

GUIDE TO USING

Reference Series



Google™

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BURIED TREASURES

Gmail

Keep In Touch
With Friends & Family

Organize

Install & Use
The Google Toolbar

Wireless

Use Google On
Your Cell Phone

Search

Run More Efficient Searches

Froogle

Shop For Bargains

Photos

Find, Edit & Share

Google **talk** BETA

Stay In Touch
With Google's Hot
New Instant Messaging
& Voice App

REFERENCE SERIES VOL. 9 ISS. 5

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Google (www.google.com) is one of the Web's great success stories. According to Media Metrix data released in July, the company's search engine handles 36.5% of all Web searches, and at press time Google Inc. boasted just over \$82 billion in market capitalization. All this from two guys applying clever programming and some fairly novel ideas about business to solving what would become one of the great challenges of the Internet age: How can I get the information I'm looking for quickly online? But as compelling and popular as Google's search technology is, it's just the beginning of what this dynamic company has to offer. This issue is packed with information on Google services and tools you can use, mostly without charge, to do more online than you ever thought possible starting from a single site.



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Organizing The World's Information

How Google Became The "Word" On Everyone's Lips



"Just Google it."

People everywhere are still coming to understand just how powerful those three words are. And with every new feature Google adds to its search engine, the more powerful they become.

Googling is, quite simply, typing search terms into Google's field and pressing ENTER. Like to compare one new car's mileage to another's? Want tips on catching panfish? Need to check out that new fellow your daughter is dating? Just Google it.

Number One

Google's mission statement is a rarity among Internet companies. It's

far too brief and lucid: "To organize the world's information and make it universally accessible and useful." But then, Google is a rare bird itself.

On the surface, Google is just like any other free search engine on the Web—but again, only on the surface.



Like AltaVista before it, Google's clean home page was a welcome relief from the jam-packed pages of competing search engines and portals. Even Yahoo! Search and MSN Search look similar today.

Underneath, ingenious innovation and efficient processing have made Google the number one choice for anyone who wants relevant information *right now*. At this writing, Google indexes 8.1 billion Web pages and can answer a search query in 0.25 seconds.

Google's secret formula is not so much the search, but more *how* it searches. Its PageRank algorithm lists Web pages in order of probable relevance to the user. This is partly based on the number of other pages that contain hyperlinks, or URLs, to them. When Netizens find a site or online article they consider worth sharing with others, they put a link to that page on their own sites or blogs. If more people link to a page than any other with the same keyword or phrase on it, it may wind up near the top of Google's rankings.

However, merely having a lot of links to a page doesn't make a top ranking a done deal. The proprietary and secret PageRank evaluates a number of other criteria, such as the subjective importance and trustworthiness of the sites linking to a page, as well as the usual intent of a typical user looking for a term. Furthermore, Google often tweaks PageRank to mitigate unscrupulous Webmasters' attempts to "play the system." Obviously, it means big money to companies to have their sites come up at the top of search result lists, which explains why there are so many books on the market about how to fool Google into giving higher rankings.

Besides PageRank, the other half of Google's recipe for success is the way the company does business. The fact that the site is still relatively uncompromised by the usual shenanigans of big companies looking to wring a few more bucks out of the bottom line has paid huge dividends in end-user loyalty. Paid advertisements keep Google's search free for everyone to use, but until recently, they were clearly relegated to the right of the screen, not mixed in with the "real" search results.

This minor difference from competing sites was enough to convince millions of users that they could trust

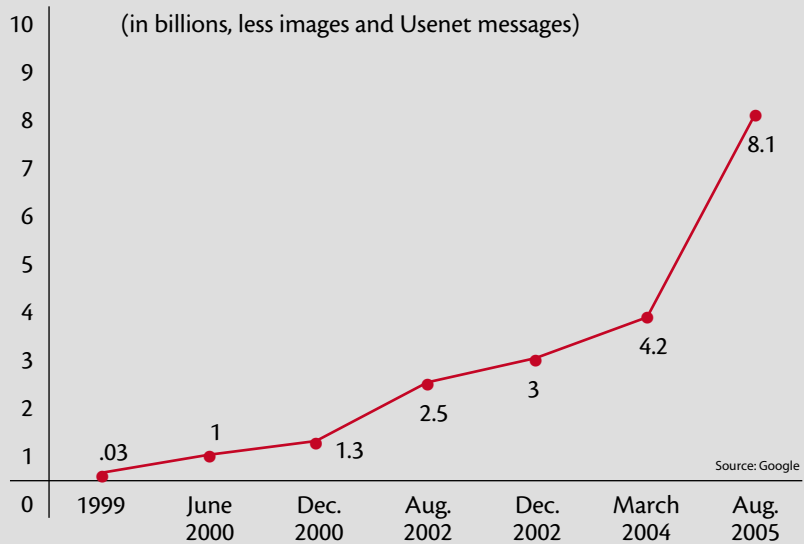
Google not to waste their time with results that are obviously paid placements. Of course, if users are actually Googling for something they want to buy, they may appreciate the fact that the ads on the right are triggered by the keywords they typed into the search field (not to mention Froogle, Google's price comparison feature).

How different is Google? Well, in October 2004, accounting firm Deloitte Touche (now Deloitte Touche Tohmatsu) called Google the fastest-growing company *ever*. Between 1999 and 2003, the firm reported, Google's revenues grew by a mind-bending 437,115%.

Primordial Goo-ple

Co-founders Sergey Brin and Larry Page collaborated on Google when they were graduate students together at Stanford University. (NOTE: Most of the events and dates regarding Google's origin and growth in this article come from John Batelle's outstanding "The Search: How Google And Its Rivals Rewrote The Rules Of Business And

Web Pages In Google's Database



Transformed Our Culture,” as well as Google itself, except as noted.)

The pair created a search algorithm called BackRub, so named for its ability to assay **back links**, or the hyperlinks pointing to a particular Web page from

others. Page drew the idea from the academic world, which places great value on the number of researchers cited in a paper's footnotes and the prestige of each. The idea wasn't totally novel: Brian Pinkerton programmed the earlier Webcrawler search engine to count links to Web pages, too.

Of course, an algorithm that could count and weigh back links had to be able to take on the scale of a worldwide Internet, in Page's vision. Forming it posed a formidable challenge. Sergey Brin handled the math, and collaborated with Page on the system of ranking each page's relative merit. This system, which gave Google's search results unprecedented relevancy and touched off a word-of-mouth firestorm, became known as PageRank. Stanford actually holds the patent on PageRank, but the U. S. government also holds certain rights to it thanks to a National Science Foundation grant (patent number 6,285,999 at patft.uspto.gov/netahtml/srchnum.htm).

Page made a crawler program, later called Googlebot, to search many Web servers at once. PageRank ranked the pages thus indexed, and Brin and Page completed the tool with a simple interface for users to visit with their queries.

The Sergey & Larry Show

Supersmart. Righteous. Micromanaging. Smug. Google founders Sergey Brin and Larry Page seem to inspire a different description from every person holding an opinion on the pair. For perspective, here are some of their basic facts. Both can be forgiven for not completing their doctorates in computer science at Stanford University, we think; they've been a little busy since 1998. (Sources: Google, EconomicExpert.com)

Sergey Brin, Co-founder and President, Technology

Born: August 1973 in Moscow, Russia

Education: BS with honors in mathematics and computer science, University of Maryland at College Park; master's in computer science, Stanford University; honorary MBA from Instituto de Empresa

Trivia: Sergey's mother was a scientist at NASA. He's reportedly the arbiter at Google as to what the "Don't Be Evil" motto means in day-to-day business decisions.



Larry Page, left, and Sergey Brin co-founded Google.

Larry Page, Co-founder and President, Products

Born: March 26, 1973, in Ann Arbor, Mich.

Education: BS in engineering (concentration in computer engineering), University of Michigan; master's degree, Stanford University

Trivia: Page is one of the trustees on the board of the X Prize Foundation for private spacecraft advocacy.

With servers made of parts bought, begged, and borrowed, Brin and Page were soon running a popular search engine from Page's dorm room. Math geeks, they called the search engine Google, after the number represented by a 1 followed by 100 zeroes (a googol). It's a truly colossal number, and it implies that the tally of Web pages around the world is unimaginably huge, too.

At first, Brin and Page wanted to license their technology to existing sites, not build a company. Unfortunately, interest was low at the companies they pitched to, and the partners needed more and more server space to stay ahead of the volume of Web pages Google was indexing. After angel investors and venture capitalists started handing them checks—the first one uncashable until there was a “Google, Inc.” to receive it—Brin and Page had to form a company, and fast.

Google officially incorporated on Sept. 7, 1998. Its first office was in a friend's spare room in Menlo Park, Calif. To try and preserve their pregnant friend's privacy, Brin, Page, and their few employees entered and exited through the garage.

Besides the results, users liked Google's speed and simple look. The

cached content links also proved useful. The company preserves recent Web content even when the original server is down or the content has been pulled or changed. In fact, Google set up a link during the Sept. 11, 2001, disasters to provide cached online news at a time when most Internet news sites were overwhelmed by traffic (the Google News aggregation feature sprouted from this event).

Obviously, caching demands data centers with huge storage capacity, reliable servers, and lots of bandwidth. Although it started out with Linux, Google eventually wound up customizing an OS to suit its specific needs. The company also opted for a distributed computing model using thousands of networked computers made of off-the-shelf parts rather than a few expensive “big iron” servers. This type of parallel computing makes it cheaper to add servers later, and easier to swap out failed parts without affecting the speed of the overall network.

Google's legend grew, but the fledgling company still needed a way to make money. Although Brin and Page remained distrustful of ads, they reasoned that ad revenue would keep Google free for anyone to use. Using AdWords, launched in October 2000,

companies paid for their ads to be related to particular search terms. Today, ad sales (on and offsite) and search engine licensing fuel Google's revenues.

Some Work, Some Play

“Don't Be Evil” is Google's unofficial motto. The phrase was distilled by engineer Paul Buchheit during a committee meeting meant to define Google's core values, Batelle says. It seemed to Buchheit that “don't be evil” was the common factor of several slogans being bandied about, and in typical engineer fashion, cut to the chase with the most efficient solution. For more on Google's philosophy and culture, check out “The Way Of Google” on page 13.

Already an anomaly in the often staid corporate world, Google loves to flaunt its sense of whimsy. On holidays and even some obscure anniversaries such as Van Gogh's birthday, the logo on the home page gets a fun makeover (www.google.com/holidaylogos.html). Each April Fools' Day spawns new jokes, such as the revelation that pigeons are the secret behind PageRank (www.google.com/technology/pigeonrank.html). And the languages in Google's repertoire include Elmer Fudd and Pig Latin (www.google.com/language_tools?hl=en).

Database Of Intentions

You may love Google's ability to give you quick access to movie reviews, camera price comparisons, and satellite maps of your next vacation spot. On the other hand, you may not be so crazy about the fact that it's so easy for Google (and other search engines) to give someone your home address, phone number, and other potentially sensitive information.

It's not Google's fault, of course. Search engines merely report what their

crawlers find on the Internet. Still, search companies raise a lot of questions, especially when they get to be as large and as good at searching as Google. For example, what happens to the records of the keywords a particular user searches for? Over the years, according to John Batelle, author of “The Search: How Google And Its Rivals Rewrote The Rules Of Business And Transformed Our Culture,” such a log of terms become a “database of intentions.”

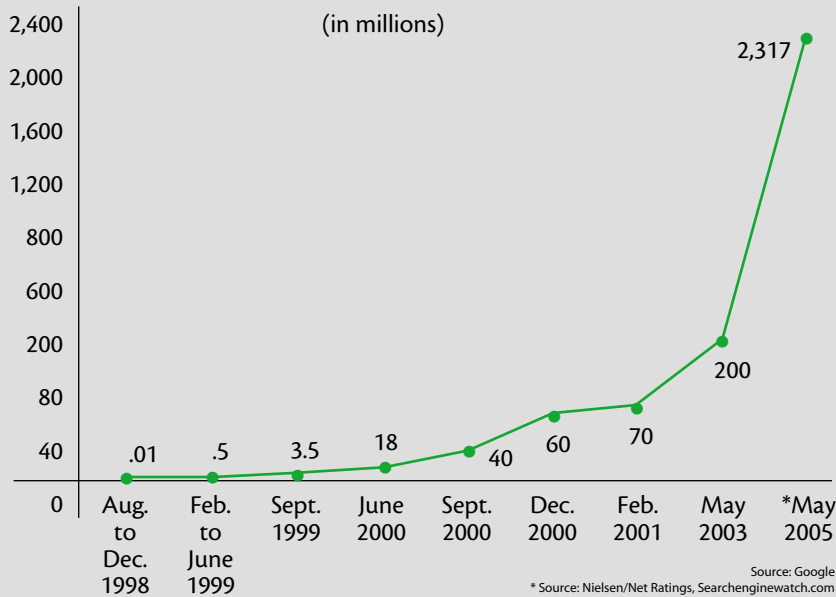
“What does the world want?” Batelle asks. “Build a company that answers this question in all its shades of meaning, and you've unlocked the most intractable riddle of marketing, of business, and arguably of human culture itself. And over the past few years, Google seems to have built just that company.”

Such a database could become the Holy Grail for marketers, especially if Google ever decides that more overt commercialization of its

technology isn't so “evil” after all. But it could also end up a tool of the courts or government agencies to keep an eye on citizens, rationalized by the need to sniff out potential criminals and terrorists under legislation such as the PATRIOT Act.

“For now, Google co-founder Sergey Brin has assured me, such demands are neither made nor met,” Batelle says. “But in the face of such power, how long can that stand?” |

Google Searches Per Day



More paternalistic companies take a dim view of what might be construed as time-wasting nonsense, but Google has found that a sense of play pays off in employee happiness and fresh ideas. Speaking of ideas, Google employees are advised to spend part of their time working on side projects, some of which appear as beta features in Google Labs (labs.google.com) and go on to become permanent features, such as Google News and Gmail.

Wolves At The Door

Yahoo!, MSN, and AOL are Google's chief foes in search, as we've shown in

the "Web Search Engine Market Shares" chart in this article. A newer contender is Become.com, an online shopping search site. Its senior director of product search and comparison shopping, Jon Glick, has competed with Google for years—arguably, even before there was a Google to compete against. He's a former product management head from Yahoo! and was a director of Internet search at both online ad sales service Overture (formerly GoTo) and AltaVista, the "clean interface" search darling of the mid-1990s.

"Starting in 1999, Google enjoyed five years of unquestioned technological leadership," Glick says. "Their challenge

going forward is that rivals such as Yahoo! have caught up, and next generation systems like Become.com's AIR (Affinity Index Ranking) technology have shown the ability to outperform Google on many searches."

Glick says that Become.com's AIR search extrapolates more meaning from the context of linking sites than does Google's PageRank, especially for users looking to buy. (Of course, shoppers might use Froogle, not Google proper.)

"For a search on 'television' Google returns TV stations, while the product-focused search on Become.com returns information on TVs because we know that's what our users are looking for," Glick says.

Leaving aside the competition, not everyone loves Google. Batelle's research uncovered tales of an online shopkeeper who lost his high ranking during one of Google's algorithm adjustments and suspected that commercial results were ranked lower to drive business to AdWords; job applicants, advertisers, and ordinary Web users resentful of Google's unresponsiveness to communications (indeed, Google declined repeated invitations to comment for this article); and the perspectives of technological forerunners, erstwhile partners, and former employees. And in 2004, the apparently self-righteous Google bowed to the Web-censoring Chinese government and removed links to banned sites in its local edition of Google News. Even with relatively "pure" motives and the motto "Don't Be Evil," Google has

Google Timeline





Google Image Search can often find photos by context, not just by their file names. Intelligent video and audio search is the obvious next step.

found that success in business inevitably breeds controversy.

Google Today

At this writing, Google is run by nearly 4,200 employees and upward of 175,000 computers. The company's stock is trading at \$282, more than triple the \$85 share price at its highly unorthodox initial public offering in August 2004. Google ended a drought in Internet IPOs dating back to the market crash of 2000, and did it in a big way: The stock nearly quadrupled by the following July.

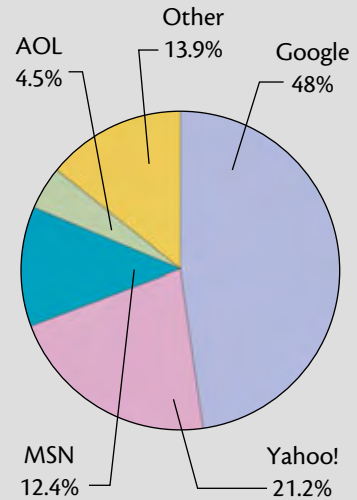
Every day, it seems, there's a new headline about Google. Occasionally, a foreign government, such as China, blocks or filters its citizens' access to some portion of Google. Users invent

games such as Googlehacking (see "Agog About Googlehacking" on page 148). Organizations such as the Church of Scientology have complained about sites with opposing viewpoints appearing in search results for related keywords. Some businesses, such as *The New York Times*, have objected to deep linking, or indexing of pages normally accessible only to registered or paying members (Google has removed pages when asked by their owners).

One new service is an instant messaging/voice chat app called Google Talk (see page 70 for more), not to be confused with the random sentence generator of the same name (page 151). Something Google *hasn't* talked about thus far is its reported buying spree of unused fiber optic network lines around the country, according to a recent *Business 2.0* article. Such a move would facilitate future offerings requiring even more bandwidth than the company already has, such as motion picture search and delivery. *Business 2.0's* Om Malik also believes that Google is preparing to offer Wi-Fi service in various metropolitan areas in the near future.

Malik is hardly the only one speculating about Google's next move. The

Web Search Engine Market Shares, May 2005



Source: Nielsen/Net Ratings, Searchenginewatch.com

company's ambitions are huge, Batelle says: If there is some form of content or information that hasn't already been tapped, digitized, and indexed, it's safe to say that Google has an eye on adding it someday. In other words, to paraphrase him, Google wants to fill in the gaps—and become the virtual operating system to the worldwide computer called the Internet.

And if that reminds you of a little company named Microsoft, you're not thinking big enough. **RS**

BY MARTY SEMS

March to April 2002:

Google News beta

December 2002: Froogle price comparison search engine released in beta

'02

'03

January to February 2003: Acquisition of Pyra Labs, creator of Blogger

June 2003: AdSense service scans customer sites' text and context, places related ads

Aug. 13, 2003: Version 2.0 of Google Toolbar gets a pop-up blocker, making it de rigueur for Internet Explorer users

March 17, 2004: Google Local shopping search engine

April 1, 2004: Gmail free Web-based email service in beta, offering 1GB of storage, a unique filing system, and an invitation-only rollout mechanism

April 29, 2004: Google files for an initial public offering with the Securities and Exchange Commission; an unusual, idealistic letter to potential shareholders written by Larry Page warns Wall Street that Google won't behave like a typical publicly traded company

Aug. 19, 2004: Google becomes the first Internet company to go public in three years; \$85 shares climb to \$100 by day's end, and \$108.31 the next

Oct. 14, 2004: Google Desktop Search for local hard drives in beta

Dec. 14, 2004: Google Print to offer full-text search of books from several prominent libraries

'04

'05

Jan. 25, 2005: Google Video beta allows searches of several networks' video clips using closed caption data

March to April 2005: Google Maps allows combinations of satellite imagery mapping with search, opening up possibilities beyond the usual driving directions

Aug. 24, 2005: Beta launch of Google Talk, a new instant messaging and voice communication utility

Find The Digital Needle

Google Helps You Take On That Haystack



Although Google's main page remains uncluttered seven years after bursting onto the search engine scene, the company that revolutionized the way people navigate the 'Net offers a lot more than a word search.

Some features share space with the Web search engine: News, Froogle, Groups, Images, and Local. But users won't get a true sense of Google's grip on the Internet until they click the More link and peruse the search engine's astonishing list of services and tools.

Want to put your thoughts on display? Google has Blogger. Have to edit some photos? Google has a free tool. Need satellite images of Earth? Complimentary. Want to translate a Web page? No need to leave the ever-increasing confines of Google for that feature either. Does this sound familiar yet? Consider the photo-editing, music playing, and Web-surfing tools that reside on your OS, thanks to Microsoft. Of, course, Google also offers its claim to fame, the Google search engine, free to general users.

Feeling Lucky?

You'll find most of Google's search engines on the main page. By default, the page displays a general Web search, but more specialized engines are only a click away. If you're interested in a particular news story, for example, you can type your search term into the page's only field and then click News. Google's new search engine will scour the Web for relevant articles and then display them in a format similar to the one it uses to display other search results.

Most of the time, you'll probably click the Google Search button (or press the ENTER key) to start your Web search, but if you want to go straight to the most relevant site Google finds (the site that would otherwise stand at the top of the search results page), simply click the I'm Feeling Lucky button.

On the other hand, users who want to see a full list of search results and want to make sure they're using the best search terms can find some

great options in the Advanced Search area, which is one of the few sections of the Web site that boasts a link from the main page. This section offers special fields that help users better describe what they're looking for. Keep in mind that each engine has a unique Advanced Search section. (Find more information about this in "Gateway To The Web" on page 26 and "One In A Billion" on page 31.)

I Need More, More, More..

If you're looking for Google's other services and tools, click the More link on the main page. As with the main page, the More, More, More section is relatively clutter-free, so you won't have much trouble tracking down the item you're after. Although many features reside on this page, one particularly popular service isn't present. Google's Gmail, a beta email service that offers users more than 2GB of email storage, doesn't have a link on either main page or the More, More, More section. You can access Gmail's main page at gmail.google.com, but you'll need an invitation to register an account. (Read more about Gmail in the article "It's Not Email, It's Gmail" on page 64.)

Google Growth

Google's main page rarely gains or sheds links, but Google pages may change as the company adds new tools. Although our graphics and descriptions are accurate as we go to print, you may discover some changes by the time you read this issue. Also, the titles of some of Google's new features include "Beta," which means they're still at some (advanced) testing stage. That said, don't ignore a Google tool simply because you're waiting for the official release. After all, Gmail Beta has been around since 2004, and Froogle Beta started in 2002. **RS**

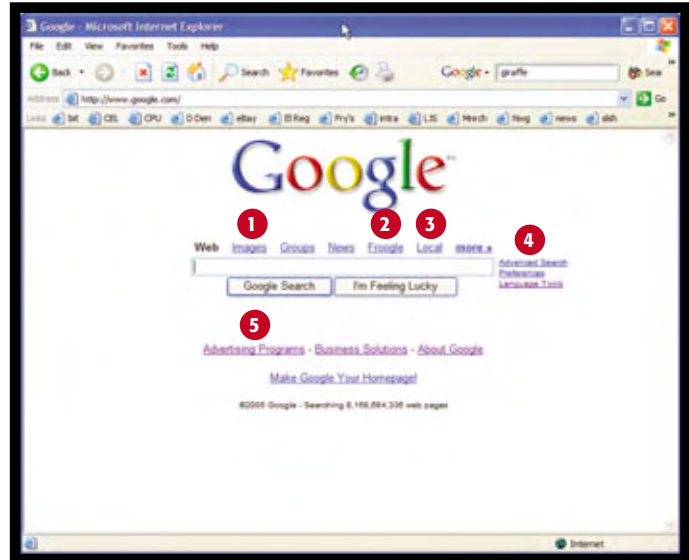
BY JOSHUA GULICK

Getting Around Google

Looking for something? Google offers much more than Web searches. You can find most of its services and tools on the main page and in the More, More, More... section. Keep in mind that Google updates its Web site; you may discover some changes on the site by the time you read this.

1 | Images

Forget the encyclopedia: Google can hunt down thousands of pictures that relate to your search term in less than a second.



2 | Froogle

Google's beta shopping service combines tons of online retailers into a single store. You can sort your results by price and even search within the results for items that meet your budgeted price range.



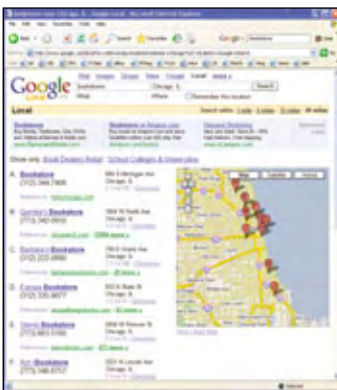
4 | Advanced Search

If you use popular search terms, you may have a hard time picking out the search result hits from the misses. Refine your search by choosing from the engine's detailed search options.



3 | Local

Google puts the average phone book to shame with its local business directory. Simply enter the business category (such as "books" or "pizza") and



then choose your area. A map sits next to the search results. The service can remember your location, so you won't need to enter it when you search again later.

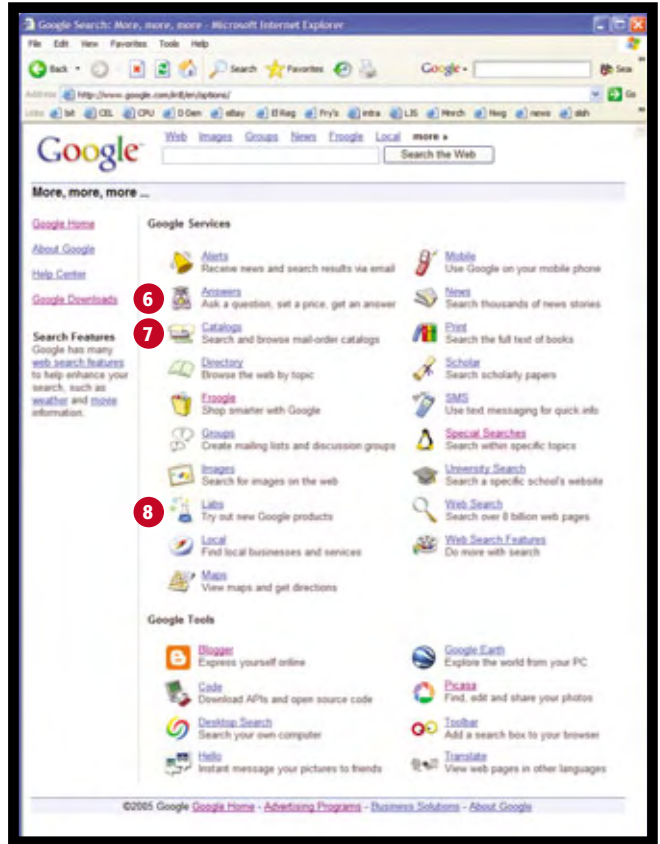
5 | Advertising Programs

If people visit your Web site every day, rake in a little cash by adding a list targeting links to your site via Google's AdSense. If you offer products and want to reach potential customers as they search, check out AdWords.



Google Services & Tools

Google's clutter-free main page hides dozens of Google features that help users find information and communicate with the online world. Almost all of these features are free, so click the More link and dig into this digital treasure trove.



6 | Answers

Are you willing to pay to find out the answers to your pressing questions? Google's Answers experts charge \$2.50 and more to research the answers to questions.



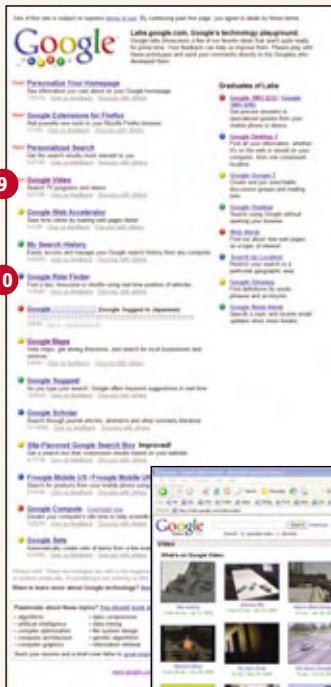
7 | Catalogs

Many retailers let customers shop via their Web sites, but some still publish printed catalogs. Browse Google's massive collection of catalogs or donate a few of your own.



8 | Labs

Check out the bleeding edge of Google in the Labs section. Many well-received features, such as Google Alerts and Desktop 2 started here.



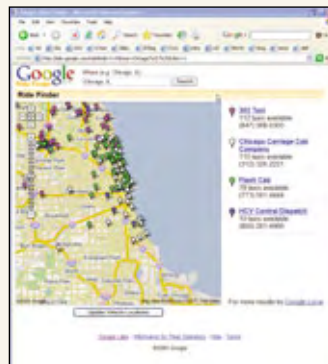
9 | Video

Google Video is one of Labs' newbies. This search engine scores TV and movie descriptions, titles, and even content (if the show or movie has closed captioning). Google also stores movies free of charge, so feel free to upload your home videos or any other movies to which you own the copyrights.



10 | Ride Finder

Don't waste time waiting in the rain for a cab. Thanks to Ride Finder, you can see taxi locations on a map of your area. The service lets you update the map as often as you want and displays each cab company's phone number.





11 | Maps

If you have trouble reading traditional maps, you'll love Google's mapping tool, which can provide a satellite image of your location, complete with superimposed street names. As a result, you can easily spot parks, stadiums, and other large landmarks.



13 | Desktop

This handy tool lets you quickly search your computer for pictures, documents, and other files. And thanks to the new Sidebar, it also lets you size up the latest news from the Web at a glance. Sidebar also displays photos and lets you take quick notes.



12 | Blogger

If you have something to say to the world, register a free account with Blogger. The blogging tool lets you name and launch a blog in mere minutes. And thanks to Picasa, you can add pictures to it, too.

14 | Hello

Thanks to Hello, you can share pictures as you chat with friends. The service lets your contact see the same pictures that you see. Hello integrates with Google's Picasa, so when friends send you pictures, they'll land in Picasa folders. (You won't need to move them manually.)



On Google's Periphery. As of press time, the More, More, More... section included neither Google Gmail nor Google Talk. You can find the email and calling services at mail.google.com and www.google.com/talk, respectively. Gmail takes advantage of Google's powerful search engine to help users keep track of their saved email message. Talk is a new feature that lets users hold audible conversations with friends free via their computers.

The Way Of Google

It's More Complicated Than You May Realize



Google has an in-house motto that we're pretty sure is unique in corporate America: "Don't be evil." As company co-founder Sergey Brin has explained, it's intended as an ethical barometer to guide decisions in accordance with the management's professed desire to be a force for good in the world.

As an unintended side effect, the motto provides ample ammunition for critics—and Google has its share—when they don't see things the company's way. For instance, Google doesn't accept gun ads, which, predictably, peeves the firearms lobby. And when Google announced that Gmail, its Web-based email service, provides so much storage space that users would never have to delete anything, privacy advocates had a fit, citing the potential for abuse.

Google's founders, Sergey Brin and Larry Page, have tended to do things their own way much of the time,

regardless of whether it appears to make sense from a general business perspective or conforms to the anti-establishment spirit that characterizes Silicon Valley culture.

Nothing illustrates that better than the company's IPO in August 2004.

Google For Sale

An IPO (initial public offering) is the route by which a privately owned company transforms into a publicly held company by selling stock. While taking Google public, its founders were intent on wielding an unprecedented amount of control, some of which worked out, and some of which backfired.

They refused to disclose full financial information, even to the banks and brokerage firms that would be instrumental in the process. They also issued a new type of stock, with just 10% of the voting power relative to the stock held by themselves, Google

employees, and the company's early backers. To make the IPO more egalitarian for small investors, they utilized a rare Dutch auction, meaning that the buyers would determine the lowest possible final price for everyone. This rankled Wall Street, which is accustomed to giving favored investors discount prices in IPOs.

Further headaches surfaced when it came out that Brin and Page had granted an interview to *Playboy* magazine in April 2004, a week before filing for the IPO. This raised concerns about possible violations of Securities and Exchange Commission regulations on what company executives can say while preparing for an IPO. This, and the revelation that they'd neglected to register millions of employee-held shares, reflected badly on their judgment.

In the end the IPO went off on schedule, and although the price per share fell below their target, a little over a year later, it's currently trading around 280% higher.

The View From Outside

Google is a company with an increasingly complex reputation that often depends on one's perspective.

To be sure, the company has built up an enormous amount of public goodwill. It developed better search technology that worked so well that Google didn't just become top dog among Internet search engines; the name itself became synonymous with search, even entering the public lexicon as a verb.

The stock is doing well, with the most recent earnings reports posting a 400+% rise in profits over a year ago. And although Brin and Page have claimed that the only thing they're serious about is search, the company has been developing more and more software tools and offering them for free.

Shareholders and users tend to love that.

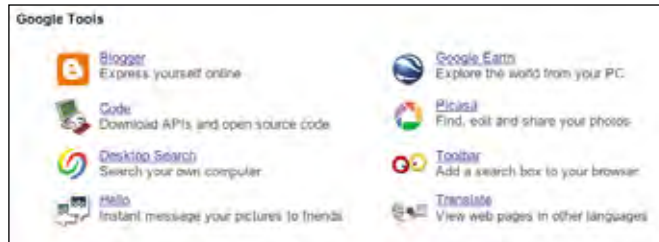
Back to the motto, though: "Don't be evil." It sounds positively childlike, reflecting the idealism and even naivety with which Brin and Page went into business, plus their desire for Google to be counted among the good guys. On the other hand, it's conceivable that in addition to having a clear idea of what they wanted Google to be, they also had a model in mind for what they didn't want it to become in the process: Microsoft.

For years, Microsoft has been referred to by many as "the evil empire," and practically anyone on the street can tell you why: its domineering presence, draconian business practices, and its seeming love of crushing competition, for starters.

Microsoft is still a monolith, but a funny thing has happened over recent years. After slowed sales growth, a plague of antitrust lawsuits, and well-publicized delays in bringing out the successor to Windows XP, Microsoft has become the devil we know, rather

than the devil we don't. It can't surprise us anymore.

Enter Google, which, despite its meteoric rise, is just getting started. If its founders wanted to avoid being seen as



If predictions are correct, this current crop of Google software is just the tip of the iceberg compared to what's coming.

the new Microsoft, it's ironic, then, that this is exactly how many of its Silicon Valley neighbors are starting to view it. They claim it's gotten too big, too powerful, too fast, and is stifling innovation elsewhere by skimming away the cream of the talent pool.

Then there's the future. As we go to press, Google has just announced plans for a second stock offering expected to raise another \$4 billion in cash. Where will it go? Speculation is rampant, and includes mobile and Internet phone service, an online payment service, its own browser, and a software suite aimed at competing with Microsoft Office.

A backlash against phenomenal success is inevitable, but perhaps the most telling (or ominous) indicator of Google's future comes from Bill Gates, in a recent interview with *Fortune* magazine: "[They're] more like us than anyone else we have ever competed with."

Google's DNA

Want to know some of the things that make Google tick? It's more

than just an environment that sounds like a genuinely fun place to work: the informal campus-like atmosphere and recreational facilities, the onsite masseuse, the cafeteria chef who used to cook for the Grateful Dead.

It's also a corporate culture that tries to avoid putting people at one another's throats. Employees praise the work environment's transparency. "Teams are actively encouraged to share the most intimate details of their projects with the rest of the company," says one software engineer. "This

means that there isn't an adversarial relationship between teams that can lead to longstanding animosities and information hiding."

There are also several specifics.

The 20% time policy. Google's software engineers get to spend 20% of their work time (or one day a week) on technological projects of personal interest, rather than their active company projects. This isn't an option,



The Sidebar in Google Desktop is a modular group of utilities, some Internet-connected, similar to Apple's new Widgets, only for the PC.

but mandatory, and it's bearing fruit. Giving smart people a certain amount of freedom doesn't just fight job burnout and keep them fresher and more energized the rest of the time. It can also lead to innovations that might not otherwise emerge and

that can improve operations behind the scenes or join Google's growing arsenal of tools and services.

This is exactly how Gmail came about. The idea began as nothing

more than a Google user's misgivings over the limitations of her existing Web-based email account: It was difficult to manage efficiently, and she was constantly forced to delete mail to remain under the 4MB storage limit. Her complaint came to the attention of a Google engineer, who thought that developing a solution would make a great 20% time project. The result was Gmail, an email service you can use and search from anywhere, with gigabytes of storage capacity.

The Ten Things. Google's management has codified 10 truisms that underlay the way it tries to do business and how it regards Google's role on the Web.

1. Focus on the user, and all else will follow.

As Google has grown, it has used one criterion to evaluate each potential change: Will it benefit the end user? If not, it doesn't happen. Nor should any changes erode what users have come to expect: a straightforward interface, no waiting time on search results, results that haven't been manipulated by selling placement, and advertising that remains relevant and unobtrusive.

2. It's best to do one thing really, really well.

Some search engines seem as though their primary goal is to distract you from what you showed up to do in the first place. Drop by another prominent site, and you're bombarded with news headlines, entertainment headlines, a list of the week's new movies, links to horoscopes and a music service, weather and traffic reports, and more.

Google's landing page looks as austere as ever. Although the company is developing other products and services, you never get the sense that these interfere with the original mission.

3. Fast is better than slow.

Whenever Google provides you with search results, near the upper right of the page you'll see how long it took. We've never seen one that has exceeded a fraction of a second. To ensure that things move at the

maximum possible speed, Google developed new computer configurations and search algorithms, and prunes the excess from pages to keep them streamlined.

4. Democracy on the Web works.

To determine how Web pages are ranked in terms of relevance, Google doesn't rely on the number of hits the pages get, but by analyzing the number of other sites that link to them, and those pages' place in the rankings. Using this method, Web sites are, in essence, voting for their peers.

5. You don't need to be at your desk to need an answer.

The need for information transcends office computers and wireless-enabled notebook PCs. Google is committed to bringing search results to cell phones, PDAs, and even cars . . . and, when necessary, developing new technologies that make Web pages viewable in gadgets that otherwise couldn't display them.

6. You can make money without doing evil.

This time, evil comes down to something quite specific: advertising. Because Google refuses to let paid ads create a conflict of interest that compromises the integrity of its search results, ads are labeled "Sponsored Links," and no one can buy a higher placement to override their page rankings. The company doesn't permit advertising to distract from search results, either. Ads are text-only, kept separate from the results, and appear only if relevant to the search terms.

7. There's always more information out there.

Google may have made a breakthrough by indexing more Web pages than any other search engine, but this

was only a start. The Internet consists of more than just text pages written in standard HTML (Hypertext Markup Language) code. To expand its search horizons and make more of the available data accessible, Google developed ways of including databases, graphic images, and PDF (Portable Document Format) files and other document formats, such as work created with Microsoft's Office Suite.

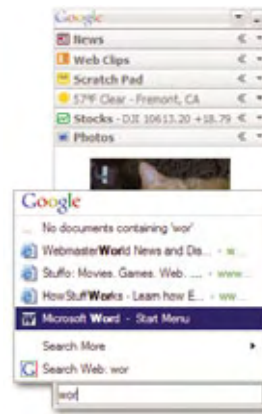
8. The need for information crosses all borders.

More than 50% of Google's searches are conducted by users outside the United States. Google provides language tools that let users translate foreign pages, and while the results can be grammatically clunky, you can usually understand the point. As well, users can limit searches to pages in any of 35 languages and set the interface to display in any of 116 (so far) languages . . . although we suspect that the Elmer Fudd and Klingon options will draw a very limited user base.

9. You can be serious without a suit.

This applies mainly to the corporate culture, in which people don't take themselves so seriously that they never hear innovative ideas that might get bogged down in a stricter hierarchy. Instead, even suggestions that emerge from cafeteria conversations get tested and tried as soon as possible.

As one employee posted in his blog, "[T]here isn't a lot of 'stop energy' at Google. My colleagues in engineering, marketing, etc. don't react to new ideas with 'You can't do that,' but usually with 'cool' and a tip as to who to talk to in the organization who is likely to be of the most help."



Google's Desktop Search functions bury Windows XP's built-in search, which won't be improved until the next operating system release in 2006.

10. Great just isn't good enough.

When it comes to technology, there's no such thing as a mountaintop that, once climbed, means your job is done and it's time to enjoy the view. Instead, there's always faster, better, and more accurate to think of. Google's ultimate goal is to foresee needs that its users don't yet realize they have.

No pop-ups. Nobody likes pop-up ads. They're the Web's version of

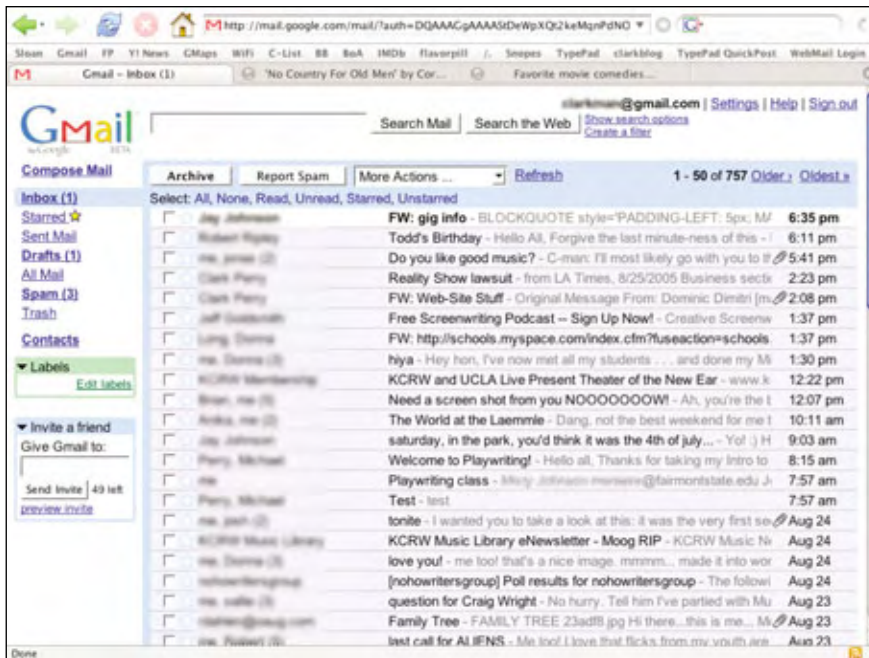
They install invisible programs that launch ads at random or target you with ads based on searches you conduct or words you type while online.

Software principles. Speaking of underhanded tools for weaseling into your computer and life, Google is opposed to them, as well. This includes adware, spyware that gathers your personal information and relays it to third parties, and more nefarious malware (malignant code, often in the

business partners to adhere to them and promotes them as good for the industry as a whole.

In a nutshell, these six Software Principles are:

1. Software shouldn't be concealed inside other programs and install itself without your knowledge or consent. You should know what you're getting and have the option of saying no to anything you don't want.
2. Software should come with clear, full disclosure of what it does and if a third party is going to send anything to you or receive information about you.
3. If you no longer want a program, it shouldn't be harder to get rid of than a brain tumor.
4. If a program impacts or alters your user experience, it should identify itself as the cause and inform you as to why it's doing so.
5. Programs that collect and relay personal data should alert you to what they're doing, inform you how your data will be used, and require your consent before sending the information.
6. Software developers shouldn't allow their products to be bundled with programs that don't adhere to these ethical standards.



Gmail is just one of the innovations that arose from Google's "20% time" policy.

pushy salesmen who jam their feet in your door. Google doesn't accept them from advertisers, period.

If it appears that pop-ups are littering your screen while you're visiting Google, it may be a coincidence of timing, with the ads coming from somewhere else. Some sites launch ads that appear under your open browser window, and you don't see them until later; others fire pop-ups only when you leave the site and move to your next stop.

In other cases, ads may come from within your PC. Many music sharing and other programs that are ostensibly free come with a hidden price:

form of viruses, Trojans, and/or worms) that violates your rights, privacy, and can even assume partial control of your PC.

We've reached a point where thousands, maybe millions, of users are finding it easier to scrap otherwise good PCs that are clogged with junk programs, starting all over again with a new machine rather than attempting to clean up the old one.

In the interest of safeguarding users, Google has codified six general principles for developing and distributing software. Google doesn't just follow them in-house; the company also encourages current and potential

With Liberty & Google For All?

Despite truism number 2 (it's best to do one thing really, really well), it's obvious that Google's plans for the future are huge and diverse. Its leaders would be fools otherwise. Although the company's profits from its search engine's ad revenue have been impressive, all it would take to topple Google's preeminence is for someone else to develop an even better engine. When was the last time you used former top dog Lycos?

We just hope, as Google continues to grow, now under increasing shareholder pressure, its leaders will continue to stick to their guns . . . even if they don't accept ads for them. **RS**

BY BRIAN HODGE

Test Drive These Tools

The Newest Ideas Are At Google Labs



As you can see from the size of this issue, Google includes many features beyond its original, basic Web search engine. Google now includes an image-search tool, links to news headlines, newsgroups, and more. Even with so many existing tools, though, Google engineers are not content. They continue to develop new tools that may become standard Google features in the future. In Google Labs (labs.google.com), you can try out the latest ideas from the folks at Google.

Lab Work

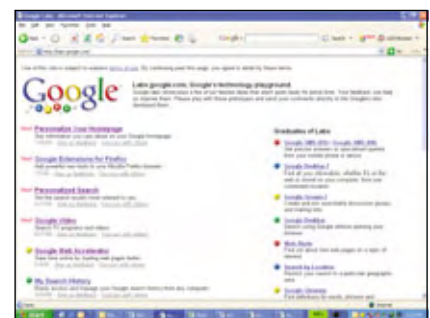
Google launched its Labs site in May 2002. The first tools users could

try out were Google Glossary (a quick way to find definitions), Google Voice Search (a phone-based search tool), Google Sets (which creates a full list of related items from a few examples), and Google Keyboard Shortcuts (which let users browse search results using a keyboard rather than a mouse). Of these four original Google Labs experiments, two still exist. Google Glossary is now a standard Google feature. Google Sets still exists, but it has never left Google Labs. It is still officially an unsupported “experiment” of a Google engineer.

The tools on Google Labs pages are nothing more than prototypes designed by Google employees. The Labs tools are not necessarily products that will ever become full-fledged

Google services. In fact, at any time, a Google Labs feature may disappear or change significantly. According to Google, a tool may disappear from Google Labs for many reasons. Often, users find that a prototype just isn’t stable yet or doesn’t work well enough to remain on the Google Labs page. Sometimes, Google notes that a certain Google Labs project doesn’t elicit many clicks, and Google will remove the tool for lack of interest. Occasionally, Google must temporarily remove a feature from the Google Labs page because it is so popular that the vast amounts of Web traffic it creates cause problems for Google’s servers. Sometimes vanishing Google Labs prototypes will reappear after further development, but other times, Google simply abandons an idea and it never returns.

These tools are often not as polished as more established, official Google features, such as Google Images or Froogle. You may occasionally find a Google Labs project



On the Google Labs page, you can try out several experimental tools that Google has not officially launched.

that doesn’t work as expected or that doesn’t work at all. Remember that the Google Labs tools are experiments and that they are still in development. Google does provide the means to communicate any problems or praise to the tool’s engineer. We will discuss this in more detail later in this article. Finally, we should also note that Google Labs projects may be slow to



One of the Google Labs prototypes lets you personalize your Google home page to include the news headlines, bookmarks, and other content that you use most.

see improvements because Google engineers develop these projects in their spare time. Although Google encourages this experimentation, each engineer's priority is still the support of current, non-Labs tools.

By browsing the Graduates Of Labs list on the Google Labs page, you can get an idea of some of the prototypes that were successful enough to capture the attention of Google's decision-makers. Past Google Labs experiments that are now standard Google features include Google SMS (see "Message Marvel" on page 81), Google Desktop Search (see "Search Engine Jr." on page 93), Google Groups 2 (see "Get The Message?" on page 73), Google Deskbar (a Google search field on your Taskbar), Web Alerts (email updates about new search results), Google Local (see "In The Neighborhood" on page 46), Google Glossary, and Google News Alerts (see "Read All About It" on page 38).

Now Testing

As of press time, there are many prototypes available for testing on the

Google Labs page. We'll cover each of the Google Labs tools below. Please keep in mind that Google often pulls existing Labs prototypes with no warning, and it also frequently adds new Labs prototypes. For this reason, some of the features we cover may no longer exist or may have graduated from the Google Labs area. Likewise, there may be newer Google Labs tools that were not yet posted at press time.

Personalize Your Homepage (www.google.com/ig). As of press time, Personalize Your Homepage was the most recent addition to Google Labs. This feature lets you create a start page from which you will find the types of news stories, search tools, and other content that you have chosen. You can personalize this start page to contain the tools and links that you access most often. You must have a Google Account to create and save a home page.

To get started, click Personalize Your Homepage. Click Add Content instead if you've already personalized your

example, if you click Edit for Top Stories, you can choose how many headlines appear by selecting from a drop-down menu. When you are finished, click the Save button. If you do not need to make any changes, click Close Edit.

To remove any items from your home page, click the X button next to it. For instance, when we created our page, Google automatically displayed the weather forecast for Happy, Texas. To remove this forecast, we clicked the X button next to Happy, TX.

Finally, you can rearrange the items on your home page by clicking and dragging them to a new location. For instance, you might want to move the Weather and News sections to the top of the page, so you can see the forecast and headlines at a glance.

When you are finished editing your home page, click the Save Page button in the upper-left corner of the right pane. The site will prompt you to log in to your Google Account if you're not already logged in.



Because Google Labs tools are still experimental, they may not always work as expected. Here, you can see that Personalize Your Homepage didn't work perfectly when we tried it out. The Edit and Close (X) buttons didn't display or function properly for the first news section.

page in the past. A list of options appears in the left panel. Google divides your potential page content into several

categories (My Stuff, News, Business, Technology, Sports, Lifestyle, Fun, and Create A Section).

Click the arrow next to any of the categories to expand the list. You can then add items, such as Bookmarks, Movies, BBC News, and Weather, to your personalized page. Any content you choose will appear in the right pane, in a preview of your page.

To change individual items on your page, such as Top Stories or Weather, click the Edit link for that item. As an

Google Extensions For Firefox (toolbar.google.com/firefox/extensions/index.html). These extensions are small programs that you can load into your Mozilla Firefox browser to add special Google functions to the browser. These Firefox-compatible tools include Google Toolbar, Google Send To Phone, and Google Suggest.

The Firefox Google Toolbar is very similar to the Google Toolbar already available for Internet Explorer. (See "Tool(bar) Time" on page 88 for more information about the standard, IE-compatible Google Toolbar.)

With Google Send To Phone, you can send short segments of text from a Web page to your cell phone as a text message. To use Google Send To

Phone, you just highlight the text you want to send, click the cell phone icon, type the phone number in the To field, choose your phone's carrier from the Carrier drop-down menu, and click the Send Message button.

Because text messages are short, you will not use Google Send To Phone to send lengthy news articles or similar items. Instead, this tool is most useful for sending phone numbers, addresses, movie times, and other information you might look up online.

Finally, you can use Google Suggest with Firefox. You can learn more about Google Suggest later in this article. Of the three Firefox extensions, Google Suggest is the only one that does not require you to download and install software. To use the Firefox Google Toolbar or Google Send To Phone, downloadable utilities are required.



You can add items such as bookmarks to favorite sites, movie listings, news headlines, and even RSS (Really Simple Syndication) or Atom feeds to your personalized home page.

Personalized Search (www.google.com/psearch). This is another Google Labs tool that gives you access to more personalized content and requires you to have a Google Account. If you sign up for Google's Personalized Search, Google will retain records of your previous searches. As it learns more about the types of searches you run, it will adjust the results of future searches accordingly. For instance, if you frequently run searches related to horses, Personalized Search should return

more horse-related results and fewer Ford-related results than the average user would get. Your search results should get more accurate the longer you use Personalized Search.

Now let's say that one day you *do* want to search for sites about Ford Mustangs, but you're getting too many results about horses. Simply click Turn OFF Personalized Search For These Results from the page of search results. If you don't see that link at the top of the page, you know that your personalized results didn't differ from what any other user would see.

Google Video (video.google.com). Google Video is similar to Google Images, except that it searches for video content rather than still images. You can search only for videos that you can play on your computer by selecting the Playable Video radio button, or you can select the All Video radio button to search for all video, including television content that is not online.

If you choose All Video, you will see thumbnail images of still shots from television shows and a brief description. If you click the thumbnail, you will see larger still images from that episode, as well as excerpts of the script taken from closed captioning. On the left side of the page, Google Video may also show air times for the program under About This Show. You may need to click Edit Location to enter your ZIP code. Google Video is a very new tool, and we found that we couldn't get any listings for our ZIP code, so the usefulness of this feature depends on your geographic location and the participation of your local TV stations.

In addition to results from TV broadcasts, you will also see online videos that you can play. If you can play a video, a play icon will appear next to the video's title. To play these videos, you will need to download and install the Google Video Viewer (video.google.com/video_download.html).

Google Web Accelerator (webaccelerator.google.com). Google Web Accelerator is another tool that requires a

download. Once you install the Google Web Accelerator, if you have a broadband connection, your pages should load faster. Google accomplishes this by dedicating specific servers to handling Google Web Accelerator traffic, storing copies of or prefetching pages you visit often, letting your system download



Google Video is a new tool that lets you search for playable videos and TV listings.

only changes to a Web page rather than the entire content, and compressing data. Google Web Accelerator has a counter that shows you how much time you've saved by using it.

We were not able to try out Google's Web Accelerator because the project had already reached its maximum capacity. A message on the project's page indicated that Google planned to increase the number of users that its Web Accelerator can support.

My Search History (www.google.com/searchhistory). If you choose to activate this tool, which recently became part of Google's Personalized Search, you can access records of your previous searches. This could be useful if you are conducting academic research, looking for genealogy records online, or doing other long-term work in which you might want to see which searches you've already done. Once you activate My Search History, you can view past searches by signing into your Google Account and clicking Search History. If you want Google not to store some searches, click Search History and Pause. To begin storing search data again, click Search History and Resume.

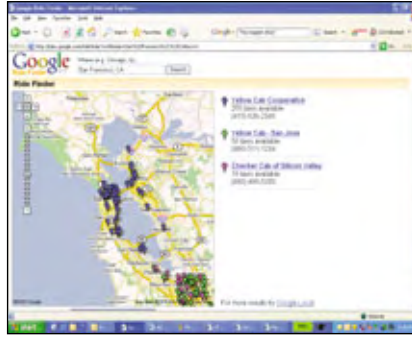
If you forgot to pause this feature or know that you no longer need records of certain searches, click Search History and Remove Items. Select the checkbox for any searches you don't want to save and click the Remove button. Finally, to protect your privacy, remember to always log out of your Google Account when you are finished if others will use the same computer.

Google Ride Finder (labs.google.com/ridefinder). You can use this tool to find a ride, such as a shuttle service, a taxi, or a limousine. This service is currently only available in selected areas, including Atlanta, Baltimore, Chicago, Dallas, Milwaukee, New York, Phoenix, San Francisco, San Jose, St. Louis, and Washington, D.C.

Google Maps (maps.google.com). Google Maps is similar to other online mapping services, such as Yahoo! Maps (maps.yahoo.com) or MapQuest (www.mapquest.com). One of the most striking differences, though, is that you can view satellite imagery as well as basic maps. For more details about using Google Maps, see "Are We There Yet?" on page 55.

