefits of, 1681-1683
 - briefcase model, 1682, 1699
 - centralized business logic, 1681
 - client connections, 1687-1689
 - client optimization, 1697-1698
 - client-side transactions, 1694
 - common mistakes, 1683
 - data access, 1686
 - data editing, 1692-1693
 - data packet limitations, 1698-1699
 - data reconciliation, 1694-1696
 - data retrieval, 1691-1692
 - DCOMconfiguration, 1724-1725
 - deploying, 1723-1727
 - dynamic SQL, 1699-1700
 - error reconciliation, 1682, 1696-1697
 - fault tolerance, 1682
 - firewalls, 1726-1727
 - HTML presentation, 1705-1709
 - InternetExpress, 1709-1713
 - joins, 1702
 - licensing issues, 1723-1724
 - load balancing, 1682-1683
 - master-detail linking, 1714-1721
 - master/detail relationships, 1701-1702
 - multitable updates, 1703-1704
 - nested datasets, 1702, 1713-1714
 - one-table updates, 1702-1703
 - providers, 1690-1691
 - RDM (Remote DataModule), 1689-1690
 - record contention, 1700
 - server options, 1700-1701
 - server registration, 1691
 - servers, 1684-1687
 - thin clients, 1681-1682
 - threading, 1686
 - two-tier applications, 1721-1723
 - undoing changes, 1693-1694
- migrating from Delphi 4, 748
- ODBC, 1522
 - connecting to MSAccess, 1523-1527
 - drivers, 1522
- privileges/access rights
 - granting, 1559-1560
 - revoking, 1561
- queries
 - defined, 1467
 - parameterized, 1574-1576
 - result sets, 1579-1581
 - TQuery class, 1517, 1573-1576, 1579-1585
- records
 - finding, 1496-1498, 1509-1512
 - locking, 1544-1545
- SQL pass-through mode, 1570-1571
- SRF project example
 - data module, 1505
 - filter form, 1513-1516
 - key search form, 1510-1512
 - main form, 1506-1510
- stored procedures
 - defining, 1553
 - enforcing data integrity with, 1555-1557
 - executable, 1554-1555
 - executing, 1581-1583
 - result sets, 1583-1585
 - SELECT, 1553-1554
 - TStoredProc class, 1517, 1581-1583
- tables, 1466
 - computed columns, 1550
 - creating, 1549-1550
 - data types, 1549
 - default values, 1551
 - events, 1502-1504
 - foreign keys, 1551
 - searching, 1497-1502, 1509-1512
 - TTable class, 1571-1573
- TDatabase class
 - functions, 1563
 - properties, 1561-1563
- TDataSource class, 1476
- text file tables, 1517
 - data files, 1520
 - importing, 1521-1522
 - limitations, 1520-1521
 - schema files, 1518-1519
- transactions
 - explicit, 1568
 - handling, 1568-1570
 - implicit, 1568
- triggers, 1557-1559
- VCL, 1587-1641
 - database architecture, 1467
 - TDataSet, 1613-1617
- views, 1552
- datasets, 1466-1467, 1492. See also tables**
- bookmarks, 1470-1471
- closing, 1469
- fields
 - accessing values of, 1476-1478
 - adding, 1481
 - BLOB fields, 1487-1492
 - calculated fields, 1484
 - data types, 1478
 - drag-and-drop fields, 1486
 - editing, 1479-1480
 - Fields Editor, 1480-1481, 1484-1486
 - lookup fields, 1484-1485
 - names and numbers, 1478
 - Object Inspector, 1483-1484
 - TField descendants, 1481-1483
- filtering, 1494-1497, 1514-1516
- navigating, 1469-1475
- nesting, 1702, 1713-1714
- opening, 1468
- refreshing, 1492-1493

- searching, 1496-1497
 - states, 1493-1494
 - TADODataset class, 1529
 - DAX (Delphi ActiveX framework), 1330-1331**
 - licensing ActiveX controls, 1332-1333
 - reflector window, 1331
 - dBASE tables, 16, 1590**
 - deleted records, 1591-1593
 - packing, 1594
 - physical record number, 1590
 - undeleted records, 1593
 - DbiGetRecord() function, 1590**
 - DBSound.pas, 1609-1613**
 - DC DrawText parameter, 312**
 - DCOM (Distributed Component Object Model), 1108, 1724-1725**
 - DCs (device contexts), 312**
 - DCU files, 141, 746**
 - DDG**
 - bug-reporting application
 - actions*, 1827-1829
 - adding users to*, 1825-1827
 - application initialization and login*, 1823-1824
 - browsing bugs*, 1850-1854
 - browsing/filtering bugs*, 1825
 - bug-manipulation routines*, 1825
 - data module*, 1811-1823, 1841
 - displaying bug detail*, 1854-1855
 - enabling for Web*, 1837
 - general requirements*, 1810-1811
 - headers/footers*, 1844
 - helper routines*, 1843-1844
 - introduction page*, 1844-1846
 - main form*, 1829-1837
 - page layout*, 1840-1841
 - Paradox keys*, 1824
 - project file*, 1823-1824
 - retrieving bug data*, 1856-1858
 - TActionItem instances*, 1843
 - TDataSetTableProducer component*, 1841-1842
 - TWebDispatcher component*, 1842-1843
 - user form*, 1826-1827
 - user logon*, 1810
 - username retrieval*, 1846-1847
 - username verification*, 1847-1849
 - verifying bug insertion*, 1858-1861
 - Search Wizard
 - DDGSrch.dpr unit*, 1393
 - InitWiz.pas unit*, 1391-1392
- DDGMPlay project, 844**
- DDGSearch Wizard, 1394-1401**
- DDGSrch.dpr unit, 1393**
- DDGTbls.pas, 1598-1602**
- DDG_DS.pas, 1630-1640**
- debug inspectors, 874**
- debugger, 11**
- debugging, 863-880**
 - breakpoints, 869
 - call stack, 875
 - CPU view, 879
 - DLL, 878
 - Evaluate option, 875
 - Event Log, 877
 - inspectors, 874
 - integrated debugger, 869
 - line-by-line, 873
 - Modify option, 875
 - Modules view, 877
 - MTS, 1201
 - shell extensions, 1269
 - viewing threads, 876
 - Watch window, 874
- Dec() function, 44**
- declaring. See defining**
- Decorative font family, 353**
- decrement procedures, 44**
- default value parameters, 35**
- DefineBinaryProperty() function, 1050-1052**
- DefineProperty() function, 1048**
- defining**
 - domains, 1734-1735
 - events, 945-946, 949
 - generators, 1737
 - interfaces, 109-110
 - objects, 101
 - stored procedures, 1738-1740
 - tables, 1735-1737
 - triggers, 1737-1738
 - untyped files, 556
- DeleteBug() function, 1825**
- deleted records**
 - testing for, 1593
 - viewing, 1591
- deleting**
 - cookies, 1667
 - directory trees, 589-590
- DelSrch program, 511- 521**
 - priorities, 522
 - search threads, 516-518
- delta priority, 490**
- deploying**
 - ADO, 1533
 - MIDAS applications, 1723-1727
 - VisiBroker, 1461-1462
- dereferencing pointers, 80**
- descendant classes, 227, 253**
- descenders, 353**
- descent, 354**
- design packages**
 - compared to runtime, 233
 - components, 992-995
- designing**
 - applications, 161-162
 - user interfaces, 28
- desktop options files, 140**
- Destroy() function, 157**
- destructors, 102, 953**
- Detail9x.pas unit, 720-726**
- DetailNT.pas unit, 737-740**
- deterministic locking, 1545**
- Device contexts (DCs), 312**
- device coordinates, 313**
- device-independent bitmaps (DIBs), 276**
- DeviceCapabilities() function, 457**
- DeviceCapabilitiesA() function, 458-460**
- DeviceType property (TMediaPlayer), 846**
- df files, 140**
- dfm files, 138-139**
- DFM files, saving as text files, 24**
- dialog boxes**
 - Abort, 433
 - About, 253, 270
 - Add Data Breakpoint, 872
 - Breakpoint List, 870
 - Edit Breakpoint, 870
 - Editor Properties, 218
 - Import ActiveX, 240
 - Install, 241
 - OpenDialog, 838
 - Project Options, 231, 779, 864
 - Properties, 255
 - Register OLE Control, 240
 - Run, 869
 - Run Parameters, 869, 878
 - Tools, Environment Options, 877

- dialog property editors, 1037-1040, 1076, 1079-1084**
- DIBs (device-independent bitmaps), 276**
- directives**
 - compiler, 996
 - implements, 111-112
 - message, 207
 - overload, 35
 - reintroduce, 105
 - {*\$WEAKPACKAGEUNIT*}, 997
- directories**
 - copying, 604-605
 - current directory, 585-586
 - directory trees
 - copying*, 589-590, 604-605
 - deleting*, 589-590
 - moving to recycle bin, 605-606
 - searching, 586-589
 - SystemInfo data, 690
 - system directory, 584-585
 - Windows directory, 584
- directory trees**
 - copying, 589-590, 604-605
 - deleting, 589-590
- DirSrch.dpr project, 586-589**
- DispatchMessage() function, 207**
- dispinterfaces, 1173**
- Display property (video programming), 842**
- displaying**
 - bug information, 1854-1855
 - font information, 364
- DisplayRect property (video programming), 843**
- div operator, 43**
- DllCanUnloadNow() function, 1106**
- DllGetClassObject() function, 1106**
- DllRegisterServer() function, 1105**
- DLLs (dynamic link libraries), 124, 256, 372**
 - Callback functions, 397, 400-403
 - custom controls, 377
 - debugging, 878
 - displaying modal forms, 381-382
 - displaying modeless forms, 383-384
 - entry/exit events, 390-395
 - exceptions, 396-397
 - explicit loading, 387-389
 - exporting objects, 412-416
 - hiding implementation, 376
 - implicit linking, 385-387
 - interface units, 378-379
 - PenniesToCoins, 377
 - preferred base addresses, 373
 - PSAPI, 727
 - shared memory, 405-411
 - sharing code with applications, 376
 - upgrading, 765
- DllUnregisterServer() function, 1105**
- DMRES_DRAFT print quality, 454**
- DMRES_HIGH print quality, 454**
- DMRES_LOW print quality, 454**
- DMRES_MEDIUM print quality, 454**
- DM_BITSPERPEL bit flag, 452**
- DM_COLLATE bit flag, 451**
- DM_COLOR bit flag, 451**
- DM_COPIES bit flag, 451**
- DM_DEFAULTSOURCE bit flag, 451**
- DM_DISPLAYFLAGS bit flag, 452**
- DM_DISPLAYFREQUENCY bit flag, 452**
- DM_DITHERTYPE bit flag, 452**
- DM_DUPLEX bit flag, 451**
- DM_FORMNAME bit flag, 452**
- DM_ICMINTENT bit flag, 452**
- DM_ICMFUNCTION bit flag, 452**
- DM_LOGPIXELS bit flag, 452**
- DM_MEDIATYPE bit flag, 452**
- DM_ORIENTATION bit flag, 451**
- DM_PAPERLENGTH bit flag, 451**
- DM_PAPERSIZE bit flag, 451**
- DM_PAPERWIDTH bit flag, 451**
- DM_PELSHEIGHT bit flag, 452**
- DM_PELSWIDTH bit flag, 452**
- DM_PRINTQUALITY bit flag, 451**
- DM_SCALE bit flag, 451**
- DM_TTOPTION bit flag, 451**
- DM_YRESOLUTION bit flag, 451**
- docking**
 - toolbars, 20
 - windows, 30
- documents**
 - ActiveX, 1092
 - adding open to menus, 807
 - compound, 1092
 - standards, 217-235
- dof files, 140**
- domains, 1551-1552, 1734-1735**
- dot symbol operator, 78**
- Double type, 46, 222**
- dp files, 140**
- dpk files, 141**
- DPR files, 24, 137, 179, 183**
- drag-and-drop fields, 1486**
- drawing**
 - bitmaps, 808
 - ellipses, 302
 - lines, 301
 - sample program, 810-814
 - shapes, 302, 307
- DrawSprite() function, 349**
- DrawText parameters, 312**
- drivers (ODBC), 1522**
- drives**
 - drive types, 580-581
 - free disk space, 582-583
 - obtaining list of, 580
- dsk files, 140**
- dtAutoSelectDeviceType value, 846**
- dtAVIVideo DeviceType value, 846**
- dtCDAudio DeviceType value, 846**
- dtDAT DeviceType value, 846**
- dtDigitalVideo DeviceType value, 846**
- dtMMMovie DeviceType value, 846**
- dtOther DeviceType value, 846**
- dtOverlay DeviceType value, 846**
- dtScanner DeviceType value, 846**
- dtSequencer DeviceType value, 846**
- dtVCR DeviceType value, 846**
- dtVideodisc DeviceType value, 846**
- dtWaveAudio DeviceType value, 846**
- Dumb Wizard, 1374-1376**
- DumbWiz.pas unit, 1376**
- duplex printing, 455**
- dwMessage parameter**
 - AppBars, 1234
 - tray-notification icon component, 1218
- dynamic arrays, 72**
- dynamic link libraries. See DLLs**
- dynamic linking, 372, 375**
- dynamic functions, 104, 227**

dynamic SQL (Standard Query Language), 1573-1579, 1699-1700
dynamic typing, 60
dynamically allocated strings, 756

