

# Index

---

## Symbols

---

@ symbol, 131, 133, 134, 162  
/b command line switch, 643  
/c command line switch, 643  
-INSERT command, 424  
-LAYER command, 707  
/ld command line switch, 643  
/nologo command line switch, 643  
/nossm command line switch, 643  
/p command line switch, 644  
-PAN command, 217  
/pl command line switch, 644  
/r command line switch, 644  
/s command line switch, 644  
-SCRIPT command, 707  
/set command line switch, 644  
/t command line switch, 644  
/v command line switch, 644  
-VPORIS command, 509–510  
/w command line switch, 644

---

## Numerics

---

2-point circle, 89  
2D Drafting & Annotation workspace, 15

2D drawing  
3D models, creating from, 381, 385–389  
AutoCAD compared to AutoCAD LT, 325  
coordinate system, 127  
DWFx file format, 629  
exchanging AutoCAD and AutoCAD LT, 342  
new, creating, 16–19  
2D solid, 160, 178  
3-point arc, 165  
3-point circle, 89  
3D model. *See also* rendering in 3D  
arrays, 392  
AutoCAD abilities, 32  
AutoCAD compared to AutoCAD LT, 323, 324, 325–326, 327, 342–343, 349, 355, 373, 375  
coordinate system, 127, 351–356  
creating solids, 393–398  
DWF attachment limitations, 467  
DWFx file format, 629  
editing solids, 399–402  
helixes, 384–385  
introduction, 349  
modifying, 390–392  
navigation in, 226, 373–378  
polylines, 384, 393  
regions, 381–384  
spatial indexing, 603  
templates, 73  
types, 350–351  
viewport display of objects, 513  
views, 369–380  
VIZ 2008, 336

3D Modeling tab, Options dialog box, 668  
3D models from 2D drawing, 381, 385–390  
3DALIGN command, 391–392  
3DARRAY command, 392  
3DCORBIT command, 374  
3DDISTANCE command, 376  
3DFLY command, 376  
3DFORBIT command, 374  
3DMIRROR command, 390  
3DMOVE command, 390  
3DORBIT command, 374  
3DPAN command, 376  
3DPOLY command, 384  
3DROTATE command, 391  
3DSWIVEL command, 376  
3DWALK command, 376  
3DZOOM command, 376

---

## A

---

absolute coordinates, 129–131, 352  
acad.dvb, 642  
accuracy compared to precision, 125–126  
action in AutoCAD, definition, 717  
action macro (ACTM) file format, 719, 722–723  
Action Macro dialog box, 719  
action macros, 328, 641, 717–725  
Action Recorder, 328, 641, 717–725  
actions, dynamic blocks, 433–434, 436, 437

- ACTM (action macro) file format, 719, 722–723
- ADCENTER command, 482–486
- Add object selection mode, 188
- Add Plot Style Table Wizard, 551–554
- Add Plotter Wizard, 546–550
- Add Profile dialog box, 650
- Advanced Render Settings palette, 48, 412
- Advanced Setup Wizard, 70–71
- Aerial View option, 216
- AIA (American Institute of Architects) (Web site), 82, 83, 579
- alias, command, 86, 334, 641, 652–655, 690–692
- Alias Editor, 654–655
- ALIGN command, 391
- alignment
  - 3D model, 391–392
  - text, 238, 240–242, 249–250, 259, 712
- Alignment parameter, dynamic blocks, 440
- All option, ZOOM command, 220
- ALL selection mode, 188
- Allow/Disallow Dynamic UCS mode, 52
- Allow Docking option, 48
- American Institute of Architects (AIA) (Web site), 82, 83, 579
- anchoring palettes, 48
- angles, setting up, 71–72
- angular units, 98, 99
- animation, 344, 413
- ANITPATH command, 413
- ANNOREST command, 319
- annotation. *See also* dimensions; hatch pattern; text
  - AutoCAD compared to AutoCAD LT, 325, 343–344
  - dimensions, drafting, 28–29
  - introduction, 27–30
  - scaling of, 313–320
  - standards for, 569
  - tool access options, 159
- Annotation Object Scale dialog box, 317–318
- annotative scaling, hatch patterns, 303, 308–309, 316
- Annotative style, text, 245, 246, 248
- Application Load dialog box, 642
- application status bar, 51–56, 658, 660
- arc, 24, 158, 164–165, 177–178, 712
- arc-aligned text, 712
- ARC command, 158, 164–165
- architectural units, 98, 99, 101–102
- ARCHIVE command, 541
- archiving, sheets/sheet sets, 541
- array, 193, 204–205, 439
- Array action, dynamic blocks, 439
- ARRAY command, 193, 204–205
- associative property, hatch patterns, 186, 303
- Attach DGN Underlay dialog box, 472–473
- Attach Digital Signatures utility, 614–615
- attachment type of xref, 451, 452
- ATTDEF command, 158, 428, 436
- ATTDIA system variable, 431
- ATTTEXT command, 432
- ATTREQ system variable, 431
- Attribute Definition dialog box, 428–430, 436
- Attribute Editor, 431
- attributes. *See also* block adding to blocks, 428
  - annotative scaling of, 316
  - AutoCAD LT's limitations, 325, 432
  - default value for, 429
  - definition, 238, 417, 428–430, 436
  - editing, 431
  - exporting/importing information, 712
  - extracting, 432
  - inserting, 430–431
  - introduction, 427–428
  - synchronizing to blocks, 432
  - tool access options, 158
- ATTSYNC command, 432, 439
- auto-list option, 256
- AutoCAD. *See also* AutoCAD LT
  - advantages of, 1, 31–32
  - communication methods, 56–58
  - customizing, 34–35, 341, 639–640
  - definition, 1
  - dynamic blocks in earlier versions, 448
  - editions, 1

- feature set overview, 34–35
- files and formats, 32, 617–618
- Help system, 60–63
- installation and deployment, 341, 710
- interface overview, 41–56
- introduction, 1–9, 13–16
- online resources, 63
- real-world units compared to, 98–99
- running commands, 58–60
- starting, 14, 37–40
- as vector-based program, 462
- version considerations, 32, 75, 76, 79, 335, 500, 631
- viewers for, 335, 338, 466, 630
- AutoCAD 2008 3D Modeling Workbook For Dummies*, 349
- AutoCAD Block (Web site), 337
- AutoCAD Certification (Web site), 361
- AutoCAD Color Index (ACI), 122, 551
- AutoCAD LT
  - 3D limitations, 323, 324, 325–326, 327, 342–343, 349, 355, 373, 375
- Action Recorder, lack of, 717
- attribute limitations, 325, 432
- AutoCAD, comparing with, 33–34, 325, 328–330, 343–344
- AutoCAD, working together with, 339–345
- boundaries and limitations of, 323–329
- cameras, lack of, 371
- color systems, 122
- command line switch limitations, 644
- Content Explorer, 482
- custom shape limitation, 640
- customizing, 341
- DLINE command, 171
- document protection limitations, 604
- dynamic UCS, lack of, 368
- Express Tools, lack of, 328, 655
- extending, 331–338
- external command alias limitation, 653
- file format limitations, 618
- gradient fill restrictions, 310
- groups of objects, 192
- Hatch dialog box, 304
- indexing of drawing content in, 604
- installation and deployment, 341
- layer properties, 121
- light and camera limitations, 667
- new features, 35
- options differences, 649
- Partial Open feature, lack of, 598
- REFEDIT command, lack of, 425
- shade modes, 379, 380
- shape file limitation, 709
- sheet sets, lack of, 515
- ShowMotion option, lack of, 232
- starting, 14, 641–642
- SteeringWheel feature, 228
- template limitations, 575
- thickness property, 385
- versions, 33
- ViewCube, lack of, 370
- viewport features, 507
- xref limitations, 455, 458, 465, 477
- AutoCAD OEM, 323. *See also* AutoCAD LT
- AutoCAPS feature, 257
- Autodesk, 1, 323, 336, 337–338
- Autodesk Buzzsaw (Web site), 626–628
- Autodesk Design Review, 466, 630, 631–635
- Autodesk discussion groups (Web site), 63
- Autodesk DWF Composer, 630
- Autodesk DWF Viewer, 630
- Autodesk DWF Writer, 630
- Autodesk i-drop, 621, 624
- Autodesk Impression (Web site), 336
- Autodesk Streamline (Web site), 626
- Autodesk Symbols 2000 (Web site), 336
- Autodesk VIZ 2008 (Web site), 336
- AutoLISP, 642, 705, 707, 715
- automatic crossing selection box, 187
- automatic window selection box, 187
- AUTOPUBLISH system variable, 562
- AutoVue (Web site), 338

## B

---

- /b command line switch, 643
- background
  - displaying with Layout Elements, 666
  - plotting in, 560
  - rendering process, 410–411
- BACKGROUND command, 410
- Background dialog box, 410
- background mask, text, 257–258
- backup, file, 66, 83–84, 617–618
- Backwards option for text, 248
- BACTION command, 436
- BACTIONTOOL command, 442–443
- BASE command, 427
- base point, 198, 308, 418, 420, 440
- Base Point parameter, dynamic blocks, 440
- Batch Standards Checker, 581, 591–595
- BATTMAN command, 432
- BCOUNT command, 715
- BCYCLEORDER command, 446
- BEDIT command, 425, 431, 433, 437–438
- Bentley's MicroStation, 470
- binding xrefs, 460–461
- block. *See also* attributes; dynamic block
  - annotative, 421
  - in AutoCAD LT, 325, 332, 342
  - Autodesk collection, 336
  - callout, 534, 536–537, 540–541
  - clipping, 459
  - creating, 315, 418–421
  - customizing, 640
  - definition, 417
  - editing, 425
  - exploding, 421, 711
  - Express Tools for, 711–712
  - external references, relationship to, 449–450, 712
  - inserting, 422–424, 426, 430–431, 446–447, 715
  - introduction, 417–418
  - label, 534–536, 540
  - LIGHTSINBLOCKS system variable, 407
  - list of, 536–537
  - managing, 424–427
  - naming, 418, 419, 424–425
  - redefining, 425
  - scaling, 421, 439
  - selecting, 418, 420, 535–536
  - static, 433, 448
  - in tables, 263
  - third-party products (Web sites), 337–338
  - title block, 428, 502, 569
  - tool access options, 158
  - units for, 421
  - visibility states, 436, 443–446
- Block Authoring palettes, 435, 436, 437, 440–443
- BLOCK command, 158, 418
- Block Definition dialog box, 315, 418–421
- block definition table, 422
- Block Editor feature, 425, 433–439
- block reference, definition, 422
- BLOCKEDITLOCK system variable, 437
- BMAKE command, 431
- board drafting, 1
- body options, solids, 400
- boundary, creating, 158, 308–309
- BOUNDARY command, 158
- Boundary Definition Error, 306
- bounding box, 253, 480
- BOX command, 393, 395
- box shape, 393, 395
- BPARAMETER command, 435, 440–441
- Brava! Viewer (Web site), 338
- BREAK command, 194, 207
- BREAK@ (break at point) command, 208
- breaks, object, 194, 207, 208
- budgeting in CAD management, 568
- bulleted lists, text, 255–256
- Button Image pane, CUI Editor, 679, 683
- Buzzsaw (Web site), 327, 626–628
- BVHIDE command, 436
- By Layer, 112, 120, 121, 196, 213

## C

---

- /c command line switch, 643
- CAD (Computer Aided Drafting/Design). *See also* collaboration
  - history, 31
  - introduction, 1–9