Google Suggest (www.google.com/webhp?complete=1&hl=en). Google Suggest is an interesting tool that provides suggestions of keywords as you type. These keywords appear in a drop-down menu underneath the main search field. To learn more about Google Suggest, see "Helpful Hints" on page 30. Google Labs also features a Japanese version of Google Suggest.

Google Scholar (scholar.google.com). Google Scholar is a tool that is useful primarily to students and researchers, although anyone willing to wade through scholarly works may find some benefit to this Google Labs project. Google Scholar searches only scholarly literature rather than all online sources. Scholar returns results not only for free online content but also subscription-only content and print-only articles (which Google Scholar identifies through citations



Google Ride Finder shows available taxis and shuttles for select cities. Here, you can see a map of the available rides and contact information for each company.

in other scholarly works). Google Scholar serves as a giant catalog of academic literature. This project is quite popular but still growing and will likely see more improvements before it officially becomes a standard Google feature. For a detailed description of Google Scholar, see "Smart Searches" on page 59.

Site-Flavored Google Search (www.google.com/services/siteflavored.html). This is a prototype available to Web site owners and administrators. You may have seen Google search fields on some third-party Web sites; the Site-Flavored variety is similar, but you can customize the search field to return results that are more in line with the content of your Web site.

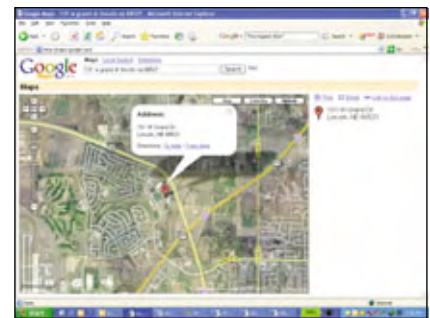
Froogle Wireless (labs.google.com/frooglewml.html). This is a mobile version of Froogle (froogle.google.com), a Google tool that lets you search for products and prices online. Froogle Wireless lets you search for deals online using a WML (Wireless Markup Language)-enabled cell phone. The benefit to using Froogle Wireless is that you can do comparison shopping while you're at a store. You can easily compare the price you'd pay in town to the price you'd pay online.

To use Froogle Wireless, you need to use your cell phone's built-in browser to visit wml.froogle.com. A search field will appear on your

phone's screen. Use the phone's keypad to type the product for which you want to search. Then select the Search button. You can use the arrow keys on your phone to browse the on-screen search results.

Google Compute (toolbar.google.com/dc/offerdc.html). As you've noticed, most of Google Labs' prototypes are designed to help you in some way. Google Compute is the exception in that it's designed to let you help others. By installing Google Compute, you can donate your PC's unused processing cycles to research.

You may have heard of SETI@home (setiathome.ssl.berkeley.edu), a well-known distributed-computing project. SETI stands for the Search for Extraterrestrial Intelligence. Project volunteers donate their processors' unused cycles to process radio signals in hopes of discovering abnormal, possibly extraterrestrial signals. This type of computing power would normally require a supercomputer, but through distributed computing, many computers can combine their processing power to create a "virtual supercomputer."



Google Maps is unique in that it not only can show you maps for locations and routes but also satellite imagery of the area.

Google Compute works in a similar manner, except that instead of donating your CPU's unused cycles to the search for aliens, you donate your computer's untapped potential to scientific research. Currently, Google Compute donates your CPU's spare

processing power to Folding@home (folding.stanford.edu), a project that models protein-folding, the process by which proteins form in the body. When an error occurs in protein-folding, the result is often a medical disorder. Folding@home seeks to find the mechanism by which various diseases, such as Alzheimer's, develop. For those of us who know very little about science or medicine, donating our processors' unused cycles to research may be one of the only ways we can truly contribute to important medical research.

Google Sets (labs.google.com/sets). Finally, the last of Google Labs' projects is Google Sets, one of the original Google Labs prototypes back in 2002. The Google Sets page provides you with five blank fields in which you can type a series of words or phrases that are related in some way. You then click either the Large Set or



Google Scholar searches for published scholarly papers. You can view the paper if it is available online, and Google Scholar can also display other articles that cited the work.

Small Set (15 Items Or Fewer) button to see a list of words or phrases that Google thinks are related. Each word or phrase in the list is hyperlinked. If you click the link, you will see a Google Web Search list of hits for that word or phrase. This can be a useful tool if you need to find terms or concepts that are related to a topic you are researching.

Other Goodies In The Lab. In addition to the many prototypes you can



If you want to discuss your opinions about or seek help with one of the Google Labs tools, you can join a Google Group. A Google Group is available for each of the items currently in Google Labs.

test on the Google Labs page, you will also find links to technical papers about Google technology. You can read these by clicking Here Are Some Papers toward the bottom of the Google Labs page or by visiting labs.google.com/papers/index.html. You'll find all types of scholarly works about how Google works. Some examples include "The Google File System," "Query-Free News Search," "Who Links To Whom: Mining Linkage Between Web Sites," and "Hierarchically Classifying Documents Using Very Few Words." These articles are quite in-depth, but if you're prepared to dive into the mathematics and research involved, some are a fascinating read.

Your Two Cents

Because Google Labs tools are still prototypes that are not yet polished and ready for actual release, the engineers may need feedback about their tools. You may have noticed a bug in one of the Google Labs tools, or you may have thought of a way that the engineers could improve on one of the offerings.


Each of the listed tools on the Google Labs page has a brief description of the prototype, followed by the original date of release, a Give Us Feedback link, and a Discuss With

Others link. Some tools, such as Google Compute, require a software download and will also include a Download Now link.

As you might expect, you can give engineers feedback about their tools by clicking the Give Us Feedback link for the corresponding Google Labs prototype. This will launch a window to compose a new message in your email client. The To or Address field will automatically contain the email address of the appropriate Google engineer. You can send any thoughts you may have about how the tool works, what issues you experienced, what you liked, what you didn't like, or how Google could improve the tool.

If you aren't quite ready to share your thoughts with the engineers but would like to discuss a Google Labs tool with other users, click the Discuss With Others link. You can browse the messages others have posted about the Google Labs service. If you want to post your own thoughts or questions, you will first need to log in. You can do this by clicking the Sign In link in the upper-left corner of the Google Groups page. If this is the first time you've visited a particular Google Group, you will need to join the group by clicking Join. Follow the on-screen instructions to create a Google Account. You will need to type your current, non-Google email address and select a password. For more information about using Google Groups, see "Get The Message?" on page 73.

Put On Your Lab Coat

Google Labs offers many unique and interesting tools. Many of them will eventually move to become fully supported Google features. There is no need to wait to try out the latest experiments at Google. With a visit to Google Labs, you can take advantage of advanced search tools that haven't yet made their official debut. 

BY KYLE DICKEY

Privacy Please

Google's Privacy Policy Serves & Protects



In 2004 the Federal Trade Commission reportedly received more than 635,000 complaints of identity theft and consumer fraud. Monetary losses in these claims surpassed \$547 million. With that in mind, it's important to know exactly how Google will use the information you submit when using the site's features and what Google is doing to ensure your information stays private. That's where Google's privacy policy comes in. To view the policy, click the About Google link at www.google.com and then click the Privacy Policy link at the bottom of the About Google page.

Collect Data

Google classifies the data it collects from its users into two categories: personally identifying information and nonpersonally identifying information. The former is data that can identify you individually, such as your name, address, or email address, while the latter is data that does not identify you, such as your browser type, browser language, the IP (Internet Protocol) address used for a query, or the date and time you submitted a query.

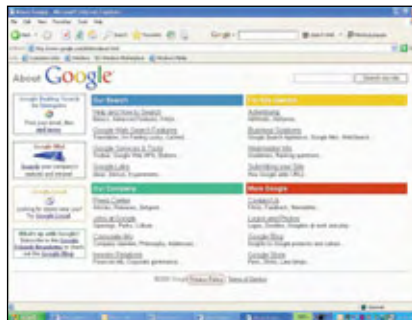
Online tools such as Google Search, Google Toolbar, and Google News

don't require any personally identifying information, but that doesn't mean they aren't collecting nonpersonally identifying information. Google keeps tabs on what sorts of search queries users are making at its site; the company's analysts then look for patterns in the queries to see if there are ways to improve its search offering.

Google typically asks for personally identifying information when you create a new account for one of its features. For instance, if you get an invite to create a Gmail account and go to set one up, Google asks for your name and ZIP code. Also, when you create an account for Google's Blogger tool, the site prompts you to enter your email address. The good news is that anytime Google asks you for personally identifying information, the site always tells you how your info will be used.

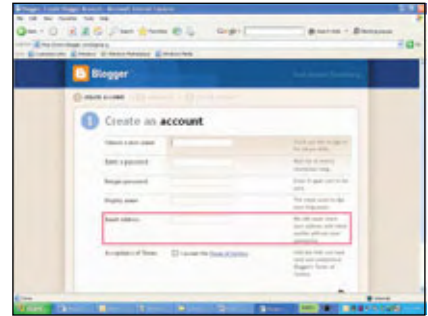
Information Sharing

Google devotes a section of its privacy policy to the conditions under which the company would share certain personally identifying or nonpersonally identifying information you submit. First of all, it is Google's policy never to rent or sell any personally



You can view Google's privacy policy by clicking the link found at the bottom of the About Google Web page.

identifying information with other companies unless Google has your consent. The only other times Google will share your personal information is if the company uses a trusted third-party to process the information on its behalf; if law requires the company to do so; or if Google has reason to think that sharing your information is necessary to protect the rights, property, or safety of Google, its users, or the public.



Some of Google's tools (such as Blogger, for example) require you to enter personally identifying information when creating a user account.

The third-party businesses that Google hires to process your personal information are legally bound by contract to abide by Google's privacy policy and keep your information confidential.

As You Like It

When you first visit Google, the site saves a cookie on your computer's hard drive. A cookie is a small file that identifies your computer and alerts Google of your preferences, such as how many search results you want per page and the language in which these pages should be displayed. It also tracks what you search for. For instance, if you search for "hard drives" one time, the next time you type the letter H in the search box the term "hard drives" should pop up if the AutoComplete feature is enabled in your browser. This will save you the few extra seconds of typing the entire word or phrase. **RS**

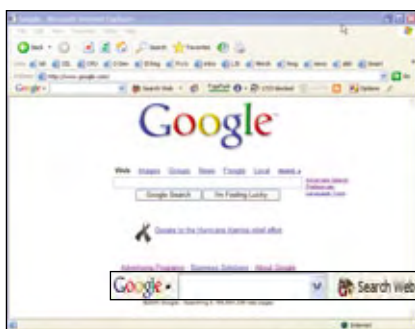
BY SAM EVANS

How'd They Do That?

Google's Simple Interface Masks A Powerful Search Engine



Thanks to Google's simple interface and casual, colorful headline font, a person unfamiliar with Google might mistake it for a wimpy search engine running out of a college kid's dorm room. But because the search engine boasts such phenomenal accuracy and speed, there



Wondering whether you're visiting a page that has a high Google PageRank? You can check at a glance if you have installed the Google Toolbar.

aren't many Web searchers who aren't familiar with this multibillion dollar corporation's Web search tool. (And for the record, Google did get its start in a dorm.)

Sergey Brin and Larry Page, Google's co-founders, met at Stanford University in 1995 and began working on the search engine that later became Google. The most important part of the search engine was the technology that allowed them to rank pages. Instead of focusing on a large company whose employees would determine Web site rankings manually, Brin and Page developed algorithms and software that could rank pages automatically. Web crawlers, or programs that scour the Web cataloging the contents of Web servers, weren't unheard of, but Google's page-ranking methods were. Instead of focusing on the number of times a keyword appeared on a Web page (or other such factors which Web administrators could manipulate), Google's PageRank technology focused such factors as the number and importance of pages that linked to the page in question. (Of course, it also uses page content technology to supplement its new method.) We'll show you what makes Google tick.

Behind The Scenes

Googlebot is Google's Web crawler; it's also the software that keeps Google's database up-to-date. Also known

as a spider or a bot, the software races through the billions of Web pages that make up the WWW (World Wide Web) and returns copies of the documents to Google. In addition to making an initial survey of each page, Googlebot returns to sites from time to time to get updated page information. Google relies on a number of characteristics, including the site's importance, when determining how often to send spiders out to sites.

Google creates an index based on the words it finds (and the PageRank rating; more on this later) among these pages and then stores the pages themselves on different servers. Thanks to this setup (and, most likely, thanks to other tweaks or technologies that Google hasn't made public), Google's search engine provides answers extremely fast. After all, when a query sails into the index servers, the index software doesn't need to retrieve the pages from out on the 'Net.

Instead, it turns to this well-organized database and then calls up the stored pages.

Google Schmoogle

Not everyone craves the high rankings that drive traffic to their Web sites. Some Web site administrators don't want the general public poking around their sites, while others simply want to keep certain, sensitive Web pages off Google's radar screen. If you're trying to camouflage some or all of your Web pages, you'll need to add a Robots.txt document to your server, which instructs Web crawlers to ignore the page or site. You can configure the Robots.txt file to wave off only Google crawlers or all other engine crawlers. You can find Google's detailed instructions for removing your site from its index by clicking About Google on the main page and then clicking Webmaster Info, Removals. If you have additional questions about Robots.txt files, check out www.robotstxt.org.

Don't worry: When you click a search result's link, you'll visit the true Web site, not a page stored on Google's servers. Google uses its stored pages only to create the search results page, which displays 10 (by default) search results. Each search result includes portions of the sentences that feature your search term, a link to the page that has your search term, and other information, including the page's size and, in some cases, the date it was created. Google generally finds search results and provides the main search results page in less than 0.2 seconds.

Google takes speed seriously. And it should: An increasing number of Americans are adopting broadband Internet access, but many other residents in and out of the United States continue to rely on slower dial-up connections. So Google keeps an eye out for opportunities to deliver search



Submit your site map to Google to make sure the company's crawler covers every page in your Web site. If you don't have a site map, you can create it with Google's free Sitemap Generator.

pages faster than it already does. One of these tricks is called prefetching. If you use a browser that supports prefetching (such as Firefox or Mozilla, both of which are available free at www.mozilla.org), you'll find that whenever you

Google Goggles

You won't increase your page's Google PageRank much by simply spraying potential keywords all over the place. But, according to Google, you can have an impact by making your pages "Google-friendly." Here's a few ideas Google's Webmaster Guidelines section and Help Center provide:

1. One of the most important PageRank factors is the number of sites (that have high PageRanks) that link to yours. Make your online content worth linking to.
2. Add a **site map** (a single-page, hyperlinked index of the pages within your site). You can also add your site map to Google's index via Google Sitemaps (www.google.com/webmasters/sitemaps/stats).
3. Don't use shady tactics. In particular, don't hide tons of keywords on your Web page. If you're putting text in your page's code but not letting that text appear on the page, you're heading in the wrong direction.
4. Make sure that Google is aware of your site. You can ensure that crawlers scan your new site by submitting it to Google via its Submit Your Site page (www.google.com/addurl/?continue=/addurl).

click the first unsponsored link on the search results page (the search result that Google deems to be the best match to your query), it loads faster than other pages, including the search result just below it.

That's prefetching at work: Google plugs some HTML (Hypertext Markup Language; the programming language used to construct most Web pages) code into its search results page that commands the page to download the top search result's page to your computer right away. As a result, the page is already on its way to you while you browse the list of search results. If (and when, Google's betting), you click the top search result, your computer will display it almost instantly instead of downloading it a few kilobits at a time.

Climbing To The Top Of The List

Google doesn't reveal all of its cards when it explains how Google's search engine determines a Web site's relationship to your query, but it makes no bones about PageRank's backlink identifier playing a huge role in the process. When Google's PageRank analyzes a page, it counts the page's backlinks, which are links from other Web pages to the page that PageRank

is analyzing. PageRank considers each backlink to be a vote for the Web site it's analyzing, but not all votes are created equal, of course. Pages that have high numbers of votes create more valuable votes than less important Web pages.

Backlinks are only part of the equation, however. Google uses a customized version of the text-scanning process that many other search engines use (checking to make sure the search term is actually on the page). According to Google, its Hypertext-Matching Analysis tool considers a variety of Web page features when scanning for text. (For example, it notes a word's location on the page and also pays attention to fonts.) The higher your page's PageRank, the more likely it will appear near the top of a searcher's search result list.

Google's PageRank assigns a rank to each result on a 10-point scale (10 being a very important search result). If you want to know how PageRank numbers your search results, you can check them out by downloading and installing Google's Toolbar, which integrates with your Web browser and generally sits near the browser's address bar. The PageRank feature isn't visible by default, but you can enable

it easily. Click the Toolbar's Google button and then click Options. When the Toolbar Options window appears, click the Options tab and then select the PageRank Display checkbox under Page Information. When you click the OK button, PageRank will appear on the Toolbar. Hold the cursor over the PageRank icon to see the page's exact rank.

Not all Web search services use a fully automated ranking system. Many services, such as MSN, mix

Web crawlers with manual site listings. But many users rely on Google's automatic, adaptable system.

The Search Never Ends

Although Google started with Web search and continues to refine its Web searching techniques, it's also applying its understanding of search technology to a host of other uses, such as Google Desktop 2, which searches for files on your computer's hard drive. Need to

search Outlook for a particular email? If you've had it with Outlook's search feature, simply enter your search term into the Google query box that integrates with Outlook's interface. Although the company launches new products regularly, almost all of them have search features. No matter how far Google wanders into the digital world, we doubt that it will forget its roots. **RS**

BY JOSHUA GULICK

Many traditional search services clog their main pages with links to popular Web sites, news, stock quotes, sports scores, and horoscopes. Some searchers enjoy these features, but many aren't interested in distracting material.

Google's main page, on the other hand, has far more white space than content. But more important than its simple interface is what powers that unassuming Google Search button: one of the fastest, most accurate search engines on the 'Net.

5 | Search Results

The reasonably clutter-free search results page lists the top 10 results, as well as a few sponsored results. Don't worry about mistaking a sponsored link for a genuine search result, however. Google separates sponsored results from general search results.



4 | Document Servers

Here your query draws pages from the index's information to create the search results page that you'll see. The servers add a small portion of text (which contains your search term) to each search result before passing the finished product along.



3 | Google Index

Google's array of index servers match your search words to Web pages. The servers scan their own presorted index of Web pages. The servers update the index periodically via Web crawlers that search the 'Net for changed and new pages. The index includes more than 8 billion Web pages.



1 | Web surfer

Different Web Surfers bring different search term strategies to the table. They also bring different languages and, in some cases, questionable spelling skills. Google's search engine must adapt to all of these strategies, languages, and quirks to find the most relevant Web pages.



2 | Search query

You'll start the search by typing a search term into the query box. Don't underestimate your role in the search: The better you describe your query, the more accurate your search results. Also, Google will drop some common search words when you click the Google Search button. If you absolutely must include "the" in your search term, use quotes to indicate its importance ("the power surge").



Gateway To The Web

How Google Can Help You Find What You Need



Since its 1998 inception, Google has grown from a Menlo Park garage in California to a sprawling corporate campus. As the company has grown, so have the services and products it offers. Today Google lets you scour the Web for news and pictures, get driving directions, edit digital images, and fly (virtually speaking of course) from the Eiffel Tower to the Pyramids in about five seconds.

Whatever growth and success the company has, however, it owes to its Web search. Even today, despite all of its products and services, if you're visiting Google it's probably because you're looking for something on the Web. It's only appropriate then to look at Google's search feature before we start talking about all the extras the company offers. We'll cover all the basics you need to know to effectively use Google, and we'll offer some general tips that'll make searching the Web more efficient.

The Interface

Compared to Yahoo!, Google's home page is Spartan. The company's colorful logo is the only graphic on the front page. By default, www.google.com takes you to Google's Web search. Directly below the Google logo, however, are links to the company's other search services: Images, Groups, News, Froogle, and Local. You can also bring up links to additional services by clicking the More link. We cover all these options in later articles, but we're going to stick to searching the Web here.

To begin a search using Google, just enter relevant search terms in the text field

When two results come from the same site, Google indents the less relevant result. If additional results from the same site are present, you can view them by clicking the More Results From Link.

and click the Google Search button or press ENTER. Google displays a list of results it deems relevant to your search with the most relevant pages listed first. Alternatively, you can click the I'm Feeling Lucky button to skip the results and load the most relevant Web page (or, to be more accurate, what Google thinks is the most relevant Web page).

Results

Depending on your search terms, you may only have a handful of results or you may receive millions of returns. In the upper-right corner of the results page, you'll see a rough estimate of total results for any search string. If we're looking for information about the (possibly) upcoming fourth Indiana Jones film, we might search for Indiana Jones 4. Doing so returned 3,770,000 results when we tried this search. Before you break out in a cold sweat wondering how you're ever going to visit all 3,770,000 pages, remember that terms are sorted by relevance (in this case, the first result was from an entry in the Internet Movie Database). Usually by the time you make it through the first 20 or so results, you'll notice the relevancy drop to a point where you feel comfortable ignoring any further results. The twentieth result, for instance, is a Web page on the Entertainment Zone Web site that lists the movie's release date as July 1, 2005 which kind of makes you wonder how accurate the confirmed cast list is.

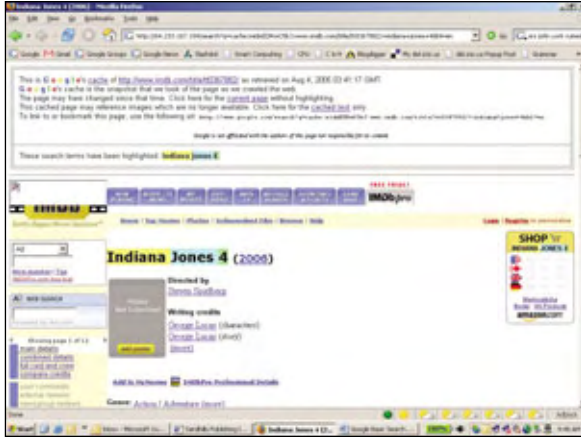
[Indiana Jones](#)
Indiana Jones and the Next Generation of Gaming] - [Indy Arrives on DVD] - [Indy on DVD] It's 1935 and this time you must prevent a powerful ...
www.indianajones.com/ - 29k - Aug 3, 2005 - [Cached](#) - [Similar pages](#)

[Welcome to TheRaider.net](#)
Indiana Jones and the Last Crusade - Indiana Jones 4 - The Young Indiana Jones Chronicles ... Wednesday, August 3, 2005 (Indiana Jones 4) ...
www.theraider.net/ - 83k - Aug 3, 2005 - [Cached](#) - [Similar pages](#)

[Welcome to TheRaider.net](#)
FAQ - Frequently asked Questions on Indiana Jones 4 answered. ... Articles to Indiana Jones 4 related articles on the Internet. ...
www.theraider.net/films/indy4/index.php - 52k - Aug 4, 2005 - [Cached](#) - [Similar](#)

[Indiana Jones 4](#) Greg's Preview - Yahoo! Movies
Indiana Jones 4: find the latest news, photos and trailers, as well as local showtime info at Yahoo! Movies.
movies.yahoo.com/shop?d=hp&cf=prev&id=1808404509 - 47k - [Cached](#) - [Similar pages](#)

[Indiana Jones 4](#)
News, cast and crew information, synopsis, movie info, trailers, posters, box office info



Placement in Google's search results is not for sale, but Google does sell ads on its results page. Ads on Google, however, are a far cry from the flashy, distracting ads you find elsewhere. Google ads are small, discreet, and usually relevant to your search terms. Ads typically appear far to the right of the results, but they can appear above the results in a blue box. In either case, these links are clearly marked as Sponsored Links. All ads on Google are text-only ads. There are no pictures or (shudder) animated graphics to distract you.

You may also notice additional information above the search results. In some cases, Google offers tips that it thinks may help you with your search. In some cases, Google may pass along links to relevant news articles or stock information when appropriate. Searching for a geographical location may turn up a link to Google Maps.

Each individual result consists of several parts. Here's a result from our previous example:

[Welcome to TheRaider.net](#)

Interview with Max McCoy: The author of the four latest **Indiana Jones** novels. ... **Indiana Jones** film in the making? Monday, August 1, 2005 (**Indiana Jones 4**) ...

www.theraider.net/ - 83k - Aug 2, 2005 - Cached - Similar pages

The page title (Welcome to The Raider.net) provides a link to the page in question while the preview text offers some indication as to whether or

Google saves a copy of nearly every page it indexes on its own servers. If for some reason you can't access a Web page, you can usually load Google's cached version. Search terms are highlighted making them easy to find.

not the page may be useful. The preview

text always includes at least one or two of the search terms and the words immediately surrounding them. Beneath the preview text is the page URL. While this doesn't link back to the page, it can be useful in determining whether or not a result is relevant. Next to the URL is the size of the page and, occasionally, the date on which Google last indexed it. Usually, the date only appears on items that Google indexed within the last few days. Finally, the entry ends with two links, one to a cached version of the page and another to a link that lists similar sites that could contain more information.

The Cached link displays a saved version of the page from Google's servers. Cached pages are especially nice when trying to find pockets of information on a larger Web page (such as trying to find a particular term in a large online glossary) because each search term appears highlighted. Furthermore, Google's cache serves as a nice backup if the real page suddenly becomes unavailable or if important information suddenly disappears from the live site. An info box appears above the cached version of a Web site and includes the date the page was last cached, a link to the current page, and a link to a text-only version of the page. Cached pages are sometimes a day or two old and in some cases even older. Frequently updated sites and more popular sites seem to be cached more often. Check the date the page was cached in the

info box if you're looking for the most recent information.

As the name implies, the Similar Pages link lists Web sites similar to those in the search results. For instance, TheRaider.net is an Indiana Jones fan site, so clicking Similar Pages will list other Indiana Jones fan sites.

In some instances, you may notice indented results. For instance, when we search for Disk Defragmenter Stalls, the second result appeared indented because it was from the same Web site as the first result. The indented Web site is the one Google determines to be less relevant. If there are additional entries from the same site, you can view them by clicking the More Results link that may appear beneath the indented entry (as was the case with this search).

Search Quirks

Now that we know how to view the results, we can work on getting better, more relevant results. Before we begin offering tips, however, it's a good idea to take a closer look at the basic workings of Google's Web search.

Every search engine has its own particular quirks. For instance, Google automatically searches for Web sites containing all the specified search terms. If you search for **John York ruined 49ers** (which by the way returned 4,810 hits indicating the hostility many fans feel toward the current owner), Google will only return pages that include all four terms. If you want Google to return pages with any of the above terms, use the word OR between each term (in all caps).

Aside from operators such as OR, Google is not case sensitive. That means smart computing and SMART COMPUTING return exactly the same results. The order of the search terms you use, however, can affect your search results.

It's worth remembering that Google automatically excludes common words such as "with" and "how." You'll notice common words

Google Directory

Google makes it easy to find the information you need in a timely matter, but what happens when you have time to kill online? Searching the Web is like surfing with blinders on. You never know what interesting distractions you might be missing.

If you're looking for a little distraction, Web directories are a fun way to browse the Web. You've probably never heard of the ODP (Open Directory Project), but it bills itself as the largest human-edited Web site directory on the Web. The ODP employs an army of volunteers to maintain its Web directory, so listings are accurate and relevant.

While you may not have heard of the ODP before, you've probably used its directory. The Google Directory (www.google.com/dirhp) is nothing more than a copy of the ODP. Don't worry though; Google isn't stealing ODP content (that would be evil, and we all know how Google feels about evil). Rather, Google is one of many Web sites that have an agreement with the ODP.

Given that the ODP is edited by humans, it contains a fraction of the sites stored on Google's servers, but the sites listed in the ODP are likely to be better quality sites. Because of this, you'll notice a few differences in Google Directory results compared to Google Web Search.

The fun of a directory, however, comes from exploring rather than searching. You can find the Google Directory by clicking the More link above the search field and clicking Directory. The Google Directory contains 15 main categories: Arts, Business, Computers, Games, Health, Home, Kids And Teens, News, Recreation, Reference, Regional, Science, Shopping, Society, and Sports. In addition, there's a World category containing Web sites from other countries around the world.

Each main category contains several subcategories. Within each subcategory, you'll find related Web sites along with additional subcategories. The structure lets you start with a very broad area of interest, such as Computers, and focus in on a narrower topic. From the Computer category, you can drill down through the Software, Operating Systems, Microsoft Windows, and Windows XP subcategories to focus on sites relating to WinXP. The Windows XP subcategory includes six additional subcategories and four related categories along with 25

WinXP-related Web sites. Each subcategory includes a number in parenthesis next to it. This number indicates the number of Web sites within that category.

Google lists sites in the Google Directory according to Google's Page Rank (a complicated formula to determine a page's relevance). So the ODP may not list sites in the same order. Furthermore, Google's Directory is probably a little easier to navigate than the ODP, as the Google Directory lists categories in strict alphabetical order (not always the case with the ODP).

In some subcategories you'll notice a list of related categories. These are categories that have some overlap with the current category. They're often fun to explore although they're sometimes a bit off-topic. The Windows XP subcategory lists four related categories that include Windows 2000, Windows ME, and Windows NT.

As you start drilling down within a category, you'll notice a new feature in the search engine (which appears at the top of each page). You can search within a given category for a particular term or terms. Searching for Windows XP in the Computers category, for instance, will display all the articles in the Windows XP subcategory we explored earlier, along with any relevant sites from other subcategories within the

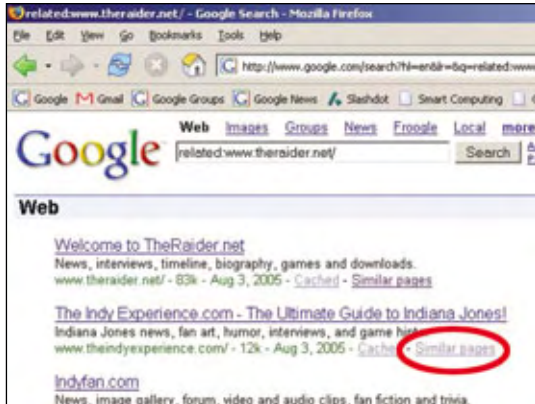
Computers category. If you decide you want to search the entire directory, click the Google Directory logo to return to the home page. You can also search the Web from within a category or subcategory by selecting the Search The Web option before clicking the Search button.

If you do decide to search the directory, you'll notice that results are displayed in the same format as Google's Web search. Links to cached pages and links to similar pages are still available when searching the directory (although they are not available if you're just browsing the directory). This is another benefit of using the Google Directory, as the ODP doesn't offer these features when displaying its search results.

At press time, the ODP claimed to have 5,104,466 sites indexed. That may seem like a lot, but remember that a search for Indiana Jones 4 returned more than 3.7 million hits on its own. Nonetheless, 5 million pages are more than enough to keep you busily exploring the Web on those rare occasions when you don't have anything in particular to search for. ■



The Google Directory includes a search engine, but because sites in the directory come from the Open Directory Project's Web site directory, you'll get somewhat different results searching Google Directory than you would using Google's Web search.



Clicking Similar Pages lists Web sites similar to a particular result. This is a handy way to find other Web sites you may be interested in.

Finally, Google's stemming technology automatically includes results that contain a different form of a search term. For instance, singular forms of a word aren't omitted if you search using a word's plural form.

Better Searching

Now that we know a little about how Google's Web search operates, we can focus on finding the best possible search terms. Obviously, given the amount of information on the Web, the more precise you can be the better. Use multiple terms to narrow your search and try to pick unique terms relevant to your search string. If you're looking for information about a truck, don't just search for Dodge. Include the make, model, year, and even the color, if that's important to you.

are not highlighted in the search results. If a discarded word is important to your search, place a plus (+) immediately before it.

In some instances, Google will suggest alternative search terms. This is most often used to correct spelling. If you search for **Micosoft**, for instance, Google will ask "Did you mean: Microsoft." Click the link to search using Google's suggestion. In some instances, Google may suggest an alternative even if all the words are spelled correctly. For instance, if you search using our John York example above, Google will ask if you meant John York Gained 49ers rather than John York Ruined 49ers.

There are a number of basic tricks you can use to narrow a search if you need to. Placing multiple words in quotes tells Google to search for an exact phrase. This can be especially handy when looking for information about a specific error message. You can also use the minus sign (-) immediately preceding a term to remove any results containing the term. For instance, if you're using the search string **Dodge** but aren't interested in trucks, search for **Dodge -Trucks**. We'll cover more advanced search strategies in "One In A Billion" on page 31.

Know-It-All

As we said earlier, the most important thing Google offers is its search feature. As you become more comfortable using Google, you'll realize just how much knowledge it puts within a few quick clicks. So the next time you find yourself wondering what string theory is all about, forget about hitting the local library. The answers are just a search away. **RS**

BY CHAD DENTON

Set Your Preferences

When you visit Google, you have the option of setting personal preferences. Because these preferences can help you find more relevant information, we recommend taking a few minutes to set these options.

Start by clicking the Preferences link that always appears to the right of the search field. Here you can select a language from the Interface Language drop-down list box. This option affects the Google interface only and doesn't affect search results. The next section, Search Language, does affect your results. If you select the Search Only For Pages Written In These Language(s) option, Google will not display Web pages written in a language you haven't selected.

In the SafeSearch Filtering section, you can set restrictions on the types of results Google returns. By default, this option is set to Use Moderate Filtering. At this setting, Google removes explicit images from Google Images searches, but it will not block explicit contents from other types of searches. If you want to block all explicit content, set the filter to Use Strict

Filtering. Of course, if you prefer, you can turn filtering off completely by selecting Do Not Filter My Search Results. As Google points out, no filter is 100% effective, but its SafeSearch Filter can help dramatically reduce explicit content.

To adjust the number of results displayed per page, select 10, 20, 30, 50, or 100 from the drop-down list. Increasing the number of results per page, however, may slow down the time it takes the page to download if you have a dial-up connection. By default, Google displays 10 results per page.

Finally, by checking the Open Search Results In A New Browser Window checkbox, Web pages will open in a new browser window any time you click a result. When you're done setting your preferences, click the Save Preferences button. Google should confirm that it's saved your preferences.

Remember that your preferences are stored on a cookie. That means if you clean out your cookies or visit Google from another computer, your stored preferences will be gone. **I**

Helpful Hints

Google Suggest Streamlines Your Search Time



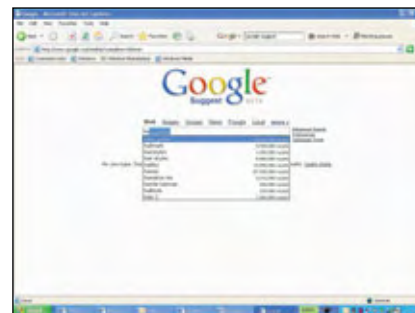
Let's face it; Internet Explorer's AutoComplete feature is pretty handy. It's much easier to type just the first few letters of a Web address and pick the page you're looking for out of the AutoComplete lineup than to type the whole address yourself. Google is working on a similar feature for its search engine called Google Suggest; you can try it out at www.google.com/webhp?complete=1&hl=en. In the meantime, here's a quick rundown of what Google Suggest does and how you can use it to harvest a few extra seconds from your day as you search.

Real Simple

As you type your search query into the box on Google Suggest, you will see a list of 10 results that changes with every character you type. This is Google's way of trying to guess what you're searching for and save you the time of writing out the full term. For instance, if we wanted to search for DVD burners, we would enter the first "D." Google uses a set of algorithms to produce the top 10 search results that start with "D" in hopes that it can correctly predict the term you're searching for. Then when you enter the "V," Suggest runs those algorithms again and finds the top 10 search results for "DV." As you get more specific, so will Google's suggestions. In fact, by the time we entered "DVD b" into the search field, Google had already listed "DVD Burners" as the first suggestion for us. All we had to do was click it, and Google directed our browser to a typical search results page for our query.

As we mentioned, this Google feature is similar to Internet Explorer's AutoComplete feature in that it is trying to predict what you're going to type, but there are also some differences. The big one is that IE's AutoComplete only searches through information you've previously typed and that has been saved to a cookie file on your hard drive. Google Suggest, on the other hand, will search its entire database of

Google Suggest works similarly to the AutoComplete feature in Internet Explorer.



As you type your search query, Google runs a series of algorithms to determine what you're searching for.

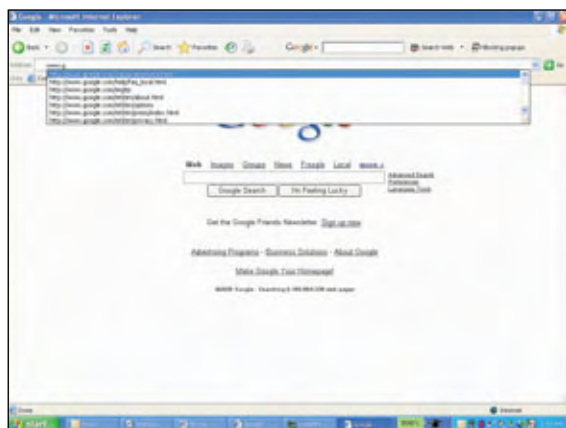
search topics to try and find the one you're looking for.

Safety First

If this talk about cookies has you hungry, we can't help out with that, but we might be able to clue you in to Google's privacy policy and how it applies to Google Suggest. For starters, we should point out that similar to Google's basic search function, Google Suggest does monitor what you're searching for. Google Suggest communicates with Google while you type your query, allowing Google to keep track of such information as what you're searching for and which suggestion you chose. But Google knows how to keep a secret; any personally identifying information is kept confidential, and Google Suggest is covered under the privacy policy Google offers all its users. (For more information, see "Privacy Please" page 22.)

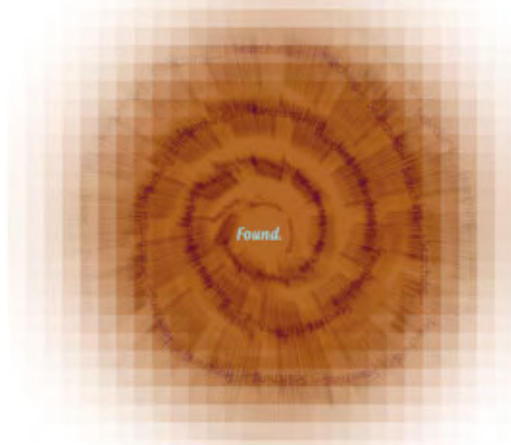
Google Suggest is a quick, easy way to streamline your search time. It uses a set of algorithms in combination with the search information you provide to predict what you're searching for, and saves you the time of typing the entire query. And although some Google traditionalists may have a tough time tearing themselves away from the home page they've come to know and love, Google Suggest is sure to help those willing to give it a try. **RS**

BY SAM EVANS



One In A Billion

Advanced Search Options Help You Find What You're Looking For



Last we checked, Google's index included more than 8 billion Web pages. That means no matter what you're searching for, you're probably going to find hundreds if not thousands or millions of results using regular keywords. Learning to use Google's advanced search features can help narrow those results and make your search results more relevant.

In the previous article, we explained how Google's search engine works and provided some basic tips to help you find what you're looking for. Now that we have the basics out of the way, we can show you how to utilize some of those more advanced options.

Advanced Search

Like most search engines, Google relies on numerous **operators** to conduct advanced searches. An operator is a special word or symbol that changes the way Google conducts a search when used in a specific context. We'll cover operators later, but for now let's start by clicking the Advanced Search link that appears to the right of the search field on the Google home page.

Instead of using operators, the Advanced Search page lets you specify certain options. When you click the Search button, Google automatically formulates a search string using the proper operators. This page is the easiest way use Google's advanced options.

The first four fields on the Advanced Search page let you specify search terms. The first field is similar to the search field on Google's home page. Google will return Web sites that include all the words entered into this field. The second field is more precise and lets you search for a specific phrase. It's more efficient, for instance, to use the second field if you're looking for information about the Los Angeles Kings NHL hockey team. Searching for the phrase Los Angeles Kings in the second field returned 867,000 results, while searching for Los Angeles Kings from the search field on the Google home page returned 4,260,000 results. (The 32nd result was actually a page about the King Tut exhibit's Los Angeles stopover.)

The third field returns results that match at least one of the words provided. If you're interested in information about either Africa or Europe, for

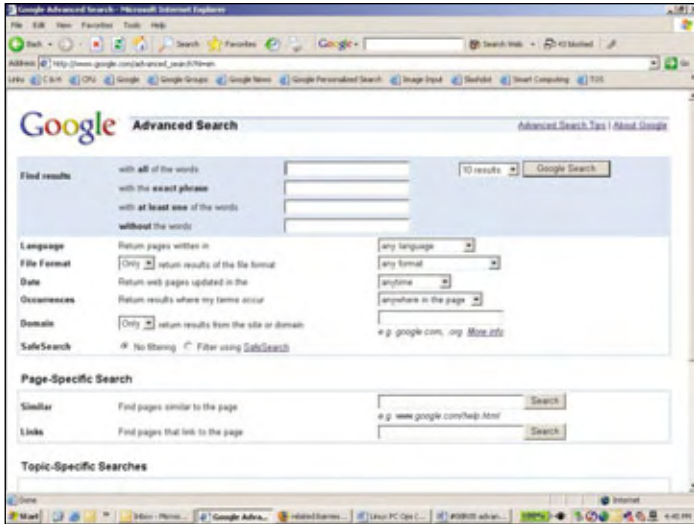
instance, you could enter both terms in this field. Finally, the fourth field lets you specify any terms you want to omit. For instance, returning to our Los Angeles Kings example, you may opt to omit Sacramento and Lakers to prevent Google from returning pages that refer to both the Los Angeles Lakers and Sacramento Kings.

You can accomplish all of the options above from the Google home page using operators. Words enclosed in quotation marks, for instance, are treated as an exact phrase. Thus "Los Angeles Kings" returns the same results as typing **Los Angeles Kings** into the exact phrase field of the Advanced Search page. Placing a minus sign (-) directly before a term eliminates any results containing that word. For instance, typing the search phrase **Los Angeles Kings -Sacramento -Lakers** will omit any results that reference Sacramento or the Lakers. Finally, separating words using OR (in all caps) returns results that contain any of the terms separated by OR. Searching for "Africa OR Europe" returns the same results as entering **Africa Europe** in the third field of the Advanced Search page.

Of course, you can sometimes achieve the best results by using a combination of fields. For instance, if you're planning a vacation and can't decide between the Caribbean or Rome, you could type **Vacation** in the first search field on the Advanced Search page and **Caribbean Rome** in the third field.

Further Refinement

Below the various search fields, Google provides additional options to refine your search. For instance, selecting a language from the Return Pages Written In drop-down menu will only return results written in the selected language. If you set your Preferences (click the Preferences link next to the search field on the Google home page) to return results in English, then English should be selected



by default, but you can select Any Language if you prefer.

Next, you can choose to limit results to specific file types or omit certain file types. On the File Format line, select Only from the drop-down list if you want to limit results to a specific file type or select Don't to omit results of that file type. Available file types include Adobe Acrobat PDF, Adobe Postscript, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, and Rich Text Format.

The next option lets you limit results to Web pages updated within a specific time frame. By default, this option is set to Anytime, but you can select Past 3 Months, Past 6 Months, or Past Year. This is a handy way to eliminate outdated search results that would otherwise appear.

If you need to, you can specify where in a Web page search terms should appear by selecting an appropriate option on the Occurrences line. The default option is Anywhere In The Page, but additional options include In The Title Of The Page, In The Text Of The Page, In the URL Of The Page, and In Links To The Page.

The Domain line can be very handy if you need to search for information on a specific Web site. For instance, if you want to find specifications for Intel's Pentium 4 640, you could enter specs in the first search field, Pentium

4 640 in the exact phrase search field, and intel.com in the domain field. (When you use this option, specify a domain name only because not all Web pages have a URL that begins with www.) You can also use this option to omit results from a given domain by selecting Don't in the drop-down menu instead of Only.

Finally, you can enable Google's SafeSearch filter. Explicit results aren't usually a problem that most Google searchers run into, but depending on your search criteria, they can be. SafeSearch helps to eliminate explicit content, although as Google points out, no filter is 100% effective. SafeSearch may be enabled by default if you selected Use Strict Filtering in your Preferences.

At the bottom of the page are two Web page-specific options. Enter a URL in the Similar field and Google will return results similar to that specific Web site. For instance, if you're shopping online at Barnes & Noble and want to find other online bookstores, you could enter www.barnesandnoble.com in the Similar search field. If you enter a URL in the Links field, Google will return Web sites that link to the specified URL. (In this case, if you enter www.barnesandnoble.com, you'll see a list of Web sites that contain links to www.barnesandnoble.com.) Note that because these sites are site-specific,

Google's Advanced Search page is the easiest way to use the site's advanced search features to narrow your searches.

they don't take into account any search criteria provided elsewhere on the page, which is why Google uses separate search buttons for these features. Also note that you can include any domain prefix such as www. In some instances, you may receive some different results depending on whether or not you include the prefix. A Web page that links to barnesandnoble.com, for instance, may not appear in a search for www.barnesandnoble.com.

Finally, at the bottom of the Advanced Search page, you'll find links to specialty search engines. We'll cover these in more depth later in this issue.

Advanced Search Strings

Google's Advanced Search page lets you narrow the focus of your search without having to worry about using specific operators. Nonetheless, it's a good idea to become familiar with search operators, which let you skip the Advanced Search page, provide additional features, and, as you'll see in a bit, let you enter more accurate search terms.

You're already familiar with basic operators such as quotation marks, "OR," and minus signs. Google sometimes omits common words (such as "and") from a search or, in some cases, includes results where a term appears in links to the page but not on the page itself. The plus sign (+) is one way to ensure each result will contain a specific word on the page. You can use other operators to emulate some of the other preferences found on Google's Advanced Search page.

For instance, the "site:" operator lets you search a specific domain name. If you're looking for specifications about Intel's Pentium 4 640, for instance, you could enter "Pentium 4 640" specs site:intel.com. Note that there are no spaces between the operator and the term that immediately follows. This operator is identical to the Domain option in the Advanced Search page.

The Advanced Search page lets you specify where Google should look for

specific results. You can, for instance, have Google search for terms in the title, the text, the URL, or links to a specific Web page. The “intitle:” and “inurl:” operators provide a similar function. If you can remember the title of a Web page but not its URL, the “intitle:” operator is extremely helpful. The “inurl:” operator is helpful in finding Web sites that contain a specific term or terms in its URL.

If you’re looking for Engadget but can’t remember its URL, type **intitle:engadget** to locate the Web site. The “intitle:” operator, however, only works for a single term. If you needed to find the Smart Computing home page, for instance, and you tried searching for **intitle:smart computing**, Google would return Web pages with Smart in the title and Computing anywhere on the page. This will get you where you’re going, but the “allintitle:” operator provides a more efficient option. This option will only return results with both “smart” and “computing” in the title. The “inurl:” operator works in a similar way to the “intitle:” operator, only it looks for specific terms in URLs. The “allinurl:” operator works in the same manner as the “allintitle:” operator.

At the bottom of the Advanced Search page are two search fields where you can find Web pages similar to a specific page or pages that link to a specified page. You can also use this feature in a standard search using the “related:” and “link:” operators. If you want to find Web sites similar to [barnesandnoble.com](http://www.barnesandnoble.com), you’d type **related:www.barnesandnoble.com**. Typing **link:www.barnesandnoble.com** returns pages that link to the URL.

In some instances, using operators can result in a more exact search than you’d get using the Advanced Search page. For instance, if you’re planning a vacation to either Rome or New Zealand, you can try entering **vacation** in the first field and **Rome New Zealand** in the third field of the Advanced Search page. You may find some helpful information,

Searching for weather forecasting history (top) yields 759,000 results. Using the “allinurl:” operator (bottom) reduces the number of results to just 11.

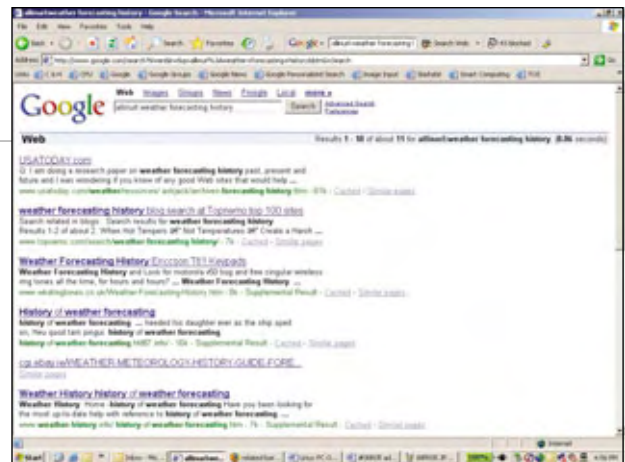
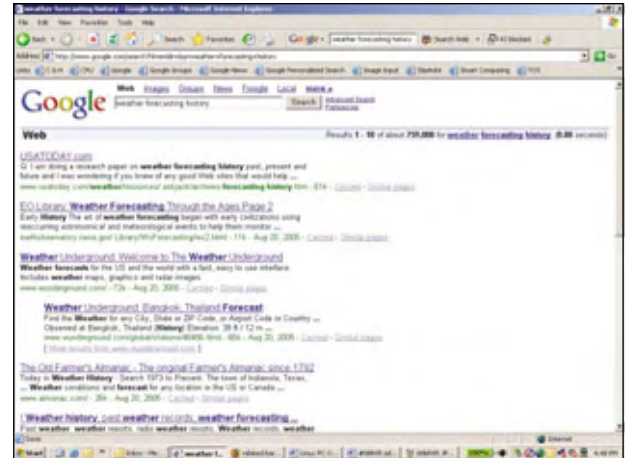
but this isn’t the best search because it’s searching for pages that contain Rome, New, or Zealand. Enclosing New Zealand in quotes in the third field does not help matters at all.

Using operators, however, you can easily cobble together a more efficient query by typing **vacation Rome OR “New Zealand.”**

Advanced Operators

Although operators occasionally provide more flexibility, they don’t provide all the features found on the Advanced Search page. There is no operator to limit returns to a specific language, for instance, or an operator to limit results to recently updated Web pages.

There are operators, however, that provide features not found on Google’s Advanced Search page. For instance, you can search numerical ranges, include synonyms in a search, define a word, get stock quotes, and find information about a Web site using special operators.



Numerical ranges are helpful if you’re looking for products within a certain price range, defining a historical search to specific years, or looking for notebooks within a certain weight range. If you’re looking for historical information about your hometown, but you want to narrow your search to specific years, separate the low-end and high-end of the range by two periods (with no spaces). For instance, if you’re looking up historical information about Ontario, Calif., and want to focus on the years between 1890 and 1925, you’d type **Ontario, California 1890..1925**. This search string results in 1,010,000 English language pages. Omitting the date range increases the number of pages to 15,300,000 English language pages. Our numerical search included an old brochure dating back to 1910 and a Web page

from the city's official Web site that includes a brief history of the city.

Sometimes it's possible for a search to be too specific. For instance, if you're looking for information about a new car and you search for "car," you receive about 172,000,000 English language results. Unfortunately, this search omits any Web sites that use the term automobile instead of car. To bring up synonyms for car (such as automobile) place a tilde (~) directly in front of the word car (for instance: "~car"). This search expands the number of results to 373,000,000 English language sites and adds a few additional sites to the first page of results.

Google has additional special search features that most people don't even know about, much less use. For instance, you can use Google to look up the definition of a term. If you stumble across a word online and you're not sure what it means, visit Google and use the "define:" operator followed immediately by the term in question. For instance, to find a definition for the term flash memory, you'd type **define:flash memory**.

If you know a company's ticker symbol, use Google to pull up a company's stock information using the "stocks:" operator. Type **stocks:msft** to display the latest stock quotes for Microsoft. You can list quotes for multiple companies by adding additional symbols. For instance, **stocks:msft intc** brings up information for both Microsoft and Intel. Alternatively, you can type one or more ticker symbols into the search engine (minus the "stocks:" operator) and click Search. Click the link at the top of the page to view the stock quotes.

The "info:" operator provides information about a specific Web site. Typing **info:www.smartcomputing.com** for instance, returns a link to the Web site, a brief synopsis of what you'll find on the site, and the Web site's URL. At the bottom of the page are links to additional

information including Google's cached version of the page. You can also bring up Web sites similar to the specified site, Web pages that link to the site, Web pages the site links to, and Web pages that contain the URL of the Web site.

In some instances, this information can be handy for research. Google's cache, for instance, can provide you with information about a Web site when the site is inaccessible. The ability to see who links to a certain URL can be very helpful if you're running a Web site, such as a personal blog, and you want to see who, if anyone, is linking to your site.

Finally, you can bring up the cached version of a Web site by using the "cache:" operator. To view Google's cached copy of www.smartcomputing.com, you'd type **cache:www.smartcomputing.com**. If you add additional words after the URL, Google will highlight any instances of the word or words that appear on the cached version.

Results Matter


Why bother using Google's advanced features at all? To illustrate the usefulness of Google's advanced features, we ran a hypothetical test to show you how using the proper operators can influence your results.

If we're looking for information about the history of weather forecasting, the search phrase "weather forecasting history" will turn up 759,000 results. Many of the early results are highly relevant. The very first link is a question from a USA Today reader looking for links about weather forecasting history. Nonetheless, we might be able to narrow our search considerably by using the "allintitle:" or "allinurl:" operators. The search query "allintitle:weather forecast history" turns up no results, but the query "allinurl:weather forecast history" returns 11 results, all of which appear highly relevant. Our USA Today article is still the first link listed.

If we narrow our focus to concentrate on the use of radar in weather forecasting, things change dramatically. Adding radar to our "allinurl:" query above doesn't yield any results. Running a general search for "weather forecasting radar history" yields 1,370,000 results, many of which are current local forecasts. Viewing cached versions of these pages, we see that the word "forecasting" is often found only in links to each page. To rectify this problem, we can either place a plus sign next to "forecasting" or place quotes around "weather forecasting." The first option reduces the number of results to 214,000. Adding quotes reduces the results to just 35,500. Both methods, however, have several results in common, including the first result, an article written for Weather Bureau personnel in 1947 introducing them to the (at the time) brief history of radar.

There are other things you can do to limit your search. If you want some basic background information about a subject, for instance, you can search online encyclopedias such as MSN Encarta or Wikipedia. To search Wikipedia, for instance, you can enter the search string **weather forecasting radar history site:en.wikipedia.org**. This search string provided us with 80 results including entries for meteorology and weather forecasting. Many of the entries provided good general background, but didn't focus a lot on the use of radar. Nonetheless, clicking the Cached link to view a copy of each page with your search terms highlighted lets you narrow in on relevant portions of each entry, letting you glean information from several entries.