E

EAbort exception class, 1868
EAccessViolation exception class, 1868

early binding

Automation, 1111
 CORBA client, 1445-1446
 connecting to server, 1447-1448
 creating, 1446

early-bound CORBA client, 1445-1446

 connecting to server, 1447-1448
 creating, 1446

EAssertionFailed exception class, 1868

EBitsError exception class, 1868

EComponentError exception class, 1868

EControlC exception class, 1868

EDbEditError exception class, 1868

EDdeError exception class, 1868

Edit Breakpoint dialog box, 870

Edit menu items, 786

editing

 client data, 1692-1693
 component lists, 1076, 1079-1084
 components, 1041-1045
 fields, 1479-1480
 properties
 dialog style, 1037-1040
 as text, 1031-1034

editing functions, 1624

editor, 11

Editor Options command (Tools menu), 218

Editor Properties dialog box, 218

editors

 property. *See* property editors
 TypeLibrary Editor, 1426-1428

edt type prefix, 235

EExternalException exception class, 1868

EInOutError exception class, 1868

ElntError exception class, 1868

ElntfCastError exception class, 1869

ElntfCast exception class, 1869

ElntfGraphic exception class, 1869

ElntfGraphicOperation exception class, 1869

ElntfOperation exception class, 1870

ElntfPointer exception class, 1870

elements of arrays, accessing, 73

EListError exception class, 1870

Ellipse() function, 302

ellipses, drawing, 302

elliptical hint window, 1008-1012

EMathError exception class, 1870

embedding OLE objects, 1092, 1202

EMCIDeviceError exception class, 1871

EMenuError exception class, 1871

EMF file extension, 277

empty variants, 66

enabling applications for Internet, 1644

 CGI (Common Gateway Interface), 1645-1646
 cookies, 1665-1669
 data streaming, 1673-1677
 HTML forms, 1671-1673
 ISAPI, 1646
 NSAPI, 1646

 redirecting users, 1670-1671
 TDataSetTableProducer class, 1658-1665

 TPageProducer class, 1655-1658

 TQueryTableProducer class, 1658-1665

 TWebDispatcher class, 1647-1651

 TWebModule class, 1647-1651

 TWebRequest class, 1651-1655

 TWebResponse class, 1651-1655

 Web servers, 1646-1647

 WebModuleIWebActionItem1
 Action event handler, 1649

encapsulating VCL controls as ActiveX controls, 1301

end keyword, 84

EndDoc TPrinter function, 421

enforcing data integrity, 1555-1557

Enterprise version (Delphi), 9

entry events, 390-395

EnumDeviceDrivers() function, 727

enumerated properties, 936

enumerated types, 223, 921

EnumProcesses() function, 727

envelopes, printing, 434-448

environment variables,

 SysInfo, 694-695

EOF property, 1469-1470

EOleCtrlError exception class, 1871

EOleError exception class, 1871

EOutlineError exception class, 1871

EOutOfMemory exception class, 1871

EPackageError exception class, 1871

EParserError exception class, 1871

EPrinter exception class, 1871

EPrivilege exception class, 1871

EPropertyError exception class, 1871

ERegistryException exception class, 1871

EReportError exception class, 1872

EResNotFound exception class, 1872

errors. *See also* exceptions

 error-checking options, 864

 error codes

BDE, 1901-1926

Win32, 1873-1900

Win32 system API functions, 133

 error handling, 133

client tracker application, 1798-1799

MIDAS applications, 1696-1697

- multitier applications, 1682*
 - printing, 422*
 - error messages, 1865-1900
 - Address Not Found, 1867*
 - exception handlers, 1866*
 - runtime errors, 1867*
 - runtime, 865
 - system, 1873
 - EStackOverflow exception class, 1872**
 - EStreamError exception class, 1872**
 - EStringListError exception class, 1873**
 - EThread exception class, 1873**
 - ETreeViewError exception class, 1873**
 - Evaluate option (debugger), 875**
 - event handlers, 786**
 - Character menu items, 787
 - components, 890-891
 - Edit menu items, 786
 - File menu items, 795
 - OnClose, 147
 - OnDestroy, 148
 - Window menu items, 804
 - Event Log, 877**
 - events, 21, 27**
 - Automation, 1141-1143, 1149-1153
 - components, 890
 - defining, 945
 - Delphi, 1142
 - OnKeyDown, 27
 - OnMessage, 200
 - OnMouseDown, 27
 - properties, 945-946, 949
 - tables, 1502-1504
 - TApplication class, 158-159
 - EWin32Error exception class, 1873**
 - exception classes**
 - EAbort, 1868
 - EAccessViolation, 1868
 - EAssertionFailed, 1868
 - EBitsError, 1868
 - EComponentError, 1868
 - EControlC, 1868
 - EDbEditError, 1868
 - EDdeError, 1868
 - EExternalException, 1868
 - EInOutError, 1868
 - EIntError, 1868
 - EIntfCastError, 1869
 - EInvalidCast, 1869
 - EInvalidGraphic, 1869
 - EInvalidGraphicOperation, 1869
 - EInvalidOperation, 1870
 - EInvalidPointer, 1870
 - EITreeViewError, 1873
 - EListError, 1870
 - EMathError, 1870
 - EMCIDeviceError, 1871
 - EMenuError, 1871
 - EOleCtrlError, 1871
 - EOleError, 1871
 - EOutlineError, 1871
 - EOutOfMemory, 1871
 - EPackageError, 1871
 - EParserError, 1871
 - EPrinter, 1871
 - EPrivilege, 1871
 - EPropertyError, 1871
 - ERegistryException, 1871
 - EReportError, 1872
 - EResNotFound, 1872
 - EStackOverflow, 1872
 - EStreamError, 1872
 - EStringListError, 1873
 - Ethread, 1873
 - EWin32Error, 1873
 - Exception, 1867
 - Exception exception class, 1867**
 - exceptions, 1557, 1865-1900. See also errors**
 - classes, 116-117
 - DLLs, 396-397
 - flow of execution, 119
 - handlers, 1866
 - handling, 225, 1866
 - overriding, 180-182*
 - structured, 113-116*
 - try..except construct, 226*
 - try..except..else construct, 226*
 - try..finally construct, 225*
 - re-raising, 120
 - runtime errors, 1867
 - exclusionary set operator, 77**
 - executable stored procedure, 1554-1555**
 - executing stored procedures, 1581-1583**
 - ExeName property (TApplication class), 154**
 - exit events, 390-395**
 - exiting Windows from applications, 186**
 - experts, Database Form Expert, 29**
 - explicit loading, 387, 389**
 - explicit transactions, 1568**
 - exporting objects from DLLs, 412, 414-416**
 - expressions**
 - typecasting, 64
 - variants, 65
 - Extended type, 222**
 - extensibility of components, 28**
 - external leading, 354**
 - ExtractIcon() function, 707**
 - extranets, 1644**
 - EZThrd application, 487**
- ## F
- families of fonts, 353**
 - fat clients, 1538-1539, 1681**
 - fat servers, 1539**
 - fault tolerance, 1682**
 - fdwSound parameter (PlaySound() function), 840**
 - fields, 100**
 - accessing values of, 1476-1478
 - adding, 1481
 - BLOB fields, 1487
 - data types, 1487*
 - examples, 1488-1492*
 - TBlobField class, 1487*
 - calculated fields, 1484
 - data types, 1478
 - drag-and-drop fields, 1486
 - editing, 1479-1480
 - Fields Editor, 1480
 - adding fields, 1481, 1484-1485*
 - dragging and dropping fields, 1486*
 - formatting, 227
 - lookup fields, 1484-1485
 - names and numbers, 1478
 - naming, 227
 - Object Inspector, 1483-1484
 - TField descendants, 1481-1483
 - TLOGFONT, 362
 - visibility, 227
 - Fields Editor, 1480**
 - adding fields, 1481, 1484-1485
 - dragging and dropping fields, 1486
 - FieldValues() function, 1580**
 - file headers, 230**
 - file I/O (input/output), 538**
 - binary files, 538
 - memory-mapped files, 561
 - closing handles, 567*
 - creating, 562-563*
 - example, 567-571*
 - file coherence, 571*

- file-mapping objects*, 563-565
- File-Search project*, 575-579
- mapping views*, 565-566
- opening*, 562-563
- purpose of*, 561-562
- text-file search utility*, 571
- TMemMapFile class*, 572-575
- unmapping views*, 566-567
- text files
 - appending to*, 540-541
 - Capitals Project example*, 542-544
 - closing*, 539
 - creating*, 540
 - defined*, 538
 - opening*, 538-540
 - reading*, 541-544
- TFileRec record structure, 560-561
- TTextRec record structure, 560-561
- typed files
 - appending to*, 545
 - defined*, 538
 - FileOfRec.dpr sample project*, 550-555
 - reading*, 544
 - TFileStream class*, 545
 - TRecordStream class*, 546-550
- untyped files, 555
 - copying*, 557-560
 - declaring*, 556
 - reading*, 556
 - writing to*, 556-557
- File menu items**, 795
- file-mapping objects. See memory-mapped files**
- File-Search project**, 575-579
- FileCreate() function**, 562
- FileOfRec.dpr sample project**, 550-555
- FileOpen() function**, 562
- files**
 - AVI, 841
 - backup, 140
 - binary files, 538
 - BPL, 141
 - C/C++ in projects, 643-644
 - data module, 229
 - DCU, 141
 - df, 140
 - dfm, 138-139
 - DFM, 24
 - DLL, 256
 - dof, 140
 - .-dp, 140
 - dpk, 141
 - DPR, 24, 137, 179
 - dsk, 140
 - EMF, 277
 - finding
 - directory searches*, 586-589
 - TSearchRec record*, 591
 - TWin32FindData record*, 592
 - form, 228
 - ICO, 277
 - memory-mapped files, 408, 561
 - closing handles*, 567
 - creating*, 562-563
 - example*, 567-571
 - file coherence*, 571
 - file-mapping objects*, 563-565
 - File-Search project*, 575-579
 - mapping views*, 565-566
 - opening*, 562-563
 - purpose of*, 561-562
 - text-file search utility*, 571
 - TMemMapFile class*, 572-575
 - unmapping views*, 566-567
 - moving to recycle bin, 605-606
 - OCX, 256
 - .-pa, 140
 - packages, 989
 - pas, 138
 - PasStng.h, 648
 - project files, 24-25, 228
 - project options, 140
 - projects, 137
 - desktop options*, 140
 - form files*, 138-139
 - package files*, 141
 - resource files*, 139
 - unit files*, 138
 - remote data module, 229
 - RES, 139, 175-176
 - source files, loading, 25
 - text file tables, 1517
 - data files*, 1520
 - importing*, 1521-1522
 - limitations*, 1520-1521
 - schema files*, 1518-1519
 - text files
 - appending to*, 540-541
 - Capitals Project example*, 542-544
 - closing*, 539
 - creating*, 540
 - defined*, 538
 - opening*, 538-540
 - reading*, 541-544
 - TFileRec record structure, 560-561
 - TTextRec record structure, 560-561
 - typed files
 - appending to*, 545
 - defined*, 538
 - FileOfRec.dpr sample project*, 550-555
 - reading*, 544
 - TFileStream class*, 545
 - TRecordStream class*, 546-550
 - UDL files, 1530-1531
 - unit files, 229
 - untyped files, 555
 - copying*, 557-560
 - declaring*, 556
 - reading*, 556
 - writing to*, 556-557
 - version information, 592
 - FillFileMaskInfo() function*, 600
 - FillFileVersionInfo() function*, 599-600
 - GetFileVersion() function*, 600
 - GetPreDefLKeyString() function*, 600
 - GetProductVersion() function*, 600
 - GetUserDefLKeyString() function*, 600
 - TVerInfoRes class*, 593-598
 - WAV, 839, 841
- files of record. See typed files**
- Fill Options radio group**, 341
- FillFileMaskInfo() function**, 600
- FillFileVersionInfo() function**, 599-600
- Filter Editor**, 839
- filter form (SRF project)**, 1513-1516
- FilterByCity() function**, 1789
- FilterByState() function**, 1789
- filtering**
 - bugs, 1825
 - datasets, 1494-1497, 1514-1516
 - records, 1800
- finalization parts**, 95, 230
- FindFiles() function**, 589
- FindFirst() function**, 1496

finding

file version information, 592
FillFileMaskInfo() function, 600
FillFileVersionInfo() function, 599-600
GetFileVersion() function, 600
GetPreDefLKeyString() function, 600
GetProductVersion() function, 600
GetUserDefLKeyString() function, 600
TVerInfoRes class, 593-598

files
 directory searches, 586-589
TSearchRec record, 591
TWin32FindData record, 592
 name of current directory, 585-586
 operating system information
GetFileOS() function, 601
TVerInfoRes class, 601-603

records, 1496-1497
 key searches, 1497-1498, 1511-1512
 master/detail tables, 1500-1502
 ranges, 1499-1500, 1509-1510
 system directory, 584-585
 Windows directory, 584

FindKey() function, 1497, 1572
FindNearest() function, 1498, 1572
FindNext() function, 1496
FindWindow() function, 616
firewalls, 1726-1727
First() function, 550, 1469
Flag pane (CPU view), 880
flat address space, 767
flat memory model, 130
floating-point (/) operator, 43
floating-point types, 222
floating-point unit (FPU), 747
flow of execution, 119
fmOpen file access modes, 563
fmShare file share modes, 563
folders, shell, 1250
Font-Creation project, 356-360
fonts, 295
 advanced, 352
 ascenders, 353
 ascent, 354
 baseline, 354
 basic, 352

descenders, 353
 descent, 354
 displaying information about, 364
 families, 353
 GDI, 354
 glyphs, 352
 height, 354
 leading, 354
 point size, 354
 points, 353
 programming graphics with, 278-368
 properties, 295-296
 raster, 354
 serifs, 353
 stroke, 353-355
 styles, 295
 TrueType, 354-355
 typefaces, 352
 vector, 354-355
 Win32, 352

footers (bug-reporting application), 1844**for loops**, 71, 86, 225**foreign keys**, 1551**FOREIGN KEY clause**, 1551**form coordinates**, 314**form designer**, 11-12, 21, 254**form files**, 138-139, 228**form units**

instantiation function, 231
 naming, 230

Form Wizards, 1402-1408**FormActive()** function, 368**Format DrawText** parameter, 312**Format()** function, 685-686, 1576-1579**formatting**

classes, 226
 fields, 227
 key words, 219
 functions, 227
 parameters, 220
 parentheses, 219
 properties, 228
 reserved words, 219
 routines, 220
 source code
 begin..end pair, 219
 indentation, 218
 margins, 218
 strings, 685-686
 type names, 222
 variables, 221
 with statements, 225

FormCloseQuery() function, 1837**formless applications**, 186**FormPaint()** function, 349**forms**

accessing other forms, 143
 add-in, 998
 auto-creating, 231
 base mode, 165
 borders, 149
 buttons, 25-26
 captionless, resizable, 150
 child, 162, 165, 776-779, 815-818, 1204-1206
 client tracker main customer form, 1800-1807
 as components, 984-985
 hidden, 815-818
 icons, 149
 InfoForm, 684
 inheritance, 152
 main forms
 bug-reporting application, 1829-1837
 Inventory Manager application, 1758-1763
 MDI applications, 798-805
 Shell Link project, 1259-1267
 SRF database example, 1506-1510
 modal, 145-146, 381-382
 modeless, 147-148, 383-384
 multiple instances, 178
 naming, 231
 navigation/status, 167-172
 printing, 425
 retrieving data from, 1671-1673
 rich text editor, 788-795
 sizing, 184-185
 source code example, 23
 status, 167-172
 TDBModeForm, 165
 TDBNavStatForm, 167-172
 text editor, 779-787
 visual inheritance, 152

frame controls, 1331
frame window, 775
frames, 172, 174
framework classes, 145
free disk space, 582-583
free memory, 131
Free threading, 1686
FreeRecordBuffer(), 1619
friend classes, 107
fsBold font style, 295
fsItalic font style, 295
fStrikeOut font style, 295
fsUnderline font style, 295

