

Index

Numbers and Symbols

- ! (exclamation point), using with AutoLISP expressions, 689
- !c, using in pull-down item names, 619
- & (ampersand), using in pull-down item names, 618
- && (double ampersand), using in pull-down item names, 619
- ((left parenthesis), using with AutoLISP expressions, 689
- (* [number *number* ...]) syntax in AutoLISP, description and result of, 695
- (_> error message in AutoLISP, description of, 708
- (+ [number *number* ...]) syntax in AutoLISP, description and result of, 695
- * (asterisk), using in macros, 612
- . (dot in VBA projects, 733–734
- . (period), using in macros, 612
- / (slash), using with VBA files, 671
- [] (square brackets), meaning of, 121
- \ (backslash), using in macros, 612
- \ \ (double backslash) using in macros, 612 using with VBA files, 671
- ^C, using in macros, 612
- _ (underscore), using in macros, 612
- ("_> error message in AutoLISP, description of, 708
- ~ (tilde), using in pull-down items, 619
- + function in DIESEL, effect of, 592
- function in DIESEL, effect of, 592
- 2D coordinate system, explanation of, 95
- 2D display commands
 - DSVIEWER, 172
 - PAN, 172
 - PAN, 172
 - REDRAW, 172
 - REDRAWALL, 172
 - REGEN, 172
 - REGENALL, 172
 - REGENAUTO, 172
 - VIEW, 172
 - VIEWRES, 172
 - ZOOM, 172–173
- 2D drafting
 - comparing in AutoCAD versions, 255, 271
 - switching between 3D drafting, 288
- 2D drawing commands
 - ARC, 118
 - ATTDEF, 118
 - BLOCK, 118
 - BOUNDARY, 118
 - CIRCLE, 118
 - DLINE, 118
 - DONUT, 118
 - ELLIPSE, 118
 - GRADIENT, 118
 - HATCH, 118
 - LINE, 118
 - MLINE, 118
 - MTEXT, 118
 - PLINE, 119
 - POINT, 119
 - POLYGON, 119
 - RAY, 119
 - RECTANG, 119
 - REGION, 119
 - REVCLOUD, 119
 - SKETCH, 119
 - SOLID, 119
 - SPLINE, 119
 - TABLE, 119
 - TRACE, 119
 - XLINE, 119

- 2D objects
 - creating 3D objects from, 311–315
 - creating from 3D objects, 315–317
 - using THICKNESS property with, 311
- 2D objects, converting regions back to, 308
- 2D solids, explanation of, 137–138
- 3D, working in, 13
- 3D ALIGN command, effect of, 319
- 3D and 2D drafting, switching between, 288
- 3D ARRAY command, effect of, 319
- 3D coordinate system, explanation of, 95
- 3D environment, changing computer performance in, 28
- 3D modeling
 - comparing in AutoCAD versions, 255
 - limitations in AutoCAD LT, 272
- 3D models
 - displaying in hidden line view, 305
 - displaying in parallel view, 300
 - displaying in perspective view, 300
 - generating with Solid Draw, 317
 - generating with Solid Profile, 317
 - generating with Solid View, 317
 - navigating, 303
 - shading, 305
 - solid, 279
 - surface, 278
 - wireframe, 278
- 3D modify commands
 - 3D ALIGN, 319
 - 3DMOVE, 318
 - 3DROTATE, 318
 - ALIGN, 319
 - ARRAY, 319
 - MIRROR 3D, 319
- 3D navigation commands
 - 3DDISTANCE, 303
 - 3DFLY, 303
 - 3DPAN, 303
 - 3DSWIVEL, 303
 - 3DWALK, 303
 - 3DZOOM, 303
- 3D objects
 - creating 2D objects from, 315–317
 - creating from 2D objects, 311–315
- 3D orbit commands
 - 3DCORBIT, 301
 - 3DFORBIT, 301
 - 3DORBIT, 301
 - using Navigation Modes menu with, 302
- 3D polylines, features of, 310
- 3D solids. *See* solids
- 3DCORBIT command, description of, 301
- 3DDISTANCE navigation command, description of, 303
- 3DFACE command, creating surfaces with, 329
- 3DFLY navigation command, description of, 303
- 3DFORBIT command, description of, 301
- 3DMESH command, using, 330
- 3DMOVE command, effect of, 318
- 3DORBIT command
 - description of, 301
 - switching to, 302
- 3DPAN navigation command, description of, 303
- 3DROTATE command, effect of, 318
- 3DSWIVEL navigation command, description of, 303
- 3DWALK navigation command, description of, 303
- 3DZOOM navigation command, description of, 303, 401, 401–402
- ‘ (apostrophe), using with VBA comments, 734
- ; (semicolon), using in macros, 612
- !., using in pull-down item names, 619
- (- [number *number* ...]) syntax in AutoLISP, description and result of, 695

(/ [number *number* ...]) syntax in AutoLISP, description and result of, 695

A

(abs *number*) syntax in AutoLISP, description and result of, 695
 absolute coordinates, inputting manually, 280
 absolute *xy* coordinates, entering, 98
 ACAD* AutoLISP files, load order for, 677
 Acad* files, descriptions of, 572
 Acad.PAT file, section of, 639
 ACAD.RX file, example of, 678
 accuracy versus precision, 93–94
 actions
 adding to blocks, 374–375
 associating parameters with, 375
 for blocks, 371–372
 canceling, 31
 creating double-click actions, 623–624
 placing in blocks, 369
 revealing last single action, 153
 ActiveX Automation
 overview of, 657
 using methods in, 715–716
 using with AutoLISP, 715–717
 Adaptive Degradation and Performance
 Tuning dialog box, displaying, 289
 ADCETNER command, displaying
 DesignCenter palette with, 408
 Add Plot Style Table Wizard, launching, 485
 Add Plotter wizard, launching, 481
 Add selection mode, description of, 147
 Advanced wizard, setting values with, 41
 Aerial Viewer window, displaying, 172
 AI_BOX command, creating boxes with, 331

AI_CONE command, creating cones with, 332
 AI_DISH command, creating dishes with, 333
 AI_DOME command, creating dishes with, 333
 AI_PYRAMID command, creating torus with, 334
 AI_SPHERE command, creating spheres with, 333
 AI_TORUS command, creating torus with, 334
 AI_WEDGE command, creating wedges with, 332
 AIA (American Institute of Architects)
 Web site, 52
 alert message function in AutoLISP, description and result of, 702
 Alias Editor, using, 584–585
 Aliases dialog box, using with shortcut menus, 621
 ALIGN command, effect of, 319
 Align option, using with single-line text, 191–192
 aligned dimensions, creating, 227–228
 alignment. *See* justification
 Alignment parameter for blocks, description of, 372
 ALL selection mode, description of, 147
 Allow Docking option, selecting, 24
 Allow/Disallow Dynamic UCS status bar button, description of, 588
 American Institute of Architects (AIA)
 Web site, 52
 ampersand (&), using in pull-down item names, 618
 Angle Direction value, setting with Advanced wizard, 41
 ANGLE hatch pattern, example of, 639–641
 Angle Measure value, setting with Advanced wizard, 41

- angles
 - measurement of, 41–42
 - specifying, 298
- angular dimensions, creating, 230–231
- angular units, examples of, 68
- Angular Units value, setting with
 - Advanced wizard, 41
- annotation, comparing in AutoCAD
 - versus AutoCAD LT, 273
- annotation text objects, tool for, 118
- annotation/dimensioning, comparing in AutoCAD versions, 255
- ANSI templates, description of, 42
- APIs (application programming interfaces)
 - advantages of, 654–655
 - disadvantages of, 655
- apostrophe (‘), using with VBA
 - comments, 734
- APParent INTersection Object Snap mode, description of, 109
- application files
 - adding to Startup Suite, 675
 - dragging and dropping, 667
 - loading, 665–666
 - loading automatically, 674–678
 - running programs in, 678–679
 - unloading, 667–668
 - verifying loading of, 667
- Application programming interfaces (APIs)
 - advantages of, 654–655
 - disadvantages of, 655
- applications
 - adding to History List tab, 667
 - loading and unloading, 664–668
- APPLOAD command, initiating, 665
- ARC command, alias and function of, 118
- arc length dimensions, creating, 231–232
- architectural units, definition of, 69
- ARCHIVE command, using with sheet sets, 476
- arcs, drawing, 123–124
- Area setting, description of, 41
- Array action for blocks, parameters
 - associated with, 371–372
- ARRAY editing command, 151
 - alias and function for, 151
 - effect of, 160–161
- arrowheads, using in dimensions, 214
- ARX command, Load and Unload options
 - for, 672
- .ARX file extension, description of, 663
- Arxload function
 - example of, 673
 - syntax of, 673
- Arxunload function
 - example of, 673
 - syntax of, 673
- associative dimensions
 - creating, 216
 - explanation of, 215
- asterisk (*), using in macros, 612
- atof function in AutoLISP, description
 - and result of, 698
- atoi function in AutoLISP, description
 - and result of, 698
- Attach DWF Underlay dialog box,
 - displaying, 397–398
- attachments, using with xrefs, 383
- ATTBLOCKREF object, description of, 620
- ATTDEF command
 - alias and function of, 118
 - starting in Block Editor, 367
 - using with block definitions, 360
- ATTDIA system variable, using with attributes, 362
- ATTDYNBLOCKREF object, description of, 620
- ATTEXT (Attribute Extraction) command, using with blocks, 363
- ATTREQ system variable, using with attributes, 362

- attribute data, extracting from blocks, 363
- attribute definition, storage of, 359–360
- Attribute Extraction Notification tray
 - icon, description of, 590
- attribute modes
 - Constant, 361
 - Invisible, 360
 - Preset, 361
 - Verify, 361
- attribute values, changing in blocks, 363
- attributes
 - adding to block definitions, 359–362
 - block definitions, tool for, 118
 - definition of, 188
 - managing in blocks, 363
 - ordering, 362
 - updating on block references, 371
- ATTSYNC (Attribute Synchronize)
 - command, using with blocks, 363, 371
- AUDIT command, using with drawings, 423–424
- AutoCAD. *See also* CAD management
 - as backward-compatible program, 11
 - changing display settings for, 595
 - comparing to AutoCAD LT, 258–260
 - controlling opening of, 17–18
 - deployment and installation, 271
 - exchanging information with, 699–700
 - feature set in, 13–14
 - opening multilines in, 271
 - versions and file formats, 11
- AutoCAD 2007
 - saving drawing files in, 12
 - starting, 15–18
- AutoCAD application object, retrieving, 715
- AutoCAD Block utility Web site and description, 267
- AutoCAD commands for VBA
 - VBAIDE, 720
 - VBALOAD, 720–722
 - VBAMAN, 724–725
 - VBANEW, 725
 - VBAPREF, 725
 - VBARUN, 723–724
 - VBASTMT, 726
 - VBAUNLOAD, 722–723
- AutoCAD DesignCenter. *See* DesignCenter
- AutoCAD DesignCenter, description of, 23
- AutoCAD interface
 - drawing area, 25–26
 - floating command window, 26–27
 - menus, 20–21
 - palettes, 23–25
 - status bar, 27–28
 - title bars, 19–20
 - toolbars, 21–22
- AutoCAD LT
 - 2D drafting, 255
 - 3D modeling, 255
 - 3D modeling limitations, 272
 - annotation/dimensioning, 255
 - CAD standards, 257
 - collaboration/sharing, 256
 - comparing to AutoCAD, 258–260
 - customization/programming, 257
 - customizing with Diesel, 264
 - data exchange, 257
 - deployment and installation, 271
 - description of, 253
 - features of, 12
 - opening multilines in, 271
 - SHADEMODE, 305
 - software deployment, 258
 - user interface, 254
 - using with AutoCAD in same office, 269–271
 - versions and file formats, 11
 - viewing/navigation, 256
- AutoCAD Object Model. *See* Object Model