Find What You Need

As you can see, there are reasons for the advanced search options Google provides. You may not need to pull out all the stops when looking for movie times online, but it's good to know they're there when you need them. 

BY CHAD DENTON

Image Search Elements

Google's Not Just For Text Anymore



The World Wide Web doesn't work on words alone, and Google's developers knew it, which is why a few years ago the site began integrating a powerful image search component. Now when you need an image in a hurry and you have no idea where to start looking, you can turn to Google and find it in just seconds, no matter how obscure the subject—because with Image Search, you can use keywords to sift through more than 1 billion Web-based images.

As with word searches, the Google Image Search engine offers a straightforward process for finding online images. And that, in a nutshell, is the beauty of Google. You don't need to be a Web surfing aficionado or purple-blooded geek in order to use Image Search, and you certainly don't need to be a computer expert to value its simplicity, either.

Almost Effortless

Google's Image Search uses a clean and intuitive interface that helps novice and advanced computer users alike

perform searches with ease. To find an image using this interface, all you have to do is type the name of your search subjects, and then click Search Images. In a flash, you'll see a page loaded with small thumbnail images that lead to the Web sites or graphic libraries where the images reside.

Immediately after you perform a search, you'll see a blue bar near the top of the screen that displays the number of results Google located using your keywords. You'll also see a number that tells you exactly how much time the search consumed. Just below these numbers, Google lists a Show option where you can click Large, Medium, or Small; click a size and Google filters your results to match certain image size dimensions.

Google Image Search displays your results as thumbnail images.

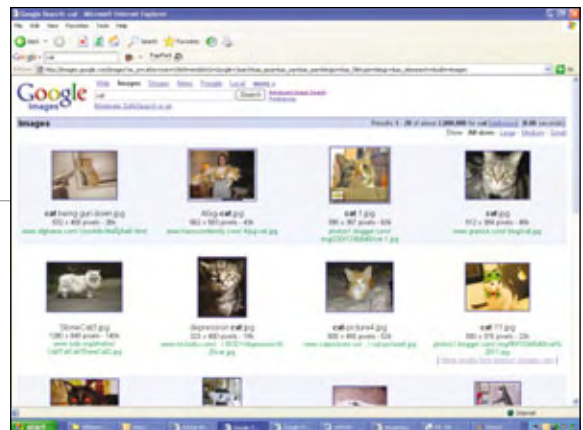
You can click these thumbnails to see larger versions of the images.

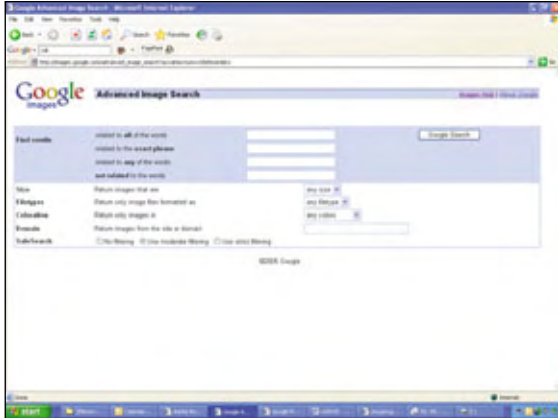
Google displays 20 thumbnail images after most image searches. Below each thumbnail you'll see information related to the image, including the image's file name, the image size in pixels, and the original image's file size. Google also lists the image's URL so you have an idea of where the picture originates. Some of the best parts of Image Search's results are what you don't see, such as duplicate images, icons, advertisements, or buttons that might be on the same site as the image.

If you click a thumbnail, Google displays a new page with a split screen. The top frame shows the image thumbnail, and if you click this small image, Google shows you the full-size image. The top frame also includes a URL that leads directly to the original image; in contrast, the larger bottom frame displays the Web site showing the image in its original context. If you prefer, you can remove the top frame by clicking Remove Frame, a command that lets the bottom frame fill your screen. If you'd rather go back to your Image Search results, simply click Image Results.

The engine's guts. As Google works to find and display your results, you won't see all of the search engine's electronic gears grinding. There's a lot going on behind the scenes to make Image Search happen.

Image searches aren't easy to perform because search engines are traditionally constructed to work with text. Because most images on the Web don't have text in them, Image Search





The Advanced Image Search options are easy to use and will help you quickly filter out many irrelevant results.

must try to deduce the image's contents by using other factors. Most of those factors are related to text on the Web site that stores the original image. Image Search uses the site's URL, the image file name and folder name, page content, page title—none of which, of course, necessarily describe the image.

Google's search also looks for image ALT tags that a Web site designer might use during a site's construction. These tags might provide a description of the image for older browser versions that can't display images, or for browsers with the image display option disabled.

How does Google find and sift through all of this data and then return your results so quickly? The answer is that it doesn't—not in real time, anyway. Google uses automated software that continually downloads text from Web sites all over the world, and then it stores that text in large-capacity index computers. Those index computers act just like the index in the back of a nonfiction book.

When you use Image Search, you're actually searching the indexed data, which is why sometimes you see either outdated image information, or you find that Google isn't yet listing an image that you're sure is online. Those problems aside, Google's Image Search is so massive that it will point you to thousands, even millions of images related to your keywords, a fact that makes this tool very handy during your online adventures.

Basic inquiries. But what exactly makes a basic keyword search effective? With Google, the answer is easy. The greater number of effective keywords you provide in the search text box, the better.

It takes practice to figure out what makes for effective keywords, but basically, the more precise and unique the words are, the more likely your results will be accurate. For example, using "cat" as a keyword will return millions of very varied images. Type "calico kitten," however, and you'll see a results list that's much more focused. Notice that we didn't include words such as "the" or "this" because Google throws out ultra-generic words, anyway.

Sophisticated Searches

When basic keyword searches wind up providing you with too many unrelated results, you can use the advanced search capabilities within Image Search. These tools will help you refine and hone your searches so that Google will know what you're looking for.

Using the advanced Image Search features, you can specify image size, file type, coloration, domain, and you can apply a

After you click a thumbnail, Google displays a screen with the thumbnail on top and the main image below. You can tell Google to remove the top frame at any time.

SafeSearch filter that will sort out adult material. With one or more of these tools, you'll quickly be able to change your search parameters and find the images you really want.

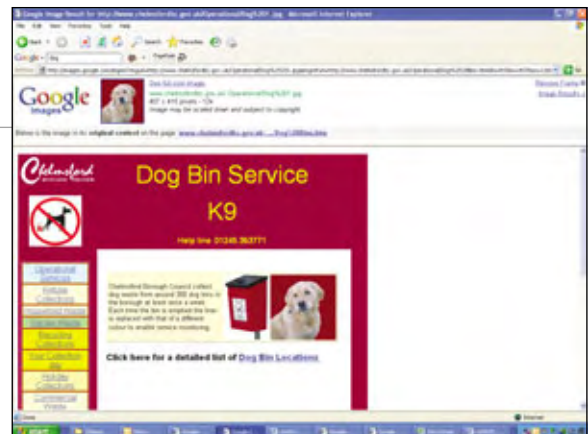
For example, let's say you want to find a range of full-color images of the Hilton hotel located in Paris. Using a basic keyword search, such as "Paris Hilton," you'll get mostly modeling snapshots of the yellow-haired socialite, some of which might not be appropriate for younger viewers.

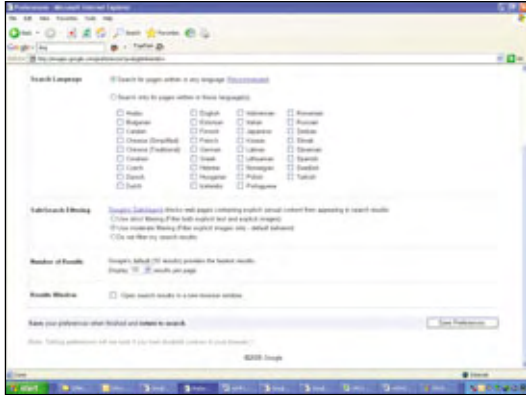
But using advanced options, we cleaned up this search in a hurry. In the Related To All Of The Words text box, we typed "hilton," and in the Related To The Exact Phrase text box we entered "Paris France." Because we wanted only color images, from the Coloration drop-down menu, we selected Full Color. And to prevent the possibility of any explicit material, we also clicked the Use Strict Filtering option.

This search was much more accurate, as Google returned dozens of images and maps of the Hilton hotel in Paris. And thanks to the filtering option, no adult-oriented images appeared.

You should keep in mind that the SafeSearch filter in Google Image Search is powerful but imperfect. There are three SafeSearch settings: No Filtering, Use Moderate Filtering, and Use Strict Filtering.

If you select No Filtering, Google won't censor results at all. If you choose Use Moderate Filtering,





Google offers three levels of image filtering to prevent explicit images from popping up onto your screen. The filter works only for English language searches.

want a small- or medium-sized image for email purposes, this filter helps you weed out large images you'd need to resize.

In addition to the Size option, you can use the File

Type drop-down menu to sort by JPEG (Joint Photographic Experts Group), GIF (graphics interchange format), and PNG (Portable Network Graphics) file formats. This option is useful when you know the image you're looking for is in a specific format, or when you want to download an image and you only want one file type.

The Domain filter lets you limit Image Search results to one Web site or domain. For instance, you could search only domains such as .edu or .com, or you could search only CNN.com for a specific news image. This option is especially useful when your searches turn up too many unrelated images from all over the Web, or when you know for sure that an image is located on a specific Web site or domain.

Breakin' the law. In addition to the possibility that Google will lead you to explicit material no matter what SafeSearch option you engage, Image Search might also point you to other potentially problematic graphics. Because Google's robotic image indexing scheme is so effective, it often links to images protected by copyright. That's no crime on

Google's part, because all Google does is let you view these images on the Web.

But it means you should take precautions if you plan to download and use an image for your own purposes. If you see an image that you find useful, you can follow the thumbnail back to the Web site that's storing the image to see if there are any indications that the image is copyrighted.

If you don't see any notice of copyright, don't assume that it's OK for you to download the image and incorporate it into a product brochure you're designing. Not only is this kind of behavior rude and insensitive to the person who created the image, but you might also be using an image that doesn't have a clearly marked copyright notice.

The only way to be sure you're not violating copyright laws when you use an image from the Web is to contact the site's owner and ask for permission. Once you have a go-ahead from the image's creator, you won't have to worry about being on shaky legal ground.

At The End Of The Day

When the Web was in its infancy, finding multiple images on one subject often took a lot of investigative work. In the era of Google's Image Search, finding a specific graphic or image is as easy as typing a few keywords. With just a little practice you'll be able to find the exact images you're looking for with minimal frustration. **RS**

BY NATHAN CHANDLER

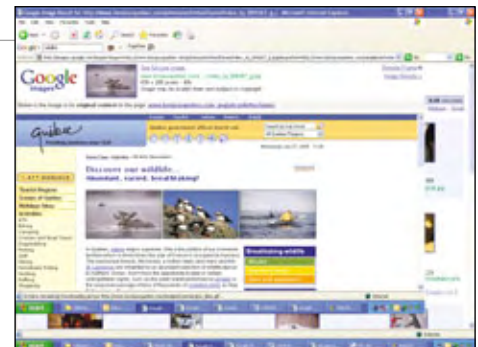
Google will omit most explicit images from your list of results. This is the default setting for Image Search. The Use Strict Filtering option should remove all explicit images from your image search results, and it will apply SafeSearch filtering to your ordinary Google Web searches, too.

Like all filtering services, SafeSearch makes mistakes. That means potentially offensive images might appear in your list of results even when you're using the Moderate or Strict settings. You should also know that SafeSearch filters out explicit material only if you're executing searches in English. So if, for example, you run a few searches in Spanish, SafeSearch won't filter your results at all.

Engaging other options. The other advanced search options are useful, too. For example, if you want to restrict your results to images of a specific size, you can use the Size drop-down menu and select Small, Medium, or Large, which means that, respectively, you'll see results of 150 x 150 pixels or smaller, images with dimensions between 150 x 150 pixels and 500 x 500 pixels, or images bigger than 500 x 500 pixels.

The Size option is one of Image Search's most valuable capabilities, because without it, Google will list images of all sizes in your results. If you're looking for a high-quality image you can print at home, you'll want to sort out the smaller images, many of which contain far too little data to let you create a clear print. And if you just

Someone took the time to create the images you see on Image Search, and that means those images could be protected by copyright. Don't reproduce the images you find with Google until you obtain the creator's permission.



Read All About It

Google Offers Personalized News



One are the days when we had to wait for the evening news to learn what happened in the world. Today, thousands of news sites post new articles on the Web throughout the day, providing us with the most current news. Many people have a series of sites they check to get the latest news related to their careers and personal interests. Google News (news.google.com) gives users a unique glance into current events and offers several ways to receive the news. Google News is still in beta release, so keep in mind that some of the features we cover may change between press time and the time you read this.

Newsworthy Notes

Google News scans approximately 4,500 news sites for articles posted within the past 30 days. According to Google, it searches for new stories

every 15 minutes to provide the most recent headlines.

In theory, journalism should be objective and communicate only the facts without reflecting a viewpoint. However, authors make decisions about which facts to include or emphasize, and news editors decide which stories to publish, as well as which receive the most prominent placement in their publications. This often results in articles presenting slightly different perspectives, even if the content itself is objective. Furthermore, our view of events is influenced by where we live. For example, CNN.com (www.cnn.com) often places a different emphasis on events in Iraq than England's BBC News (news.bbc.co.uk) does.

Google News can help you get a more balanced account of the day's events. There are two reasons for the relative objectivity of Google News.

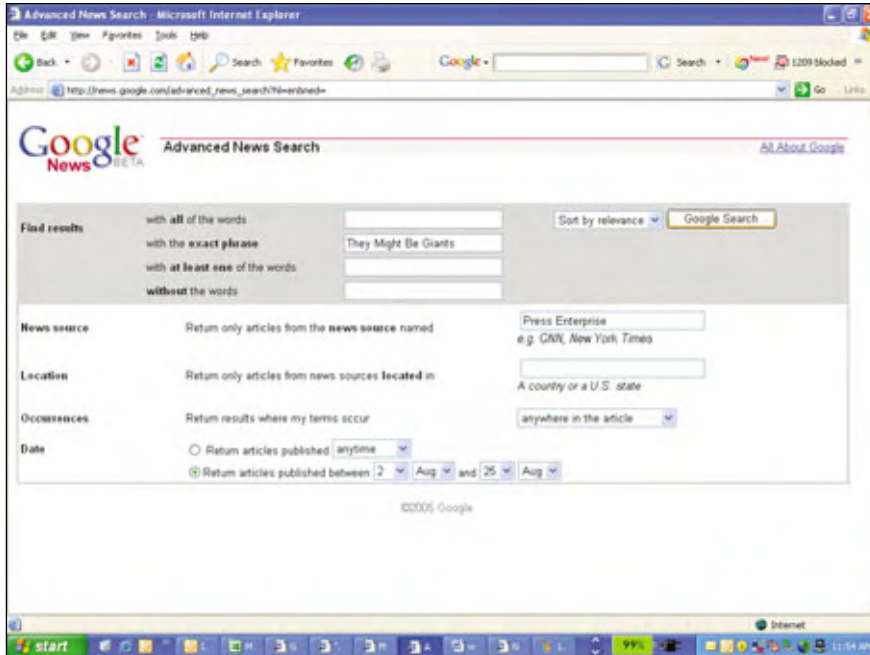
The first is the use of computer-based algorithms to determine which stories receive headlines. The second is the inclusion of articles from various sources for each news event.

As opposed to traditional online news sources, which rely on editors to decide which stories deserve coverage, Google News does not have any news editors. Instead, it takes advantage of computer algorithms to calculate which news stories are most relevant and deserve top coverage. Because no actual person selects the stories that Google News will list, the algorithms remove much of the subjectivity of news selection.

Google News' algorithms take several factors into account. First, it makes use of clustering algorithms that try to determine which articles are about the same topics. You can see how this works on the Google News page. Under Top Stories you will see that each story has a main headline and brief excerpt. There are also links to two other stories about the same event, links to other publications' accounts of the event, and a link to a list of all related stories. The text in these articles is not identical, so Google had to use a clustering algorithm to analyze the articles' words and determine which are related.

Google News also uses an algorithm to rank the newsworthiness of topics. It does this by analyzing the number of news sites that cover the story, the placement of that story on those sites, the number of hits the stories receive, and the ranking of the sites which run the story. Stories with the highest scores from the algorithm receive the highest placement in the list of headlines on Google News.

Because Google News groups related stories together, you can choose to read more than one account of an event for a more balanced view of the news. You can also use Google News to see how news coverage varies across the world or how the nature of a story has



evolved over time. To read coverage of current events from around the world, click the News link under the Google logo on Google's home page (www.google.com). Then use the Top Stories drop-down menu under the Google News banner to select one of the 22 available international editions (such as U.S., U.K., or Australia). Click the Go button. The top Google News headlines for that country's edition will appear.

You can also see how a story has evolved over time. To do this click the All (Number) Related link beneath an article's headline and excerpt. Then click Sort By Date in the upper-right corner of the screen. For instance, we sorted stories about a tropical storm by date. We could see that early articles merely mentioned the growing storm in the Atlantic Ocean. As we followed the articles through time, we could see how the coverage became more urgent as the storm gathered force and headed for land. We could see not only that the knowledge about the tropical storm increased but also that the type of coverage it received changed as the storm intensified.

Sort By Date is also useful if you want to see how the news stories

about a politician or current event have evolved. You can often see how sentiment changes toward a given person or topic over time. Although some Google News users will never see a need to read multiple accounts of the same story or sort articles by date, these Google News tools are very useful for people who strive for the most balanced account of current events.

News Clues

Just as Google's Web Search has an Advanced Web Search option, Google News has an Advanced News Search. This tool lets you create a set of conditions, also known as operators, for your search. For instance, you might limit the period of time in which an article was posted, or you might choose to include only articles from publications based in a certain country. You can often find more reliable information by performing an Advanced News Search than by using a basic Google Web Search because Google News only searches news sites rather than all Web sites.

To access these advanced options, click the Advanced News Search link

The Advanced News Search lets you narrow your search according to criteria such as the news source and publication date.

in the upper-right corner of the Google News page. The Find Results section has a gray background and has the same fields you will find in other advanced Google searches. The available operators under Find Results include With All Of The Words, With The Exact Phrase, With At Least One Of The Words, and Without The Words.

For instance, if you want to find news articles that contain information about both caffeine and diabetes, you would type **caffeine diabetes** in the With All Of The Words field. Google News would search for articles that contain both words, although they may not necessarily appear side by side in the text. If you want them to appear together, use the With The Exact Phrase field instead of the With All Of The Words field.

There are also search operators specific to Google News. These include News Source, Location, Occurrences, and Date. You can use the News Source operator to find an article that appeared on a specific news site. To do this type the name of a news site, such as **USA Today**, in the Return Only Articles From The News Source Named field. Google News will then limit its search results to those that appeared in that publication. Similarly, you can perform a Location search by typing the name of a country or state in the Return Only Articles From News Sources Located In field.

The Return Results Where My Terms Occur drop-down menu lets you select where in the article your search terms appear. You can choose from Anywhere In The Article, In The Headline Of The Article, In The Body Of The Article, or In The URL Of The Article.

Finally, you can search by Date. First, select either the Return Articles Published or Return Articles Published Between radio button. If you choose Return Articles Published, you will select how recent the articles must have been published (Anytime, Last Hour, Last Day, Past Week, or Past Month). If you choose Return Articles Published Between, you will use drop-down menus to select a range of dates from which the articles may have been published. Because Google News only covers recent stories, you can only search for articles published within the past 60 days.

On Alert

Google News also offers a tool called Google Alerts, which can notify you by email when it finds new articles about topics of interest to you. To use this tool, click the News Alerts link on the left side of the Google News page. You can use the Create A Google Alert box to set up a new Google Alert, or if you have a Google Account, you may wish to click the Sign In To Manage Your Alerts link, which will let you maintain and manage a set of alerts. If you choose to sign in, you will need to click a pair of links to read the Terms Of Service and Privacy Policy. After you read these, click the I Have Read And Agree To The Terms Of Use Start Using Google Alerts button. Then follow the instructions on-screen to log in.

If you choose not to sign into a Google Account, type the words for which you want to search in the Search Terms field. By default, your Google Alerts will include only searches of Google News. However, you can also choose Web, News & Web, or Groups from the Type

drop-down menu. Next, use the How Often drop-down menu to indicate whether Google News should check for new articles Once A Day, As It Happens, or Once A Week. Finally, type your email address in the Your Email field and click Create Alert. Click the Google Alerts link to return to the Google Alerts page.

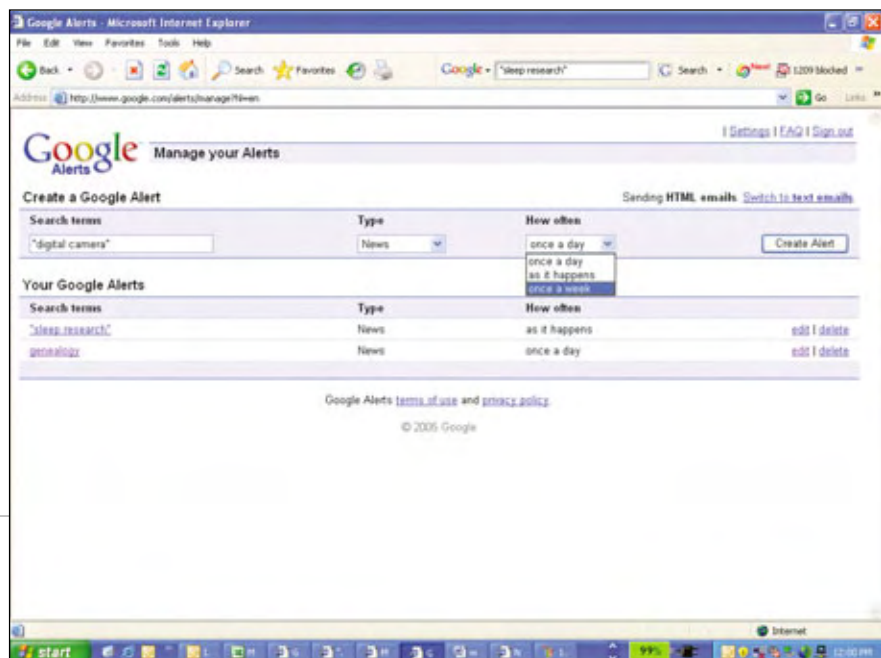
Before you receive any Google Alerts, you will need to follow the instructions Google sent to you in a confirmation message. When you receive this message from Google Alerts (googlealerts-noreply@google.com), click the first link to confirm that you want to receive Google Alerts. Click the second link if you want to cancel the Google Alerts request. When you click the confirmation link, the Google Alerts Manage Your Alerts page will load automatically. You can create additional Google Alerts by typing words or phrases in the Search Terms field, selecting a search type from the Type drop-down menu, choosing a search frequency from the How Often drop-down menu, and clicking the Create Alert button.

You will also see a list of all the Google Alerts you've created. Click a hyperlinked item from the Search

Terms column to perform a quick search of all the articles published about that topic in the past 30 days. If you want to change any of the search criteria for one of your Google Alerts, click the corresponding Edit link. Type new words in the Search Terms field or select new criteria from the Type or How Often drop-down menus. When you are finished, click the Save button. If you want to remove one of your Google Alerts, click the Delete link. To eliminate the Google Alert, click the OK button in the resulting dialog box. By default, Google Alerts sends HTML (Hypertext Markup Language)-based messages to your email address. If you would like to receive basic, text-only messages, click the Switch To Text Emails link in the upper-right corner of the page.

Be Your Own News Editor

One of the most useful tools Google News offers is a customized news page. You can automatically receive the headlines most important to you. Imagine receiving a newspaper with not only sections such as World, Sports, and Entertainment but also Biking, Italian



You can use Google Alerts if you want email notifications when Google finds articles of interest to you.

Greyhounds, and Environmental Engineering. Perhaps you'd have an entire section of the paper devoted to your favorite musician. With Google News you can create a news page that delivers the stories that matter most to you.

If you haven't used Google News' customization options before, you will see the Standard News version of the page. Click the Customized News link in the upper-right corner of the page to create your own personal news page. Then click Edit This Customized Page. In the Edit This Customized Page box, you will see the each of the news sections, such as World, U.S., and Sci/Tech, in the order in which they will appear on your personalized Google News page. To change the content of any of these sections, click the linked title of the section. To remove the section, select the Delete Section checkbox and click Save Changes.

If you would rather make changes to the section, select an edition, such as U.S., U.K., or Canada English, from the Edition drop-down menu. If you would like to change which news section appears in that portion of your personalized page, choose a different news category from the Section drop-down menu. Finally, use the Stories drop-down menu to choose how many headlines Google News should list for the category. When you are finished, click the Save Changes button.

If you want to add one of Google's standard sections (World, U.S., Business, Sci/Tech, Sports, Entertainment, Health, or Top Stories), click Add A Standard Section. Once again, select an Edition, Section, and the number of Stories that Google News should display in the results. Then click Add Section.

What is potentially more useful than Google News' standard sections, though, is its custom sections. You can actually create your own custom sections of your news page that will summarize the most recent news

about topics of your choosing. To get started click Add A Custom Section. Type any words for which Google News should search in the Keywords field. For example, if you wanted your personal page to have a section with news stories about arthritis, you would type **arthritis** in the Keywords field. Use the Stories drop-down menu to choose how many headlines Google News should list for this new, custom category. Click Add Section when you are done.

Finally, you can click and drag sections to change the order in which they appear. When you are done customizing your news page, click the Save Layout button. Then click Close in the upper-right corner of the Edit This Customized Page box.

Get Your Feed Of The News

Finally, one of the latest changes to Google News is the addition of News Feeds. To use this feature, you will need separate software called a feed reader, or you will need a Web site that supports RSS (Really Simple Syndication) or Atom feeds. RSS and Atom are both technologies that let you choose the publications for which you would like to read headlines on a regular basis. Your feed reader will automatically deliver those headlines, short summaries, and links to the news articles. Instructions for using these feed readers will vary, so you'll need to follow the documentation for the program or service you use. At some point you will need to enter the URL for the feed. To do this, right-click the RSS or Atom link on the left side of the Google News page. (Check your feed reader's documentation to find out which standards the reader accepts.) Then click Copy Shortcut.


In the Edit This Customized Page box, you can rearrange the sections of your Google News page and add unique news categories.

Then right-click the appropriate field in your feed reader and click Paste.

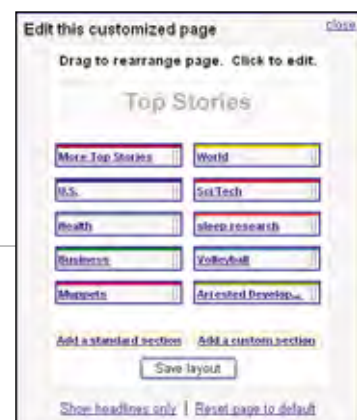
By using feeds you can receive Google News headlines in the same place that you receive all your other news headlines and feeds. In fact, you could even receive Google News headlines through another online news site that supports feeds. For example, you could configure My Yahoo! (my.yahoo.com) to serve Google News headlines on your My Yahoo! page.

There are a couple of downsides to using feeds rather than visiting the Google News page. First, whereas the Google News page displays the top headlines for each news event, the Google News feed will deliver only one top headline for each event. Second, feeds are not available for non-English editions of Google News. This limits feeds to editions such as U.S., U.K., Australia, and other English-based editions.

The News That's Best For You

The great benefits of many of Google's online tools are often that they give you a lot of control over the type of information the search engine retrieves. Google News follows this trend, letting you choose the news categories that most interest you. With Google News you can create a single news source that serves you articles from a variety of sources about the topics you really care about. 

BY KYLE DICKEY



It's Not Cheap, It's Froogle

Your One-Stop Online Shop For
Finding The Best Deals



Sure, your spouse may have blushed when you tried to talk that Girl Scout down a buck or two on those Thin Mints, and the kids were a little embarrassed when you asked the cashier at McDonald's if that was as low as he could go on those Happy Meals, but let's face it, money doesn't grow on trees.

If you believe frugal is an adjective that accurately describes you (though your family might call you downright cheap), Google's beta price comparison program, Froogle, has your name written all over it. It uses Google's search technology to locate numerous online stores that sell the item you want to buy. You can then compare the stores' prices to get the best deal.

First Impressions

You may notice that the Froogle home page (www.froogle.com) is similar to its sister sites, but not exactly the

same. While it displays the typical Google Search box, it also proudly posts the definition of the term "Froogle" right beneath the search section, as well as listing 25 of the most recent items searched for on Froogle. Just to the right of the Search button, you'll notice tiny links to Advanced Froogle Search, Preferences, and Froogle Help. The seemingly obligatory links to Froogle's sister sites (Google Web, Images, Groups, and News) line the top of the search box.

Basic Search

Froogle not only looks much like the main Google Web site, it

Froogle's home page proudly displays the definition of the term "froogle" along with some recently found items. Anyone need a pond pump?

also employs the familiar Google search technology. Google's spideresque software crawls the Internet, making note of Web sites that sell products. When you run a search, Froogle checks these sites for the product you want. If a site has what you want, Froogle will include it, along with other pertinent product and distributor information, in your search results. Much like Google's Web search, a Froogle search will display your results based on relevance to the search terms you've entered.

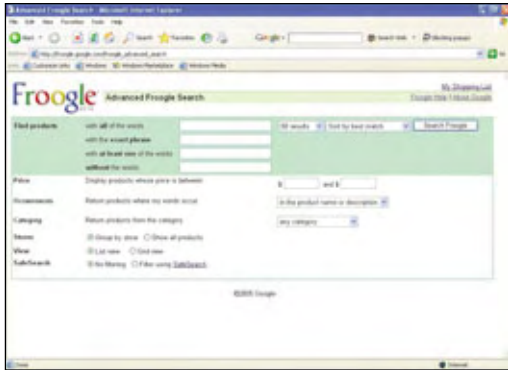
To perform a basic search from Froogle's home page, type the item you're looking for in the search box and click Search Froogle or simply press ENTER. For example, say we wanted to search for a new keyboard: We'd simply type **keyboard** in the search box and click Search Froogle. Of course, if you happen see the product you wanted to search for in the Recently Found Items section, just click it, and you'll be taken directly to the search results for that item.

Advanced Search

If the basic Froogle search just isn't doing it for you, you can try the advanced search. To get there, click the Advanced Froogle Search link just to the right of the Search Froogle button.

You'll first notice that there are four boxes in which you can enter search terms instead of just the one on the basic search option. If you enter your terms in the first box, Froogle will include products whose descriptions contain those words in





The Advanced Froogle Search offers a number of options that let you manipulate variables. You can, for example, control the number of results shown on each page and the format in which Froogle displays your results.

any part of the product description. The box below that is the Exact Phrase section. Use this if you want your results to include only products that have the exact phrase you're searching for in their product descriptions. The next option you have is to perform a search that includes all products that have at least one of the words you're searching for in their descriptions. You can use the final box to narrow your results by entering words that you *don't* want to see in your search. For instance, if you're looking for a PCI Express video card and don't want to waste your time sifting through comparably priced AGP (Accelerated Graphics Port) video cards, you may want to enter PCI Express in the exact phrase search box and then enter AGP in the Without These Words field.

Just to the right of the All Words search box you'll notice a couple more search options in the form of drop-down menus. The first adjustment you can make is the number of results you want to view per page. Froogle will show as few as 10 or as many as 100 results per page.

To the right of the results menu, you have another drop-down menu that lets you choose how you want to view your results. You can sort by the best match to your search query, from the lowest price to the highest price, or vice versa.

In theory, the next adjustment you can control is the price range you're looking for. However, we couldn't get this feature to work on our test

searches. We'd input values for the lowest and highest prices, but when we clicked Search Froogle, our search wouldn't yield any results. While this feature will no doubt be helpful when it is working properly, don't put too much stock in it right now.

The next thing you can adjust is the Occurrences feature. This drop-down menu lets you choose which products to include in your results based on where your search query appears in the product description. You can choose to view results that have your query only in the title of the product, only in the description of the product, or in either the title or the description of the product you're looking for.

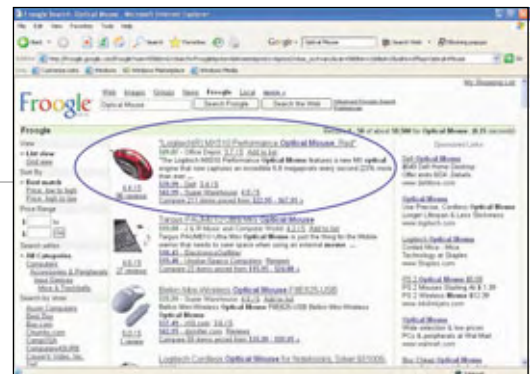
Another useful tool right below the Occurrences drop-down menu is the Category drop-down. Froogle groups the online businesses it searches into various categories. You can use this menu to choose which group of enterprises you want to search based on the type of product you're looking for. Say you want a new mouse for your computer, and not some food for your pet boa constrictor. You can select the Computers category from the list, and you will now search only the computer and computer parts sellers for the term "mouse," and not every seller in Froogle.

The List View gives you tons of information and reviews on the product you're seeking and the online stores that sell it.

Finally, there is a group of three options that each have a pair of radio buttons you can use to customize the display of your results page. The first option lets you choose whether you want your results grouped by stores or if you want to show all the products. When we had the setting on Group By Store, a search for "optical mouse" returned 58,500 matches from 32 different stores. We switched the setting to Show All Products and ran the same search. This yielded 59,700 results, though it was only from 18 stores. As you can see, this didn't appear to drastically change our search results, but it is one more thing you can play around with when you're searching for the perfect widget.

The next setting is View. Use it to choose whether you want to look at a page in List View, which will give you the most information, or as a grid, which will shorten the page by giving the bare-bones information, such as price and the number of locations, and omit the less relevant information, such as product descriptions. (You can still see the product description in Grid View; just click the product you want to learn more about.)

As you can see, there is a lot to soak up in the List View. If you don't necessarily need all the information that displays in List View or if your scrolling finger is a bit out of shape, you might find the Grid View a little easier to manage. The Froogle search remains the same; changing views in no way affects the number





or quality of the results you get; it just displays the results a little differently. Instead of giving each result its own line in the middle of the page, the grid view now fits three products where one fit in the list view. This view doesn't suggest any online stores to buy from like the list view, nor does it contain the part of the description that includes your search terms, but you still get the average product rank and access to the reviews written about the product, not to mention the link that will take you to the page containing the links of all the online suppliers and the prices at which they have your product listed.

The final option you can manipulate is SafeSearch. If you're searching for something in the presence of little ones, it's a very good idea to enable SafeSearch. This screens Web sites that Froogle searches for inappropriate content and deletes all references to sites that contain sexually explicit content. If you go into your Google preferences, you can choose how strictly you want SafeSearch to filter. SafeSearch's Strict Filtering setting automatically filters out both explicit text and images. Moderate Filtering is the default behavior; it filters out only explicit images. Naturally, No Filtering turns SafeSearch off completely.

How To Interpret Your Results

After you run a search with Froogle, you'll be greeted with many

SafeSearch is a handy way to filter out inappropriate Web sites from your search results.

products answering your query. Each of these items comes with quite a bit of information. Let's analyze the data you receive from a typical result in List View. Proceeding from top to bottom, the first thing you

notice is a link that displays the make and model of a product. During our optical mouse search, the first product we saw was the Logitech MX510. If you click the link, it takes you to the product's page on the Web site of the store directly below it. For instance, at the time of print, the MX510 was selling for \$49.87 at Office Depot. When we clicked the main link, we were taken to the MX510 page on the Office Depot Web site.

Just under the link you'll see the price and the seller. Next to the name of the seller is a ranking. Froogle uses a 0 to 5 scale that buyers can use to rank the online store from which they purchased the product. In this instance, Office Depot currently scored a 3.7 out of a possible 5 points. When you click the rating, you can view customer reviews of the store. These reviews are written by customers who have used the Office Depot online store through various Web sites, including Shopzilla.com, ResellerRatings.com, and NexTag.com. While this page only lists a few of the customer reviews, it does offer links enabling you to read all 425,000 reviews of Office Depot on

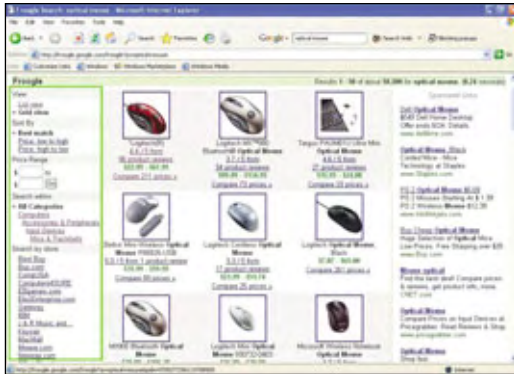
Froogle lets you view thousands of ratings of various online stores from other Internet shopping Web sites.

Shopzilla.com or the 97 reviews found on ResellerRatings.

Next to the store rating is an Add To List link. If you have a Google account and click this link, the product automatically gets added to your Shopping List. Your Shopping List is simply a list you can set up to monitor products. If you don't have the green to spend right now, this is a great way to keep an eye on a potential purchase. Other cool Shopping List features include the ability to make notes about products you're monitoring and the ability to sort the products in your Shopping List by the highest to lowest price, lowest to highest price, the date the items were moved to your Shopping List, or in alphabetical order by product title.

On your results page, there is a column on the left that offers a few simple tools to sort your search results. Think of this as an advanced Froogle search that is slightly watered down. Although you can't select the number of results you view on a page or the level of filtering you would like, there are a number of options you can take advantage of. The first of these lets you switch between the Grid View and List View with a single click. The next adjustment lets you choose the criteria by which you can sort your results. As with the advanced search, you can choose between sorting your results by price or by relevance to your search query. While the advanced search had a section that would allow you to set a low and a high





The guide on the left side of the results page lets you customize your search and your view to best suit your needs.

upcoming holidays or special occasions.

Right below the line that lists the price, seller, and the link to add the product to your Shopping List is a

brief blurb from the seller's Web site that contains your search term in

bold. You can View the entire product description by clicking the link at the top of each product listing. Beneath this description you'll see a link to other notable sellers and the prices they are charging for the product. If these suppliers have been ranked using Froogle's 0 to 5 scale, those rankings will also be displayed. If there are other suppliers that carry the product, those will be included in a link at the very bottom of the product description. This is a generic-looking link that will say something such as, "Compare 18 items priced from \$19.95 to \$29.95." Of course, the number of items and the prices will vary depending on what you're looking for, but the link tells you that Froogle has found suppliers in addition to the few

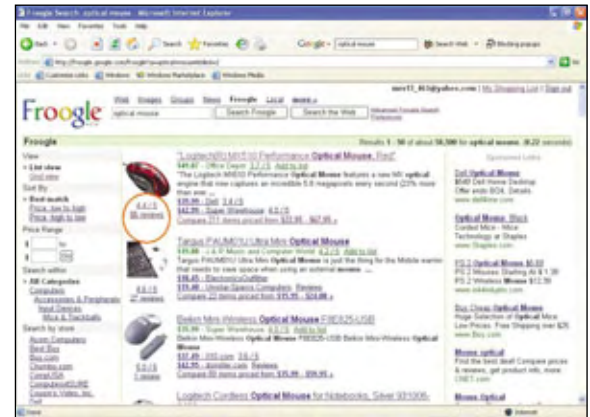
listed that carry the product you're looking for.

Beneath some of the product images you'll see product ranking and review links. These are very similar to the scores and reviews for the online stores. For instance, that Logitech MX510 optical mouse we were looking at earlier has an average rating of 4.4 out of 5. This score is based on 86 reviews, all of which you can read by clicking the links located in the reviews page to which you are taken when you click the product rating.

price between which to search, we had trouble getting it to return results. In this section of the results page, there's a similar price range filter, only this filter worked just fine for us. You can also choose which category and subcategory you want to search or the online store you want to visit.

Shopping List & Wish List

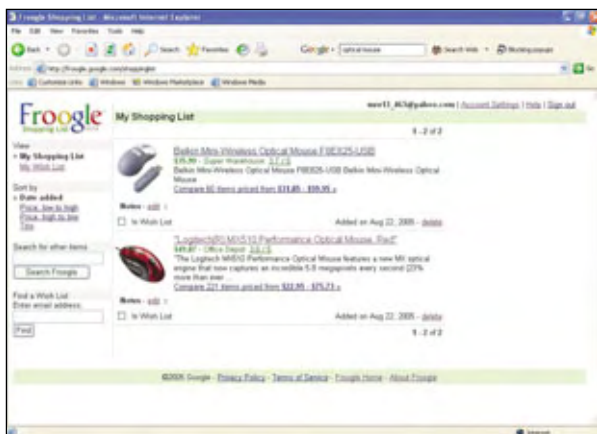
If you're into dropping not-so-subtle hints for birthday gifts, then you'll love the My Wish List feature of Froogle's Shopping List. When you view a product in your Shopping List, you'll see an In Wish List checkbox in the lower-left corner. When you check that box, the item not only stays in your Shopping List, but also goes to your Wish List. The Wish List is similar to your Shopping List, but has its own URL that you can give to your friends or family, so they have access to gift ideas for



If you click the product ranking link, you can see what other people thought of the product you're considering.

A Shopper's Paradise

We would definitely call Froogle a bargain shopper's paradise. It's basically like shopping hundreds, even thousands, of stores from your own computer desk. Froogle's advanced search options really allow you to get specific with your query so that you're not sifting through a bunch of irrelevant results, and you can get a great balance of product and supplier information by adapting the view to suit your needs. The bottom line is simple: Whether you call yourself cheap, thrifty, or economical, you're sure to love Froogle. **RS**



The Froogle Shopping List is an easy way to monitor products you're interested in, even if you're not prepared to buy right away.

BY SAM EVANS

In The Neighborhood

Google Local Helps You Find Everything From Pizza Places To Pet Stores

Google Local came about in March 2004. Sergey Brin, co-founder of Google, said of the project, "Google's goal is to connect searchers with the information they need whether it's halfway around the world or in their neighborhood." Google Local differs from Google's normal Web search in that while the usual search gives you the most relevant search results worldwide, Google Local will give you the most relevant results from a specified area. Though this innovation can help you now, it is still in the beta stages of testing. After all, cross

referencing every business genre using Google's 8 billion-Web-page index will take a while.

Using Google Local

A wonderful aspect of Google Local is its simplicity. From the Google home page, click Local located just above the search line. Enter what you're looking for in the What box and then enter your address in the Where box. For instance, if we were looking for a place to get a haircut near our home base at 131 West Grand Drive, Lincoln, NE, we'd type

Barber in the What box and that address in the Where box. If you plan on searching from the same location for most of your searches, click the Remember This Location box. This should save the location as a cookie on your computer. Every time you go to Google Local, your saved location should automatically appear in the Where box. You can get as specific as you want with your location. If you enter your street address along with your city and state, not only will you get all the results you would if you were searching your town, but you will also have easy access to step-by-step directions from your doorstep to the business you're looking for.

Keep It Local

Right below the search bar of the Google Local search results page you'll see an orangeish-yellow stripe. On the left side of the stripe, it says Local in bold, and on the right side, it says Search Within and then gives you a few different choices ranging from 1 mile to 45 miles. This is the search radius. Your current selection will be in bold. Our current selection is 45 miles. If we didn't want to drive more than 15 miles one way, we could click the 15 mile option just to the left of our current 45 mile radius. Now the only results that will be displayed are those within 15 miles of the search location.

Along with this, it is important to remember that Google Local searches in much the same way Google Web does. Google Web lists search results in terms of relevance, and so does Google Local. With that in mind, don't be surprised if your first search result is 13.4 miles away, while your second search result is 1.7 miles away. Based on your search criteria and Google's search formula, Google determined the business 13.4 miles away from you was more relevant than the place 1.7 miles away, so be sure to check all of your results carefully if you're looking for the



best combination of usefulness and proximity.

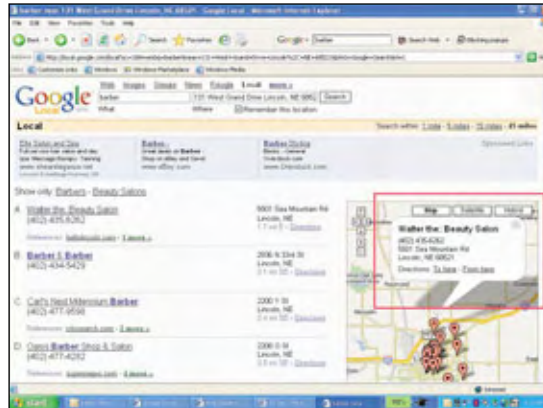
Get Specific

Immediately below the Search Within stripe, you'll notice a blue band that has various sponsored links and a brief description of what these links are. This is similar to the sponsored links you would find on other Google pages. Right below that you may notice a line that says Show Only. If you search for a fairly general topic, as we did with Barbers, oftentimes Google Local will allow you to break down the category into more specific sub-categories using the Show Only feature. For our search for Barbers, we have the option to show only Barbers or show only Beauty Salons in our requested area. This will remove a lot of the irrelevant places and streamline your search results to better fit your needs.

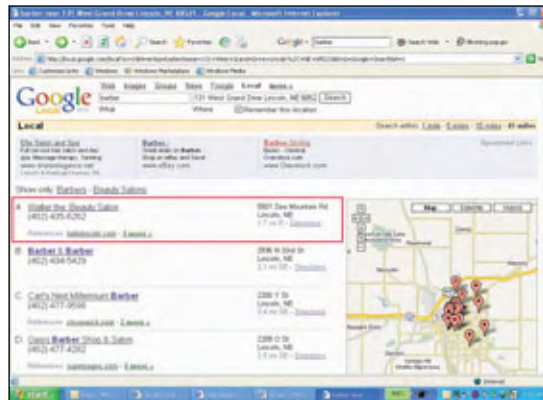
Listings

Below the Show Only line we finally get a peak at our first result. The first 10 results are assigned a letter and pinpointed on a map to the right of the listings. If you have more than 10 results per page, you'll notice that those after the 10th listing will be represented on the map with a black dot on their respective red markers.

Google Local's listing gives the name of the establishment and the phone number below that. Below the phone number, you may notice a line that says References. Google Local gathers information from numerous Web sites and yellow page directories among other sources. The Reference section will give you a link to all the Web sites that cross reference the contact information for that business. For instance, the first listing in our search is The Walter Beauty Salon.



Click the marker to bring up a dialog box containing that business' contact information.



Google Local's results automatically show a business' contact information, as well as links to view directions and references of the establishment.

Google found the location of this establishment from two references. The first is www.hellolincn.com, a Web site that uses the Yellow Pages from Lincoln, NE, to list the address of local businesses.

Google also found the same address for The Walter Beauty Salon listed on www.skincareus.com, so that site is also listed under its references. It's not uncommon to spot a business in your search results that has no references. Don't necessarily discount it just because it doesn't have a reference. Since this is still a work in progress, Google is still listing businesses. However, businesses are also allowed to enroll themselves in the Google Local program. If you see a business with no references, it could be that

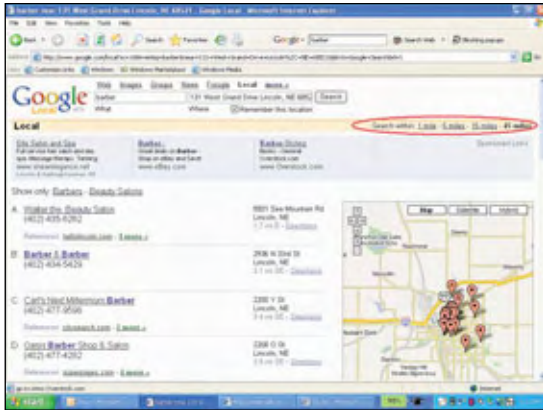
the owner listed the business himself, and Google hasn't had the opportunity to cross reference the contact information, in which case it would be wise for you to double check with your local yellow pages.

Local Maps

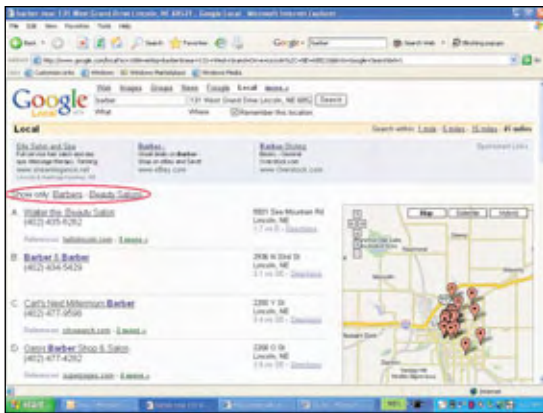
Arguably the coolest feature of Google Local is its implementation of Google's maps. These interactive charts can let you zoom in until you're practically on the rooftop of the business you're looking for.

You can also easily find directions using Google Local. If you conducted a search using your whole address rather than just your city and state, you should automatically get directions to any business that appears on your results list. There are two ways you can view these directions. One way is to click the Directions link that is located right under the address. This should take you to a screen that has just about everything you'll need to find that business, such as a map with the route highlighted and step-by-step directions written out for you. Google also gives you the travel distance and approximate time it will take you to reach your destination along with links to print or email the page as needed.

To view directions another way, you can click the appropriate marker on the map to the right of the listings. A dialogue box will pop up with the name, phone number, address, and directions to and from the business. If you're trying to figure out how to get there, click the To Here link. Next, enter the address you're starting from if it's not already in the text box and click Get Directions. This should take you to the same page as the first process and give you the same printing and emailing options.



The Search Within filter lets you filter out results that are too far away.



The Show Only adjustment lets you get rid of businesses that aren't exactly what you're looking for.

Google vs. Google

You might be wondering just how different Google Local is from a normal Google Web search. We decided to test both and compare our results. We filtered our Google Local search by showing only barbers within 15 miles of our location. This only gave us about 110 search results, but practically all were barber shops and all were within 15 miles of our location.

Our Google Web search was a little different. We searched for "Barbers Lincoln, NE." This search yielded 267,000 results. The first Web site our search listed wasn't even a barber shop, but instead was the Web page for the Board of Barber Examiners. While there are a few names

and locations of barbers sprinkled throughout our search result, very few of them actually have their own Web site. If they do, there usually isn't a problem finding their phone number or address. If these shops don't have their own Web site, oftentimes it's tough to find contact information for them from a Web search. You usually have to go to an online yellow page site for more help.

Although a Google Web search can give you more search results than Google Local, it's important to remember the adage that bigger isn't better. While the sites you're looking for will probably be sprinkled somewhere in your hundreds of thousands of search results, Google Local does a better job of giving you the most information on the businesses that fit your search the best.

Google Local vs. SuperPages.com

While the functionality of Google Local might be more helpful than the extra results Google Web will turn up, it's a little tougher to pick a favorite when comparing Google Local to an online yellow pages Web site such as Super Pages (www.superpages.com). This site allowed us to search locations anywhere from 1/2 to 100 miles from our address. We chose to search within 15 miles, just as we did for Google Local. Super Pages only gave us 77 results,

though it did let us sort these results alphabetically or by distance.

The main downfall on Super Pages is that its maps just aren't as cool. And that's not to say they won't get the job done, because they should be more than adequate. But the Google Local maps that hybridize satellite imaging with street labels are just plain cool.

It's a little tougher to pick a favorite between these two. Google Local has the edge in maps, but Super Pages does offer a helpful outline of related products. This is basically an enhanced version of Local's Show Only filter. If you want to view barbers, just click barbers; however, during your search, Super Pages also searches for businesses in related categories such as Barber Schools and Barbers' Equipment & Supply Stores. While you might not need that information, Super Pages displays it in a tactful way so that it doesn't invade information about your primary search.

Google Local is a wonderful beta program that makes finding places easy. It has helpful interactive maps that let you print or email with just a couple clicks. The satellite maps can even let you zoom in far enough to find the roof of the business you're looking for. If you've been using a Google Web search or even an online yellow page database, you owe it to yourself to give Google Local a try. **RS**

BY SAM EVANS



Google Local is a neat beta program designed to help you find locations for practically any business or service you can dream up.

Google Answers

Call On A Professional For Your Toughest Questions

You remember Mr. Know-It-All. Maybe you called him Mr. Smartypants, but we can all remember the kid with all the answers. With his right hand seemingly constantly in the air, Mr. Know-It-All dispatched questions ranging from “Where is Timbuktu?” to “What is the Second Law of Thermodynamics?” without breaking a sweat. While you struggled through your homework, Mr. Know-It-All, that walking, talking fountain of knowledge, was working ahead at a breakneck pace.

Thanks to Google Answers, you can hire Mr. Know-it-all and put him to work on *your* questions. Although the search engine itself does an admirable job scouring the World Wide Web for answers to your most perplexing questions, technology can only go so far; Google is only as effective as the person using it. That’s not exactly the most comforting feeling when you need to know if a particular tidbit of knowledge is accurate.

A crack team of “more than 500 carefully screened Researchers” constitutes the heart and soul of Google Answers. Even though Researchers are independent contractors (meaning they’re not on Google’s payroll), Google takes this service very seriously and has a number of safeguards in place to ensure the answers you receive are correct.

Before you rely on Google Answers as your all-encompassing authority on the universe’s greatest mysteries, understand there are limits to its power. Although a little



common sense should deter you from asking questions such as “Does that cute girl in the third row even know I exist?” there are certain types of questions Google Answers frowns up and may even remove. Avoid asking any questions that:

- May seek private information about individuals
- Request advice about engaging in illegal activities
- Sell or advertise products
- Refer or relate to adult or lewd content
- Pertain to homework or exam questions (earn that degree, son)

Also, Google requests you send an email regarding any specific questions about Google or Google Answers to answers-support@google.com. Finally, don’t expect an answer to take the

place of certain types of professional advice, such as queries relating to medical, financial, or legal matters.

Answer Hunters

Because Google Answers relies on flesh-and-blood human researchers, its fact-finding process is a little more involved than something such as Ask Jeeves (www.ask.com). The Q & A process is essentially a simple one. When you post a question, it’s fair game to every Researcher. When a Researcher accepts a question and begins to track down the answer, the question is locked for a given amount of time, meaning no other Researcher can provide an answer.

Other registered users (people who use Google Answers just like you) are free to post their own answers as comments, and if you’re satisfied with one of these answers, you can cancel your question as long as it hasn’t been locked or answered (you’ll still have to pay a 50-cent listing fee).

Although some Researchers have expertise in a particular field, don’t assume a Researcher who answers your question about the Valley of the Kings is a scholar in Egyptian history. Google Answers thoroughly screens potential Researchers with test questions and guarantees Researchers are experts at locating information from both online and offline resources. Each Researcher should also have top-notch communication skills, but Google Answers lets Researchers field questions about subjects in which they possess little or no intimate knowledge. Either way, Google Answers offers a refund process if you’re not satisfied with your answer.

To ensure its service remains first-rate, Google Answers regularly evaluates Researchers and their answers. Before they even answer a single question, Researchers undergo a thorough screening. Once a candidate becomes a

bona fide Researcher, Google editors can spot-check the Researcher's answers and return your question to the system if they discover a problem with the particular answer. Finally, Researchers who receive enough negative feedback or have a certain number of questions returned will no longer be allowed to answer questions as a part of Google Answers.

Riddle Me This

You have your question in mind and decide it's time to call in a professional. First, open a Web browser with an active Internet connection and go to answers.google.com. Click **Login In Or Create A Google Account**. If you've never used Google Answers, click **Sign Up Now!** to create a Google account (this also gives you access to the following Google services: Google Alerts, Gmail, Froogle Shopping List, Google Groups, Personalized Search, Google In Your Language, and Google Web APIs). Enter your current email address and choose a password. In the Word Verification section type the characters you see in the field provided. Click **Terms Of Service** if you wish to read the TOS. Otherwise, click **I Have Read And Agree To The Terms Of Use** and then **Create My Account** to proceed.

Google will send an email to the email address you provide to activate the account. Click the first link in the body of the email to activate your account (if you're using a Web-based email account, we recommend opening a separate Web browser). After activating your account, select **Click**

Here To Continue. Enter a nickname (at press time, your Google Answers nickname is unchangeable) and select the type of email notification you want to receive regarding activity with your questions. Click the checkbox next to **I Accept and Create My Google Answers Account**.

Once you create your Google Answers account, you're ready to start asking questions. On your Google Answers account page, click the **Ask A Question** link in the upper-right part of the page. Enter a subject for your question; this can be very broad, such

25% plus a 50-cent nonrefundable listing fee. You can set a price between \$2 and \$200 for your question. Setting a higher price will make your question more attractive to Researchers, and it's almost essential if you have a very difficult question; a Researcher will probably not spend five hours digging up information about Evel Knievel's favorite motorcycle tires for \$3.50. Also, Researchers will usually provide more thorough answers for more compensation. Click **How Do I Price My Question?** for more tips, but the adage "You get what you pay for" is a good rule of thumb.

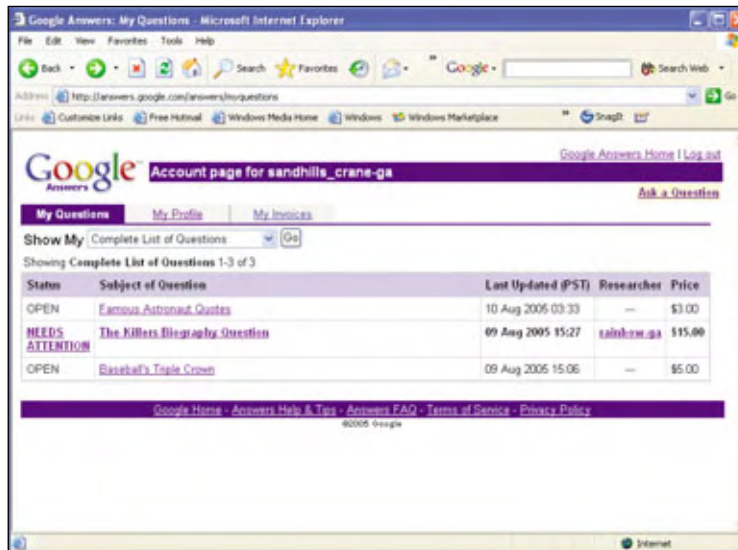
Select a category and, if applicable, subcategory for your question. Our backpacking question may include the **Sports And Recreation** category and **Travel** subcategory. Next, click **Continue To Payment Information**.

You'll enter your credit card information on the next page. Google charges your card after 30 days or for every \$25 you spend, whichever is sooner. After you enter your card information, you can click **Pay Listing Fee And Post Question**

to post your question (Google Answers will then take you to a confirmation page) or **Go Back And Edit Question** if you want to tweak your question. You can preview your question at the bottom of this page before you post it. Once your question posts, it will remain active for one month.

Elementary, My Dear Watson

Google Answers will send you an email when a Researcher answers your question, requests clarification, or if a Google Answers user has left a comment. You can also check your



Think of your account page as home base for all of your Google Answers needs.

as "Backpacking in Europe." However, you'll want to be more specific and provide as many details as possible in the Question field. For example, if you're planning a backpacking vacation across Europe and want to know how much money to bring for hostels, helpful details to include might be the cities you'll likely stay in and the number of other people accompanying you on your trip.

Next, set a price for your question. This is what you will have to pay when a Researcher answers your question. The Researcher will receive 75% of the price, and Google rakes in

account profile for this information. When you log in, your account page should show “Needs Attention” next to the question that has been answered or needs clarification. Click the link, and Google Answers should indicate if the Researcher has either answered your question or requested clarification. If the Researcher asks you to clarify your question, click the Clarify Question button, enter any new information the Researcher requested, and click Post Clarification.

If a Researcher has answered your question and you’re pleased with the result, click Rate Answer and give the Researcher an appropriate rating. Click the drop-down box and choose a rating between one and five stars. Add a comment in the field below, and if you’re particularly pleased with your answer, you can leave a tip

(between \$1 and \$100) for your Researcher. Researchers receive 75% of your original amount offered, but they receive 100% of the tip you leave.

You may not be satisfied with your answer initially, but instead of immediately giving a poor rating or requesting a refund, click Request Answer Clarification, explain your concerns, and click Post Request. If this avenue leads to a dead end or you’re simply not satisfied, you can leave a poor rating and request a refund.

To request a refund, you need your Question ID number. On your account page, click the question for which you want a refund and look at the header. The Question ID number is listed below the line that indicates when the question expires. Next, go to answers.google.com/answers/refundrequest. Click Repost My Question if you want

another Researcher to take a stab at your question (you won’t be charged another 50 cents for a listing fee). Click Request A Refund if you simply want your money back. List the Question ID in the appropriate field and state why you want a refund. Click Submit Request to complete the request.

And That’s Their Final Answer

As you can see in the “Google Answers Put To The Test” sidebar, Google Answers generally provides what it promises. And perhaps one of the best parts of Google Answers is that many Researchers will list the searches they used to arrive at their answers. Study their methods, and you could be on your way to finding answers yourself. **RS**

BY VINCE COGLEY

Google Answers Put To The Test

Just for fun, we thought we would see if this Google service could put its money where its mouth is. We registered for our own account and posted three questions for the Google Answers team. To test the Researchers’ mettle, we posed three types of questions. Without further ado, we introduce:

The Softball. We wanted our first question to be relatively simple yet require a little legwork from a Researcher. In this case, we were interested in discovering how fast someone could answer our question.

Question: “When was baseball’s Triple Crown invented?”

We offered: \$5

Result: A Researcher took a stab at this question as a comment, and we thought it was a reasonable response. Never ones to turn down a freebie, we cancelled the question and only paid Google’s mandatory 50-cent listing fee.

The Fastball. Realizing many people often take facts gleaned from online sources as Gospel, we tried to devise a question that might take our researcher outside the imaginary boundaries of the World Wide Web.

Question: “What high school did The Killers’ guitarist (not bassist) graduate from?” (One of our in-house illustrators attended Pella Community High School, the same school as the big-haired rocker, Dave Keuning. We have the yearbook to prove it.)

We offered: \$15

Result: Our \$15 bounty for this question must have been a suitable offer, because it took our Researcher just under 90 minutes to answer what we thought was a pretty good

stumper. Not only did the Researcher correctly answer our question, our answer contained links for additional information about Keuning and the band itself.

The Screwball. Sometimes, it’s not a Researcher’s fault. In this instance we feigned confusion over a question we asked and hoped a Researcher would recognize the mistake and provide the right answer.

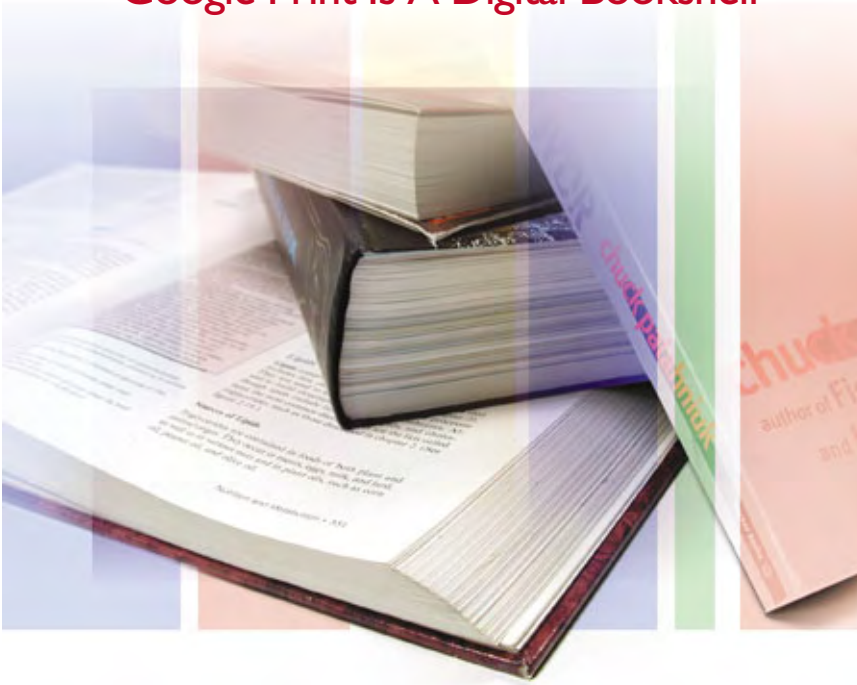
Question: “Did Alan Shepard say any famous words or quotes when he became the first man in space?” (It seems like a simple a question, and you can find plenty of Alan Shepard quotes littered across the Web. But Shepard was only the first *American* in space. Russian cosmonaut Yuri Gagarin was the first *man* in space.)

We offered: \$3

Result: Zoinks! Within a mere five minutes, a Researcher caught on to our tricks, properly identifying Comrade Gagarin as the first man in space (but we should add that the question did trip up a couple of Researchers). Feeling a little guilty, we modified our question in search of a Gagarin quote, and we received a couple of Gagarin quotes in a comment. After a couple of days, a Researcher posted an official answer, and we had our Gagarin quotations in hand. ■

The Ultimate Card Catalog

Google Print Is A Digital Bookshelf



Although doomsayers forecasted the demise of books when personal computers first flooded the consumer market, the talk never turned into reality. Real-world bookstores and print publishers continue to thrive even as other content providers, such as the music industry, scramble to prevent the Internet and home PCs from dragging down offline sales.

That's not to say that book publishers aren't watching the music industry's dilemma with concern. But books haven't caught on in the Internet world as fast as other content, in part because the digital book format changes the way a person reads. Whereas a home user can listen to digital music on a portable music player (which is fast replacing the portable CD player), a digital book reader must leave the traditional book

behind and find a device that has a screen—a far cry from a book's easy-to-flip pages.

Although you won't find a ton of books floating around the Internet ocean, you can search for many offline books from the comfort of your home office, thanks to Google. The search engine behemoth, whose mission is to “organize the world's information,” recently jumped from its online stronghold and landed squarely in the offline world. Thanks to Google Print (print.google.com), you can search offline books via a nearly identical search interface to Google's Internet search engine.

Google Goes Offline

Google Print lets you search for books via the Internet, but it isn't an online library. Other Google search

engines link to content without restricting the information that appears, but if you enter a search term into Google Print, you won't find many search results that display entire books. Google likens its service to a vast online card catalog: The search engine helps users find books that have information about their search topics. Once you locate a book via Google Print, you'll probably need to buy the book or check it out of a library.

What makes Google Print so useful is that you can search a database (that draws from a variety of institutions and publishers) from a single search engine instead of poking around at local libraries or visiting multiple bookstore Web sites. Another plus is that Google Print helps you find books you might miss if you searched the old-fashioned way: Bookstores carry a limited numbers of titles, which means you might never see books from small-time publishers. Because Google doesn't charge booksellers for adding their titles to the Google Print index, small presses are lining up to participate right alongside large publishers.

Where Google Gets Its Books

Until Google stopped adding books to its index (see the “Copyright Trouble” sidebar to read more about why the search engine's ambitious plans are temporarily on hold), it pulled titles from a select group of publishers and libraries. The Google Print Library Project and the Google Publisher feed Google Print's capabilities. The Print Library's pool isn't expanding at the moment; Google has already selected several libraries, including Harvard University and Stanford University libraries and The New York Public Library.

The Google Publisher Program regularly adds to its stable of publishers. Google accepts titles from both small and large publishers and adds a Buy This Book link to search results. As a result, small publishers who can't

afford to promote all of their titles can finally do so without any real investment. Google doesn't charge publishers for this service, as it draws revenue via advertising.

Publishers who have already scanned their own books to PDF (Portable Document Format; Adobe's digital document image format, which displays documents via the free Adobe reader available at www.adobe.com) can simply send the PDFs to Google. But many publishers don't have the facilities to scan books, so Google also accepts book shipments from publishers. (Google has its own scanning facilities.) Publishers can also send a list of titles to Google, in which case Google locates the books at a library and then scans them.

Protect Copyrights

Although some library books fall into public domain (in which case Google can scan them without infringing copyright), publishers own the copyrights to their books. Google Print can display all of a public

domain book to a Print searcher, which means you can find a book via your search term, flip to the first page, and then read it from digital cover to digital cover. Of course, you'd probably rather read the book while sitting in a comfortable chair—keep in mind that Google targets the search engine at visitors who want to find books rather than read them online. Thus, Google Print delivers only a tiny portion of the page in which your search term appears when it finds entries in library books that still maintain copyrights. Publishers, however, must loosen up a little when they agree to let Google index their books: You'll find that most let you view the search term's page, as well as a few nearby pages.

Google also prevents users from abusing its index by blocking some pages of certain books. You can find some viewable pages of most books, but if you run across a search result that blocks access to pages you want to see, you may be able to unlock the pages by registering for a free Google Print account. (If you have a Google

Gmail email account, you can use it in lieu of a Google Print account.) Google tracks searches, which means that if you log into your Google Print account and then search, Google will be able to associate your account name with your searches.

Searching, Searching

You'll find Google Print in Google's More, More, More section. (Click More on the main page to find this area.) If you've searched for Web sites via Google's main page, you won't have any trouble hunting down books; the interfaces are nearly identical. Type in your search term, click the Search Print button (or press the ENTER key on your keyboard), and you'll see a list of books. Each listing includes a photo of the cover (if available), the title, author, year the edition was published, number of pages, and a short clip containing your search term. Not surprisingly, the right side of the search page includes Google's ubiquitous Sponsored Links column. Instead of display adds for books, the

Copyright Trouble

Google Print draws its books from two programs: the Google Print Publisher Program and the Google Print Library Project. The Print Publisher Program hasn't run into any copyright problems as it's an opt-in program: Publishers who want to add their texts to Google Print's searchable database simply send Google the books (or PDF versions of the books) or give Google permission to retrieve the books from a library. Once Google scans the text and adds it to the database, the search engine giant blocks

certain pages so Google Print searchers can't read the entire book

But the Print Library Project (which scans both public domain books and copyrighted books but tightly restricts page views so that searchers can't read much of the text) hit a speed bump. Publishers complained that Google, which scanned books from certain libraries, was actually scanning some books without the publishers' permission. Google responded by letting publishers (and any other copyright holders who don't want their material

added to the database) opt out of the Print Library Project. It also stopped scanning copyrighted material from libraries—putting much of the Print Library Project on hold. (Public domain books remain fair game.) Google pointed out in its blog (googleblog.blogspot.com) that its use of opt-out programs (as opposed to opt-in programs) isn't new. For example, Web site administrators can opt out of Google's index of Web sites. Google plans to resume scanning all library materials in November. ■



SafeSearch

If you have children in the house or simply don't want to accidentally view adult content when you search for information via Google, you can take advantage of SafeSearch, Google's explicit content-filtering tool. As Google's Help Center points out, the tool might not catch every bit of adult-oriented material out there, but parents will probably be glad to have it available.

SafeSearch is enabled by default at the Moderate

setting, which doesn't filter most text but does filter images. To adjust the SafeSearch settings, visit Google's home page and then click Preferences. If you want SafeSearch to check for both text and images, click Use Strict Filtering and then click the Save Preferences

button. SafeSearch applies to Google Print, as well as other Google searches. ■



columns generally tout products that relate (in best-case scenarios) to your search term.

You can learn more about one of these search results by clicking the book's title. Once you click the link, you'll see whatever text Google Print is willing to make available, as well as Book Pages and Buy This Book areas. The links under Buy This

Book take you directly to the book's listings at online retailers. The Book Pages section links to copyright info and may also link to chapter excerpts or an index. The About This Book link takes you to a page that includes a synopsis, a Reviews section that generally includes one-line testimonials, and a Bibliographic Information section that includes

the book's ISBN (International Standard Book Number).

If you can tell by the brief blurb on the main search results page that you have the right book and wrong page (for example, you see a book that probably covers the topic in which you're interested, but the result's blurb isn't in the area of the book that interests you), click the faded More Results From This Book link underneath the blurb. Google Print then lists all instances of your search term and the corresponding page numbers.

Results

Thanks to Google Print's interface, you can easily find books without knowing the title or author name ("What was the name of the book? Something Mockingbird?") and discover other books that you wouldn't have found in your local bookstore. Google Print temporarily stopped adding certain books to its vast collection just before we went to press, due to concerns about protecting copyrights (see the "Copyright Trouble" sidebar), but Google Print's search feature remains available. **RS**

BY JOSHUA GULICK

Copyright Print Account

Google tries to avoid copyright infringement in a number of ways, including restricting access to certain books. When you browse your search results, you'll find that some results let you view multiple pages, while others will let you view only a small portion of the text. And in some cases, the Google Print blocks access to the book and demands that you sign into a

free Google Print account. (If you have a Gmail email account, you can use your username and password.)

If you encounter this restriction and want to sign up for an account, click the



Create A Google Account link at the bottom of the restriction message and then enter an email address and password. You'll also need to enter a special one-time password that appears in the window. Finally, read the Terms Of Service and Google's Privacy Policy and then click I Have Read And Agree To The Terms Of Use. Create My Account. Next, Google will send you an email that con-

tains a link. Click the link to verify your account.

Keep in mind that Google tracks your searches once you sign into a Google account. If you don't want Google to associate your searches with your username, you'll need to log out and settle for the search results that don't require a Google account. Also, you can click the View Unrestricted Page link to view other pages within the book, but these pages probably won't include your search term. ■

Are We There Yet?

Google Maps Revolutionizes Online Mapping



Google revolutionized Web search technology, working as a trusty guidepost for bewildered users trying to find their way around on the Web. The site's massive success meant that it was only a matter of time before Google branched out with tools to help people get around in real life, too. Thus, we have Google Maps (maps.google.com), a mapping site complete with many innovative and typically Google-esque touches that make it more fun and easier to use than many traditional Web-based mapping tools.

Get Lost

If you've never heard of Google Maps before, don't worry, you're not the only one who's unfamiliar with the territory. You won't find

any references to Google Maps on Google's primary search page, partly because (like so many of Google's offshoots) this one is still in **beta**, or test, form. Click More, and you'll see a long list of extra Google capabilities, including Google Maps.

Once you find the Google Maps link, you'll be privy to a new world—literally—of location information. Here, you'll find maps aplenty including detailed information for the United States, Canada, Japan, and the United Kingdom, as well as satellite imagery with fewer details for other areas of the globe. As with other online mapping sites, you can zoom out to get a stratosphere-level view or zoom in for a plethora of details. You can also use Google Maps to find specific businesses, complete with contact information and addresses, and driving directions to

get you across town or from coast to coast.

Getting started is easy. After you load the site in your Web browser, you'll see a map of the United States, and at the top, three tabs: Maps, Local Search, and Directions. Although Google separates these tabs for clarity, they'll usually retrieve the same results for given keywords; for example, typing "pizza in Chicago" on the Maps tab shows the same results as a Local Search with the same keywords.

Better control. After you run a few basic searches you might think Google Maps is just like other mapping sites. But there are plenty of features here you'll find only on Google, including maps that are much easier to manipulate than with other sites, a greater range of detailed search results, and perhaps best of all, maps integrated with satellite imagery.

For starters, Google makes map searches easy. Many mapping sites are completely exasperating because they use clunky interfaces—first, you find the map you want, and then you zoom in to take a closer look. But then you want to pan west, and that's when the problems begin: Every time you click West, the site loads the map all over again, so slowly it feels as if you're panning in slow motion.

Google Maps bypassed this method and instead introduced so-called draggable maps. You don't have to click an arrow to see portions of the map adjacent to the area you're viewing. All you have to do is click the map and drag it, pulling it the way you'd slide a paper map across a tabletop to see areas too far away for your eyes. Double-click any area of the map to center it.

You don't even need your mouse to scroll through the scene. Use the arrow keys to scroll, or to pan even faster, use the HOME, END, PAGE UP, and PAGE DOWN keys. The plus key (+) and minus key (-) come in handy, too, letting you zoom in and out faster than with the mouse pointer.

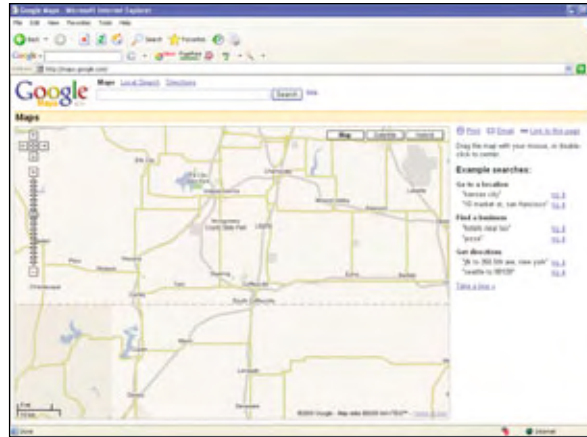
More information. Many mapping sites also make it difficult to access detailed information about area businesses or attractions. Google Maps, on the other hand, simplifies this process by integrating place names and phone numbers into a list that appears on the right side of your map.

For example, if you want to find golf courses in New Orleans, you would type **golf courses in New Orleans** and click Search. The site displays a map of the city with lettered balloons indicating every golf course. Those balloon icons also appear on the right side of the screen next to the golf course names and phone numbers. Click the course name, and you'll see an address, and if it has one, a Web site URL.

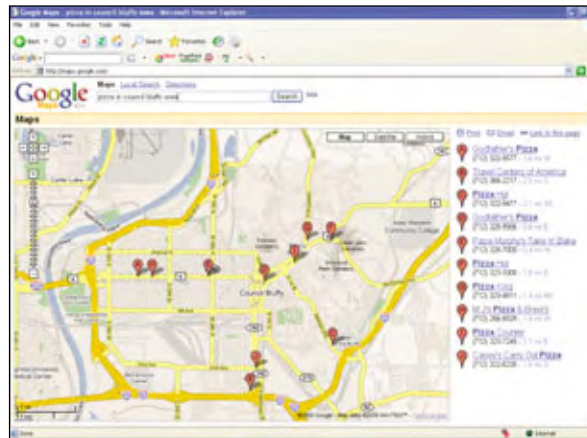
You'll also see links called Directions To Here and From Here. Click To Here and type a start address, and Google Maps will list driving directions to get to the course. Click From Here and type a destination, and Google Maps will tell you how to get from the course to a bar or restaurant where you can relax after your round.

Google plots your route with the starting point as a green balloon and displays a purple line that connects to your red destination balloon. Click either icon and a smaller window pops up, displaying a magnified portion of the area in the immediate area around your destination or starting point. This feature helps you more effectively start and end trips with tricky directions.

Myriad maps. In addition to all of its helpful directional and business information, one of Google Maps' most useful and compelling features is its variety of maps, which include



You can click and drag any part of Google Maps to scroll through an area. A slider on the left side of the page lets you zoom in and out for better views.



Google Maps quickly finds businesses in your area. You'll see icons denoting business locations, as well as phone numbers and driving directions on the right side of the map.

regular map graphics, satellite imagery, or a combination of both. All three versions offer different pros and cons for your mapping sessions, and to switch between the different map styles, just click the buttons named Map, Satellite, or Hybrid on the top right of your screen.

Google Maps' regular color graphic maps look different than those from other mapping sites. Load a map for a specific intersection in your town and you'll see what we mean. With most sites, you'll simply see a tiny section of a typical map with hard-to-read icons. In contrast, Google displays

a broad swath of the area and highlights main thoroughfares in yellow, so you instantly know which streets carry the highest volume of traffic. It also clearly denotes one-way streets with large arrows.

If you want to refer to text-based directions, all you have to do is look to the right side of the page, where Google displays step-by-step instructions for finding your destination. Click the numbers to the left of each step, and Google magnifies the step so you can see exactly how to navigate your turns. Just above these directions you'll see a Reverse Directions link, which flip-flops the starting and ending points, and at the top of the page you'll see one-click links that let you magnify the start and end addresses.

Snazzy satellite graphics. Most mapping sites already offer color maps and text directions. However, Google takes the mapping concept further. Click the Satellite button, and you'll see a map composed of satellite images. Instead of squiggly lines standing in for city streets and highways, you see the roads

themselves. As you can imagine, photos convey a lot of information missing from regular maps. Photos reveal the lay of the land in hills, trees, and other landmarks that you won't see with traditional mapping systems. Plus, it's just way cool to be able to zoom in on your house knowing that these pictures were taken from high above Earth.

Detail level varies depending on the area you search. In general, you'll find more detail in areas with large populations. Zoom in on cities, and you can get close enough to see individual cars. Countryside photographs reveal

plenty of detail for planning trips or just to satisfy your curiosity.

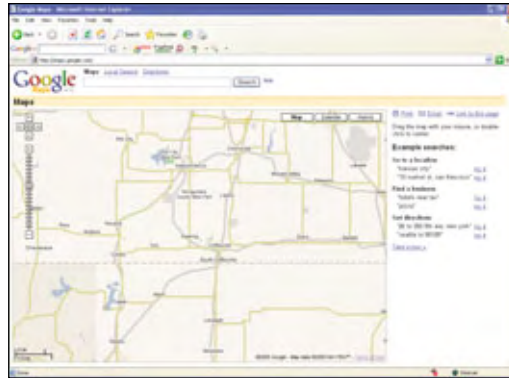
Click Hybrid and Google superimposes many map elements, such as streets and street names, onto the photos you see. In some cases, this layout gives you the best of both worlds, helping you better visualize the area you're viewing, with road names that guide your eyes when you have trouble identifying certain areas on a satellite image. If you're looking for landmarks in an area that's undergone development in the past couple of years, you might notice that the photos are outdated. That's because Google currently uses older photographs for some locations; eventually Google will update these areas to reflect changes.

Endless Possibilities

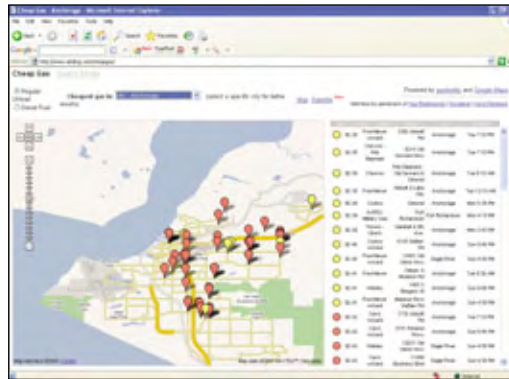
Google Maps is so powerful and so easy to use that it provides endless productivity and fun for Web site developers and Web enthusiasts. Many of these folks combine Google Maps with other software tools to create so-called **mashups**, which are sometimes useful, sometimes just-for-fun programs that exploit Google Maps' power. Here are a few of our favorite mashups.

Web Sightseeing—No time to take a vacation? Go sightseeing through your PC. This repository (googleglobetrotting.com) of Google Maps points you to virtual destinations all over the world. You can check out Rod Stewart's mansion, Disney-Land, and the San Diego Zoo. Or cruise over to Michael Jackson's Neverland Ranch, Area 51, the White House, the World Trade Center site, among thousands of others.

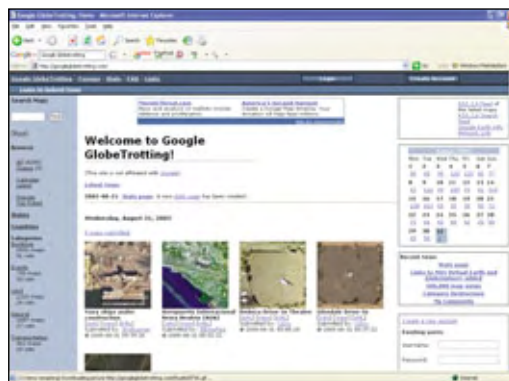
Hot Spots—Clever developers combined the Hot Or Not (www.hotornot.com) personals site with



Request driving directions and Google Maps connects your start and end points and also provides text-based instructions right next to the map.



So-called "mashups" combine Google Maps with other software capabilities. This Cheap Gas mashup helps you find the cheapest gas in your neighborhood.



There are many Google Maps mashups on the Web. Google Globetrotting lets you visit famous sites from around the globe.

Google Maps to create Hot Maps (hotmaps.frozenbear.com) so you can find, roughly, the location of people

who subscribe to Hot Or Not. If you want to get an idea of how many subscribers live in a specific zip code, you can find them instantly, complete with a photo and a link to help you meet your potential date.

House Hunting—Take an aerial tour of homes and apartments in a city where you'd like to relocate using HousingMaps (www.housingmaps.com), which combines Google Maps with real estate listings on Craigslist (www.craigslist.com). Using HousingMaps, you can quickly find housing descriptions complete with pictures and contact information.



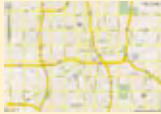
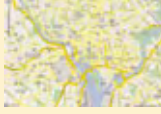
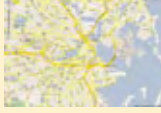

Crime Alerts—Check out the Chicago Crime (www.chicago-crime.org) site, which uses Google Maps to help you see a crime map of the city. You can sort crime by type (try first-degree murder) and then see which part of the city has the highest incident rates. You can even click each crime to see the time and date it was reported.

Cheaper Gas—Tired of wasting gas to find the cheapest fuel in your city? Take a look at Cheap Gas (www.ahding.com/cheap-gas), a site that combines Gasbuddy (www.gasbuddy.com) with Google Maps. Pick your city name from the drop-down menu, and you'll see map complete with current gas prices listed next to fuel station names and addresses. You can even sort by unleaded and diesel.

Virtual Pedometer—Ever wonder exactly how far you're walking or running during a workout, and how many calories you burned? Another developer combined Google Maps with some nifty programming to create the Gmaps Pedometer (www.sueandpaul.com/gmapPedometer) site. Click a few waypoints, turn on the calorie counter, and feel like you're getting exercise sitting at your PC.

The Evils In All Routes

If you set out for Phoenix and wind up in Anchorage, you might want to reevaluate the driving directions you found on that free online mapping site. Well, let's hope no mapping site ever sends you on a goose chase quite this wild, but you should be aware that different mapping sites do offer varying opinions on the best way to get from point A to point B, and one set of instructions may be much more efficient than others. We used three mapping sites—Google Maps, Yahoo! Maps, and Mapquest—to see how proposed routes differed. We entered a number of different start and end points and found that there's no doubt these sites offer very different, and often imperfect, driving advice with significant mileage and driving time variations. Thus, it's best to double-check your results with a printed atlas.

	Estimated Distance	Estimated Drive Time	
Starting point #1			
Google Maps	7.7 miles	16 minutes	
Yahoo! Maps	6.9 miles	15 minutes	
Mapquest	6.49 miles	15 minutes	
Route #2			
Google Maps	2,906 miles	48 hours	
Yahoo! Maps	2,951 miles	45 hours, 24 minutes	
Mapquest	2,912 miles	43 hours	
Route #3			
Google Maps	457 miles	9 hours 13 minutes	
Yahoo! Maps	464 miles	7 hours 8 minutes	
Mapquest	455 miles	7 hours 49 minutes	
Route #4			
Google Maps	1,439 miles	28 hours	
Yahoo! Maps	1,447 miles	22 hours 15 minutes	
Mapquest	1,448 miles	22 hours 14 minutes	
Route #5			
Google Maps	310 miles	6 hours 12 minutes	
Yahoo! Maps	310 miles	5 hours 39 minutes	
Mapquest	311 miles	5 hours 33 minutes	
Route #6			
Google Maps	413 miles	9 hours 1 minute	
Yahoo! Maps	414 miles	6 hours 21 minutes	
Mapquest	417 miles	6 hours 48 minutes	

Route Details


- #1 - South 70th and Pioneers to North 12th St. and Vine Street (Lincoln, NE)
- #2 - Times Square Hilton to Haight St. and Ashbury St. in San Francisco
- #3 - Oklahoma Sooners football stadium to Nebraska Cornhuskers stadium
- #4 - Crawford, TX to Washington, D.C.
- #5 - Philadelphia to Boston
- #6 - E 16th St & Pegram St in Charlotte, NC to Bruce St & W 2nd St in Lexington, KY

It's A Blast—One of the more ominous mashups we found will let you map potential nuclear bomb damage. Load the High-Yield Detonation Effects Simulator (meyerweb.com/eric/tools/gmap/hydesim.html) and you can see a blast radius superimposed across any area you choose. You can also change the bomb yield to see how big a bomb would have to be to cause complete devastation in a specific metropolitan area.

Cell Phone Detective—Your cell phone consistently loses its signal at a specific area in your city, and you can never figure out exactly why. Now you can locate your provider's towers to see if you're simply too far away to obtain a strong signal. Mobleidea built a cell phone tower locator site (www.cellreception.com) that lets you find towers and figure out which provider uses them. You can even click the tower to see its exact location and height above the ground.

Orange Barrel Finder—Combine two powerhouse tools—Yahoo Traffic Map and Google Map—with weather data, and you get a site (traffic.poly9.com) that lets you see weather and traffic information in one snapshot. Click the warning icons and you can view detailed information on traffic delays in your city.

Final Destination

Google Maps has a lot of Google-ish traits, such as simplicity, fun, and innovation, all of which make this site very different from other online mapping tools. Even though the beta version is a little rough around the edges, it's still powerful enough to help you find business information, driving directions, and more, in a matter of seconds, all of which will come in very handy the next time you're plotting out an adventure. 

BY NATHAN CHANDLER

Smart Searches

Google Scholar Pinpoints Scholarly Research



As a scholarly research tool, Google's Web Search can produce unreliable and irrelevant links. For instance, a Web Search for prescription drug studies will often produce links to online pharmacies rather than research. Google has a special tool called Google Scholar (still in beta release) that can help users search for scholarly articles.

Uncover Lost Resources

Google Scholar includes only scholarly literature, such as abstracts, peer-reviewed papers, and theses. Most of the work is from academic publishers, professional organizations, and universities. Nonscholarly sites, such as blogs, online pharmacies, company Web sites, and personal Web pages, should not appear in Google Scholar's search results.

You can access the Google Scholar page at scholar.google.com. The Google Scholar page looks very similar to the main Google page, with a search field, a Search button, and a few links.

Search results are listed in order of relevance, as determined by an algorithm. Similar to how the Google Web Search algorithm considers a site's popularity based in part on the number of Web pages that link to it,

Google Scholar's algorithm determines how well-accepted a scholarly work is based on how many other articles cite it. For this reason, a student's thesis that is not cited elsewhere will rank lower than a journal article cited in 15 other scholarly papers.

The algorithm also factors in authors. It gives greater weight to articles written by people who authored many other scholarly works. Finally, Google Scholar's algorithm also determines search rankings based on an analysis of an article's text for keywords, as well as the number of hits the online article receives.

Although this algorithm often produces the most influential articles, it is not without its faults. Because older articles are likely to have been cited more times than newer articles, we found that older research often ranked much higher than the newest, most groundbreaking research. There are ways, though, to improve your search results, which we will cover later in this article.

Beyond free content. Google Scholar not only lists freely available online content, but also subscriber- and print-only articles. This can be irritating when you don't have instant access to what could be a promising article. But unnecessarily restricting results to

free online content can hinder research. Think of Google Scholar as an online catalog rather than a portal to articles.

If an article is available online, you can click its title. However, if you see "[citation]" in front of an article's title, Google Scholar found the title cited in another article but has not found an online copy of the work.

Google offers tools to help you find copies of articles not available through Google Scholar. First, if you

see a Library Search link next to a title, you can click the link to search for libraries that hold a print copy of the article.

If you click the Web Search link under the listing, Google will automatically perform a Web Search for the article. It performs this search based on the first listed author's name and the first word or words of the article's title. In some cases, it may also include keywords from your original Google Scholar search. Sometimes, this Web Search provides a link to the article at a site not crawled by Google Scholar. The Web Search may also produce a link to a site where you may buy a copy of the publication.

If you simply want more information about the title before buying or checking out a print copy, click the Cited By link under the article's listing. Here, you can browse other papers that cite the article. In many cases, these articles will summarize some of the research contained in the first article.

Google Scholar often provides links to articles with restricted access for which you need a subscription to the publication. Google Scholar requires that publishers provide an abstract if the full text is not freely available. However, we often found that publishers did not follow this rule.

Your library may have a subscription to publications containing restricted-access articles. In addition, your library may make some of its holdings searchable through Google Scholar and available online to patrons. For the most complete access to articles, you should indicate any institution with which you are affiliated. Once you configure Google Scholar for your institutional affiliation, if additional content is available through your library, you will see links to holdings at your library. You should also gain access to restricted-access articles if your library has a subscription to the publication's online content.

To gain access to your institution's resources, click the Scholar Preferences link on the main Google Scholar page. Type the name of your university or other institution in the Institutional Access field and click the Find Institution button. If your library is signed up with Google Scholar, you will see it in a list. Make sure its checkbox is selected. A message on the page also indicates that you may need to log in with a library password, use a campus computer, or configure your browser to use a library proxy. Specific instructions for gaining access to your institution's resources through Google Scholar vary from institution to institution so you will need to check with a librarian for details. Make sure you have cookies enabled (so Google Scholar will save your preferences) and click the Save Preferences button.

Scholar Search Tips

Many of the basics of using Google's Web Search also apply to using

Google Scholar. To brush up on performing a Google search, especially using operators, see "One In A Billion" on p. 31. There are also specialized search tools available in Google Scholar.

To access Google Scholar's special search options, click the Advanced Scholar Search link or go to scholar.google.com/advanced_scholar_search. Here you can add operators (search criteria) to searches. Each field on the Advanced Scholar Search page is for one of the operators. Those under Find Articles, which appear in front of a bluish-green background, are the same operators you'll find in an Advanced Search in Google's basic Web Search. In addition, you will also find the Scholar-specific Author, Publication, and Date operators.

To search for an article by author, type the author's name in the Return

name. Include quotes around the full name for more accurate searches. You can also add an author operator to a search. To do this, simply type **author:** and the author's name (use quotation marks around the name if it is more than one word). Then type keywords for which you'd like to search, for example, **author:"LJ Cooper" histamine**.

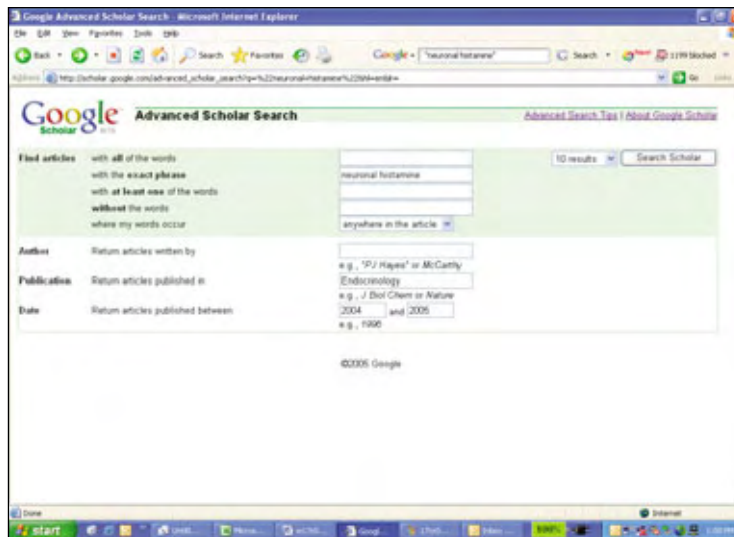
On the Advanced Scholar Search page, the next operator listed is Publication. If you know the journal in which the article appeared, you can search only articles from that publication. You may need to use some trial and error to find the journal you're looking for because citations abbreviate journal names in various ways. For instance, the *Journal of Applied Mathematics* may be abbreviated as *J of App Math* or *Jnl of Appl Math*.

Finally, you can restrict searches by date. This is especially useful if you want only the most recent research on a specific topic. As we mentioned earlier, Google Scholar tends to favor older articles. To restrict a search by date, type a start and end year in the Return Articles Published Between fields.

Higher Education

Google Scholar can provide search results that are far more dependable than those achieved through a regular Google Web Search. Because of its focus on academics and scholarly work,

Google Scholar is mainly geared toward the academic world. Google Scholar's listings are still far from complete, but they do provide a useful starting point for students and researchers. **RS**



You can use the Advanced Scholar Search to narrow search results by Author, Publication, and Date, as well as other criteria.

Articles Written By field and click Search Scholar. Most authors' names are indexed with first initial, middle initial, and last name. However, if you don't get the results you want, you should experiment with other variations, such as first initial and last name or first name, middle initial, and last

BY KYLEE DICKEY

Boutique Searches

Specialty Search Engines
Help You Narrow Your Search



Every member of the driving public has experienced it at one time or another: the inability to find our keys when we're running late for an appointment. Usually, we manage to find them by focusing on the part of the house where we think our keys are most likely to be. If we last came in came in through the kitchen door, there's a good chance our keys are somewhere in or near the kitchen. If we're smart we check there first, rather than start off by looking through the entire house.

Sometimes trying to find information online feels like finding a lost set of keys. And just as when you're searching for your keys, you can improve your chances of finding what you're looking for if you can search a subset of the Internet rather than trying to search the entire thing. Google makes this possible by offering several specialty search engines that target particular subsections of the Internet.

For instance, if you're looking for information about running Firefox

on Windows XP, searching the entire Web is going to yield some results about running Firefox on Linux. A better approach is to use a specialized Google search engine to focus only on Microsoft-related Web sites. When we searched for Firefox on Google's home page, we received 34,900,000 results. Using Google's specialized search engines to focus on Microsoft-related Web sites, however, produced just 4,150,000 results. In other words, using the Microsoft search page eliminated some 30 million results. Still an awful lot to sort through, of course, but only about 11% of the sites we might have had to check out.

That's Our Specialty

Google offers six specialty Web searches, four of which deal exclusively with computing platforms: Microsoft Search (www.google.com/microsoft.html), Apple Macintosh Search (www.google.com/mac.html), Linux Search (www.google.com/linux), and BSD Search (www.google.com/bsd).

Google also offers a U.S. Government Search (www.google.com/unclesam) that helps you find information from government agencies and a University Search (www.google.com/intl/en/options/universities.html) that lets you find information from educational institutions.

You can access specialty searches directly by entering the proper URL, or you can click the Advanced Search link next to the search field on the Google home page (as well as on most other Google search pages). The specialty searches are listed near the bottom of the Advanced Search page (along with links to Google Print and Google Scholar, which we cover on pages 52 and 59, respectively).

Red, White & Blue

Sometimes it feels like government Web sites are designed more to appeal to some sort of arcane set of regulations than for ease of use. Google's U.S. Government Search provides an alternative to the endless browsing of government Web sites. The U.S. Government Search can be helpful for finding mundane items such as tax forms, but most of us already know that we can find such forms on the IRS' site. The real usefulness of Google's U.S. Government Search is when you're not even sure where to begin looking.

Actually, even finding tax forms is simpler when using a specialized Google search than when trolling the IRS' site unaided. A simple search for "1040" using Google's specialty search engine returns a link to the most recent version of Form 1040 from the IRS Web site atop the search results. Directly below the link to Form 1040 is a link to instructions on how to properly fill out the form. In contrast, searching for "1040" from Google's home page returns plenty of pages from tax preparation sites such as eSmartTax and MSN Money, but the IRS link wasn't even included in the first 200 results. Adding "Form" and "IRS" to the search string produced a few links to

sites with information about Form 1040 (some of which may link to the official form), but we still didn't note a direct link to the IRS Web page in any of our results. Even restricting a search for "1040" to the IRS' Web site (www.irs.gov) didn't produce the kind of efficient results we got from Google's U.S. Government Search.

Browsing through government Web sites can be especially frustrating when you're not even sure which government agency you need to deal with. For instance, if you've never had a passport and suddenly need one, you may not know where to begin looking for information. Searching for "passport" on Google's home page results in a bunch of irrelevant links, many related to Microsoft's Passport service. The same search on Google's U.S. Government Search, however, returns a page from the U.S. Bureau Of Consular Affairs (a part of the State Department) with all kinds of information about obtaining a passport, and no mention of Microsoft's Passport service.

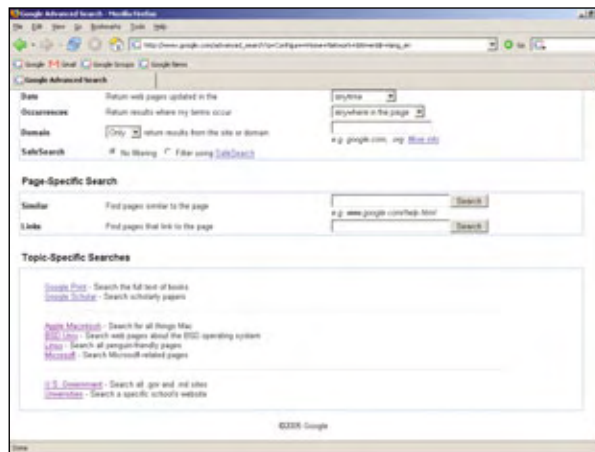
Note that the standard operators we've discussed elsewhere in this issue also apply in all the specialty searches. Placing a minus sign (-) in front of a term, for instance, prevents Google from displaying results that include that term. Placing "OR" (in all caps) between words tells Google to search for one word or the other. Placing a search string in quotes tells Google to search for a specific phrase rather than individual words. For a list of other operators that may be relevant, see "One In A Billion" on page 31 of this issue.

OS Skills

Sometimes finding help with a particular software problem can be difficult, especially if the application runs on more than one operating system.

Again, Google's specialty searches provide a bit of extra help by letting you zero in on a specific operating system. If you're having problems with an application in Windows, you can search Windows-related Web sites. If you can't get KDE working on BSD, you can avoid those pages that discuss making KDE run on Linux.

In some ways, Microsoft may be the most useless of the specialty searches. Given the widespread use of Microsoft's products, it's entirely likely that results from searching Google's home page will closely match results from Google's (sup-



Can't remember a specialty search page's URL? No problem. You can access any of the specialty searches from the Advanced Search page. Just scroll to the bottom of the page and click the proper link.

posedly more specific) Microsoft Search. Searches for a specific Windows error message, for instance, will likely return results from Microsoft-related Web sites only. Therefore, using Microsoft Search probably won't return better or more focused results. As we mentioned earlier, the Microsoft Search may be most useful when looking for help about a cross-platform application (such as the previously mentioned Firefox) that's running on Windows.

Because other operating systems are less popular, Google's Apple,

Linux, and BSD searches sometimes prove more helpful than a Microsoft-specific search. For instance, if you want to know whether you can access a FAT32 external hard drive in OS X, Google's Apple Macintosh Search is a good place to start. Searching for "OS X FAT32" on Google's home page produces 132,000 results. The same search using Google's Apple Macintosh Search yields only 27,300 results, the very first one of which was entitled "Are FAT32/NTFS File Systems Handled By Mac OSX?" which sounds exactly like what we're looking for. As it turns out, the link points to a forum where the topic is discussed and thoroughly answered.

Linux is becoming popular with some power users who have the patience and desire to learn it. If you're one of those determined to give Linux a try, you'll want to keep Google's Linux Search in mind. You'll find, for example, that configuring a home network in Linux is very different from configuring a home network in Windows. Searching for "Configure Home Network" from Google's home page is going to return a lot of Windows-related information. In fact, our first result was "Home Network With

TCP/IP And Microsoft Windows." Obviously, this isn't helpful if you're trying to get your home network up on Linux. You'll need to weed through approximately 7,300,000 results to find the ones that may be relevant to you. The same search from Google's Linux Search yields a still voluminous but much more manageable 241,000 results.

BSD is similar to Linux. In fact, many of the applications that run on Linux also run on BSD. KDE is a popular desktop environment used on both Linux and BSD. Thus, searching for KDE from Google's home page is likely

to result in plenty of information about running KDE on Linux, but relevant BSD information may be harder to come by. Running the same search from Google's BSD Search eliminates more than 7 million results. The general search returns KDE's home page (www.kde.org) as the first result. The first result from the BSD Search comes from the same domain, but it returns pages relevant specifically to BSD (more specifically, a derivative of BSD known as FreeBSD).

As we mentioned, you can use special operators to refine your search, but we should also note that there are no Advanced Search pages linked to specialty searches. The Advanced Search links next to the search field on specialty search sites take you to the same Advanced Search page you can access from Google's home page. As a result, any searches conducted from the Advanced Search page will search Google's general database and be equivalent to a search conducted from Google's home page. You'll need to use special operators on the specialty search page in order to take advantage of Google's advanced search options.

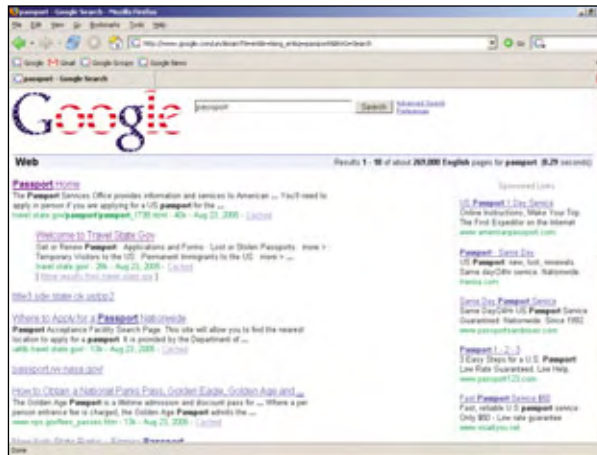
Search Your Alma Mater

Have you ever had to have your former college mail out your academic transcripts? If so, you know how difficult finding the right information on your college's Web site can be. Once again, Google's there to help.

Last time we checked, Google's University Search consisted of 788 colleges and universities each with its own unique search page. You can select your school from a list of schools located at www.google.com/universities.html. This ensures that if you want to find out more about admissions at the State University Of New

York at Buffalo, you won't get results from the State University Of New York at Stony Brook.

If you don't see your college or university listed, you can nominate it for inclusion by clicking the Add Your Campus To This List link. Google will ask you for some information including your name, email address, and



Google has a reputation for turning its logo into a work of art. Perhaps it shouldn't surprise us that the Google logo changes to reflect the specialty search page.

the name and location of your school. Google encourages you to have fellow classmates or graduates suggest the school as well. Inclusion in the list is strictly at Google's discretion, so don't assume that just because you provided the information your school will definitely be listed.

If Google lists your school, click the proper link to go to the specialized search page for that school. In addition to the search field, you'll see a couple of links to Google Groups and Google Alerts. Google suggests using Google Groups to create a discussion group for your school or using Google Alerts to receive email updates about your school. (For more information on Google Groups, see page 73 in this issue. For more information about Google Alerts, see page 10.)

Obviously, if you need to have your transcripts from the University Of Nebraska mailed to another

educational institution, searching for "Transcript" from Google's home page is a worthless exercise, much more frustrating than helpful. Such a search returned 29,600,000 results and most of the results on the first page didn't even refer to academic transcripts. Adding "Academic" to the query reduced the number of results to 7,570,000, but finding the right page for your university among all those results is next to impossible. Even adding "University Of Nebraska" to the search string didn't get us the results we wanted. The first link (from 53,900 results) took us to the University's College Of Law. The correct link didn't appear on the first page of results at all.

Searching for "Transcripts" from the Google's University Search page, however, reduced the number of results to just 17,800, and the first result provided the information we needed. We did note, however, that the University Search feature effectively just searches a

college or university's domain name. That means you can accomplish the same search from the home page if you know the school's domain name by using the site: operator. In other words, typing `transcript site:unl.edu` from Google's home page produces the same 17,800 results.

Divide & Find

The idea of dividing the Internet into subsections is appealing when you're searching for information related to a specific topic. After all, who wants to sift through information about Microsoft's Passport service when you're trying to plan a trip to Italy? The specialty sites we explored here aren't for everyday use, but it's worth remembering that they're an often-helpful option. **RS**

BY CHAD DENTON

It's Not Email, It's Gmail

How To Master Google's Web-based Email

You've mastered email, so now are you ready for Gmail? Most of the hype surrounding Google's Web-based email service is due to the scarcity of its accounts when it was first rolled out (see the "I Want My Gmail" sidebar for more on that), and most of its popularity is due to the massive amount of storage space Gmail offers. Google's plan was to create a service where users

would never have to delete a single email, and for most users the 2.5GB of space that comes with each free account is more than enough room to meet that goal.

Better still, Google uses the search technology it's famous for to search Gmail accounts, letting users sift through thousands of messages in a fraction of a second. The service also organizes messages by "conversation," grouping messages on the same

subject so that it's easy to follow the flow of the discussion.

Although Gmail is still in beta and accounts are invitation-only, it is much easier to get a Gmail account now than it was in the past, and if you are lucky enough to get one, this article will help you get the most out of the service.

Establish An Account

There is a possibility that Gmail will be out of beta by the time you read this, in which case all you'll need to do is visit mail.google.com to sign up for an account. Otherwise have a friend with a Gmail account send you an invitation, click the link in the invitation email that you received and the account creation page opens in your Web browser. You can also sign up for an account using your mobile phone. Click the Sign Up For Gmail Using Your Mobile Phone link in the lower right corner of the Gmail home page and follow the instructions.

On the Account Creation page, the First Name and Last Name you enter will appear in all outgoing emails, and the six- to thirty-digit login name you choose will be part of your Gmail email address. Don't be surprised if the login name you want is already taken, and click the Check Availability button to see if the one you typed is still open so you don't have to retype everything on the page later.

Type in and confirm the password you will use to access the account, pick a security question and answer, and fill in the Word Verification box before clicking the button at the bottom of the page to create your account. When the next page appears, click the I'm Ready – Show Me My Account link and you are automatically logged into your Gmail account.

Establish Basic Settings

Now that you have an account, it's time to set things up according to your preferences. Click the Settings link in



the upper-right corner of the page. If you want to use a different name on outgoing messages than the one you signed up with, click the Accounts tab, click Edit Info, choose the Use A Business Name Or Nickname radio button, and enter the new name.

To change your reply-to address (the address other people see when you send emails from Gmail) click Accounts and click Add Another Email Address. Click Specify A Different “Reply-To” Address and enter the address you want to use instead of your Gmail address. For example, if you enter me@myemailaddress.com in the text box and select the radio button next to it, all messages sent from your Gmail account will look like they come from me@myemailaddress.com. This is useful if you don’t want to use Gmail as your primary email account but need to use it for sending messages when on the road.

Use the Maximum Page Size dropdown menu to choose how many conversations you want to have displayed on a single page in conversation view. The default is 50, but if you have a small monitor 25 conversations may fit more comfortably, and if you have a large monitor selecting 100 can save you some clicks.

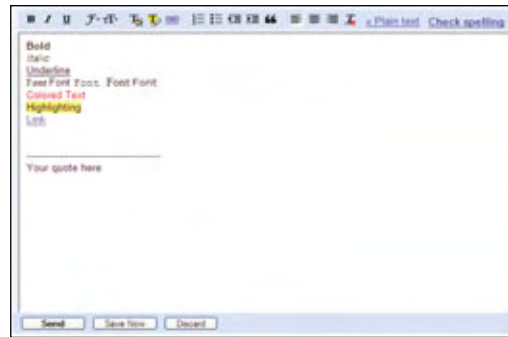
We recommend selecting the Keyboard Shortcuts On radio button to enable that handy feature, which is discussed in detail in the “Gmail Shortcuts” sidebar.

The Personal Level Indicators option lets you mark messages with a double-carat (>>) if they were sent only to your address, or with a single carat (>) if they were sent to a group of people or a mailing list. This is useful for weeding out spam, or unsolicited email (usually marketing messages sent to numerous addresses) or for keeping your personal messages visually separated from those generated by any mailing lists to which you subscribe.

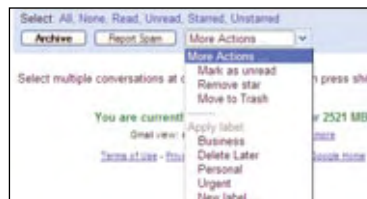
Snippets are enabled by default, and we recommend you leave the

option that way unless you feel the feature is annoying. It simply shows a small portion of the entire message beside each subject line.

The Signature text box lets you add a block of text that appears at the end of each email you send. This is great for business users who want



Use the formatting tools to modify text just like you would with a word processor.



Use the More Actions menu to perform a number of operations on selected emails.

to append their name and contact information to each outgoing message.

If you need to change any of the information that you entered when you signed up for the account, such as your password or the security question, click the Accounts tab and use the link in the Google Account Settings section to make the necessary edits. Be aware that you can never change your login name. To get a different one you must open a completely new Gmail account.

Working With Email

You’ll find all of the controls you need to send and read email on the left side of the interface, so let’s step

through them in order so you can get the most out of Gmail.

Compose Mail

Only the person who invited you knows that you have a Gmail account, so let’s email other people to tell them the good news. Click Compose Mail and enter the email address of the person you want to write to in the To box. Eventually you’ll build up a Contacts list, which we’ll discuss later, and in the future when you begin typing an address, a pop-up box appears containing all of your stored contacts that contain the letters you are typing. When this box appears, if you see the address you are typing, press the Down arrow key until the address is highlighted and then press Enter to automatically add it to the To box.

You can email up to 100 people at once by entering several addresses in the To box, each separated by a comma or semicolon. Or you can click the Add Cc entry and add addresses there if you want to create a Carbon Copy list of recipients. When emailing multiple people using those two methods, everyone who gets the message can see the email addresses of everyone else who got it, and that is not always ideal. If you want to hide all your recipients’ email addresses, enter your email address in the To box, click Add Bcc, and enter everyone else’s email addresses in the Bcc box. Bcc stands for Blind Carbon Copy, and it’s an indispensable tool for those using Gmail for business.

Type a subject in the Subject box and type your email in the text box below that. If you are writing a long email or need to get offline quickly, click Save Draft and it is saved for later editing. Be careful not to click the Discard button, which scraps the current email and dumps you back to the mail Gmail page without any warning. You’ll also notice a row of icons at the top of the text box that

provide access to a number of word processing tools including bold, italics, underline, highlighting, and other features. If you don't understand what a particular icon represents, place the mouse cursor over it and a tooltip box appears under the cursor that displays the icon's name. Also, if you apply formatting and want to get rid of it, highlight the formatted text and click the Remove Formatting icon.

Most of the formatting tools are self-explanatory, but the Link feature is an exception. It lets you turn a selected block of text into a hyperlink so you don't have to paste the messy-looking link directly into the message. For example, if you want to include a link to www.youhavetocheckoutthiswebsite.com into your message, you could type the words **click here**, highlight them, click the Link icon, and type **www.youhavetocheckoutthiswebsite.com** in the text box before clicking OK. The text "click here" now turns blue with an underline to indicate that it is a hyperlink, and when the recipient clicks it, his Web browser will open www.youhavetocheckoutthiswebsite.com.

The formatting tools are only available if you use Gmail's default Rich Text mode. Click Plain Text to switch to that mode, which only lets you type plain text. This is helpful if you are sending email to somebody who can't open rich text emails, which is the case at many businesses as well as some products such as some email software for PDAs.

Gmail has an integrated spell-checker that you can access by clicking the Check Spelling link on the far right side of the message box. Potentially misspelled words are highlighted in yellow, and you can click the word to make a pop-up box appear that contains suggested alternatives. Just click the word on the list that you want to use and it automatically replaces the misspelled word.

One of the great things about email is that it lets you send files to other

people in the form of attachments, and Gmail users are free to append up to 10MB of files to each email they send. To do this, click Attach A File and navigate to the file you want to attach, click the file's name to highlight it, and click Open. You can add several files as long as you don't exceed the 10MB overall limit by clicking Attach Another File and repeating the process. If you accidentally attach the wrong file to an email, click the Remove link next to the file's name to drop it from the list.

When you're done composing the email, click Send to transmit it. This process takes only a few seconds if you have no attachments, but if you included attachments you may have to wait several minutes for the message to be sent depending on the size of the files and the speed of your Internet connection. Don't close the window until you see a message telling you the email was successfully sent, and don't worry about saving a copy—it's automatically added to your Sent Mail folder, attachments and all.

Inbox

Before long, people will start sending messages to your Gmail account, and you can view and manage these files by clicking Inbox. A list of emails and conversations appears, with the most recently received at the top, and they all follow the same basic format.

On the far left of each entry is a checkbox that lets you select the email for further processing without actually opening the message. You can select multiple emails this way, and we'll talk about what to do with selected entries shortly.

Next to the checkbox is a white star, which turns into a yellow star when clicked. Starred emails are displayed in the Starred folder, which makes them very easy to find, and we'll discuss that feature later, as well.

Next to the star is the name of the person or company who sent the email, and if a number in parenthesis appears next to the name it means this email is part of a conversation, or a series of

I Want My Gmail

In the spring of 2004, when the Gmail beta went public and accounts were nearly impossible to get, Sean Michaels founded the Gmail Swap Web site (www.gmailswap.com). Although he already had an account, some of his friends didn't, and he was dismayed when he started scouting around to see how people were getting accounts. "The only thing I could find was eBay," says Michaels, "where invitations were selling for as much as \$115. This crass commercialism really bothered me, so I created Gmail Swap with the idea that creative, kind, and nice people might be able to find other like-minded folk, and find an invitation that way."

The site is all but defunct now that accounts are easy to get but saw more than 300,000 visitors a day at its peak. Here's a list of some of the more memorable swaps that Michaels knows were completed:

Someone who offered to "call his mom and tell her he loved her" was very quickly offered an account

A bodyguard in Chicago guarded someone for a day

A live tarantula

Home-baked cookies

A hot-air balloon ride in San Francisco

A couple of people wrote and recorded original songs for the recipient. One of them is still available at: www.hatheadmusic.com/listenframe.htm

emails to and from the same person regarding the same subject. The number in the parenthesis tells you how many messages are in that conversation.

Next up are the carats that tell you if the message was sent only to you (two carats) or to a group of people (one carat), followed by the email's subject line in black, which is then followed by a snippet of the message in gray if that feature is enabled. This is followed by a paperclip icon if the message or conversation contains an attachment, and then the date the message was sent (or the time, if the message was received that day).

You can click the email entry anywhere to the right of the star to open it, but before we get into that let's talk about what you can do with selected emails. These entries are highlighted in yellow, and if you click one of the entries in the More Actions drop-down menu at the top of the Inbox, such as Mark As Unread, Add Star, or Move To Trash, the effects of those features apply to all of the selected emails. You can also archive email or report it as spam by clicking one of the corresponding buttons to the left of the More Actions box. There are several options next to Select on this screen (just under the Archive and Report Spam buttons), including All, None, Read, Unread, Starred, and Unstarred. Note that when you select an email entry with a number in parenthesis, you are selecting the entire conversation, and any actions you take will apply to every email within that conversation.

Clicking Archive appears to delete the selected emails and conversations from the list, but don't panic—they're actually dumped into the All Mail folder.

If you receive an unsolicited email, select it and click Report Spam to move it to your Spam folder. This also passes it along to the folks at Google for analysis.

Read Messages & Conversations

When you click an entry, the message or conversation it contains will

appear. If the entry is part of a conversation, the most recent message in the exchange appears at the bottom, layered on top of previous messages which can be read by clicking their entries. If you want to quickly display all of the messages on-screen at once, click Expand All.

You can click Reply at the bottom of a displayed message to compose a response (which is then included in the conversation), or click Forward to pass the message along to someone else. Click the Print icon on the upper-right side of the message to create a printer-friendly version of the entire conversation, and click the star on any individual email to star it (found on the upper-right side of the message, next to the sender's name), which is handy if you don't want to star the entire conversation.

You can access most of the features on this screen by clicking the More Options link at the top of an open message. This displays a string of entries that let you Reply to, Forward, or Print the message as normal, but you can also click Reply All to respond to everyone the email was sent to. Click Add Sender To Contacts List to transfer an email address to that list automatically, or click Trash This Message if you want to get rid of an individual email without trashing the entire conversation.

Use the Report Phishing option when you receive an unsolicited email that contains a **phishing** scam, where a thief asks you to send him detailed personal information while posing as a legitimate company such as eBay or even Google. If you have reason to believe an email is attempting to defraud you in this way, click Report Phishing to pass the email to the Google team so they can flag similar messages as potential phishing emails for other Gmail users.

Sometimes it is necessary to see the raw data contained in the email if you are troubleshooting or working with your ISP (Internet service provider) to solve a problem. Clicking Show Original displays the

email in its entirety, complete with all of the tags, headers, and other information that is so helpful when doing this type of work.

If the message you are reading has a paperclip icon, the message has one or more attachments. You can read the name of the attached file at the bottom of the screen and click Download to save the file to your computer. Note the file size listed next to the download link; on slow dial-up connections a large, multi-megabyte attachment can take several minutes to download, and you shouldn't close the Gmail window until the download is complete.

Starred

Clicking the Starred link on the left side of the screen accesses a special

AdSense

Notice the Sponsored Links that pop up on nearly every single Gmail page? The ads pay for your "free" account, but they also represent what some consider the service's dark side. Gmail scans all of the messages contained in the currently displayed conversation and uses keywords from the messages to send targeted ads to your computer. That means you get ads that are relevant to what you are discussing, but it also means that Google is always reading over your shoulder.

The technology driving all of this is called AdSense, and its controversy goes beyond targeted ads. If Google is using your emails about your upcoming vacation to pitch ski gear and reduced lodge rates to you, some wonder what is stopping them from letting others—namely the government—use the technology to create a detailed personal profile. Google claims it is doing no such thing and refuses to comment further. ■

folder that holds virtual copies of all the email starred in your Inbox and All Mail folders. You can manipulate and read the messages here just like you can in the Inbox, but this folder makes it easy to keep track of important messages and conversations. If you want to take an entry out of the Starred folder, select it and click the Remove Star button at the bottom left of the screen.

Sent Mail

The Sent Mail link takes you to a repository of every email sent from your account. Once again, managing messages here is identical to managing messages in the Inbox.

Drafts

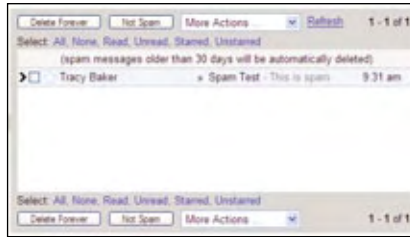
If you click Save Draft in the Compose Mail window, Gmail saves the message to the Drafts folder. To delete a draft, select it and click Discard Drafts. Otherwise simply click the entry for any draft to edit and send it just as we discussed in the Compose Mail section.

All Mail

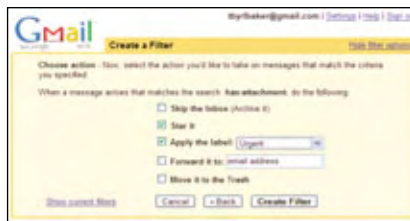
All Mail works precisely as it sounds—you can access every message you receive, send, archive, or save as a draft from this screen. Click any drafts (labeled with red text) to edit and send them, and if you want to reinstate a message or conversation to the Inbox, select it and click Move To Inbox.

Spam

Gmail has a decent built-in spam filter, but you are free to flag any unsolicited messages and send them to this Spam folder. If you make a mistake, select the entry and click the Not Spam button at the bottom of this screen. To permanently delete spam to free up storage space, select it and click Delete Forever.



If you accidentally flag a message as Spam select it and click Not Spam to retract the report.



Filters let you create rules that automatically sort incoming messages.

Trash

Messages and conversations removed from any folder other than the Spam folder are sent to the Trash folder. You can fix mistakes by selecting an entry and clicking Move To Inbox, or get rid of an entry permanently by selecting it and clicking the Delete Forever button at the bottom of this section.

Contacts

You can easily keep in touch with friends, family members, and colleagues thanks to Gmail's Contacts list. The Frequently Mailed tab narrows down the list to the people you talk to most often, while clicking All Contacts displays the entire list. Just select the entries for the people you want to email, click Compose, and type away. Get rid of entries by selecting them and clicking the Delete button at the bottom. You can also add contacts manually by clicking the Add Contact link in the upper right and typing their email addresses. You can also click a person's name and click Edit Contact Information to

change that person's contact information or add some notes. Clicking Add More Contact Info opens entries for a contact's address and phone numbers.

If you already have an email program such as Outlook Express that has a contact list, you can save a lot of time by exporting the list from the email software into Gmail. You need to create a CSV (Comma Separated Values) file to import this information, so refer to the documentation that came with your email to follow the steps for creating such a file. In Outlook Express 6 click File, expand Export, click Address Book, click Text File (Comma Separated Values), and click Export. Choose a file name, click Next, select all of the fields you want to include for each entry, and click Finish.

To get the file into Gmail, click Contacts, click Import Contacts, click Browse, and navigate to the CSV file you just created. Click it, click Open, and click Import Contacts. They should all show up the next time you access the Contacts list.

Labels

Labels provide a convenient way to organize messages by category, urgency, or any other method you dream up. Click Edit Labels in the Labels menu below the links on the left (you may have to click the arrow to the left of Labels to see this menu), enter a name for the label in the Create A New Label box, and click Create. Do this as many times as you like. If you want to delete a label, click the name of the label in the Labels menu, then click the Remove Label "label name" button, which appears both above and below the Labels section. To change the label's name, click the Edit Labels link in the Labels menu, click the Rename link, and make the adjustment. You can also remove labels from here as well, by clicking the Remove link.

Any time you see the More Actions drop-down menu, you can use it to

apply any label you've created to any message or conversation. By clicking the label's name in the Label menu on the left, you can quickly access every message to which that label is assigned, making labels work much like folders do in Windows.

Invite A Friend

If you want to introduce a friend to the joys of Gmail, enter his email address in the Invite A Friend box and click Send Invite. Just remember that you have a limited number of invites (although the current 50 per account is extremely generous). If you don't see the Invite A Friend box you're out of luck until Google allocates some invitations to your account, which is done randomly.

Additional Features

We've just covered the basics so far, but Gmail offers a number of advanced settings and options that can help you manage your email.

Filters

Filters let you apply rules to a message so it's handled a certain way depending on the email address, subject line, or other factors. To set up a filter, click Settings in the upper right of the screen, click the Filters tab, and click Create A New Filter. Enter the information you want to filter in the appropriate text box or boxes (which include From, To, Subject, Has The Words, and Doesn't Have) and click Next Step. Now use the check boxes (such as Skip The Inbox and Star It, among others) to determine how you want Gmail to handle each message that contains the filter data you just entered. Click Create Filter when you are done, and remember that you can create as many filters as you like. To edit an existing filter, open the Filters tab and click Edit next to the filter's entry, or click Delete to completely disable the filter.

Forwarding & POP Access

The main downside to Gmail—and to all other Web-based email services—is that you must be connected to the Internet to read emails you've already received. Fortunately Google lets Gmail users forward messages and access their accounts using POP (Post Office Protocol), meaning it is possible to use an email client such as Outlook Express to compose and read messages when you are offline.


To forward messages to a non-Gmail account, click Settings and select the Forwarding And POP tab. If you want to forward incoming messages to a different account, select the Forward A Copy Of Incoming Mail To radio

button and type the email address you want to forward the messages to in the text box. If you want to keep copies of these messages in your Gmail account, select either Keep Gmail's Copy In The Inbox or Archive Gmail's Copy on the drop-down menu. If you want to delete all emails after they are forwarded select Trash Gmail's Copy instead.

The POP Download section lets you set up the account for direct access to your Gmail messages via software such as Outlook Express. Click the Email POP For All Email radio button if you want to download all messages that are already in the account in addition to all future messages. Select the Enable POP Only For Mail That Arrives From Now On to prevent the software from accessing existing messages. Use the When Messages Are Accessed With POP drop-down menu to select what you want to do with the messages once you receive them, as described in the previous paragraph, and click Save Changes when you are done.

You also must configure your email software to connect to the Gmail account, and the procedure for that varies from program to program. Click Configuration Instructions in the Forwarding And POP tab for detailed instructions if you use Outlook, Eudora, or Netscape Mail.

Don't Forget The Add-Ons

Gmail apparently wasn't enough for Google, and they've enhanced the service with a helpful Gmail Notifier add-on (www.google.com/downloads) along with integration with Google's Picasa 2 photo organization and sharing software (www.picasa.com). Keep a close watch at the Google and Gmail sites for more enhancements, as Gmail is always evolving. There's no telling what features it will support by the time it is rolled out publicly. 

BY TRACY BAKER

Gmail Shortcuts

With Keyboard Shortcuts enabled, Gmail works almost as efficiently as a good standalone email program. Here are a few essential shortcuts to keep handy:

Enter or o	Expand Conversation
n	Next Message
p	Previous Message/Select Search Box
k	Move To Newer Conversation
j	Move To Older Conversation
u	Return To Inbox
x	Select Conversation
s	Star Conversation
r	Reply
a	Reply All
f	Forward
!	Report Spam
g followed by a	Go To All Mail Folder
g followed by s	Go To Starred Folder
g followed by c	Go To Contacts Folder
g followed by d	Go To Drafts Folder
g followed by i	Go To Inbox

Faster Than A Speeding Email

Keep In Touch With Google Talk



Remember the first time you used email? That strange feeling of sending a letter instantaneously to anyone you liked, all without having to pay postage? IM (Instant Messaging) software is designed to let you communicate with someone even faster than that, and all without having to spend a dime beyond the price of your Internet connection and perhaps the price of the IM client. As long as the people you want to chat with have the same software installed, you can let them know when you're online, send text messages back and forth instantly, and even have a voice chat if you have the right software.

Google Talk (free; talk.google.com) is that software. It may not yet be as full-featured or as popular as some of the established instant-messaging programs, such as ICQ 5 (free; www.icq.com), Yahoo Messenger (free; messenger.yahoo.com), or MSN Messenger (free; messenger.msn.com), but it's definitely worth a look, and unlike

many competing products it is also advertising-free.

Basic Features

Google Talk provides anyone with a PC and an Internet connection with instant IM and voice-chat capabilities. The service currently only lets you communicate with other people who use Google Talk and not with people who use other IM clients.

IM lets you participate in what amounts to an email conversation. You type lines in a text box, press ENTER, and what you type instantly appears in a chat window on your screen and on the screens of any other Google Talk users you had selected before sending the message. This window keeps a running log of the chat session so you can easily scroll through the conversation, and it's easy to message individuals or groups of people.

The voice component of the service works quite a bit like a phone call and has terrific audio quality, but you need

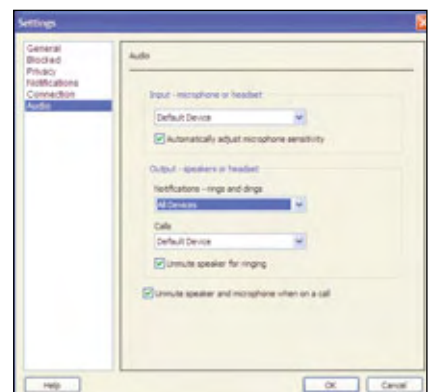


You don't have to accept invitations from people who want to add you to their Friends List.

a microphone and speakers or a headset with a microphone to take advantage of this feature. Headsets are ideal because they provide the privacy of a typical phone call. Analog products, such as Plantronics' Audio 40 (\$24.95; www.plantronics.com), are an inexpensive option if your computer has a sound card with microphone and headphone jacks. But we recommend digital USB headsets, such as the Logitech Premium USB Headset 350 (\$49.99; www.logitech.com), because they provide superior sound quality and work with any computer that has a USB port.

Sign Up

You need an invitation-only Gmail account to use Google Talk, but those are very easy to come by these days and Google also recently established an automated system that lets any mobile phone user instantly receive a Gmail invitation. Just go to www.google.com/talk and click the Get An Account link. Enter your mobile phone number in the first text box, enter the word that is displayed in the



Be sure to let Google Talk manage the microphone sensitivity.

second text box, and click Send Code. Google sends a text message to your cell phone that contains the code, which you can then enter on the next Web page that appears to activate your Gmail account.

Once your Gmail account is up and running, go to www.google.com/talk again, only this time click Download Google Talk. You can save the installation file to your Desktop and double-click its icon to proceed, or click Run when the Internet Explorer File Download dialog box appears to automatically download and install the software.

When installation is complete, launch the program and a Sign In window appears. Enter your Gmail username in the Username box and your Gmail password in the Password box and click Sign In. If you don't want to do this every time you launch Google Talk, be sure to select the Remember Me On This Computer checkbox, but keep in mind this will let anyone using the computer access your account.

Once your account is set up you can invite current Talk users to join your Friends List or nonusers to get started using Google Talk. Click Add Friend at the bottom of the Google Talk box, enter the email address of the person you want to invite (you can enter multiple addresses in the box as long as each is separated using a semicolon), and click Next. You can also click the Choose From My Contacts button and easily add invitees from your Gmail Contacts list before clicking Next. Click Finish to return to Google Talk.

Each invitation includes a Gmail account invitation so your friends can get connected right away. Note that the Gmail invitations are deducted from the number of invitations that are assigned to your Gmail account, but inviting other Gmail members doesn't count against this limit.

Configuration

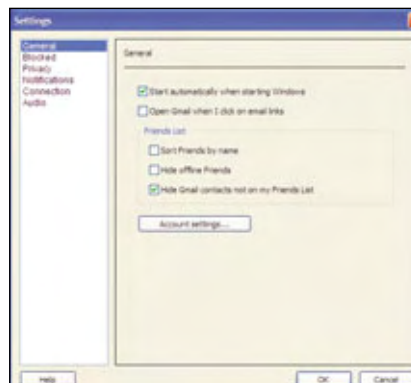
To configure Google Talk, click Settings and select the General entry. If



You can invite others to use Google Talk, but they need a Gmail account.

you want Google Talk to load each time Windows starts up, select the Start Automatically When Starting Windows checkbox, and if you want to use Gmail by default when you click email links, check the Open Gmail When I Click Email Links option. If you leave the latter checkbox blank, Windows will open your default email program, such as Outlook Express, instead of Gmail when you click an email link.

In the Friends List section, click Sort Friends By Name if you want them listed that way instead of in the order in which you added them. Also, check the Hide Offline Friends checkbox to only display online users in the Google Talk interface. Another useful option is the Hide Gmail Contacts Not On My Friends List box, which keeps your Gmail contacts list from cluttering up the Google Talk interface. Clicking the Account Settings button takes you to the Google Accounts Web page, where



The General Settings let you tell Google Talk to start and log you in each time Windows loads.

you can manage such information as your password, name, and other Gmail data.

Choose the Blocked entry to access the list of names that you've removed from your Friends List (more on that later). To restore a contact to your Friends List, click the appropriate entry in the Name box and click Unblock.

Google Talk saves a text file containing your recent chat sessions. If you don't want to save this information, choose the Privacy entry on the left and remove the check mark from the Save Recent Chat History checkbox. The program also automatically adds people that you email frequently via Gmail to your Friends List; to prevent this deselect the Add People I Communicate With Often To My Friends List checkbox.

The Notifications entry on the left lets you tell Google Talk how to alert you when a new message or call comes in. If you want silent notifications, remove the check marks from the Play Sounds options. If you only want sound and don't want pop-up text alerts, deselect the Show Notification options.

Few home users will need to access the Connection entry, as it is only used if your computer requires a proxy to access the Internet. If this is the case at work, select the Use The Following Proxy radio button and ask your IT department for the host, port, and authentication information you need to enter in the appropriate fields.

The Audio entry lets you adjust voice chat settings. Use the drop-down menu in the Input section to select your microphone or headset and for best results fill in the Automatically Adjust Microphone Sensitivity checkbox. Also select the appropriate device in the Calls checkbox. (Use Default Device or your sound card if you want to listen using computer speakers.)

Start Talking

Now it's time to adjust availability settings to let others know whether you are available for chatting, busy,

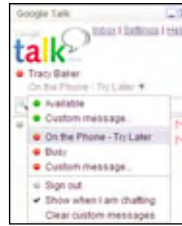
or anything in between, thanks to the ability to add custom messages. Click the Down arrow under your name to access the list and click a selection to activate it so that others see it on their computers. To create a custom Available message, click the Custom Message entry with the green circle next to it. To create a custom Busy message, click the Custom Message entry with the red circle next to it. Type the message you'd like other users to see, press ENTER, and the new message is activated and will be available in your message drop-down menu in the future. There is no way to edit or delete an individual custom message (changing the text creates a new entry), but you can delete all of your custom messages by clicking Clear Custom Messages in the drop-down menu.

There are a few other important entries accessible via this menu. Sign Out signs you completely out of Google Talk, which makes you appear Offline to other Google Talk users and also lets you sign in under a different account, which is handy if multiple people use the same computer. The Show When I Am Chatting option is turned on when clicked (this is indicated by a check mark next to the entry) and displays a keyboard icon in the other person's chat window whenever you are typing, showing them that you're in the process of responding.

You can right-click entries in your Friends List to open a menu with a few additional options. Click Rename to change the contact's name on your list or click Remove to add them to the Blocked Contacts list.

Instant Messaging

To send instant messages, click the name of any contact in your Friends List and a chat window appears. Type what you want to say in the text box at the bottom of the window, press ENTER, and Talk sends the message. It also appears in your chat window



Custom status messages let you give people specific reasons for being unavailable.

along with any replies you receive, and you can use the scroll bar to scroll backward and forward through a conversation if it extends beyond the chat window.

It is possible to initiate multiple conversations at once; just click multiple contact names to open separate chat windows for each person. Talk automatically stacks these windows and lets you rearrange or move them to other parts of the screen by dragging and dropping them. Click the gray bar at the top of a chat window to collapse it, making room for more windows. When you finish chatting, click the X button in the upper-right corner of the window to end the connection.

A contacts who is online and available for chatting has a green icon next to her name. A red icon indicates that she is busy, and a gray icon indicates that she is offline. A yellow icon appears if she is online but her computer has been idle for more than 10 minutes. To contact someone who is busy, offline, or idle, click the Email button in the chat window or the envelope icon next to her name to send her an email.



Click the phone icon to call someone, then click End Call when the call is over.

Voice Chat

If you and the person you want to talk to have headsets (or microphones and computer speakers), you can initiate a voice call by clicking the telephone handset icon next to her name or by clicking the Call button in the chat window. Your computer and her computer will ring just like telephones until she answers the call by clicking the Answer button or denies the call by clicking the Ignore button. Click Mute to mute the call and click End Call to hang up.

Integrating Google Talk

There are many popular IM programs, and there are nearly as many popular programs designed to consolidate all of those IM accounts under a single, unified interface so users can avoid opening scads of windows at once to chat with their friends. It is easy to incorporate Google Talk into programs such as Trillian Pro 3 (\$25; www.ceruleanstudios.com), Gaim (free; gaim.sourceforge.net), and Psi (free; psi.affinix.com) as long as you know what settings to use. Google has detailed integration instructions for a variety of popular consolidation programs at www.google.com/support/talk in the Third Party Applications section. Click the More link in that section for a complete list.

More To Come

Google Talk was still in beta at press time, meaning it is in limited public release but that Google is still working out bugs and adding new features. The company has already announced that it is working on ways to let Google Talk users communicate with users of other software, and that it would like to add rich text features in the future to let users spice up the look of their messages. As with Gmail, it looks as though Google is just beginning to tap Google Talk's potential. **RS**

BY TRACY BAKER

Get The Message?

Google Groups Makes It Easy To Share Interests Online



What do an Indonesian acoustic guitar player and a NASCAR fan have in common? No, there's no punch line. You have something in common with them too, provided each of you has Internet access. You're all able to go to one online meeting hub to chat, trade advice, and gather information on hundreds of thousands of diverse topics.

Google Groups is a free Web- and email-based forum that lets you communicate with your next-door neighbors and faraway strangers through discussion groups. Groups are arranged by subject matter, and they range from the practical to the esoteric. No matter what you're interested in, Google Groups is certain to offer a subject group that fascinates you.

Let's Get Started

The best way to get a feel for Google groups is to dive right in and browse the site. Head to www.google.com and click the

Groups button to go to the Google Groups Beta site. The site is officially a test version, and the Google spokesperson we talked to did not give us an official release date. We ran into a couple minor glitches when trying it out, but overall Google Groups is well-organized and easy to use.

Given the number of groups that Google Groups contains, the home page is deceptively simple. Navigation links to other Google sites are located just below the banner, beneath which sits a search engine for searching Google Groups only. (If you want to run a Web search, you'll need to return to Google's home page.) Below the search box you'll find a login area, followed by a list of topics. Topics are grouped into broad categories, and they include Arts And Entertainment, Computers, Home, Recreation, Science And Technology, Business And Finance, Health, News, Regions And Places, and Societies And Humanities.

Pick any topic, and you'll see the topic's Group Directory page, which has a consistent look and feel across each topic. For a change of pace, we forego checking out the Computers category and select Recreation, where we see an index list of nearly two dozen topics ranging from Antiques to Guns to Travel. The numbers in



Google Groups lets you communicate with hundreds of thousands of people around the world.

parentheses next to each topic indicate how many groups are devoted to that topic, and they can be in the single digits or much, much larger. Groups are also indexed by Region, Language, Activity, and Members.

For instance, at the time this article was written—and because groups are so active, the numbers are certain to change by the time you read this—the Recreation category included more than 400 groups based in Europe and 56 in Canada. And you don't have to be an English-speaker to take part, either; there are Japanese, Serbo-Croatian, and Portuguese groups, to name just a few. The index also shows how many groups are active versus those that are a bit dormant, and how large the groups tend to be. Perhaps surprisingly, most of the recreation groups have fewer than 10 members, although a few are practically virtual arenas with more than a thousand members each.

Okay, enough with the numbers. It's the groups themselves that make the site so interesting. Below the broad index list is the first page of the group listings. For example, in the Recreation category's main page, we see a woodworking group, a poker group, and a video arcade group, among others. We checked out the woodworking group, where we found a plea for help with a warped tabletop, a recommendation for sandpaper, and tips on running air compressors.

The first 15 groups are on the first page, with other group listings on subsequent pages, and the groups appear to be in no particular order. You may see that some of the groups have somewhat confusing names, such as `rec.games.frp.dnd`, which is a hold-over from the earlier days of the

Internet. (See "The History Of Usenet" sidebar for more information.)

While it's interesting to browse the groups to see what's there, certainly you aren't going to be interested in all of them. That's where the search engine comes in handy. Given Google's popularity as a search engine, it should come as no surprise that Google includes a useful tool for searching Google Groups, too. Head back to the Groups home page and click the Search Groups button or find it at the top of almost any Google Groups page. Type in a keyword and click the Search button. In our example, we typed the keyword mortgage, and we turned up 151 groups, including Mortgage Rates, Real Estate And Mortgage Service Marketing Focus Group, and Mortgage Loans.

You may also want to tailor your results by taking advantage of the advanced search feature. Next to the Search button is a small text link, Advanced Groups Search. Click it, and you'll have much more control over the results Google returns to you. For instance, you can search messages

by exact phrase or by excluding words, and you can search by subject line or message date.

Join & Subscribe

While you were browsing through the site, you may have come across a message in a specific group that tells you only members are allowed to post to that group. Yes, you can access any of the public content on Google, but some groups have restrictions on how you can interact with a group, and there are other features that you can use only if you have created a Google account. To participate fully, you'll need to both join the service and sub-

scribe to various groups.

To "join" Google Groups means that you create an account with Google. (If you already have a Google Account, such as when you signed up for a Froogle Shopping List or Google Answers, you can skip this step. And Gmail users can sign on to the Google Groups service by submitting their usernames and passwords.) On the home page, click the Join link next to New Users. Enter your email address, choose a password, and retype it for verification. Create a nickname if you'd like and type the characters you see on the screen into the Word Verification box; this helps protect against automated programs signing users up for unwanted email. Then, click the Create My Account button.

Within seconds, you'll receive an email message asking you to verify your email address and activate your account. Click the link in the email, and you'll be transported to a Web page that thanks you for verifying your account. You're now an official Google Groups member. Head back to the home page, click the Members:

The screenshot shows the Google Groups account creation page. At the top, it says "Google Accounts Create a Google Account - Google Groups". Below that, it says "Google Groups: Create a Google Account". There is a paragraph of introductory text and a link "Learn More". Then, it asks "Do you already use Gmail, Google Groups, Personalized Search, Google Alerts, or Froogle Shopping List? If so, you already have a Google Account. Sign in with your existing account to use Google Groups." The main form area is titled "Required information for Google account" and contains:

- "Your current email address:" with a text input field and a small example "e.g. myname@example.com. This will be your username and sign-in."
- "Choose a password:" with a text input field and "Minimum of 6 characters in length"
- "Re-enter password:" with a text input field
- "Get started with Google Groups" section with:
 - "Nick name: (optional)" with a text input field
 - "Word Verification:" with a text input field and "Type the characters you see in the picture below" above a CAPTCHA image showing the word "mistse". Below the CAPTCHA is the text "characters are not case sensitive".
 - Links for "View the Terms of Service, & Privacy Policy." and "You must accept the Terms of Service to create a Google account."
 - A "Create my account" button.

To participate fully in group discussions, you'll need to create a Google account and log in.

Sign In link, enter your email address and password, and click Sign In.

Joining Google Groups doesn't mean that you can access all groups, however. Some groups are restricted, which means that you must be invited to join them in order to participate, and that includes basic tasks such as reading messages. Other groups, while not completely private, ask you to become a member before you can perform tasks such as posting messages to other members. To participate in these types of groups, you need to subscribe to them.

The first time you sign in to Google Groups, you'll see a My Groups page listing all your groups—at this point, the list is empty—and a search engine for locating groups. Once you've located a group that interests you, you're ready to join it. Depending upon the type of group, you'll see either a Subscribe To This Group link or a Join This Group link at the top of the group's home page. Click this link.

On the left of the sign-up page, you'll see a series of radio buttons that give you options for reading group messages. These options vary by group, but they can include No Email (you read the messages on the Web site), Abridged Email (you receive a summary of the messages posted each day), Digest Email (up to 25 messages are bundled into one message and shipped to your email inbox), and Email (each message is sent directly to your inbox). Select the desired radio button and type the nickname you'd like to use.

In addition, you may find that joining some groups requires moderator approval. Some groups are moderated, meaning that a person reads and approves your messages before they are posted to the group. If a group moderator requests that you explain why you want to be in the group, you'll find a place to type that information. Click the Apply To This Group button. Once your subscription has been accepted, the group listing appears on the page you see when you sign in to Google Groups.

Oops—we made a mistake. We signed up for a promising-looking group related to jobs in our home state, but it turned out to be packed with hot, hot, hot money-making offers and thinly disguised ads for pyramid schemes. (Do you really believe you can receive up to 105% rebates on all your purchases?) Fortunately, it's easy to unsubscribe from groups. At the top of the group's main page, click the Unsubscribe Or Change Membership link, and on the membership page, click the Unsubscribe button.

Read Messages

OK, we're back in business. We've found a group we're interested in, and it's on to reading its content. If you chose to view message by email, you'll see them in your email inbox. But if you chose No Email or if you want to view messages on the Web in addition to viewing them by email, you can do so on the Google Groups site.

The entire Google Groups database contains more than a billion messages—that's right, billion with a

“b”—so you might expect that the groups may be a tad difficult to navigate. But for the most part they aren't, once you understand what you're looking at.

Message topics are organized by date, with the most recent topic listed first. In this case, topic refers to the subject line of the message, not the broad category the group falls into. For example, consider a group devoted to discussing a specific NHL hockey team. The group falls under the Recreation category and Sports topic (it appears as Recreation > Sports in the Google category listing), but when we're talking about topics here, we're talking about messages devoted to specific subjects, such as the team's signing of a new player or a discussion of the general manager's competency.

On a group's home page, you'll see two links near the top: Viewing Titles Only and View With Message Text. The first time you use the service, we recommend you click Viewing Titles Only because this lets you see many of the various topics at a glance. We also recommend you click Sorted By Date

Netiquette (Internet Etiquette)

Every society has customs and norms for communicating, and the Internet is no different. If you're relatively new to communicating with online groups, or you simply want to brush up on your manners, here are a few tips.

Look before you leap. The best way to learn how to communicate appropriately online is to watch what others are doing. Read numerous posts to get a feel for a group's style and content before you jump in with your own comments. And, be sure to do a thorough search of a topic before you create a post. There are few things more annoying to longtime users than to see the exact same discussion appear ad nauseam.

Avoid advertising overtones. Sure, you have the perfect doohickey for a widget-loving group, but folks aren't online to

hear your sales pitch. People are increasingly sensitive to unsolicited commercial email, and what's perceived as spam may get you banned from a group.

DON'T TYPE IN ALL CAPITAL LETTERS. IT LOOKS LIKE YOU'RE SHOUTING. Enough said.

Remember you're communicating with real people. The old saying goes that on the Internet, no one knows you're a dog. It's intended to mean that almost anyone can go online and say anything, but it's also a good reminder that there are real people on the other side of your computer screen. When you have a difference in opinion on a topic you feel passionately about, take a deep breath and remember the other person has feelings that go with those (in your humble opinion) misguided thoughts. ■

Start your own group and keep it as public or as private as you wish.

Of First Message because this will make it easier to read through a thread, or topic, the first time.

Click the topic line of a message that interests you. In the tree on the left, you'll see a list of all the messages related to that topic, including who created the post and when it was posted. In the main body of the page, you'll see the messages themselves. If the thread is a relatively long one, the messages exist on more than one page, and you can use the Start Of Topic, Older, Newer, and End Of Topic links at the top or the bottom of the page to move through all the messages. Each message has a reply link at its bottom, and you can use this link to post a message to the entire group. To reply directly to the author, to forward the message, or to perform other actions, click the Show Options link at the top of each message and click the desired task.

One of the neat features of Google Groups is the ability it gives you to track topics. Click the star next to a topic, and it turns yellow; you've just added the topic to your list of favorites. When you next log on to the site, new posts to that topic appear on your My Groups page. Tired of

that subject? Click the star again to deactivate it.

Another way to track messages of interest is to turn on a Group Alert. Google lets you input a keyword or keywords, and when messages appear that contain those words, Google will send you an email notice. Go to www.google.com/alerts?hl=en or click the Groups Alerts icon in the left navigation pane of almost any Groups page and type the keyword in the Search Terms box. In the Type drop-down menu, select Groups, and in the How Often drop-down menu, select the frequency of the alert, such as As It Happens or Once A Week. Lastly, click the Create Alert button and just sit back and wait for messages to appear in your email box.

When you're ready to start a new topic, return to the group's home page and click the Start A New Topic link at the top. A prepopulated message screen appears with your name, the group's name, and your language filled in. Type a subject line, type the message, click the Preview button and edit your message, and click the Post Message button. That's all there is to it. (Some types of groups also let you communicate with the entire group

by sending email to one address, which we'll discuss in the next section on creating groups.) You likely won't be able to do this if a group is a Public-Usenet group. Usenet groups,

The History Of Usenet

Way back when in 1979, a group of students at Duke University found a way to communicate among computers by posting messages to a network. That network was called Usenet, and it blossomed into a place where users could discuss tens of thousands of topics. Topics fell into high-level domains, such as Sci (science-related) and Comp (computer-related); groups had names such as alt.artcrime and comp.unix.programming; and users had special software, called news readers, to access Usenet material.

Usenet contains gems such as this one from Tim Berners-Lee, posted in 1991:

"In article <6...@cernvax.cern.ch> I promised to post a short summary of the WorldWideWeb project. . . . The WWW project merges the techniques of information retrieval and hypertext to make an easy but powerful global information system. . . . The project started with the philosophy that much academic information should be freely available to anyone. It aims to allow information sharing within internationally dispersed teams, and the dissemination of information by support groups."

As the Internet became more accessible to the public, so did these postings. Deja News, which has since folded, began storing Usenet posts, and the Deja.com service allowed users to search, respond, and post newsgroup messages through an easy-to-use Web site. In early 2001 Google announced it was acquiring Deja.com's Usenet Discussion Service, which at the time included about 500 million archived messages dating back six years. Google has continued to add more Usenet content to its Google Groups service, and it now boasts more than a billion messages. ■

also called news-groups, resemble virtual online bulletin boards where you post messages for everyone else to see. You used to do this with software called a newsreader. Now that Google has acquired Usenet and its archives,

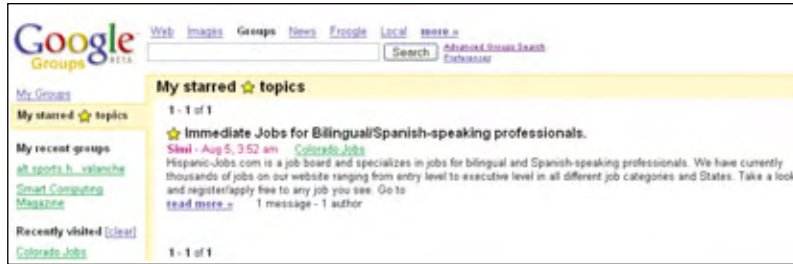
you participate in discussions through the Google Groups service on the Web and not with your own software.

Before you start a new topic, though, it's a good idea to search the messages to see if someone has already created a thread for this topic. On the group's main page, type a keyword and click the Search This Group button. You can sort returned messages by date or by relevance and click a message to see other messages in the same topic.

And, in the "everyone makes mistakes" department, there may come a time when you create a post and realize you want to remove it. While you won't be able to yank it out of a recipient's email box, you can remove it from the archives on the Web site. Log onto the site and locate the post. Click its Show Options link. One of the options, available only to the poster, is Remove. Click it, click any confirmation buttons, and your unwanted posting is on its way to oblivion.

Create A Group

Google Groups is a great way to carry on conversations with strangers, but it's also useful for communicating with small groups of friends and family members. For instance, suppose you're a member of a chess club or other group that meets locally. When plans change or you need to get a message to the entire group, you could try a phone tree or email list, but the process can be lengthy, and it puts the burden on the sender.



Star important topics, so they don't escape your notice.

Instead, you could use a Google Group. You might also want to create a group to find and communicate with people on an obscure topic.

To create your own group, go to the left navigation pane on almost any Google Groups page and click the Create A New Group link toward the bottom of the page. First, you'll need to determine a name for the group. Type one in the Group Name box, and Google will automatically create an email address based on the group name. This is the address that you can use to communicate to the group by sending email, instead of or in addition to creating public postings, depending on how the group is set up and how individuals elect to receive postings. Enter a group description in the text box.

One of the key decisions you need to make is how public you want the group to be. Do you want to approve postings before they are sent? Do you want everyone to be able to see the group messages or only members? Do you want to set this up as one-way communication from you to the group? Depending on your preference, you will select the radio button for the appropriate group type. A Public group is one where anyone can read the archives, and members can post messages. An Announcement-Only group is one where anyone can read messages, but only the moderator posts. And a Restricted group is one where you invite people to join, and only they can post and read messages; your group is virtually invisible to the rest of the

Google Group community. Choose the preferred radio button and click Create My Group.

The next step is to add members to the group. You can do so yourself by typing their email addresses in the Add Members text box,

but to protect yourself from being accused by friends and family members of spamming, you may opt to choose the Invite radio button instead. In this case, each potential member receives an email invitation and must respond before becoming an official member. Select a Default Subscription Type—the default value of Email is just fine—and create a welcome message. Click Done.

Not surprisingly, once the group is created, as the owner you'll be able to manage it. On your My Groups Page, click the Manage button next to the group name. You can perform a variety of tasks here, including changing how others access the group, whether the group is listed in the Google archives or directory, and whether messages are moderated. You can also view the membership directory and, when the group has served its purpose, remove it entirely.

Watch Your Privacy

It's a big world out there, and it will take some time for you to explore it through Google Groups. But know that as you do, no one will be able to exploit your privacy. The site lets you hide your email address so that a spammer can't collect it. So if an email lands in your inbox from an Indonesian guitar player claiming you've won free NASCAR tickets, you can rest assured that Google Groups isn't the cause. **RS**

BY HEIDI ANDERSON

Google Mobile

Google Comes To The Small Screen



Google knows it's popular. It knows getting things done becomes difficult when you're without the luxury of its search-engine services. And Google knows that it can follow you wherever you go, at least if you have a Web-ready mobile phone or PDA. If you have such a device, you're the target audience for Google Mobile, a small-screen version of Google's Web site. With Google Mobile you can find all sorts of crucial information, whether it's the weather forecast, current news, the address for the nearby Papa John's, a photo of the latest Chrysler, or an entire encyclopedia article about Abraham Lincoln; in other words, almost anything.

We'll explain how Google Mobile fits into today's world of mobile devices and competing services, whether your device is capable of using the site, and how to use Google Mobile to find what you need. We'll also provide a little background information about how the site works compared to similar sites.

Booming Business

Success for the mobile Internet search business depends on two things: more people buying Web-enabled handhels and more people becoming interested in content that's optimized for those devices. On the device side, research firm Gartner (www.gartner.com) announced in August 2005 that PDA sales are on the rise. Gartner also predicted in July 2005 that the global market for smartphones (mobile phones that combine cell phone functionality with features



Google Mobile offers a clean, tiny interface that's really a portal to the big, wide Web; from here you can search for full Web sites, mobile Web sites, pictures, and local information.

usually associated with PDAs) will see 53.3 million units sold in 2005 and swell to sales of 278.7 million in 2009.

Anticipating success on the content side of things is a bit trickier. Using the Web on mobile phones and PDAs provides neither the quickest nor the most thorough results, at least not compared to what you're used to getting from the Internet using a full-fledged browser on your desktop computer. That challenge is evident in an M:Metrics (www.mmetrics.com) survey from March 2005, which found that only 12.7% of mobile subscribers used their Web-enabled phone or PDA to access news and information through a browser. On the other hand, a Jupiter Research (www.jupiterresearch.com) report from February 2005 projected that mobile content would generate \$1 billion in revenues in 2005 and more than double that amount by 2009. So it's possible that as content grows, usage will grow along with it.

Late Bloomer

With increasing device sales, a growing number of Web sites optimized their pages for viewing on those devices' tiny screens. As businesses warmed to revenue-generating possibilities, such as advertising and charging users for premium content, major Web portals such as Yahoo! (www.yahoo.com) and Microsoft's MSN (www.msn.com) were quick to get involved. Although far from being

If you want to show off your



new car but don't have a photo of it or if you want to stare longingly at the car you wish you could buy, Google Mobile's Image search option is the perfect portable way to go.

Search By Numbers

A word is often easier to remember than a cluster of numbers, which is why some organizations use phone numbers that match their names. The fictional GET-ACME is a good example, where on a numeric keypad you'd actually press 438-2263 to make the call, but as long as you remember GET-ACME, you're good to go. Google Mobile wants you to have that concept in mind when performing certain searches on its WML (Wireless Markup Language) page, www.google.com/wml. For example, when you type **68742** Google translates the search as one for the keyword "music."

To use this feature, access www.google.com/wml and select either Number Entire Web or Number Mobile Web. With either selection you can use numeric search; the difference is in the results. Number Entire Web does just what it says: It searches the entire Internet. Number Mobile Web, by contrast, serves up cell-phone friendly results, which are shorter for easier navigation. On-screen buttons also help you navigate. ■



If you select Number Mobile Web on Google Mobile's main WML (Wireless Markup Language) page, you can do quick numeric keypad searches; in this example, we typed **668437** for movies.

a comprehensive mobile Web portal, MSN Mobile (mobile.msn.com) arrived early, in June 1999. Less than a year later, in May 2000, Yahoo! launched Yahoo! Everywhere, a service more akin to Google Mobile than Microsoft's offering, and the precursor to today's popular Yahoo! Mobile (mobile.yahoo.com).

Google wasn't ready to join the crowd until March 2005, when Google Mobile (mobile.google.com) made its debut. And it wasn't until June 17, 2005, that Google brought Web search to the table. Google Mobile's impressive comprehensiveness, however—the fact that it attempts to serve the same 8 billion-plus Web pages to your handheld that it serves to your desktop PC, not just select portions of the Web—would seem to make up for its late arrival.

What You Need

To use Google Mobile on your PDA or mobile phone, you must have a Web browser installed on the device.

Popular browsers include Microsoft's Pocket Internet Explorer (www.microsoft.com), Qualcomm's Eudora-Web Browser (www.eudora.com), and Opera's self-named browser for Windows Mobile or its newer Opera Mini (www.opera.com). Of course, the device must also support the browser. If you're not sure what your PDA or phone is capable of when it comes to Internet access, check the device itself or the accompanying manual.

Devices that support a Web browser typically come with a browser already installed. The Treo 600 and Treo 650 smartphones from Palm (www.palm.com), for example, ship with the Blazer Web Browser installed and ready to use. Similarly, Web-capable BlackBerry devices from Research In Motion (www.rim.com) come with the proprietary BlackBerry Browser. For this article we used a Treo 650 and the Blazer Web Browser 2.0. For screen shots we used PdaReach 1.52 from June Fabrics (www.junefabrics.com).

Call On Google

To get started with Google Mobile, simply open the Web browser on your device and access the Web address www.google.com/xhtml. This launches the version of Google that uses XHTML (Extensible Hypertext Markup Language), a form of the more familiar HTML code that Web designers use to create pages viewable on a variety of devices, such as a phone's tiny screen. You won't see on your mobile phone the full version of Web pages that you're used to seeing on a desktop computer because Google runs the pages through its own WML (Wireless Markup Language) proxy server, which formats large-screen pages so that small screens can handle them more easily. The typical LCD (liquid-crystal display) on a handheld device offers a 150 x 150-pixel resolution, and if you tried to view a full-size Web page on a screen that small, you'd have to do a lot of scrolling up, down, and sideways. You can also select the Mobile Web radio button prior to searching if you want to stick with Web sites that are already optimized for handhelds.

If your browser doesn't support the main www.google.com/xhtml page, try accessing www.google.com/wml. This WML version of the search page offers access to both the complete Web searches found on the XHTML search page, as well as mobile Web searches for phones that support WAP (Wireless Application Protocol) 1.2 (a standard that lets different types of wireless devices communicate across common networks). Your phone might support both the XHTML and WML pages, so try them to see what works best for you. The benefit of using the WML page is that you can use the number pad on devices that lack keyboards to perform searches; see the "Search By Numbers" sidebar for more information.

Big Searches, Small Interface

Although there's no getting around the limitations of the tiny screen size,

Google Mobile marks the most significant step yet toward putting the entire Web in the palm of your hand in a format that's easy for small devices to manage. You might be annoyed to find that some Google sites and services are absent from Google Mobile. However, many of them are available through Google SMS (Short Message Service); check out "Message Marvel" on page 81 for details. As of press time, here's a partial list of items that Google Mobile does not support:

- Calculator (Google Mobile doesn't include the same calculator as does Google)
- Currency Conversion (if you search a conversion string, such as 10 USD in GBP, Google Mobile searches the Web but doesn't do the conversion)
- Gmail Beta (mail.google.com; Google's email service isn't yet ready for Google Mobile)
- Google Maps Beta (maps.google.com; however, search Google Local Beta and, depending on what you're looking for, Google Mobile often provides a map to help you find your way)
- Movies (if you search a movie name, Google Mobile doesn't provide

nutshell information and a search box for finding local showtimes)

- Stock Quotes (we were surprised to find that this feature didn't make it to Google Mobile)

On the other hand, you might be surprised at just how much you can do on the small screen. We can't begin to tell you how to explore more than 8 billion Web pages, so do your own exploring and see what Google Mobile can deliver. Here's a list of shortcuts and services that work well on Google Mobile as of press time:

- Definitions (to find definitions for a word, in the search box type **define** followed by the word)
- Google Local Beta (this is especially nifty for mobile users; select the Local radio button, and in the search box type a business or person's name followed by the city and two-letter state abbreviation)
- PhoneBook (you can type a last name, city, state; a business name, city, state; or a complete phone number, including the area code, and bring up the same listings on Google Mobile as you'd get using Google)



If you're looking up a business with multiple locations, click the Local radio button and search for business name, city, and two-letter state abbreviation; you'll receive information about each location and an area map.

You can also set your search-filtering preferences in Google Mobile the same way you can in Google. You can stick with the default Moderate option, choose the Strict Filtering option, or turn filtering off altogether. Changing your language preference, however, takes a little more effort. First you need to know the two-letter code that corresponds to the language you prefer; you can find these codes at www.google.com/apis/adwords/developer/adwords_api_languages.html. Then, when you access Google Mobile, type www.google.com/xhtml?hl=XX where XX is the two-letter language code.

The Froogle Mobile Googler

If you haven't tried Google's full-sized Froogle Beta Web site (froogle.google.com), try it out before you make your next significant purchase. The site helps you find the lowest prices for goods from all kinds of online retailers. If you like what you see, try out the mobile version of Froogle (wml.froogle.com) the next time you find yourself spontaneously shopping.

The mobile version doesn't provide live links to the online retailers it cites, but it does provide the same price listings you'll find on the Froogle beta site. We tested a few searches ranging from accordions to Monet prints to Frank Zappa CDs, and the mobile Froogle worked as advertised. ■



Although not nearly the same as the full-fledged Froogle beta, the mobile version of Froogle (wml.froogle.com) lets you search everything from accordions (shown here) to Zappa and compare prices.

More! More! More!

Sometimes it seems that not a week goes by without Google launching a new service, so if you like Google Mobile, you can be fairly sure that additional features will debut in the coming months. In the meantime, take a look at some other mobile-related information in this issue. For example, if you live to blog, look for mobile blogging information in "Meet Blogger" on page 97. **RS**

BY CAL CLINCHARD

Message Marvel

Google Meets Text Messaging



Low-tech text messaging? Meet the high-tech superpower, Google. In a marriage made in mobile technology heaven, Google, with its immense Internet database, offers a simple text messaging service for cell phones called Google SMS. You may already use SMS (Short Message Service), a service that lets you send short text messages via mobile phones. Often, the text message response comes back quickly, so you could send the phrase “meet for lunch?” to a friend and receive the reply “sure what time” a moment later. SMS has been amazingly popular with cell phone, smartphone, and PDA users. According to Yankee Group wireless and mobile director Adam Zawel, about 190 million people send SMS text messages every day in the United States.

What Google SMS means for mobile phone users is you can type a short query into SMS and get the search results back in about one minute. You can look up directions from one

address to another, convert weight measures and other calculations, or get movie times for your local Cineplex. The reason this conjoining of Google’s multibillion-item Internet database and a relatively simple text-messaging service works so well is that the queries are simple, yet the results are useful for mobile device users. This is especially handy if you’re out on the road and can’t get to an Internet-connected PC.

So, imagine this scenario. You’re stuck in traffic, wondering if you should visit your lake cabin for the weekend. Using Google SMS, you can get a weather forecast for the 55343 ZIP code just by text messaging the phrase weather 56501. Or, if you just discovered that the movie theater showing “King Kong” is full, you can find a showing just by text-messaging **king kong san francisco**. The power behind these search results all resides in Google’s servers, which help Google SMS turn your phone into a portable search agent. To perform a query, just type the search term and send the text to 46645 (or “GOOGL”).

A second reason why Google SMS works so well is convenience. Sure, most cell phone users know all about SMS and **texting** (sending a text message). New phones such as Motorola’s RAZR line have gone well beyond that simple communication method. They offer a robust WAP (Wireless Application Protocol) client; WAP is a standard that lets different types of wireless devices communicate across common networks. In fact, on the trendiest and coolest phones, the WAP browser is amazingly fast, running at the same speed or faster than a dial-up modem.

The problem is that it still takes several seconds to start a WAP browser, a

few more seconds to type **google.com** and access the site, and then a few more seconds to type your query into the search field. By then, the traffic might be uncongested and the weather changed! Google SMS, in contrast, frees you to keep focusing on the road or engage in conversation while you bring up the SMS client quickly and type the query. Most phones, such as the Nokia 6682, put SMS messaging right on the main menu of the phone where it only takes one click.

“Search is a hot issue in mobile technology right now because there is only so much screen real estate, and no one likes squinting at these small screens,” says Yankee Group’s Zawel. “All eyes are on Google and Yahoo! to figure out the best way to search from a mobile [device], and Google SMS is one option. Google may have advance services for the high-end phones, but this is the low-end answer for the masses. SMS is the lowest common denominator for searching.”

Challenges, Competition & The Google SMS Outlook

Of course, even as the lowest common denominator, Google SMS is not a perfect mobile search service. While the syntax for most text searches (such as “address 56501”) is easy to remember, Google SMS also lets you perform more advanced searches, such as finding the population for a foreign country (“population pakistan”) or looking up the price for an item at Froogle.com, Google’s shopping interface for finding the lowest price on a product. To perform a Froogle search, you’ll need the exact name of the item or, say, a book’s ISBN (International Standard Book Number). Most people don’t keep that information handy, so the more advanced searches are not as useful.

Google SMS might also change some user perceptions as loyal Google fans wonder why the company is offering such a low-tech solution. Zawel noted that large companies, such as Disney or

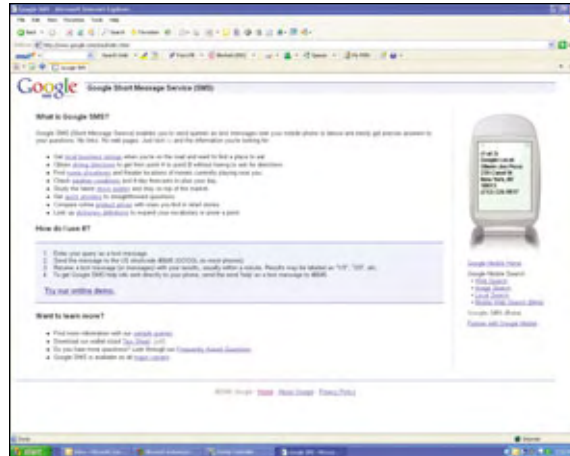
ESPN, always move slowly with innovative technology because they want to make sure it's a proven commodity before they attach their brand to it. If users understand that all the power is online and the messaging interface is for convenience only, it will succeed.

Google SMS has some competition, though. For example, Yahoo! offers the Yahoo! SMS service, which works similarly to Google SMS. To use it, you just send the SMS query to 92466 (or "YAHOO") and wait a minute or so for the results. The main difference between Yahoo! SMS search and Google SMS is that Yahoo! offers a wireless hotspot directory. For mobile phone users who happen to carry a laptop or handheld, the hotspot directory is handy because you can search from hotels, airports, or from any location where you really need to Web surf. Also, the search query is easy to remember: It's just "wifi" plus the ZIP code that you want to search.

Another competitor is 4Info.com, which offers a free SMS search. With 4Info.com you simply send your queries to 44636. 4Info seems to do a better job with phone book searches and offers a wireless hotspot locator ("hotspot 56501"), jokes (using the straightforward query "joke"), flight times (name of airline plus the flight number), and even sports stats for your favorite players ("tiger" for Tiger Woods).

Even though these advanced searches are powerful, Google SMS does have an edge in terms of raw speed because most searches take about one minute or less before you get the results sent back to your phone. Also, Google has done a better job than its competitors of explaining its queries at www.google.com/sms; Google also provides a printable tip sheet at www.google.com/sms/tips.pdf.

Google SMS is also more powerful when it comes to experimental



The Google SMS site contains a helpful advice section, as well as a printable tips sheet that's in PDF format and is designed to fold and fit into a wallet.

searches. For example, you can type just about any search term, such as **inventor telegraph**, to get results that are similar to what you'd see if you were using Google on your desktop computer. These question-and-answer types of searches, which Google appropriately refers to as Q&A queries, let you find the populations for countries and cities, the birthday for a celebrity, a movie's running time, and more. The important thing to remember about Q&A queries is to put the search term first, followed by the proper name. So, for example, enter **birthday tom cruise** and not **tom cruise birthday**. Interestingly, the celebrity search is hit or miss.

Google SMS is still in an early stage of development, and it's technically one of Google's famous beta (prerelease test version) applications. It works fine, but there's room for improvement. According to David Ferris from Ferris Research, the jury is still out on whether people really want to do searches from mobile phones with its small screen and awkward keyboard. In testing, he has found that Google SMS does not work conveniently on higher-end phones such as the Treo 650, most likely because those devices have full keyboards instead of the truncated versions commonly used for SMS text messaging. "Overall, the ability to perform a

complex search is much easier through a Web interface," he notes. "It's easy because the device is always with you, but the small screen and keyboard makes searching harder, even through an SMS client."

A future version of Google SMS may simplify searches with more abbreviated syntax ("pop" instead of "population"). The service could do a better job of parsing data so that, even if you misspell a name (by entering **tom criuse**, for example), you'd still get the search results you're looking for. And, Google could eventually improve the Google SMS search categories, adding

hotspot queries, better airline look-ups, and the ability to convert currency, which is currently on Google's "to do" list. At some point, if Google can fix a few holes in the service, add more search features, and make searches easier, cell phone users could start using the text-messaging client as often as they use Google.com.

Walkthroughs

For guidance in performing searches with Google SMS, here are a few walkthroughs to help you find the coolest and most useful information. For each walkthrough, try experimenting with variations on the search terms, using different locations, the full name for cities instead of the ZIP code, or different celebrities from the ones we suggest. Remember that your phone most likely will save SMS messages in your messaging client's outbox, so you can reuse them without having to type the term or even the Google SMS address again.

Note that we used a Motorola MPX220 for our tests; most phones follow a similar process. To send an SMS message, first select your phone's messaging option. Look for the option to create a new message. In the To: field, enter **46645**. Then, in the body of



On a Motorola MPX220, text messaging is available right on the main screen just by going to the Text Messages option.

the message, enter the syntax we described below for each walkthrough, making any changes you see fit. After you type the message, use your phone's send option. Your phone will send the message. Depending on how your cellular carrier works (Verizon works differently than Nextel, for example), you will usually receive an SMS reply in about one minute. In some areas, however, the reply may take as long as 10 minutes. Also, on some phones that also use email messaging, you may need to use a send-and-receive option to get the new SMS reply from Google.

Weather. To get a four-day weather forecast, start your SMS client and create a new message. You can type **weather** followed by your ZIP code or **weather** followed by your city and state. Don't bother with commas or other punctuation because Google SMS generally ignores any characters other than letter and numbers. If you happen to be traveling in a foreign country, you can convert Celsius temps to Fahrenheit (or vice versa) by entering the temperature followed by the phrase **fahrenheit in celsius**.

Froogle. Froogle is Google's Web site for looking up product prices on the Internet. The idea behind Froogle is that you can find the lowest price for products. This search works amazingly well as long as you type the product name correctly. So, for example, you can just search for a cell phone, but Froogle works better if you search for a specific phone, such as the Motorola RAZR, by typing **price razr**. You might know that the RAZR is always in all caps; Google ignores capitalization, so you can keep everything in lower case. So, the shortcut for Froogle is just the letter "f" followed by the product name, and you can use a capital or lowercase.

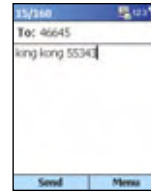
The Froogle search through Google SMS is wildly erratic. A search for a Nokia 6682 gives you a price on an antenna, not the new phone. Some generic searches work (such as "f dvd player"), and others don't seem to produce the best results. For example, if you want to buy Adobe PhotoShop CS2 and type **price photoshop**, you'll get a book on mastering PhotoShop. It's cool to experiment with different terms, though, such as "f ball" (which sends back an exercise ball price) or "price condo" (which returns a kitty condo stand of all things).

Location and directions. This is where the real power of Google comes into play. Google has an extensive map database, so even if you type in an obscure address, there's a high percentage chance that Google SMS will know where you want to go. To search for a location, type the street address plus the city and state. There's no syntax for telling Google SMS that you want the location, it just knows what you want based on the fact that you are typing an address. For directions, enter **to** between the address, state, and city and the second location. For example, if you sent the message **102 grove street minneapolis mn to 1501 fifth street duluth mn** Google SMS would provide step-by-step instructions on how to get there. (Our sample trip takes about four hours, by the way.) A few other handy location look-ups include entering a ZIP code or area code to see the city covered, and placing a "g" before a city name (for example, **g chicago**), which returns the first Google listing. For Chicago, you'll see the city newspapers listed along with a quick description of each.

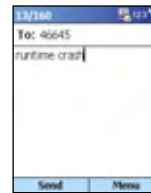
Q&A queries. Experimenting with Google SMS can lead to some interesting results. For any Q&A query, you can just type any phrase, such



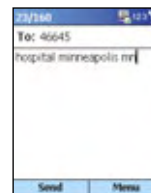
To get a four-day weather report, type the search term **weather** followed by your city and state.



You can search for movie times by typing the name of the movie plus your ZIP code or city and state.




Or, you can check the run time for a movie such as "Crash" by typing runtime crash.



Local searches for hospitals, post offices, and libraries help mobile phone users stay more mobile.

as **tom cruise real name** and get the results back as an SMS message from Google. A few phrases we tried included "birthplace tom hanks" (Concord, Calif.), "who wrote blink" (Malcolm Gladwell), and "who won Daytona" (Richard Petty). There's a certain satisfaction in getting answers out of this massive encyclopedia.

Other Searches

To perform any calculation, just type the syntax you want to use, such as **500 * 500** (to multiply the two numbers) or **sqrt 555** (to find the square root of 555). There's no need to enter an equal sign. To find a movie time, use the name of the movie and your ZIP code or city. You can find hospitals, libraries, and post offices by typing the search terms plus the city and state (for example, **library buffalo mn**). Keep trying, and you might be surprised what Google SMS serves up; the possibilities are almost endless! 

BY JOHN BRANDON

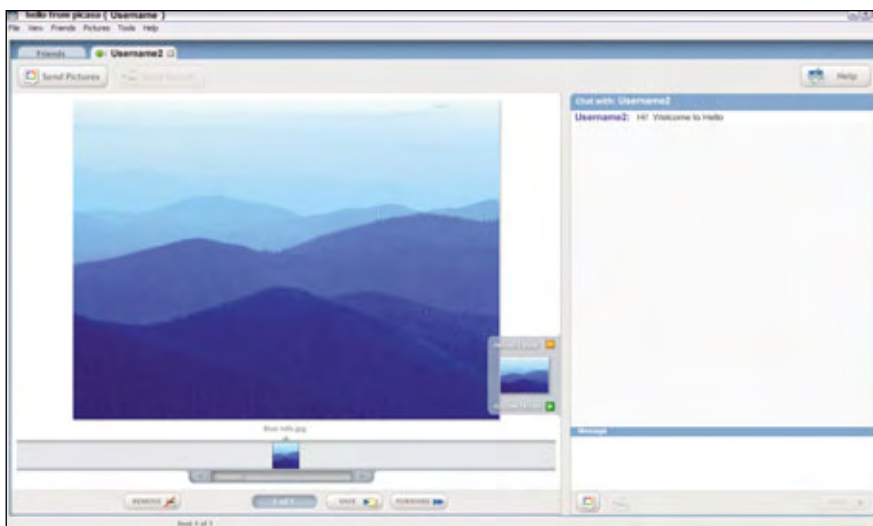
Hello, It's Me

Google's Communications Tool Lets You Share Pics, Too



According to a recent Pew Internet and American Life Project (www.pewinternet.org) survey, teenage Internet users tend to keep in touch with peers through IM (instant messaging) and view email as a way to communicate with parents or institutions. What does this mean for the

rest of us? As for businesses, today's (and undoubtedly tomorrow's) system administrators prefer IM, so there could well be a shift in focus toward real-time communication over the Internet. For consumers, there are already many IM clients available, most of them free. Yahoo! and Microsoft both offer popular options,



While you're chatting with a friend, you can see what pictures you're sharing on the left, what your friend just said on right, and what you're typing in the bottom-right corner of the tab. You can also save, scroll through, or remove pictures you've sent.

but as with many other aspects of life on the Web, Google is leading the charge toward a better Internet experience with its Hello software.

Say "Hello" To Hello

Hello is a free IM client that is similar in most ways to many of its competitors. Hello allows you to chat in real time with other users across town or around the world. The difference between Hello and other IM clients, however, is that Hello also lets users exchange print-quality digital photos with any other Hello user and chat about them as if separated only by a coffee table. Email is a more traditional method of online photo-sharing among individuals, but not only does it take more time to receive feedback on the photos, it can take a tremendous amount of time to send a high-quality photo, especially for those using a dial-up Internet connection. Large image files also clog up inboxes, assuming the recipient's email service provider permits receiving them at all. To top it off, sending photos via email requires that recipients have the appropriate software installed to view the file. Hello does away with all of those problems.

Hello is designed to share and view photos, so you can send dozens, even hundreds of high-resolution photos quickly, regardless of your Internet connection speed. The photos are initially resized, if necessary, for optimal on-screen viewing, eliminating the hassle of waiting for every picture to load before deciding which one you want; the downloaded copies, by contrast, are restored to a higher resolution suitable for excellent, vivid print-outs or saving to your hard drive, CD, or DVD. You can give the photo-sender your feedback right away via Hello, and even see which photo the sender is currently looking at.

Hello offers 128-bit encryption, so you can be sure that you and the users you select are the only ones viewing your photos. After downloading photos, you can use Google's Picasa

(also free) to organize them. If you have both Picasa and Hello, the images you download automatically go to your Picasa folders for you to edit them as you please.

If you're into blogging, Hello has a free plug-in called BloggerBot that automatically resizes pictures, adds comments, and formats pictures for posting on your blog. If you're already a Blogger member when you install Hello, BloggerBot will be added to your friends list so you can start posting pictures right away. For more information on Picasa or BloggerBot, see the respective articles in this issue.

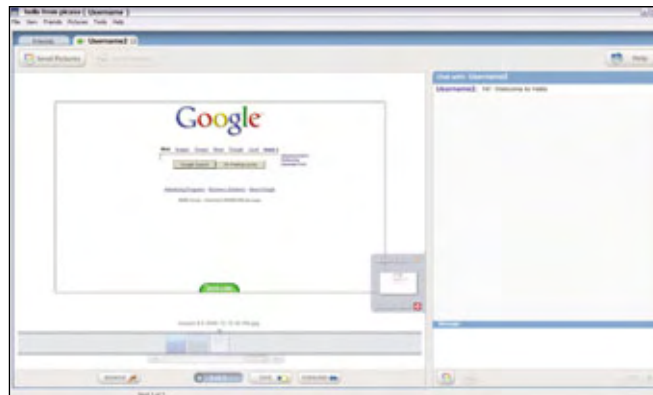
Hello is worth having for its picture-sharing capabilities alone, but it can do more. Some IM clients let you choose an **avatar**, a graphical representation of yourself that is visible to other users. With Hello, you can use any photo in your library as your visual profile that others see when you introduce yourself over the Internet. If you have a Web cam attached to your computer, you can use Hello to send instant snapshots to other users without having to download them from your digital camera. Hello also lets you surf the Web or shop online with a friend from the comfort of your own home. Finally, Hello has a history file associated with it that remembers not only what photos you've viewed, but the conversations you've had in the past so you can remember what files you've sent and what you said about each picture.

How To Get & Install Hello

In order to install Hello on your computer, you'll need Windows 98/Me/2000/XP and, at minimum, a



If you have a Blogger account, you can "chat" with that account and send pictures that you can use in your blog.



Whenever you're viewing a Web page that you want to share with a friend, use the Share In Hello tool in Internet Explorer to send a link to a friend. Then you can use Hello's Friend's View tool to follow your friend around the Web.

300MHz processor, 64MB of RAM, 50MB of free hard drive space, and Internet Explorer 5.0. If you're unsure of what your system has, click Start, Control Panel and double-click the System icon. The General tab displays information about your operating system, processor speed, and memory. To find out how much hard drive space you have, open My Computer, right-click the hard drive icon, and select Properties; on the General tab under Capacity you'll see how much space is in use and how much is available. Finally, to find out which version of Internet Explorer you're using, open IE and select About Internet Explorer from the Help menu. If your system has everything Hello requires, go to

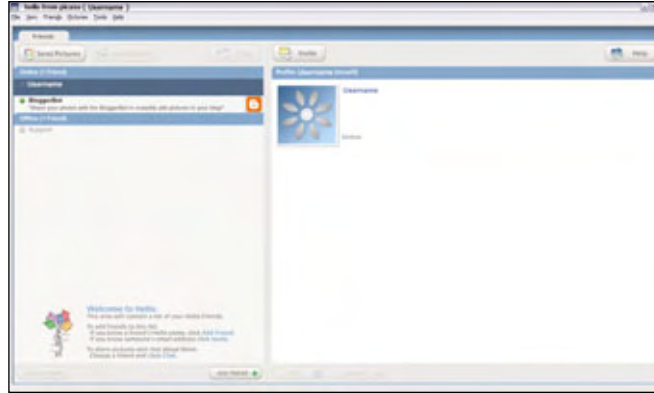
www.hello.com and click the Download link in the toolbar on the left.

The Hello Download page asks you to create an account. Your username is the name that people will see when you're online and will be used as your identity while you're on Hello. Select a unique username, password, and an email address. (Be sure to remember each of these three pieces of information because they give you access to Hello's services.) Reproduce the letters displayed in the box toward the bottom of the form and click Submit. The software will attempt to download immediately. If you're using WinXP or have certain security measures in place, the download might not start right away; in this case, you might be asked to first install ActiveX. Follow the onscreen prompts to install ActiveX; the Internet Explorer version that comes with WinXP Service Pack 2 provides a bar at the top of your browser that

you can click to allow the installation. When the Hello software download completes, click Install on the window that pops up to begin the installation.

Start the Hello setup process by reading and agreeing to the software agreement. By default the installer puts the software in its own program folder. You can change the installation destination if you wish, but the default works fine. Click Install, and the program does the rest. At the end of the setup process, a series of checkboxes lets you control how you want the software to start. If you leave Run Hello checked, the program will start automatically when you click Finish. If you leave Run Hello When Windows Starts checked, the software will start

automatically whenever you boot your computer. Checking Create Shortcut On Desktop will place a Hello shortcut link on your Desktop that lets you start the program more easily. Finally, checking Add Shortcut To Quick Launch will add a shortcut icon to the Windows Quick Launch menu on the left side of your Taskbar, next to the Start button. After selecting the options you want, click Finish and you're all done.



The main window of Hello that comes up when Hello starts shows you which of your friends are online, a bit about their profile, and some of the things you've sent them in the past.

Start Working With Hello

The first time you run Hello, a window pops up telling you some features of the software. If you're reading this article, you'll already know this information, so close this window. When the Hello login screen appears, enter the username and password you created earlier. If you didn't create an account, click the link to Hello's Web site and create one. Also, if you ever lose your password, you can click the Lost Your Password? link and it will be sent to the email address you provided during registration.

The two checkboxes in this window let you control how Hello behaves following your initial setup. The Remember My Password checkbox will keep your password handy so that you don't have to input it every time you start the software. Automatically Log In is only selectable if you elect to have the software remember your password and will allow the software to skip the login screen and take you online automatically. If you want to change these options later on, you can do so by clicking Tools and Options in Hello. Once the software starts up, a small blue sunflower-like icon will appear in the System Tray, the small area on the toolbar in the bottom right of your screen. You can access Hello anytime it's running by double-clicking

this icon. If you're logged in, the icon is blue; if you're not logged in, the icon is gray. You can start Hello by double-clicking the grey icon.

At this point you should quit and restart the software because there's one more step you'll need to complete before you can run Hello. Google wants to be sure you're who you say you are, so the software will ask you to verify your email address. A browser window will pop up displaying the email address you provided. Click the Verify Email button. A new page will let you know that a confirmation email has been sent. The process should be instantaneous. Log in to your email account and open the message with the subject line, "AutoReply- Picasa



To send an invitation to a friend to start using Hello, click Invite. You'll then be asked to enter the Hello name or email address of your friends. Hello will send invitations to those you list.

Registration," from sender invites@picasa.com. If you're using anti-spam or junk email filters, check these carefully; the message may be filtered as unwanted mail, but it's perfectly safe to open. Click the link indicated (you may need to temporarily disable any pop-up blockers you have running) and allow the window to open. It will tell you that you've successfully activated your account. You can save the email or delete it and start using Hello.

Now that Hello is up and running, you'll see the software's main window, which uses a tabbed menu structure. Every process or conversation you have running is visible on the tabs along the top of the window, just below the toolbar (we'll come to that in a bit). At first, the only tab visible is the Friends tab. You'll only have one or two names in this portion at first, until, of course, you start to make more acquaintances. This Friends tab shows all of your active conversations and indicates which of your Friends are on- and offline. To start a conversation, simply click a friend's username and the Chat button. This will open another tab that contains interfaces for exchanging text messages and photos. You can move through various ongoing conversations by simply clicking the appropriate tab along the top of the window, allowing you to carry on multiple conversations at once. If you have a Blogger account, you can "chat" with that account and send pictures to post on your blog. See "Meet Blogger" on page 97 for more information.

If you're working with another program and Hello is running in the background, new pictures or messages will pop up in small alert windows along the bottom of your screen as Hello receives them. You won't have to stop what you're doing to acknowledge these alerts, but you will always know exactly what's going on in Hello without having to sit there

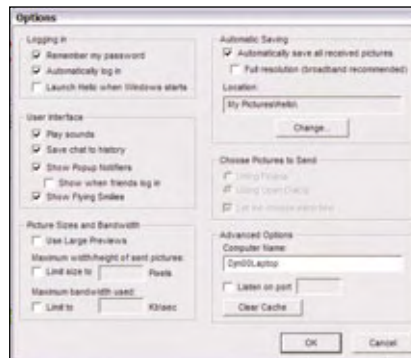
and stare at it. To return to Hello, simply click the alert window and you'll be up-to-date in seconds.

If someone sends you an invitation to chat, it will pop up as a new tab on the main window. Messages appear in the window on the top right; you type replies in the window on the bottom right. Pictures you've selected to send will appear in the left half of the chat window. To send pictures while chatting, click the Send Pictures button in the top-left corner of the chat window. Hello will then ask you where the pictures are. You can choose from either Picasa or Windows Explorer. (To learn more about Picasa, see "It's Not Picasso, But It's Close" on page 108.) Find the picture you want. Each image you select appears in the Hello window along with options to remove, save to your hard drive, or scroll through the pictures.

Once you start sharing photos, you'll see a small thumbnail-sized window pop up in the main picture window. This is the Friend's View window. If you click the small green Play button in the Friends View window, you'll move through pictures as your friend sees them, allowing you to share everything about viewing the photos.

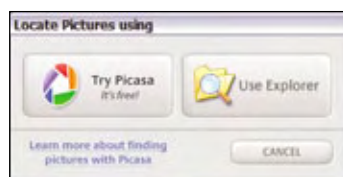
After installing Hello, you might notice a new toolbar with a single icon in Internet Explorer. It's called the Share In Hello function. With this tool, you can take a snapshot of the Web page you're currently viewing and send it to your friends, similar to the way you'd send a picture. The good part is that the image of the Web page you send acts like a Web link, so that when the recipient clicks the image it brings up a fully functional Web page.

So far, we've dealt mainly with tools you can see as icons in the main window. You can perform each of these operations and more with the toolbar along the top of the window. We don't have enough space to go through them all, but there are a few worth mentioning. The File menu contains options to save conversations, print conversations or photos, log out, and exit the program. The Options item on the



If you want to make any changes to the way your Hello software performs while its running, you'll need to select Options from the Tools menu. From there you can change everything from alerts to startup options.

Tools menu lets you make changes to many of your preferences for how Hello behaves. The User Interface Options let you change how the software behaves when you receive or send messages, such as audio or visual alerts. Another notable option is Automatic Saving. By default, Hello uses the MY PICTURES\HELLO folder as your primary image directory. If you want to change it, you can use the Automatic Saving option to specify a different folder for this purpose. Finally, if you want to change the picture of yourself that others see or your personal profile, click Edit Profile.



When you start Hello, you will be asked for your username and password. You can elect to skip this by checking the Remember Password and Login On Launch checkboxes. If you forgot your password, click Lost Your Password? and it will be sent to the email account you registered with.

After you're all done chatting and sending pictures, you can quit actively working with Hello in one of three ways. Closing the main window doesn't actually stop the program; rather, it leaves the program running in the background and the active Hello icon in the System Tray. You'll still be online so others can see you and send messages to you. Alternatively, if you want to turn off the software completely, click File and Logout. The deactivated Hello icon will remain in the System Tray. Finally, if you want to completely turn off the software and remove the Hello icon from the System Tray, click File and Exit. You will be asked if you're sure you want to proceed. If you always want to turn Hello completely off by this method rather than letting the program run in the background, check the Exit Hello Always checkbox.

Don't Say Good-Bye To Hello

Hello can do much more than we've covered here, and hopefully you're intrigued enough to start looking at the software a little more closely for yourself. It's a great program with a multitude of features that can make your Web-browsing experience more enjoyable now and in the years to come. **RS**

BY DAVID MILLER

If you have Picasa, Hello can search your Picasa folders for images to send. If you don't have Picasa, you can learn more about it in the article in this issue or you can simply find pictures using Windows Explorer.

Tool(bar) Time

Make Your Browser A Powerhouse



It checks your spelling. It's multi-lingual. It can find locations on maps faster than you can say "Vasco da Gama." Google Toolbar is an add-on for the Internet Explorer or Mozilla Firefox Web browsers that may be small in stature (both in terms of file size and the space it occupies in a browser window) but delivers amazing performance.

A handy, free support application that adds a full bag of functionality to your Web browser shouldn't come as a tremendous shock when you consider the company that designed it has branched out from simply searching the Web to assisting us in many of our online endeavors. In a lot of ways, you can think of the Google Toolbar as a bite-sized version of the Google's home page with a few extra bells and whistles. Because it's free software you can download and install quickly (even with dial-up Internet access), Google Toolbar, in the beta stages of its third version, could be the best add-on you don't have.

Powerful Package

To understand how helpful and unobtrusive the Toolbar is, think of your

Web browser as a house and the Toolbar as the perfect roommate. This is the roommate who only requires a broom closet for living space, can find virtually anything, keeps annoying door-to-door salespeople from bothering you, and is fluent *en español*. And this wonder roommate doesn't charge you a dime for these services.

Google Search. Like the Web site, Google Search is the keystone that holds Google Toolbar together. Not only can you execute a standard



Google takes plenty of opportunities to notify you when you have to submit information from your computer over the Internet or if a particular feature may involve privacy issues.

Google or I'm Feeling Lucky search using one or more keyword(s), but you can also use the Google Search box to search the current Web site you are visiting, Google Images, Google Groups, News, and Froogle.

Popup Blocker. Now that Microsoft has added its own pop-up blocker to Internet Explorer, the Toolbar's blocker isn't quite as snazzy as when it debuted, but we like to think of this as having too much of a good thing. We can't say if pop-up ads will ever go away, but whether you make nice with Microsoft or go with Google, both blockers should be up to the task.

AutoLink. How many times have you had to find the address of a new local bistro with an online map service? When you click the Toolbar's AutoLink button, a recent addition to this handy browser add-on, the Toolbar automatically links you to an online map. You can also use AutoLink



Finding maps for U.S. street addresses isn't the only trick up the multitasking AutoLink feature's sleeve.

to connect a package's tracking number with its delivery status, find a vehicle's history according to its VIN number, and convert publication ISBNs (International Standard Book Numbers) to Amazon.com listings. At press time, you could only use AutoLink with U.S. addresses.

AutoFill. As if your spouse weren't dangerous enough with that credit

card, AutoFill completes your address and credit card information with a single click, greatly reducing the amount of the time the professional shopper in your family has to spend at the online checkout lane. Enter your information once in the Toolbar's Options dialog box, and AutoFill takes care of the rest. According to Google, your credit card information is password-protected.

WordTranslator. This new feature is great for anyone curious about other languages. WordTranslator is another new Toolbar feature that gives the heave-ho to language dictionaries. When you hover your Windows pointer over an English word, WordTranslator displays its translation in any of the following languages: Chinese (Traditional and Simplified), French, German, Italian, Japanese, Korean, and Spanish.

SpellCheck. Email, online chat rooms, and forums are notorious for being rife with spelling mistakes. SpellCheck is a new feature that corrects spelling mistakes when you type into a Web form, such as an email message or discussion forum post. SpellCheck has an AutoFix option that works like AutoFill. A single click can correct all of your text at once.

Address Bar Browse By Name. By now, most words have their own Web site, and this feature, which is only available for the Internet Explorer version of Google Toolbar, takes you to the Web site of any word you type in the address bar. For example, typing *shoes* in the address bar takes you to www.shoes.com. If you type a word that doesn't have a URL such as *flocinaucinihilipilification*, Browse By Name automatically displays the term's search results.

PageRank Display. In short, this is what Google thinks of a particular Web



You can completely fill out the AutoFill settings, or you can limit the information to just those items that you're comfortable sending out.



The Browse By Name feature can take you immediately to a Web site that corresponds to a word you type in your Web browser's address bar.

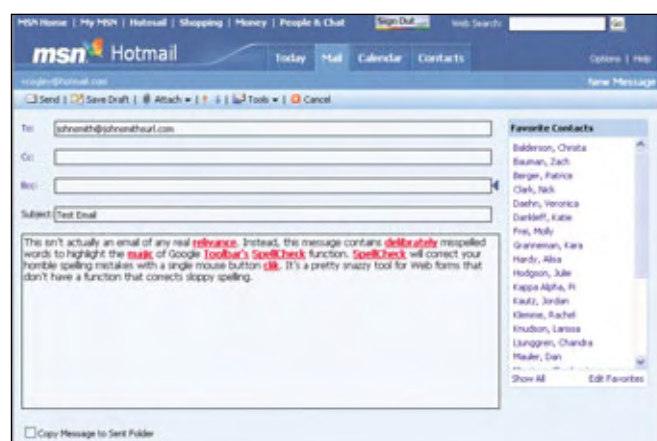
page. This feature is more for fun than anything, but it's a quick, interesting, and illustrated look at how Google's algorithms determine a Web page's importance. See the "If Google Ran The Web" sidebar for an entertaining look at Google's approach to the Internet.

Highlight/Word Find. These are two separate functions, but they essentially do the same things. The Highlight button can be particularly useful when you're trying to find a search term amidst an ocean of irrelevant text. For example, if you searched for "Cajun swordfish recipe" and go to a Web page containing several recipes, you can quickly sift through the unwanted recipes by looking for the highlighted content. The Word Find button takes you to the first occurrence of a word on a particular page. You can continue to click the Word Find button, and the Toolbar will find subsequent instances of the word.

Auto Update. Just as Google itself strives to improve, periodic updates to the Toolbar bring new features and (usually) an improved browsing experience. Google Toolbar even does all of the heavy lifting for you, automatically installing updates so you don't have to worry about constantly checking for new versions. Downloading the application once should do the trick.

Toolbar Unleashed

Even if you don't plan on using everything the Toolbar offers, you can download and install it quickly. (And if you really don't like it, uninstalling it is even easier.) You can download it at toolbar.google.com or start at Google's home page (www.google.com) and click the More link. Under Google Tools, click Toolbar. At the Toolbar's Web page, click Download Google



SpellCheck flags words you've misspelled in Web forms. Ironically, it flags itself.

Toolbar and then click Run to begin installing the Toolbar or click Save to save the installer on your computer to run at a later time.

To use the Toolbar with Internet Explorer, your PC needs to run Windows 98/Me/2000/XP and at least Internet Explorer version 5.5. For the SpellCheck and AutoLink features, you'll need at least Internet Explorer 6.0.

If WinXP displays a Security Warning dialog box before launching the installer, click Run. Next, you'll need to select a Google site to use for your searches. For U.S. users, this is simply google.com, which is selected by default. International users should select the appropriate country from among the list. If you have any Internet Explorer windows open, make sure Close All Internet Explorer Windows Automatically is selected. Click Agree & Continue.

At the Choose Your Configuration step, carefully read about your options regarding the Toolbar's advanced features; it isn't the typical boilerplate you see in most end user license agreements. To use the Toolbar's advanced features, the Toolbar has to relay information about the sites you visit to Google. Although Google does not provide personally identifiable information to third parties, you should read Google's Privacy Policy (see "Privacy Please" on page 22 for more information) and the Toolbar Privacy Policy (there's an embedded link at the Choose Your Configuration step) if you're concerned about sending information from your computer to Google. Select either Enable Advanced Features or Disable Advanced Features and click Finish to complete the installation.

Once installation is complete, Internet Explorer should automatically restart with the Google Toolbar appearing just below the Address bar. On the page that loads, you can click the Take A Quick Tour link for a rundown of the Toolbar's features.

To fire up the Toolbar for Firefox, go to toolbar.google.com. The system requirements for Firefox are slightly different from Internet Explorer; although the Firefox Toolbar is compatible with Mac OS X 10.2+ and Red Hat Linux 8.0+, it isn't as friendly with Windows OSes (operating systems). You'll need either Win2000 with at least SP3 (Service Pack 3) installed or WinXP. You'll also need to have Firefox 1.0+.

Click Download Google Toolbar and Agree And Install. Before proceeding, Firefox should alert you with a Software Installation dialog box instructing you to only install software from trusted sources; click Install Now. The installer will automatically run, and the Extensions dialog box that opens will notify you when you can restart Firefox.

When you restart Firefox, it automatically loads another dialog box that contains information nearly identical to the Choose Your Configuration step if you were installing the Toolbar for Internet Explorer. Select your search site (www.google.com for domestic users), click either Enable PageRank Display or Disable PageRank Display, and click Finish.

Super Surfing

Whether you fancy Firefox or are inclined to use Internet Explorer, you'll find that both versions of the Toolbar are virtually identical. Click the Options button to customize and start your Toolbar experience. On the Browsing tab of the Toolbar Options dialog box, you can disable any of the following features by clearing the check mark in their respective checkboxes: Address Bar Browse By Name, Popup Blocker, PageRank Display, SpellCheck, WordTranslator (disabled by default), AutoFill, and AutoLink.

With the exception of Address Bar Browse By Name and PageRank Display, you can adjust settings for each feature by clicking its Settings

button. Although the settings for the Popup Blocker, SpellCheck, WordTranslator, and AutoLink are essentially preferences, you'll need to complete the AutoFill Settings before you can use the feature.

On the Browsing tab, click AutoFill Settings and complete the Name and Primary Address sections. Next, choose whether you want AutoFill to use the address you just entered as a primary address or an alternate address when Web pages ask for a shipping address. If you select An Alternate Address, click the Add/Edit Alternate Address button, add the alternate shipping address, and click OK. Including your credit card information is an optional step, but if you trust Google with this, click Add/Edit Credit Card. In the Credit Card Information dialog box, complete the required information and click OK. Click OK in the AutoFill Settings dialog box to wrap up your AutoFill settings.

The other two tabs, Search and More, offer you more preferences to customize your Toolbar. Select the options you want and click OK. You can return to the Toolbar Options dialog box as frequently as you want.

The Google Search box may be the most pedestrian of the Toolbar's features, but it could be what you use most. The search box saves you the time of returning to Google's home



Your silent ally, the Popup Blocker stamps out pop-up ads in the background as you blissfully surf along.

page to perform a Google search. Type a search term in the box from any Web page you're visiting and press ENTER. For Google searching tips, see "Gateway To The Web" on page 26. Think of the Google Search box as a portable version of Google you can take with you to any Web page.

In addition to a general Google search, you can add buttons that will search other Google sites. For example, when you click Options and the Search tab, you can add Google search buttons to your Toolbar by checking their respective checkboxes. If you want to search Google Images for Edgar Degas paintings, type **Edgar Degas** in the search box, but click the Google Images button instead of pressing ENTER. Follow the same procedure to search Google Groups, Froogle, or the Web site currently displayed in your browser (if applicable), or to run an I'm Feeling Lucky search.

Blocking pop-up ads can save you a mountain of time, but there are some Web sites that use pop-ups for additional content, and Google's Popup Blocker occasionally blocks these, too. If you're visiting a Web page with useful pop-ups, click the Popup Blocker button on the Toolbar. Its message should change from "XX blocked," where XX is the cumulative number of pop-ups it has blocked since installation, to "Popups okay." When you visit a different Web site, the Popup Blocker will resume blocking pop-ups.

Using SpellCheck to correct an email message is probably one of the easiest ways to see this feature in action. When you finish typing, click the SpellCheck button. The Toolbar will point out misspelled words by underlining them, bolding them, and changing their font color. When you click these words, SpellCheck offers its suggestions and gives you options to ignore, edit, or add the flagged word to your Dictionary. Click the SpellCheck button again to disable it.

AutoLink takes an address on a Web page and summons the power of

If Google Ran The Web

Consider briefly Google's own assessment of the Toolbar's PageRank display: "Wondering whether a new Web site is worth your time? Use the Toolbar's PageRank display to tell you how Google's algorithms assess the importance of the page you're viewing." Although we're grateful for Google's wonderfully effective algorithms, how does one really assess a word as subjective as "important"? With that in mind, we visited some of our favorite Web sites. And just in case our boss happens to be reading this, all of that Friday afternoon Web surfing was for research purposes. Honest! Without further ado, here are 10 noteworthy Web sites and PageRank's take on them: **Google (www.google.com)**. It's almost silly to cover the ins and outs of Google in this issue without listing it as a favorite site, and PageRank seemed to agree, rating Google a perfect 10/10.

CNN (www.cnn.com). As journalists ourselves, we like to stay abreast of the latest happenings around the world. We typically turn to CNN's Web site for a quick rundown of the day's current events. PageRank also thought the media giant was important, giving it a 9/10 rating. CNN rival FOXNews.com? An 8/10.

Amazon (www.amazon.com). What better way to relieve the stress of a long day at work than to plop down in front of an online retailer for a little cybershopping? PageRank must think otherwise because it gave poor Amazon.com a 0/10.

Ticketmaster (www.ticketmaster.com). Whether you approve or disapprove of the online ticketing colossus' sometimes hefty fees, Ticketmaster remains the Web's primary domestic portal to live music, sports, and theater events. After the Amazon debacle, we thought PageRank would turn from Ticketmaster, but it handed out an 8/10.

Microsoft (www.microsoft.com). Your one-stop shop for nearly everything under Microsoft's giant umbrella, Microsoft's Web site is a staple in our computing diet. With a 9/10 rating, PageRank agrees.

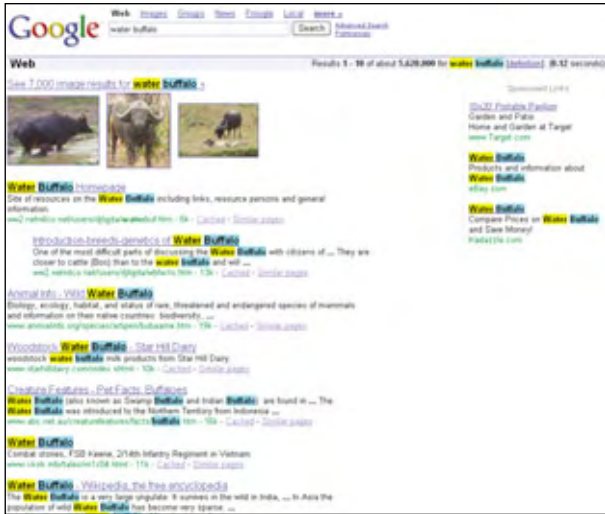
eBay (www.ebay.com). Online auctioneer eBay is usually the first place we visit for ancient relics, hard-to-find knickknacks, or grilled cheese sandwich artwork. We're fairly certain that PageRank is a closet eBayer because it gave the site a 9/10.

The Internet Movie Database (www.imdb.com). This Web site is almost as much fun as playing "Six Degrees of Kevin Bacon" and is perfect for double-checking if that cameo role in a particular flick was one of our favorite actors. PageRank also liked it, scoring it an 8/10.

Snapfish (www.snapfish.com). There are plenty of online photo storage sites that let you share and print your digital photos, and we chose Snapfish to see if PageRank approved. According to PageRank, which scored Snapfish a 7/10, finding a home for your digital photos is pretty important.

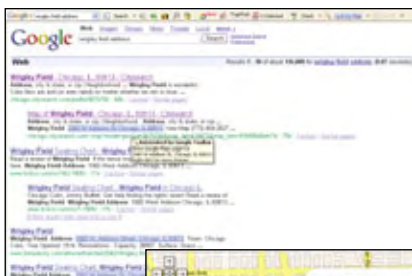
Smart Computing (www.smartcomputing.com). We admit that sometimes we're not above a little shameless self-promotion, so we decided to see what PageRank thought of our hard work. We were mildly impressed to see PageRank hand *Smart Computing* a 7/10.

White House (www.whitehouse.gov). Truthfully, we rarely surf over to the leader of the free world's Web site, so our visit to the online Oval Office was sparked more out of curiosity than anything else. Apparently, Google is more important than our nation's Executive Branch, because PageRank rated the White House's Web site a mere 9/10. And in case you were curious, Web sites for the House of Representatives and Senate both received 9/10 rankings, while the U.S. Supreme Court's site scored a 8/10. ■



The best part about the Highlight feature is that it never runs out of ink.

Google Maps and Google Earth (see “Are We There Yet?” on page 55 and “A View From Above” on page 104 for more information about these Google features) to play Sacagawea to your Meriwether Lewis (or William Clark, if you prefer). Click the AutoLink button (the button’s text may change to Look For Map) when you have an address you want to look up. The Toolbar will turn all U.S. addresses on the current page into links. Click the link you want, and Google Maps loads a map and flags the address whose link you clicked.



We located America’s greatest ballpark by typing **Wrigley Field address** in the search box and clicking the AutoLink button when Google finished its search. Then we clicked one of the links it created to bring up a map.

Once Maps pins down a selected address’ location, you have a few more options. In the upper-left corner of the map, there are four directional buttons that shift your view of the map in the appropriate direction. A slider located just below the four directional buttons lets you zoom in for greater detail or zoom out to see a broader geographical area. For driving directions, locate the To Here and From

Here links and click the link that applies to you. End by adding either a starting or ending address and clicking Get Directions.

To see a satellite image of the address, click Satellite in the upper-right corner of the map. You can navigate to a different part of the satellite image and zoom in/out just as you would in standard map view, but it may take the satellite image a few seconds to catch up. Finally, Google will graft street names onto major streets in the satellite image if you click Hybrid.

Using AutoFill after you’ve provided the proper information (primary address, shipping address, etc.) is virtually automatic. When you’re at a Web page that requires any information you included in the AutoFill

settings, the Toolbar highlights any fields it can fill with AutoFill. Click the AutoFill button and OK when AutoFill warns you about only using it on sites you trust. If you clear the Don’t Show This Message Again checkbox, AutoFill will warn you the next time you use it. This feature works well with sites that don’t store your information or sites you visit for the first time.

WordTranslator, Highlight, and Word Find round out the Toolbar experience. To use these features, enable them in the Toolbar Options dialog box. When you click the checkbox to enable WordTranslator, Google prompts you that doing so has privacy implications. To learn more, click Help in the dialog box. Otherwise, click OK. Next, click Translator Settings, select the language you want from the drop-down menu, and click OK. To enable Highlight and Word Find, click the More tab and put a check mark in each feature’s checkbox. Click OK. To see English words translated, just hover your pointer over them. Highlight and Word Find are fairly self-explanatory.

Browser Power

At the end of the day, the Google Toolbar is little more than an accessory kit for Internet Explorer or Firefox, but it’s still one heck of a kit. Considering how easy it to download, configure, and use, the Toolbar is available at a pretty competitive price. (You can’t beat free.)

You probably won’t use every feature on the Toolbar. In fact, you might not find it useful enough to keep. (If so, click the Google button located to the left of the Toolbar search box, point to Help, and click Uninstall and Uninstall The Google Toolbar.) Either way, the Toolbar is stuffed with goodies waiting for you to sample. **RS**

BY VINCE COGLEY

Search Engine Jr.

Google Brings Its Expertise To Your Desktop



For the organizationally challenged among us, finding files on our computers can be a harrowing task. If the file system on your computer resembles a cluttered garage in which you're as likely to get tetanus as you are to find what you're looking for, then the Google Desktop personal search engine can clear the confusion. (No shots required.)

From The Internet To Your Desktop

Google's Internet search engine gained fame for its ability to quickly return relevant search results for billions of Web pages, but now Google is taking a whack at the comparatively minuscule desktop. But wait, doesn't Windows already come with a search utility?

Goodbye, Rover. If you've ever tried to search for a file using Windows' built-in Search or Find utility, then you know that Microsoft has some catching up to do in this area. When you attempt to search for an item using this search tool, the results can take several minutes to display, especially if you have a large

hard drive packed with a lot of files. Although the search tool does come with an Indexing Service to help speed up your local searches, it still requires that you have a saved copy of the item in question. Also, because this utility is focused on your local hard drive, it ignores your past Internet activity. If you ended your chat session without saving it, or want to view a Web page you looked at last week, then Windows' Search isn't much help.

Hello, Google Desktop. The Google Desktop personal search engine represents a more efficient way to find your files among the jumbled heap that is most of our computers.

Google Desktop does a better job than Microsoft's built-in tool in large part because it is faster, more comprehensive, and best of all, automatic. Google's personal search engine can quickly return results because it automatically creates a systematic guide to the contents of your hard drive and caches (saves) compressed versions of the other items you've viewed (such as Web pages, emails, and chat sessions). Immediately after you install the application, Google Desktop begins creating this guide.

This guide, or index, is a kind of summary composed of your PC's file



Hey Rover, can you search my desktop and several billion Web pages seemingly instantaneously? Didn't think so.



Google Desktop takes just a few minutes to download and install.

You can download Google's personal desktop search engine from desktop.google.com.

names, as well as the text contents of compatible file types and cached copies of Web pages and chat sessions. Every time you enter a query, Google Desktop quickly checks the index and instantly displays your results. Google stores the index on your computer at C:\DOCUMENTS AND SETTINGS\USERNAME\LOCAL SETTINGS\APPLICATION DATA\GOOGLE\Google Desktop Search, Username. (Username refers to the administrator's username and C: refers to your system's primary drive or partition.)

Google's initial indexing of your hard drive is not a quick process, however, and can consume a fair amount of system resources. For this reason Google designed the desktop search application to perform its indexing while your computer is idle, or in a powered-on but not in-use state.

File types. Google's personal search engine also differs from Microsoft's built-in search tool in that it can search a wider range of items. Google Desktop provides a full text search of your emails, computer files, chats, and the Web pages you've viewed. When the indexing process is complete, you'll be able to search Microsoft Outlook and Outlook Express emails; Web pages; Microsoft Word, Excel, PowerPoint, Netscape Mail, and Adobe PDF (Portable Document Format) files; the



Once installation is complete, you can set your preferences in the subsequent browser window.

metadata (data describing the file, such as artist, date, and size) of music, image, and video files; and AOL Instant Messenger chats.

You can also download separate plug-ins for indexing other file types. Third-party software developers can use the Google Desktop SDK (Software Development Kit) for letting Google Desktop index images, proprietary text and spreadsheet file formats, audio files, chats, and files from other email clients that Google Desktop doesn't already support. If you visit desktop.google.com/plugins, you can browse a list of plug-ins for users and developers. Click the Indexing link beneath the For Users heading at the left side of the page to see a list of plug-ins that let Google Desktop index items such as MP3 audio file metadata, Microsoft help files, WordPerfect, and StarOffice files.

Privacy, please. For privacy reasons, Google Desktop doesn't index networked drives, so you aren't able to search beyond the computer on which you've installed the application. If you're the rare user who doesn't need to share your computer with anyone else, local privacy probably isn't your top concern. For the rest of us, however, preventing unauthorized users from accessing everything we've

written and viewed is a valid concern. To address this, Google created Google Desktop so that it can only be installed on a single user account and index the files created by that user. All other files created on different user accounts are not indexed (unless they are purposely made available to all users). If privacy is important, you should consider protecting your Windows administrator account with a password.

If you can't avoid prying eyes but still don't want others snooping around, go to the Google Desktop home page and click Preferences. Click the Add A File Or Folder To Exclude from the Don't Search These Items section of the Preferences page. Next browse for the file or folder you don't want indexed, or enter its path. To delete specific items from the index, click the Remove Items link at the top of any Google Desktop page. Click the checkboxes next to the items you'd like to remove, and then click the Remove Checked Results button.

Compatibility. Google requires at least a 400MHz Pentium or equivalent processor, and at least Windows 2000 Service Pack 3 or Windows XP. You'll also need at least 128MB of RAM and 1GB of available hard drive space. The cached files that compose your index don't consume nearly the same amount of space as their original counterparts, but Google suggests that you make sure you have about 4GB of drive space available.

Google Desktop is fully compatible with Mozilla Firefox and Internet Explorer versions 5.0 and above. The application also features partial support for other browsers, including Opera and AOL's browser. As of this writing, Mac and Linux users can't run Google Desktop on their computers.

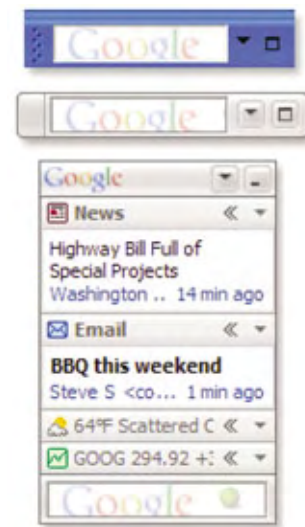
Google also offers a business version of its computer indexing technology, called Google Desktop Search for Enterprise. (See "Google Desktop Search For Enterprise" on page 136 for more information.)

Installation. Make sure you're logged on as the administrator, then

direct your Web browser to the Google Desktop download page at desktop.google.com. At press time Google was offering the English Version 2 Beta and version 1.0 in a variety of languages. By default this page loads with the English (Version 2 Beta) highlighted.

Once you've viewed the Terms & Conditions and Privacy Policy documents, click the Agree And Download button. Click Save in the File Download dialog box, select a location for the file, and then click Save. Next click Run and the Google Desktop Installer should launch. It may prompt you to close some open applications, such as Internet Explorer or Outlook, before continuing; click OK to comply.

Once installation is complete, you'll see a Web page prompting you to configure Google Desktop. You can set Google Desktop's search box to appear as the Sidebar, Deskbar, or Floating Deskbar. The Sidebar is a configurable menu that appears on your Windows Desktop and displays email, news, a scratch pad, weather, photos, and the Google Desktop search box. If you want something a little more inconspicuous, click the radio button for the Deskbar (a search box anchored to your Taskbar), or the Floating Deskbar

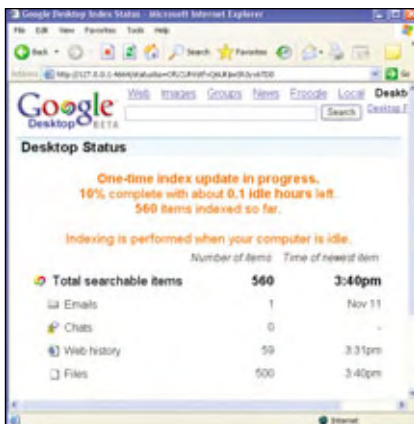


You can view Google Desktop's search box as the Deskbar, Floating Deskbar, or Sidebar.