functions, 78, 88, 100-102

- Abort(), 433
- AboutBox(), 253, 270
- abstract, 227, 1625
- access, 228
- AddAction(), 1827
- AddAssignToNames(), 1858
- AddEmUp(), 91
- AddErrorToClient(), 1807
- AddFooter(), 1844
- AddHeader(), 1844
- AddInts(), 36
- AddItemToSale(), 1757
- AddRef(), 1097
- AddStatusTitle(), 1858
- AddUser(), 1825
- aliasing, 1101
- API, 609
 - compatibility*, 770
 - obsolete*, 769-770
 - PlaySound()*, 840
 - upgrading*, 768
- Append(), 538-540
- AppendRec, 550
- appvMainIdle(), 349
- ApplyRange(), 1500
- ApplyUpdates(), 1694-1695
- assembly-written, 624
- Assign(), 296
- AssignFile(), 538
- Break(), 88
- btnAppendClick(), 555
- btnUpdateClick(), 555
- C/C++, 644
- Callback, 397, 400-403
- calling, 253
- CallNextHookEx(), 628
- CallWindowProc(), 609
- CancelSale(), 1756
- CancelUpdates(), 1694
- Chord(), 302
- ClassInfo(), 905
- ClearCanvas(), 292, 310
- Close(), 1469
- CloseFile(), 539
- CloseHandle(), 127, 567
- CombineRgn(), 1011
- components, 890, 950
- Concat(), 50
- Continue(), 88
- Copy(), 73
- CopyCallback(), 1270-1272
- CopyCut(), 342
- CopyDirectoryTree(), 604-605
- CopyPasteBoxToImage(), 342
- CopyRect(), 279
- CopyToClipboard(), 831
- CreateFileMapping(), 563
- CreateMutex(), 126
- CreateRoundRectRgn(), 1011
- CreateToolhelp32Snapshot(), 702
- DbiGetRecord(), 1590
- Dec(), 44
- decrement, 44
- DefineBinaryProperty(), 1050-1052
- DefineProperty(), 1048
- DeleteBug(), 1825
- DispatchMessage(), 207
- DllCanUnloadNow(), 1106
- DllGetClassObject(), 1106
- DllRegisterServer(), 1105
- DllUnregisterServer(), 1105
- DrawSprite(), 349
- dynamic, 104, 227
- editing, 1624
- Ellipse(), 302
- EnumDeviceDrivers(), 727
- EnumProcesses(), 727
- ExtractIcon(), 707
- FieldValues(), 1580
- FileCreate(), 562
- FileOpen(), 562
- FillFileMaskInfo(), 600
- FillFileVersionInfo(), 599-600
- FilterByCity(), 1789
- FilterByState(), 1789
- FindFiles(), 589
- FindFirst(), 1496
- FindKey(), 1497, 1572
- FindNearest(), 1498, 1572
- FindNext(), 1496
- FindWindow(), 616
- First(), 550, 1469
- FormActive(), 368
- Format(), 685-686, 1576-1579
- formatting, 227
- FormCloseQuery(), 1837
- FormPaint(), 349
- get, 253
- GetBaseClassInfo(), 912
- GetClassAncestry(), 912
- GetClassProperties(), 913
- GetCurrentDirectory(), 585-586
- GetCustomerName(), 1755
- GetDataSetID(), 1824
- GetDirInfo(), 690
- GetDiskFreeSpace(), 582-583
- GetDriveType(), 580-581
- GetEnumName(), 912
- GetFileOS(), 601
- GetFileVersion(), 600
- GetFromClipboard(), 832
- GetLastError(), 133
- GetNumRecs(), 549
- GetOnline(), 1799
- GetOurRec(), 549
- GetPackageInfo(), 677
- GetPreDefLKeyString(), 600
- GetProductVersion(), 600
- GetPropInfo(), 915
- GetSystemDirectory(), 584-585
- GetSystemInfo(), 690-692
- GetTextMetrics(), 1013
- GetTypeData(), 912
- GetUserDefLKeyString(), 600
- GetVersionEx(), 688-689
- GetWindowsDirectory(), 584
- GlobalAlloc(), 832
- GlobalMemoryStatus(), 686
- GotoKey(), 1498
- HandleReconcileError(), 1696-1697
- HasDefVal(), 36
- heap, 132
- Heap32First(), 712
- Heap32ListFirst(), 712
- Heap32ListNext(), 712
- Heap32Next(), 712
- helper, 51
- High(), 91
- HookMainWindow(), 614
- Inc(), 44
- increment, 44
- InitControlData(), 253
- InitControlInterface(), 253
- IsPositive(), 89
- IUnknown interface, 1097
- Last(), 550, 1469
- Length(), 53
- LineTo(), 301
- LoadImage(), 707
- Locate(), 1496-1497
- Login(), 1753-1755, 1823
- Logout(), 1753-1755
- Low(), 91
- MainWndProc(), 208
- MakeMessage(), 631-632
- MakeObjectInstance(), 611-612
- MapViewOfFile(), 565-566
- memory allocation, 58
- memory deallocation, 58
- message, 104
- MessageBeep(), 199
- mmiBitmapPattern1Click(), 293
- mmiBitmapPattern2Click(), 293
- mmiDrawTextCenter(), 311
- mmiDrawTextLeft(), 311
- mmiDrawTextRight(), 311
- mmiMM_ISOTROPICClick(), 324
- mmiPatternsClick(), 293
- mmiPenColorsClick(), 287

- mmiPenModeClick(), 287
- mmiStylesClick(), 287
- mmiTextRectClick(), 311
- Module32First(), 710
- Module32Next(), 710
- MoveBy(), 1469
- MoveTo(), 301
- naming, 227
- navigational, 1623
- New(), 80
- NewActionForm(), 1827-1829
- NewUserForm(), 1825-1827
- NextRec, 550
- OnFormatCell(), 1663-1664
- Open(), 1468
- OpenMutex(), 126
- OpenProcess(), 727
- overloading, 35, 104
- overriding, 104
- ParamByName(), 1580
- ParamsByName(), 1575-1576
- pbPasteBoxPaint(), 342
- PenniesToCoins(), 377
- Perform(), 202
- Pie(), 302
- Play(), 633
- Polygon(), 302, 307
- PolyLine(), 302
- PostMessage(), 202
- PostUser(), 1825
- pprdBugsHTMLTag(), 1851-1852
- PreviousRec(), 550
- Printer(), 420
- Prior(), 1469
- Process32First(), 703
- Process32Next(), 703
- processes, 124
- ProcessExecute(), 975
- ProcessMessage(), 207
- property-access, 227, 888-889
- QueryInterface(), 1099
- read(), 253
- ReadRec(), 550
- RealizeLength(), 53
- record number, 1629
- Rectangle(), 302
- Refresh(), 1493
- RegisterClipboardFormat(), 831
- RegisterWindowMessage(), 206
- Release(), 1097
- Reset(), 539
- Rewrite(), 538-540
- RoundRect(), 302
- RTTL, 915-919
- SafeCall(), 397, 1127
- SaleItemsTotalPrice(), 1757
- SaveSale(), 1756
- SaveToFile(), 278
- SearchForCustomer(), 1755
- SearchForPart(), 1755
- SeekRec(), 550
- SelectObject(), 128
- SendKeys(), 628-632, 640
- SendMessage(), 202
- SendTrayMessage(), 1220
- set, 253
- SetActionStatus(), 1837
- SetAsHandle(), 831
- SetControls(), 1807
- SetFillPattern(), 307
- SetFilterOnUser(), 1825
- SetKey(), 1498
- Set Length(), 52-53, 72
- SetOnline(), 1799
- SetOurRec(), 549
- SetRange(), 1499
- setter/getter, 925
- SetWindowLong(), 609
- SetWindowRgn(), 1011
- SHAppBarMessage(), 1234
- Shell_NotifyIcon(), 1218
- ShFileOperation(), 590, 604
- ShortStringAsPChar(), 55
- Show(), 147
- ShowCurrentRecord(), 555
- ShowEnvironment(), 694
- ShowModal(), 145-146
- ShowProcessDetails(), 707
- ShowProcessProperties(), 707
- SizeOf(), 47, 59, 91
- SQL aggregate, 1604-1605
- StartPlayback(), 632
- static, 103, 227
- StdWndProc(), 207
- StrAlloc(), 58-59
- StrCat, 59
- StrNew(), 59
- Synchronize(), 484
- SysAllocStrLen(), 56
- TCanvas class, 301
 - drawing lines*, 301
 - drawing shapes*, 302
 - painting text*, 307
- TComponent class, 897
- TDatabase class, 1563
- TDataSet class, 1624
- TddgRunButton component, 975
- Thread32First(), 707
- Thread32Next(), 707
- TObject class, 905
- ToolHelp32ReadProcessMemory(), 715
- ToRecycle(), 605-606
- TPersistent class, 895
- TPrinter class, 421
- TStrings class, 903
- TWinControl class, 899
- types, 103
- UndoLastChange(), 1693
- UnhookMainWindow(), 614
- UnhookWindowsHookEx(), 628
- UnmapViewOfFile(), 566-567
- UnregisterPooled(), 1727
- UpdateRegistry(), 1690
- VarArrayCreate(), 67
- VarArrayDimCount(), 68
- VarArrayHighBound(), 68
- VarArrayLock(), 68-69
- VarArrayLowBound(), 68
- VarArrayOf(), 68
- VarArrayRedim(), 68
- VarArrayRef(), 68
- VarArrayUnlock(), 68-69
- VarAsType(), 70
- VarCast(), 70
- VarClear(), 70
- VarCopy(), 70
- VarFromDateTime(), 70
- VarIsArray(), 69
- VarIsEmpty(), 70
- VarIsNull(), 70
- VarToDateTime(), 70
- VarToStr(), 70
- VarType(), 70
- virtual, 103, 227
- VirtualAlloc(), 131
- wbdpBugswaAddBugAction(), 1858-1861
- wbdpBugswaBrowseAllBugsAction(), 1851
- wbdpBugswaBrowseBugsAction(), 1850
- wbdpBugswaBrowseYourBugsAction(), 1853
- wbdpBugswaGetBugInfoAction(), 1856-1857
- wbdpBugswaIntroAction(), 1845-1846
- wbdpBugswaRetrieveBugAction(), 1854-1855
- wbdpBugswaUserNameAction(), 1847
- wbdpBugswaVerifyUserNameAction(), 1847-1849
- write, 253
- WriteRec(), 550
- ZegisterPooled(), 1727

G

garbage-collected types, 49
GDI (Graphics Device Interface), 276
 fonts, 354
 programming graphics with, 278-368
 routines
 coordinate systems, 313, 320
 mapping modes, 313-320
 objects, 127
 general-purpose units, 230
 generators, 1737
 generic thinking, 658, 661, 667-668
 get functions, 253
GetBaseClassInfo() function, 912
GetBookmarkData() function, 1622
GetBookmarkFlag() function, 1622
GetCDTotals() function, 853
GetClassAncestry() function, 912
GetClassProperties() function, 913
GetCurrentDirectory() function, 585-586
GetCustomerName() function, 1755
GetDataSetID() function, 1824
GetDeviceCaps() function, 457
GetDirInfo() function, 690
GetDiskFreeSpace() function, 582-583
GetDriveType() function, 580-581
GetEnumName() function, 912
GetFieldData() function, 1621
GetFileOS() function, 601
GetFileVersion() function, 600
GetFromClipboard() function, 832
GetLastError() function, 133
GetMapMode() function, 317
GetNumRecs() function, 549
GetOnline() function, 1799
GetOurRec() function, 549
GetPackageInfo() procedure, 677
GetPreDefLKeyString() function, 600
GetPrinter() function, 421
GetProductVersion() function, 600

GetPropInfo() function, 915
GetRecord() function, 1619
GetRecordSize() function, 1621
GetSystemDirectory() function, 584-585
GetSystemInfo() procedure, 690-692
 getter functions, 925
GetTextMetrics() function, 1013
GetTypeData() function, 912
GetUserDefLKeyString() function, 600
GetVersionEx() function, 688-689
GetWindowsDirectory() function, 584
 global data, zero-initialized, 222
 global identifiers, 143
 global variables, 222
GlobalAlloc() function, 832
GlobalMemoryStatus() function, 686
 Globally Unique Identifiers (GUIDs), 30, 1095
 glyphs, 352
GotoKey() function, 1498
GRANT statement, 1559-1560
 granting
 access rights, 1559-1560
 permissions, 1741
 graphical components, 886
 graphics. *See also* **GDI**
 animation, 342, 350-352
 bitmaps, 276
 Clipboard operations, 826-827
 icons, 277
 metafiles, 277
 multithreaded, 530-532
 TImage, 276
Graphics Device Interface. *See* **GDI**
GUIDs (Globally Unique Identifiers), 30, 1095

H

hand-marshaling Java CORBA server
 Java server access, 1452-1454
 Java server IDL, 1452
Handle property, 312
 TApplication class, 155
 TPrinter property, 420

HandleException() function, 156
HandleReconcileError() function, 1696-1697
 handlers. *See* shell extensions
 handles, 886
 instance, 126
 module, 126
 objects, 127
HasDefVal() procedure, 36
 headers (bug-reporting application), 1844
 heap
 viewing, 715-716
 walking through, 712-713
Heap32First() function, 712
Heap32ListFirst() function, 712
Heap32ListNext() function, 712
Heap32Next() function, 712
 heaps, 132, 712
 height of fonts, 354
 help, 136
HelpCommand() function, 157
HelpContext() function, 157
 helper functions, 51, 1843-1844
HelpFile property
 (TApplication class), 156
HelpJump() function, 157
Hide Task property (tray-notification icon component), 1224
 hierarchy of components, 894
High() function, 91
HInstance variable, 126
 hint window
 customizing, 1008
 elliptical, 1008-1012
 hints (tray-notification icon component), 1222
hmod parameter (PlaySound() function), 840
HookMainWindow() function, 614
 hooks, 626-632
HookWnd project, 614
HPrevInst variable, 126
HResult return type
 (IUnknown interface), 1102
HTML (Hypertext Markup Language)
 forms, retrieving data from, 1671-1673
 MIDAS applications, 1705-1709