- CAD standards  
 annotation, 569  
 AutoCAD compared to  
   AutoCAD LT, 327–328,  
   344–345  
 AutoCAD tools  
   introduction, 581  
 batch checking drawings,  
   591–595  
 block definition, 421  
 CAD management role,  
   568  
 CAD Web site, 83  
 collaboration issues,  
   567, 569  
 drawing setup, 123  
 DWS file format, 75, 77,  
   344–345, 581–583  
 file exchange practices,  
   569  
 file locations, 569, 570–571  
 importance in organizing  
   reusable content, 479  
 introduction, 16  
 layer translation, 588–591  
 linetype, 122–123  
 management of, 567,  
   582–588  
 naming and storage for  
   drawings, 569  
 overview, 579–581  
 title blocks, 569  
 training, 569  
 CAD Standards Notification  
   tray icon, 55  
 CADdepot (Web site), 337  
 CADOPOLIS.COM (Web  
   site), 337  
 CADToolsOnline.com (Web  
   site), 338  
 CADViewer (Web site), 338  
 callout blocks, 534,  
   536–537, 540–541  
 CAMERA command, 371
- Camera Preview dialog  
 box, 372  
 CAMERAGLYPH system  
 variable, 372  
 cameras, 344, 371–372  
 Cartesian coordinate  
 system, 126–128  
 case of text, 712  
 Cell Styles area, 261  
 Center, Diameter option,  
   circle, 89  
 Center, Radius option,  
   circle, 89, 163  
 Center justification option,  
   241  
 Center option, ZOOM  
 command, 220  
 CFG (configuration) file  
 format, 552  
 chamfer, 179, 194, 210, 401  
 CHAMFER command,  
   194, 210, 401  
 CHANGE command, 317  
 Change Space option, title  
 bar, 194  
 Change to Current Layer  
 option, 120  
 Check option, solid bodies,  
   400  
 Check Standards dialog  
 box, 586–587  
 CHECKSTANDARDS  
 command, 586  
 CHSPACE command,  
   194, 211  
 circle, 23, 88–90, 158,  
   163–164  
 CIRCLE command, 23, 89,  
   158, 163–164  
 Circumscribed option,  
   POLYGON command,  
   180  
 Classic view, 44
- Clean option, solid bodies,  
 400  
 Clean Screen, 49, 56, 674  
 CLEANSCREENOFF  
 command, 49, 674  
 CLEANSCREENON  
 command, 49, 674  
 Clipboard as organizing  
 tool, 480–482  
 clipping  
   AutoCAD compared to  
     AutoCAD LT, 342  
   DGN underlay, 473–474  
   DWF underlay, 469–470  
   external references,  
     458–459  
   raster images, 464  
   viewport, 513–514  
 clipping frame, 342  
 Clockwise check box, 102  
 clouds, revision, 160  
 collaboration. *See also*  
   sharing electronic files  
   AutoCAD abilities, 32  
   AutoCAD compared to  
     AutoCAD LT, 327, 345  
   digital signatures, 608–615  
   drafting environment, 568,  
     570–571  
   external file consider-  
     ations, 68  
   introduction, 567–570  
   password-protecting  
     drawings, 604–608  
   saving drawings for, 602  
   standards setting for,  
     567, 569  
   templates, 571–577  
 color  
   AutoCAD Color Index,  
     122, 551  
   edges of solids, 399  
   faces, 400

- color (*continued*)
  - gradient fills, 159, 303, 310–311, 325, 343
  - layer property, 19, 111, 113–114
  - layout tabs, 505
  - as object property, 121
  - object snaps, 667
  - plot styles, 551
  - Window Elements, 665, 666
- Color Books system, 122
- color-dependent plot style, 72, 551
- columns, multiline text, 256
- command aliases, 86, 334, 641, 652–655
- command line/prompt. *See also individual commands*
  - aliases, 86, 334
  - canceling commands, 59
  - CUI Editor, 680–684
  - drawing primitive objects, 87–88, 161–164
  - entering coordinates at, 129, 131, 133, 134–135
  - Express Tools for, 715
  - grip-edit, 214
  - Help access through, 61
  - introduction, 51, 56–57
  - repeating commands, 58, 165
  - running commands, 58–60
  - tool palette commands, creating, 488
  - tooltips, 61
  - transparent commands, 59–60
  - window, 51, 57
- command line switches, 334, 641, 642–647
- Command List pane, CUI Editor, 678
- Command Reference
  - feature, 161
- communication in drafting
  - process, 340
- compass feature for 3D
  - views, 371
- COMPILE command, 709
- Compiled Menu (MNC) file
  - format, 676
- compiled shape (SHX) file
  - format, 66, 245, 709
- complex solids, 401
- Computer Aided Drafting/Design (CAD). *See also collaboration*
  - history, 31
  - introduction, 1–9
- cone, 394, 396
- CONE command, 394, 396
- configuration (CFG) file
  - format, 552
- Configure Standards dialog
  - box, 583–585
- Constrained Orbit option, 374
- construction line (xline), 160, 166–168, 169
- Construction Specifications Institute (CSI) (Web site), 82, 83, 579
- Content Explorer, 482
- context-sensitive (shortcut) menus, 38–40, 45, 59, 60–61, 690–692
- Continuous Orbit option, 374
- CONVERTPSTYLES
  - command, 551
- coordinate systems
  - 2D drawing, 127
  - 3D model, 127, 351–356, 371
  - absolute, 129–131, 352
  - cylindrical, 352–353
  - direct distance entering, 126, 135–136, 352
  - dynamic input,
    - relationship to, 130, 132, 134, 137–141
  - entering coordinates, 129–135
  - introduction, 20–21, 126–128
  - polar, 352–354
  - relative, 131–135, 352–354
  - spherical, 353–354
  - status bar display, 51, 52
  - user (UCS), 128–129, 356
  - world (WCS), 128–129
- COPY command, 25, 194, 198–199
- COPYBASE command, 480
- COPYCLIP command, 194, 198, 480, 514
- copying
  - to Clipboard, 480
  - edges of solids, 399
  - editing commands list, 194
  - faces, 400
  - MATCHPROP command, 195, 211, 311
  - nested objects, 711
  - objects to layers, 120
- COPYMODE system
  - variable, 200
- COPYTOLAYER command, 120
- CPolygon selection mode, 188
- Create Layout Wizard, 501–503
- Create New Drawing dialog
  - box, 69, 574
- Create Sheet Set Wizard, 517, 518–522

- Create Viewport in New  
 Layouts option, Layout Elements, 666
- crosshairs, controlling size, 667
- Crossing window selection mode, 188
- CSI (Construction Specifications Institute) (Web site), 82, 83, 579
- CTB (plot style table) file format, 67, 551
- Ctrl key, 696
- cubes, 393, 395
- CUI (Custom User Interface) file format, 675, 676. *See also* Customize User Interface (CUI) Editor
- current layer, settings for, 119, 120
- current workspace, setting, 669
- Custom User Interface (CUI) file format, 675–676. *See also* Customize User Interface (CUI) Editor
- Customizations In pane, CUI Editor, 677–678
- Customize User Interface (CUI) Editor  
 AutoCAD LT, 333  
 Command List pane, 678  
 commands in, 488, 680–684  
 Customizations In pane, 677–678  
 double-click actions, 697–698  
 Dynamic pane, 679–680  
 enterprise customization files, 677, 702–703  
 introduction, 675–677  
 launching, 680  
 menu customizing, 688–689  
 migrating customizations, 700–702  
 overview, 641  
 partial customization files, 677, 702, 703  
 Quick Properties, 213, 698–700  
 ribbon customizing, 692–695  
 rollover tooltips, 698–699  
 separator bars, 696  
 shortcut keys, 696–697  
 shortcut menus, 690–692  
 toolbar, 680, 684–688  
 workspaces, 668, 670–671
- customizing  
 Action Recorder, 328, 641, 717–725  
 blocks, 640  
 command aliases, 652–655  
 DesignCenter. *See* DesignCenter  
 display settings, 664–668  
 dockable windows, 662–663  
 Express Tools. *See* Express Tools  
 hatch patterns, 310, 332, 640  
 introduction, 639–641  
 linetypes, 332, 640  
 overview of options, 34–35, 341, 647–649  
 panels, 662–663  
 programming method, 639–640  
 script files as tools for, 705–709  
 shapes, 640, 709–710  
 sheets/sheet set properties, 531–534  
 startup process, 641–647, 709  
 status bars, 641, 657–662  
 templates, 123, 572, 640  
 tool palettes, 488–489, 640, 685–686  
 toolbars, 662–664, 671, 680, 684–688  
 user interface. *See* Customize User Interface (CUI) Editor  
 user profiles, 641, 649–652  
 workspaces, 668–674
- CUTCLIP command, 194, 481
- cutting objects with  
 Clipboard, 481
- cylinder, 394, 397
- CYLINDER command, 394, 397
- cylindrical coordinates, 352–353

---

**D**

- Dashboard. *See* ribbon
- data exchange, AutoCAD  
 compared to AutoCAD LT, 327
- Data Extraction Wizard, 432
- Data Link Manager, 263–264
- Data Link tray icon, 55
- data mining, 482
- database, AutoCAD object storage in, 32
- DATAEXTRACTION  
 command, 262
- DATALINK command, 263–264
- DATALINKUPDATE  
 command, 264
- DBConnect Manager  
 palette, 48, 328

- DC Online, 483
- decimal degrees
  - units, 98, 99
- decimal units, 98, 99
- DEFAULTLIGHTINGTYPE
  - system variable, 404
- DEFPOINTS layer, 109
- deg/min/sec units, 98, 102
- DELAY command, 707
- Delete option, faces, 399
- DELOBJ system variable, 381
- demand loading of xrefs, 460, 603
- Design Review, 466, 630, 631–635
- Design Web Format (DWF/DWFX) file format
  - marking up for revision, 634–635
  - PDF file format, compared to, 630–631
  - publishing in, 561
  - sharing electronic files, 629–630, 631–635
  - as underlays for xrefs, 67, 466–470
  - viewing options, 558, 633–634
- DesignCenter
  - adding resources to
    - drawings, 485–486
  - in AutoCAD LT, 332
  - DC Online, 483
  - dynamic blocks, 446
  - hatch patterns, 307, 486
  - inserting stored blocks, 426
  - introduction, 482–483
  - linetypes, 486
  - palette, 48
  - ready-to-use blocks, 336
  - resource drawing
    - locations, 483–485
  - desktop icons, modifying, 334
  - desktop shortcut, creating, 645–647
- DGN (Microstation design)
  - file format, 67, 470–474, 618
- DGNADJUST command, 474
- DGNATTACH command, 471–473
- DGNCLIP command, 473–474
- DGNFRAME system variable, 474
- DGNLAYERS command, 471
- DGNOSNAP system variable, 473
- dialog boxes
  - Action Recorder
    - limitations, 721
  - modal compared to modeless, 58
  - overview, 58
  - tooltips, 61
- DIESEL (Direct Interpretively Evaluated String Expression Language), 333, 641, 660–662
- digital ID, 608, 610–611
- Digital Signature Contents dialog box, 614
- digital signatures, 608–615
- Dimension menu, 44
- dimensioning, manual
  - compared to AutoCAD tools, 125
- dimensions
  - angular, 98, 99
  - AutoCAD compared to AutoCAD LT, 325
  - commands list, 284–286
  - creating, 270–271, 283–293
  - default units, 67
  - editing, 293–296
  - geometric tolerances, 301–302
  - introduction, 267–269
  - leaders, 296–301
  - linear, 28–29, 98, 99, 101–102
  - order of, 103
  - radius, 88
  - real-world units compared to AutoCAD, 98–99
  - scaling to, 107
  - styles, 271–283, 315
  - tools, 713
  - types, 269–270
  - units setup, 97–102
  - values definition, 238
- DIMLINEAR command, 28–29
- DIMSCALE system variable, 28, 320
- direct distance entering, coordinates, 126, 135–136, 352
- Display Drawing Status Bar option, Window Elements, 665
- Display Layout and Model tabs option, Layout Elements, 666
- Display Paper Background option, Layout Elements, 666
- Display Paper Shadow option, Layout Elements, 666
- Display Printable Area option, Layout Elements, 666
- Display Screen Menu option, Window Elements, 665

- Display Scroll Bars in
  - Drawing Window option, Window Elements, 665
- display settings. *See also*
  - panning; views; zooming
  - backgrounds for layouts, 666
  - coordinate systems in
    - status bar, 51, 52
  - customizing, 664–668
  - Grid Display mode, 52
  - Layout Elements, 665–666
  - lights, 344
  - toolbars, 193
  - viewports, 511–513
  - Window Elements, 664–665
- Display tab, Options dialog box, 505–506
- DISTANTLIGHT command, 406
- Distributed justification option, 242
- distribution of drawings, AutoCAD abilities, 32
- DLINE command, 158, 171, 325
- docking of window elements, 48, 662–663, 671
- donut, 158, 180
- DONUT command, 158, 180
- dot (point)
  - 2-point circle, 89
  - 3-point arc, 165
  - 3-point circle, 89
  - base/insertion, 198, 308, 418, 420, 440
  - breaking at, 208
  - inserting, 161–162, 165–166
  - placing/formatting, 88, 165–166
  - styles, 165–166
  - tool access options, 159
- double-click actions, customizing, 697–698
- double line, tool access options, 158
- DPI (dots per inch) for raster images, 462
- drafting, manual, 31
- drafting modes on status bar, 52
- Drafting Settings dialog box, 16–17, 137–141
- Drafting tab, Options dialog box, 667–668
- dragging and dropping files into drawing window, 79–80
- Draw menu, 44
- draw order, 194, 211, 475
- Draw panel, 3–4, 157, 158–160, 164
- Draw tools, Express Tools, 713
- drawing area, 49, 71, 495. *See also* model space; paper space
- drawing (DWG) file format
  - attaching as xref, 452–454
  - attaching to each other, 67
  - AutoCAD versions, 33
  - as basic AutoCAD drawing file, 65–66
  - naming, 597–598
  - saving options, 75
- drawing interchange format (DXF) file format, 75, 77
- Drawing orientation option, Page Setup, 496
- drawing set, definition, 515
- Drawing Set Description (DSD) file format, 562
- drawing standards (DWS)
  - file format, 75, 77, 344–345, 581–583
- drawing template (DWT)
  - file format, 72, 77, 494. *See also* templates
- drawings
  - 3D. *See* 3D model
  - annotation. *See* annotation
  - AutoCAD compared to AutoCAD LT, 325
  - Clipboard as organizing tool, 480–482
  - coordinate system, 127
  - DesignCenter, 482–486
  - display options. *See* views exchanging AutoCAD and AutoCAD LT, 341–342
  - external references (xrefs). *See* external references (xrefs)
  - indexing of content, 460, 604
  - layers. *See* layers
  - layouts. *See* layouts
  - limits, 17–18, 102–104, 106–107
  - model space. *See* model space
  - modifying objects, 25–26
  - multiple, 80–81
  - naming conventions, 597–598
  - new, creating, 16–25, 68–73
  - object properties, 120–123
  - opening existing, 76–78
  - organization overview, 479–480
  - orientation, 496, 561
  - paper space. *See* paper space

drawings (*continued*)  
Partial Open feature, 598–601  
protecting, 604–615  
publishing, 516, 561–563  
recent list, 78  
saving, 16, 73–80, 601–604, 602  
scale settings, 104–107  
setup, 16–19  
sheet sets. *See* sheets/sheet sets  
standards setup, 123  
startup overview, 68–73  
status bar, 56, 658–659  
templates. *See* templates  
title bar, 41  
tool overview, 157–161  
Tool Palettes window, 486–489  
units of measurement, 97–102  
views. *See* views  
Web-based, 619, 622–625  
DRAWORDER command, 194, 211, 475  
DSD (Drawing Set Description) file format, 562  
DST (sheet set) file format, 345, 515, 523  
DSVIEWER command, 216  
DTEXT command, 27–28, 238, 240  
DUCS (dynamic UCS), 326, 368  
duplicating objects, 25  
DWF Composer, 630  
DWF/DWFX (Design Web Format) file format  
marking up for revision, 634–635  
PDF file format, compared to, 630–631

publishing in, 561  
sharing electronic files, 629–630, 631–635  
as underlays for xrefs, 67, 466–470  
viewing options, 558, 633–634  
DWF Viewer, 630  
DWF Writer, 630  
DWF6 ePlot device, 632–633  
DWFADJUST command, 470  
DWFATTACH command, 467–469  
DWFCLIP command, 469–470  
DWFFRAME system variable, 470  
DWFLAYERS command, 467  
DWFOSNAP system variable, 469  
DWG (drawing) file format  
attaching as xref, 452–454  
attaching to each other, 67  
AutoCAD versions, 33  
as basic AutoCAD drawing file, 65–66  
naming, 597–598  
saving options, 75  
DWG TrueView (Web site), 33, 335  
DWS (drawing standards) file format, 75, 77, 344–345, 581–583  
DWT (drawing template) file format, 72, 77, 494. *See also* templates  
DXF (drawing interchange format) file format, 75, 77  
dynamic block  
adding parameters and actions, 439–446  
creating, 434–439  
definition, 433

in earlier AutoCAD versions, 448  
inserting, 446–447  
introduction, 433–434  
modifying, 447  
dynamic input  
3D modeling, 352  
coordinate system, relationship to, 130, 132, 134, 137–141  
introduction, 51  
status bar access, 52  
workings of, 57, 58  
Dynamic option, ZOOM command, 219  
Dynamic pane, CUI Editor, 679–680  
dynamic UCS (DUCS), 326, 368

---

## E

---

EATTEDIT command, 431  
EATTEXT command, 432  
Edge Effects panel, 379–380  
Edge option, POLYGON command, 180  
edges, solid, 399  
Edit Attributes dialog box, 431  
Edit Block Definition dialog box, 437–438  
editing  
attributes, 431  
blocks, 425  
commands list, 194  
dimensions, 293–296  
external references (xrefs), 455–457  
fill pattern, 311  
with grips, 93, 213–214  
hatch patterns, 195, 211, 311  
multiline text, 258, 259

- page setup, 499–500
- plot style, 554
- polylines, 195, 211
- scaling objects, 196, 511
- single-line text, 258, 259
- solids, 399–402
- text, 258–259
- EDITTIME command, 715
- ELEV command, 356
- elevation, setting in 3D, 355–356
- ellipse, 158, 176–178
- ELLIPSE/Arc command, 177–178
- ELLIPSE command, 158, 176
- encryption of drawings, 605–606
- Endpoint object snap mode, 24
- engineering units, 98
- enterprise customization files, 677, 702–703
- ERASE command, 94, 194, 197
- Esc key, uses of, 59
- ETTRANSMIT command, 541
- eTransmit feature, 68, 327, 541
- Excel, Microsoft, linking to spreadsheet, 263–264
- EXPLODE command, 194, 208, 270, 383, 421
- exploding
  - blocks, 421, 711
  - dimensions, 270
  - polylines, 208
  - regions, 383
  - text, 712
  - tool access options, 194
  - workings of command, 208
- Explorer, Windows,
  - accessing files from, 40, 79
- exporting
  - attribute information, 712
  - AutoCAD compared to AutoCAD LT, 327
  - block definition, 426–427
  - DXF file format, 75
  - to non-AutoCAD file formats, 617–618
  - TABLEEXPORT command, 263, 264
  - user profile, 650–652
- EXPORTLAYOUT command, 500
- Express Tools
  - accessing toolbar for, 81
  - Alias Editor, 654
  - AutoCAD LT's lack of, 328, 655
  - block tools, 711–712
  - command line/prompt, 715
  - dimension tools, 713
  - Draw tools, 713
  - File tools, 714
  - images, opening outside of AutoCAD, 465
  - installation option, 44
  - installing, 710–711
  - introduction, 710
  - layout tools, 712–713
  - Modify tools, 713
  - selection tools, 713
  - shape tool, 710
  - text tools, 712
  - Web tools, 714
- EXPRESSMENU command, 711
- EXPRESSTOOLS command, 711
- EXTEND command, 194, 208
- Extended Help File property, CUI commands, 682
- extended tooltips, 61–62
- Extents option, ZOOM command, 220, 222
- external files, 66–67. *See also* external references (xrefs)
- External Reference Notification tray icon, 55
- external references (xrefs). *See also* block attaching, 452–454
  - AutoCAD compared to AutoCAD LT, 325, 342
  - binding, 460–461
  - block conversion to, 712
  - blocks, compared to, 449–450
  - clipping, 458–459
  - definition, 67, 418, 449
  - DGN underlays, 470–474
  - draw order, 475
  - DWF/DWFX underlays, 466–470
  - editing, 455–457
  - increasing performance, 460–461
  - introduction, 449
  - managing across drawings, 476–478
  - model views, 539
  - notification of, 454–455
  - OLE, 418, 475–476
  - Partial Open feature, 600
  - raster image references, 462–466
  - sheet sets, relationship to, 518
  - tools for, 450–452
  - unloading, 460
- EXTERNALREFERENCES command, 450–451

External References palette,  
48, 450  
EXTRUDE command,  
385–386  
extruded objects, 385–386,  
399

## F

face, 350–351, 399–400, 410  
Fence selection mode, 188  
fields, 238, 257, 325,  
343–344  
file formats. *See also*  
DWF/DWFX (Design  
Web Format) file  
format; DWG (drawing)  
file format  
ACTM, 719, 722–723  
AutoCAD LT limitations,  
618, 709  
CFG, 552  
CTB, 67  
CUI, 675, 676  
default setting, 602  
DGN, 67, 470–474  
DSD, 562  
DST, 345, 515, 523  
DWS, 75, 77, 344–345,  
581–583  
DWT, 72, 77, 494  
DXF, 75, 77  
exporting AutoCAD to  
different, 617–618  
KML/KMZ, 408  
LIN, 67  
MNC, 676  
MNR, 676  
MNS, 676  
MNU, 676  
overview, 65–68  
PAT, 67  
PC3, 546

PDF, 629, 630  
PGP, 652  
saving to earlier, 602  
SCR, 706  
SHP, 709  
SHX, 66, 245, 709  
STB, 67, 551  
TTF, 66  
File menu, 43  
File References area,  
External References  
palette, 450  
File tools, Express Tools,  
714  
files. *See also* external  
references (xrefs); file  
formats; sharing  
electronic files  
action macro location,  
722–723  
backing up, 66, 83–84,  
617–618  
CAD standards, 569,  
570–571  
closing, 81–82  
dragging and dropping  
into drawing window,  
79–80  
enterprise customization,  
677, 702–703  
external, 66–67  
image, 67, 449, 462–466  
managing, 82–83  
multiple-drawing  
environment, 80–81  
naming, 82–83, 569,  
597–598  
new drawing start  
options, 68–73  
partial customization, 677,  
702, 703  
Partial Open feature,  
598–601

saving, 73–80  
script, 331–332, 641, 643,  
705–709  
searching, 77–78  
storing, 83  
types, 75  
underlay, 67, 466–474  
Windows Explorer,  
accessing from, 40, 79  
fill pattern. *See also* hatch  
pattern  
adding, 304–307  
editing, 311  
gradient, 159, 303,  
310–311, 325, 343  
solid, 303, 309–310  
fillet, 179, 194, 210, 401  
FILLET command, 194, 210,  
401  
filters, point/dot/xy,  
151–153, 354  
Find and Replace dialog  
box, 264  
finding  
drawings, 483–484, 598  
files, 77–78  
text, 264  
Fit justification option, 241  
Fit tolerance, spline, 175  
FLATSHOT command, 388  
Flip action, dynamic blocks,  
440  
Flip parameter, dynamic  
blocks, 440  
floating toolbars, 685  
floating viewports, 320, 500,  
506–508  
flyouts  
creating, 687  
definition, 685  
introduction, 5  
location and function of,  
220–221

- submenus, compared to, 688
- tool palette, creating on, 488
- folders, managing, 83, 483
- FONTALT system variable, 245
- FONTMAP system variable, 245
- fonts, 66, 239, 244–245, 665, 666
- Fonts option, Window Elements, 665, 666
- Format menu, 44
- formatting
  - fonts, 66, 239, 244–245, 665, 666
  - justification, 238, 240–242, 249–250, 259
  - multiline text, 252–253, 254–255
- fractional units, 98
- Frame option, WIPEOUT command, 183
- Free Orbit option, 374
- FREESPOT command, 405
- FREEWEB command, 405
- Freeze/Thaw in New Viewport layer mode, 113
- Freeze/Thaw layer mode, 112
- freezing
  - layers, 112–113, 120, 512–513, 514, 603
  - viewports, 113, 512–513, 514
- From a Data Link option, starting table, 262, 264
- From Object Data in the Drawing option, starting table, 262

- FTP (File Transfer Protocol), 619–621
- Full Navigation wheel, 376

---

## G

---

- gap tolerances, 307
- generic lights, 404
- Geographic Location dialog box, 407, 408
- geometric tolerances, dimensions, 301–302
- glyph
  - camera, 371, 372
  - light, 407
- Google Earth, 408
- GRADIENT command, 159
- gradient fills, 159, 303, 310–311, 325, 343
- grads units, 98
- graphic images, 67, 449, 462–466
- grayscale, converting from color to, 551
- grid. *See also* snap setting, 16–17, 126, 141–143
  - size limits, 17–18, 103
- Grid Display mode on status bar, 52
- grips
  - 3D model modification with, 390–391
  - camera glyph, 372
  - dynamic block, 434, 447
  - editing objects with, 93, 213–214
  - solid, 399, 400–401
  - viewport, 513
- GROUP command, 192–193, 194
- groups, object, 192–193, 194, 325

---

## H

---

- Hatch and Gradient dialog box, 304–309
- HATCH command, 159, 305
- Hatch dialog box, 304
- hatch pattern
  - adding, 304–307
  - annotative scaling of, 303, 308–309, 316
  - associative property, 186, 303
- AutoCAD compared to AutoCAD LT, 343–344
- boundary options, 308–309
- customizing, 310, 332, 640
- editing, 195, 211, 311
- gradient fills, 159, 303, 310–311, 325, 343
- inserting into drawings, 486
- introduction, 303–304
- island detection, 308–309
- origin (base point), 308
- palette, 305–306, 307
- PAT files, 67, 100
- predefined, 309
- publishing, 563
- scale/spacing, 107, 316
- settings, 307–309
- tool access options, 159, 307
- types, 309–310
- user-defined, 309–310
- Hatch Pattern Palette dialog box, 305–306
- HATCHEDIT command, 195, 211, 311
- hatching (PAT) file format, 67, 100

- height of text, setting, 243–244, 248, 250–251, 313
- helix, 384–385
- HELIX command, 384–385
- help string, assigning to CUI command, 683–684
- Help system, 60–63, 161
- HIDE command, 350, 351, 380
- historical drawings, searching, 483
- Home tab, ribbon
- Draw panel, 164
  - function of, 360
  - Layers panel, 113, 119
  - Modify panel, 210
  - Solid Editing panel, 399
- Home view of 3D model, 377, 378
- HPGAPTOL system variable, 307
- Hyperlink option, block definition, 421
- 
- 1
- 
- i-drop, 621, 624
- icons
- adding to CUI commands, 679, 682–683
  - desktop, modifying, 334
  - status bar tray, 55–56, 454–455, 659–660
  - UCS, 505, 668
  - Workspace Switching, 4354
- IdenTrust (Web site), 608
- Image Adjust dialog box, 465–466
- Image dialog box, 463
- IMAGEADJUST command, 465–466
- IMAGEAPP command, 465
- IMAGEATTACH command, 462–463
- IMAGECLIP command, 464–465
- IMAGEEDIT command, 465
- IMAGEFRAME command, 465
- IMAGEQUALITY command, 466
- images, graphic, 67, 449, 462–466
- imperial compared to metric units of measure, 67, 97–98, 100, 123
- implied windowing selection method, 186
- importing
- attribute information, 712
  - AutoCAD compared to AutoCAD LT, 327
  - drawings as sheets, 523–525
  - DXF format, 75
  - KML/KMZ files, 408
  - layouts, 503–504, 523–525
  - page setups, 498–499
  - user profile, 650–652
- Impression (Web site), 336
- Imprint option, solid bodies, 400
- In option, ZOOM command, 220
- in-place text editor, definition, 252
- INDEXCTL system variable, 604
- indexing
- drawing contents, 460, 603–604
  - layer, 603
  - sheet list, 516
  - spatial, 603
- infinite lines (RAY command), 158, 168–169
- InfoCenter (formerly Info Palette), 62
- Information pane, CUI Editor, 679
- INSBASE system variable, 427
- Inscribed option, POLYGON command, 180
- Insert bind type, 461
- INSERT command, 422, 446
- Insert dialog box, 422
- Insert menu, 44
- Insert Object dialog box, 475–476
- insertion cycling order, dynamic blocks, 446–447
- insertion point, 198, 308, 418, 420
- INSERTOBJ command, 475–476
- installation, AutoCAD, modifying, 710
- interface, overview, 41–56. *See also* Customize User Interface (CUI) Editor
- Internet. *See also* Web sites
- DC online, 483
  - online resources for AutoCAD, 63
  - Publish to Web feature, 327, 622–625
  - Web-based collaboration sites, 619, 626–628
  - Web-based drawings, 619, 622–625
  - Web tools, Express Tools, 714
- INTERSECT command, 383, 401

irregular viewports, 506,  
509–510  
island detection, hatch  
  pattern boundary,  
  308–309  
ISO 128 linetypes, 123  
ISO/DIS 12011 specification,  
  123  
Isolate Layer to Current  
  Viewport option, 120  
isometric views, 369

**J**

JIS linetypes, 123  
JOIN command, 195, 208  
justification  
  multiline shape, 172  
  text, 238, 240–242,  
  249–250, 259  
Justified justification  
  option, 242  
JUSTIFYTEXT command,  
  259

**K**

keyboard entry  
  advantages as input  
  device, 51  
  Ctrl key, 696  
  Esc key, uses of, 59  
  grouping of objects  
  shortcut, 192  
  palette shortcuts, 47–48  
  saving shortcuts, 74  
  selection shortcuts, 189  
  Shift key navigation for  
  3D, 375  
  shortcut keys,  
  customizing, 696–697  
  showing shortcut keys in  
  tooltips, 665

switching among  
  drawings, 81  
  view toggles, 48–49  
KML/KMZ files for  
  geographic location,  
  importing, 408

**L**

label blocks, 534–536, 540  
Last object selection mode,  
  188  
LAYCUR command, 120  
LAYDEL command, 120  
layer, current, 120  
LAYER command, 707  
Layer Control drop-down  
  list, 118  
Layer Delete option, 120  
Layer Freeze option, 120  
Layer Isolate option, 120  
Layer Lock option, 120  
Layer Match option, 119  
Layer Merge option, 120  
Layer Off option, 120  
Layer palette, 47  
Layer Properties Manager,  
  109–118, 512  
layer state, 538  
Layer States Manager, 119  
Layer Translator, 581,  
  588–591  
Layer Unisolate option, 120  
Layer Unlock option, 120  
Layer Walk option, 119  
layer 0, 109, 421  
layers  
  By Layer, 112, 120, 121,  
  196, 213  
  copying objects to, 120  
  creating, 18–19, 109–110  
  current, 120  
  DEFPOINTS, 109

description property, 111  
drawing settings, 108–120  
DWFLAYERS command,  
  467  
freezing/thawing, 112–113,  
  120, 512–513, 514, 603  
indexing, 603  
layer state, 119, 538  
LAYERVALCTL system  
  variable, 574  
material assignment by,  
  409  
modes, 112, 117–118  
modifying settings, 113  
named views, 231–232  
naming, 109  
overview, 108–109  
palette for, 47  
Partial Open feature, 598,  
  599, 601  
plot styles, 111, 551  
properties of, 18–19,  
  110–111, 121  
translation to CAD  
  standards, 588–591  
in viewports, 111, 120, 512  
Layers panel, 113, 119  
LAYERSTATE command, 119  
LAYERVALCTL system  
  variable, 574  
LAYFRZ command, 120  
LAYISO command, 120  
LAYLCK command, 120  
LAYMCH command, 119  
LAYMCUR command, 119  
LAYMRG command, 120  
LAYOFF command, 120  
LAYON command, 120  
Layout button, 50  
LAYOUT command,  
  501, 504  
Layout Elements options,  
  666–667

- layout space. *See also*
    - layouts; viewports
    - introduction, 49–50
    - lineweight in, 116
    - model space, compared to, 107–108, 242–244, 500
    - plotting from, 493, 496
    - sheet sets in, 515
    - text size in, 244
  - layouts. *See also* viewports
    - advantages for plotting, 493
    - appearance controls, 505–506
    - creating, 501–503
    - Express Tools, 712–713
    - importing, 503–504, 523–525
    - introduction, 500
    - modifying, 504
    - multiple, 500
    - navigating, 504–505
    - page setup, 494, 499, 504
    - plotting from, 105, 108, 500–506, 558–559, 560
    - templates, 503
    - title block, 502
    - views, 53, 232, 501, 504, 505
  - LAYOUTWIZARD command, 501–503
  - LAYTHW command, 120
  - LAYTRANS command, 588
  - LAYULK command, 120
  - LAYUNISO command, 120
  - LAYVPI command, 120
  - LAYWALK command, 119
  - /ld command line switch, 643
  - leader text, definition, 237
  - leaders, 296–301, 315, 320
  - legacy blocks, definition, 433
  - LENGTHEN command, 195, 207
  - lettered list option, 256
  - license management, software, 328–329
  - LIGHT command, 406–407
  - LIGHTGLYPHDISPLAY system variable, 407
  - lighting, display of
    - AutoCAD compared to AutoCAD LT, 344
    - default for 3D models, 404, 406
    - rendering, 403–408
  - LIGHTINGUNITS system variable, 404
  - LIGHTLIST command, 407
  - Lights in Model palette, 407
  - Lights palette, 48
  - Lights panel, 404
  - LIGHTSINBLOCKS system variable, 407
  - limits, drawing, 17–18, 102–104, 106–107
  - LIMITS command, 103–104
  - Limits option, plotting, 103
  - LIN (linetype) file format, 67, 100
  - line. *See also* linetype; lineweight; polylines
    - construction line (xline), 160, 166–168, 169
    - creating, 22–23, 85–88, 161–162
    - definition, 85
    - dimension, 28–29
    - double, 158
    - joining, 208
    - lengthening, 207
  - MLINE command, 171–173, 325
  - parallel, 171–173
  - polylines, compared to, 180–181
  - RAY command, 158, 168–169
  - temporary line segment, 87
  - tool access options, 159
  - LINE command, 22, 86–88, 159, 161–162, 180–181
  - Linear parameter, dynamic blocks, 439
  - linear units, 28–29, 98, 99, 101–102
  - linetype
    - customizing, 332, 640
    - inserting into drawings, 486
    - layer property, 111, 114–116
  - LIN files, 67, 100
  - as object property, 121
  - overview, 122–123
  - scaling, 107
- linetype (LIN) file format, 67, 100
  - lineweight
    - display options, 52, 117
    - layer property, 111, 116–117
    - as object property, 121
    - plot styles, 551, 560
  - linking information to drawings, 418. *See also* external references (xrefs)
  - LISP files node, 642
  - LIST command, 383
  - List of Blocks dialog box, 536–537
  - lists, text, 255–256
  - Live Section, 343
  - Lock/Unlock layer mode, 113
  - Lock/Unlock Viewport button, 54, 511

locking  
 layers, 113, 120  
 panels, window, 662–663  
 toolbars, 662–664  
 viewports, 54, 511  
 LOCKUI system variable,  
 662–663  
 LOFT command, 386  
 Lookup action, dynamic  
 blocks, 440  
 Lookup parameter,  
 dynamic blocks, 440  
 loop shapes, definition, 381  
 LSP command, 715  
 LWT button, 117

## M

macros  
 action, 328, 641, 717–725  
 CUI command, 681–682  
 DIESEL, 333, 641, 660–662  
 main customization file, 677  
 Make Object's Layer  
 Current option, 119  
 Manage Xrefs status bar  
 tray icon, 454–455  
 MARKUP command, 634  
 Markup Set Manager  
 palette, 48, 634  
 masking objects (wipeout),  
 160, 182–183, 712  
 MASSPROP command, 382,  
 383–384  
 MATCHPROP command,  
 195, 211, 311  
 MATERIALASSIGN  
 command, 410  
 MATERIALATTACH  
 command, 121, 409  
 materials, 48, 121, 409–410  
 MATERIALS command, 409  
 Materials palette, 48, 409

MBUTTONPAN system  
 variable, 226  
 MEASUREINIT system  
 variable, 101  
 MEASUREMENT system  
 variable, 100, 309, 574  
 menu bar, overview, 5–6,  
 42–43  
 menu browser, 2–3, 15,  
 42–43  
 Menu Resource (MNR) file  
 format, 676  
 Menu Source (MNS) file  
 format, 676  
 Menu Template (MNU) file  
 format, 676  
 menus  
 context-sensitive  
 (shortcut), 38–40, 45,  
 59, 60–61, 690–692  
 customizing, 688–689  
 display option, 665  
 Navigation Modes,  
 374–375  
 Object Snap, 22  
 overview, 43–44  
 Status Bar Menu, 658  
 submenus, 688–689  
 workspace, 671, 672–673  
 metric compared to  
 imperial units of  
 measure, 67, 97–98,  
 100, 123  
 Microsoft XPS Viewer, 629  
 Microspot DWG Viewer  
 (Web site), 338  
 Microstation design (DGN)  
 file format, 67, 470–474,  
 618  
 MicroStation DGN files, 67,  
 470–474, 618  
 Middle justification  
 option, 241

Midpoint object snap  
 mode, 22–23  
 Migrate Custom Settings  
 utility, 700  
 migrating and transferring  
 customizations,  
 700–702  
 minimize/maximize  
 button, 53  
 MIRROR command, 195,  
 200–201  
 mirroring, 26, 195, 200–201,  
 392  
 MLEADERSCALE system  
 variable, 320  
 MLEDIT command, 171  
 MLINE command, 171–173,  
 325  
 MNC (Compiled Menu) file  
 format, 676  
 MNR (Menu Resource) file  
 format, 676  
 MNS (Menu Source) file  
 format, 676  
 MNU (Menu Template) file  
 format, 676  
 modal dialog box, 58  
 model space (Model tab)  
 introduction, 49–50  
 layout display options,  
 666  
 lineweight in, 116  
 paper space, compared  
 to, 107–108, 242–244,  
 500  
 plotting from, 105, 493,  
 496, 555–558  
 sheets/sheet set views in,  
 538–541  
 text placement, 242–244  
 tool access options, 53  
 viewports, relationship to,  
 506, 511

- model views, 232, 517, 537–539
  - modeless dialog box, 58.  
*See also* palettes
  - MODEMACRO system variable, 660
  - Modify compared to Edit menu, 43
  - Modify panel, 210
  - Modify toolbar, 193
  - Modify tools, Express Tools, 713
  - mouse, navigating with, 50, 221, 222, 227, 375
  - Move action, dynamic blocks, 439
  - MOVE command, 195, 197–198
  - Move option, faces, 399
  - MREDO command, 195
  - MSLTSCALE system variable, 320
  - MTEXT command, 238
  - MTEXTED system variable, 259
  - MTEXTJIGSTRING system variable, 254
  - MTEXTTOOLBAR system variable, 253
  - multileader styles, 315
  - multiline object
    - AutoCAD compared to AutoCAD LT, 342
    - DLINE command, 158, 171, 325
    - introduction, 86
    - MLINE command, 171–173, 325
    - scaling, 172–173
    - tool access options, 159
  - multiline text (mtext)
    - annotative scaling of, 316
    - background masks, 257–258
    - columns, 256
    - creating, 253–256
    - definition, 237
    - editing, 258, 259
    - formatting, 252–253, 254–255
    - introduction, 239–240
    - lists, 255–256
    - overview, 252–253
    - text tools for, 712
  - Multiline Text panel, 252–253
  - multiple-drawing environment, 80–81
  - My Workspace, 669, 670
- 
- ## N
- 
- named plot styles, 72, 551
  - named views
    - background settings, 410
    - cameras, compared with, 371
    - creating, 228–231
    - model views, 539
    - Partial Open feature, 598
    - plotting, 229
    - sheet sets, relationship to, 518
  - naming
    - action macros, 725
    - blocks, 418, 419, 424–425
    - drawings, 569, 597–598
    - files, 82–83, 569, 597–598
    - layers, 109
    - resuable content, 479–480
    - sheet views, 518
    - sheets/sheet sets, 530–531, 535, 540
    - xrefs, 452, 461
  - National CAD Standards (Web site), 83, 579
  - navigation, AutoCAD. *See* panning; zooming
  - Navigation Modes menu, 374–375
  - NAVSMOTION command, 215, 216, 233
  - NAVSWHEEL command, 215, 216, 226–227, 377
  - NAVSWHEELMODE system variable, 226
  - nested objects, copying, 711
  - Network Deployment Wizard, 328–329
  - network location for drafting tools, 570–571
  - NEW command, 46, 68, 574
  - New Features Workshop, 14
  - NEWSHEETSET command, 518, 522
  - NEWSHOT command, 216
  - NEWVIEW command, 217
  - /nologo command line switch, 643
  - Non-Uniform Rational B-Splines (NURBS), 174
  - nonsystem print drivers, 544, 545–547
  - /nossm command line switch, 643
  - notification system, 660
  - noun/verb selection mode, 93, 185, 189, 190–191, 197
  - Number of Seconds Delay option, Window Elements, 665
  - numbered lists, text, 255–256
  - numbering of text, 712

**O**

object enablers in AutoCAD LT, 334–335

Object Linking and Embedding (OLE), 418, 475–476

Object option, irregular viewport, 509

Object option, ZOOM command, 220

object snap (OSNAP). *See also* snap

3D modeling, 354–355

color customizing, 667

DGN underlays, 473

DWF underlays, 469

elevation, 356

modes, 22–24

overview, 126, 147–151

xlines, relationship to, 167

Object Snap menu, 22

Object Snap mode on status bar, 52

Object Snap Tracking mode, 52, 126, 153–154, 355

ObjectARX, 642, 643

ObjectDBX, 642, 643

objects. *See also* selecting objects

annotative, 319

arc, 24, 158, 164–165, 177–178

array, 193, 204–205, 439

block. *See* block

breaks in, 194, 207, 208

circle, 23, 88–90, 158, 163–164

cone, 394, 396

copying, 120, 198–199, 711

cube, 393, 395

cutting, 481

cylinder, 394, 397

donut, 158, 180

draw order, 194, 211, 475

drawing primitive, 87–88, 161–164

ellipse, 158, 176–178

erasing/deleting, 197

extruded, 385–386, 399

grip-editing, 93, 213–214

groups, 192–193, 194, 325

hatch pattern. *See* hatch pattern

inserting, 475–476

joining, 195, 208

lengthening, 195, 207

line. *See* line

list of, 383

masking, 182–183, 712

material assignment to, 409

mirroring, 26, 195, 200–201, 392

modifying, 25–26, 93–96

moving, 195, 197–198

multiline. *See* multiline object

offsets, 201–203

pasting, 195, 199, 481

point. *See* point

polyline. *See* polylines

properties, 110, 120–123, 211–213, 382, 383–384

pyramid, 394, 398

ray, 159, 168–169

rectangle, 20–21, 159, 179

region, relationship to, 382

rotating, 206, 391, 399, 440

scaling, 317–318

source, 200

sphere, 397

stretching, 196, 206, 439

table. *See* table

torus, 394, 398

trimming, 196, 208–209

viewports, display in, 511–513

wedge, 394, 396

OBJECTSCALE command, 317

Oblique angle option for text, 249

offset, 195, 201–203, 399, 495

OFFSET command, 195, 201–203

OLE (object linking and embedding), 418, 475–476

On/Off layer mode, 112

OOPS command, 95, 195

OPEN command, 46, 76, 598–599

Open Drawing dialog box, 40

open drawings, searching, 483

OPENSHEETSET command, 523

OPTIONS command, 648

Options dialog box, 647–648

orbiting, 3D model, 373–378

orientation, drawing, 496, 561

origin, coordinate system, 127

Ortho mode, 21, 52, 126, 143–144, 355

orthographic views, 369

OSNAP (object snap). *See also* snap

3D modeling, 354–355

color customizing, 667

DGN underlays, 473

DWF underlays, 469

- OSNAP (object snap)  
*(continued)*  
 elevation, 356  
 modes, 22–24  
 overview, 126, 147–151  
 xlines, relationship to, 167
- OSOPTIONS system  
 variable, 309
- Out option, ZOOM  
 command, 220
- Output tab, ribbon, 360
- overlapping objects,  
 selecting, 189
- overlay type of xref, 451
- 
- p**
- 
- /p command line switch,  
 644
- page setup  
 assigning to layout,  
 494, 499  
 creating, 496–498  
 editing, 499–500  
 importing, 498–499  
 introduction, 494  
 layouts, relationship to,  
 494, 499, 504  
 options, 494–496  
 showing for new layouts,  
 666
- Page Setup dialog box,  
 495–496
- Page Setup Manager,  
 494–500
- PAGESETUP command,  
 496–499
- palettes  
 Action Recorder-  
 supported, 721  
 Advanced Render  
 Settings, 48, 412  
 anchoring, 48  
 in AutoCAD LT, 324, 333
- Block Authoring, 435, 436,  
 437, 440–443  
 commands, creating, 488  
 customizing, 488–489, 640,  
 685–686
- DBConnect Manager,  
 48, 328
- DesignCenter, 48
- External References,  
 48, 450
- hatch pattern, 305–306,  
 307
- InfoCenter, 62
- keyboard shortcuts, 47–48
- Layer, 47
- Lights, 48
- Lights in Model, 407
- Markup Set Manager,  
 48, 634
- Materials, 48, 409  
 as modeless dialog boxes,  
 58  
 overview, 46–48
- Properties. *See* Properties  
 palette
- QuickCalc, 48
- Ribbon, 47
- Sheet Set Manager, 48
- Sun Properties, 407, 408
- title bar, 42
- Tool Palettes window, 48,  
 446, 486–489  
 tools, creating for, 487–488  
 Visual Styles, 48, 379
- Pan button, 53
- PAN command, 91, 215, 217,  
 224–225
- Panel Preview pane, CUI  
 Editor, 679
- panels  
 accessing, 42  
 Action Recorder, 719–720  
 customizing, 671, 692–695
- Draw, 3–4, 157, 158–160,  
 164
- Edge Effects, 379–380
- Layers, 113, 119
- Lights, 404
- locking, 662–663
- Modify, 210
- Multiline Text, 252–253
- Panel Preview pane, 679
- Quick Properties, 52,  
 212–213, 680, 698–700
- Solid Editing, 399
- toolbars, creating from,  
 694
- Visual Styles, 379–380
- panning  
 3D navigation with, 375  
 introduction, 91  
 tools for accessing, 217  
 transparency, 224–225  
 in viewport, 511  
 with wheel mouse, 227  
 workings of, 215
- Paper button, 53
- paper compared to  
 electronic sharing of  
 files, 628–629
- Paper size option, Page  
 Setup, 495
- paper space. *See also*  
 layouts; viewports  
 introduction, 49–50  
 lineweight in, 116  
 model space, compared  
 to, 107–108, 242–244,  
 500  
 plotting from, 493, 496  
 sheet sets in, 515  
 text size in, 244
- paragraph (multiline) text  
 annotative scaling of, 316  
 background masks,  
 257–258  
 columns, 256

- creating, 253–256
- definition, 237
- editing, 258, 259
- formatting, 252–253, 254–255
- introduction, 239–240
- lists, 255–256
- overview, 252–253
- text tools for, 712
- parallel lines (multiline object)
  - AutoCAD compared to AutoCAD LT, 342
  - DLINE command, 158, 171, 325
  - introduction, 86
  - MLINE command, 171–173, 325
  - scaling, 172–173
  - tool access options, 159
- parallel view, 373, 374
- parameter set, definition, 437, 443
- parameters
  - dynamic blocks, 433–434, 435, 437, 439, 440–441, 443–446
  - PGP file format, 652
- partial customization files, 677, 702, 703
- Partial Open feature for drawings, 598–601
- PARTIALOPEN command, 598–599
- password-protection of drawings, 327, 604–608, 609
- PASTEBLOCK command, 481
- PASTECLIP command, 195, 199
- PASTEORIG command, 481
- PASTESPEC command, 481–482
- pasting objects, 195, 199, 481–482
- PAT (hatching) file format, 67, 100
- path information for xrefs, 451–452
- pattern, hatch
  - adding, 304–307
  - annotative scaling of, 303, 308–309, 316
  - associative property, 186, 303
  - AutoCAD compared to AutoCAD LT, 343–344
  - boundary options, 308–309
  - customizing, 310, 332, 640
  - editing, 195, 211, 311
  - gradient fills, 159, 303, 310–311, 325, 343
  - inserting into drawings, 486
  - introduction, 303–304
  - island detection, 308–309
  - origin (base point), 308
  - palette, 305–306, 307
  - PAT files, 67, 100
  - predefined, 309
  - publishing, 563
  - scale/spacing, 107, 316
  - settings, 307–309
  - tool access options, 159, 307
  - types, 309–310
  - user-defined, 309–310
- PC3 (plotting) file format, 546
- PDF (Portable Document Format) file format, 629, 630
- PEDIT command, 195, 211
- pen assignments, 560
- pen tables, 552
- Performance Tuner tray icon, 55
- PERSPECTIVE command, 373
- perspective view, 373, 374, 378
- PGP (Program Parameters) file format, 652
- photometric lighting, 404, 406
- pickbox, 50, 187
- pixels, definition, 462
- /pl command line switch, 644
- Places list, Save Drawing As dialog box, 75
- PLINE command, 180–182.
  - See also* polylines
- Plot area option, Page Setup, 495
- PLOT command, 46, 105, 319, 555, 559, 632
- Plot dialog box, 494, 556–558, 559–561
- Plot/NoPlot layer mode, 113
- plot notification balloon, 558
- Plot Notification tray icon, 55
- Plot offset option, Page Setup, 495
- Plot options, Page Setup, 496
- Plot scale option, Page Setup, 495
- plot stamp, 560
- plot style
  - adding, 550–554
  - color-dependent, 72, 551
  - CTB file format, 67, 551
  - editing, 554
  - layers, 111, 551
  - lineweight, 551, 560
  - named, 72, 551

- plot style (*continued*)
  - as object property, 121
  - page setup, 496
  - pen assignments, 560
  - STB file format, 67, 551
  - template choices, 72
- Plot Style Table Editor, 554
- plot style table (CTB) file format, 67, 551
- plot style table (STB) file format, 67, 551
- Plot style table option, Page Setup, 496
- plots/plotting. *See also* paper space
  - annotative objects, 319
  - configuring devices, 545–550
  - DWF6 ePlot device, 632–633
  - emulating paper with electronic files, 628–631
  - introduction, 29–30, 46, 493–494
  - layouts, 105, 108, 493, 500–506, 558–559, 560
  - limits on drawing, 103
  - from Model tab, 105, 493, 496, 555–558
  - named views, 229
  - options, 559–561
  - page setups, 494–500, 666
  - to PDF format, 630
  - Plot/NoPlot layer mode, 113
  - print drivers, 544, 545–547
  - printing, relationship to, 543–544
  - publishing, relationship to, 543–544
  - scaling for, 105, 495, 559
  - sheets. *See* sheets/sheet sets
  - standards for, 580
  - styles. *See* plot style viewports. *See* viewports
- Plotter Configuration Editor, 549–550
- PLOTTERMANAGER command, 546–547
- plotting (PC3) file format, 546
- plug-ins, drawing standards, 584
- point
  - 2-point circle, 89
  - 3-point arc, 165
  - 3-point circle, 89
  - base/insertion, 198, 308, 418, 420, 440
  - breaking at, 208
  - inserting, 161–162, 165–166
  - placing/formatting, 88, 165–166
  - styles, 165–166
  - tool access options, 159
- POINT command, 159
- point/dot/xy filters, 151–153, 354
- point light type, 404–405
- Point parameter, dynamic blocks, 439
- pointer, mouse, 50, 221, 222, 227, 375
- POINTLIGHT command, 405
- polar arrays, 204, 205
- polar coordinate system, 352–354
- Polar parameter, dynamic blocks, 439
- Polar Stretch action, dynamic blocks, 439
- polar tracking, 52, 126, 144–147
- Polar Tracking mode on status bar, 52
- polygon, 159, 179–180
- POLYGON command, 159
- Polygonal option, irregular viewport, 509–510
- polylines
  - 3D models, 384, 393
  - chamfers, 179, 194, 401
  - creating, 180–182
  - donut, 180
  - editing, 195, 211
  - exploding, 208
  - fillets, 179, 194, 210, 401
  - lines, compared to, 180–181
  - overview, 21
  - polygon, 179–180
  - rectangle, 20–21, 179
  - revision clouds, 160
  - spline curve, 160, 174–175, 196, 211
  - tool access options, 159
  - trace, compared to, 169
- polysolid, 393, 394–395
- POLYSOLID command, 393, 395
- Portable Document Format (PDF) file format, 629, 630
- Postscript PFB fonts, 245
- precision compared to accuracy, 125–126
- predefined hatch pattern, 309
- preset view, 232, 369–370
- press and drag selection method, 186
- previewing
  - camera views, 372
  - CUI Editor changes, 679, 680
  - drawings, 81
  - text, 249
  - thumbnail images, 378

- Previous object selection mode, 188
- Previous option, ZOOM command, 218, 220
- primitive objects, definition, 85, 157, 393.  
*See also* objects
- PRINT command, 555
- print drivers, installing, 544, 545–547
- printable area, 666
- Printer/Plotter option, Page Setup, 495
- printing, relationship to plotting, 543–544. *See also* plots/plotting
- profiles, user, 328, 641, 643, 644, 649–652
- Program Parameters (PGP) file format, 652
- program title bar, 41
- programming. *See also* macros
- AutoCAD compared to AutoCAD LT, 328
  - AutoLISP, 642, 705, 707, 715
  - as customizing method, 639–640
  - DIESEL, 333, 641, 660–662
  - script files, 641, 643, 705–709
  - startup options, 642
  - VBA language, 642
- PROPERTIES command, 196, 211–212
- Properties palette
- annotative scaling, 316–317
  - camera settings, 371
  - dynamic blocks, 424, 446
  - introduction, 47
  - lighting options, 406–407
  - location and function of, 211–212
  - Properties pane, CUI Editor, 679
- protection, drawing
- digital signatures, 608–615
  - introduction, 604
  - password-protection, 604–608, 609
- proxy graphic, 334–335
- PUBLISH command, 561–563, 632
- Publish to Web feature, 327, 622–625
- PUBLISHALLSHEETS system variable, 563
- PUBLISHCOLLATE system variable, 563
- PUBLISHHATCH system variable, 563
- publishing. *See also* plots/plotting
- command line switch, 644
  - drawings, 561–563
  - introduction, 493
  - plotting, relationship to, 543–544
  - sheet set function in, 516
  - to Web, 327, 622–625
- PUBLISHTOWEB command, 622
- pull-down menus, 43–44, 671, 672–673, 688–689
- PURGE command, 425–426
- pyramid, 394, 398
- PYRAMID command, 394, 398

---

## Q

---

- QDIM command, 325
- QNEW command, 69, 574, 575–576
- QSAVE command, 76
- Quick Access toolbar, 15, 43, 46, 671, 685
- Quick Properties panel, 52, 212–213, 680, 698–700
- Quick Setup Wizard, 70–71
- Quick View Drawings button, 53, 80–81
- Quick View Layouts button, 53, 501, 504, 505
- QuickCalc palette, 48
- quotes in command line switch arguments, 643

---

## R

---

- /r command line switch, 644
- radians units, 98
- radius dimensions, 88
- raster images, 67, 449, 462–466
- ray, 159, 168–169
- RAY command, 159, 168–169
- Re-initialization dialog box, 654
- Realistic visual style, AutoCAD LT's lack of, 344
- realtime pan and zoom, 91–93, 217, 218, 221–226
- Recent Documents option, 78
- recording macros, 328, 641, 717–725
- RECTANG command, 159, 179
- rectangle, 20–21, 159, 179
- rectangular array, 204–205
- rectangular viewport, 506, 507–509
- REDO command, 96, 196
- REDRAW command, 217, 234
- REDRAWALL command, 217

- REFEDIT command, 425, 433, 455–456
  - Reference Edit dialog box, 456–457
  - Reference Manager, 328, 476–478
  - REGEN/REGENALL/REGENA UTO commands, 217, 234, 436
  - region
    - additional information on, 383
    - creating, 382
    - introduction, 381–382
    - modifying, 382–383
    - tool access options, 160
  - REGION command, 160, 382
  - relative coordinates, 131–135, 352–354
  - Remove object selection mode, 188
  - Rename & Renumber Sheet dialog box, 530–531, 540
  - RENAME command, 424–425
  - RENDER command, 411
  - Render Window dialog box, 411, 412
  - RENDERCROP command, 411
  - rendering in 3D
    - AutoCAD compared to AutoCAD LT, 326
    - backdrop, 410–411
    - introduction, 403
    - lighting, 403–408
    - materials, 409–410
    - presets, 411–412
    - process of, 411–413
  - repeating of commands, 58, 165
  - RESETBLOCK command, 447
  - resizing (scaling) objects
    - annotative, 313–320
    - attributes, 316
    - AutoCAD abilities, 32
    - blocks, 421, 439
    - dimensions, 107
    - drawing settings, 104–107
    - editing, 196, 511
    - hatch patterns, 107, 303, 308–309, 316
    - introduction, 91
    - linetype, 107
    - objects, 172–173, 196, 206, 317–318
    - for plots, 105, 495, 559
    - text, 107, 243–244, 259, 316
    - viewports, 54, 105, 107, 319–320, 510–511
    - zoom options, 220
  - resource drawings, 483–485, 537–538
  - resource management, CAD, 568–569
  - RESUME command, 707
  - reusable content. *See* block; external references (xrefs)
  - reuse of drawings, 32
  - REVLOUD command, 160
  - revision clouds, 160
  - REVOLVE command, 387
  - Rewind tool, SteeringWheel feature, 227, 377
  - ribbon. *See also* tabs
    - 2D workspace, 15
    - Action Recorder panel, 719–720
    - customizing, 671, 692–696
    - introduction, 3–5
    - panel introduction, 42
  - Ribbon palette, 47
  - right-click (shortcut) menus, 38–40, 45, 59, 60–61, 690–692
  - Right justification option, 242
  - rollover tooltips, 62, 698–699
  - ROTATE command, 196, 206
  - Rotate option, faces, 399
  - rotating
    - objects, 206, 391, 399, 440
    - text, 251, 712
  - Rotation action, dynamic blocks, 440
  - Rotation parameter, dynamic blocks, 440
  - RSCRIPT command, 707
  - RTPAN command, 91–93
  - RTZOOM command, 91–93
  - ruler for multiline text box, 253
- 
- ## S
- 
- /s command line switch, 644
  - Save Drawing As dialog box, 74, 75
  - SAVE/SAVEAS command, 46, 66, 74
  - Scale action, dynamic blocks, 439
  - SCALE command, 91, 196, 206
  - scale factor, 105–107, 244
  - Scale option, ZOOM command, 220
  - scale/scaling
    - annotative, 313–320
    - attributes, 316
    - AutoCAD abilities, 32
    - blocks, 421, 439
    - dimensions, 107

- drawing settings, 104–107
- editing, 196, 511
- hatch patterns, 107, 303, 308–309, 316
- introduction, 91
- linetype, 107
- objects, 172–173, 196, 206, 317–318
- for plots, 105, 495, 559
- text, 107, 243–244, 259, 316
- viewports, 54, 105, 107, 319–320, 510–511
- zoom options, 220
- SCALELISTEDIT command, 511
- SCALETEXT command, 259
- scene, 3D model as (rendering)
  - AutoCAD compared to AutoCAD LT, 326
  - backdrop, 410–411
  - introduction, 403
  - lighting, 403–408
  - materials, 409–410
  - presets, 411–412
  - process of, 411–413
- schedules, drawing, 418
- scientific units, 98
- SCR (script) file format, 706
- SCRIPT command, 707, 708
- script files, 331–332, 641, 643, 705–709
- script (SCR) file format, 706
- scroll bars, panning with, 225
- SDI (Single Document Interface) system variable, 81
- searching
  - drawings, 483–484, 598
  - files, 77–78
  - text, 264
- SECTIONPLANE command, 388–389
- security, drawing
  - digital signatures, 608–615
  - introduction, 604
  - password-protection, 604–608, 609
- Select Block dialog box, 535–536
- Select File dialog box, 77
- Select Template dialog box, 69, 70
- selecting objects
  - basic methods, 187–193
  - blocks, 418, 420, 535–536
  - copying with Clipboard, 480
  - defining selection modes, 93
  - for erasing, 95
  - Express Tools, 713
  - with grips, 93, 213–214
  - groups, 192–193
  - noun/verb mode, 93, 185, 189, 190–191, 197
  - options (Selection tab), 185–186
  - by type, 189
  - verb/noun selection mode, 93, 189, 190–191, 198
- selection sets, 185–186
- Separate solids option, solid bodies, 400
- separator bars, adding, 696
- /set command line switch, 644
- SETBYLAYER command, 196, 213
- SHADE command, 380
- shade modes, 379
- shaded viewport, 496, 560
- Shaded viewport options, Page Setup, 496
- SHADEMODE command, 380
- shadows, rendering in 3D, 404, 405–406
- Shape Manager, 400
- shape (SHP) file format, 709
- Shape (SHX) (vector font) files, 66, 245, 709
- shapes. *See also* objects
  - box, 393, 395
  - converting to blocks, 711
  - custom, 640, 709–710
  - loop, 381
  - SHP file format, 709
  - SHX files, 66, 245, 709
  - viewport shape setting, 506–510
- sharing electronic files. *See also* collaboration
  - DWF/DWFX files, 629–630, 631–635
  - emulating paper, 628–631
  - exporting to non-AutoCAD file formats, 617–618
  - FTP tool for, 619–621
  - introduction, 617
  - publishing onto Web, 619, 622–625
  - Web-based collaboration sites, 619, 626–628
- Sheet Properties dialog box, 531–534
- sheet set (DST) file format, 345, 515, 523
- Sheet Set Manager, 515, 516, 517, 643
- Sheet Set Manager palette, 48
- Sheet Set Properties dialog box, 519–521
- sheet view, 232
- Sheet Views tab, 517

- sheets/sheet sets
  - archiving, 541
  - AutoCAD LT's lack of, 345
  - callout blocks, 534, 536–537, 540–541
  - command line switch, 644
  - creating, 517–522
  - definition, 493
  - as drawing organization tool, 598
  - DST file format, 345, 515, 523
  - eTransmit, 541
  - importing drawings as sheets, 523–525
  - introduction, 515–516
  - label blocks, 534–536
  - model space views, 538–541
  - new sheet, adding, 529
  - opening, 523
  - opening single sheet, 530
  - properties, 530–534
  - publishing, 541, 563
  - removing, 530
  - renaming, 530–531, 540
  - renumbering, 530–531
  - resource drawings, adding, 537–538
  - subsets, 525–526, 528
  - suppression of Sheet Set Manager, 643
  - template settings for, 526–528
- SHEETSET command, 517
- SheetSetPlaceholder field name, 535
- Shell option, solid bodies, 400
- Shift key
  - 3D navigation with, 375
  - fillet/chamfer intersection lines, 210
  - Shift to Add selection method, 185–186
  - shortcut keys, customizing, 696–697
  - shortcut menus, 38–40, 45, 59, 60–61, 690–692
  - SHORTCUTMENU system variable, 690
  - Shortcuts pane, CUI Editor, 680
  - Show Extended ToolTips option, Window Elements, 665
  - Show/Hide Lineweight mode on status bar, 52, 117
  - Show Page Setup Manager for New Layouts option, Layout Elements, 666
  - Show Rollover ToolTips option, Window Elements, 665
  - Show Shortcut Keys in ToolTips option, Window Elements, 665
  - Show ToolTips option, Window Elements, 665
  - ShowMotion option, 53, 216, 232–233, 344
  - SHP (shape) file format, 709
  - SHX (compiled shape) file format, 66, 245, 709
  - SIGWARN system variable, 614
  - single-line text
    - creating, 249–251
    - definition, 237
    - editing, 258, 259
    - introduction, 239, 240
    - justification options, 241–242
- sizing (scaling) objects
  - annotative, 313–320
  - attributes, 316
  - AutoCAD abilities, 32
  - blocks, 421, 439
  - dimensions, 107
  - drawing settings, 104–107
  - editing, 196, 511
  - hatch patterns, 107, 303, 308–309, 316
  - introduction, 91
  - linetype, 107
  - objects, 172–173, 196, 206, 317–318
  - for plots, 105, 495, 559
  - text, 107, 243–244, 259, 316
  - viewports, 54, 105, 107, 319–320, 510–511
  - zoom options, 220
- SKETCH command, 160, 170–171
- SKPOLY system variable, 171
- SLICE command, 402
- slices of solids, 402
- slideouts, introduction, 3, 4–5
- snap. *See also* object snap (OSNAP)
  - basic settings, 16–17, 126, 141–143
  - polar, 147
- Snap mode on status bar, 52
- SOLDRAW command, 389
- SOLID command, 160, 178
- Solid Editing panel, 399
- solid fills, 303, 309–310. *See also* gradient fills
- SOLIDEDIT command, 399, 401, 410

- solids. *See also* 3D model
  - 2D, 160, 178
  - creating primitive, 160, 178, 393–398
  - editing primitive, 399–402
  - overview, 351
  - polysolid, 393, 394–395
- SOLPROF command, 389, 390
- SOLVIEW command, 389
- source objects, definition, 200
- spatial indexing, 603
- SPELL command, 264–265
- sphere, 394, 397
- SPHERE command, 394, 397
- spherical coordinates, 353–354
- SPLINE command, 160, 174–175
- spline curve, 160, 174–175, 196, 211
- spline-fit polyline, 174
- SPLINEDIT command, 196, 211
- SPOTLIGHT command, 405
- STAMP command, 560
- standard properties, sheets/sheet sets, 531
- Standard style
  - table, 260–261
  - text, 245–247
- standards
  - annotation, 569
  - AutoCAD compared to AutoCAD LT, 327–328, 344–345
  - AutoCAD tools
    - introduction, 581
  - batch checking drawings, 591–595
  - block definition, 421
  - CAD management role, 568
  - CAD Web site, 83
  - collaboration issues, 567, 569
  - drawing setup, 123
  - DWS file format, 75, 77, 344–345, 581–583
  - file exchange practices, 569
  - file locations, 569, 570–571
  - importance in organizing reusable content, 479
  - introduction, 16
  - layer translation, 588–591
  - linetype, 122–123
  - management of, 567, 582–588
  - naming and storage for drawings, 569
  - overview, 579–581
  - title blocks, 569
  - training, 569
- Standards Audit Report, 595
- STANDARDS command, 583
- Standards Manager, 581, 582–588
- Start Center End arc, 164–165
- Start from Empty Table option, 262
- Start In folder, setting up, 39–40
- Start menu, Windows, adding shortcuts to, 38–39
- Startup dialog box, 69, 574
- startup process, 37–38, 641–647, 709
- Startup Suite, 642
- STARTUP system variable, 69, 70, 574
- static blocks, 433, 448
- status bar
  - application, 51–56, 658, 660
  - customizing, 641, 657–662
  - DIESEL feature, 333
  - display options, 665
  - overview, 51–56
  - tray icons, 54–56, 454–455, 659–660
- Status Bar Menu buttons, 658
- STB (plot style table) file format, 67, 551
- SteeringWheels feature, 53, 216, 226–228, 376–377
- Streamline (Web site), 626
- Stretch action, dynamic blocks, 439
- STRETCH command, 196, 206
- stretching objects, 196, 206, 439
- STYLE command, 238
- styles. *See also* plot style
  - definition of text, 238
  - dimension, 271–283, 315
  - multileader, 315
  - point, 165–166
  - table, 260, 261
  - text, 244–249, 250, 254–255, 315
  - Visual Styles, 48, 379–380
- STYLESMANAGER
  - command, 551
  - submenus, customizing, 688–689
  - subsets, 517–518, 525–526, 528
- SUBTRACT command, 383, 401
- Sun & Sky Background dialog box, 410, 411
- Sun Properties palette, 407, 408
- sunlight, adding to rendering, 407–408
- surface model, 350–351
- surveyor units, 98, 99
- SWEEP command, 387

Symbols 2000 (Web site), 336  
 symmetrical object  
   (mirroring), 26, 195, 200–201, 392  
 system-pointer device  
   settings, 644  
 system printer, 544, 545–546  
 system variables  
   ATTDIA, 431  
   ATTREQ, 431  
   AUTOPUBLISH, 562  
   BLOCKEDITLOCK, 437  
   CAMERAGLYPH, 372  
   COPYMODE, 200  
   DEFAULTLIGHTINGTYPE, 404  
   DELOBJ, 381  
   DGNFRAME, 474  
   DGNOSNAP, 473  
   DIMSCALE, 320  
   DWFFRAME, 470  
   DWFOSNAP, 469  
   FONTALT, 245  
   FONTMAP, 245  
   HPGAPTOL, 307  
   INDEXCTL, 604  
   INSBASE, 427  
   LAYERVALCTL, 574  
   LIGHTGLYPHDISPLAY, 407  
   LIGHTINGUNITS, 404  
   LIGHTSINBLOCKS, 407  
   LOCKUI, 662–663  
   MBUTTONPAN, 226  
   MEASUREINIT, 101  
   MEASUREMENT, 100, 309, 574  
   MLEADERSCALE, 320  
   MODEMACRO, 660  
   MSLTSCALE, 320  
   MTEXTED, 259  
   MTEXTJIGSTRING, 254  
   MTEXTTOOLBAR, 253

NAVSWHEELMODE, 226  
 OSOPTIONS, 309  
 overview, 60  
 PUBLISHALLSHEETS, 563  
 PUBLISHCOLLATE, 563  
 PUBLISHHATCH, 563  
 SDI (Single Document Interface), 81  
 SHORCUTMENU, 690  
 SIGWARN, 614  
 SKPOLY, 171  
 STARTUP, 69, 70, 574  
 THICKNESS, 385  
 XCLIPFRAME, 459  
 XFADECTL, 457  
 XREFNOTIFY, 455  
 ZOOMFACTOR, 222

## T

/t command line switch, 644  
 table  
   block definition, 422  
   block in, 263  
   definition, 238  
   exporting, 263, 264  
   pen, 552  
   plot style, 67, 496, 551–554  
   Standard style, 260–261  
   startup options, 262, 264  
   styles, 260, 261  
   text, 259–264  
   tool access options, 160  
 TABLE command, 160, 261–262, 264  
 TABLEEXPORT command, 263, 264  
 tabs. *See also* Home tab;  
   model space  
   Block Editor, 435–436  
   layout, 505, 666  
   Options dialog box, 505–506, 667–668

ribbon, 42, 360, 695–696  
 Sheet List, 517  
 Sheet Views, 517  
 Transfer tab, CUI Editor, 700–702  
 tag, attribute, 429  
 Tags property, CUI commands, 682  
 Tan, Tan, Radius option, circle, 89  
 Tan, Tan, Tan option, circle, 89  
 Taper option, faces, 400  
 TARGETPOINT command, 405  
 Template Description dialog box, 573  
 templates  
   command line switch, 644  
   creating customized, 123, 572, 640  
   default location of, 571  
   drafting environment  
     control with, 570–571  
   drawing setup, 72–73  
   DWT file format, 72, 77, 494  
   importing layouts from, 503  
   items included in, 572  
   layouts, 503  
   menu, 676  
   new drawing from, 15–16, 69, 574–576  
   page setups in, 494  
   for Publish to Web features, 623  
   saving text styles in, 246  
   selecting, 69, 70  
   sheet sets, 515, 517–518, 526–528  
   standard, 72–73  
   as standard-compliance tools, 579

- starting from scratch,
  - compared to, 70
- storage location,
  - changing, 576–577
- subsets, 528
- temporary line segment, 87
- text
  - alignment, 238, 240–242, 249–250, 259, 712
  - annotation. *See* annotation
  - annotation
  - ATTEXT command, 432
  - attributes. *See* attributes
  - background mask, 257–258
  - creating single-line, 249–251
  - definition, 238
  - DTEXT command, 27–28, 238, 240
  - EATTEXT command, 432
  - editing, 258–259
  - exploding, 712
  - Express Tools, 712
  - finding, 264
  - fonts, 66, 239, 244–245, 665, 666
  - height setting, 243–244, 248, 250–251, 313
  - introduction, 237–240
  - justification, 238, 240–242, 249–250, 259
  - leader, 237
  - lists, 255–256
  - model compared to paper space for, 242–244
  - multiline text. *See* multiline text
  - multiline text
  - rotating, 251, 712
  - scaling, 107, 243–244, 259, 316
  - searching, 264
  - single-line text. *See* single-line text
  - spell checker, 264–265
  - styles, 244–249, 250, 254–255, 315
  - tables, 259–264
  - templates, 246
  - text boxes overview, 27
  - tool access options, 159
  - TEXT command, 160, 238, 240
  - Text Formatting toolbar, 253
  - Text Style dialog box, 247
  - TEXTTOFRONT command, 475
  - TFRAMES command, 715
  - Thaw All Layers option, 120
  - THICKNESS system variable, 385
  - 3-point arc, 165
  - 3-point circles, 89
  - 3D model. *See also* rendering in 3D
    - arrays, 392
    - AutoCAD abilities, 32
    - AutoCAD compared to
      - AutoCAD LT, 323, 324, 325–326, 327, 342–343, 349, 355, 373, 375
    - coordinate system, 127, 351–356
    - creating solids, 393–398
    - DWF attachment
      - limitations, 467
    - DWFx file format, 629
    - editing solids, 399–402
    - helixes, 384–385
    - introduction, 349
    - modifying, 390–392
    - navigation in, 226, 373–378
    - polylines, 384, 393
    - regions, 381–384
    - spatial indexing, 603
    - templates, 73
    - types, 350–351
    - viewport display of
      - objects, 513
    - views, 369–380
    - VIZ 2008, 336
  - 3D Modeling tab, Options dialog box, 668
  - 3D models from 2D drawing, 381, 385–390
  - 3DALIGN command, 391–392
  - 3DARRAY command, 392
  - 3DCORBIT command, 374
  - 3DDISTANCE command, 376
  - 3DFLY command, 376
  - 3DFORBIT command, 374
  - 3DMIRROR command, 392
  - 3DMOVE command, 390
  - 3DORBIT command, 374
  - 3DPAN command, 376
  - 3DPOLY command, 384
  - 3DROTATE command, 391
  - 3DSWIVEL command, 376
  - 3DWALK command, 376
  - 3DZOOM command, 376
  - Thumbnail Preview Settings dialog box, 378
  - tiled viewports, 506
  - title bar, 41–42, 193, 194
  - title block, 428, 502, 569
  - tool palettes
    - Action Recorder-supported, 721
    - Advanced Render Settings, 48, 412
    - anchoring, 48
  - tool palettes (*continued*)
    - in AutoCAD LT, 324, 333
    - Block Authoring, 435, 436, 437, 440–443
    - commands, creating, 488
    - customizing, 488–489, 640, 685–686

- DBConnect Manager, 48, 328
  - DesignCenter, 48
  - External References, 48, 450
  - hatch pattern, 305–306, 307
  - InfoCenter, 62
  - keyboard shortcuts, 47–48
  - Layer, 47
  - Lights, 48
  - Lights in Model, 407
  - Markup Set Manager, 48, 634
  - Materials, 48, 409
  - as modeless dialog
    - boxes, 58
  - overview, 46–48
  - Properties. *See* Properties palette
  - QuickCalc, 48
  - Ribbon, 47
  - Sheet Set Manager, 48
  - Sun Properties, 407, 408
  - title bar, 42
  - Tool Palettes window, 48, 446, 486–489
  - tools, creating for, 487–488
  - Visual Styles, 48, 379
  - Tool Palettes window, 48, 446, 486–489
  - Toolbar Preview pane, CUI Editor, 680
  - Toolbar/Window Lock button, 54
  - toolbars
    - accessing, 42
    - adding commands to, 678
    - creating, 686–687
    - customizing, 662–664, 671, 680, 683–688
    - display settings, 193
    - floating, 685
    - large buttons for, 665
    - locking, 662–664
    - Modify, 193
    - opening, 81
    - overview, 5, 44–45
    - panels, creating from, 694
    - Quick Access, 15, 43, 46, 671, 685
    - ribbon panels, creating from, 694
    - Text Formatting, 253
    - Workspaces, 668–670
  - TOOLPALETTES command, 486–487
  - Tools menu, 44
  - tooltips, 58, 61–62, 665, 698–699
  - torus, 394, 398
  - TORUS command, 394, 398
  - Tour Building navigation wheel, 376
  - TRACE command, 160, 169–170
  - training, drafter, 340, 568
  - Transfer tab, CUI Editor, 700–702
  - TRANSPARENCY command, 466
  - transparent zoom and pan, 224
  - tray icons, status bar, 54–56, 454–455, 659–660
  - TRIM command, 196, 208–209
  - tripod feature for 3D views, 371
  - True Color system, 122
  - TrueType font (TTF) file format, 66, 245
  - Trusted Autodesk DWG tray icon, 55
  - TTF (TrueType font) file format, 66, 245
  - Turn All Layers On option, 120
  - 2-point circle, 89
  - 2D Drafting & Annotation workspace, 15
  - 2D drawing
    - 3D models, creating from, 381, 385–389
    - AutoCAD compared to AutoCAD LT, 325
    - coordinate system, 127
    - DWFx file format, 629
    - exchanging AutoCAD and AutoCAD LT, 342
    - new, creating, 16–19
  - 2D solid, 160, 178
- 
- ## U
- 
- UCS Icon dialog box, 505, 668
  - UCS (user coordinate system), 128–129, 356
  - underlay files, 67, 466–470, 470–474
  - UNDO command, 46, 95, 196
  - unerasing option, 95
  - UNION command, 383, 401
  - units
    - angular, 98, 99
    - architectural, 98, 99, 101–102
    - AutoCAD compared to real-world, 98–99
    - block, 421
    - decimal, 98, 99
    - decimal degrees, 98, 99
    - defaults, 67
    - deg/min/sec units, 98, 102
    - drawing setup, 97–102
    - formats, 98
    - fractional, 98
    - grads, 98

imperial compared to  
 metric, 67, 97–98, 100,  
 123  
 linear, 28–29, 98, 99,  
 101–102  
 radians, 98  
 real-world compared to  
 AutoCAD, 98–99  
 scientific, 98  
 setting up, 71, 97–102  
 surveyor, 98, 99  
 templates based on, 73  
 unlocking  
 layers, 113, 120  
 panels, window, 662–663  
 toolbars, 662–664  
 viewports, 54, 511  
 Unreconciled New Layers  
 tray icon, 55  
 uppercase text as default,  
 257  
 Upside down option for  
 text, 248  
 Use Big Font option, 247  
 Use Large Buttons for  
 Toolbars option,  
 Window Elements, 665  
 user coordinate system  
 (UCS), 128–129, 356  
 user-defined hatch  
 patterns, 309–310  
 user interface (UI),  
 overview, 41–56. *See*  
*also* Customize User  
 Interface (CUI) Editor  
 user lights for 3D models,  
 404–406  
 user profiles, 328, 641, 643,  
 644, 649–652  
 utilities, Autodesk, 335

## V

/v command line switch,  
 644  
 Validate Digital Signatures  
 tray icon, 56  
 validation of 3D solids, 400  
 VBA programming  
 language, 642  
 vector-based program,  
 AutoCAD as, 462  
 verb/noun selection mode,  
 93, 189, 190–191, 198  
 Verisign (Web site), 608,  
 610–611  
 Vertical option for text, 248  
 VIEW command, 215, 218,  
 370  
 View Manager dialog box,  
 229, 232, 371, 410  
 View menu, 44  
 View Object navigation  
 wheel, 376  
 View tab, ribbon, 360  
 ViewCube feature, 370,  
 377–378  
 viewers for AutoCAD files,  
 335, 338, 466, 630  
 Viewpoint Presets dialog  
 box, 369, 370  
 Viewport Scale button, 54  
 viewports  
 advantages for plotting,  
 493  
 clipping, 513–514  
 defining shape, 506–510  
 definition, 108  
 display of objects in,  
 511–513  
 Express Tools, 712–713  
 floating, 320, 500, 506–508  
 freeze/thaw controls, 113,  
 512–513, 514  
 grips, 513  
 irregular, 506, 509–510  
 layers, 111, 120, 512  
 Layout Elements options,  
 666  
 locking/unlocking, 54, 511  
 model space, relationship  
 to, 506, 511  
 model views, 539  
 modifying, 513–514  
 navigation button, 53  
 Page setup options, 496  
 rectangular, 506, 507–509  
 scaling, 54, 105, 107,  
 319–320, 510–511  
 shaded, 496, 560  
 solid commands, 389  
 tiled, 506  
 VPCLIP command,  
 513–514  
 Viewports dialog box,  
 507–509  
 VIEWRES command, 218  
 views. *See also* display  
 settings; named views  
 3D modeling, 369–380  
 AutoCAD compared to  
 AutoCAD LT, 326, 344  
 background settings, 410  
 categories, 232  
 Classic, 44  
 command line switch, 644  
 introduction, 215–219  
 isometric, 369  
 keyboard toggles, 48–49  
 layer associations,  
 231–232  
 views (*continued*)  
 layouts, 53, 232, 501, 504,  
 505  
 model, 232, 517, 537–539,  
 539  
 motion feature, 232–233  
 orthographic, 369

panning. *See* panning  
parallel, 373, 374  
perspective, 378, 373374  
preset, 232, 369–370  
redraw, 234  
regenerate, 234  
sheets/sheet sets, 232,  
516, 538–541  
SteeringWheels feature,  
226–228  
zooming. *See* zooming  
Visibility parameter,  
dynamic blocks, 440,  
443–446  
visibility states, blocks, 436,  
443–446  
Visibility States dialog box,  
443–446  
visual styles, 48, 378–380,  
513  
Visual Styles palette,  
48, 379  
Visual Styles panel, 379–380  
visualization, 3D drawing,  
AutoCAD compared to  
AutoCAD LT, 326, 344  
Visualize tab, ribbon, 360  
VISUALSTYLES command,  
379  
VIZ 2008 (Web site), 336  
VPCLIP command, 513–514  
VPOINT command, 371  
VPORTS command, 506–509

## W

---

/w command line switch,  
644  
walkthrough of 3D model,  
413  
WBLOCK command,  
426–427  
WCS (world coordinate  
system), 128–129

Web  
collaboration sites on,  
619, 626–628  
Publish to Web feature,  
327, 622–625  
publishing drawings on,  
619, 622–625  
Web-based book content, 8  
Web sites  
American Institute of  
Architects, 82, 83, 579  
AutoCAD Block, 337  
AutoCAD Certification,  
361  
Autodesk discussion  
groups, 63  
AutoVue, 338  
Brava! Viewer, 338  
Buzzsaw, 327  
CADdepot, 337  
CADOPOLIS.COM, 337  
CADToolsOnline.com, 338  
CADViewer, 338  
Construction  
Specifications Institute,  
82, 83, 579  
DWG TrueView, 33  
IdenTrust, 608  
Impression, 336  
Microspot DWG Viewer,  
338  
National CAD  
Standards, 83  
object enablers, Autodesk,  
334  
Streamline, 626  
Symbols 2000, 336  
Verisign, 608  
VIZ 2008, 336  
Web tools, Express Tools,  
714  
WEBLIGHT command,  
405–406  
wedge, 394, 396

WEDGE command, 394, 396  
wheel mouse, navigating  
with, 221, 222, 225  
Width Factor option for  
text, 248  
Window Elements,  
customizing, 664–665  
Window option, ZOOM  
command, 219  
Window selection mode,  
188  
Windows, Microsoft,  
starting AutoCAD in,  
37–38  
Windows Clipboard as  
organizing tool,  
480–482  
windows (dockable),  
customizing  
workspace, 662–663,  
671  
Windows Registry, 649  
Windows Vista, adding  
shortcuts to Start  
menu, 39  
wipeout (masking objects),  
160, 182–183, 712  
wireframe model, 350  
WIPEOUT command, 160,  
182–183  
wizards  
Add Plot Style Table,  
551–554  
Add Plotter, 546–550  
Advanced Setup, 70–71  
Create Layout, 501–503  
Create Sheet Set, 517,  
518–522  
Data Extraction, 432  
Network Deployment,  
328–329  
Quick Setup, 70–71

workspace  
 2D Drafting & Annotation, 15  
 command line switch, 644  
 customizing, 668–674, 680  
 ribbon tab visibility,  
 695–696  
 saving toolbars in, 46  
 switching, 43, 54  
 WORKSPACE command, 668  
 Workspace Contents pane,  
 CUI Editor, 680  
 Workspace Switching  
 button, 43, 54  
 world coordinate system  
 (WCS), 128–129  
 WPolygon selection mode,  
 188  
 Write Block dialog box,  
 426–427

---

## X

x axis, 127  
 XCLIP command, 325,  
 458–459  
 XCLIPFRAME system  
 variable, 459  
 XATTACH command, 452  
 XBIND command, 461  
 Xbind dialog box, 461  
 XFADECTL system variable,  
 457  
 XLINE command, 160,  
 166–168

xline (construction line),  
 160, 166–168, 169  
 XOPEN command, 455, 457  
 XPLODE command,  
 196, 208  
 XREFNOTIFY system  
 variable, 455  
 xrefs (external references).  
*See also* block  
 attaching, 452–454  
 AutoCAD compared to  
 AutoCAD LT, 325, 342  
 binding, 460–461  
 block conversion to, 712  
 blocks, compared to,  
 449–450  
 clipping, 458–459  
 definition, 67, 418, 449  
 DGN underlays, 470–474  
 draw order, 475  
 DWF/DWFX underlays,  
 466–470  
 editing, 455–457  
 increasing performance,  
 460–461  
 introduction, 449  
 managing across  
 drawings, 476–478  
 model views, 539  
 notification of, 454–455  
 OLE, 418, 475–476  
 Partial Open feature, 600  
 raster image references,  
 462–466

sheet sets, relationship  
 to, 518  
 tools for, 450–452  
 unloading, 460  
 XY parameter, dynamic  
 blocks, 440  
 xy plane, 127  
 xy point filter, 151–153, 354  
 xz point filter, 354

---

## Y

y axis, 127

---

## Z

z axis, 127, 165, 351–356  
 Zoom button, 53  
 ZOOM command, 91–93,  
 103, 215, 218, 219  
 ZOOMFACTOR system  
 variable, 222  
 zooming  
 3D navigation with, 375  
 basic navigation, 91–93  
 command options, 219  
 drawing limits,  
 relationship to, 103  
 tool access options, 215  
 viewport, 511  
 views management with,  
 215  
 with wheel mouse, 227  
 zy point filter, 354