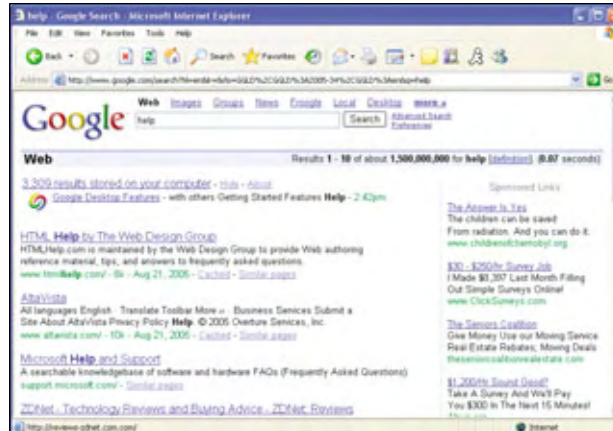
(an undocked search box). This page also lets you set Google as your default search engine and configure Google Desktop to search and index your Gmail account if you have one. When you're finished, click the Set Preferences And Continue button.

Next you'll see the Enable Advanced Features screen. Google Desktop's Advanced Features involve sending non-personal usage data back to Google's servers. This data lets Google know which types of news items you view in order to better tailor your Sidebar. If enabled, Google also collects information about the errors you encounter while working with Google Desktop, similarly to WinXP's error reporting feature. Keep in mind that none of Google Desktop's options are dependent on enabling these features, so click either Enable or Disable to continue, depending on your preference.

The next page indicates that Google Desktop is indexing your PC. Click the Go To The Google Desktop Homepage button to see the progress of the one-time indexing update. This page also shows you how many files Google has indexed so far, what types of files it has indexed, and an estimate of how long the full index will take to generate.



To view Google Desktop's indexing status, right-click the System Tray icon and then click Index Status.



Google Desktop displays the results stored on you computer first, followed by the Web results.

Because the indexing occurs while your computer is idle (for 30 seconds or more) the process can take a long time if you use the computer frequently throughout the day. If you regularly turn off your computer when it is not in use, try leaving it on overnight until the index is complete. You can pause the indexing process any time by right-clicking the Google Desktop icon in your Windows Desktop System Tray and clicking Pause Indexing. If you don't manually resume the process by clicking the Resume Indexing option in the context menu, then Google Desktop will resume automatically once 15 minutes has elapsed.

In our test run of the indexing process, it took only about half an hour to index an 80GB hard drive containing 26,065 files.

Forget Filing & Start Googling

Using Google's personal search engine is fairly intuitive, just click the text box of your Sidebar, Deskbar, or Floating Deskbar, and then type your search query. Press ENTER and your default browser will launch and display the results. At the top of the page, you'll find numbered results for items on your hard drive, followed by Web results. Click the links for the numbered results to see them, with the most recent results listed at the top. You can

also sort your results by relevance; click the Sort By Relevance link near the upper-right corner of your Google Desktop results page.

Google Desktop also includes the Quick Find feature, which, when enabled, begins displaying results for your query as you type. For instance, when you start typing "wedding photos" into the Deskbar, Google's Quick Find window first displays everything relevant that begins with a "w." The search results narrow with each additional letter you

type, and your wedding photos may appear in the Quick Find window after just typing "wed." Google Desktop uses a second index and a new search algorithm to display these results so quickly.

Get specific. Google Desktop, like Google's Internet search engine, lets you perform detailed searches using advanced search operators, or symbols and characters that enable special functions. You can search for exact phrases using quotes, for instance, by typing "computer virus" into the Deskbar and pressing ENTER. This operator displays results that contain that exact phrase. You can also exclude specific words from your search by typing the minus sign (-) before the word you want to exclude. For instance, typing holiday photos -2004 will likely return holiday photos from every year on file except for 2004.

You can even narrow your email search by typing **subject:**, **to:**, **from:**, **cc:**, or **bcc:**, followed (without a space) by the word(s) you want to find in the appropriate fields. For instance, if you type **subject:virus** and press ENTER, Google Desktop will display all emails that include the word "virus" in the subject line. To search for individual file types, you'll want to use the "file-type:" operator. **RS**

BY ANDREW LEIBMAN

Windows Desktop Search vs. Google Desktop

In their quest for superiority, Microsoft and Google have crossed paths (and stepped on each other's toes) on more than one occasion. We took a look at Windows Desktop Search (part of Microsoft's MSN Toolbar offering) and Google Desktop to compare the user interfaces, features, and search results.

Like Google's personal search application, Windows Desktop Search creates an index to quickly return search results for your queries. You can view the status of the indexing after installing the MSN Toolbar Suite by right-clicking the Desktop Search icon in the System Tray and then clicking Indexing Status. You can also pause and restart the indexing process in the context menu that appears when you right-click the Desktop Search icon in the System Tray. To configure your indexing preferences, click the MSN logo in the MSN Search Toolbar and then click MSN Search Toolbar Options.

Currently, the Windows Desktop Search is a bit more limited in its support for searchable file types. Supported types include a variety of text files, Microsoft Word documents, Excel spreadsheets, Outlook and Outlook Express items, Web pages, and the metadata of music, image, and video files. You can also install plug-ins for additional file types, such as Adobe PDF (Portable Document Format) documents.

This Desktop's Not Big Enough For Two

To see how the two applications compared, we installed both on a test computer and searched for files

without entering the specific names, or locations of any one file. We started by typing music into the search boxes of both Google Desktop and Windows Desktop Search. Google returned 180 files, and 12 cached Web pages. The top results were the most recent, and consisted mostly of cached Web pages.

The next dozen items were text files that mentioned the word "music" in them. We had to scroll past more than 75 items before we actually encountered an audio file. The Windows Desktop Search returned just 126 results; however, the top three were WMA (Windows Media Audio) music files, followed by a healthy mix of text files, file folders, and Windows Media Player playlists. The results didn't include any cached Web pages. Windows Desktop Search's list of supported file types states Web pages, but nothing about cached Web pages you've already viewed.

Next we tested Windows Desktop Search and Google Desktop with date queries. We typed 2004 into Windows Desktop Search and pressed ENTER. It returned 1,426 results, the first hundred or so of which were folders that either had 2004 in the file name or contained files that had 2004, or 04 in the file name. Google Desktop returned 1,011 hits, nine of which were cached Web pages. Google's results seemed almost devoid of folders, but included a bevy or relevant documents dated from 2004.

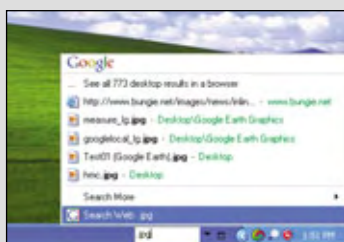
Finally we tested each personal search engine by looking for specific file types. We typed **.jpg** into each search box to find JPEG (Joint Photographic Experts Group) image files and then pressed ENTER. Windows Desktop Search returned 463 local results, while



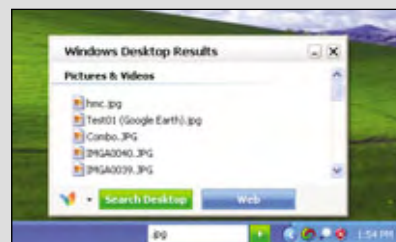
Is your Taskbar big enough for Windows Desktop Search and Google Desktop?

Google Desktop displayed 773 results, seven of which were cached Web pages. Though both utilities showed thumbnails of the image files they found, Google's search utility seemed to perform the deeper scan, finding some JPEG images that Windows Desktop Search missed entirely.

In the end, though the results were varied, the outcome wasn't surprising. Google Desktop's strengths seem to lie in its wider range of searchable file types, recalling the Web pages you've viewed, and finding individual files. Windows Desktop Search benefits from being able to integrate other Microsoft products, and seems to have a better handle on file folders, and file types (especially proprietary Microsoft file types). At this point, neither application seems to be the ultimate desktop search utility, so to get the most complete search capabilities, you might consider using both Windows Desktop Search and Google Desktop. ■



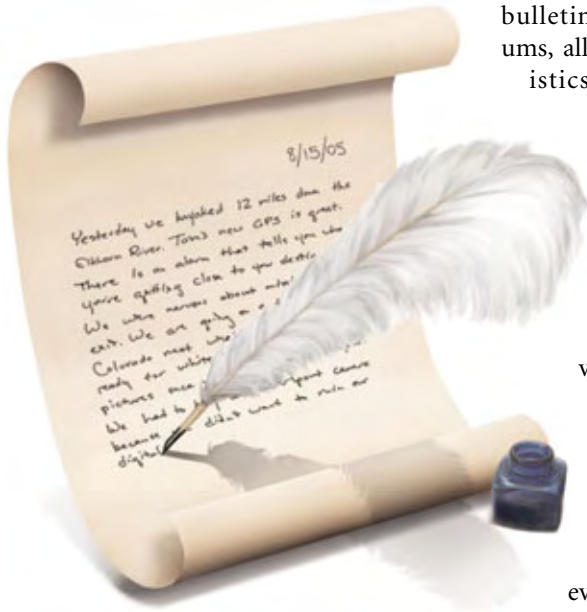
Google Desktop's Quick Find window can display results before you've even finished typing.



Windows Desktop Search can display your results as quickly as Google Desktop.

Meet Blogger

Join The Web Log Craze With This Google Tool



bulletin boards, and online forums, all of which share characteristics with blogs, cropped up years before “blog” became ingrained in the Internet’s lexicon.

You can use a blog for a number of tasks.

For example, you can post pictures and highlights of your next family vacation while you’re still on vacation (at the collective swooning of the postcard industry). You can pontificate about current events or simply provide links to articles about the events to readers. Essentially, you can use your blog to disseminate almost any kind of information you want, and maybe that’s why blogs are so appealing.

Using Blogger, Google’s spin on the phenomenon, is almost as easy as running a simple Web search. It only takes a few minutes to establish a free account, and you can use Blogger Images to change your blog from bland to extra spicy with lots of images. We’ll guide you through the process of registering for an account, bringing it to life with your ideas, and making it dance with pictures. We’ll even give you a firsthand look at our Blogger blog—our own little corner of cyberspace.

You can create a Blogger account, give your blog a title, and select a template for it in about as much time as it takes to check your email.

Maybe you’re the type of person who has an opinion on everything from Keynesian economics to non-Euclidian geometry and isn’t afraid to share it with anyone. Perhaps you like discovering strange news stories on the Web and forwarding them on to your friends. Wouldn’t it be great if there was a way you could cut out some of the legwork and keep everyone informed or entertained at the same time? Google has a tool that can do just that. It’s called Blogger.

Blogs (short for “Web logs”) are one of the crazes sweeping the Internet. They come in all shapes and sizes, and anyone with a computer and a little spare time at his disposal can have his own, usually for free. Although it’s generally accepted that blogging pioneer Jorn Barger coined the term “Web log” in 1997, it’s difficult to pin down the genesis of the blog. Newsgroups,

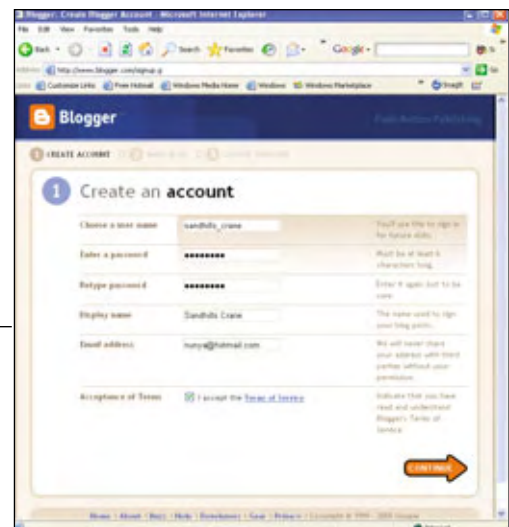
Humble Beginnings

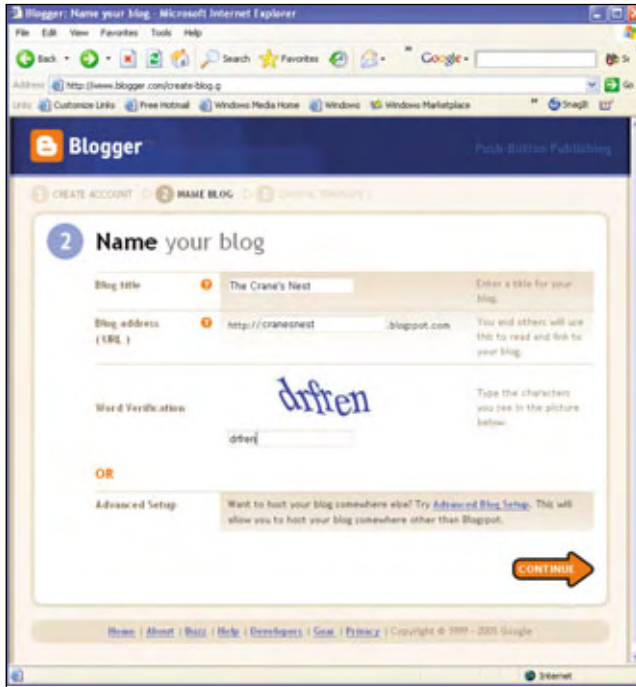
It wasn’t all fun and games for the folks behind the magic at Blogger. San Francisco-based Pyra Labs started Blogger in 1999, one year after Google itself burst on the scene. By its own admission, Blogger was successful, but the company took its lumps along with countless other companies during the dot-com collapse that began in 2000. The company ran out of money but managed to keep its service running virtually nonstop.

Then in 2002 Google wanted to buy Blogger and take the service under its wing. Already boasting hundreds of thousands of members, Blogger became a team within Google, and the rest is history.

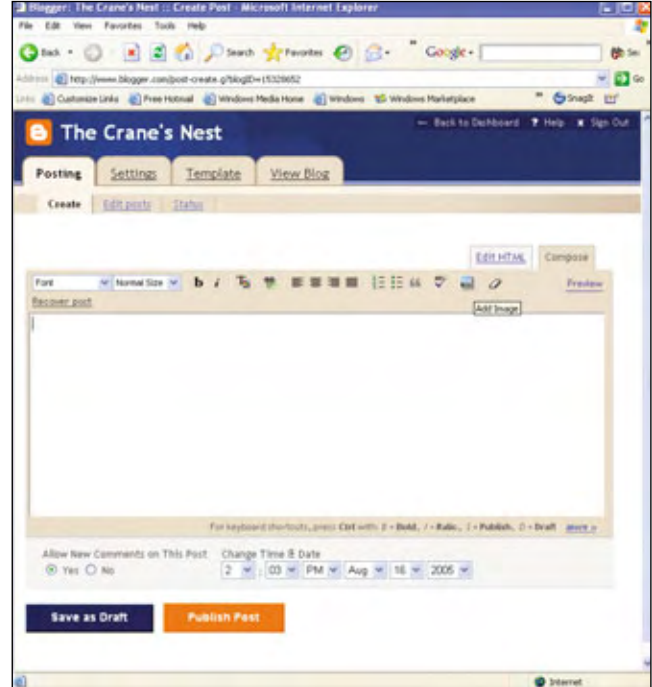
Blog This Way

Although you can create a marvelously intricate masterpiece with Blogger with enough time, the nuts and bolts of setting up your own blog are remarkably straightforward. First, open a Web browser with an active Internet connection, head to Blogger’s home page (www.blogger.com), and click Create Your Blog Now. Enter the following information in the respective fields: User Name (this is the name you’ll use to log on to your Blogger account), Password, Display Name (this is the name you’ll





The blog address you choose will be the URL others will use to access your blog.



An empty canvas awaits your creative genius every time you create a new post.

use to “sign” your blog entries), and Email Address. Click the I Accept The Terms Of Service checkbox (after clicking the link to read the terms, of course) and click Continue.

On the next screen, you’ll name your blog and give it its own URL. This is a lot like having your own Web site that your friends and family can visit when they’re surfing the Internet. As an alternative, you can click Advanced Blog Setup if you want to host your blog somewhere away from Blogger, but we only recommend doing this if you have a good working knowledge of FTP (File Transfer Protocol) servers and third-party hosting (providing space for and placing a customer’s Web page or site on a commercial server). When you enter a name and URL for your blog and fill in the Word Verification field with the letters you see, click Continue. Blogger will ask you to submit a different blog title and/or URL if another user has already claimed your first choice(s).

Picking a predesigned template is the final step in creating your blog. Click

Preview Template below any of the templates to see a larger example of the template. When you decide on a design that strikes your fancy, click next to its title and click Continue. Blogger will display the message “Your blog has been created!” when your blog is ready to go. Click Start Posting to put some meat on your blog’s bones.

Lesson 1: Classroom Procedure

Let’s face it. You can gussy up your blog with endless photos (and truthfully, photo-blogs—blogs consisting of primarily images with very little text—have populated the Web alongside traditional blogs), but at the end of the day, bloggers who want their writing to shine should first focus on the text

Sing a song, recite a poem, or bellow a cheer with Audioblogger; it’s free, too.

and let everything else be the icing on the cake.

Your first order of business should be to familiarize yourself with the Blogger Dashboard. Think of the Dashboard as your base of operations; from the Dashboard, you can access your blog, create another blog, and/or edit your profile. Or, if you’re looking for inspiration, head to the Dashboard to read blogs from others in the Blogger community.

After you register for a Blogger account and return to the home page,



sign in at the top of the page to access your Dashboard. Enter your username and password in their appropriate fields and click Sign In. You should see the name of the blog you created in the Blogs area at the top of your Dashboard page. Ambitious bloggers who feel like spilling their thoughts on a variety of subjects can click Create A Blog, and Blogger will guide you through creating additional blogs.

Your profile. Before you dig in and get your hands dirty with a little blogging, you might want to edit your profile. Your profile can contain all the essential information (and some unessential information) your inquiring fans will doubtless want to know. To change it, click Edit Profile on your Dashboard. If you select the Share My Profile checkbox, everyone who visits your blog will be able to view the information you include. For example, you can change your display name, add a photo or audio message, and include information about your location, job, and interests. When you've finished updating your profile, click Save Profile. You can edit your profile as often as you want.

AdSense. Not only is Blogger free, you can actually use it with Google's AdSense program to make money, although you'll need a healthy amount of traffic to generate a worthwhile amount of income. Briefly, Google AdSense is a revenue-generating program that posts an ad column on your blog similar

Blogger Mobile: Blogs To Go

With Blogger Mobile, you don't need a computer to keep blogging. If your mobile device, such as a cellular phone, PDA (personal digital assistant), or BlackBerry is capable of sending an email, you can update your blog with both text and photographs from pretty much anywhere within your wireless service provider's coverage area. (At press time, Verizon, AT&T, Cingular, Sprint, and T-Mobile were the only providers compatible with Blogger Mobile, but Blogger claims it will be expanding the list in the future.)

True to the Blogger spirit, making mobile blog entries might initially seem like a daunting task, but it's not too difficult with a little practice. When you send an MMS (Multimedia Messaging Service; a service that lets you send images, sound, and video in addition to text) message or email to go@blogger.com, Blogger creates a mobile blog for you and sends you its URL and a code you can use to claim your mobile post. Be aware that even though Mobile Blogger is free, you're still bound to any fees your wireless service provider charges you for sending MMS or email messages.

Your mobile blog can exist independently, or you can incorporate it into an existing blog. If you want a separate mobile blog, continue sending emails MMS messages to go@blogger.com, and Blogger will continue to do all of the legwork and update your mobile blog. Just refer your readers to the URL Blogger sent you.

To add mobile posts to a blog you already have, open a Web browser with an active Internet connection and go to go.blogger.com. Enter the code Blogger emailed you in the Claim Token field. In the Verify Your Registration field, type the randomly generated string of characters you see just above the field and click Continue. On the next screen, click Continue As This User. When Blogger asks you to claim your mobile blog, click the Switch To "XXXX" radio button, where "XXXX" is your blog's title, and click Continue. Blogger will send the post to your existing blog. Repeat these steps to add future mobile posts to your original blog. ■

to what you see after you perform a basic Google search. These ads are relevant to your blog's content, so you won't see ads for coffee machines if you blog about exotic travel destinations. Inquisitive, entrepreneurial bloggers can turn to "The Ins & Outs Of AdSense" on page 132 for more information.

Blogger Help. Using Blogger is a lot like playing chess. It doesn't take long to learn the basics, but becoming a master takes a lot of practice. Fortunately, Blogger's Help section is fairly robust and should

help you tackle a number of fairly specific questions. You'll find Blogger's help section located just below the Ad-Sense Invite.

The two links, Blogger Knowledge (which at press time redirected us to Blogger Buzz, or buzz.blogger.com) and Blogger Help (help.blogger.com) each contain different useful information. The two are aptly named: Blogger Knowledge (or Blogger Buzz, depending on how you get to it) contains regular updates of blog-related happenings inside and outside of the Blogger world, and Blogger Help covers all of the basics and has advanced tips for seasoned vets.

Lesson 2: Composition

In truth, you can start blogging immediately after you create your blog. You'll have to edit your profile and



When you sign up for an Audioblogger account, you have to list a primary phone number and a PIN number to claim your audio posts.

probably read a number of Help topics before you can construct a polished blog, but there's no reason you can't start putting your thoughts down right away.

After you have signed in, look at the Blogs area of your Dashboard page. To create a new post, click the plus sign (+) that appears to the immediate right of your blog's name. You can start typing in the field provided. Making a blog post is very similar to composing an email to someone with a Web-based email service, such as Yahoo!, Hotmail, or Gmail.

Start with a basic blog entry. Compose an entry as long as you like by typing in the empty field. When you've finished, click Save As Draft or Publish Post. If you click Save As Draft, Blogger will save the entry and let you access it later for any revisions you feel it might need. When you sign on at a later time and click the name of your blog on your Dashboard page, you will see any posts you have saved as drafts. Click the Edit button, make the necessary changes, and click Publish Post. (You can also click Delete instead of Edit if you don't want to keep a particular saved post.)

When you click Publish Post, Blogger will publish it on the Web and notify you with the message, "Your blog published successfully." At this

juncture you view your blog with the new entry (click View Blog). First, click either Republish Index Only or Republish Entire Blog. For blogging newbies just getting their blogs off the ground, there isn't an appreciable difference between these options. But as a blog grows larger and more complex, republishing it in its entirety may take longer than simply republishing its index.

There's obviously a lot more to blogging than dumping a bunch of text from your brain with furious typing. By clicking on the Font and Normal Size (these appear by default) drop-down menus, you can change the font style and size of your blog posts. Likewise, the other buttons should look familiar and apply various formatting effects to the text of an entry. Click the button with a checkmark below the letters "ABC" to spell check a post you're working on. If you've applied several types of formatting to a block of text (for example, you have blue, bolded, italicized text) and want to remove the formatting, highlight the text with your cursor and click the eraser button to remove all of the formatting at once.

If you click the Preview link, Blogger will show you a sneak peek

Welcome to the Dashboard, your point of origin for all things blogging.



Blogger offers more than 2 dozen predesigned templates in an effort to please your discriminating palate.

of what your blog would look like if you published your post in its current state. This can be helpful if you want to see what a post will look like with a particular font or where a picture will show up amidst your text.

Lesson 3: Graphic Design

Shutterbugs, Bob Ross wannabes, and anyone feeling visually inclined, take note: This is the juicy part for you. Even though text is a crucial part to any blog, the old adage "a picture is worth a thousand words" rings especially true for blogs that make strategic use of images.

Posting pictures to your blog used to require a combination of two other Google programs, Picasa and Hello, or a third-party image-hosting site, but the good people of Blogger have considerably simplified the process. To add an image to your blog, click the Add Image button. (It's the button sandwiched between the Check Spelling and Remove Formatting From Selection buttons.) A new window will open that lets you upload images to your entry. If you have the image stored on your PC, click the Browse button, find the right image, and double-click it. To add an image that already exists on the Web, you need to cut and paste





By setting up a Mail-to-Blogger address, you can submit posts to your blog via email.



Blogger Help (help.blogger.com) has tips for virtually every skill level of blogger.

its URL into—drum roll, please—the URL field.

Next, decide on a text wrap option for your image in the Choose A Layout area of the Blogger: Upload Images window. Sample illustrations will give you an idea of how the image will appear with your text. Click Small, Medium, or Large for Image Size and make sure the Use This Layout Every Time? checkbox is empty if you want to use a different layout for subsequent images. Click Upload Image to finish adding a picture. When Blogger displays the message “Your image has been added.” click Done.

When the image appears in your blog entry’s text, Blogger should initially place it at the beginning of the text. You can click and drag the image to where you would like it in your text. It can take a little practice, but the process isn’t difficult to master.

Including pictures or other images with your blog’s text is a fantastic way to make your blog pop, but you can make other changes to your blog’s appearance, as well. On your Dashboard page, click the Change Settings icon. The icon looks like a gear and is located to the immediate right of

the plus icon for creating new posts. Clicking Change Settings takes you to your blog’s settings page. (At the top of the page you should see the Settings tab selected.) On the first page, you can change your blog’s title and give it a description 500 or fewer characters in length.

There’s a veritable cornucopia of other settings you can access and adjust by clicking the following links in the Settings tab: Publishing, Formatting, Comments, Archiving, Site Feed, Email, and Members. For example, click Formatting, click Yes in the Show Title Field drop-down menu, click Save Settings, and you can include titles with your individual blog entries. To let all your visitors make comments about your blog entries (not just other Blogger members), click Comments, click Anyone in the Who Can Comment? drop-down menu, and click Save Settings.

You can also make structural changes to your blog, but this requires some familiarity with HTML (Hypertext Markup Language, a language that tells Web browsers how to display Web pages) code. One easy modification you can make to your blog is changing its Links section. Initially,

the three links in the section are Google News and two Edit Me links. To change them start at your Dashboard and click the Change Settings icon. Click Template and scroll down through the code until you see the line `<!-- Begin #sidebar -->`. Slightly further down you’ll see the code for the Google News and Edit Me links. Using the Google News line of code as a guide, you can change the Edit Me links, add more links, and change Google News to a different site.

For a visual idea of where to look to make these changes, take a peek at the illustration at the end of this article. You can make plenty of other changes to craft a blog tailored to your interests and talents, and Blogger Help will provide you with an ample amount of guidance.

Lesson 3: Public Speaking

Blogger’s sister site, Audioblogger (www.audioblogger.com), gives you the opportunity to post audio to your blog from any phone. Posts can last as long as five minutes; if your witticisms continue to flow, Audioblogger gives you the option to record

another post at the end of a current post. You can submit an unlimited number of audio posts when you set up an account with Audioblogger. And if that doesn't pique your curiosity, placing an audio post is simpler than a text post.

To establish an account with Audioblogger, open a Web browser with an active Internet connection and go to Audioblogger's Web site. Click Start Audioblogging Now, enter your Blogger User Name and Password in their respective fields on the next page, and click Continue. Next, select the blog you want to post your audio to in the drop-down menu (if you only have one blog, Audioblogger selects it by default) and click Continue. On the Phone Info screen, enter the primary phone number you'll be using to make audio posts (but you can make audio posts from other phone numbers) and choose a 4-digit PIN number. When you've filled these fields in, click Finish Setup.

When you have a phone and PIN number associated with your Blogger account, dial (415) 856-0205 (Audioblogger's dedicated phone number at press time) and do your thing, following the voice prompts as needed.

Your Final Exam

Like any good teacher, we've given you the basic tools to build a blog as unique as you are, but the real challenge is actually doing it. Although this article will help you with the ABCs of blogging, the rest of the alphabet is waiting for you on Blogger's Web site. Making text entries and adding photos are probably the most crucial pieces of the puzzle, but

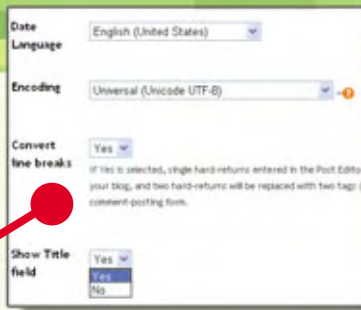
we've really only scratched the surface of the many options available to you at Blogger.

Above everything else, have patience with your blog. The best blogs didn't spring up overnight, so don't be discouraged if it takes a while to perfect your blog's format and content. The most popular blogs have been around for years

and have taken a long time to develop a sizable fan following. Release your own creative talents, and Blogger will do the rest. **RS**

BY VINCE COGLEY





To allow any reader, even someone who doesn't have a Blogger account, to make posts to your blog, start at the Dashboard and click Change Settings And Comments. Change Who Can Comment? to Anyone, and click Save Settings.



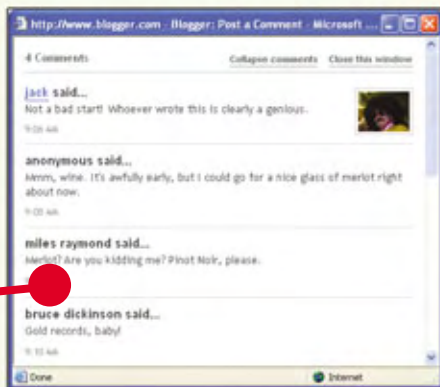
Your profile can tell your readers everything they want to know about you (and maybe some things they don't). Starting at the Dashboard, click Edit Profile, make your desired changes, and click Save Profile.



`Smart Computing`
`Computer Power User`
`PC Today`
`CE Lifestyles`
`Sandhills Publishing`

List your favorite Web sites in the Links section of your blog by changing your template's HTML. Use the highlighted text as an example.

After Blogger places an image in the blog entry you're working on, you can click and drag it to where you want it in the text.



From the Dashboard, click Change Settings and Formatting. Choose Yes for the Show Title Field drop-down box and click Save Settings.

A View From Above

Explore Google Earth's Satellite & Aerial Maps



Google's bid to take over the world just took a turn for the literal. On June 28th, Google launched Google Earth, which is a searchable collection of satellite and aerial images from various providers that have been amalgamated to form a virtual 3D Earth, complete with realistic elevations, 3D buildings for major cities, and fly-to animations. Google is offering free access to its beta version of Google Earth, based on technology from the recently acquired digital mapping company Keyhole.

The Key To Google Earth

Like many of Google's current offerings, Google Earth started out as a product from another company.

Keyhole had been developing a 3D Earth model and color satellite image database called EarthServer since 2001. Google acquired Keyhole's technology in October 2004 with an eye toward broadening its own suite of mapping products.

You can download Google Earth from kh.google.com/download/earth/index.html, but you'll need to be connected to the Internet to properly run the program once it has been installed. Google Earth consists of a user interface application

that lets you search for and view virtually any place on Earth using a database of Keyhole's images, as well as public domain and chartered flight photographs. Google Earth uses 3D graphics and broadband streaming technology to power its advanced navigation features. Google Earth also lets you view 3D buildings in dozens of major cities, as well as 3D mountains, valleys, and other geographic features.

Google Earth is also integrated with the Google Local search feature that lets you find hotels, restaurants, schools, parks, and other locations. It's designed to work

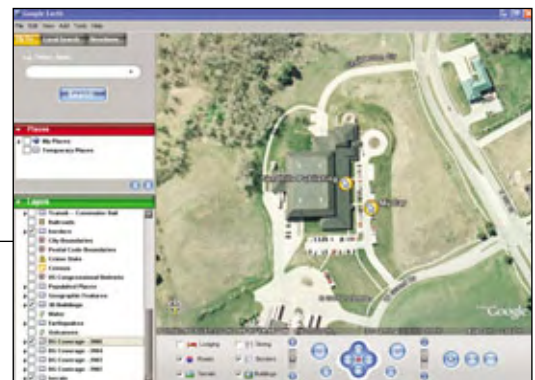
Google Earth lets you label and add your own location-marking pushpins.

with Google Maps, as well, so you can get driving directions to and from places all over the world.

I can see my house from here. The realism and detail of these images is impressive. But before you try zooming in on Jennifer Aniston's poolside deck chairs, keep in mind that these digital images are static, and in some instances several years old. The satellite and aerial images that comprise Google Earth's database were taken throughout the last three years.

Google Earth's images come from a variety of sources, most of which are public domain and available for use by anyone. When you zoom in on a specific image that is copyrighted, the copyright information appears at the bottom to let you know where the image came from. Aside from the differing image sources, the dates and times when the images were taken can also vary. An image of Yellowstone National Forest taken during the spring will look drastically different from an image of the forest taken in the fall. For this reason you may see sections that vary in color. In many cases, the images you see on Google Earth are combined like a patchwork quilt.

As you might expect, Google Earth has more images of the United States than any other country. However, Google Earth provides medium resolution images and 3D topographic data for the entire planet. You can view detailed road maps for the United States, Western Europe, Canada, and the United Kingdom. Google Earth also hosts high-resolution images of major cities throughout the world, which lets





You can view buildings for dozens of cities by enabling the 3D Buildings layer.

you zoom in to street level and distinguish people and cars. In addition, the urban areas of 38 major U.S. cities feature 3D buildings. If you live in any of the above (except Western Europe) you'll also enjoy the integrated Google Local search feature.

At press time, Google offered a comprehensive visual map of the cities and regions covered at earth.google.com/data.html. Google Earth also covers more than 150 cities in the United States with resolutions better than 3 feet. We looked up Cambridge, Mass., for which Google claims to have 6-inch resolution images, but we couldn't zoom closer than 40 feet (eye altitude). Despite this we managed to fill our 1,024 x 768 resolution display with three cars parked side-by-side.

If you live in a rural or sparsely populated area, you may only be able to view blurry images from which you can distinguish little more than groups of buildings, trees, and roads. With these medium-resolution images, individual buildings, cars, and people are difficult to see. Google has announced that it is adding updated images and terrain details on a rolling basis. So if you don't see high-resolution images

for a specific area, it's likely that updates are on the way. If you're curious about a specific area, download the application and check it out for yourself.

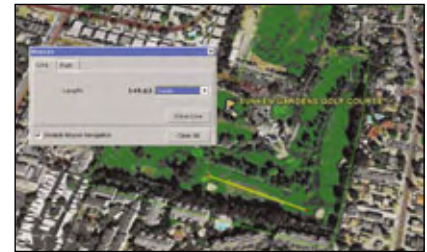
Download & Installation

Google Earth has been tested to work with Windows 2000, a 500MHz Intel Pentium III CPU, 128MB of system memory, 200MB of free hard drive space, and a 3D-capable video card with 16MB of dedicated video RAM. For the best results, Google recommends Windows XP and a 2.4GHz Pentium 4 CPU or AMD Athlon XP 2400+, 512MB of RAM, 2GB of hard drive space, and a video card with 32MB of dedicated RAM. Monitor resolutions should be set to 32-bit true color with a 1,280 x 1,024 or higher resolution. You'll also need a broadband connection capable of 128Kbps (kilobits per second) bandwidth.

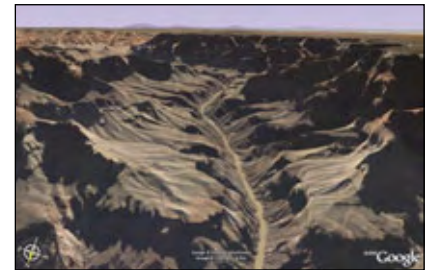
To install the free version of Google Earth, start by visiting earth.google.com. Click the Get Google Earth (Free Version) link in the upper-right corner of this page, and then click the Download GoogleEarth.exe button from the next page. Click Save, choose a location



From this image you can see the border between a medium-resolution image and a high-resolution one.



Among other things, the Measure tool can help you improve your golf game.

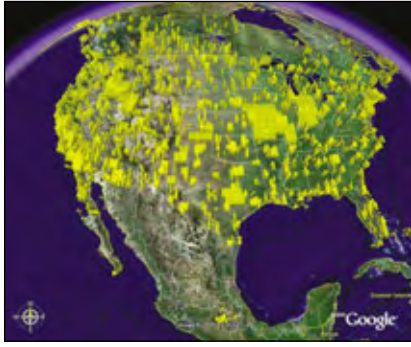


Google Earth's 3D topographic data lets you view realistic landscapes.

where you'd like to save the EXE file, and then click Save and wait for the 10.4MB file to download. When the download is complete, click Open if prompted, or navigate to the file's location and double-click it to launch Google Earth's installation Wizard.

Take Over The World

Once you've installed Google Earth and launched the application, you'll immediately see the Google Earth UI (user interface). The main viewing pane of the interface shows a realistic 3D Earth model floating against a subtle blanket of stars. You can use your mouse pointer to grab the 3D



Google is constantly adding new images to its Google Earth database.

planet and rotate it in any direction. If your mouse has a scroll wheel, you can use it to rapidly zoom in and out of the image in the center of your viewing pane. Double-clicking any region zooms-in by roughly a factor of four.

Google Earth's realistic 3D terrain data adds a whole new element to the boring old mapping formula. With Google Earth, you can zoom-in on geographic locations, tilt the view and explore the Grand Canyon, study the crater at Mount Saint Helens, or just marvel at the Earth's varied terrain. Google Earth's center console features several navigation controls to help you take control of the 3D Earth model.

In the center you'll find a four-way directional control. If you click and hold near the red dot in the middle of the control, you can move the Earth model by dragging your mouse in any direction. You can rotate the map using either of the circular arrow buttons to the left and right of the center console. The slider at the far right lets you tilt the map from a perpendicular overhead view to a nearly parallel view so you can view a profile of a given location's topography or 3D Buildings (for select cities). The slider to the right lets you zoom in and out. To the lower right and left of the center console you'll find the correction buttons for returning the map to its native orientation.

Menu items. Toward the top of the window, you'll find familiar menu items such as File, Edit, View, Tools, and Help. The File menu lets you Save,

Open, Email, and Print the maps as they appear in the main viewing pane of the Google Earth interface. From the Edit menu you can access Cut, Copy, Paste, and Rename commands. The View menu lets you add and remove on-screen items, such as the Compass, Status Bar, Latitude/Longitude Grid, and Overview Map. You can also switch between full-screen and windowed views of your chosen area using the View menu.

The menu bar also features an Add command for placing your own annotations, such as Placemarks, Image Overlays, and Paths. The Help menu item directs you to Google Earth's Help Center, Bulletin Boards, and the upgrade page. (Only Google Earth Plus and Pro subscribers have access to all of the features in the menu bar, but we'll get to that in a moment.)

Tools. The Tools menu contains a list of helpful items you can quickly add to Google Earth's default layout, such as a Web browsing pane and the Measure utility. The GPS Device tool is unavailable in the free version of Google Earth, but Google Earth Plus and Pro subscribers can use it to import geographic information from certain GPS devices.

The Measure tool is a handy feature that lets you measure the distance between two points, or along a path that you can draw directly onto the image. A drop-down menu lets you choose units, such as Miles, Kilometers, Inches, Feet,

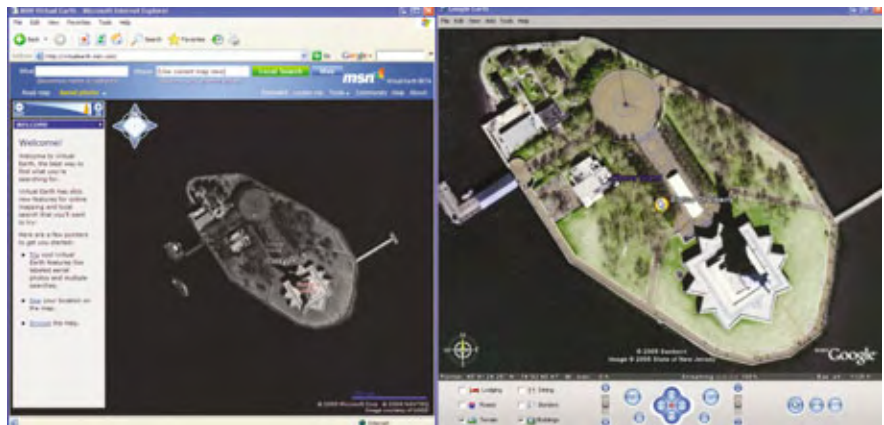
Nautical Miles, and Smoots (named after the Oliver R. Smoot, who was top-pled head over heels in 1958 to measure the Harvard Bridge at MIT). According to Google Earth, I drive 34,940 Smoots to and from work (give or take an ear).

Layers. As mentioned above, Google Earth has several features common to traditional mapping applications that you can add as layers. Click the appropriate checkboxes in the Layers pane to display things such as 3D buildings, roads, parks, schools, hospitals, airports, and shopping sites, to name a few. You can also display statistics, such as crime rates, population, and median income data, for a given area.

Get What You Pay For

Google Earth's free offering is available to anyone for personal and home use, but individuals and businesses can also upgrade to Google Earth Plus and Pro. Larger corporations might consider one of Google Earth's Enterprise Solutions, such as Google Earth Fusion, Google Earth Server, or Google Earth EC (Enterprise Client).

Google Earth Plus. Google's step-up from the free version adds Magellan and Garmin GPS device support, drawing tools, the ability to import spreadsheets, tracks, and waypoints, and lets you print images at better resolutions. Google Earth Plus users get email customer support that's not




MSN Virtual Earth's image of the Statue of Liberty is on the left, while Google Earth's image is on the right.

available to free version users. You can also use the included drawing and sketch tools for annotating your maps. To upgrade, launch Google Earth, click Help and Upgrade To Plus, and follow the instructions. A yearly subscription to Google Earth Plus costs \$20.

Google Earth Pro. For commercial users, Google Earth Pro is the route to

go. This version features several tools and options not available in the others, such as high-resolution prints, phone support, and the ability to measure area and import up to 2,500 data points. Pro also features several premium modules that you can purchase for \$200 each. You can select from the Movie Making Module, Premium

Printing Module, GIS Data Importing Module, and more. The base license for Google Earth Pro costs \$400 a year, but at press time Google was offering a free 7-day trial at earth.google.com/earth_pro.html. 

BY ANDREW LEIBMAN

Google Earth vs. MSN Virtual Earth

Although Microsoft got a jump on the geo-spatial Web site market back in 1998 with its TerraServer database, Google Earth has certainly raised the stakes. On July 25th Microsoft released an answer to Google Earth in the form of MSN Virtual Earth (virtualearth.msn.com), which shares TerraServer's image database, but adds many features found in Google Earth. Although both offerings are still in beta form, we decided to explore the advantages and disadvantages of the two application's interfaces, image results, and overall approach to this revolutionary new mapping technology.

World View

Google and Microsoft have taken mildly diverging approaches to mapping with aerial and satellite photography. Both MSN Virtual Earth and Google Earth are offering access for free and require connections to the Internet in order to tap into their respective databases. MSN's service differs in that it doesn't require a separate application that you must install and launch from your computer. Simply visit virtualearth.msn.com to load the interface directly into your browser.

Like Google Earth, MSN Virtual Earth's aerial photography coverage is limited, but to a different extent. As we mention in this article, Google Earth features medium-resolution color images and terrain data for the whole planet. MSN's service, on the other hand, currently only boasts

high-to-medium resolution imagery for the United States.

The USGS (United States Geological Society) supplies MSN Virtual Earth's aerial images, while the application uses Microsoft's MapPoint technology for displaying road maps and plotting trips. If the location you're looking for has USGS Urban Area data available, then it will appear in color. This is the case for MSN Virtual Earth's Featured Locations, or specific areas of interest and dozens of highly populated areas. For all other locations, MSN Virtual Earth relies on Digital Ortho-Quadrangle data, which is a monochrome medium- to high-resolution image.

MSN Virtual Earth lets you switch between aerial and road map views by clicking the appropriate links in the upper-left corner of the window. If you want to see the road maps layered onto the aerial images, click Aerial Photo, click the adjacent Down arrow, and then click Labels.

Apples & Oranges

Both Google Earth and MSN Virtual Earth have featured locations and ready-plotted pushpins to denote places of interest. These locations show off what the application is capable of, but they may not be representative of the application's ability to deliver relevant results and images. We tested the two mapping applications by searching for the Statue of Liberty and the Eiffel Tower.

MSN Virtual Earth. We started by typing statue of liberty into the Where box of MSN Virtual Earth's interface and clicking the Local Search button. Although the button's description was a bit misleading, MSN Virtual Earth loaded a monochrome image of Liberty Island in less than five seconds. When we typed "eiffel tower," we were greeted with a message saying that no results were found. A subsequent search for Paris turned up a monochrome image of Paris, Illinois. The Statue of Liberty image required a bit of zooming-in to get a good view, but overall MSN Virtual Earth is fast, but seemingly more accurate when searching for locations within the United States.

Google Earth. Google's application, however, needed a bit more coaxing to show us the correct location. We typed "statue of liberty" into the text box and clicked Search, but we got different results depending on the center position of our view, none of which were near New York Harbor. When the view was centered over a random location, Google Earth told us that there were no results for our search. We did manage to view the monument by typing "new york, ny" and then using the pointer to drag Liberty Island into view. As we zoomed in, the data took just less than 30 seconds to load, but the high-resolution result was sharp and impressive. The Eiffel Tower was difficult to find, as well, and we ended up typing "paris," and dragging the map around until it came into view. **|**

It's Not Picasso, But It's Close

Meet Picasa, Google's Photo Organizer/Editor



If you're looking for photo-editing software, you live in a time of plenty. After comparing a list of what you want your editor to do with what's available and how much you feel like spending, you should have no trouble deciding on the right software for your needs.

Adobe Photoshop CS2 (\$599; www.adobe.com) is the industry

standard, the top choice of graphics professionals and anyone else who must have every conceivable feature.

Its little sibling, Photoshop Elements 3 (\$99.99) has one of the best cost-to-value ratios around, providing about 80% of Photoshop's functionality for around 16% of the price. It's all most home users will ever need.

Corel's Paint Shop Pro (\$129; www.corel.com) also has legions of satisfied users. Originally published by a company called Jasc, it's been called "the poor man's Photoshop," with a similarly wide feature set and a user interface close enough to inspire déjà vu.

Moving down the scale, the Microsoft Digital Image Suite (\$99.95,

www.microsoft.com) covers a lot of basic and intermediate territory in a guided walk-through interface, although we sometimes wonder at occasional, seeming lapses in design judgment. Roxio PhotoSuite (www.roxio.com) has similarly moderate ambitions, and while it's available by itself (\$49.95, but often heavily discounted), it's a hard-to-beat bargain as part of the jam-packed Easy Media Creator suite (\$99.95).

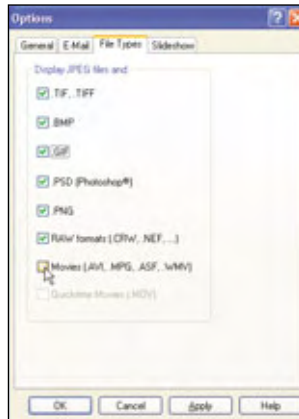
Notice we didn't say an unbeatable bargain. That's a hard claim to make for any photo software since Picasa, Google's editor, entered the picture. Picasa covers a lot of basics, does it well, and does it for free.

Mi Picasa, Su Picasa

Picasa is aimed at casual users who want a straightforward, all-in-one solution for organizing photos, performing quick fixes and minor edits, and sharing pictures with family and friends.

Although the program now comes from Google, it's not entirely home-grown. Picasa (both as a software company and its eponymous digital photo organizer) was the brainchild of photography enthusiast Lars Perkins. At the time, Perkins was an executive at Idealab, a Pasadena, Calif., business incubator (support system for entrepreneurs) that also helped launch such companies as NetZero and eToys.com.

In early 2004, Perkins met with Google to interest them in a utility his developers had designed for transferring photos from Picasa's Hello, an instant messaging program, to Google's Web log service



Use the Options dialog box to include or exclude various document formats from scanning.

called Blogger. Google ended up liking Picasa's organizer so much that it bought the company in July 2004 and retained Perkins to run it.

Still in version 1, and selling at a price of \$29.99, Picasa had about 500,000 paying users at the time, but Google immediately made it available as a free download. Version 2, released in January 2005, added more editing capabilities, improved search functions, a collage maker, CD burning, and improved integration with Hello and Blogger. As we go to press, the only further update has been a bug fix Google released this summer.

Installation

Picasa runs on Windows 98 and beyond, with humble system requirements, so you'll likely have no compatibility problems. Downloading and installation is as straightforward as it gets:

1. Visit www.picasa.com and click the Free Download button.
2. This opens a File Download Warning dialog box. Click the Run button. The installer is comparatively tiny (just 3.16MB) so the download shouldn't take

The first time you launch Picasa, you'll see this scan alert. You'll never see it again, but Picasa continues to scan your system upon each launch.

more than a few minutes even on a dial-up connection.

3. After the download is complete, you may have to click another Run button to agree to another security warning, and comply with the End User License Agreement.

4. As the installation wraps up, you'll have a few final options: creating shortcuts on the Desktop and in the Taskbar's Quick Launch section, etc. Click the checkboxes to deselect options you don't want, then click Finish.

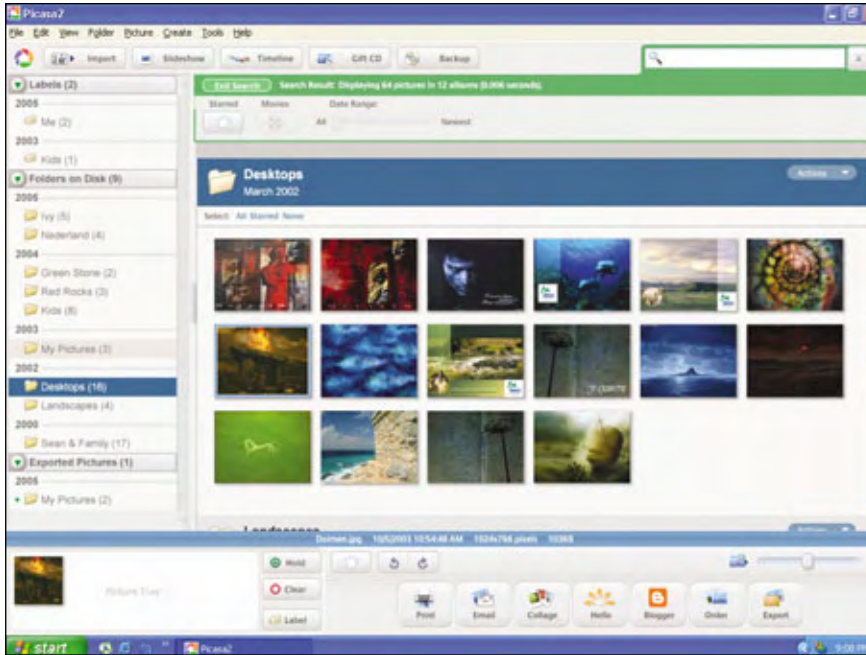
5. Once installation is complete, your browser will open and, if you're connected to the Internet, take you to a Support page, where you can view a brief User Guide and search the Knowledge Base.

Organizational Skills

Picasa was originally designed to locate photos wherever they are and provide immediate access to them from a central interface. Version 2's editing functions may overshadow this a bit, but Picasa remains a capable organizer.

The scan. The first time you launch Picasa, it announces that it's going to scan your computer to look for photos. You can choose either to let it scan your entire system, including all attached drives, or to





Library View: The Folder List is on the left, the Lightbox fills the right, and the Picture Tray and Output Options span the bottom. The green section is the expanded Search tool.

scan only your My Documents and My Pictures folders, plus your Desktop. Picasa doesn't move or copy anything to a new location.

Unless you reinstall, you'll never see this alert again, but Picasa still scans your system each time you open the program. Fortunately, you're not stuck with the broadly defined scan parameters you see the first time. You can configure them with much greater precision.

To specify where you want Picasa to look, select Folder Manager from the Tools menu. This presents you with Windows' normal folder hierarchy, letting you designate how Picasa treats each folder: Select it and click the appropriate radio button so Picasa scans the folder once, ignores it, or monitors it for any changes.

You may also want to redefine the files that Picasa scans for. By default, it looks for most graphics file types and movies, as well, but omits GIF (Graphics Interchange Format) and PNG (Portable Network Graphics)

files. To change these defaults, choose Options from the Tools menu and click the File Types tab.

In addition to the system scan, you can also import new pictures directly into Picasa. The program should automatically detect whenever you attach a device such as a camera or memory card to your computer, or insert a photo CD. If this fails, or if you want to use a scanner, click the Import button in the upper-left corner, use the drop-down menu to select the appropriate device, and proceed. Unless you change the location in the Options dialog box, Picasa saves imported images in the My Pictures folder.

Library. When the launch scan is complete, Picasa opens into Library View, which has three main sections.

The Folder Manager lets you specify scanning options for individual folders.

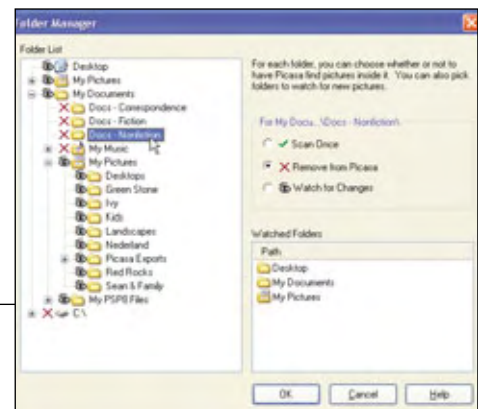
Along the left side is the Folder List. Picasa arranges this list according to the creation date of the folders containing your photos. You can change this by clicking the View menu, selecting Sort Folder List By, and then choosing two other options: Recent Changes or the desired folders' Names.

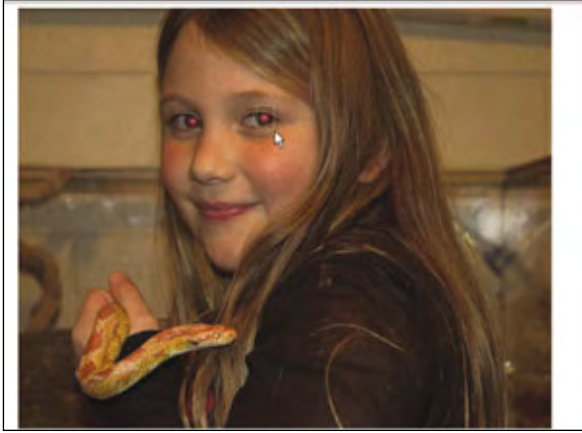
To the right of the list is a large section called the Lightbox. It displays a thumbnail of every image Picasa has found, with the contents of each folder shown together. You can scroll through them using the on-screen arrows or your keyboard's Up/Down arrow keys. To reduce clutter, click the green triangle beside a folder's name in the Folder List; it will turn red and remove the contents from the Lightbox. Each folder is designated by a separator bar that turns blue when selected; at the right end of each bar is an Actions drop-down menu full of folder-management tools.

Click a thumbnail and, just below the Lightbox, you'll see a line displaying the photo's name and such properties as size and last modification date.

Using the Lightbox, you can organize pictures by dragging and dropping their thumbnails to new locations in the Folder List. These changes aren't merely visual; you'll actually be moving these files on your hard drive.