- I**
- I/O. See file I/O(input/output)**
 - ICO file extension, 277**
 - icon handlers, 1288**
 - IconMain.pas unit, 1290-1293
 - registering, 1290
 - icon property**
 - TApplication class, 155
 - tray-notification icon component, 1222
 - IconMain.pas unit, 1290-1293**
 - icons, 277**
 - components, 958
 - forms, 149
 - image bitmap, 277
 - mask bitmap, 277
 - IContextMenu interface, 1278**
 - ICopyHook interface, 1270**
 - ID binding, 1112**
 - IDE (Integrated Development Environment), 19**
 - Code Editor, 22
 - Code Explorer, 22
 - Component Palette, 20
 - Form Designer, 21
 - main menu, 20
 - main window, 19
 - migrating from Delphi 4, 746
 - Object Inspector, 21
 - package installation, 990
 - toolbars, 20
 - IDispatch interface, 1110, 1415-1417**
 - Idl2Pas compiler, 1454**
 - interface definitions, 1455-1456
 - stub and helper classes, 1456-1461
 - IExtractIcon interface, 1288**
 - if statement, 84, 224**
 - if..else statement, 85**
 - IIDs (interface IDs), 1096, 1101**
 - images. See graphics**
 - implementation section, 229**
 - implementation files (Memo control), 1317-1328**
 - implementation parts, 95**
 - implementing interfaces, 110**
 - implements directive, 111-112**
 - implicit linking, 385, 387**
 - implicit transactions, 1568**
 - Import ActiveX dialog box, 240**
 - ImportActiveX Control command (Component menu), 240**
 - importing text file tables, 1521-1522**
 - in operator, 76**
 - in-proc servers**
 - Automation servers, 1128-1132
 - controllers, 1138-1140*
 - COM, 1104-1106
 - Inc() procedure, 44**
 - increment procedures, 44**
 - indentation, 218**
 - indexes, 1550**
 - defined, 1467
 - properties, 254
 - InfoU.pas unit, 695-698**
 - inheritance, 152**
 - InitControlData() procedure, 253**
 - InitControlInterface() function, 253**
 - initialization parts, 95**
 - initialization section, 229**
 - initializing bug-reporting application, 1823-1824**
 - InitWiz.pas unit**
 - DDG Search Wizard, 1391-1392
 - Wizard Wizard project, 1380-1381
 - Inprise, 18**
 - Inprise Idl2Pas compiler, 1454**
 - interface definitions, 1455-1456
 - stub and helper classes, 1456-1461
 - INSERT_SALE stored procedure, 1739**
 - INSERT_SALE_ITEM stored procedure, 1740**
 - inside objects, 108**
 - Install dialog box, 241**
 - installing**
 - MTS servers, 1194
 - packages, 990
 - instances**
 - handles, 126
 - in-proc COM servers, 1106
 - instance naming
 - components, 234*
 - data modules, 233*
 - IShellLink interface, 1250
 - MIDAS, 1684-1685
 - out-of-process COM servers, 1108
 - threads, 481
 - instantiating objects, 101**
 - instantiation function, 231**
 - Integer types, 46, 761, 920**
 - integrated debugger, 869**
 - integrity**
 - client/server programming, 1540, 1545
 - enforcing, 1555-1557
 - InterBase, 1548**
 - domains, 1551-1552
 - indexes, 1550
 - privileges/access rights
 - granting, 1559-1560*
 - revoking, 1561*
 - stored procedures
 - defining, 1553*
 - enforcing data integrity with, 1555-1557*
 - executable, 1554-1555*
 - SELECT, 1553-1554*
 - tables
 - computed columns, 1550*
 - creating, 1549-1550*
 - data types, 1549*
 - default values, 1551*
 - foreign keys, 1551*
 - triggers, 1557-1559
 - views, 1552
 - Interface Repository (IREP), 1414-1415**
 - interface statements, 95**
 - interface units, 378-379**
 - interfaces, 109, 112, 1171-1173, 1412-1413**
 - COM, 1090, 1094
 - defining, 110
 - IContextMenu, 1278
 - ICopyHook, 1270
 - IDispatch, 1110, 1415-1417
 - IExtractIcon, 1288
 - implementing, 110
 - IPersistFile, 1288
 - IQueryServer
 - IDL, 1444*
 - functions, 1429-1430*
 - stub and skeleton, 1430-1440*
 - IShellExtInit, 1276
 - IShellLink, 1249-1250, 1253, 1276
 - instancing, 1250*
 - link operations, 1254-1258*
 - IUnknown, 1095, 1415-1417
 - HResult return type, 1102*
 - IIDs, 1101*
 - function aliasing, 1101*
 - functions, 1097*
 - variables, 1097-1098*
 - Open Tools, 1372
 - stateless, 1175
 - type libraries, 1164
 - internal caching, 1786**
 - internal leading, 354**
 - internal messages, 204**

InternalAddRecord() function, 1624
InternalClose() function, 1626
InternalDelete() function, 1624
InternalGotoBookmark() function, 1623
InternalHandleException() function, 1626
InternalInitFieldDefs() function, 1626
InternalInitRecord() function, 1619
InternalOpen() function, 1627
InternalSetToRecord() function, 1623
Internet-enabled applications, 1644
 CGI (Common Gateway Interface), 1645-1646
 cookies, 1665-1669
 data streaming, 1673-1677
 HTML forms, 1671-1673
 ISAPI, 1646
 migrating from Delphi 4, 748
 NSAPI, 1646
 redirecting users, 1670-1671
 TDataSetTableProducer class, 1658-1665
 TPageProducer class, 1655-1658
 TQueryTableProducer class, 1658-1665
 TWebDispatcher class, 1647-1651
 TWebModule class, 1647-1651
 TWebRequest class, 1651-1655
 TWebResponse class, 1651-1655
 Web servers, 1646-1647
 WebModule1WebActionItem1 Action event handler, 1649
InternetExpress, 1709-1713
intersection operator, 77
intranets, 1644
introduction page (bug-reporting application), 1844-1846
inventory entry (Inventory Manager), 1768-1773
Inventory Manager application, 1732-1733
 access to data-access component events, 1757
 customer functions, 1755
 domains, 1734-1735
 generators, 1737
 layout, 1758

login/logout functions, 1753-1755
 part functions, 1755
 permissions, 1741
 sales functions, 1755-1756
 stored procedures, 1738-1740
 tables
 CUSTOMER, 1735-1736
 ITEMS, 1736-1737
 PART, 1736
 SALES, 1736
 TCustomerForm (customer entry), 1764-1768
 TCustomerSearchForm (customer searches), 1778-1783
 TDDGSalesDataModule, 1742-1753
 temporary table functions, 1756-1757
 TMainForm, 1758-1763
 TNewSalesForm (sales entry), 1774-1778
 TPartsForm (inventory entry), 1768-1773
 triggers, 1737-1738
 TSalesForm (sales browsing), 1773

invoking ActiveX controls, 270

IPersistFile interface, 1288
IQueryServer interface

IDL, 1444
 functions, 1429-1430
 stub and skeleton, 1430-1440

IREP (Interface Repository), 1414-1415

ISAPI (Internet Server API), 1646

IsCursorOpen() function, 1628

IShellExtInIt interface, 1249-1250, 1253, 1276

instancing, 1250
 link operations, 1254-1258

IsPositive() function, 89

ITEMS table (Inventory Manager), 1736-1737

IUnknown interface, 1095, 1415-1417

IIDs, 1101
 function aliasing, 1101
 functions, 1097
 variables, 1097-1098

J-K

Java server

accessing, 1452-1454
 IDL, 1452

Jet database, 1528

joins, 1702

JournalPlayback hook, 628-632

kernel objects, 124-126

key presses, 631

key search form (SRF project), 1510-1512

key searches

example, 1511-1512
 FindKey() function, 1497
 FindNearest() function, 1498
 GotoKey() function, 1498
 SetKey() function, 1498

keys, foreign, 1551

keywords

begin, 84
 class, 109
 end, 84
 formatting, 219
 message, 28
 set of, 75
 Type, 71

L

languages, power versus complexity, 13

Last() function, 550, 1469

late binding

Automation, 1111, 1170
 CORBA client, 1449-1451

late-bound CORBA client, 1449-1451

layout

bug-reporting application, 1840-1841
 Inventory Manager application, 1758

LDTs (Local Descriptor Tables), 127

left/right operator, 41

length of AnsiStrings, 52

Length() function, 53

length-byte strings, 54

libraries. See type libraries

licensing issues (MIDAS), 1723-1724

lifetime-managed local variables, 50

lifetime-managed types, 49

lifetime-managed variants, 62-63

line styles, 282

LineTo() function, 301

linking

dynamic, 372, 375
OLE objects, 1092
static, 374

list boxes, 401**listing**

available drives, 580
Printing Code for
TMdiEditForm, 423

lists of components, 1065-1076

editing, 1076-1084

Listview control, 1157-1162**load balancing, 1682-1683****LoadImage() function, 707****loading**

DLLs explicitly, 387-389
local thread storage, 493-497
source files, 25

local variables, 50, 221**Locate() function, 1496-1497****locking records, 1544-1545****logical coordinates, 313-314****logical operators, 41****Login() function, 1753-1755, 1823****logins**

automatic, 1564-1565
bug-reporting application,
1823-1824
customized login displays,
1565
Inventory Manager application,
1753-1755
login/logoff logic example,
1566-1568

Logout() function, 1753-1755**logouts**

Inventory Manager application,
1753-1755
login/logoff logic example,
1566-1568

long strings. See AnsiStrings**lookup fields, 1484-1485****loop control variables, 221****loops, 86**

for, 71, 86
repeat..until, 87
terminating, 88
while, 87

Low() function, 91**lpData parameter (tray-notification icon component), 1219****lstbx type prefix, 235****M****main forms**

bug-reporting application,
1829-1837
Inventory Manager application,
1758-1763
MDI applications, 798-805
Shell Link project, 1259-1267
SRF database example,
1506-1510

main menu (IDE), 20**main units, 24**

CopyData project, 672
tray-notification icon compo-
nent, 1232-1234

main window (IDE), 19**Main.pas unit**

BJ Project, 262-270
code listing, 845-846
DDGSearch Wizard,
1395-1401
Wizard Wizard project,
1383-1386

MainCustFrm.pas, 1800-1807**MainForm property (TApplication class), 154****maintaining state, 1665-1669****MainWndProc() function, 208****MakeMessage() function, 631-632****MakeObjectInstance() function, 611-612****managing**

memory, 130
projects, 141-145

mapping views, 565-566**mapping modes, 313**

coordinates, 315
default, 317
device coordinates, 313
form coordinates, 314
project example, 320
screen coordinates, 314
setting, 318
Win32, 316
Window extents, 318

MapViewOfFile() function, 565-566**margins, 218****marquee component, 1012-1024**

animating, 1016
copying text, 1015
testing, 1026-1028

master-detail linking, 1714-1721**master/detail relationships, 1701-1702****master/detail tables, 1500-1502****math, 32-bit, 763****maximizing windows, 818****MCI (Media Control Interface), 838****mci_HMS_Hour() function, 852****mci_HMS_Minute() function, 852****mci_HMS_Second() function, 852****mci_MSF_Frame() function, 852****mci_MSF_Minute() function, 852****mci_MSF_Second() function, 852****mci_TMSF_Frame() function, 852****mci_TMSF_Minute() function, 852****mci_TMSF_Second() function, 852****mci_TMSF_Track() function, 852****MDAC (Microsoft Data Access Components), 1528****MDI. See Multiple Document Interface****MdiBmpFrm.pas, 796-797****MdiChildFrm.pas, 776-778****MdiEditFrm.pas, 780-786****MdiMainForm.pas, 798-802****MdiRtfFrm.pas, 788-795****measurements**

fonts, 354
metrics, 434

Media Control Interface (MCI), 838**Media Player, 838-839****membership operator, 76****Memo control**

implementation file, 1317-1328
project file, 1302
type library file, 1305-1316

memory

allocation functions, 58
arrays, 72
deallocation functions, 58
flat memory model, 130
heaps, 132
managing, 130

- memory-mapped files, 132, 408, 561
 - closing handles*, 567
 - creating*, 562-563
 - example*, 567-571
 - file coherence*, 571
 - file-mapping objects*, 563-565
 - File-Search project*, 575-579
 - mapping views*, 565-566
 - opening*, 562-563
 - purpose of*, 561-562
 - text-file search utility*, 571
 - TMemMapFile class*, 572-575
 - unmapping views*, 566-567
- multidimensional arrays, 74
- paging file, 130
- pointers, 80
- status data, 686-687
- virtual addresses, 130
- Memory Dump pane, 880**
- memory-mapped files, 132, 408, 561**
 - closing handles*, 567
 - creating*, 562-563
 - example*, 567-571
 - file coherence*, 571
 - file-mapping objects*, 563-565
 - File-Search project*, 575-579
 - mapping views*, 565-566
 - opening*, 562-563
 - purpose of*, 561-562
 - text-file search utility*, 571
 - TMemMapFile class*, 572-575
 - unmapping views*, 566-567
- menu merging, 806**
- menus (MDI), 806**
 - adding open document*, 807
 - merging with*, 806
- message directive, 207**
- message keyword, 28**
- message functions, 104**
- message-specific records, 196**
- MessageBeep() procedure, 199**
- messages, 192-194, 208-214**
 - between applications*, 206
 - broadcasting*, 207
 - Delphi*, 195
 - handling*, 197-199, 608, 1221
 - internal*, 204
 - notification*, 203
 - result values*, 200
 - sending*, 201
 - thread synchronization*, 486
 - user-defined*, 205
 - WM_COPYDATA*, 670
- metadata, 1548**
 - domains*, 1551-1552
 - indexes*, 1550
 - privileges/access rights*
 - granting*, 1559-1560
 - revoking*, 1561
 - stored procedures*
 - defining*, 1553
 - enforcing data integrity with*, 1555-1557
 - executable*, 1554-1555
 - executing*, 1581-1583
 - result sets*, 1583-1585
 - SELECT*, 1553-1554
 - tables*
 - computed columns*, 1550
 - creating*, 1549-1550
 - data types*, 1549
 - default values*, 1551
 - foreign keys*, 1551
 - triggers*, 1557-1559
 - views*, 1552
- metafiles, 277, 449**
- metrics, 434**
- MIDAS applications**
 - advertising services*, 1687
 - architecture*, 1680-1684
 - benefits of*, 1681-1683
 - briefcase model*, 1682, 1699
 - centralized business logic*, 1681
 - client connections*, 1687-1689
 - client optimization*, 1697-1698
 - client-side transactions*, 1694
 - client tracker application*
 - client main form*, 1800-1807
 - customer data module*, 1789-1797
 - error reconciliation*, 1798-1799
 - initial wiring*, 1797-1798
 - online and offline data manipulation*, 1799
 - online and offline persistence*, 1800
 - overview*, 1786
 - record filtering*, 1800
 - remote data module*, 1786-1788
 - server-side filtering*, 1789
 - common mistakes*, 1683
 - data access*, 1686
 - data editing*, 1692-1693
 - data packet limitations*, 1698-1699
 - data reconciliation*, 1694-1696
 - data retrieval*, 1691-1692
- DCOMconfiguration**, 1724-1725
- deploying**, 1723-1727
- dynamic SQL**, 1699-1700
- error reconciliation**, 1682, 1696-1697
- fault tolerance**, 1682
- firewalls**, 1726-1727
- HTML presentation**, 1705-1709
- InternetExpress**, 1709-1713
- joins**, 1702
- licensing issues**, 1723-1724
- load balancing**, 1682-1683
- master-detail linking**, 1714-1721
- master/detail relationships**, 1701-1702
- multitable updates**, 1703-1704
- nested datasets**, 1702, 1713-1714
- one-table updates**, 1702-1703
- providers**, 1690-1691
- RDM (Remote DataModule)**, 1689-1690
- record contention**, 1700
- server options**, 1700-1701
- server registration**, 1691
- servers**
 - advertising services*, 1687
 - data access*, 1686
 - instancing choices*, 1684-1685
 - threading*, 1686
- thin clients**, 1681-1682
- threading**, 1686
- two-tier applications**, 1721-1723
- undoing changes**, 1693-1694
- Middle East version (Windows), 301**
- migrating to Delphi 5, 743, 749-772**
 - components*, 746
 - from Delphi 1*, 753
 - 16-bit compared to 32-bit*, 771
 - 32-bit address space*, 767
 - 32-bit math*, 763
 - 32-bit resources*, 768
 - API functions*, 768
 - assembly language*, 764
 - calling conventions*, 765
 - characters*, 753
 - DLLs*, 765
 - operating system*, 767
 - record alignment*, 762
 - strings*, 753-759
 - TDateTime type*, 763

- type sizes and ranges*, 761
 - unit finalization*, 763
 - VBX controls*, 768
- from Delphi 2, 750
 - Automation servers*, 752
 - Boolean types*, 750
 - GetChildren()*, 752
 - ResourceString*, 751
 - RTL changes*, 751
 - TCustomForm*, 752
- from Delphi 3, 748
 - 32-bit integers*, 748
 - 64-bit integers*, 750
 - Real type*, 750
- from Delphi 4, 746
 - database issues*, 748
 - IDE issues*, 746
 - Internet development issues*, 748
 - RTL issues*, 747
 - VCL issues*, 747
- packages, 746
- units, 746
- minimizing windows**, 818
- mmiBitmapPattern1Click()** function, 293
- mmiBitmapPattern2Click()** functions, 293
- mmiDrawTextCenter()** function, 311
- mmiDrawTextLeft()** function, 311
- mmiDrawTextRight()** function, 311
- mmiMM_ISOTROPICClick()** function, 324
- mmiPatternsClick()** function, 293
- mmiPenColorsClick()** function, 287
- mmiPenModeClick()** function, 287
- mmiStylesClick()** function, 287
- mmiTextRectClick()** function, 311
- MM_ANISOTROPIC** mapping mode, 316
- MM_HIENGLISH** mapping mode, 316
- MM_HIMETRIC** mapping mode, 317
- MM_ISOTROPIC** mapping mode, 317
- MM_LOENGLISH** mapping mode, 317
- MM_LOMETRIC** mapping mode, 317
- MM_TEXT** mapping mode, 317
- MM_TWIPS** mapping mode, 317
- modal forms**, 145-146, 381-382
- ModalResult** property, 146
- modeless forms**, 147-148, 383-384
- Modern font family**, 353
- modes (pen)**, 283
- Modify option (debugger)**, 875
- Module Explorer**, 17
- module handles**, 126
- module load breakpoints**, 872
- Module32First()** function, 710
- Module32Next()** function, 710
- modules**
 - ccode.c., 647
 - cdll.cpp, 653
 - naming, 233
 - units, 94
 - walking through, 710-711
- Modules view**, 877
- mouse clicks**
 - responses, 26
 - tray-notification icon component, 1222-1224
- MoveBy()** function, 1469
- MoveTo()** function, 301
- moving**
 - files/directories to recycle bin, 605-606
 - toolbars, 20
- MS Access**, connecting to, 1523-1527
- MTS (Microsoft Transaction Server)**, 1173-1174
 - debugging, 1201
 - installing, 1194
 - Object Wizard, 1179
 - packages, 1177
 - Remote Data Module Wizard, 1179
 - resource dispensers, 1178
 - resource managers, 1178
 - scalability, 1174
 - security, 1178
 - stateless objects, 1175
 - tic-tac-toe sample program, 1182-1200
 - TMTsAutoObject class, 1180-1181
 - transactions, 1178
- multidimensional arrays**, 72-74
- multimedia programming**, 837-862
 - audio CD player, 847-849
 - source*, 854
 - splash screens*, 847, 851
 - time-conversion routines*, 852
 - updating*, 851
 - device support, 846-847
 - Media Player, 838-839
 - video, 841
 - DDGMPlay*, 844
 - Display property*, 842
 - DisplayRect property*, 843
 - first frames*, 842
 - TMediaPlayer events*, 843
 - WAV files, 839-841
- multimedia time formats**, 852
- multiple Automation clients**, 1149-1153
- Multiple Document Interface (MDI) applications**, 773-821
 - child forms, 776-779, 815-818, 1204-1206
 - child windows, 818
 - client window, 808
 - main form, 798-805
 - menus, 806
 - adding open document*, 807
 - merging*, 806
 - rich text editor form, 788-795
 - text editor form, 779-787
 - Windows, 774
- multiple form instances**, 178
- multiple inheritance**, 99
- multiple program instances**, 616-620
- multiple threads**, 493
- multitable updates**, 1703-1704
- multitasking**, 128
 - cooperative, 476
 - preemptive, 129
- multithreading**, 129, 1420
 - database access, 524, 527
 - DelSrch program, 511-515, 521
 - priorities*, 522
 - search threads*, 516-518
 - graphics, 530-532
- multitier applications**. *See also* MIDAS applications
 - architecture, 1680-1681
 - benefits of, 1681-1683
 - briefcase model, 1682
 - centralized business logic, 1681
 - common mistakes, 1683
 - error reconciliation, 1682
 - fault tolerance, 1682
 - load balancing, 1682-1683
 - thin clients, 1681-1682

Multitier Distributed Application Services Suite.
See MIDAS applications
mutexes, 503-506

N

n-tier. See multitier
name mangling, 645
naming

- classes, 226
- component units, 230
- components, 234
- data modules, 233
 - files*, 229
 - instances*, 233
 - remote files*, 229
 - units*, 230
- fields, 227
- forms
 - files*, 228
 - instances*, 231
 - types*, 231
 - units*, 230
- general-purpose units, 230
- functions, 227
- packages, 233, 997
- parameters, 220
- project files, 228
- properties, 228
- routines, 220-221
- standards, 233
- unit files, 229-230
- variables, 221

Nav.pas, 1472-1475

navigating

- datasets, 1469-1475
- navigation forms, 167-172
- source code, 29

nesting datasets, 1702, 1713-1714

New() function, 80

NewActionForm() function, 1827-1829

NewPage() function, 421

NewUserForm() function, 1825

NextRec() function, 550

nFolder parameter (shell folders), 1251

nil pointer, 868

nonpreemptive multitasking, 129

nonvisual components, 887

not operator, 42-43

notification messages, 203, 1237-1238

NSAPI (Netscape Server API), 1646

null pointers, 80

null variants, 66

null-terminated strings, 52, 57-58, 757-758

O

OAD (Object Activation Daemon), 1414

Object Browser, 26, 30

Object Inspector, 21, 254, 1483-1484

Object Pascal, 15, 34

- arrays, 71
- Break() procedure, 88
- character types, 47
- circular unit references, 96
- COM support, 1168
- comments, 34
- constant parameters, 91
- constants, 38-40
- Continue() procedures, 88
- Dec() procedures, 44
- default value parameters, 35
- dispinterfaces, 1173
- dynamic arrays, 72
- formatting, 219
- functions, 88
- Inc() procedures, 44
- interfaces, 1171-1173
- loops, 86
- null-terminated strings, 57-58
- objects, 77-78
- operators, 40
 - arithmetic*, 42
 - assignment*, 40
 - bitwise*, 43
 - comparison*, 41
 - logical*, 41
- overloading, 35
- packages, 97-98
- parameters, 90
- parentheses, 35
- pointers, 79
- procedures, 88
- records, 74-75
- reference parameters, 90
- routines
 - formatting*, 220
 - naming*, 220-221
- scope, 93-94
- set operators, 76-77
- sets, 75-76
- statements, 84
- typecasting, 82

types, 44-45

- Currency*, 71

- lifetime-managed*, 49

- OleVariant*, 70

- PChar*, 57-58

- ShortStrings*, 54

- strings*, 47-48

- user-defined*, 71

- variants*, 59-61, 65

- WideString*, 56

- units, 94

- uses clause, 96

- value parameters, 90

- variables, 36-37, 221

Object Repository, 152, 162

Object Request Brokers. See ORBs

Object Wizard, 1179, 1418-1419, 1427-1428

objects, 77-78, 100, 124. See also classes; CORBA; OLE

- ADO, 1527-1528

- access components*, 1529

- compatibility components*, 1529-1530

- connectivity components*, 1529

- data stores*, 1530-1532

- deployment*, 1533

- example*, 1532-1533

- ancestry, 912

- Automation, 1112

- Clipboard-aware, 828

- COM, 1091, 1102-1103

- constructors, 101

- DAO, 1528

- database objects. *See* databases

- declarations, 101

- Delphi-generated object implementation, 1425-1426

- destructors, 102

- exporting from DLLs, 412-416

- file-mapping. *See* memory-mapped files

- GDI, 127

- handles, 127

- inside, 108

- instantiation, 101

- kernel, 124, 126

- functions, 102

- MTS, 1174

- mutex, 126

- OLE, 1091

- Clipboard operations*, 1207

- embedding*, 1092, 1202

- linking*, 1092

- saving*, 1206

- properties, 105
 - checking for existence, 914*
 - RTTI, 913*
 - RDO, 1528
 - RTTI data, 907, 913
 - specifiers, 106
 - stateful, 1175
 - stateless, 1175
 - User, 128
 - Obtaining a Pointer to a TDeviceMode Structure listing, 450-451**
 - OCX controls. See ActiveX controls**
 - ODBC (Open Database Connectivity), 1522**
 - connecting to MSAccess, 1523-1527
 - drivers, 1522
 - ODBCDirect, 1528**
 - OLE (Object Linking and Embedding). See also ActiveX controls**
 - compared to COM and ActiveX, 1091
 - containers, 1091, 1202-1204
 - objects, 1091
 - Clipboard operations, 1207*
 - embedding, 1092, 1202*
 - linking, 1092*
 - saving, 1206*
 - OLEDB, 1528
 - servers, 1091
 - structured storage, 1093
 - UDT (uniform data transfer), 1093
 - OleVariant type, 70, 223**
 - OnClose event handler, 147**
 - OnDestroy event handler, 148**
 - one-table updates, 1702-1703**
 - OnFormatCell() function, 1663-1664**
 - OnKeyDown event, 27**
 - OnMessage events, 200**
 - OnMouseDown event, 27**
 - OnNotify event, 843**
 - OnPostClick event, 843**
 - OOP (Object-Oriented Programming), 98-99**
 - open array parameters, 91**
 - Open Tools API, 1372**
 - Dumb Wizard, 1374-1375
 - Form Wizards, 1402-1408
 - units, 1373
 - Wizard Wizard, 1378-1380
 - Open() function, 1468**
 - OpenDialog dialog box, 838**
 - opening**
 - datasets, 1468
 - memory-mapped files, 562-563
 - source files, 25
 - text files, 538-540
 - OpenMutex() function, 126**
 - OpenProcess() function, 727**
 - operating systems**
 - system information, finding, 688-689
 - GetFileOS() function, 601*
 - TVerInfoRes class, 601-603*
 - upgrading, 767
 - operators, 40**
 - . (dot), 78
 - ^, 79
 - /, 43
 - and, 41
 - arithmetic, 42
 - assignment, 40
 - bitwise, 43
 - comparison, 41
 - div, 43
 - logical, 41
 - not, 42-43
 - or, 41-43, 352
 - set, 76-77
 - shl, 43
 - shr, 43
 - xor, 43
 - optimistic locking, 1545**
 - optimizing MIDAS clients, 1697-1698**
 - or operator, 41-43, 352**
 - ORBs (Object Request Brokers), 1412**
 - deploying, 1461-1462
 - IREP (Interface Repository), 1414-1415
 - Smart Agent, 1414
 - ordering parameters, 220**
 - orientation of printers, 452**
 - Orientation TPrinter property, 421**
 - osagent, 1414**
 - out-of-process servers**
 - Automation servers, 1112-1126
 - controllers, 1133-1136*
 - COM, 1107
 - instancing, 1108*
 - registering, 1107*
 - overflow checking runtime error, 865**
 - overload directive, 35**
 - overloading functions, 35, 104**
 - overriding**
 - component constructors, 951-952
 - component destructors, 953
 - exception handling, 180-182
 - functions, 104
 - Owner property, 156
 - owner-draw list boxes, 401**
 - ownership of components, 892**
- ## P
- pa files, 140**
 - Package Editor, 991**
 - packages, 97**
 - add-in, 998-1003
 - compiler directives, 996
 - components, 987-988
 - application partitioning, 995*
 - design, 992-995*
 - runtime, 992-993*
 - versioning, 996*
 - files, 989
 - getting data, 677
 - installing, 990
 - MTS, 1177
 - naming, 233
 - naming conventions, 997
 - runtime versus design, 233
 - syntax, 98
 - weak, 996
 - packed format, 852**
 - packed records, 762**
 - PackInfo project, 678-679**
 - packing tables, 1594-1597, 1600-1602**
 - page-level locking, 1545**
 - PAGE_READONLY attribute, 564**
 - PAGE_READWRITE attribute, 564**
 - PAGE_WRITECOPY attribute, 564**
 - PageHeight TPrinter property, 421**
 - PageNumber TPrinter property, 421**
 - PageWidth TPrinter property, 421**
 - paging file, 130**
 - paint programs, 340**
 - creating, 326
 - DDGPaint, 326-340
 - painting text, 307**
 - PAnsiChar string type, 754**
 - paper length, 453**

- paper size, 453**
- paper width, 453**
- Paradox, 16**
 - session users, 1607
 - tables, 1595
 - packing, 1595-1597,*
 - 1600-1602*
 - sequence numbers, 1595*
- ParamByName() function, 1580**
- parameterized queries, 1574-1576**
- parameters**
 - AppBars, 1234
 - arrays, 91
 - BASM access, 623
 - Boolean, 262
 - command-line, 869
 - constant, 91, 221
 - default value, 35
 - DrawText, 312
 - formal, 220
 - parameterized queries, 1574-1576
 - passing, 90
 - reference, 90
 - tray-notification icon component, 1219
 - value, 90
 - var, 623
- Params property, 1575**
- Params property editor, 1574**
- ParamsByName() function, 1575-1576**
- parentheses, 34-35, 219**
- parenthood of components, 893**
- PART table (Inventory Manager), 1736**
- pas files, 138**
- Pascal. See Object Pascal**
- pass-through mode, 1570-1571**
- passing parameters, 90**
- PasStng.h file, 648**
- PasStrng.pas unit, 649, 651**
- passwords, 179**
- pasting bitmap data to Clipboard, 341**
- patterns (brush), 293**
- pbPasteBoxPaint() function, 342**
- PChar type, 53, 57-58, 754, 759, 868**
- pData parameter (AppBars), 1235**
- pen modes, 283**
 - PenniesToCoins() function, 377**
 - pens**
 - properties, 280-2812
 - styles, 281
 - Perform() function, 202**
 - permissions, 1741**
 - pessimistic locking, 1545**
 - Pie() function, 302**
 - PixDlg.pas unit, 963**
 - pixels, 288, 437**
 - Play() function, 633**
 - PlayCard.pas unit, 257-260**
 - PlaySound(), 840**
 - pmBlack pen mode, 283**
 - pmCopy pen mode, 283**
 - pmMask pen mode, 283**
 - pmMaskNotPen pen mode, 283**
 - pmMaskPenNot pen mode, 283**
 - pmMerge pen mode, 283**
 - pmMergeNotPen pen mode, 283**
 - pmMergePenNot pen mode, 283**
 - pmNOT pen mode, 283**
 - pmNotCopy pen mode, 283**
 - pmNotMask pen mode, 283**
 - pmNotMerge pen mode, 283**
 - pmNotXor pen mode, 283**
 - pmWhite pen mode, 283**
 - pmXor pen mode, 283**
 - point size (fonts), 353-354**
 - pointers, 79**
 - dereferencing, 80
 - memory allocation, 80
 - null, 80
 - type checking, 81
 - Polygon() function, 302, 307**
 - PolyLine() function, 301-302**
 - polymorphism, 99**
 - porting to Delphi 5, 743, 749-772**
 - components, 746
 - from Delphi 1, 753
 - 16-bit compared to 32-bit,*
 - 53, 771*
 - 32-bit address space, 767*
 - 32-bit math, 763*
 - 32-bit resources, 768*
 - API functions, 768*
 - assembly language, 764*
 - calling conventions, 765*
 - characters, 753
 - DLLs, 765
 - operating system, 767
 - record alignment, 762
 - strings, 753-759
 - TDateTime type, 763
 - type sizes and ranges, 761
 - unit finalization, 763
 - VBX controls, 768
 - from Delphi 2, 750
 - Automation servers, 752*
 - Boolean types, 750*
 - GetChildren(), 752*
 - ResourceString, 751*
 - RTL changes, 751*
 - TCustomForm, 752*
 - from Delphi 3, 748
 - 32-bit integers, 748*
 - 64-bit integers, 750*
 - Real type, 750*
 - from Delphi 4, 746
 - database issues, 748*
 - IDE issues, 746*
 - Internet development issues, 748*
 - RTL issues, 747*
 - VCL issues, 747*
 - packages, 746
 - units, 746
- PostMessage() function, 202**
- PostUser() function, 1825**
- power of programming languages, 13**
- PowerBuilder, 16**
- pprdBugsHTMLTag() function, 1851-1852**
- predefined tag values, 1656**
- preemptive multitasking, 129**
- preferred base addresses, 373**
- prefixes (types), 235**
- presentation tier, 1680**
- preventing**
 - multiple form instances, 178
 - Windows shutdown, 188
- previewing printing, 448-449**
- PreviousRec() function, 550**
- primary threads, 124**
- print color, 454**
- print quality, 454**
- print scale, 454**
- Printer Information sample program, 460-473**
- Printer() function, 420**
- PrinterIndex TPrinter property, 421**

printers

- default, 455-457
- devices, 457-458
 - DeviceCapabilities()*, 457
 - DeviceCapabilitiesA()* function, 458-460
 - GetDeviceCaps()*, 457
- information, 457-458
- orientation, 452

Printers TPrinter property, 421**printing, 419-473**

- advanced, 425
 - aborting*, 433
 - envelopes*, 434-448
 - print preview*, 448-449
 - reports*, 426-432
- API functions, 450
 - copies*, 452
 - TDeviceMode structure*, 450-452
- bitmaps, 424
- color, 454
- copies, 452
- default printers, 455-457
- duplex, 455
- envelopes, 434-448
- error-handling, 422
- forms, 425
- metafiles, 449
- paper length, 453
- paper size, 453
- paper width, 453
- print preview, 448-449
- print scale, 454
- printer information, 457-458
- printer orientation, 452
- quality, 454
- resolution, 425, 454
- RTF data, 425
- simple, 422
 - bitmaps*, 424
 - RTF data*, 425
 - TMemo component*, 422
- TDeviceMode structure, 450-452
- TMdiBmpForm sample printing code, 424
- TPrinter object, 420
- TPrinter.Abort() procedure, 433
- TPrinter.Canvas, 421
- TPrinter.Copies property, 452
- TPrinter.Orientation property, 453
- TPrintPrevPanel, 449

Prior() function, 1469**priorities**

- search threads, 522
- threads, 488

privileges

- granting, 1559-1560
- revoking, 1561

procedures. See functions; stored procedures**process walking, 703-706****process-local tables, 128****Process32First() function, 703****Process32Next() function, 703****processes, 124**

- functions, 124
- instance handles, 126
- priority classes, 488-489
- virtual memory, 130

ProcessExecute() function, 975**processing messages, 197-199****ProcessMessage() function,**

207

ProcessMessages() function, 157**Professional version (Delphi), 8****Program Pause option, 873****programming languages, 13****programs. See applications****Project Explorer, 31****project files**

- Memo control, 1302
- naming, 228
- sample application, 25
- uses clause, 25

project groups, 144**project management, 141-145****Project Manager, 144****Project Options dialog box, 231, 779, 864****project options files, 140****project-management routines, 174****projects. See applications****properties, 21, 100**

- ActiveForms, 1346-1354
- ActiveX controls, 1334-1335
- arrays, 941-942
- assigning values, 925
- buttons, 26
- canvas, 280
- Canvas.Font, 295
- categories, 1058
 - classes*, 1059
 - custom*, 1061-1063
- checking for existence, 914
- color, 280
- components, 887-889
 - access functions*, 888-889
 - enumerated*, 936
 - set*, 936
 - simple*, 935

CopyMode, 296

- default array, 944
- default values, 943
- events, 945-946, 949
- fonts, 295-296
- formatting, 228
- groups of, 253
- Handle, 312
- index of, 254
- ModalResult, 146
- naming, 228
- objects, 105
 - adding to components*, 937-940
 - RTTI data*, 913
- persistent nonpublished, 1047
- Style, 289
- TBitmap, 288
- TBrush, 288
- TCanvas, 288, 300
- TComponent class, 896
- TDatabase class, 1561-1563
- TMemo.Font, 295
- TPen, 280-282
- TPrinter, 420-421, 452-453
- TWinControl class, 898

Properties dialog box, 255**property editors, 1029-1030**

- dialog style, 1037-1040, 1076, 1079-1084
- editing as text, 1031-1034
- registering, 1035-1036

property-access functions, 227**protocols**

- CGI, 1645-1646
- ISAPI, 1646
- NSAPI, 1646
- PSAPI, 727-731

prototyping, 28**providers (MIDAS), 1690-1691****PSAPI, 727-731****psClear pen style, 281****psDash pen style, 281****psDashDot pen style, 281****psDashDotDot pen style, 281****psDot pen style, 281****pseudo-visual components, 1008****psInsideFrame pen style, 281****psSolid pen style, 281****pszSound parameter (PlaySound() function), 840****PwDlg.pas unit, 985****PWideChar string type, 754**

Q

QReport page, 420
qualifier names, 235
quality of printing, 454
queries
 background, 524, 527
 defined, 1467
 parameterized, 1574-1576
 result sets, 1579-1581
 TQuery class, 1517, 1573
 Params property, 1575
 Params property editor, 1574
 ParamsByName function, 1575-1576
 result sets, 1579-1581
 stored procedure execution, 1583-1585
 UniDirectional property, 1580
QueryInterface() function, 1099
QuSoft, 420

R

\$R directive, 24
RAD (Rapid Application Development), 15
ranges, 1499-1500
 checking
 runtime error, 865
 strings, 55
 example, 1509-1510
raster fonts, 354
raster operation (ROP), 282
RDMs (Remote DataModules), 1689-1690
RDO (Remote Data Objects), 1528
RDS (Remote Data Services), 1528
read functions, 253
read unit, 674-676
reading
 text files, 541-544
 typed files, 544
 untyped files, 556
ReadRec() function, 550
Real type, 46, 222, 750
RealizeLength() function, 53
recommended reading, 1928-1929
reconciling data, 1694-1696
record contention, 1700
record-level locking, 1545
record numbers, 1590
record-oriented data access, 1544
records, 74
 BASM access, 625
 buffer functions, 1617
 deleted, 1591-1593
 filtering, 1800
 finding, 1496-1497
 key searches, 1497-1498, 1511-1512
 master/detail tables, 1500-1502
 ranges, 1499-1500, 1509-1510
 message-specific, 196
 packed, 762
 record contention, 1700
 TFileRec, 560-561
 TGUID, 1096
 TSearchRec, 591
 TTextRec, 560-561
 TWin32FindData, 592
 types, 223
 undeleted, 1593
 upgrading, 762
 variant, 62, 75
Rect DrawText parameter, 312
Rectangle() function, 302
recycle bin, moving
 files/directories to, 605-606
redirecting users, 1670-1671
reference parameters, 90
reflector window, 1331
Refresh() function, 1493
refreshing datasets, 1492-1493
register calling convention, 624
Register OLE Control dialog box, 240
Register pane, 880
RegisterClipboardFormat() function, 831
registering
 Automation objects, 1112
 component editors, 1043-1045
 components, 954-955
 context menu handlers, 1280
 icon handlers, 1290
 property editors, 1035-1036
 servers, 1107, 1691
 shell extensions, 1273

RegisterPooled() function, 1727
RegisterWindowMessage() function, 206
 registration units, 234
reintroduce directive, 105
relative priorities (threads), 489-490
Release() function, 1097
releasing resources, 63
relocating. See **moving**
remote data module files, 229
Remote Data Module Wizard, 1179
Remote Data Objects (RDO), 1528
Remote Data Services (RDS), 1528
repeat statements, 225
repeat..until loops, 87
reporting bugs. See **bug-reporting application**
reports, printing, 426-432
requests, TWebRequest class, 1651-1654
Requires page (Package Editor), 991
reraising exceptions, 120
RES files, 139, 175-176
reserved memory, 131
reserved words
 formatting, 219
 type, 81
Reset() function, 539
resizable captionless forms, 150
resolution, 425, 454
resource dispensers, 1178
resource files, 175-176
resource managers, 1178
resources
 32-bit, 768
 books, 1928-1929
 releasing, 63
 resource dispensers, 1178
 resource files, 175-176
 resource managers, 1178
 strings, 83
responses, TWebResponse class, 1651-1654
ResQuery.pas Unit listing, 1602-1603
restoring windows, 818
result values (messages), 200
resuming threads, 491

returning

- drive information
 - drive type*, 580-581
 - free disk space*, 582-583
- usernames, 1846-1847

revoking access rights, 1561

Rewrite() function, 422, 538-540

RGB() function, 280

rich text editor form, 788-795

rich-text-formatted data, 425
rights

- granting, 1559-1560
- revoking, 1561

RndHint.pas unit, 1008

roles (MTS), 1178

rolling back transactions, 1546

Roman font family, 353

ROP (raster operation), 282

RoundRect() function, 302

routines. *See also* functions

- formatting, 220
- naming, 220-221

RTL, 647

- changes, upgrading, 751-752
- exception handler, 1866
- migrating from Delphi 4, 747

RTTI (Runtime Type Information), 903-904

- enumerated types, 921
- integer types, 920
- functions, 915-919
- obtaining for objects, 907
- properties, 913, 925
- set types, 923

Run dialog box, 869

Run menu, 869

Run Parameters dialog box, 869, 878

Run() function, 157

running CORBA servers, 1445

runtime errors, 865, 1867

runtime packages

- compared to design, 233
- components, 992-993

S

safe arrays, 1164-1167

SafeCall functions, 397, 1127

SaleItemsTotalPrice() function, 1575

SALES table (Inventory Manager), 1736

sample application

- project file, 25
- source code, 23

SavePoint property, 1694

SaveSale() function, 1756

SaveToFile() function, 278
saving

- DFM files as text files, 24
- images, 278
- OLE objects, 1206

scalability

- applications, 1538
- MTS, 1174

scheduling threads, 488

schema files, 1518-1519

scope, 93-94

screen coordinates, 314

Script font family, 353

scrollable cursors, 1544

search threads, 516-518, 521- 522

SearchForCustomer() function, 1755

SearchForPart() function, 1755

searching

- datasets, 1496-1497
- directories, 586-589
- Inventory Manager application, 1778-1783

security

- client/server programming, 1539-1540
- logins
 - automatic logins*, 1564-1565
 - customized login displays*, 1565
 - login/logoff logic example*, 1566-1568
- MTS roles, 1178

SEC_COMMIT attribute, 564

SEC_IMAGE attribute, 564

SEC_NOCACHE attribute, 565

SEC_RESERVE attribute, 565

SeekRec() function, 550

segmented memory model, 130

SEH (Structured Exception Handling), 114-116

SELECT stored procedure, 1553-1554

SelectObject() function, 128

self variable, 105

semaphores, 507-510

semicolon (;), 1741

sending messages, 201

SendKey.pas unit, 634-639

SendKeys() function, 628-629, 631-632, 640

SendMessage() function, 202

SendTrayMessage() function, 1220

sequence number (tables), 1595

serifs, 353

servers, 1538-1539. *See also* database objects

- Automation, 1109, 1144-1145
 - creating*, 1112
 - in-process*, 1128-1132
 - out-of-process*, 1112-1126
- client tracker application
 - remote data module*, 1786-1788
 - server-side filtering*, 1789

COM

- in-process*, 1104-1106
- out-of-process*, 1107

CORBA server implementation

- connecting to*, 1447-1448
- IQueryServer stub and skeleton*, 1431-1440
- IQueryServer IDL*, 1444
- IQueryServer interface functions*, 1429-1430
- IQueryServer stub and skeleton*, 1430
- Object Wizard*, 1427
- running*, 1445
- TQueryServer implementation unit*, 1440-1443
- Type Library Editor*, 1428

fat servers, 1539

InterBase. *See* InterBase

Java server

- accessing*, 1452-1454
- IDL*, 1452

MIDAS applications

- advertising services*, 1687
- data access*, 1686
- dynamic SQL*, 1699-1700
- instancing choices*, 1684-1685
- master/detail relationships*, 1701-1702
- nested datasets*, 1702, 1713-1714
- options*, 1700-1701
- providers*, 1690-1691
- RDM (Remote DataModule)*, 1689-1690

- record contention, 1700*
- server registration, 1691*
- threading, 1686*
- MTS, 1194
- OLE, 1091
- Web servers, 1646-1647
- Set Length() procedure, 52**
- set functions, 253**
- set of keyword, 75**
- set-oriented data access, 1544**
- set properties, 936**
- set types, 923**
- SetActionStatus() function, 1837**
- SetAsHandle() function, 831**
- SetBookmarkData() function, 1622**
- SetBookmarkFlag() function, 1622**
- SetControls() function, 1807**
- SetFieldData(), 1621**
- SetFillPattern() function, 307**
- SetFilterOnUser() function, 1825**
- SetKey() function, 1498**
- SetLength() function, 53, 72**
- SetMapMode() function, 317**
- SetOnline() function, 1799**
- SetOurRec() function, 549**
- SetPrinter() function, 421**
- SetRange() function, 1499**
- sets, 75-77**
- setter functions, 611-612, 925**
- SetViewPortExtEx() function, 317**
- SetViewPortOrgEx() function, 317**
- SetWindowExtEx() function, 317**
- SetWindowLong() function, 609**
- SetWindowOrgEx() function, 317**
- SetWindowRgn() function, 1011**
- shapes, drawing, 307**
- SHAppBarMessage() function, 1234**
- shared memory DLLs, 405-411**
- sharing**
 - C/C++ data, 645-646
 - code, 376
- shell extensions, 1268**
 - context menu handlers, 1276-1280
 - copy hook handlers, 1270-1272
 - debugging, 1269
 - icon handlers, 1288-1290
 - registering, 1273
- shell folders, 1250-1251**
- Shell Link project, 1259-1267**
- shell links, 1249, 1259-1267**
- Shell_NotifyIcon() function, 1218**
- ShFileOperation() function, 590, 604**
- shipping ActiveX controls, 256**
- shl operator, 43**
- ShortString type, 54-55, 754, 761**
- ShortStringAsPChar() function, 55**
- Show() function, 147**
- ShowCurrentRecord() function, 555**
- ShowCurrentTime() function, 853**
- ShowEnvironment() function, 694**
- ShowException() function, 157**
- ShowHint property (TApplication class), 156**
- ShowModal() function, 145-146**
- ShowProcessDetails() function, 707**
- ShowProcessProperties() function, 707**
- ShowTrackTime() function, 854**
- shr operator, 43**
- single-threaded applications, 1420, 1686**
- Single type, 222**
- sinks, 1144, 1149-1153**
- SizeOf() function, 47, 59, 91**
- sizing forms, 184-185**
- skeletons**
 - defined, 1413
 - Delphi-generated skeleton example, 1420-1424
 - IQueryServer stub and skeleton unit, 1430-1440
- small application, 25**
- SmallInt type, 761**
- Smart Agent, 1414**
- snapshots of system, 702**
- SND_ALIAS flag, 840**
- SND_ALIAS_ID flag, 840**
- SND_APPLICATION flag, 840**
- SND_ASYNC flag, 840**
- SND_FILENAME flag, 840**
- SND_LOOP flag, 840**
- SND_MEMORY flag, 841**
- SND_NODEFAULT flag, 841**
- SND_NOSTOP flag, 841**
- SND_NOWAIT flag, 840**
- SND_PURGE flag, 840**
- SND_RESOURCE flag, 840**
- SND_SYNC flag, 841**
- Sound category (TddgWaveFile component), 1061-1063**
- source breakpoint, 869**
- source code**
 - formatting rules
 - begin..end pair, 219*
 - indentation, 218*
 - margins, 218*
 - navigating, 29
 - sample application, 23
 - sharing between units, 142
 - units, 23
- source files, loading, 25**
- sources (Automation), 1144**
- spdbtn type prefix, 235**
- splash screens, 182-183**
- SQL (Standard Query Language), 1546-1547**
 - dynamic SQL, 1573-1579, 1699-1700
 - functions, 1604-1605
 - pass-through mode, 1570-1571
 - statements
 - COMPUTEDBY clause, 1550*
 - CREATE EXCEPTION, 1557*
 - CREATE TRIGGER, 1557-1558*
 - CREATE DOMAIN, 1551-1552*
 - CREATE INDEX, 1550*
 - CREATE TABLE, 1549-1550*
 - CREATE VIEW, 1552*
 - FOREIGN KEY clause, 1551*
 - GRANT, 1559-1560*
 - SELECT, 1553-1554*
- SRF project**
 - data module, 1505
 - filter form, 1513-1516

- key search form, 1510-1512
- main form, 1506-1510
- Stack pane, 880**
- standard components, 885**
- Standard Query Language.**
See SQL
- Standard version (Delphi), 8**
- standards document, coding, 217-235**
- StartPlayback() procedure, 632**
- state maintenance, 1665-1669**
- stateful objects, 1175**
- stateless interfaces, 1175**
- stateless objects, 1175**
- statements**
 - case, 85, 224
 - for, 225
 - if, 84, 224
 - if..else, 85
 - repeat, 225
 - SQL
 - COMPUTEDBY clause, 1550*
 - CREATE EXCEPTION, 1557*
 - CREATE TRIGGER, 1557-1558*
 - CREATE DOMAIN, 1551-1552*
 - CREATE INDEX, 1550*
 - CREATE TABLE, 1549-1550*
 - CREATE VIEW, 1552*
 - FOREIGN KEY clause, 1551*
 - GRANT, 1559-1560*
 - SELECT, 1553-1554*
 - units, 94-95
 - while, 224
 - with, 225
- states (datasets), 1493-1494**
- static linking, 374**
- static functions, 103, 227**
- status forms, 167-172**
- StdWndProc() function, 207**
- stipple, 282**
- stored procedures**
 - defining, 1553
 - enforcing data integrity with, 1555-1557
 - executable, 1554-1555
 - executing, 1581-1583
 - Inventory Manager application, 1738-1740
 - result sets, 1583-1585
- SELECT, 1553-1554
- TStoredProc class, 1517, 1581-1583
- storing threads locally, 493-497**
- Str DrawText parameter, 312**
- StrAlloc() function, 58-59**
- StrCat() function, 59**
- streams**
 - components, 892
 - Internet-enabled applications, 1673-1677
 - nonpublished component data, 1046-1049
 - TFileStream class, 545
 - TRecordStream class, 546-550
- strings, 47-48, 754-755**
 - compatibility, 761
 - concatenating, 50
 - dynamically allocated, 756
 - formatting, 685-686
 - indexing as arrays, 756
 - length, 755
 - length-byte, 54
 - memory allocation, 58
 - null-terminated, 52, 57-58, 757-758
 - PChars as, 759
 - range, 55, 761
 - resources, 83
 - size, 761
 - upgrading, 753-759
- StrNew() function, 59**
- stroke fonts, 353-355**
- structured exceptions, handling**
 - try..except construct, 226
 - try..except..else construct, 226
 - try..finally construct, 225
- structured storage, 1093**
- StrUtils unit, 51**
- stubs**
 - defined, 1413
 - Delphi-generated stub example, 1420-1424
 - Idl2Pas-generated stubs, 1456-1461
 - IQueryServer stub and skeleton unit, 1430-1440
- Style property, 289**
- styles (pens), 281**
- subclassing windows, 608-610**
- suggested reading, 1928-1929**
- suspending threads, 491**
- Swiss font family, 353**
- synchronizing threads, 483-486, 497, 500**
 - critical sections, 500-503
 - mutexes, 504-506
 - semaphores, 507-510
- Synchronize() function, 484**
- syntax highlighting, 31**
- SysAllocStrLen() function, 56**
- SysInfo**
 - directory data, 690
 - environment variables, 694-695
 - formatting strings, 685-686
 - InfoForm, 684
 - memory status data, 686-687
 - obtaining OS version, 688-689
 - platform neutrality, 700
 - system data, 690-692
 - system information utility, 684
- system data, 690-692**
- system directory, 584-585**
- system errors, 1873**
- system information program.**
See SysInfo
- System Registry, 256**
- system snapshots, 702**
- System units, 60**
- SysUtils unit, 51**

T

- table-level locking, 1545**
- tables, 1466.** See also datasets
 - computed columns, 1550
 - copying, 1606
 - creating, 1549-1550
 - data types, 1549
 - dBASE, 1590
 - packing, 1594*
 - physical record number, 1590*
 - records, 1591-1593*
 - default values, 1551
 - events, 1502-1504
 - foreign keys, 1551
 - Inventory Manager application
 - CUSTOMER, 1735-1736*
 - ITEMS, 1736-1737*
 - PART, 1736*
 - SALES, 1736*
 - Paradox, 1595
 - packing, 1595-1597, 1600-1602*
 - sequence numbers, 1595*
 - searching
 - key searches, 1497-1498, 1511-1512*
 - master/detail tables, 1500-1502*

- ranges, 1499-1500, 1509-1510*
- text file tables, 1517
 - data files, 1520*
 - importing, 1521-1522*
 - limitations, 1520-1521*
 - schema files, 1518-1519*
- TTable class, 1571-1573
- updating
 - multitable updates, 1703-1704*
 - one-table updates, 1702-1703*
- TActionItem instances, 1843**
- TADOCCommand class, 1529**
- TADOCConnection class, 1529**
- TADODataSet class, 1529**
- TAppBar class, 1236, 1245**
- TApplication class, 153, 158-159**
- task switching, 128**
- TBitmap.ScanLine array property, 288**
- TBlobField class, 1487**
- tblTempltemsBeforePost()**
 - function, 1757*
- TBOA class, 1418**
- TBookmarkStr class, 1470-1471**
- TBrush Example listing, 289-292**
- TBrush properties, 288**
- TCanvas class, 292, 903**
 - methods, 301-302, 307*
 - properties, 280-281, 288-300*
- TCardX control**
 - CardImpl.pas unit, 1336-1341*
 - CardPP.pas unit, 1343-1345*
- TChildForm class, 163**
- TCollection class, 1065**
- TCollectionItem class, 1065**
- TColor class, 280**
- TComObject class, 1103-1104**
- TComObjectFactory class, 1103-1104**
- TComponent class, 896-897**
- TControl class, 898**
- TCopyHook object, 1272**
- TCORBAConnection class, 1688**
- TCorbaDispatchStub class, 1418**
- TCorbaFactory class, 1418**
- TCorbalImplementation class, 1417**
- TCorbaList Manager class, 1418**
- TCorbaObjectFactory class, 1418**
- TCorbaSkeleton class, 1418**
- TCorbaStub class, 1417**
- TCustomControl class, 900**
- TCustomerForm, 1764-1768**
- TCustomerSearchForm, 1778-1783**
- TCustomForm, 752**
- TDatabase class**
 - methods, 1563*
 - properties, 1561-1563*
- TDataModule class, 1504**
- TDataSet class. See datasets**
- TDataSetProvider class, 1687**
- TDataSetTableProducer class, 1658-1665, 1841-1842**
- TDataSource class, 1476**
- TDateTime type, 763**
- TDBModeForm, 165**
- TDBNavStatForm, 167-172**
- TddgButtonEdit component, 976-979**
- TddgDigitalClock component, 980-983**
- TddgExtendedMemo component, 959-961**
- TddgHalfMinute component, 946-948**
- TddgLaunchPad component, 1066-1076, 1079-1084**
- TddgPasswordDialog component, 986**
- TddgRunButton component, 969-975**
- TDDGSalesDataModule, 1742-1753**
- TddgTabListbox component, 962-967**
- TddgWaveFile component, 1050-1057, 1061-1063**
- TDeviceMode class**
 - bit flags, 451-452*
 - printing with, 450-452*
- TDispatchConnection class, 1687, 1691-1693**
- TEdit components, 447**
- Terminated property (TApplication class), 156**
- terminating**
 - loops, 88*
 - threads, 481-483*
- TestDLL.dpr project, 667**
- testing, 863-880**
 - breakpoints, 869*
 - CPU view, 879*
 - components, 955-957*
 - DLL, 878*
 - Evaluate option, 875*
 - Event Log, 877*
 - integrated debugger, 869*
 - line-by-line, 873*
 - marquee component, 1026-1028*
 - Modify option, 875*
 - Modules view, 877*
 - viewing threads, 876*
 - Watch window, 874*
- TestSend project, 640-642**
- text**
 - Clipboard operations, 825*
 - text file tables, 1517
 - data files, 1520*
 - importing, 1521-1522*
 - limitations, 1520-1521*
 - schema files, 1518-1519*
 - text files
 - appending to, 540-541*
 - Capitals Project example, 542-544*
 - closing, 539*
 - creating, 540*
 - defined, 538*
 - opening, 538-540*
 - reading, 541-544*
 - search utility, 571*
- text editor form, 779-787**
- text file tables, 1517**
 - data files, 1520*
 - importing, 1521-1522*
 - limitations, 1520-1521*
 - schema files, 1518-1519*
- text files**
 - appending to, 540-541*
 - Capitals Project example, 542-544*
 - closing, 539*
 - creating, 540*
 - defined, 538*
 - opening, 538-540*
 - reading, 541-544*
 - search utility, 571*
- TextOut() function, 301**
- TextUpper.dpr project, 567-571**

TField class

- accessing field values, 1476-1478
- BLOB fields, 1487-1492
- calculated fields, 1484
- data types, 1478
- descendants, 1481-1483
- drag-and-drop fields, 1486
- editing fields, 1479-1480
- field names and numbers, 1478
- lookup fields, 1484-1485

TFileRec records, 560-561**TFileStream class, 545****TForm class, 145****TForm1 class, 26****TGraphicControl class, 900****TGUID records, 1096****THandles class, 832****thin clients, 1681-1682****Thread Status window, 876****Thread32First() function, 707****Thread32Next() function, 707****threads, 124, 476-478**

- background queries, 524, 527
- COM models, 1093
- CORBA, 1420
- critical sections, 500-503
- error handling, 133
- instances, 481
- local storage, 493-497
- MIDAS applications, 1686
- multiple, 493
- primary, 124
- priorities, 488
- process priority classes, 488-489
- relative priority, 489-490
- resuming, 491
- scheduling, 488
- search, 516-518, 521-522
- suspending, 491
- synchronization, 483-486, 497, 500
 - demaphoress*, 507-510
 - mutexes*, 504-506
- terminating, 481-483
- timing, 491-492
- variables, 494
- viewing, 876
- walking through, 707-709

three-tier applications

- client tracker, 1786
 - client main form*, 1800-1807
 - customer data module*, 1789-1797

error reconciliation,

- 1798-1799
- initial wiring*, 1797-1798
- online and offline data manipulation*, 1799
- online and offline persistence*, 1800
- record filtering*, 1800
- remote data module*, 1786-1788
- server-side filtering*, 1789
- client/server model, 1542-1543

thunking, 658, 661, 667-668**tic-tac-toe client, 1195-1197, 1200****tic-tac-toe sample program, 1182-1193****TImage component, 276, 341****time-conversion routines, 852****time formats, 852****TimeFormat property, 851-852****timing threads, 491-492****Title property (TApplication class), 155****Title TPrinter property, 421****TListBoxStrings class, 901-902****TLOGFONT structure, 361-362****TMainCustForm class, 1800-1807****TMainForm**

- bug-reporting application, 1831-1836
- Inventory Manager, 1758-1763

TMDIChildForm, 776-778**TMdiEditForm, 806****TMediaPlayer, 846**

- events, 843
- properties

DeviceType, 846*TimeFormat*, 851-852**TMemMapFile class, 572-575****TMemo class, 295, 422****TMtsAutoObject class, 1180-1181****TNewSalesForm (Inventory Manager), 1774-1778****To Do List, 31****TObject, 108, 905****TOleContainer class, 1201****TOleControl class, 253****toolbars, 20****ToolHelp32, 701**

- heap walking, 712-713
- module walking, 710-711
- process walking, 703-706

ReadProcessMemory() function, 715

thread walking, 707-709

viewing heap, 715-716

Tools menu commands, Editor**Options, 218****TORB class, 1418****ToRecycle() function, 605-606****TPageProducer class,****1655-1658****TPanel techniques, 341****TPartsForm, 1768-1773****TPersistent class, 895****TPrinter object, 420**

- methods, 421, 433
- properties, 420-421, 452-453

TPrintPrevPanel class, 449**TQuery class, 1517, 1573**

- Params property, 1575
- Params property editor, 1574
- ParamsByName function, 1575-1576

result sets, 1579-1581, 1602

stored procedure execution, 1583-1585

UniDirectional property, 1580

TQueryServer class, 1440-1443**TQueryTableProducer class, 1658-1665****transactions**

- committed, 1546
- explicit, 1568
- handling, 1568-1570
- implicit, 1568
- MTS, 1178
- rolling back, 1546

tray-notification icon component, 1218

handling mouse clicks,

1222-1224

HideTask property, 1224

Icon property, 1222

main unit, 1232-1234

message handling, 1221

parameters, 1219

TrayIcon.pas unit, 1225-1231**TReconcileAction values, 1798-1799****TRecordStream class, 546-550****TRect parameter, 292****trees (directory)**

- copying, 589-590, 604-605
- deleting, 589-590

triggers, 1557-1559, 1737-1738**troubleshooting**

- bug-reporting application
 - actions*, 1827-1829
 - adding users to*, 1825-1827

- application initialization and login, 1823-1824*
 - browsing bugs, 1850-1854*
 - browsing/filtering bugs, 1825*
 - bug-manipulation routines, 1825*
 - data module, 1811-1823, 1841*
 - displaying bug detail, 1854-1855*
 - enabling for Web, 1837*
 - general requirements, 1810-1811*
 - helper routines, 1843-1844*
 - introduction page, 1844-1846*
 - main form, 1829-1837*
 - page layout, 1840-1841*
 - Paradox keys, 1824*
 - project file, 1823-1824*
 - retrieving bug data, 1856-1858*
 - TActionItem instances, 1843*
 - TDataSetTableProducer component, 1841-1842*
 - TWebDispatcher component, 1842-1843*
 - user form, 1826-1827*
 - user logon, 1810*
 - username retrieval, 1846-1847*
 - username verification, 1847-1849*
 - verifying bug insertion, 1858-1861*
 - record contention, 1700
 - TrueType fonts, 354-355**
 - TRunButtons collection, 1076, 1079-1084**
 - try..except construct, 226**
 - try..except..else construct, 226**
 - try..finally blocks, 63, 225**
 - TSalesForm, 1773**
 - TScreen class, 159-160**
 - TSearchRec record, 591**
 - TStoredProc class, 1517, 1581-1583**
 - TStringList class, 902**
 - TStrings class, 900, 903**
 - TTable class, 1571-1573. See also tables**
 - events, 1502-1504
 - searching tables
 - key searches, 1497-1498, 1511-1512*
 - master/detail tables, 1500-1502*
 - ranges, 1499-1500, 1509-1510*
 - TTextRec records, 560-561**
 - TThread class, 478-480**
 - TTrayNotifyIcon class. See tray-notification icon component**
 - TTypeData structure, 906-907**
 - TUpdateKind values, 1798**
 - Turbo Pascal, 15, 745**
 - TVerInfoRes class, 593-598, 601-603**
 - TWebConnection class, 1688**
 - TWebDispatcher class, 1647-1651, 1842-1843**
 - TWebModule class, 1647-1651**
 - TWebRequest class, 1651-1655**
 - TWebResponse class, 1651-1655**
 - expressions, 64*
 - variables, 83*
 - TWin32FindData record, 592**
 - TWinControl class, 898-899**
 - two-tier client/server model, 1542**
 - type checking, 81**
 - Type keyword, 71, 81**
 - type libraries**
 - Automation, 1111
 - interfaces, 1164
 - Memo control, 1305-1316
 - Type Library Editor, 1426-1428
 - Type Library Editor, 1426-1428**
 - type ranges, 761**
 - typed files**
 - appending to, 545
 - defined, 538
 - FileOfRec.dpr sample project, 550-555
 - reading, 544
 - TFileStream class, 545
 - TRecordStream class, 546-550
 - typed pointers, 79**
 - typefaces, 352**
 - types, 44-45**
 - aliases, 81
 - AnsiString, 48
 - array, 223
 - Cardinal, 46
 - characters, 47
 - compatibility, 761
 - component properties, 889
 - components, 885
 - constants, 39
 - converting, 82
 - Currency, 71
 - Double, 46, 222
 - enumerated, 223
 - Extended, 222
 - floating-point, 222
 - garbage collected, 49
 - Integer, 46
 - lifetime-managed, 49
 - functions, 103
 - OleVariant, 70, 223
 - PChar, 57-58
 - prefixes, 235
 - Real, 46, 222
 - record, 223
 - sets, 75-76
 - ShortStrings, 54-55
 - Single, 222
 - sizes, 761
 - typecasting, 82
 - expressions, 64*
 - variables, 83*
 - user-defined, 71
 - Variant, 223
 - variants, 59-63
 - WideString, 56
 - typesafe programming, 904**
 - TyplInfo.pas unit, 905**
- ## U
- uCallbackMessage field (tray-notification icon component), 1220**
 - UDA (Universal Data Access), 1528**
 - UDLfiles, 1530-1531**
 - UDT (uniform data transfer), 1093**
 - uFlags field (tray-notification icon component), 1219**
 - Uls. See user interfaces undeleting records, 1593**
 - undocking toolbars, 20**
 - undoing changes, 1693-1694**
 - UndoLastChange() function, 1693**
 - UnhookMainWindow() function, 614**
 - UnhookWindowsHookEx() function, 628**
 - UniDirectional property, 1580**
 - uniform data transfer (UDT), 1093**

union operator, 77**unit files, naming**

- finalization section, 230
- implementation section, 229
- initialization section, 229
- interface section, 229
- uses clause, 229

Unit Showing MDI Child Form—Hiding Techniques listing, 816-818**Unit That Illustrates Text-Drawing Operations listing, 308-310****units, 24**

- ApBarFrm.pas, 1245-1247
- AppBars.pas, 1238-1244
- cbdata, 828-830
- circular references, 96
- components, 933-934
- Detail9x.pas, 720, 723-726
- DetailNT.pas, 737-740
- files, 138
- finalization, 95, 763
- global identifiers, 143
- implementation parts, 95
- InfoU.pas, 695-698
- initialization part, 95
- Marquee.pas, 1020-1024
- Open Tools API, 1373
- PasStrng.pas, 649-651
- PixDlg.pas, 963
- PwDlg.pas, 985
- RndHint.pas, 1008
- SendKey.pas, 634-639
- sharing code, 142
- statements, 94-95
- StrUtils, 51
- system, 60
- SysUtils, 51
- TrayIcon.pas, 1225-1231
- TypInfo.pas, 905
- utility units, 142
- W9xInfo.pas, 717-719
- WNTInfo.pas, 733-737
- WOW32.pas, 662-666
- source code, 23

Universal Data Access (UDA), 1528**unmapping views, 566-567****UnmapViewOfFile() function, 566-567****UnregisterPooled() function, 1727****untyped files, 555**

- copying, 557-560
- declaring, 556

reading, 556

writing to, 556-557

UpdateRegistry() function, 1690**updating MIDAS applications**

- HTML presentation, 1705-1709
- InternetExpress, 1709-1713
- multitable updates, 1703-1704
- one-table updates, 1702-1703

upgrading to Delphi 5, 743, 749-772

- components, 746
- from Delphi 1, 753
 - 16-bit vs. 32-bit, 771
 - 32-bit address space, 767
 - 32-bit math, 763
 - 32-bit resources, 768
 - API functions, 768
 - assembly language, 764
 - calling conventions, 765
 - characters, 753
 - DLLs, 765
 - operating system, 767
 - record alignment, 762
 - strings, 753-759
 - TDateTime type, 763
 - type sizes and ranges, 761
 - unit finalization, 763
 - VBX controls, 768

from Delphi 2

- Automation servers, 752
- Boolean types, 750
- GetChildren(), 752
- ResourceString, 751
- RTL changes, 751
- TCustomForm, 752

from Delphi 3

- 32-bit integers, 748
- 64-bit integers, 750
- Real type, 750

from Delphi 4

- database issues, 748
- IDE issues, 746
- Internet development issues, 748
- RTL issues, 747
- VCL issues, 747

packages, 746

type compatibility, 761

units, 746

UrlMon functions, 1356-1364**user-defined messages, 205****user-defined types, 71****user interfaces**

- design, 28
- Inventory Manager application
 - layout, 1758
 - TCustomerForm (customer entry), 1764-1768
 - TCustomerSearchForm (customer searches), 1778-1783
 - TMainForm, 1758-1763
 - TNewSalesForm (sales entry), 1774-1778
 - TPartsForm (inventory entry), 1768-1773
 - TSalesForm (sales browsing), 1773
- standards, 218

User objects, 128**UserFrm.pas, 1826-1827****usernames**

- retrieving, 1846-1847
- verifying, 1847-1849

users

- adding to bug-reporting application, 1825-1827
- Paradox, 1607
- redirecting, 1670-1671
- usernames
 - retrieving, 1846-1847
 - verifying, 1847-1849

uses clause, 229

- project file, 25
- units, 96

utilities

- SysInfo, 684
- text-file search utility, 571

utility units, 142**V****value parameters, 90****values**

- ModalResult property, 146
- varEmpty, 66
- varNull, 66

var blocks, 38**var parameters, 623****VarArrayCreate() function, 67****VarArrayDimCount() function, 68****VarArrayHighBound() function, 68****VarArrayLock() function, 68-69****VarArrayLowBound() function, 68****VarArrayOf() function, 68**

VarArrayRedim() function, 68

VarArrayRef() function, 68

VarArrayUnlock() function, 68-69

VarAsType() function, 70

VarCast() function, 70

VarClear() function, 70

VarCopy() function, 70

varEmpty value, 66

VarFromDateTime() function, 70

variables, 36-37

Boolean, 221

formatting, 221

global, 222

HInstance, 126

HPrevInst, 126

IUnknown interface,
1097-1098

local, 50, 221

loop control, 221

naming, 221

PChar, 53

self, 105

ShortString, 54

SysInfo, 694-695

thread storage, 494

typecasting, 83

variants, 59, 61, 223, 1168

arrays, 67-70, 1170

dynamic typing, 60

empty, 66

expressions, 65

lifetime managed, 62-63

null, 66

records, 62, 75

typecasting expression, 64

VarIsArray() function, 69

VarIsEmpty() function, 70

VarIsNull() function, 70

varNull value, 66

VarToDateTime() function, 70

VarToStr() function, 70

VarType() function, 70

VBX controls, 238, 768

VCL (Visual Component Library), 14

controls, 1609

database architecture, 1467

encapsulating ActiveX controls,
1301

exception handler, 1866

extending, 1587-1641

messages, 207

migrating from Delphi 4, 747

vector fonts, 354-355

VER80 conditional define, 744

VER90 conditional define, 744

VER95 conditional define, 744

VER100 conditional define, 744

VER110 conditional define, 744

VER120 conditional define, 744

VER130 conditional define, 744

verifying usernames,

1847-1849

VerInfo.dpr project, 601-603

**version information (files),
finding, 592**

FillFileMaskInfo() function,
600

FillFileVersionInfo() function,
599-600

GetFileVersion() function, 600

GetPreDefLKeyString() func-
tion, 600

GetProductVersion() function,
600

GetUserDefLKeyString() func-
tion, 600

TVerInfoRes class, 593-598

versioning packages, 996

**VFI (visual form inheritance),
12, 152**

**VFTs (virtual function tables),
1094**

video programming, 841

DDGMPlay, 844

device support, 846-847

Display property, 842

DisplayRect property, 843

first frames, 842

TMediaPlayer events, 843

viewing

heap, 715-716

source code, 23

threads, 876

Viewport extents, 318

views, 565-567, 1552

virtual addresses, 130

virtual memory

functions, 131

processes, 130

virtual function tables, 1094

virtual functions, 103, 227

VirtualAlloc() function, 131

visibility of fields, 227

visibility specifiers, 106

VisiBroker

administration tools, 1415

deploying, 1461-1462

IREP(Interface Repository),
1414-1415

Smart Agent, 1414

Visual Basic, 15-17

Visual Component Library. See

VCL

**visual development environ-
ment, 11**

**visual form inheritance (VFI),
12, 152**

vtables, 1094

W-Z

W9xInfo.pas unit, 717, 719

walking through code

through heap, 712-713

through modules, 710-711

over processes, 703-706

through threads, 707-709

Watch window, 874

WAV files, 839-841

wbdpBugswaAddBugAction()

function, 1858-1861

**wbdpBugswaBrowseAllBugsA-
ction() function, 1851**

**wbdpBugswaBrowseBugsActi-
on() function, 1850**

**wbdpBugswaBrowseYourBugs
Action() function, 1853**

**wbdpBugswaGetBugInfoActio-
n() function, 1856-1857**

**wbdpBugswalntroAction()
function, 1845-1846**

**wbdpBugswaRetrieveBugActi-
on() function, 1854-1855**

**wbdpBugswaUserNameAction
() function, 1847**

**wbdpBugswaVerifyUserName
Action() function, 1847-1849**

weak packages, 996

**{\$WEAKPACKAGEUNIT} direc-
tive, 997**

Web browsers, 1355-1356

**Web deployment, 1365-1366,
1368**

Web servers, 1646-1647

**WebBroker. See also Internet-
enabled applications**

bug-reporting application,
enabling for Web

- browsing bugs, 1850-1854*
- data module, 1841*
- displaying bug detail, 1854-1855*
- headers/footers, 1844*
- helper routines, 1843-1844*
- introduction page, 1844-1846*
- page layout, 1840-1841*
- retrieving bug data, 1856-1858*
- TActionItem instances, 1843*
- TDataSetTableProducer component, 1841-1842*
- TWebDispatcher component, 1842-1843*
- username retrieval, 1846-1847*
- username verification, 1847-1849*
- verifying bug insertion, 1858-1861*
- TDataSetTableProducer class, 1658-1665
- TPageProducer class, 1655-1658
- TQueryTableProducer class, 1658-1665
- TWebDispatcher class, 1647-1651
- TWebModule class, 1647-1651
- TWebRequest class, 1651-1655
- TWebResponse class, 1651-1655
- WebModule1WebActionItem1**
- Action event handler, 1649**
- while statements, 87, 224**
- WideString data type, 754, 1171**
- WideStrings, 56**
- Width property (buttons), 26**
- wild pointer bug, 867**
- Win32**
- 32-bit applications and, 772
- Clipboard, 824
 - customizing, 828, 831*
 - graphics operations, 826-827*
 - text operations, 825*
- error codes, 1873-1900
- error handling, 133
- flat memory model, 130
- kernel objects, 124
- mapping modes, 316
- primary threads, 124
- processes, 124
- system errors, 1873
- system functions, 133
- threads, 124
- window coordinates, 314**
- window procedures, 609**
- windows**
- child, 775, 808, 818
- client, 775, 808
- client area, 775
- Debug Inspector, 874
- docking, 30
- elliptical hint, 1008-1009
- frame, 775
- maximizing, 818
- minimizing, 818
- restoring, 818
- subclassing, 608, 610
- Thread Status, 876
- Watch, 874
- Windows operating system**
- Clipboard, 798
- exiting from applications, 186
- extents, 318
- menu items, 804
- hooks, 626-627
- MDI implementation, 774
- messages, 192-194
- Middle East version, 301
- preventing shutdown, 188
- system data, 727-731
- Windows directory, 584**
- windows elliptical hint, 1011-1012**
- with statement, 225**
- wizards**
- ActiveX Control, 1300
- COM Object, 1270
- CORBA Object Wizard, 1418-1419, 1427-1428
- DDGSearch, 1394
- Dumb, 1374-1375
- Object, 1179
- Remote Data Module, 1179
- Wizard wizard, 1378-1380
 - AddModU.pas unit, 1387*
 - InitWiz.pas unit, 1380-1381*
 - Main.pas unit, 1383-1386*
 - WizWiz.dpr unit, 1389*
- WizWiz.dpr unit, 1389**
- WM_COPYDATA message, 670**
- WNTInfo.pas unit, 733-737**
- Word type, 761**
- work distribution, 1541**
- world coordinates, 313**
- WOW32.pas unit, 662-666**
- write functions, 253**
- WriteRec() function, 550**
- writing**
- components, 930-931, 1013
 - ancestor classes, 932*
 - array properties, 941-942*
 - default array properties, 944*
 - default property values, 943*
 - enumerated properties, 936*
 - event properties, 946*
 - icons, 958*
 - functions, 950*
 - object properties, 937-940*
 - overriding constructors, 951-952*
 - overriding destructors, 953*
 - set properties, 936*
 - simple properties, 935*
 - units, 933-934*
- to untyped files, 556-557
- xor operator, 43**
- zero-initialized data, 222**