- AutoCAD rejected function error
 - message in AutoLISP, description of, 708
 - AutoCAPS option, using, 205
 - Autodesk Buzzsaw, using for project collaboration, 556–558
 - Autodesk DWG TrueConvert program, downloading, 12
 - Autodesk i-drop technology, overview of, 554
 - Autodesk Symbols 2000, features of, 266
 - Autodesk VIZ 2007, features of, 266
 - Autodesk's Web site, connecting to, 27
 - AutoLISP application files, loading, 682–683
 - AutoLISP data types
 - Entity name, 694
 - File descriptor, 694
 - Integer, 694
 - List, 694
 - Real, 694
 - Selection Set, 694
 - String, 694
 - Symbol, 694
 - VLA-object, 694
 - AutoLISP error messages
 - (_>, 708
 - ("_>, 708
 - AutoCAD rejected function, 708
 - Bad argument\type, 708
 - extra right paren, 708
 - too few arguments, 709
 - too many arguments, 709
 - AutoLISP expressions, structure of, 689–690
 - AutoLISP files
 - associating to .CUI files, 677
 - creating, 688–689
 - loading, 667–669
 - loading automatically, 676–677
 - AutoLISP program, creating, 692–694
 - AutoLISP programming interface. *See also* VLIDE (Visual LISP Integrated Development Environment)
 - adding interaction to DCL with, 711–715
 - considering use of, 661
 - creating commands in, 691
 - data conversion functions in, 697–698
 - data storage and retrieval functions in, 698–699
 - list functions in, 696–697
 - loading .NET files with, 674
 - loading ObjecARX files with, 672–673
 - loading VBA files with, 671
 - math functions in, 695
 - overview of, 656–657
 - PAUSE predefined variable in, 692
 - PI predefined variable in, 692
 - string functions in, 696
 - T predefined variable in, 692
 - unloading ObjectARX files with, 673
 - user feedback functions in, 702
 - user input functions in, 701
 - using ActiveX Automation with, 715–717
 - verifying execution of expressions in, 707
 - auto-list, effect of, 204
 - AutoVue viewer Web site and description, 268
 - axis tripod, using, 298–299
-
- ## B
-
- /b command line switch, description of, 573
 - backdrops, setting up, 343
 - background color, modifying for layouts, 441
 - Background dialog box, opening, 343
 - background masks, using, 206

- backgrounds, setting for views, 343
- backing up files, 53–54
- backslash (\), using in macros, 612
- backward-compatible program, AutoCAD as, 11
- BACTION command, starting in Block Editor, 367
- BACTIONTOOL command, using with blocks, 374
- Bad argument\type error message in AutoLISP, description of, 708
- BASE command, using with blocks, 359
- Base Point parameter for blocks, description of, 372
- baseline dimensions, creating, 229–230
- Batch Standards Checker
 - description of, 511
 - using, 522–525
- BATTMAN (Block Attribute Manager)
 - command, using with blocks, 363
- BCIRC command, revising, 717–718
- BEIDT command, starting Block Editor with, 357, 369–370
- beveled corner, applying to intersecting objects, 151
- Bind options, using with xrefs, 392
- block, tool for, 118
- Block Authoring Palettes
 - adding actions with, 374–375
 - adding parameters with, 373–374
- Block Authoring Palettes window, using in Block Editor, 369
- BLOCK command
 - alias and function of, 118
 - starting, 351
 - using, 350
- Block Count (BCOUNT) tool in Express Tools, description of, 649
- Block Definition dialog box
 - accessing, 351–353
 - advanced options in, 353
- block definitions
 - adding attributes to, 359–362
 - editing with Block Editor, 369–371
 - exporting, 358–359
 - purging from drawings, 357–358
 - redefining, 357
 - renaming, 356–357
- Block Editor
 - Block Authoring Palettes window in, 369
 - editing block definitions in, 369–371
 - features of, 366–367
 - starting, 357
- Block Editor toolbar, components of, 367–369
- block references, updating attributes on, 371
- Block tools in Express Tools, description of, 645–646
- block utilities
 - AutoCAD Block, 267
 - CADdepot, 267
 - CADOPOLIS.COM, 267
 - CADToolsOnline.com, 267
- BLOCKREF object, description of, 620
- blocks. *See also* callout blocks; dynamic blocks; label blocks
 - adding actions to, 374–375
 - adding parameters to, 373–374
 - adding to drawings, 411
 - Autodesk Symbols 2000 library of, 266
 - changing attribute values in, 363
 - controlling display of geometry in, 376–378
 - creating, 350–351
 - creating tools from, 413
 - creating with FLATSHOT command, 316
 - customization of, 262, 570
 - editing in-place, 387–389
 - enabling grips for, 380
 - versus external references, 381

- blocks (*continued*)
 - extracting attribute data from, 363
 - identifying base points on, 350
 - inserting, 354–356
 - insertion cycling order of, 379
 - managing attributes in, 363
 - overview of, 349–350
 - parameters and actions for, 371–372
 - placing parameters and actions in, 369
 - placing visibility parameters in, 376–378
 - searching for, 410
 - using parameter sets with, 376
- blocks with attributes, inserting, 362
- blocks with specific names, selecting, 416–417
- Bookmarks feature, navigating VLIDE
 - Text window with, 687
- Boolean data type in VBA projects, description and example of, 732
- BOUNDARY command, alias and function of, 118
- BOX command, effect of, 322
- boxes, creating with AI_BOX command, 331
- BPARAMETER command
 - starting in Block Editor, 367
 - using with blocks, 373
- Brava! Viewer Web site and description, 268
- Break at Point button, effect of, 163
- BREAK command
 - alias and function for, 151
 - effect of, 151, 163–164
- breakpoints
 - setting up, 706
 - using in VLIDE, 705
- budgeting considerations 269–270, 500
- bug, definition of, 705
- bulleted lists, using with multiline text, 204–205

- Button tile, description of, 710
- Buzzsaw, using for project collaboration, 556–558
- BVHIDE command, starting in Block Editor, 368

C

- /c command line switch, description of, 573
- CAD advantages
 - 3D benefits, 10
 - appearance, 10
 - distributing work, 10
 - precision, 10
 - reuse, 10
 - scalability, 10
 - sharing work, 10
- CAD files, naming, 52
- CAD management, areas of, 500. *See also* AutoCAD
- CAD standards
 - checking, 516–518
 - comparing in AutoCAD versions, 257
 - configuring, 513–515
 - non-typical parts of, 501–502
 - overview of, 510–511
- CAD standards checking, icon associated with, 27
- CAD Standards feature, comparing in AutoCAD versus AutoCAD LT, 274
- CAD Standards Notification tray icon, description of, 590
- CAD standards tools
 - Batch Standards Checker, 511
 - Layer Translator, 511
 - Standards Manager, 511
- CADdepot utility Web site and description, 267
- CADOPOLIS.COM utility Web site and description, 267

- CADToolsOnline.com utility Web site and description, 267
- CADViewer Web site and description, 268
- CAL command, using, 421
- CALCINPUT system variable, using, 422
- Calculator
 - description of, 24
 - using, 419–423
- callout blocks. *See also* blocks; dynamic blocks; label blocks
 - adding to sheets, 469
 - contents of, 469
 - setting up, 470–472
- camera glyphs, display of, 273
- cameras
 - adjusting views of, 299
 - creating, 299
 - features of, 299
- canceling actions, 31
- car *list* function in AutoLISP, description and result of, 697
- cdr *list* function in AutoLISP, description and result of, 697
- CD-Rs, backing up with, 54
- CENTER linetype definition, example of, 262
- center marks, using with dimensions, 233
- CENter Object Snap mode, description of, 109
- Center option, using with single-line text, 191
- center point, locating for circles, 122
- chamfer, definition of, 138
- CHAMFER command
 - alias and function for, 151
 - effect of, 151, 166
 - using with solids, 327
- Check SOLIDEDIT option, description of, 326
- CHECKSTANDARDS command, using, 516–518
- CIRCLE command
 - alias and function of, 118
 - using Diameter option with, 59
- circle objects, tool for, 118
- Circle tool, using, 59–60
- circles
 - creating, 58–59
 - drawing, 121–123
 - locating center points of, 122
- circular arc objects, tool for, 118
- circular polyline object, tool for, 118
- Clean Screen tool, using, 28, 590, 606
- Clean SOLIDEDIT option, description of, 326
- CLEANSCREENOFF command, using, 606
- CLEANSCREENON command
 - effect of, 24
 - using, 606
- Clipboard, copying objects with, 31, 406–407
- clipped images, editing, 396
- clipped xrefs, editing, 391
- Code and UserForm windows in VBA IDE, features of, 728
- code module, adding new procedure to, 738–739
- collaboration/sharing, comparing in AutoCAD versions, 256, 274
- color coding, controlling in VLIDE Text window, 685
- Color-Dependent Plot Style Table (CTB), significance of, 485
- Color Edges SOLIDEDIT option, description of, 326
- Color Faces SOLIDEDIT option, description of, 326
- color systems, support for, 90
- colors
 - adjusting for Crosshairs interface element, 286–287
 - assigning to layers, 81
 - functions of, 89–90

- COM (Component Object Model)
 - automation, overview of, 657
- Command Alias Editor tool in Express
 - Tools, description of, 648
- command aliases
 - creating, 583
 - customization of, 570
 - defining with PGP files, 582–584
 - executing commands with, 264
 - location of, 582
 - syntax for, 583
- command line
 - explanation of, 26
 - overview of, 28–29
- command line switches
 - customization of, 571
 - explanation of, 572
 - using, 572–577
- Command Line Window Font dialog box,
 - opening, 596–597
- Command List pane in CUI editor,
 - features of, 609–610
- command options, identifying, 121
- command window
 - allowing and preventing moving of, 27
 - explanation of, 26
 - turning on and off, 27
- commands
 - accessing shortcut menus for, 30–31
 - adding to tool palettes, 413
 - assigning help strings to, 614
 - assigning images to in CUI editor, 613–614
 - canceling, 31
 - creating in AutoLISP, 691
 - creating in CUI editor, 613
 - in CUI editor, 612–614
 - effect of, 56
 - for exporting to different file types, 548
 - getting help with, 32
 - invoking transparent commands, 31
 - repeating, 30–31, 124
 - selecting to assign to toolbars, 615
 - using QuickCalc dialog box with, 422–423
 - using shortcut menus with, 619
 - using with script files, 631
- comments
 - adding in DCL, 711
 - adding in VBA projects, 734
 - adding in Visual LISP Editor, 690–691
 - applying to DWGs, 564–565
- communication, importance of, 270
- Communication Center tray icon,
 - description of, 589
- compass, explanation of, 298
- complex linetypes, using, 637–638
- Component Object Model (COM)
 - automation, overview of, 657
- CONE command, effect of, 323
- cones, creating, 332
- Configure Standards dialog box,
 - displaying, 513
- construction lines
 - creating, 126–127
 - versus rays, 126–127
- context-sensitive help, accessing, 32
- continued dimensions, creating, 229–230
- CONVERTPSTYLES command, toggling
 - between drawings with, 484
- CONVTOSURFACE command, effect of, 336
- coordinate systems
 - 2D system, 95
 - 3D system, 95
 - UCS (user coordinate system), 293
 - WCS (world coordinate system), 293
- coordinate values, constructing with
 - point filters, 282
- coordinates
 - entering absolute xy coordinates, 98
 - entering relative polar coordinates, 99–101
 - entering relative xy coordinates, 99

- inputting manually, 279–281
 - simplifying, 96
 - spherical, 281
- coordinates display, location of, 27
- Coordinates status bar button,
 - description of, 588
- COPY command
 - alias and function for, 151
 - versus ARRAY, 160
 - effect of, 151, 155–156
 - using with viewports, 448
- Copy Edges SOLIDEDIT option,
 - description of, 326
- Copy Faces SOLIDEDIT option,
 - description of, 326
- COPYBASE command, using, 406
- COPYCLIP command
 - alias and function for, 151
 - using with viewports, 448
- cost, comparing between programming interfaces, 660
- CPolygon selection mode, description of, 146
- Create Layout wizard, using, 436–438
- Create New Drawing dialog box
 - controlling display of, 506
 - displaying, 39
- Create Selection Set (SSX) tool in Express Tools, description of, 649
- Create Sheet Set wizard
 - features of, 451
 - starting from scratch with, 452–455
- crosshair size, options for, 598
- crosshairs
 - appearance in drawing area, 25–26
 - customizing, 287
 - pickbox in, 145
- Crosshairs interface element, adjusting colors for, 286–287
- crosshairs movement, constraining with snap, 103–105
- Crossing selection mode, description of, 146
- CTB (Color-Dependent Plot Style Table), significance of, 485
- CTB files, description of, 37
- Ctrl key. *See* keyboard combinations
- CUI (Customize User Interface) editor
 - Command List pane in, 609–610
 - commands in, 612–614
 - controlling Workspaces with, 602–605
 - creating commands in, 613
 - Customizations In pane in, 608–609
 - Dynamic pane in, 610–611
 - features of, 608
 - launching, 611
 - using, 263
 - using to transfer customizations, 625
 - using with double-click actions, 623–624
 - using with partial customization files, 627
 - using with shortcut menus, 620–621
- .CUI files, associating AutoLISP files to, 677
- curved objects, controlling visual smoothness of, 172
- curves, creating, 133–135
- customization, differences in AutoCAD environments, 270
- customization, migrating and transferring, 624–626
- customization files
 - loading enterprise files, 626–627
 - loading partial files, 627
- customization options, overview of, 570–571
- customization/programming, comparing in AutoCAD versions, 257
- Customizations In pane in CUI editor, features of, 608–609
- Customize User Interface (CUI) editor. *See* CUI (Customize User Interface) editor