You can also group pictures into virtual folders by tagging them with





To fix red-eye, click and drag over the red area.



The Straighten tool overlays your picture with a grid, making it easy to use any feature (like the back of a couch) as your reference point.

Labels. Let's say you have several landscape photos scattered among various folders. By giving each photo a Landscape label, they'll not only appear inside their original folders, but they'll also appear grouped together, with Landscape added to the Folder List.

There are different methods you can use to create a label, but the quickest one is to right-click the photo's thumbnail and choose Add Label, then New Label, from the context menu. This opens a dialog box where you can type the label, plus other criteria. (After you've created a label, it appears in the Add Label context menu, so you don't have to type it each time.) A photo can have more than one label, too, so you can display it simultaneously in multiple categories. For instance, some of your landscapes may also be vacation shots. To remove a label, right-click the thumbnail and then select Remove From Label in the context menu.

Getting back to Picasa's interface, at the bottom is the Picture Tray, along with a row of Output Option buttons and a few other tools. The Output Options determine the fate of your photos after you've edited

and sorted them: You can print them, email them, etc. We'll get back to these later.

Whenever you select a thumbnail in the Lightbox, it also appears in the Picture Tray. Normally, you'll see one at a time there, as clicking a new picture replaces the previous one in the tray, but sometimes you may want to output several pictures at once. No problem, just click the Hold button after each photo you've added to the tray before choosing the next, and you can pile up as many as you want. Use the Clear button to empty the tray one photo at a time (select the thumbnail in the tray first), or all at once (click Clear without selecting any).

Next to the Hold button is a short row of tools: two buttons to rotate pictures, and a Star button, which lets you mark your favorites for future reference.

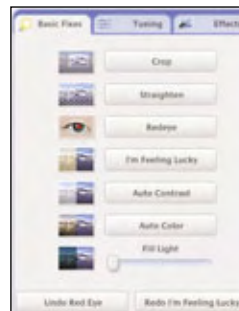
Track it down. Above the right end of the Lightbox is Picasa's Search tool. As soon as you type in a term such as a photo's name, the Lightbox displays only

those photos that meet the criteria. The Search box expands automatically, something you can also accomplish with the Show/Hide button. The expanded space provides buttons to search for starred photos or movies, and lets you narrow search results by date. Any of the fields in the Label Properties dialog box (Caption, Date, Place Taken) will also work as search criteria.

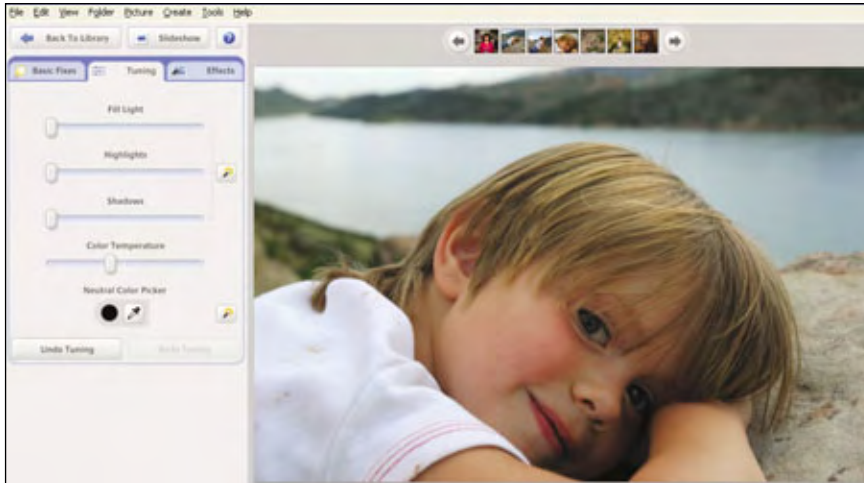
Editing

Picasa poses little threat to Photoshop and other full-featured editors (you can't clear up skin blemishes or swap heads, for instance), but it offers several basic tools that should be enough for anyone with modest editing needs.

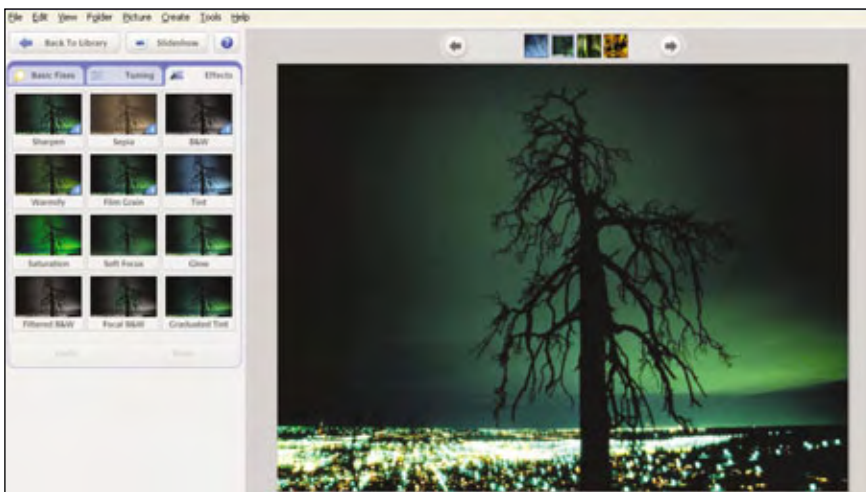
To access these features, double-click a thumbnail in the Lightbox. This takes you out of Library View and opens a larger copy of the photo inside Edit View. Here, Picasa consolidates your tools in a three-tabbed pane that provides quick access



Picasa's editing tools are grouped in this tabbed pane.



The Tuning Tab provides five controls for adjusting lighting and the picture's overall warmth.



Picasa's Effects section previews its 12 filters in thumbnails.

to most of the tweaks you'll want to make.

Basic Fixes. Some of these are simple, one-click adjustments; others are more interactive. Crop provides three standard print sizes and a free-size manual option. Straighten overlays the photo with a grid, making it easy to use any line in the picture as a reference point while dragging a slider to tilt the image into alignment.

There's also a fix available for red-eye, the demonic look that results when a flash reflects from someone's retinas. Just click and drag over the pupil, release the mouse button, and Picasa will turn the red to neutral gray.

Unfortunately, Picasa suffers from a gaffe in logic here. While in Edit View, you'll notice a Zoom slider below the photo. Because red eyes might be small in the photo, it's

logical that you might want to work on them at a higher zoom level ... but you can't. As soon as you click the Redeye tool, the photo shrinks to fit the viewing area.

Rounding out the Basic Fixes are one-click adjustments for Contrast and Color, and I'm Feeling Lucky (sound familiar, Googlers?), which simultaneously tweaks color and lighting. The Fill Light slider controls brightness.

Tuning. These provide finer control over lighting and color. By adjusting the Highlights and Shadows sliders singly or together, you can tweak a photo's contrast with greater finesse. The Fill Light slider appears here, too.

Regrettably, there's another significant oversight here: the lack of a button to toggle the effect off and on to judge your progress. Yes, you can use the Undo and Redo buttons, but Redo doesn't return the sliders to their original position so you can fine-tune your work from the point you left off.

Color Temperature determines an image's overall tone. Drag the slider left for cooler blue tones, to the right for warmer yellows and oranges.

The Neutral Color Picker turns your cursor into a dropper tool. Click an item or area that you want to use as a reference for white or gray, and Picasa will balance colors relative to your choice.

Effects. This brings up 12 filters. Some, such as Sharpen and Film Grain, are more textural in nature. Others, such as Warmify and Tint, echo some of the previous controls, and then there are the obligatory B&W and Sepia options. You'll see thumbnail previews in the Effects pane, which, although small, might help you judge what's worth trying and what you can do without.

The first five effects are simple one-click changes, but the rest are interactive: Tint lets you select the shade, and choose how much color from the original remains. With Soft

Focus, Glow, and Focal B&W, you can set the effect's coverage area and its degree of strength. Graduated Tint is an adjustable top-down color wash that will let you, for instance, make the sky bluer, although the gradation travels in one direction only, so you can't make the grass greener. Only Filtered B&W is tricky to work with, because color filters affect black-and-white film in less predictable ways.

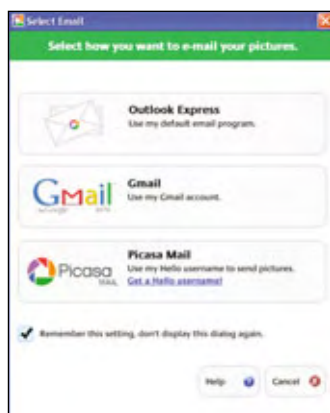
Hiding in plain sight. Edit View also has a few tricks that aren't as obvious, such as the caption line beneath the photo; simply click and start typing.

Above the photo is a thin strip that lets you select other photos from the same folder without returning to Library View. You can also speed up your work by using the Hold button to load multiple pictures into the Tray, then choosing Batch Edit from the Picture menu to fix them all with one command.

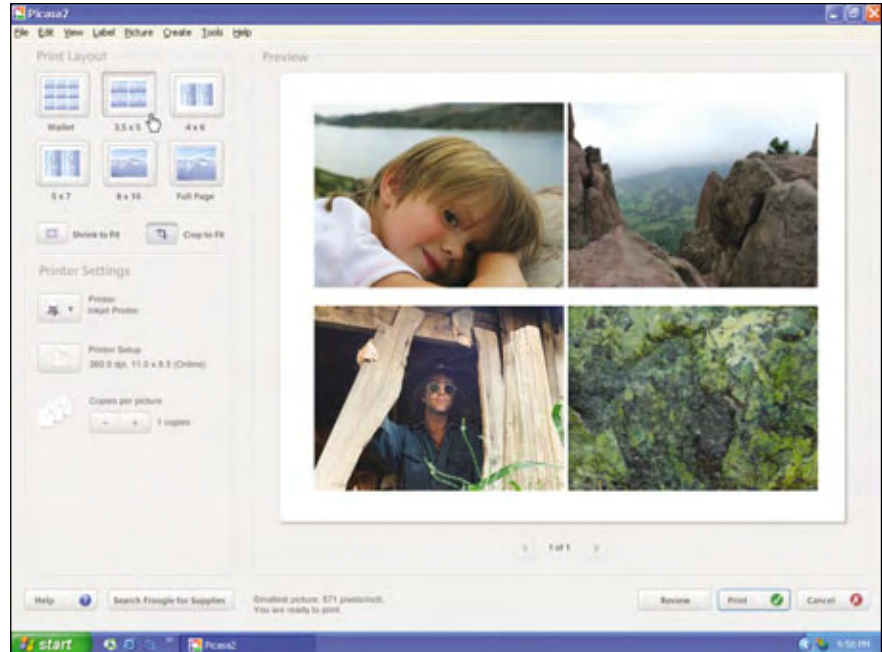
Final Destinations

As we mentioned earlier, the Output Options take everything in the Picture Tray and send it wherever you want it to go, and most of the options are self-explanatory.

If you want hard-copies, the Print command not only gets the job done, but also helps you manage photo paper without waste. By using the Print Layout options and setting the Copies Per Picture, you can print multiple copies of the same shot, or use one sheet of paper for different pictures. Fortunately, Picasa displays a preview before you print, so you can avoid common setup mistakes.



The E-mail command creates file attachments in some, but not all, email programs. For example, Picasa 2 dropped the support for Yahoo! Mail that was built into version 1.



The Print interface lets you print multiple copies or different photos, so you can use your photo paper efficiently.

For sharing electronically, the Email button will send pictures to a supported mail program as attachments. You can also send photos via Hello, Picasa's instant messaging program (for free software and sign-up, go to www.hello.com), or post them directly to your Web log at Google's Blogger service, which you can find at www.blogger.com.

The Order button will send your pictures in for professional prints from one of Picasa's affiliated providers.

Finally, there's the Export button. Picasa is, to a certain extent, a closed environment. It doesn't let you save editing and effects changes

directly to the photo files; your pictures only look that way in Picasa. Try it; add a sepia tone to something, then check the preview in the original folder. It's still the same.

To save changes to the photos themselves, you'll have to export copies to your hard drive, which brings us to another unfortunate limitation. Picasa can only export photos using the JPEG (Joint Photographic Experts Group files) format, which means that you lose the advantages of saving your uncompressed image data in the form of TIFF (Tagged Image File Format) and RAW files.

Picasa certainly isn't a do-all program, but users who don't need more complex features will probably find that it delivers just about everything they need ... at a price that's impossible to argue with. **RS**

BY BRIAN HODGE

Speaking In Tongues

Reach Globally With Google's Language Tools

Google has made its search interface available in a dizzying number of languages and gone a step further by offering free translation services between several major tongues of the world. This sounds slick, but how compelling is it in practice? Grab your towel and a Rick Steves travel guide, and let's find out.



Search Specific Languages Or Countries

This overlong but Googlishly spartan Language Tools Page is essentially comprised of three sections. The first is titled Search Specific Languages Or Countries. Let's say you're researching Antoni Gaudí's famous basilica in Barcelona, La Sagrada Família, and because you know Spanish, you only want to see pages about the church written in Spanish and based in Spain. No problem. In the first pull-down menu, there are 35 languages to choose from. Select Spanish.

On the next line, another pull-down menu offers to filter results according to pages based in 71 countries. This is determined according to the host site's domain extension. For example, the country extension for Spain is .es. Naturally, you would select Spain from this list.

The third line is your search bar. This is where you enter your query, in this case "Antoni Gaudí." Click the Google Search button or the ENTER key on your keyboard and watch the results roll in.

As a research tool, these language/country filters can be useful for obtaining regional perspectives on a subject. For example, Gaudí was Catalanian, and you might come across different facts or interpretations of his life and works by combing through pages written in Catalan rather than Spanish or sites hosted in Spain as opposed to America. In cases where some might allege there is media bias involved, as in the present Iraq war, one could get a wholly different outlook on events and conditions by searching for Shi'ite on Arabic pages rather than English.

Note, too, that search term spelling can be critical to results. In Spanish, Antoni Gaudí's name is actually spelled Antonio. For the best results, you need to be aware of such discrepancies and how local pages are likely to spell things differently. Also be aware that if you spend most of your time using one set of language search criteria, you can click the Preferences link in this section to make those options your Google default.

Translate

The Translate section quite simply offers two functions: translate a block of text from one language to another or translate a Web page from one language to another. Those of us who grew up on Star Trek and Dune might waltz into these offerings with over bloated optimism about the linguistic powers of computing. Rather than spoil the fun, perhaps skip over to our sidebar on how Google translations actually turn out when doing long text passages. Students, you've been warned.

At best, the text translator is best for short, nonidiomatic phrases. For instance, the tool correctly translated the universally employed phrase "two more beers, please" into the Spanish "dos más cervezas, por favor." However, make it just a bit more complex—"two more Corona beers, please"—and Google comes back with "dos más cervezas de la corona, por favor," literally "two more beers of the crown, please." Ay carumba!

Interestingly, we had somewhat better results with the Web page translator. To use this you simply copy and paste the URL of a Web page into the Translate A Web Page field, use the pull-down menu to select the source and target languages, and click the Translate button. No, you're not going to get a decent translation. Not even close. But we've found several cases where we could decipher enough of the English to tell if the page had information in it that we needed. If so, then we went in search of an actual speaker of the source page's language and asked for a better translation.

At present, Google attempts to translate among the six major European languages: English, Spanish, French, German, Portuguese, and Italian. Translations between English and Japanese, Chinese, and Korean are currently in beta testing, but we were unable to view these because the character sets were incompatible with our test systems.


Google In Your Language & Domain

In the years of the Search Engine Wars, Google was famous for having great hit results but also an extremely bare home page, something the company has preserved more or less to this day. Not counting the Google logo image or two buttons, www.google.com contains exactly 37 words as of this writing, 15 of which were for new feature and copyright notices. With so little to translate, it was easy for Google to customize this page into 116 different “languages.”

Now, some of these languages are more for laughs than work. We doubt that many people will be doing research in the mellifluous nuances of Klingon, Pig Latin, or Elmer Fudd—still, we felt compelled to click the I’m Feewing Wucky button repeatedly—but interfaces from Afrikaans to Malay to Zulu may make some feel more at home. While resulting hits are all in their native tongues, the standard text on the hits page (“See 4,050 images for X,” “Results 1 - 10 of about 117,000 for Y,” etc.) remain in the selected language.

Below this is a different way to access the same regional search pages. You can select the local domain by browsing through the flag/domain name/country name for each region. In some cases this requires an extra step or two. For example, there’s obviously a difference between searching in French and searching from the Canadian site. By default, the Canadian page (www.google.ca) is in English, and you need to click a link for the French version (www.google.ca/fr). By and large, though, there’s a lot of overlap between the two language and local domain pages. You just need to decide whether your emphasis is linguistic or geographic.

Gracias. Sayonara.

As you can see, Google Language Tools are less than perfect, but they’re better than nothing. Don’t make the mistake of relying on translations to help you survive while abroad. Just use Google Language Tools as a more convenient starting place for your international data mining, and maybe have a little fun in Klingon along the way. 

BY WILLIAM VAN WINKLE

Translation: You Get What You Pay For

Years ago, AltaVista was the first search company to offer free translation services with BabelFish. Users were underwhelmed by the service then, and we wondered if Google had improved matters with its own translator. To test, we grabbed a paragraph from the About Us page at sister magazine *Computer Power User* and wrote a little limerick in a fit of silliness. We then found a native German speaker who was very fluent in English and asked him to translate Google’s output. Here’s what we found. Note that Google’s tool removed the line breaks in our poem and, in cases such as “twang,” where a translation was not known, kept the English word.

Original English:

Computer Power User is a monthly print publication aimed at people who know that technology rocks. The kind of person who gets his kicks upgrading graphics cards and smashing benchmarks. The type of person who reinstalls Windows at 2 a.m. on a Saturday because his system keeps crashing while he’s ripping MP3s. Or the person who repartitions his drive to create a dual-boot system and install Linux so he can learn more about how the OS works.

There once was a girl from Chiba
With a talking cow whose name was Reba
Together they sang
Asian rap with a twang
And karaoked while pounding Zima

German-To-English Retranslation:

Computer performance user is month long struggler/striver people the pressure of publication, who know that technology is shaky. The type of person who gets his kicks improving the graphic maps and smashing fixed points. The type of person who reinstalls Windows at 2 a.m. on a Saturday because holds/stops to break up while he MP3s. Or the person rips/tears the division/sharing out his drive to cause a double-loading of the system and the putting up of Linux, so he can learn more about he way the OS works.

There once was a girl from Chiba with an entertainment cow whose name was Reba, together, that sang karaoke Asian Polkas with a twang while pounding Zima.

Note from German speaker: “Unfortunately, my students use these translators, and they are incapable of recognizing parts of speech. For example, ‘gets his kicks,’ ‘die seine Stöße erhält,’ would be nonsense to most Germans, and I can only translate it because I know English. Your translator mixes up nouns and verbs, omits verbs, and fails to translate words like ‘pounding’ from the original English.”



Power To The People

Google Code: A Little Something For Open-Source Fans

Earlier this year, Google released several portions of in-house code as open-source projects, under continued development. Coming from a company that owns the world's biggest, most scalable platform for Web-based applications development, that's significant—not only for what it presently provides, but more so as evidence of ongoing commitment to open-source on the Internet. In this feature, we're going to take a look at Google's moves in this direction, its current projects, and the work and opinions of a couple of developers who are glad Google isn't just talking the talk, but also walking the open-source walk.

Google's Perspective

"We like to take part in the open-source community, and we want people to have the code we're proud of at Google," says Chris DiBona, the company's open-source program manager. "We try to make it as easy as possible for developers to access that code. Most of it we've released to date can run on any operating system, though the mMaim library requires Python. And it says in each new project how much



experience a programmer needs to have the problem set to take advantage of it."

Though DiBona is pleased with the results, he takes pains to point out that Google's open-source projects aren't necessarily better than the best offered elsewhere. That isn't their primary purpose. "While

I think we offer solid code, I'd imagine that most developers would consider this stuff an interesting look at how we've attacked the problem of having programs perform well in heavily loaded multithreaded SMP [symmetric multiprocessing] machines. Many libraries and software development techniques break down under serious load, and the tools we've released help to debug these kinds of problems with a certain amount of agility that I think developers will find useful.

"This is not to say that alternatives do not exist," DiBona says, "but I think our offerings represent an important addition to the discourse around creating such programs."

The Open-Source Google Projects

There are currently nine open-source projects available, and each has its own associated downloads and forums.

AdWords API Client Libraries. Per Google's Web site, "These libraries make it easier to write clients to programmatically access AdWords accounts." There are two libraries at the moment. Again, from Google: "The Java client library for the AdWords API makes it easier to write Java clients to programmatically access AdWords accounts. The PHP library allows you to do the same in that language." This project can be found at sourceforge.net/projects/goog-ad-api-cli.

AjaXSLT. XSLT stands for Extensible Stylesheet Language Transformations. It's a tree-oriented programming language used to transform XML (Extensible Markup Language) documents. AjaXSLT is XSLT implementation in JavaScript for use in fat Web pages, which are now referred to as AJAX (or Asynchronous JavaScript + XML) applications. The 0.2 beta release appeared at the end of June; you can find out more about this project at sourceforge.net/projects/goog-ajaxslt.

CoreDumper. This is described at the Google Code site as "a neat tool for creating GDB readable core dumps from multithreaded applications. The coredumper library can be compiled into applications to create core dumps of the running program, without termination. It supports both single- and multithreaded core dumps, even if the kernel doesn't natively support multithreaded core files." Project information may be found at sourceforge.net/projects/goog-coredumper.

Google mMaim. Written in Python, mMaim is for analyzing and monitoring MySQL (open-source database) servers—not as a front-end, but by offering the tools to design an appropriate interface between that server and the programmer. mMaim can create command-line tools, provide Master/Slave sync statistics, and more. You can find out more about it at sourceforge.net/projects/goog-mmaim.

Goopy/Functional. Simply functions in a Python library. The project page is at sourceforge.net/projects/goog-goopy.

Könguló. It's Icelandic for "spider." Könguló is a Web spider plug-in that makes Web sites you specify searchable by GDS (Google Desktop Search). It follows HTML (Hypertext Markup Language) links and image, frame, and anchor tags. At the current time, it does not possess a graphical user interface, but can be run from the command line continuously to check previously crawled pages for updates. It uses a very simple form of programmed artificial intelligence (with loops, depth, passwords, etc.) to start at a specified URL (uniform resource locator) and proceeds to index all resources it finds there within GDS. The code is offered by Google to provide an example of how you can code a GDS plug-in using Python. The project page is sourceforge.net/projects/goog-kongulo.

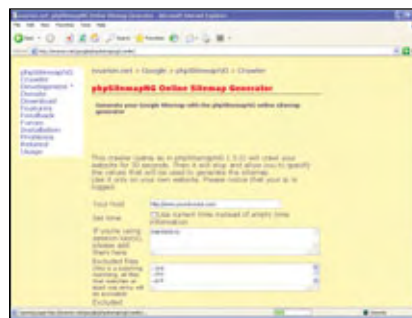
Perftools. Google stated upon this project's initial release that, "These tools are for use by developers so that they can create more robust applications. Especially of use to those developing multithreaded applications in C++ with templates. Includes TCMalloc, heap-checker, heap-profiler, and cpu-profiler." The project Web site at sourceforge.net/projects/goog-perftools is less modest and more personal, at least in part: "The fastest malloc that we've seen, works particularly well with threads and STL." Version 0.3 is currently available.

Sparse Hashtable. This project, in its 0.2 beta release as of May 20, is described as containing "several hash-map implementations in use at Google, similar in API to SGI's hash_map class, but with different performance characteristics, including an implementation that optimizes for space and one that optimizes for speed." The project page at sourceforge.net/projects/goog-sparsehash goes further: "An extremely memory-efficient hash_map implementation. 2 bits/entry overhead!"

Sitemap Generator. Per Google, "Sitemap Generator is a simple script that can be configured to automatically create Sitemaps and submit them to Google. Sitemap Generator can create



Paul Hachmann's blog has tripled its monthly hits since he started using Sitemaps.



Tobias Kluge's online crawler will generate your own Google Sitemap.

these Sitemaps from a URL list, access logs, or a directory path hosting static files corresponding to URLs. . . . The `sitemap_gen.py` script analyzes your Web server and generates one or more Sitemap files. These files are XML listings of content you make available on your Web server. The files can then be directly submitted to Google." The project page is at sourceforge.net/projects/goog-sitemapgen. Unlike other current Google projects, this one also has a page devoted to third-party programs that support the Sitemaps API (code.google.com/sm_thirdparty.html) and another explaining in detail the requirements, installation, and troubleshooting of the Sitemap Generator.

Google Code Projects At Work

Tobias Kluge, who runs a German ISP (Internet service provider), is very taken with both open source and

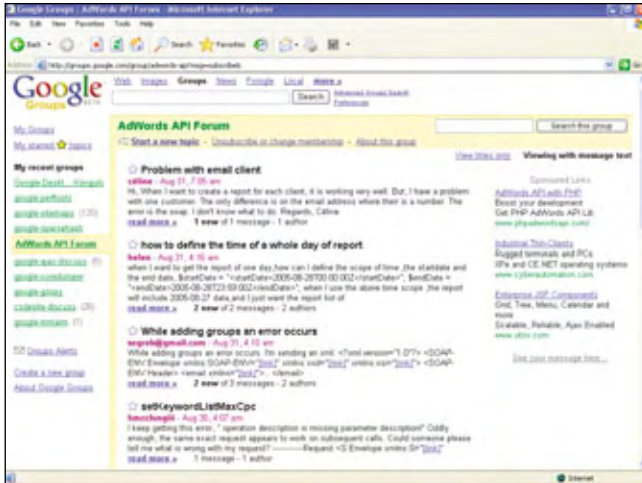
Google's Sitemap Generator. He has released `phpSitemapNG`, a free `php` (a server-side HTML embedded scripting language that provides Web developers with the necessary tools to build dynamic Web pages) based on the Google project. According to Kluge, "The lack of functionality in Google's Sitemaps Generator is because it is written in Python, which only a few Web hosts support, and it cannot handle dynamic pages. Google's site maps generator can only find physically existing files."

Paraphrasing Kluge's information on his Web site at enarion.net, "phpSitemapNG's plug-in architecture makes it possible to create and integrate custom plug-ins in minutes. At the moment, there is one main class that handles the user input and control flow, and another that deals with output and some logic functions. Settings are handled by a third class that behaves like a registry. Only a session-based storage class is available at the moment: no ability to store in a file system or database. These are under development." You can find a demo crawler at Kluge's site, as well, both to show off the quality of his crawling engine and to create a site map. The process is simple, and the crawler takes roughly 30 seconds to do its work. (Note that your IP is logged at that time, but Kluge has no plans to use that data for commercial purposes.)

Kluge also provides a small XSLT code download that makes Google's Sitemaps files (which are machine-readable XML text) much simpler for mere humans to understand. Written by Baccou Bonneville and updated by both Johannes Müller and Kluge, the Google Sitemaps Stylesheet displays a complete list of site map files, along with priority, change frequency, and last modification date. It can do a primary sort on any field.

The Developers' Perspective

Another programmer making use of Google's open-source projects is Paul Hachmann. Though a software developer by profession, his experience with



Google's open-source project forums are a great resource for developers.

Google Sitemaps Generator has a very detailed project page, complete with FAQ (frequently asked questions) and troubleshooting links.

Sitemaps is strictly informal; he uses it for his hobby blog (www.satoshis-corner.com). "I suppose this can make a case for how diverse an audience Google Sitemaps is suited for," he says. "It's a bit of a niche site and garners about 1,000 unique viewers on a good day. Outside of my regular viewers, Google is my top referrer, with about 3,000 or so refers a month, all told—including traffic from google.co.jp, and, interestingly, Google's Mexican version. MSN and Yahoo! each garner a couple hundred refers a month by comparison."

This wasn't always the case. "Before utilizing Sitemaps, my main site's cache lagged a week or so behind reality, which meant that content on my main page dropped off by the time it showed up in SERPs (Search Engine Rank Positioning). Now the cache is about a couple days behind or even less, and older entries quickly show up in the archives where they belong. I'm afraid I don't have any prior Sitemaps search statistics, but I'd say roughly that I'm getting about two to three times the traffic from Google that I was, before."

Hachmann joined the Google Sitemaps Generator forum within a day or two of its launch. "They're constantly listening to their end users," he

says, "and are visibly taking what they learn and putting it into practice. While we may complain the odd time that the Sitemap folks don't have much of a presence on the forum, they do read every message and step in where necessary. The fact that they can still cultivate a sense of familiarity, when the company is so big, is a big point in their favor."

Kluge also got involved right during the early days of the Google Sitemaps Generator forum. "First, I did it just to fight against boredom," he admits, "but later I became more committed, since the people there liked my efforts. I have only worked with the Sitemap Generator, but I am reading about the other open-source projects. I think Google does a great service adding and supporting free information, knowledge, and software to the community. This forces other companies to do the same, or at least to think about strategies to compete with Google. It's really nice to see that the big-three search engine companies (Google, Yahoo!, MSN) having more or less the same features, with no cost to the user."

Hachmann agrees, with a caveat. "I don't think many will argue against Google's quality. They make great products, and they're innovative.

However, they have been spreading out as of late, which might reflect a change in their vision." As an example, Hachmann points to Google's philosophy page (www.google.com/intl/en/corporate/tenthings.html), where the second of Google's 10 Things philosophical ideals list used read, in part: "It's best to do one thing really, really well. Google does search. Google does not do horoscopes, financial advice, or chat." Since the advent of Google Talk—a chat program—the second point reads, "When we first wrote these '10 things' four years ago, we included the phrase 'Google does not do horoscopes, financial advice, or chat. Over time we've expanded our view of the range of services we can offer . . .'"

But Hachmann shrugs and notes, "It's hard to argue against that. After all, Google does make all sorts of cool stuff. And it's a well-known disease among tech folks that we like to play with cool stuff."

Arguably, Google's open-source projects were intended for other purposes, but the indescribable joy that comes to developers from opening toys year round shouldn't be underestimated, either. **RS**

BY BARRY BRENESAL

Let's Do Business

Google As Cash Cow



Most of us think of Google as a search engine that locates information on the Web. Undoubtedly, Google's search engine helps millions of people find the information they need for work and play. However, for business owners with a Web presence, Google offers other services and opportunities that are equally as important.

As a Web site owner or administrator, it's essential to understand three components of Google's services for businesses: placing your site in Google's search results, promoting your site with AdWords ads, and earning income from publishing ads with the AdSense program.

Adwords. Only the AdWords program is fee-based, and it is big business for Google. In fact, Google obtains

virtually all of its revenues from the ads that it displays with search results and on the Web sites of AdSense participants. But, before we discuss advertising further, let's first delve into the science of Google search placement.

Get Into Google's Search Results

Perhaps the most important service for business owners to understand, Google's basic search engine is free and can make a big difference to the bottom line of an online business. The trick, if you're trying to sell products or services on the Web, is getting your site at the top of Google's search results so that potential customers find you before they find your competitors.

How it works. Google's search engine uses a **robot** (also known as a crawler, spider, or bot) that continually

examines billions of Web pages. The bot indexes and maintains a database of Web pages for the search engine to use to locate information. To ensure that the Google robot (or Googlebot) finds your Web site, it's best to register online with Google at www.google.com/addurl.

To provide the best results for a search query, Google employs a trademarked **PageRank** technology. PageRank determines the importance of a Web page based on millions of variables. Of these, the pages that link to your site play a large role in determining rankings. Some linked pages have greater value, thus giving your site a greater overall value. Important sites receive a higher PageRank and appear at the top of the search results.

In addition to the PageRank system, Google's search mechanism analyzes the content of a page to determine its relevance to a search query. The analysis goes beyond simply finding keywords. Instead, this hypertext-matching analysis looks at keywords in the context of the Web page's content, organization, fonts, and more.

What you can do. Google does not share all of the specifics about how its search **algorithm** (rules for ranking and indexing Web pages) works, but the company does give you guidelines for designing the structure, content, and code for your site to improve its chances of being found by a related search query. For example, your site should have a clear hierarchy; it should include a site map with links that point to the important parts of your site, and it should use text instead of images or

graphics to display important links, content, or names.

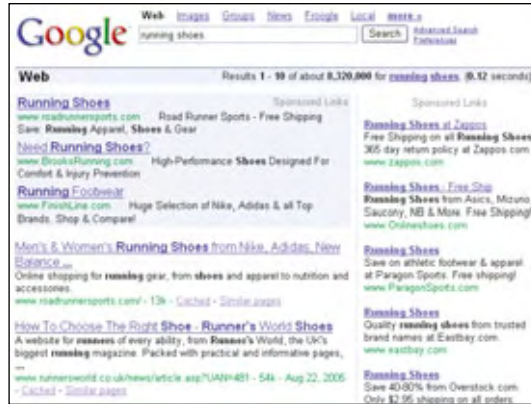
Obviously, using the right keywords in your site is also important. The words you use in your pages should reflect your company's products and services. Google warns Webmasters to be careful to design pages for users, not search engines. If you fill your site's pages with irrelevant words, duplicate content, or other deceptive material, it can result in Google dropping your site completely from the search results.

If you need help. Not surprisingly, creating high-ranking pages has become an industry of its own. Books and online services designed to help you optimize your site for search engines are plentiful. Some of the more reputable online resources include Submit It! (www.submitit.com) from Microsoft and Search Engine Watch (www.searchenginewatch.com). Google's information on SEOs (search engine optimizers) also provides tips to help you choose a company or service to help you with your site's search ranking. See www.google.com/intl/en/webmasters/ for a list of information, including details about SEOs, the Googlebot, and design guidelines.

Try Advertising With AdWords

Another way to get exposure for your site's products and services is through ads. Known at Google as AdWords, these are the small, text-only ads that display in the top and right margins of Google's search results. Google displays ads that relate to Web content or to a search query entered by a Google user. For example, if you search for **running shoes**, Google displays related ads for running shoes in the margins of the search results.

Big bucks. AdWords is a fee-based service, and as noted previously, it's Google's primary source of Google's revenue. In fact, according to the company's financial reports, advertising



Google's AdWords advertisements display in the right margin and above the search results. The ads relate to the search query and keywords entered in the Google search box.

comprised 99% of Google's revenues in the first and second quarters of 2005. AdWords debuted in the fourth quarter of 2000. It originally charged subscribers each time their ad displayed on a search results page. In 2002, Google changed the fee structure to a cost-per-click model. This means that subscribers to the service pay only when someone clicks through the ad.

In addition to displaying ads in search results, AdWords also appear on the Web sites of participants in the Google Network. Known as the AdSense program, the ads are distributed in two ways. One method, called AdSense For Search, distributes ads through search results on Web sites that include Google's search box. AdSense For Content, the second method, displays Google-generated ads related to the content on a participant's Web page. Google started the AdSense For Search program in the first quarter of 2002 and the AdSense For Content program in the first quarter of 2003.

For the second quarter of 2005, Google's total ad revenues topped \$1.38 billion. This was a record for Google, with revenues 10% higher than the first quarter of 2005, which was also a record-setting quarter. Sites owned by Google generated \$737 million, or 53% of total revenues. Revenues generated from Google's partner sites

(through the AdSense program) contributed \$630 million, or 46% of total revenues.

Create a campaign. Obviously, ad revenues reap big bucks for Google. One reason is that Google has made it fairly simple to create an ad campaign. An online tool, located at adwords.google.com, walks you through a four-step process to create your ad. The process starts by defining the language and geographic location of your target audience. This improves your chances of reaching potential customers, because you can target specific cities, states, and regions as appropriate for your business.

The second step involves creating an Ad Group, which is the ad and the keywords you want to associate with it. The ad consists of four lines: a headline (maximum 25 characters), two lines of text (maximum 35 characters each), and your Web site's address. Google offers a variety of tools and suggestions to refine your ad and keywords.

Of course, budgeting is an important aspect of a Google ad campaign. It's the third step of the process, and Google lets you define a limit so that you don't exceed your budget. You can also limit the CPC (cost-per-click, the amount you pay if someone clicks your ad), and you can set a total daily budget. Google recommends a minimum investment of \$30 per day and requires a minimum CPC of 5 cents.

As you set your budget, Google's online tool provides recommended amounts for your campaign's CPC based on the ad you've defined. Google employs a unique bidding system to determine which ads display more often than others and in what order. Your keywords, target market, and budget need to work together to improve your ad's chances of displaying before and more often than your competitors' ads. The Google sign-up process includes tools to help you forecast your ad campaign's results and tweak it, if needed, to give you the best

results within your budget. It also provides a campaign management tool that lets you track performance. The fourth and final step in the process is to review the previous steps and create your account and login information.

Generate income with AdSense. Google's AdSense program displays ads from participants in the Google AdWords service. The program finds and displays ads that are relevant to your site based on Web page content or search terms that a visitor enters in the Google search box on your Web site. Depending on the program and types of ads targeted to your Web site, your company receives income for publishing the ads.

With AdSense For Content, you agree to publish AdWords ads that are targeted to the content within your Web site. Google's technology analyzes your site's content and selects the ads that are most relevant. AdWords advertisers can also target ads specifically to your Web site. By contrast, AdSense For Search displays AdWords ads targeted to the search query entered by a visitor to your Web site. This is similar to adding the Google free search box to your site, but your company gets the added benefit of receiving revenue from the AdWords campaigns of others. The AdSense For Search feature is also more customizable than the free search tool.

To generate income with AdSense For Content, your company receives payment in most cases based on visitors who click through an ad displayed on your site. If an AdWords ad is targeted to your site specifically by its owner, you can also receive income based on the number of times the ad displays, which is known as CPM (cost-per-thousand impressions). Google does not share specifics about how it calculates the income you receive from AdSense programs, but it costs nothing to become a publisher.

The process for applying to become a Google publisher is online at www.google.com/adsense. If Google

approves your application, within a few days you receive information via email about how to set up the program. The program includes an online reporting system that details the revenue that AdSense generates from your Web site.

Google has built in numerous options that let you customize AdSense for your Web site. For example, you can pick the layout of the ad from a selection of formats designed by Google. Most formats are text-based; however, Google has begun to offer image ads with AdSense for content. You can



The Google search box is a free service that you can add to your Web site and can help your visitors search the Web or your site only.

place up to three ad groupings on a page, including image ads. When Google is unable to locate a targeted ad, you can fill the ad space with alternate ads, custom messages, or a solid color. You can also block ads from competitors. When displayed on your Web site, AdSense ads are branded by text that states Ads By Google.


Google's AdSense partners include companies large and small. Some of the more recognizable partners include The Weather Channel, EarthLink, Disney Online, BizRate.com, Ask Jeeves, AOL, and Amazon.com. Dan Hogan, the owner of a science news Web site www.sciencedaily.com, states that "The ads really match our articles. For visitors, the AdSense ads are a useful extension of our content." According to a case study of ScienceDaily, 66% of the online magazine's income comes from AdSense.

If you need help. Similar to search engine optimization services, Google's AdWords program has resulted in a side industry of companies willing to design an ad campaign for you. If you need assistance, however, consider Google's Jumpstart service for first-time advertisers. With Jumpstart, Google's staff designs an ad campaign for your company at no charge; the catch is that your initial campaign budget must be a minimum of \$299. For more information, see adwords.google.com/select/jumpstartwelcome.

Add Google To Your Site

Google offers many services to enhance your Web site with its search technology. If you want to give your site's visitors easy access to Google, you can display the Google Free Web search or Google Free Site search boxes on your site. By simply pasting some HTML (Hypertext Markup Language) code into your Web pages, you can provide a Google search box for visitors to your site. There are three options: Google Web search (searches the entire Web), Google SafeSearch (searches the entire Web while filtering adult content), and Google Web search with SiteSearch (searches users' choice of the entire Web or only your site). See "Give Your Web Site Google Power" on free Google search tools for your site on page 128.

Take Advantage Of Google

With numerous services available to businesses and its positioning as one of the top destinations on the Web, Google has a lot to offer Web site owners and administrators. If you have a product or service to sell, it's imperative that your site is included in Google's search index. And the AdSense program can help you generate additional revenue through targeted ads. 

BY CARMEN CARMACK

Get The Word Out

Advertise Your Web Site On Google



They're out there: thousands of potential customers wanting information about your company and its products or services. So you've created a Web site that displays your business to its best advantage, and you've made the site easy to navigate and understand. But there's one problem. Those consumers have never heard of you, your company, or your products. How in the world do you get them to walk through your virtual doors?

By getting yourself noticed on Google, of course. Google has become synonymous with finding information on the Web; the word has even evolved from a brand name to a verb, as in "I Googled my new boss to see what I could find out about

her." When your would-be customers want to know who offers what they need, Google is one of the first places they'll look.

Therefore, it's crucial that you give your company presence on Google. We say "give" because, despite what may appear to be a mysterious process to the outside observer, site listings don't randomly appear on Google. Instead, there are specific procedures and techniques that you can take advantage of in order to increase your visibility online. To some extent, you can determine whether your business is listed on Google, and you can enhance your Web page so that your site appears higher in search results and place advertising on relevant search pages.

Google Listings

Let's suppose you're in the business of making widgets, and you want potential customers who visit Google to learn about and find your widget retail company. One way consumers shop online is to go to a site directory, where they search under companies that make widgets and find your listing there—kind of like an online Yellow Pages.

But Google is not a typical site directory, where you are listed in some type of organized structure, such as under, say, United States > Shopping > Gadgets > Widgets > Retailers. Rather, you submit a listing manually that lets Google know you exist, and the automated processes on Google's back end check out your site and, provided your site meets Google's criteria, add it to the Google index. Then, when visitors run a search on Google, the site may appear in the results page.

Before we walk through the submission process for listings, it's worth noting that it isn't necessary to submit your site's URL to Google in order to be included in the index. Google states flat out that most of the index additions are done automatically through Google's **spiders**, which are programs that visit Web sites, read pages, and supply indexing information to a search engine database. These programs are also called crawlers or bots.

Another item worth noting is that just because you submit your URL, there's no guarantee that Google will add it to the index. Numerous sites submit URLs to be listed, and it takes some time for the Google folks to inspect those URLs and determine how, or even whether, they should be added. Google advises Webmasters that the spiders will likely find the site before the staff gets to your URL submission. Plus, given that Google indexes more than 8 billion pages, it's easy to understand why the company relies on its well-written automated

programs rather than manual labor to index sites. Still, it can't hurt to try, and it may even help, so let's submit a site URL to the listing.

Your first step is to head to the URL submission page at www.google.com/addurl/?continue=/addurl. It's a simple page, with a bit of information at the top and three boxes where you can type text. The first box, URL, is the most important. Here's where you can manually input your Web site address, such as

ensure the Google staff pays better attention to your "application." And the third box is where you confirm a string of letters or characters, a string that changes each time the page loads. Google places this string on the submission page to let its staff know that a real person is submitting the listing instead of an automated program. We recommend you fill out this box, because if you take the time to manually submit a listing, it's natural that Google will be more inclined to pay

In addition, there is a related program you may want to investigate. Google Sitemaps is a beta (trial) program that attempts to help its spiders better crawl the Web and gather information. Sometimes when sites have content that changes routinely, called dynamic content, or subpages that are somewhat hidden, the Google crawlers may have a harder time finding those pages. Filling out a site map will help the spiders know more about harder-to-index sites and subpages. If you have a relatively complicated site, participating in this program will help Google better crawl sites in general and perhaps your site in particular.

To sign up, head to www.google.com/webmasters/sitemaps/docs/en/overview.html for an overview of creating sitemaps. If you or your webmaster has already created a site map using a third-party program or online service, you can submit that site map through a link on this page. The site map must be in a format Google supports, and you'll need to create a Google account (which you may have done already if you use other Google services, such as Gmail or Google Groups). Then, just click the Add A Sitemap button, type the URL of your site map, and click Submit URL.

You can also use this program to create a site map before you submit it to Google. The procedure for this takes some time, so we won't walk through it here, but if you're interested, visit www.google.com/webmasters/sitemaps/docs/en/sitemap-generator.html and follow the instructions for downloading the proper files, creating a configuration file, uploading the files, running the program that will generate a site map, and submitting the final product to Google.

Google Searches

We're all familiar with spam, and if you're a business professional, among the unsolicited ads that have ended up in your email box probably is one

Use a simple online form to submit your URL for inclusion in the Google index.

<http://www.widgetsarewe.com>. When you input the address, keep in mind that you don't need to include all of the subpages on your site, such as <http://www.widgetsarewe.com/contact> or <http://www.widgetsarewe.com/storelocations>. The only item you should submit is the top-level page, because Google's bots will start at the top and automatically crawl through the rest of the site.

The second box, Comments, is where you can add keywords or comments for the Google staff. This section does not influence how Google indexes your page, but it can help

attention to the work you did than if a "robot" did so.

And that's it. You've done pretty much all you can do to manually get Google's attention. You can go through this process more than once, but it's likely a waste of time, because, in Google's words, "multiple submissions won't improve the likelihood of your site being added or accelerate the process." Google also says you won't be penalized if you submit multiple times, but in our opinion you're better off submitting a URL once and then putting your energy into other projects.

that reads something like this: “We’ve noticed that your Web site isn’t listed in the major search engines. We guarantee you top placement or your money back.” If only it were so easy. Unfortunately, there’s no quick fix for getting your site ranked high on a search engine page. But, the good news is that some of this *is* in your control.

First, it helps to understand what Google spiders look for when they’re indexing and ranking sites. Google’s mission, according to the company, is to develop “the perfect search engine,” which one of the co-founders, Larry Page, describes as something that “understands exactly what you mean and gives you back exactly what you want.” Google doesn’t disclose exactly what goes into the technology behind a search, but it does publish some general information.

One bit of technology is PageRank, Google’s proprietary ranking program. PageRank looks at more than 500 million variables and 2 billion terms, feeds them into an equation, and comes up with a ranking. Part of the ranking is based on how many pages “vote” for your site by linking to your main page and your site subpages. Another factor that determines rank is your site’s contents. The search engine looks closely at your page and considers what it says and displays, along with where words are located and other factors.

What does all this mean for you? Well, it’s easier to start with what it doesn’t mean. It doesn’t mean loading your page up with links or hidden words (words in *metatags*, the HTML codes placed in the top section of the coding for a Web page that describe the page to search engines and are invisible to viewers visiting a page)

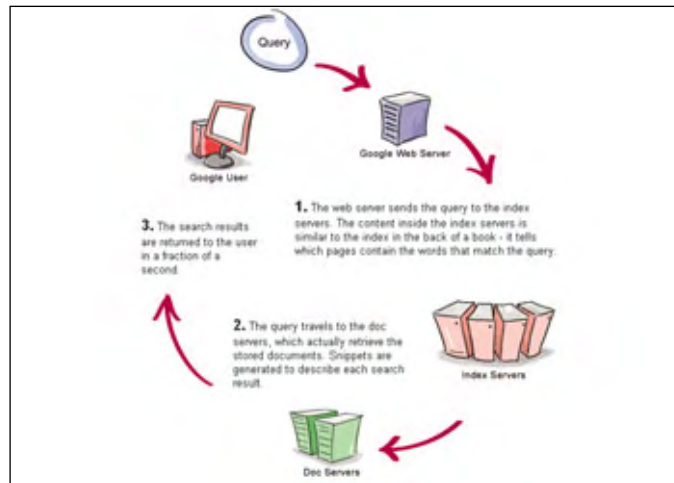
will guarantee higher placement. In fact, we highly recommend you don’t do this, or you risk attracting the wrath of the Google monitors.

Google publishes clear guidelines about what it finds acceptable (www.google.com/intl/en/webmasters/guidelines.html), and loading pages with

when trying to find you. And, of course, you want the site to be usable. Broken links not only annoy your visitors, they stymie the crawlers.

There are some technical details to cover, as well. For example, Google spiders don’t pick up on text inside images. While this may be a great

technique for avoiding spam—you may want to “hide” your email address by creating it as an image, rather than as a clickable “mailto:” link, thereby preventing a spammer from automatically culling your address—it isn’t so great for getting noticed by a crawler. And, if you track a human visitor’s site usage, make sure you (or your Webmaster) don’t require a crawler to be tracked through the site, such as with a session ID. For more details on recommended steps to take, visit the



Potential customers find you by submitting online queries; here is Google’s illustrated depiction of the querying process.

hidden text, creating multiple pages with nearly identical content, and using **cloaking** (showing search engines content that you don’t show your human visitors) are absolutely not on the list. If you violate these guidelines, Google reserves the right to remove your site from its index. And once that happens, there’s little chance of going back. Your site won’t show up when users run the Google search engine, and it won’t show up on the sites run by any of Google’s numerous partners.

As for what you can or should do, much of that is common sense. A good general principle to follow is to create the site as you want users to see it, and the spiders will react accordingly and appropriately. Don’t put too many links on a page (Google recommends fewer than 100), make sure the information is clear, and include words on your site that users are likely to type into search engines

Google Webmaster Guideline page at www.google.com/intl/en/webmasters/guidelines.html.

Lastly, we mentioned earlier that one of the factors placing you high on a Google site is the number of sites that link to you. It’s unwise to join a program that does nothing but create multiple links among unrelated sites with the purpose of registering higher in a Google search, because that goes against the Google guidelines. It does make sense, however, to encourage relevant sites to link to you. One neat feature Google offers is a Google Link Search. When you use this feature, Google will tell you what sites link to yours.

Visit www.google.com/help/features.html#link and scroll to the bottom of the page and the last entry, Who Links To You? In the text box, type **link:** followed by your site name, such as **link:www.widgetsarewe.com**, and click the Google Search button.

You may be surprised at who links to you, or doesn't, and it can spark ideas of other relevant sites you may want to contact about creating a link to your site.

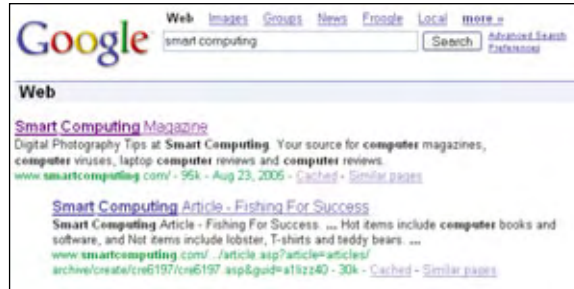
Where's My Site?

OK, you've submitted your URL and optimized your content so that your site appears high up in a Google search for widgets, and for a while all is good. But one day, when you run your regular Google search, the site doesn't appear at all, or it's much farther down the list. This doesn't necessarily mean something is wrong, although it might be an indication. Google conducts regular index updates, and when it does, new sites may be added that outrank yours.

Another factor may be that many sites that used to link to you no longer do, so use the handy tool we just covered to see if that's the case. Or, maybe your server was down when the spiders went crawling by, and they couldn't "see" your site. If you suspect this may be the case, check with your hosting company to see if they've experienced any problems recently.

Your site ranking may also change because your site itself changed, and that brings up another issue to keep an eye on. If you've changed your site and Google is still displaying the outdated information, that's likely because Google's crawlers have not yet visited your new pages. Just wait a day or two, and the next time the search bots visit your page, they'll submit the correct information into the Google database.

Finally, you may want to remove a site from the Google index. Google policy clearly states that the company wants to provide a "thorough and unbiased" search and that the company does not believe in censorship. If a site is on the Web, the odds are good that it will appear in a Google index



Google automatically creates the snippets that appear when your site is returned in a user's search.

and stay there, with the exception of the sites where the Webmaster is clearly trying to fool the crawlers into giving it an artificially high ranking.

But there is another exception. If the Webmaster responsible for the pages makes a formal request for removal (or if legal requirements necessitate it), Google will remove all or part of a Web site. In short, you place a file on your site, called robots.txt, that tells search bots they are not welcome and to ignore your content. Google provides complete instructions on removing your site from its index at www.google.com/intl/en/webmasters/remove.html.

The Google AdWords Program

Most businesses, however, will want just the opposite of being removed from the Google index; they want as high a ranking as possible. And sometimes, the best way to get noticed on Google is to pay for it outright.

You've probably noticed that when you run a search on Google, you sometimes see sponsored links at the top of or on the right side of the results page. These results don't land there simply because the site Webmaster submitted the URL to Google or optimized the site for search engine indexing. They're there because the site was willing to pay for the exposure. AdWords is a program that lets you create ads and place them on relevant pages.

Here's how it works. When you create your ad, you choose keywords that describe your products or services or other keywords that your target audience might be likely to use in a search. Then, when a consumer runs a Google search, if she uses your keywords in her search, your ad appears in a high-profile spot on the results page. This occurs on the Google page and also on the search pages of Google's partners.

These partners include Netscape Netcenter, EarthLink, Ask Jeeves, The Weather Channel, The New York Times, InfoSpace and Home & Garden Television, to name a few.

If a user clicks your ad to go to your Web site, you are charged a small amount. This is known as pay-per-click advertising. You can determine how much you are charged per click, and you can set limits on how much you pay on a daily basis. You can examine a personal online report that details your AdWords program statistics, and one of the items you can track via your reports is how many of those clicks lead to sales, also known as conversions.

One of the most important decisions you need to make is to figure out where you're going to advertise, both in which regions (where are your customers located?) and on which search result pages. Unlike traditional advertising, which usually lets you base your advertising placement in part on whatever detailed demographic information the publisher or broadcaster can provide you with, the pages where your Goggle AdWords ad appears are more fluid. Therefore, before you sign up for the program, it's crucial that you figure out what keywords your potential customers will be using in their searches.

For instance, suppose your company sells bathing suits. Someone who runs a search on "swimming pools" might be interested in your

product, but they're more likely to be looking for information on purchasing a pool or pool maintenance and related information. Someone who runs a search on "tankini," however, is more likely to be looking for what you have to offer.

Ready? Let's go through signing up for the AdWords program. Head to www.google.com/ads/index.html, click the Google AdWords link at the top of the left panel, and click the Click To Begin button under the Sign Up Now section in the middle of the subsequent page. The sign-up process will open in a separate window.

In the Language drop-down menu, choose the language in which you want your ad to appear. Then, select the appropriate radio button, depending upon whether you'd like the ad to appear in an entire country, in a particular region, or in a customized area of your choosing. Click Continue. The next page will vary according to the region button you just selected, so once you've added countries, selected regions, or otherwise determined the location, click Continue.

Now it's time to write your ad. AdWords ads are relatively small, similar to classified advertising in a newspaper. Come up with a catchy, 25-character or fewer headline, two descriptive lines (each with less than 35 characters), the URL the consumer will see, and a URL of the page to which your ad will link. For instance, you may want your visitors to see "www.widgetsarewe.com," but you may want them to link to a back-end page with lots of funky characters in the address, such as www.widgetsarewe.com/sales/item.asp?item=item%2archive%... (you get the picture.) