Chapter 1

Introducing AutoCAD and AutoCAD LT

In This Chapter

- Getting the AutoCAD advantage
- Using AutoCAD and DWG files
- Meeting the AutoCAD product family
- Using AutoCAD LT instead of AutoCAD
- Finding out what's new in 2009

Maybe you're one of the few remaining holdouts who continue to practice the ancient art of manual drafting with pencil and vellum. If so, I must tell you, you're a dwindling breed. Or maybe you're completely new to drafting and yearn for the wealth and fame (would I lead you on?) of the drafter's life. Maybe you're an engineer or architect who needs to catch up with the young CAD hotshots in your office. Maybe you tried to use AutoCAD a long time ago but gave up in frustration or just got rusty. Or maybe you currently use an older version, such as AutoCAD 2004 or even (if you're into antiques) AutoCAD 2000.

Whatever your current situation or motivation, I hope that you enjoy the process of becoming proficient with AutoCAD. Drawing with AutoCAD is challenging at first, but it's a challenge worth meeting. AutoCAD rewards those who think creatively about their work and look for ways to do it better. You can always find out more, discover a new trick, or improve the efficiency and quality of your drawing production.

AutoCAD first hit the bricks in the early 1980s, around the same time as the first IBM PCs. It was offered for a bewildering variety of operating systems, including CP/M (ask your granddad about that one!), various flavors of UNIX, and even Apple's Macintosh. By far, the most popular of those early versions was for MS-DOS (your dad can tell you about that one). Eventually, Autodesk settled on Microsoft Windows as the sole operating system for AutoCAD. AutoCAD 2009 is officially supported in all Windows Vista versions (32- and 64-bit) except Home Basic, as well as 32-bit and 64-bit Windows XP Professional and Windows XP Home (32-bit only). Although it's not officially supported, it can also run in Windows XP Tablet 2005 Edition and make use of the tablet functionality included in Windows Vista (again, except for the Home Basic edition). Trying to do production drafting on a tablet isn't a great idea due to limitations in the graphics system, but I know it works because I'm running it that way myself!

Finally, if you're still running Windows 2000, it's time to upgrade. Although AutoCAD 2008 ran in Windows 2000, AutoCAD 2009 is no longer supported.

Because of AutoCAD's MS-DOS heritage and its emphasis on efficiency for production drafters, it's not the easiest program to master, but it has gotten easier and more consistent over the last decade or so. AutoCAD is pretty well integrated into the Windows environment now, but you still bump into some vestiges of its MS-DOS legacy — especially the command line (that text area lurking at the bottom of the AutoCAD screen — see Chapter 2 for details). But even the command line — oops! command *window* — is kinder and gentler in AutoCAD 2009. This book guides you around the bumps and minimizes the bruises.

Why AutoCAD?

AutoCAD has been around a long time — since 1982, which I suspect, dear readers, is longer than some of you! AutoCAD ushered in the transition from *really expensive* mainframe and minicomputer CAD systems costing tens of thousands of dollars to *merely expensive* microcomputer CAD programs costing a few thousand dollars.

AutoCAD is, first and foremost, a program for creating *technical drawings:* drawings in which measurements and precision are important because these kinds of drawings often get used to build something. The drawings you create with AutoCAD must adhere to standards established long ago for hand-drafted drawings. The up-front investment to use AutoCAD is certainly more expensive than the investment needed to use pencil and paper, and the learning curve is much steeper, too. So, why bother? The key reasons for using AutoCAD rather than pencil and paper are

- **Precision:** Creating lines, circles, and other shapes of the exact dimensions is easier with AutoCAD than with pencils.
- **Modifiability:** Drawings are much easier to modify on the computer screen than on paper. CAD modifications are a lot cleaner, too.
- **Efficiency:** Creating many kinds of drawings is faster with a CAD program — especially drawings that involve repetition, such as floor plans in a multistory building. But that efficiency takes skill and practice. If you're an accomplished pencil-and-paper drafter, don't expect CAD to be faster at first!

Figure 1-1 shows several kinds of drawings in AutoCAD 2009.

Why choose AutoCAD? AutoCAD is just the starting point of a whole industry of software products designed to work with AutoCAD. Autodesk has helped this process along immensely by designing a series of programming interfaces to AutoCAD (but not, alas, to AutoCAD LT — see the "Seeing the LT" section later in the chapter) that other companies — and Autodesk itself — have used to extend the application. Some of the add-on products have become such winners that Autodesk acquired them and incorporated them into its own products. When you compare all the resources — including the add-ons, extensions, training courses, books, and so on — AutoCAD doesn't have much PC CAD competition.

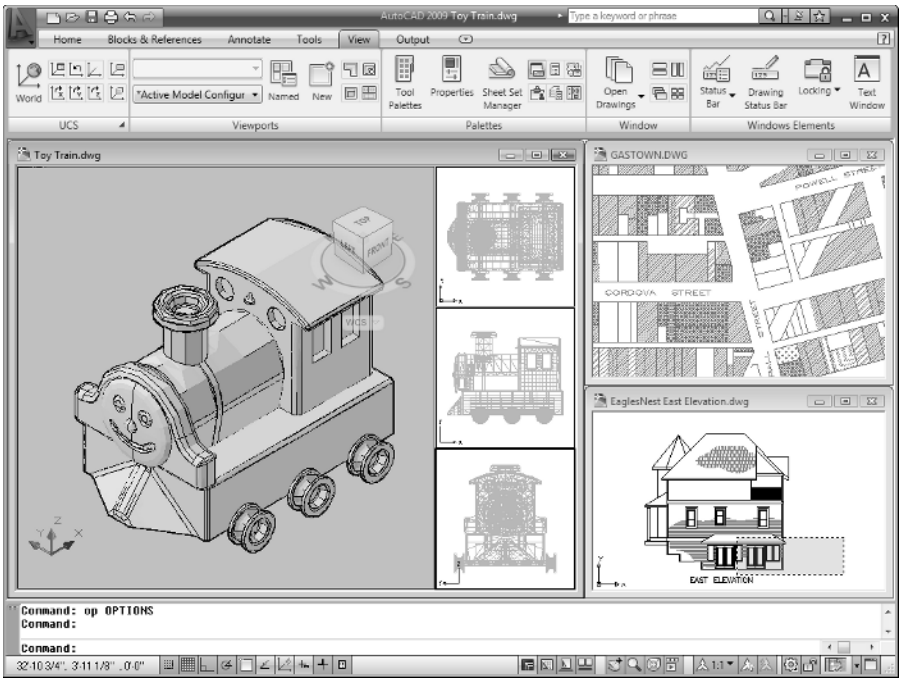

Figure 1-1: Cities, houses, little toy trains — what do you want to draw today?

The Importance of Being DWG

To take full advantage of AutoCAD in your work environment, you need to be aware of the DWG file format, the format in which AutoCAD saves drawings. Here are some DWG facts to keep in mind:

- In some cases, an older version of AutoCAD can't open a DWG file that's been saved by a newer version of AutoCAD.
- A newer version of AutoCAD can *always* open files saved by older versions.
- *Some* previous versions of AutoCAD can open files saved by the subsequent one or two versions. For example, AutoCAD 2007 and AutoCAD 2008 can open DWG files saved by AutoCAD 2009. That's because Autodesk didn't change the DWG file format between those versions. Similarly, the file format didn't change between AutoCAD 2004 and 2006, so the older program (AutoCAD 2004) can open drawings created in AutoCAD 2005 and AutoCAD 2006.
- If you're working in AutoCAD 2007, AutoCAD 2008, or AutoCAD 2009, you can use the Save As option to save the file to some older DWG formats. In fact, AutoCAD 2009 can save as far back as AutoCAD Release 14, which dates all the way back to 1997!

Table 1-1 shows which versions (described later in this chapter) use which DWG file formats.

Table 1-1 AutoCAD Versions and DWG File Formats

AutoCAD Version	*AutoCAD LT Version*	*Release Year*	*DWG File Format*
AutoCAD 2009	AutoCAD LT 2009	2008	Acad 2007
AutoCAD 2008	AutoCAD LT 2008	2007	Acad 2007
AutoCAD 2007	AutoCAD LT 2007	2006	Acad 2007
AutoCAD 2006	AutoCAD LT 2006	2005	Acad 2004
AutoCAD 2005	AutoCAD LT 2005	2004	Acad 2004
AutoCAD 2004	AutoCAD LT 2004	2003	Acad 2004
AutoCAD 2002	AutoCAD LT 2002	2001	Acad 2000
AutoCAD 2000i	AutoCAD LT 2000i	2000	Acad 2000
AutoCAD 2000	AutoCAD LT 2000	1999	Acad 2000

AutoCAD Version	*AutoCAD LT Version*	*Release Year*	*DWG File Format*
AutoCAD Release 14	AutoCAD LT 98 & 97	1997	Acad R14
AutoCAD Release 13	AutoCAD LT 95	1994	Acad R13
AutoCAD Release 12	AutoCAD LT Release 2	1992	Acad R12

Working with AutoCAD is easier when your coworkers and colleagues in other companies all use the same version of AutoCAD and AutoCAD-related tools. That way, your DWG files, add-on tools, and even the details of your CAD knowledge can be mixed and matched among your workgroup and partners. In the real world, you may work with people, probably from other companies, who use AutoCAD versions as old as Release 14.

Many programs claim to be *DWG compatible* — that is, capable of converting data to and from AutoCAD's DWG format. But achieving this compatibility is a difficult thing to do well. Even a small error in file conversion can have results ranging in severity from annoying to appalling. If you exchange DWG files with people who use other CAD programs, be prepared to spend time finding and fixing translation problems.

Seeing the LT

AutoCAD LT is one of the best deals around, a shining example of the old 80/20 rule: roughly 80 percent of the capabilities of AutoCAD for roughly 20 percent of the money. (Actually, with recent price creep, it's now more like a 75/25 rule!) Like AutoCAD, AutoCAD LT runs on mainstream Windows computers and doesn't require any additional hardware devices. With AutoCAD LT, you can be a player in the world of AutoCAD, the world's leading CAD program, for a comparatively low starting cost.

AutoCAD LT is a very close cousin to AutoCAD. Autodesk creates AutoCAD LT by starting with the AutoCAD program, taking out a few features to justify charging a lower price, and adding a couple of features to enhance ease of use versus full AutoCAD. As a result, AutoCAD LT looks and works much like AutoCAD. The opening screen and menus of the two programs are nearly identical. (LT is missing a few commands from the AutoCAD menus.)

In fact, the major difference between the programs has nothing to do with the programs themselves. The major difference is that AutoCAD LT lacks support for several customization and programming languages that are used to develop AutoCAD add-ons. So almost none of the add-on programs or utilities offered by Autodesk and others are available to LT users.

AutoCAD LT also has only limited 3D support. You can view and edit 3D objects in AutoCAD LT, so you can work with drawings created in AutoCAD that contain 3D objects. However, you cannot create true 3D objects in LT.

The lack of 3D object creation in LT isn't as big a drawback for many users as you may think. Despite a lot of hype from the computer press and CAD vendors (including Autodesk), 3D CAD remains a relatively specialized activity. The majority of people use CAD programs to create 2D drawings.

Although you may hear claims that AutoCAD LT is easier to master and use than AutoCAD, the truth is that they're about equally difficult (or easy, depending on your NQ [nerd quotient]). The LT learning curve doesn't differ significantly from that of AutoCAD. AutoCAD was originally designed for maximum power and then modified somewhat to improve ease of use. AutoCAD LT shares this same heritage.

Fortunately, the minimal differences between LT and AutoCAD mean that after you've climbed that learning curve, you'll have the same great view. You'll have almost the full range of the AutoCAD 2D drafting tools, and you'll be able to exchange DWG files with AutoCAD users without data loss.

This book covers AutoCAD 2009, but almost all the information in it applies to AutoCAD LT 2009 as well. The icon that you see to the left of this paragraph highlights significant differences.

Right on Time for 2009

If you're upgrading from AutoCAD 2008 or another recent version and you work mostly or entirely in 2D, you're probably already current with system requirements. In fact, if your work is mostly or entirely 2D — and therefore this applies especially for LT users — AutoCAD 2009 will run fine on pretty well any computer that will run Windows XP or Vista. You should know the following before you upgrade from any older AutoCAD release:

- **Wash those old Windows:** AutoCAD 2009 does *not* support older versions of Windows, such as Windows 2000, NT, 98, and Me. For AutoCAD 2009, you have two choices: either Windows XP or Vista. (If you like to be cutting edge, there's a 64-bit version of AutoCAD 2009 that runs in the 64-bit versions of XP and Vista.)
- **DWG file compatibility:** The AutoCAD DWG file format changed with AutoCAD 2007. Users of that version can open drawings created in AutoCAD 2008 or AutoCAD 2009, but you have to use File➪Save As on the Menu Browser or the classic menu bar to create DWG files for users of AutoCAD 2006 and earlier versions. You can save as far back as Release 14, and if you need to go even further back, you can save to the Release 12 DXF format. Look up DXF files in the online help index for instructions.

- **Application compatibility:** If you use third-party applications with a previous version of AutoCAD, they may not work with AutoCAD 2009. AutoCAD 2007 applications developed with the ARX (AutoCAD Runtime eXtension) *may* work, but earlier ARX applications will need to be recompiled. VBA (Visual Basic for Applications) applications may or may not work with AutoCAD 2009, but many LSP (AutoLISP) programs written for the last several versions of AutoCAD should work without change.
- **Computer system requirements:** For AutoCAD 2009, Autodesk recommends a 2.2 GHz or better Pentium or Athlon processor (multiple processors and dual core are supported), at least 1 GB of RAM (at least 2 GB for 64-bit systems), 1024 x 768 or higher display resolution with True Color graphics, 1 GB of available hard disk space, an Internet connection, and Microsoft Internet Explorer 6.0 with Service Pack 1 or later (Internet Explorer 7.0 or later for 64-bit).
- **Additional requirements for working in 3D:** AutoCAD recommends a 3 GHz or better processor, 2 GB or more of RAM, a workstation-class, OpenGL- or DirectX 9-capable graphics card with at least 128 MB of memory, and an additional 2 GB of hard disk space beyond the 1 GB required for installation.

I find even the recommended system requirements on the minimal side. For example, my desktop computer runs at a screen resolution of 1280 x 1024, and my tablet computer runs at 1400 x 1050. The figures in this book were shot at a resolution of 1024 x 768, and as you can see, things can get pretty crowded at that resolution. I also think 512 MB of RAM is on the low side for productive work — get at least a gigabyte.

There's been a new release of AutoCAD every spring since AutoCAD 2004 was launched in 2003. That's not much time for even an army of programmers to deliver a compelling new feature set that's going to convince all users that they just have to upgrade. What seems to have been happening is a concentration on particular areas in recent releases. For example, AutoCAD 2007 was the 3D release; the 3D modeling engine was made much easier to use, but there was relatively little to please the 2D crowd. By contrast, AutoCAD 2008 was deemed to be "the drafter's release" because of the number of enhancements to 2D drawing capabilities — above all, the introduction of annotative documentation objects.

This time around, most of the programming effort has gone into a new interface for AutoCAD. Taking a page from Microsoft's Office 2007 suite, Autodesk's programmers have reorganized AutoCAD's command set, replacing the old function-based menus and toolbars with a task-based set of tabbed Ribbon panels (refer to Figure 1-1). Microsoft refers to the Ribbon-based window as the Fluent User Interface, or FUI. (I don't have to tell you how to pronounce that, do I?) If you've used any previous version of AutoCAD, you may find that the new interface takes some getting used to. You're not stuck with it however — as I explain in Chapter 2, the old familiar AutoCAD Classic workspace is no more than a couple of commands or right-clicks away.

I'll say here and now that I like the new interface, and I did not like the prior incarnation of the Ribbon — the AutoCAD 2007 (and AutoCAD LT 2008) Dashboard. The Ribbon strikes me as easier to adapt to than the Dashboard ever was. Although the Ribbon and Menu Browser are the most obvious changes from previous versions, there are some worthwhile odds and ends to point out as well. Here's a rundown on AutoCAD 2009 and AutoCAD LT 2009's most significant new features:

- **Ribbon:** In the new 2D Drafting & Annotation and 3D Modeling workspaces, the classic, multiple toolbar interface is replaced by the *Ribbon*. The Ribbon — which differs slightly between the 2D and 3D workspaces — contains a half dozen tabbed 'pages' each of which contains a series of panels; the panels in turn contain tool buttons. Unlike the classic toolbar and menu system, which is based on similar commands, ribbon panels are task-based. For example, instead of having to go to different toolbars or menus to add text and dimensions, you can find the most frequently used dimension and text tools gathered together on the Home tab's Annotation panel.
- **Menu Browser:** The second major element of the new 2D and 3D workspaces is the *Menu Browser*. You access the Menu Browser by clicking the Big Red A (or the Scarlet Letter as some of us have taken to calling it) in the top-left corner of the AutoCAD window. An extra click to open the Menu Browser obviously isn't an advantage over the always-open classic menu bar, but the browser includes some appealing bonus features: a graphic display of recent and currently open drawings, a list of recently used commands, and a search box where you can start typing a command name that you're not quite sure of, and watch a list of possible matches appear in the main Menu Browser pane. See Chapter 2 for more on the Menu Browser.
- **Supercharged tooltips:** Most tooltips for tool buttons and dialog boxes are two stage; when you first mouse over something, a concise tooltip appears, telling you the name of the command. If you hover your cursor for a couple of seconds, an expanded tooltip opens, presenting more text information and often a graphic as well. The additional information comes from the online help system, and pressing F1 while a tooltip is open takes you to the appropriate Concept page of the online help.
- **Quick View:** Quick View Layouts and Quick View Drawings are new commands you run by clicking status bar buttons. *Quick View Layouts* shows images of all layouts in the current drawing; select any image to make the layout current. Each image has Plot and Publish buttons, which you can click to output a layout without first making the layout current. *Quick View Drawings* shows images of all your open drawings and, above the image, another row of smaller images of the layouts in each drawing. I describe Quick View Drawings and Layouts in Chapters 2 and 5.

- **Quick Properties:** Another new status bar button turns the Quick Properties panel on and off. This customizable floating panel pops up whenever you select an object. (And if you find it pops up a little too frequently, you can turn it off at the status bar.)
- **New navigation tools:** Two more new status bar buttons run the ShowMotion and SteeringWheel tools (Autodesk's accountants discovered they could save millions by eliminating spaces between words. Ijusthopeitdoesn'tcatchonwithForDummiesbooks.) Since *AutoCAD 2009 For Dummies* does not cover 3D modeling, the only tool remotely of interest is the SteeringWheel, which can work in 2D or 3D — but I recommend you avoid it. In AutoCAD LT it's a 2D only device, and not much improvement over panning and zooming the old fashioned way. And in regular AutoCAD it defaults to 3D mode, which can really mess you up if you're doing 2D drafting!
- **Additional DGN support:** AutoCAD 2008 introduced support for MicroStation drawing files in their current v8 format. AutoCAD 2009 adds support for the older but still widespread v7 format. For more information, look up "DGN Files, About" in the online help index. (And if you don't know what this means, you don't need it!)
- **Action Recorder:** Recording your own macros has never been easier. If you find yourself repeating the same sequences of commands over and over, you can record and play them back with the new Action Recorder (not in AutoCAD LT). For more information, check out Action Recorder in the New Features Workshop or the online help index.
- **Layer Manager Palette:** The Layer Properties Manager dialog box is now an "enhanced secondary window" (don't you love programmer jargon?) that can stay open while you do other things. Any changes you make to layer properties are reflected immediately in the drawing.

No Express service?

If you don't see an Express menu in your Menu Browser (or the AutoCAD Classic menu bar) you should consider installing the Express Tools from your AutoCAD CD. (AutoCAD LT does not include or support the Express Tools.)

When you first install AutoCAD 2009, you choose between a Typical and Custom installation. If you choose Typical, the next screen asks whether you want to install the Express Tools. If you choose a Custom installation, in the next screen, make sure to select the Express Tools item in the list of components. If you don't install the Express Tools during initial setup, you'll have to rerun the AutoCAD 2009 installation routine. If you haven't installed AutoCAD yet, I strongly recommend that you choose the Typical installation option — or, at least, make sure the Express Tools check box is selected during a Custom installation.