CUTCLIP command
alias and function for, 151
using, 406–407

CYLINDER command, effect of, 324
cylindrical coordinates, inputting
manually, 280–281

D

Dashboard, description of, 25
Dashboard palette, description of, 288
data exchange, comparing in AutoCAD
versions, 257

data mining. *See* DesignCenter

data types
in AutoLISP, descriptions of, 694
in VBA projects, 732

DBConnect Manager, description of, 24

.DBX file extension, description of, 663

DCL (Dialog Control Language)
adding comments in, 711
overview of, 709–711
using AutoLISP to add interaction to,
711–715

DCL tiles

Button, 710
Dialog, 710
List_box, 710
Ok_cancel, 710
Ok_only, 710
Popup_list, 710
Radio_button, 710
Toggle, 711

DDE (Direct Distance Entry), overview
of, 101–102

DDEDIT command, using with dimension
text, 236

DDIM command, displaying Dimensions
Style Manager dialog box with, 217

debug tools in VLIDE, breakpoints, 705
debugging, definition of, 705

DEFUN function
creating custom function with, 692
syntax for, 691
using with AutoLISP, 656

DELAY command, using with script files,
631

Delete Faces SOLIDEDIT option,
description of, 326

demand loading
relationship to indexing, 533
using with xrefs, 391

design ideas
conveying with hatch patterns, 639
conveying with linetypes, 633–634

DesignCenter
creating hatch tools and hatch objects
from, 245
features of, 407–408

DesignCenter palette
accessing and placing blocks with, 262
displaying, 408
tabs in, 409

design-time, explanation of, 727

Design Web Format (DWF) files. *See* DWF
(Design Web Format) files

desktop icons
capabilities of, 264
copying, 18

desktop shortcuts. *See also* shortcuts
creating, 574–575
modifying, 575–577
using, 17–18

Deutsches Institut für Normung (DIN)
templates, description of, 43

dialog boxes, overview of, 29–30

Dialog Control Language (DCL)
adding comments in, 711
overview of, 709–711
using AutoLISP to add interaction to,
711–715

Dialog DCL tile, description of, 710

- diameter, specifying for circles, 122–123
- diameter dimensions, creating, 232–233
- Diameter option, using with CIRCLE command, 59
- DIESEL (Direct Interpretively Evaluated String Expression Language)
 - customization of, 570
 - customizing AutoCAD LT with, 264
 - functions in, 592
 - using, 592–593
- Digital Signature Contents dialog box, displaying, 544
- digital signatures
 - obtaining from VeriSign, 540–542
 - using with batches of drawings, 545
 - using with drawing files, 542–543
- digitally signed drawing files, opening, 543–545
- DIMALIGNED command, starting, 228
- DIMANGULAR command, starting, 230–231
- DIMARC command, starting, 231–232
- DIMBASELINE command, starting, 229–230
- DIMCENTER command, starting, 233
- DIMCONTINUE command, starting, 229
- DIMDIAMETER command, starting, 232–233
- DIMDISASSOCIATE command, using, 236–237
- DIMEDIT command, using with dimension text, 236
- dimension components
 - arrowheads, 214
 - dimension line, 214
 - dimension text, 214
 - extension lines, 214
 - origin points, 214
- dimension line, using in dimensions, 214
- Dimension menu, description of, 21
- dimension origins, specifying points for, 228
- dimension scale, establishing, 77
- Dimension Style Manager, using, 217
- dimension style overrides, features of, 225
- dimension styles. *See also* New Dimension Style dialog box; styles
 - creating, 218–219
 - deleting, 226
 - importing, 226
 - merging, 225–226
 - modifying, 224–226
 - renaming, 226
 - setting current, 224
- dimension substyles, explanation of, 226
- dimension system variables, listing, 223–224
- dimension text
 - editing, 236
 - using in dimensions, 214
- Dimension tools in Express Tools, description of, 647
- dimensioning/annotation, comparing in AutoCAD versions, 255
- dimensions
 - adding overrides to, 235–236
 - aligned, 227–228
 - angular, 230–231
 - arc length, 231–232
 - associating, 236–237
 - associative, 215
 - baseline, 229–230
 - continued, 229–230
 - diameter, 232–233
 - disassociating, 236
 - editing, 235–237
 - editing with grips, 236
 - exploded, 215–216
 - jogged, 233
 - linear, 227–228
 - non-associative, 215
 - ordinate, 234
 - radius, 232

- dimensions (*continued*)
 - specifying, 216
 - trans-spatial, 235
 - using center marks with, 233
- DIMJOGGED command, starting, 233
- DIMLINEAR command, creating linear dimensions with, 227
- DIMORDINATE command, starting, 234
- DIMRADIUS command, starting, 232
- DIMREASSOCIATE command, using, 236–237
- DIMTEDIT command, using with dimension text, 236
- DIN (Deutsches Institut für Normung) templates, description of, 43
- Direct Distance Entry (DDE), overview of, 101–102
- Direct Interpretively Evaluated String Expression Language (DIESEL). *See* DIESEL (Direct Interpretively Evaluated String Expression Language)
- display performance, options for, 599
- display resolution, options for, 598–599
- display settings, changing, 595
- distance, entering for OFFSET, 159
- distant light, explanation of, 339
- DLINE command
 - alias and function of, 118
 - explanation of, 130
- .DLL file extension, description of, 663
- dockable windows
 - locking, 593–594
 - locking and unlocking, 594–595
- docked toolbars, identifying, 22
- domes, creating, 333
- DONUT command
 - alias and function of, 118
 - effect of, 139
- dot (.), appearance in VBA projects, 733–734
- dot filters, using, 110–112, 282
- double ampersand (&&), using in pull-down item names, 619
- double backslash (\ \)
 - using in macros, 612
 - using with VBA files, 671
- Double data type in VBA projects, description and example of, 732
- double lines, tool for, 130
- double-click actions, customizing, 623–624
- drafting environment, managing, 502–503
- Drafting Settings dialog box, enabling snap and grid in, 103–105
- drafting tools, changing settings of, 588
- Draw menu
 - description of, 21
 - starting LINE command with, 56–58
- draw order, controlling, 400–401
- Draw tools in Express Tools, description of, 648
- drawing area
 - crosshairs in, 25–26
 - description of, 25
 - maximizing, 24
- drawing database, recalculating, 172
- drawing files. *See also* DWG files; files
 - assigning passwords to, 535–538
 - converting, 265
 - digital signing of, 542–543
 - finding, 47
 - named views in, 529
 - naming, 52
 - opening digitally signed files, 543–545
 - partial opening of, 528–531
 - saving in AutoCAD 2007, 12
 - setting indexing type for, 534–535
 - templates as, 42–43
- drawing format, overview of, 532–533
- drawing interchange format (DXF), overview of 45
- drawing limits, setting, 72–74, 77

- drawing objects. *See* objects
- Drawing Recovery Manager, using, 425–426
- drawing scale. *See* scaling
- drawing sets, setting up, 24
- drawing settings, establishing with scale factors, 76–77
- drawing sheets, fitting floor plans on, 194. *See also* sheets
- drawing space, maximizing, 605–606
- drawing standards (.DWS) files, saving
 - current drawings as, 512–513
- drawing template files. *See also* templates
 - creating, 504–505
 - customization of, 570
 - specifying location of, 508
 - specifying with QNEW command, 506–507
 - using, 503–504, 505–506
- drawing template settings
 - setting up for sheet sets, 460–462
 - setting up for subsets, 462
- drawing title bars, identifying, 19
- drawing window
 - features of, 286–287
 - maximizing viewports in, 447
- Drawing Window Colors dialog box, opening, 596
- drawings
 - accessing and editing dependency files of, 402–404
 - adding blocks to, 411
 - adding hatch to, 243–245
 - adding line segments to, 57
 - adding resource drawings, 472
 - adding resources to, 411
 - attaching DWF underlays to, 397–399
 - attaching raster images to, 393–395
 - attaching xrefs to, 383, 384–386
 - auditing, 423–424
 - batch checking, 522–525
 - binding xrefs to parent drawings, 392
 - checking for violations of drawing standards, 516–518
 - clipping, 390–391
 - copying objects between, 23
 - corrupted drawings, 423
 - creating versus using WBLOCK command, 359
 - creating with drawing template files, 505–506
 - cutting objects from, 406–407
 - digitally signing batches of, 545
 - dragging and dropping files into, 667
 - erasing items from, 153
 - identifying xrefs in, 386
 - importing as sheets, 457–459
 - importing layouts into, 438–439
 - indexing content of, 533–535
 - inserting blocks into, 354–356
 - locating resources in, 409–410
 - opening, 39, 46–50
 - opening and maximizing at once, 50
 - outputting, 488–493
 - partial loading of, 48–49
 - partial opening of, 48
 - password-protected drawings, 538–539
 - pasting objects into, 407
 - publishing, 494–495
 - publishing to Web, 551–555
 - purging block definitions from, 357–358
 - recovering, 424–425
 - saving, 44–46
 - scaling, 492
 - setting units in, 71–72
 - starting from scratch, 40
 - starting with wizard, 40–42
 - switching between, 50, 484
- DrawLine procedure
 - creating, 738–739
 - running, 740
- Draworder button
 - effect of, 167
 - identifying, 166
- DRAWORDER command, using, 401

- drivers, using print drivers, 478
- DST (sheet set) files, opening, 456–457
- DTEXT command, effect of, 190
- DUCS button, effect of, 295
- .DVB file extension, description of, 663
- DVD-Rs, backing up with, 54
- DWF (Design Web Format) files
 - comparing to PDFs, 560–561
 - creating, 562
 - marking up electronically, 564–565
 - use of, 397, 559
 - viewing, 563–564
- DWF Composer versus DWF Viewer, working with, 561
- DWF ePlot Properties dialog box, displaying, 562–563
- DWF file viewers, types of, 559
- DWF files, reviewing electronic markups of, 24
- .DWF files, viewing, 265
- DWF references
 - clipping, 399–400
 - editing, 400
- DWF underlays
 - attaching to drawings, 397–399
 - clipping, 399–400
 - controlling appearance of, 400
- DWF Viewer
 - opening DWFs with, 564
 - versus DWF Composer, 561
- DWFATTACH command, using, 397–398
- DWFCLIP command, using, 399–400
- DWFFRAME system variable, using, 400
- DWFOSNAP system variable, using with DWF underlays, 399
- DWG file formats, table of, 11
- .DWG files. *See also* drawing files; files
 - contents of, 35–36
 - displaying, 28, 265
- DWG references
 - attaching to drawings, 384–386
 - editing in-place, 387–389
 - DWG TrueConvert utility, features of, 265
 - .DWS (drawing standards) files, saving current drawings as, 512–513
 - DXF (drawing interchange format), overview of, 45
 - dynamic blocks. *See also* callout blocks; blocks; label blocks
 - availability of, 13
 - inserting blocks into, 379
 - manipulating custom properties of, 380
 - modifying, 379–380
 - overview of, 365–366
 - resetting, 380
 - saving to older releases, 380
 - dynamic input
 - customizing, 287
 - overview of, 29
 - Dynamic Input status bar button, description of, 588
 - Dynamic pane in CUI editor, features of, 610–611
 - Dynamic UCS, using, 295–296
 - DYNBLOCKREF object, description of, 620

E

- EATTEXT (Enhanced Attribute Extraction) command, using with blocks, 363
- EDGE command, effect of, 335
- Edge Mesh feature, using, 315
- edges, controlling visibility of, 335–336
- Edit Block Definition dialog box, displaying, 370
- Edit Hatch button
 - effect of, 167
 - identifying, 166
- Edit menu, description of, 20
- Edit Polyline button
 - effect of, 167
 - identifying, 166

- Edit Spline button
 - effect of, 167
 - identifying, 166
- Edit Time (EDITTIME) tool in Express
 - Tools, description of, 649
- editing commands
 - ARRAY, 151
 - BREAK, 151
 - CHAMFER, 151
 - COPY, 151
 - COPYCLIP, 151
 - CUTCLIP, 151
 - ERASE, 151
 - EXPLODE, 151
 - EXTEND, 151
 - FILLET, 152
 - GROUP, 152
 - JOIN, 152
 - LENGTHEN, 152
 - MATCHPROP, 152
 - MIRROR, 152
 - MOVE, 152
 - OFFSET, 152
 - OOPS, 152
 - PASTECLIP, 152
 - PEDIT, 152
 - PROPERTIES, 152
 - REDO, 152
 - ROTATE, 152
 - SCALE, 152
- ELEV command, specifying z height with, 283
- elevation value, setting, 283
- ELLIPSE command
 - alias and function of, 118
 - effect of, 135–136
- ellipse object, tool for, 118
- ellipses
 - definition of, 133
 - drawing, 135–136
- Elliptical Arc tool, explanation of, 136
- elliptical arcs, drawing, 136
- encrypting properties, 537
- encryption types, choosing, 537–538
- ENDpoint Object Snap mode, description of, 109
- enterprise customization files, loading, 626–627
- Entity name data type in AutoLISP, description and example of, 694
- entsel function in AutoLISP, description and result of, 704
- ERASE command
 - alias and function for, 151
 - effect of, 151, 153
- Erase tool, using, 63–64
- error messages, occurrence in AutoLISP, 708–709
- Eval function in DIESEL, effect of, 592
- exclamation point (!), using with AutoLISP expressions, 689
- execution speed, comparing between programming interfaces, 660
- EXPLODE command
 - alias and function for, 151
 - effect of, 164
- exploded dimensions, explanation of, 215
- Express menu, description of, 21
- Express toolbars, displaying submenu for, 51
- Express Tools
 - Block, 645–646
 - command line only, 649
 - Dimension, 647
 - Draw, 648
 - features of, 643
 - File, 648
 - installing, 644
 - Layer, 644–645
 - Layout, 647
 - Modify, 647–648
 - Text, 646–647

expression execution, verifying in
 AutoLISP, 707

EXTEND command
 alias and function for, 151
 effect of, 151, 164–165

extension lines, using in dimensions, 214

EXTension Object Snap mode,
 description of, 109

Extents named view, explanation of,
 529

external hard drives, backing up with, 53

External Reference notification, turning
 on and off, 387, 590

external references. *See* xrefs

External References palette
 attaching raster images with, 393
 displaying, 382–383

EXTERNALREFERENCES command,
 using, 382–383

extra right paren error message in
 AutoLISP, description of, 708

EXTRUDE command, creating solids or
 surfaces with, 311

Extrude Faces SOLIDEDIT option,
 description of, 326

F

F keys. *See* keyboard combinations

faces, using with surface models, 278

.FAS file extension, description of, 663

feature control frames, creating, 238–239

feature set
 anchorable palettes, 24
 components of, 13–14

Fence selection mode, description of,
 146

fields
 definition of, 188
 explanation of, 205–206

File descriptor data type in AutoLISP,
 description and example of, 694

file formats
 DXF (drawing interchange format), 45
 saving to, 11, 532
 setting for saving, 533
 table of, 11

File menu, description of, 20

File tools in Express Tools, description
 of, 648

File Transfer Protocol (FTP) sites, using,
 549–550

file types, exporting to, 548

file-naming protocols, resources for, 52

files. *See also* drawing files; DWG files
 accessing from Windows Explorer, 18
 attaching files to drawings, 401–402
 backing up, 53–54
 controlling access to, 502–503
 Create Sheet Set - Choose Layouts
 screen, 455
 fonts, 37–38
 hatch patterns (PAT files), 37
 images, 37
 linetype patterns (LIN files), 37
 multiline object, 131
 opening in different versions, 11
 plot style tables (CTB an STB files), 37
 Sheet Properties dialog box, 468
 storing, 52

fillet, definition of, 138

FILLET command
 alias and function for, 152
 effect of, 152, 166
 using with solids, 327

fills. *See* gradient fills

FILTER command, using, 417–419

Find feature, using with drawing files, 47

FindFile function in AutoLISP, example
 of, 714

Fit option, using with single-line text, 192

fit tolerance, specifying for splines, 134

FLATSHOT command, creating blocks
 with, 316

- Flip action for blocks, parameter associated with, 372
- Flip parameter for blocks, description of, 372
- floating toolbars, identifying, 22
- floating viewports, types of, 442
- floor plans, fitting on drawing sheets, 194
- flyout tool buttons, identifying, 174
- flyouts
- adding to tool palettes, 413
 - creating on toolbars, 616–617
- folder locations, accessing, 502–503
- font, definition of, 189, 195
- font files, description of, 37
- font style, controlling in VLIDE Text window, 686–687
- font substitution, process of, 196
- font types
- TrueType, 195
 - vector (.SHX), 195
- FONTALT system variable, description of, 196
- FONTMAP system variable, description of, 196
- Format menu, description of, 21
- forward slash (/), using with VBA files, 671
- FROM Object Snap mode, description of, 109
- FTP (File Transfer Protocol) sites, using, 549–550

G

- Gb templates, description of, 43
- geometric properties
- modifying for polylines, 153
 - modifying for splines, 153
- geometric tolerances, working with, 238–239
- geometry
- controlling display in blocks, 376–378
 - modifying, 164–165
- getcorner function in AutoLISP, description and result of, 701
- getdist function in AutoLISP, description and result of, 701
- getint function in AutoLISP, description and result of, 701
- getpoint function in AutoLISP, description and result of, 701
- getreal function in AutoLISP, description and result of, 701
- getvar function in AutoLISP, description and result of, 699
- Getvar function in DIESEL, effect of, 592
- glyph, relationship to light, 340
- Go to Line feature, navigating VLIDE Text window with, 687
- GRADIENT command, alias and function of, 118
- gradient fill pattern, tool for, 118
- gradient fills
- editing, 249
 - using with hatch objects, 248
- graphscr function in AutoLISP, description and result of, 702
- grid
- enabling in Drafting Settings dialog box, 103–105
 - toggling on and off, 103
 - using in Isometric mode, 103
- Grid Display status bar button, description of, 588
- Grid too dense to display message, meaning of, 103
- grip tools
- for 3DMOVE, 318
 - for 3DROTATE, 318
- grip-editing mode, activating, 169

grips
 activating, 168–170
 adjusting cameras with, 299
 appearance of, 168
 definition of, 63
 editing dimensions with, 236
 editing solids with, 327
 editing surfaces with, 336
 enabling for blocks, 380
GROUP command
 alias and function for, 152
 effect of, 149, 152

H

hard drives, backing up with external drives, 53
hardware, accelerating, 289
hatch
 adding to drawings, 243–245
 structure of, 639–641
Hatch and Gradient dialog box, displaying, 243
HATCH command
 alias and function of, 118
 starting, 243
hatch objects
 creating, 243–245
 specifying origins for, 245–246
 using gradient fills with, 248
 using island detection with, 246
 using MATCHPROP command with, 249
hatch pattern (PAT) files
 customizing, 643
 description of, 37
 location of, 412
hatch pattern scale, establishing, 77
hatch patterns
 creating, 642–643
 custom, 246–247
 customization of, 571

 customizing, 262
 editing, 249
 features of, 639
 inserting with DesignCenter, 412
 predefined, 246
 user-defined, 246
hatch tools, creating, 245
HATCHEDIT command, starting, 249
hatches, creating tools from, 413
HELIX command, using, 310
help
 accessing context-sensitive help, 32
 accessing Quick Help, 24
Help menu, description of, 21
help strings, assigning to commands, 614
Help System, accessing, 32–33
hidden line view, displaying 3D models in, 305
HIDE command, effect of, 305
History List tab, adding applications to, 667
host application, definition of, 658
HPGAPTOL system variable, explanation of, 245

I

Icon Tray
 changing settings in, 591
 settings in, 591
Icon Tray icons
 Attribute Extraction Notification tray icon, 590
 CAD Standards Notification tray icon, 590
 Clean Screen tray icon, 590
 Communication Center tray icon, 589
 External Reference Notification tray icon, 590
 Plot Notification tray icon, 590

- Toolbar/Window Lock tray icon, 590
- Trusted Autodesk DWG tray icon, 590
- Validate Digital Signatures tray icon, 590
- Icon Tray status bar button, description of, 588
- IDE (integrated development environment). *See* VBA (Visual Basic for Applications) programming interface
- i-drop technology, overview of, 554
- If function in DIESEL, effect of, 592
- if...then...else function in AutoLISP, description and result of, 703
- IMAGEADJUST command, using with raster images, 396–397
- IMAGEATTACH command, using with raster images, 393–395
- IMAGECLIP command
 - editing clipped images with, 396
 - using with raster images, 395–396
- IMAGEFRAME command, using with raster images, 396
- IMAGEQUALITY command, using with raster images, 397
- images
 - assigning to commands in CUI editor, 613–614
 - creating tools from, 413
 - locking, 396
- Imperial defaults, setting, 70
- import options, specifying for sheet sets, 454
- Import Profile dialog box, displaying, 581
- Imprint Edges SOLIDEDIT option, description of, 325
- indexing
 - layer indexing, 533
 - spatial indexing, 533–534
- indexing type, setting for drawing files, 534–535
- Info Palette
 - description of, 24
 - using, 33
- information
 - exchanging with AutoCAD, 699–700
 - getting to and from users, 701
- in-place text editor, creating multiline text in, 202
- INSBASE system variable, using with blocks, 359
- INSERT command
 - using with blocks, 354–356
 - using with dynamic blocks, 379
 - versus –INSERT, 356
- Insert dialog box, using with dynamic blocks, 379
- Insert menu, description of, 21
- Insert Object dialog box, displaying, 401
- Insert Table dialog box, displaying, 210
- insertion cycling order, relationship to blocks, 379
- INSertion Object Snap mode, description of, 110
- INSERTOBJ command, using, 401–402
- INSUNITS system variable, using with blocks, 355–356
- Integer data type
 - in AutoLISP, 694
 - In VBA projects, 732
- International Organization for Standardization (ISO) templates, description of, 43
- INTERSECT command, using with regions, 309
- INTersection Object Snap mode, description of, 109
- irregular viewports, creating, 444–445
- island detection, using with hatch objects, 246
- ISO (International Organization for Standardization) templates, description of, 43

isometric drawing, setting up snap and grid for, 104
Isometric mode, using grid in, 103
itoa function in AutoLISP, description and result of, 698

J

Japanese Industrial Standards (JIS) templates, description of, 43
JIS (Japanese Industrial Standards) templates, description of, 43
jogged dimensions, creating, 233
JOIN command
 alias and function for, 152
 effect of, 152, 164
justification
 applying for multilines, 131–132
 changing for single-line text, 199
 definition of, 188–189
 of multiline text, 192
 overview of, 190–191
 of single-line text, 191–192
JUSTIFYTEXT command, effect of, 208

K

keyboard combinations
 for Calculator, 24
 for CLEANSCREENOFF command, 24
 for CLEANSCREENON command, 24
 for command windows, 24
 for copying to Clipboard, 31
 for cutting and pasting objects, 406–407
 for DBConnect Manager, 24
 for DesignCenter, 23
 for Info, 33
 for Info palette, 24
 for Markup Set Manager, 24
 for navigating layouts, 440
 for palettes, 23–24

 for properties, 23
 for QSAVE command, 44, 46
 for renaming dimension styles, 226
 for SAVE command, 44
 for SAVEAS command, 44
 for Select File dialog box, 46
 for Sheet Set Manager, 24
 for snap and grid, 105
 for switching between drawings, 50
 for tool palettes, 23
 for UNDO command, 65
 for xrefs, 24

L

label blocks. *See also* blocks; callout blocks; dynamic blocks
 contents of, 469
 setting up, 469–470
Landscape orientation, specifying for layouts, 437
Last selection mode, description of, 147
Last named view, explanation of, 529
Layer 0
 advisory about, 79
 advisory about creating geometry on, 353
layer color, setting, 83–84
Layer Control drop-down list, using, 88
layer indexing, benefit of, 533
layer modes
 setting, 81–82, 87
 switching, 88
layer properties
 Color, 81
 Linetype, 81
 Lineweight, 81
 Plot Style, 81
Layer Properties Manager dialog box
 accessing, 82–83
 using, 79–80

- layer settings, associating with named views, 182–183
- Layer tools in Express Tools, description of, 644–645
- Layer Translator
 - description of, 511
 - using, 518–522
 - using Selection Filter field with, 520
- layers
 - assigning lineweights to, 86–87
 - creating, 79–80
 - hiding in viewports, 447
 - mapping to groups of layers, 518–522
 - overview of, 78–79
 - using Partial Load option with, 531
- LAYOUT command, starting, 436
- layout elements, options for, 597–598
- layout tab, controlling appearance of, 440–441
- Layout tools in Express Tools,
 - description of, 647
- layouts. *See also* paper space layouts
 - adding irregular viewports to, 445
 - adding viewport configurations to, 443–444
 - assigning page setups to, 435
 - conceptualizing, 436
 - controlling appearance of, 440–441
 - copying, 439
 - creating with Create Layout wizard, 436–438
 - deleting, 439
 - explanation of, 78
 - importing, 438–439
 - modifying background color for, 441
 - moving, 439
 - navigating, 440
 - plotting from, 75
 - renaming, 439
 - selecting, 439
- LAYOUTWIZARD command, using, 436
- LAYTRANS command, accessing Layer Translator with, 519
- /ld command line switch, description of, 573
- leader notes, warning about, 193
- leaders
 - definition of, 188
 - using, 237–238
- learning curve, comparing between programming interfaces, 659
- left parenthesis [()], using with AutoLISP expressions, 689
- LENGTHEN command
 - alias and function for, 152
 - effect of, 152, 162–163
- :LEX-* elements in VLIDE, default color schemes for, 684
- LIGHT command, adding lights to scenes with, 339
- LIGHTLIST command, effect of, 340
- lights
 - default lights, 338
 - distant light, 339
 - managing, 337
 - point light, 338
 - spotlight, 339
 - sunlight, 340
 - user lights, 338–340
- Lights in Model palette, displaying, 340
- limits, setting for drawings, 72–74
- LIMITS command, effect of, 73
- LIN (linetype) pattern files, description of, 37
- LINE command
 - alias and function of, 118
 - explanation of, 28–29
 - starting, 56–58
 - using, 120–121
 - using Undo option with, 57
- line object, definition of, 120
- line segments, adding to drawings, 57

- linear dimensions, creating, 227–228
 - Linear parameter for blocks, description
 - of, 371
 - linear units, examples of, 68
 - lines
 - construction lines, 126–127
 - double lines, 130
 - parallel lines, 130–133
 - versus polylines, 159
 - tool for double parallel lines, 118
 - tool for straight lines, 118
 - linetype scale, establishing, 77
 - linetypes
 - complex linetypes, 637–638
 - customization of, 571
 - customizing, 262
 - explanation of, 81
 - loading from custom linetype files, 636–637
 - loading with DesignCenter, 412
 - overview of, 633–634
 - setting, 84–85
 - simple linetypes, 634–636
 - using, 90–91
 - lineweight
 - explanation of, 81
 - setting, 86–87
 - LISP (list processing), introduction of, 656
 - List AutoLISP Commands (LSP) tool in Express Tools, description of, 649
 - LIST command, using with shortcut menus, 620
 - List data type in AutoLISP, description and example of, 694
 - list function in AutoLISP, description and result of, 697
 - List_box tile, description of, 710
 - Live Section, displaying in AutoCAD LT, 272
 - Load function
 - example of, 669
 - syntax for, 668
 - Load/Unload Applications dialog box
 - features of, 664–665
 - launching, 665
 - LOCKUI system variable, bitcodes for, 594
 - LOFT command, using, 312
 - longevity, comparing between
 - programming interfaces, 660–661
 - Lookup action for blocks, parameter associated with, 372
 - Lookup parameter for blocks,
 - description of, 372
 - loop, definition of, 307
 - LSP command, availability of, 669
 - .LSP file extension, description of, 663
 - LT. *See* AutoCAD LT
 - LTSCALE system variable, using with linetypes, 634
-
- ## M
-
- macros
 - example of, 612–613
 - special characters in, 612
 - maintenance, comparing between
 - programming interfaces, 660
 - Make Linetype tool in Express Tools,
 - description of, 649
 - Make Shape tool in Express Tools,
 - description of, 649
 - Make Shape utility, accessing, 638
 - MARKUP command, starting, 564–565
 - Markup Set Manager, description of, 24
 - Markup Set Manager palette, launching, 564–565
 - markups, applying to DWFs, 564–565
 - masks, applying to backgrounds, 206
 - MASSPROP command, using with regions, 307, 309–310
 - MATCHPROP command
 - alias and function for, 152
 - effect of, 167
 - using with hatch objects, 249

- MATERIALS command, effect of, 341–342
- Materials palette, displaying, 341–342
- math functions in AutoLISP, descriptions and results of, 695
- MEASUREINIT system variable, explanation of, 71
- MEASUREMENT system variable
- changing, 505
 - explanation of, 71
 - using with hatch patterns, 247
- menus. *See also* pull-down menus; shortcut menus; submenus
- Dimension, 21
 - displaying loaded menus, 50–51
 - Draw, 21
 - Edit, 20
 - Express, 21
 - File, 20
 - Format, 21
 - Help, 21
 - Insert, 21
 - Modify, 21
 - opening, 20
 - Tools, 21
 - View, 21
 - Window, 21
- meshes
- 3D meshes, 315
 - closing, 330
 - creating between selected objects, 314
 - definition of, 330
 - Edge Mesh, 315
 - Revolved Mesh, 314
 - Ruled Mesh, 314
 - Tabulated Mesh, 313
- methods, using in ActiveX Automation, 715–716
- metric defaults, setting, 70
- Middle option, using with single-line text, 191
- MIDpoint Object Snap mode, description of, 109
- Migrate Custom Settings utility, features of, 624–626
- Minimize/Maximize and Viewport Navigation status bar button, description of, 588
- MIRROR 3D command, effect of, 319
- MIRROR command
- alias and function for, 152
 - effect of, 152, 156–157
- MIRRTEXT system variable, explanation of, 32
- MLINE command
- alias and function of, 118
 - effect of, 131
- .MNL file extension, description of, 663
- modal dialog boxes, explanation of, 29–30
- Model or Paper Space status bar button, description of, 588
- model space
- and 3D visual style, 291
 - drawbacks of, 193
 - explanation of, 25, 192
 - versus paper space, 77
 - plotting from, 75
 - scaling text for, 193–194
 - setting lineweight in, 86
 - UCS icon displayed in, 290
- model space views
- setting up callout blocks for, 471–472
 - setting up label blocks for, 469–470
- Model tab, plotting, 489–491
- model views, adding to sheets, 473–475
- modeless dialog boxes, explanation of, 30
- Modeling toolbar, description of, 288
- modify commands. *See* 3D modify commands
- Modify Dimension Style dialog box, displaying and closing, 224
- Modify menu, description of, 21
- Modify tools in Express Tools, description of, 647–648

- mouse, using wheel mice, 175–176
- mouse pointer
 - as arrow pointer, 25–26
 - as crosshairs, 26
- Move action for blocks, parameters
 - associated with, 371–372
- MOVE command, 152
 - alias and function for, 152
 - effect of, 154
 - using with viewports, 448
- Move Faces SOLIDEDIT option,
 - description of, 326
- MTEXT command
 - alias and function of, 118
 - effect of, 190
- MTEXTED system variable, explanation of, 207
- multiline text
 - advantages of, 202
 - creating, 203
 - creating in in-place text editor, 202
 - editing, 207–208
 - formatting, 203
 - justifying, 192
 - using numbered and bulleted lists with, 204–205
 - versus single-line text, 190
- multilines
 - definition of, 130–131
 - making, 131–133
 - shortcomings of, 132–133
 - use of, 271

N

- named views
 - *Extents*, 529
 - *Last*, 529
- naming conventions
 - establishing, 527–528
 - importance of, 501
- naming files, protocols for, 52
- Navigation Modes menu, using with 3D orbit commands, 302
- navigation/viewing, comparing in AutoCAD versions, 256
- NEArest Object Snap mode, description of, 110
- .NET files
 - loading, 674
 - loading with AutoLISP, 674
- .NET programming language
 - considering use of, 661
 - overview of, 659
- NETLOAD command, using, 674
- NEW command, using with drawing template files, 505
- New Dimension Style dialog box. *See also* dimension styles
 - Alternate Units tab, 221
 - Fit tab, 221
 - Lines tab, 219
 - Primary Units tab, 221
 - Symbols and Arrows tab, 219
 - Text tab, 220
 - Tolerances tab, 222
- NEWSHEETSET command, using, 452–453, 455
- NODE Object Snap mode, description of, 110
- /nologo command line switch,
 - description of, 573
- non-associative dimensions
 - creating, 216
 - explanation of, 215
- NONE Object Snap mode, description of, 110
- Notepad, creating script files with, 632
- noun-verb editing
 - moving objects with, 154
 - selecting objects for, 147
- nth *index list* function in AutoLISP,
 - description and result of, 697

numbered lists, using with multiline text, 204–205
NURBS spline, converting to, 134

O

Object Browser in VBA IDE, features of, 728–730

Object data type in VBA projects, description and example of, 732

object enablers, features of, 264–265

object groups, creating, 149–150

object linking and embedding (OLE), overview of, 401–402

Object Model

 explanation of, 657

 overview of, 734–735

object portions, removing with BREAK command, 163–164

object properties. *See also* properties overview of, 89

 retrieving in ActiveX Automation, 716

Object Snap modes

 APParent INTersection, 109

 CENter, 109

 ENDpoint, 109

 EXTension, 109

 FROM, 109

 INSertion, 110

 INTersection, 109

 MIDpoint, 109

 NEArest, 110

 NODE, 110

 NONE, 110

 OSNAP settings, 110

 PARallel, 110

 PERpendicular, 109

 QUAdrant, 109

 TANgent, 109

 Temporary Track point, 109

Object Snap status bar button, description of, 588

Object Snap Tracking status bar button, description of, 588

object snap tracking, using, 282

object snaps

 versus snap status bar toggle, 108

 using, 108–110, 282

object types, associating shortcut menus to, 619

ObjectARX

 considering use of, 662

 and ObjectDBX, 658–659

ObjectARX files

 loading and unloading with ARX command, 672

 loading automatically, 678

 loading with AutoLISP, 672–673

 unloading with AutoLISP, 673

objects

 aligning, 319

 arraying, 319

 breaking up, 164

 combining, 164

 converting to surfaces, 336

 copying, 151

 copying objects to, 406

 copying between drawings, 23

 copying to Clipboard, 31

 creating from nested objects, 119

 creating gaps in, 163–164

 cutting from drawings, 406–407

 duplicating, 151, 157–159

 erasing, 63–64

 extending, 164–165

 finishing off intersecting objects, 166

 moving, 152, 318

 moving with noun-verb editing, 154

 pasting into drawings, 407

 resizing, 152

 rotating, 318

 selecting, 144–145

 selecting for editing, 147–149

 selecting multiple objects, 146–147

- objects (*continued*)
 - shortening, 153, 164–165
 - unerasing, 64, 152
 - in VBA projects, 733–734
- objects in blocks, assigning actions to, 365–366
- object-snap tracking (OTRACK) mode, working with, 112–113
- OFFSET command
 - alias and function for, 152
 - effect of, 152, 157–159
- Offset Faces SOLIDEDIT option, description of, 326
- Ok_cancel tile, description of, 710
- Ok_only tile, description of, 710
- OLE (object linking and embedding), overview of, 401–402
- online resources, finding, 33
- OOPS command
 - alias and function for, 152
 - using, 64, 152
- OPEN command, using, 46–47, 529
- OPENSHEETSET command, using, 456–457
- options, storing in user profiles, 579–580
- OPTIONS command, using with drawing template files, 506–507, 508
- Options dialog box
 - changing display settings in, 595
 - Display component of, 578
 - Drafting component of, 579
 - Files component of, 578
 - launching, 578
 - Open and Save component of, 579
 - Plot and Publish component of, 579
 - Profiles component of, 579
 - Selection component of, 579
 - System component of, 579
 - User Preferences component of, 579
 - using with layouts, 440–441
- orbiting, definition of, 300–301
- orientation, specifying for layouts, 437

- origin points, using in dimensions, 214
- Ortho mode
 - versus polar tracking, 106
 - turning on in DDE, 101
 - using, 105
- Ortho Mode status bar button, description of, 588
- OSNAP settings Object Snap mode, description of, 110
- OTRACK (object-snap tracking) mode, working with, 112–113
- overlays, using with xrefs, 383
- overrides, adding to dimensions, 235–236

p

- /p command line switch, description of, 573
- Page Setup Manager, accessing, 432
- page setups
 - assigning to layouts, 435
 - creating, 432–434
 - importing, 434–435
 - options for, 431–432
- PAGESETUP command, starting, 432
- palettes, 107
 - allowing and preventing moving of, 27
 - anchoring, 24
 - closing, 23
 - Dashboard, 288
 - Info, 24, 33
 - opening, 23
 - tool palettes, 23–24
- PAN 2D display command, alias and function of, 172
- PAN command
 - running as transparent command, 178
 - using, 178–179
- PAN command, alias and function of, 172
- panning, 61–62, 179–180
- paper, emulating digitally, 558–561

- paper drawing sets, costs associated
 - with, 558–559
- paper size, specifying for layouts, 437
- paper space
 - adding text to, 194
 - explanation of, 25, 192–193
 - versus model space, 77
 - setting lineweight in, 86
- paper space dimensioning, availability of, 13
- paper space layouts. *See also* layouts
 - controlling scale of, 446
 - displaying UCS icon in, 291
 - plotting, 491–492
- parallel lines
 - drawing, 130–133
 - tool for double parallel lines, 118
- PARAllel Object Snap mode, description of, 110
- parallel view, displaying 3D models in, 300
- parameter sets, using with blocks, 376
- parameters
 - adding to blocks, 373–374
 - associating with actions, 375
 - for blocks, 371–372
 - placing in blocks, 369
 - placing visibility parameters in blocks, 376–378
- Parentheses Matching tool in Visual LISP Editor, using, 709
- partial customization files, loading, 627
- Partial Load option, using, 531
- PARTIALLOAD command, effect of, 49
- PARTIALOPEN command, using, 529–531
- password protection, removing security option for, 536, 538
- password-protected drawings, working with, 538–539
- passwords
 - assigning to drawing files, 535–538
 - confirming, 538
- PASTEBLOCK command, using, 407
- PASTECLIP command
 - alias and function for, 152
 - using, 152, 407
- PASTEORG command, using, 407
- PASTESPEC command, using, 407
- PAT (hatch pattern) files
 - description of, 37
 - location of, 412
- .PAT file extension, meaning of, 639
- path types, using with xrefs, 383
- paths, location of support paths, 502–503
- patterns, customizing, 639–643
- .PC3 (plotter configuration) files, editing
 - for non-system printers, 484
- PDFs (portable document files)
 - comparing to DWF files, 560–561
 - overview of, 560
- PEDIT command
 - alias and function for, 152
 - using with meshes, 330
- Performance Tuning icon, appearance of, 28
- period (.), using in macros, 612
- PERpendicular Object Snap mode, description of, 109
- perspective view, displaying 3D models in, 300
- PGP (Program Parameters) files
 - editing, 582–584
 - example of, 582
 - opening, 583
- pickbox
 - identifying, 145
 - resizing, 26
- PLANESURF command, effect of, 330
- PLINE command
 - alias and function of, 119
 - effect of, 139–141
 - plot area, explanation of, 431

- PLOT command
 - creating DWGs with, 562
 - effect of, 75
 - using, 488–489
- Plot dialog box
 - displaying, 489
 - expanding, 492
- plot job, signaling end of, 28
- Plot Notification tray icon, description of, 590
- plot offset, explanation of, 431
- plot scale, explanation of, 431
- Plot Style Table Editor dialog box, displaying, 487
- plot styles
 - color-dependent, 484
 - configuring, 486
 - definition of, 37, 81
 - editing, 488
 - file extensions for, 485
 - named, 484–485
 - setting up, 485–488
- Plotter Manager, starting, 480
- PLOTTERMANAGER command, using, 480
- plotters, determining availability of, 479–480
- plotting
 - definition of, 429
 - from layouts, 75
 - from model space, 75
 - Model tab, 489–491
 - paper requirements for, 477–478
 - paper space layouts, 491–492
- plotting options
 - accessing additional settings for, 492–493
 - saving, 491
- plug-ins for checking standards, selecting, 524
- PocketCAD DWFViewer Web site and description, 268
- POINT command, alias and function of, 119
- point filters, using, 110–112, 282
- point light, explanation of, 338
- point objects, changing appearance of, 125
- Point parameter for blocks, description of, 371
- point precision, ensuring with object snaps, 282
- points
 - defining, 124
 - specifying for dimension origins, 228
 - warning about picking of, 158
- polar array, choosing, 161
- Polar parameter for blocks, description of, 372
- polar snapping, using, 105
- Polar Stretch action for blocks, parameter associated with, 372
- polar tracking
 - versus Ortho mode, 106
 - using, 105–108
- Polar Tracking status bar button, description of, 588
- POLYGON command
 - alias and function of, 119
 - effect of, 139
- polylines
 - drawing, 140–141
 - modifying geometric properties of, 152
 - versus separate lines, 159
 - tool for, 118
- POLYSOLID command, effect of, 321
- Popup_list tile, description of, 710
- portable document files (PDFs)
 - comparing to DWF files, 560–561
 - overview of, 560
- Portrait orientation, specifying for layouts, 437
- ports, choosing for non-system printers, 482–483

- precision tools, overview of, 94
- precision versus accuracy, 93–94
- preset views, specifying, 297–298
- Previous selection mode, description of, 147
- primitive, definition of, 321
- princ function in AutoLISP, description and result of, 702
- print drivers, using, 478
- printers
 - determining availability of, 479–480
 - editing non-system printer configurations (.PC3 files), 484
 - setting up non-system printers, 480–484
- procedures
 - adding to code modules, 738–739
 - executing in VBA files, 678–679, 731
 - running DrawLine, 740
- Processing Background Plot dialog box, displaying, 495
- profiles. *See* user profiles
- program title bar, identifying, 19
- programming interfaces
 - ActiveX Automation, 657
 - AutoLISP, 656–657
 - comparing, 659–661
 - deciding on, 661–662
 - .NET, 659
 - ObjectARX and ObjectDBX, 658–659
 - VBA (Visual Basic for Applications), 658
- programming/customization, comparing in AutoCAD versions, 257
- programs, running in application files, 678–679
- project collaboration sites
 - Autodesk Buzzsaw, 556–558
 - availability of, 548–549
- Project Explorer in VBA IDE, features of, 726
- prompt message* function in AutoLISP, description and result of, 702
- properties. *See also* object properties
 - applying to objects, 152
 - changing, 167
 - changing for new sheet sets, 460–462
 - changing for Workspaces, 605
 - encrypting, 537
 - listing and changing object properties, 152
 - manipulating for blocks, 380
 - of sheets and sheet sets, 465–468
- properties, listing, 23
- PROPERTIES command
 - alias and function for, 152
 - effect of, 167
- properties palette title bar, identifying, 19
- Properties palette, using QuickCalc with, 422
- Properties window in VBA IDE, features of, 727–728
- proxy graphic, definition of, 265
- PSLTSCALE system variable, using with linetypes, 634
- PUBLISH command
 - creating DWFs with, 562
 - using, 494–495
- Publish dialog box, using, 494–495
- publish job, signaling end of, 28
- Publish to Web feature, using, 551–555
- publishing
 - definition of, 429
 - drawings, 494–495
 - explanation of, 478
- PUBLISHTOWEB command, using, 551–555
- pull-down item names, using special characters in, 618–619
- pull-down menus. *See also* menus;
shortcut menus; submenus
 - changing order of, 604–605
 - creating, 617–618
 - creating submenus on, 618

PURGE command
 using with block definitions, 357–358
 using with dimension styles, 226
PYRAMID command, effect of, 324
pyramids, creating, 334

Q

QDIM (Quick Dimension) command,
 starting, 234–235
QLEADER command, creating leaders
 with, 237
QNEW command
 effect of, 39
 specifying drawing template files with,
 506–507
 using with drawing template files,
 505–506
QSAVE command, using, 44, 46
QSELECT command, using, 415–417
QUADrant Object Snap mode,
 description of, 109
Quick Dimension (QDIM) command,
 starting, 234–235
Quick Help, accessing, 24
Quick Select, using, 415–417
QuickCalc, expressions in, 420
QUICKCALC command, using, 420–423
QuickCalc dialog box
 displaying, 421
 using with commands, 422–423
 using with Properties palette, 422
QuickCalc palette, displaying, 421

R

/r command line switch, description of,
 574
R12.DXF file format, saving drawings to,
 532
R14 file format, availability of, 532

Radio_button tile, description of, 710
radius, specifying for circles, 122
radius dimensions, creating, 232
raster image references, clipping,
 395–396
raster images
 attaching to drawings, 393–395
 clipping, 395–396
 controlling appearance of, 396–397
 dealing with, 271
RAY command
 alias and function of, 119
 starting, 128
rays
 versus construction lines, 127
 creating, 127–128
 versus xlines, 128
Real data type in AutoLISP, description
 and example of, 694
RECOVER command, using with
 drawings, 424–425
RECTANG command
 alias and function of, 119
 effect of, 138
rectangular array, creating, 160–161
rectangular viewports, creating,
 442–445
Redo button, location of, 65
REDO editing command, alias and
 function for, 152
REDRAW command, alias and function
 of, 172
REDRAWALL command, alias and
 function of, 172
REFEDIT command, using with DWG
 references, 387–389
Reference Edit dialog box, displaying,
 387–388
Reference Edit fading intensity, options
 for, 600
Reference Manager, using, 402–404

- references. *See* xrefs
- REGEN command
 - alias and function of, 172
 - starting in Block Editor, 367–368
- REGENALL command, alias and function of, 172
- REGENAUTO command, alias and function of, 172
- REGION command
 - alias and function of, 119
 - using, 308
- regions
 - combining, 308–309
 - converting back to 2D objects, 308
 - creating, 308
 - definition of, 307
 - getting information about, 309–310
 - modifying, 308–309
 - obtaining information about, 307
 - removing from other regions, 309
 - removing portions of, 308
- Re-initialization dialog box, using with command aliases, 584
- relative coordinates, inputting manually, 280
- relative polar coordinates, entering, 99–101
- relative *xy* coordinates, entering, 99
- REMEMBERFOLDERS, setting to 1, 18
- removable disks, backing up with, 54
- Remove selection mode, description of, 147
- RENAME command, using with blocks, 356–357
- RENDER command, using with scenes, 344
- render presets
 - copying, 344–345
 - customizing, 345
- Render Window, rendering scenes to, 344
- RENDERCROP command, using with scenes, 344
- RESETBLOCK command, effect of, 380
- resolution, options for, 598–599
- resource drawings, adding, 472
- resources
 - adding to drawings, 411
 - locating in drawings, 409–410
- RESUME command, using with script files, 631
- reusable content, blocks as, 349–350
- REVCLOUD command, alias and function of, 119
- reverse *list* function in AutoLISP, description and result of, 697
- revisions, applying to DWFs, 564–565
- REVOLVE command, creating solids or surfaces with, 313
- Revolved Mesh feature, using, 314
- REVSURF command, using, 314
- right-hand rule, explanation of, 293
- Rotate action for blocks, parameter associated with, 372
- ROTATE command
 - alias and function for, 152
 - effect of, 162
- Rotate Faces SOLIDEDIT option, description of, 326
- rotating objects, 318
- rotation angle, specifying for single-line text, 200
- rotation around axis in 3D space, identifying, 293
- Rotation parameter for blocks, description of, 372
- RSCRIPT command, using with script files, 631
- rtos function in AutoLISP, description and result of, 698
- Ruled Mesh feature, using, 314
- RULESURF command, effect of, 315

S

- /s command line switch, description of, 574
- SAVE command, using, 44
- save formats, specifying, 533
- save operations, controlling, 532–535
- SAVEAS command
 - using, 44
 - using with drawing template files, 504
- scale
 - changing for multilines, 132
 - controlling for paper space layouts, 446
- Scale action for blocks, parameters associated with, 371–372
- SCALE command
 - alias and function for, 152
 - effect of, 162, 207–208
- scale factors
 - applying, 194
 - establishing drawing settings with, 76–77
 - explanation of, 75
- SCALELISTEDIT command, using, 446
- SCALETEXT command, effect of, 207–208
- scaling, 74–77
- scenes
 - adding lights to, 339
 - associating materials in, 342
 - lighting, 337–341
 - rendering final scenes, 343–345
- SCRIPT and -SCRIPT commands, using with script files, 631
- script files
 - advantages and disadvantages of, 631
 - commands used with, 631
 - creating, 632
 - customization of, 571
 - example of, 630
 - loading and running, 632–633
 - overview of, 630–631
 - running at startup, 633
 - using, 261–262
- SDI (Single Document Interface) variable, explanation of, 50
- SECTIONPLANE command, effect of, 316
- security
 - obtaining digital signatures, 540–542
 - password-protection, 535–539
- security option, removing for password-protection, 536
- Security Options dialog box, displaying, 536–537
- Select File dialog box, options in, 46–47
- Select Reference File dialog box, displaying, 384
- Select Template dialog box, displaying, 39
- Selection Filter field, using with Layer Translator, 520
- selection modes
 - Add, 147
 - ALL, 147
 - CPolygon, 146
 - Crossing, 146
 - Fence, 146
 - Last, 147
 - Previous, 147
 - Remove, 147
 - Window, 146
 - WPolygon, 146
- Selection Set data type in AutoLISP, description and example of, 694
- selection set, explanation of, 144
- semicolon (;), using in macros, 612
- Separate SOLIDEDIT option, description of, 326
- separator bars, description of, 622
- /set command line switch, description of, 574
- setq function in AutoLISP, description and result of, 698

- Settings dialog box, displaying in Layer Translator, 521
- SETVAR command, using with
 - dimensions, 223–224
- setvar function in AutoLISP, description and result of, 699
- SHADE command in AutoCAD LT, effect of, 305
- SHADEMODE command in AutoCAD LT, effect of, 305
- shape files, components of, 638
- shapes
 - closing, 58
 - customization of, 571
 - displaying in complex linetypes, 638
- sharing/collaboration, comparing in AutoCAD versions, 256, 274
- Sheet List tab, controlling order of sheets and subsets in, 460, 464
- Sheet Properties dialog box, opening, 468
- Sheet Set Manager
 - description of, 24
 - features of, 451
- sheet sets
 - adding new sheets to, 463–464
 - archiving, 476
 - availability of, 13
 - benefits of, 449–450
 - changing properties for, 460–462
 - defining drawing resource locations for, 472
 - eTransmitting, 476
 - opening, 456–457
 - overview of, 449–451
 - properties of, 465–468
 - publishing, 476
 - setting up, 451–452
 - setting up drawing template settings for, 460–462
 - setting up for new sheets, 460–462
 - specifying import options for, 454
 - starting from existing sheet set, 455–456
 - starting from scratch, 452–455
- sheet view, definition of, 183
- sheets. *See also* drawing sheets
 - adding callout blocks to, 469
 - adding model views to, 473–475
 - adding new sheets, 463–464
 - changing numbers of, 464
 - changing titles of, 464
 - importing existing drawings as, 457–459
 - opening, 464
 - organizing with subsets, 459–460
 - properties of, 465–468
 - removing, 464
 - renaming, 464
 - renumbering, 464
 - setting up sheet sets for, 460–462
 - setting up subsets for, 460–462
- SHEETSET command, using, 451
- Shell SOLIDEDIT option, description of, 326
- shortcut keys. *See* keyboard
 - combinations
 - for commands, 56
 - creating, 622–623
- shortcut menus. *See also* menus; pull-down menus; submenus
 - accessing for commands, 30–31
 - associating to object types, 619
 - creating, 620–621
 - designating for use with commands, 619
 - displaying, 50–51, 619
- SHORTCUTMENU system variable,
 - setting, 619
- shortcuts. *See also* desktop shortcuts
 - adding to top-level Start menu, 16
 - using desktop shortcuts, 17–18
- Show/Hide Lineweight status bar button, description of, 588
- .SHX (vector) font, explanation of, 195

- simple linetypes
 - creating, 635–636
 - structure of, 634–635
- single-line text
 - creating, 199–201
 - editing, 207
 - justifying, 191–192
 - versus multiline text, 190
- SKETCH command
 - alias and function of, 119
 - versus TRACE, 129
 - using, 129–130
- SKPOLY system variable, relationship to slash (/), using with VBA files, 671
- SLICE command, effect of, 328
- snap
 - effect of, 103
 - enabling in Drafting Settings dialog box, 103–105
 - versus object snaps, 108
- Snap Mode status bar button,
 - description of, 588
- software deployment, comparing in AutoCAD versions, 258
- SOLDRAW command, effect of, 317
- SOLID command, alias and function of, 119
- Solid Editing toolbar, description of, 288
- solid model, explanation of, 279
- solid primitives
 - boxes, 322
 - polysolids, 321
 - wedges, 322
- SOLIDEDIT command options
 - Check, 326
 - Clean, 326
 - Color Edges, 326
 - Color Faces, 326
 - Copy Edges, 326
 - Copy Faces, 326
 - Delete Faces, 326
 - Extrude Faces, 326
 - Imprint Edges, 325
 - Move Faces, 326
 - Offset Faces, 326
 - Rotate Faces, 326
 - Separate, 326
 - Shell, 326
 - Taper Faces, 326
- solids
 - creating with EXTRUDE command, 311
 - creating with LOFT command, 312
 - creating with REVOLVE command, 313
 - editing, 325–328
 - editing with grips, 327
 - removing chamfers from, 327
 - removing fillets from, 327
 - using CHAMFER command with, 327
 - using FILLET command with, 327
 - using portions of, 328
- SOLPROF command, effect of, 317
- SOLVIEW command, effect of, 317
- spatial indexing, using, 533–534
- special characters, using in pull-down item names, 618–619
- SPHERE command, effect of, 323
- spheres, creating, 333
- spherical coordinates, inputting manually, 281
- SPLFRAME system variable, explanation of, 336
- SPLINE command
 - alias and function of, 119
 - effect of, 133
- SPLINEDIT editing command, alias and function for, 153
- splines
 - creating, 133–135
 - modifying geometric properties of, 153
- spotlight, explanation of, 339
- (sqrt *number*) syntax in AutoLISP, description and result of, 695

- square
 - drawing with DDE (Direct Distance Entry), 101–102
 - drawing with relative polar coordinates, 100
 - drawing with relative xy coordinates, 99
- square brackets ([]), meaning of, 121
- ssget function in AutoLISP, description and result of, 704
- standards. *See* CAD standards
- Standards Audit Report, displaying, 525–526
- STANDARDS command, using, 513–515
- Standards Manager, description of, 511
- Start button, starting AutoCAD with, 16
- Start in folders, directing AutoCAD to, 18
- Start menu shortcuts, creating, 16–17
- Startup dialog box, controlling display of, 506
- startup options, overview of, 572
- startup process, customizing, 571
- Startup Suite, adding application files to, 675
- Startup Suite, using, 674–676
- STARTUP system variable
 - explanation of, 39
 - setting, 39–40
- status bar buttons
 - Allow/Disallow Dynamic UCS, 588
 - controlling display of, 589
 - Coordinates, 588
 - Dynamic Input, 588
 - Grid Display, 588
 - Icon Tray, 588
 - Minimize/Maximize and Viewport Navigation, 588
 - Model or Paper Space, 588
 - Object Snap, 588
 - Object Snap Tracking, 588
 - Ortho Mode, 588
 - Polar Tracking, 588
 - Show/Hide Lineweight, 588
 - Snap Mode, 588
- status bar
 - features of, 27
 - showing results of DIESEL expression on, 592–593
- status bar tray icons, descriptions of, 27–28
- STB (Style Table-Named) file, significance of, 37, 485
- strcase function in AutoLISP, description and result of, 696
- strcat function in AutoLISP, description and result of, 696
- Stretch action for blocks, parameters associated with, 371–372
- STRETCH command
 - alias and function for, 153
 - effect of, 162
- String data type in AutoLISP, description and example of, 694
- String data type in VBA projects, description and example of, 732
- string functions in AutoLISP, descriptions and results of, 696
- styles. *See also* dimension styles
 - definition of, 188
 - plot styles, 484–488
 - setting table styles, 208–209
- STYLESMANAGER command, using with plot styles, 485
- submenus, creating on pull-down menus, 618. *See also* menus; pull-down menus; shortcut menus
- subsets
 - adding new sheets to, 463–464
 - organizing sheets with, 459–460
 - setting drawing template settings for, 462
 - setting up for new sheets, 460–462
- substr function in AutoLISP, description and result of, 696

SUBTRACT command, using with
 regions, 308–309
sunlight, controlling, 340
Super Hatch utility, accessing, 642
surface model, explanation of, 278
surfaces
 3D faces, 329
 3D meshes, 329
 boxes, 331
 cones, 332
 converting objects to, 336
 creating with EXTRUDE command, 311
 creating with LOFT command, 312
 creating with REVOLVE command, 313
 dishes, 333
 domes, 333
 editing, 335–336
 editing with grips, 336
 planar surfaces, 330
 pyramid, 334
 spheres, 333
 torus, 334
 wedges, 332
SURFTAB1 system variable, using, 313
SURFU system variable, explanation of,
 331
SURFV system variable, explanation of,
 331
surveyor units, definition of, 69
SWEEP command, using, 312
Symbol data type in AutoLISP,
 description and example of, 694
Symbols 2000, features of, 266
system drivers versus non-system
 drivers, 478
System Variable Editor tool in Express
 Tools, description of, 648
system variables
 ATTDIA, 362
 ATTREQ, 362
 CALCINPUT, 422

DWFFRAME, 400
FONTALT, 196
FONTMAP, 196
DWFOFNAP, 399
HPGAPTOL, 245
INSBASE used with blocks, 359
INSUNITS used with blocks, 355–356
listing dimension system variables,
 223–224
LOCKUI, 594
LTSCALE, 634
MEASUREINIT, 71
MEASUREMENT, 71, 247, 505
MIRRTXT, 32
MTEXTED, 207
overview of, 32
PSLTSCALE, 634
SHORTCUTMENU, 619
SKPOLY, 130
SPLFRAME, 336
STARTUP, 39
SURFTAB1, 313
SURFU, 331
SURFV, 331
XFADECTL, 389
XREFNOTIFY, 387

T

\t, using in pull-down item names, 619
/t command line switch, description of,
 574
tab character, using in pull-down item
 names, 619
table, definition of, 188
TABLE command, alias and function of,
 119
table data, adding, 211
table frame, creating, 211
table styles, setting, 208–209
TABSURF command, using, 313

- Tabulated Mesh feature, using, 313
- TANgent Object Snap mode, description of, 109
- tape drives, backing up with, 53
- Taper Faces SOLIDEDIT option, description of, 326
- Template Description dialog box, displaying, 505
- templates. *See also* drawing template files
 - ANSI, 42
 - DIN, 43
 - displaying Select Template dialog box, 39
 - Gb, 43
 - ISO, 43
 - JIS, 43
 - overview of, 42
 - using existing sheet sets as, 455–456
- Temporary Track point Object Snap mode, description of, 109
- text
 - adding to paper space, 194
 - creating multiple lines of, 189
 - creating single-line text, 199–201
 - definition of, 188
 - editing dimension text, 236
 - editing multiline text, 207–208
 - editing single-line text, 207
 - scaling for model space, 193–194
 - single-line versus multiline, 190
- TEXT command, effect of, 190
- text height
 - establishing, 77
 - specifying for single-line text, 200
 - warning about, 198
- text size, controlling in VLIDE Text window, 686–687
- text style definitions
 - Font Style, 197
 - Height, 198
 - Oblique Angle, 198
 - Preview, 198
 - Upside Down and Backwards, 198
 - Use Big Font, 198
 - Vertical, 198
 - Width Factor, 198
- Text Style dialog box, opening, 196
- text styles
 - accessing, 196
 - changing, 199
 - definition of, 196
 - listing, 200
 - using, 196–197
- Text tools in Express Tools, description of, 646–647
- text types
 - attributes, 188
 - dimension text, 188
 - fields, 188
 - leader notes, 188
 - tables, 188
- Text window. *See* VLIDE Text window
- textscr function in AutoLISP, description and result of, 702
- TEXTTOFRONT command, using, 401
- THICKEN command, effect of, 336
- THICKNESS property, using with 2D objects, 311
- tilde (~), using in pull-down item names, 619
- title bars
 - drawing, 19–20
 - palette, 19–20
 - program, 19–20
 - toolbar, 19–20
- title blocks, selecting for layouts, 438
- Toggle Frames (TFRAMES) tool in Express Tools, description of, 649
- Toggle tile, description of, 711
- TOLERANCE command, starting, 238–239
- too few arguments error message in AutoLISP, description of, 709

- too many arguments error message in
 - AutoLISP, description of, 709
 - tool palettes
 - accessing, 23
 - AutoCAD DesignCenter, 23
 - Calculator, 24
 - customization of, 571
 - DBConnect Manager, 24
 - External References, 24
 - Info Palette, 24
 - Markup Set Manager, 24
 - modifying tools on, 413–414
 - Properties, 23
 - Sheet Set Manager, 24
 - Tool Palettes window
 - capabilities of, 263
 - using, 412–414
 - toolbar handles, identifying, 19
 - toolbar title bar, identifying, 19
 - toolbars
 - allowing and preventing moving of, 27
 - assigning multiple commands to, 615
 - closing, 22
 - creating, 615–616
 - creating flyouts on, 616–617
 - customizing, 615–616
 - displaying closed toolbars, 151
 - docking, 21–22
 - floating, 22
 - locking, 593–594
 - locking and unlocking, 594–595
 - opening, 50
 - toolbars for 3D
 - Modeling, 288
 - Solid Editing, 288
 - Toolbar/Window Lock tray icon,
 - description of, 590
 - TOOLPALETTES command, using, 412–413
 - Tools menu
 - description of, 21
 - starting BEDIT command from, 370–371
 - TORUS command, effect of, 324
 - toruses, creating, 334
 - TRACE command
 - alias and function of, 119
 - versus SKETCH, 129
 - using, 128–129
 - training
 - coordination of, 500
 - importance of, 270
 - TRANSPARENCY command, using with
 - raster images, 397
 - transparent commands, running PAN and ZOOM as, 178
 - trans-spatial dimensions, creating, 235
 - TRIM command
 - alias and function for, 153
 - effect of, 164–165
 - tripod, using, 298–299
 - TrueType font, explanation of, 195
 - Trusted Autodesk DWG tray icon,
 - description of, 590
 - Turn on time-sensitive right click box,
 - effect of, 30–31
-
- ## U
-
- U editing command, alias and function for, 153
 - UCS (user coordinate system)
 - creating, 294
 - displaying, 298
 - Dynamic UCS, 295–296
 - named UCSs, 294–295
 - overview of, 293
 - UCS command, using, 294
 - UCS icon
 - behavior of, 290–291
 - controlling display of, 96–97, 291–292
 - relationship to drawing area, 25
 - UCS Icon dialog box, displaying, 291–292
 - UCSMAN command, starting, 294–295

UI toolbars
 locking, 593–594
 locking and unlocking, 594–595
 underscore (), using in macros, 612
 UNDO command
 alias and function for, 153
 running, 65
 unerasing objects with, 64
 Undo option, using with LINE
 command, 57
 UNION command, using with regions,
 308–309
 units
 angular, 68
 architectural, 69
 definition of, 68
 definition of, Imperial, 70
 definition of, metric, 70
 linear, 68
 setting in drawings, 71–72
 surveyor, 69
 Units setting, description of, 41
 Unload option, using with xrefs, 391
 upgrades, budgeting for, 269–270
 Upper function in DIESEL, effect of, 592
 uppercase, using, 205
 USB memory keys, backing up with, 54
 user coordinate system (UCS)
 creating, 294
 displaying, 298
 Dynamic UCS, 295–296
 named UCSs, 294–295
 overview of, 293
 user input, comparing between
 programming interfaces, 660
 user interface
 changing with CUI, 263
 comparing in AutoCAD versions, 254
 customization of, 570
 user lights, adding to scenes, 338–340
 user profiles
 creating, 579–580
 customization of, 570

 exporting and importing, 581–582
 setting current, 580
 users
 getting information to and from, 701
 giving feedback to, 701–702

U

/v command line switch, description of,
 574
 vl-string-subst... function in AutoLISP,
 description and result of, 696
 Validate Digital Signatures tray icon,
 description of, 590
 variables
 assigning values in VBA projects, 733
 declaring in VBA projects, 732
 Variant data type in VBA projects,
 description and example of, 732
 VBA (Visual Basic for Applications)
 programming interface
 considering use of, 661
 overview of, 658
 VBA files
 executing procedures in, 678–679
 loading, 669–670
 loading automatically, 677–678
 loading with AutoLISP, 671
 unloading, 671
 using VBALOAD and VBAUNLOAD with,
 669
 VBA for AutoCAD, resources for, 738
 VBA IDE panes and areas
 Code and UserForm windows, 728
 Object Browser, 728–730
 Project Explorer, 726
 Properties window, 727–728
 VBA project components
 class code modules, 731
 data types, 732
 functions, 731
 procedures, 731

- VBA project components *(continued)*
 - standard code modules, 731
 - subroutines, 731
 - variables, 732
- VBA projects
 - adding comments in, 734
 - assigning values to variables in, 733
 - creating, 735–736
 - objects in blocks, assigning actions to, 733–734
 - using Visual Basic Editor with, 736–737
- VBAIDE command, loading VBA IDE with, 720
- VBALOAD command, loading existing projects with, 720–722
- VBAMAN command
 - launching VBA Manager dialog box with, 724–725
 - use of, 671
- VBANEW command, creating empty VBA projects with, 725
- VBAPREF command, accessing environment settings with, 725
- VBARUN and VBARUN commands, executing procedures with, 723–724
- VBASTMT command, executing code line with, 726
- VBAUNLOAD command, unloading VBA projects with, 671, 722–723
- vector (.SHX) font, explanation of, 195
- verb-noun editing
 - selecting objects for, 147
 - using, 148
 - using with COPY command, 155–156
 - using with MIRROR command, 156–157
 - using OFFSET in, 158–159
- VeriSign, obtaining digital signatures from, 540–542
- VIEW command, alias and function of, 172
- View Manager dialog box, displaying, 172
- View menu, description of, 21
- viewers
 - AutoVue, 268
 - Brava! Viewer, 268
 - CADViewer, 268
 - features of, 265
 - PocketCAD DWFViewer, 268
- viewing angle, controlling, 298
- viewing/navigation, comparing in AutoCAD versions, 256
- Viewpoint Presets dialog box, features of, 298
- viewport setups, selecting for layouts, 438
- viewports
 - controlling display in, 446–448
 - controlling display of objects in, 448
 - creating irregular viewports, 444–445
 - creating rectangular viewports, 442–445
 - defining shape of, 442–446
 - floating viewports, 442
 - hiding layers in, 447
 - locking display of, 446
 - maximizing in drawing window, 447
 - modifying, 448
- VIEWRES command, alias and function of, 172
- views
 - adjusting for cameras, 299
 - associating layer settings with named views, 182–183
 - changing boundaries of, 183
 - creating, 180–182
 - parallel view, 300
 - preset views, 297–298
 - setting backgrounds for, 343
- Visibility parameter for blocks, description of, 372
- visibility parameters, placing in blocks, 376–378
- visibility states, using with blocks, 376–378

Visual Basic for Applications (VBA)
 programming interface. *See* VBA
 (Visual Basic for Applications)
 programming interface

Visual Basic Editor
 loading, 726
 using with VBA projects, 736–737

Visual LISP Editor
 adding comments in, 690–691
 Parentheses Matching tool in, 709

Visual LISP Integrated Development
 Environment (VLIDE). *See* VLIDE
 (Visual LISP Integrated Development
 Environment)

Visual Style Manager palette, displaying,
 304

visualization, comparing in AutoCAD
 versus AutoCAD LT, 273

VIZ 2007, features of, 266

VLA-object data type in AutoLISP,
 description and example of, 694

Vlax-Invoke-Method function in ActiveX,
 using, 716

VLIDE (Visual LISP Integrated
 Development Environment). *See also*
 AutoLISP programming interface
 debug tools in, 705–709
 editing and viewing source code in, 684
 launching, 682

VLIDE Text window
 controlling color coding in, 685
 controlling left margin of, 686
 controlling number of spaces in, 686
 controlling text size and font style in,
 686–687
 creating empty Text windows, 687–689
 features of, 684
 navigating, 687

.VLX file extension, description of, 663

VPCLIP command, using with viewports,
 448

VPOINT command, effect of, 298
 –VPORIS and VPORIS commands,
 creating viewports with, 442, 443,
 444–445

W

/w command line switch, description of,
 574

Warning!
 about assigning text style to dimension
 style, 220
 about creating multiline text objects,
 204
 about cylindrical coordinates, 281
 about Legacy node, 626
 about managing hatch patterns, 642
 about picking points, 158
 about renaming drawing files, 464
 about text height, 198
 about value in command line switch,
 576

watch process, debugging with, 705–706

WBLOCK command
 alternative to, 359
 displaying Write Block dialog box with,
 358

WCS (World Coordinate System),
 overview of, 96–97, 293

Web, publishing drawings to, 551–555

Web pages
 dragging and dropping content from,
 554
 organizing content of, 553

Web sites
 AIA(American Institute of
 Architects), 52
 Autodesk, 565
 Autodesk DWG TrueConvert
 program, 12
 Autodesk VIZ 2007, 266

Web sites (*continued*)

- AutoVue viewer, 268
- Brava! Viewer, 268
- CADViewer, 268
- Construction Specifications Institute, 52
- Nation CAD Standard, 52
- object enablers, 265
- PocketCAD DWFViewer, 268
- Web-based project sites, using, 556–558
- WEDGE command, effect of, 322
- wedges, creating, 332
- wheel mice, features of, 175–176
- while function in AutoLISP, description and result of, 703
- Window Attributes dialog, displaying in VLIDE, 685
- window elements, options for, 595–596
- Window menu, description of, 21
- Window selection mode, description of, 146
- windows
 - closing, 50–51
 - locking and unlocking dockable windows, 594–595
 - windows, locking dockable windows, 593–594
- Windows Clipboard, copying objects with, 31, 406–407
- Windows Explorer
 - accessing files from, 18
 - opening drawings with, 48–50
- :WINDOW-TEXT element in VLIDE, default color scheme for, 684
- wireframe model, explanation of, 278
- wizards, starting drawings with, 40–42
- Workspaces
 - changing properties for, 605
 - controlling with CUI editor, 602–605
 - creating, 602
 - creating with CUI editor, 603–604
 - features, 600
 - saving changes to, 602

- switching between 2D and 3D drafting with, 288
- Workspaces toolbar, using, 600–602
- World Coordinate System (WCS), overview of, 96–97, 293
- WPolygon selection mode, description of, 146
- Write Block dialog box, displaying, 358

X

- x,y* plane
 - drawing objects above, 283
 - using object snap tracking above, 282
- x,y,z* format
 - using with absolute coordinates, 280
 - using with relative coordinates, 280
- x* axis, role in 2D coordinate system, 95
- XATTACH commands, using with xrefs, 384
- XBIND command, using with xrefs, 392
- Xbind dialog box, displaying, 392
- XCLIP command, using with xrefs, 389–391
- XFADECTL system variable, using with xrefs, 389
- XLINE command, alias and function of, 119
- xlines
 - creating, 126–127
 - versus rays, 128
- XOPEN command, using with DWG references, 389
- XPLODE editing command, alias and function for, 153
- XREF object, description of, 620
- XREFNOTIFY system variable, using, 387
- xrefs
 - attaching to drawings, 384–386
 - attachment types for, 383
 - binding to parent drawings, 392
 - versus blocks, 381

clipping, 389–391
controlling amount displayed of,
389–391
controlling loading of, 391
creating tools from, 413
definition of, 24, 37, 350, 383
demand loading of, 391
editing clipped xrefs, 391
editing in-place, 387–389
identifying in drawings, 386
increasing performance of, 391–392
managing outside AutoCAD, 402–404
notification system for, 386
opening, 389
path types for, 383
sharing drawings with, 350
unloading, 391
updating, 28
x-values, displaying, 27
xy filters, using, 110–112, 282
XY parameter for blocks, description of,
372
xy plane in 2D coordinate system,
explanation of, 95

y

y axis, role in 2D coordinate system, 95
y-values, displaying, 27

Z

z axis
in 3D coordinate system, 95
identifying positive *z* axis with right-
hand rule, 293
z height of point
specifying with ELEV command, 283
using, 282
ZOOM command
alias and function of, 172–173
running as transparent command, 178
using All option with, 73
ZOOM command options
All, 174
Center, 174
Dynamic, 174
Extents, 174
In, 174
Object, 174
Out, 174
Scale, 174
Window, 174
Zoom Realtime button, using, 61
zooming, 60–61
methods of, 175
real-time zooming, 176–178
z-values, displaying, 27

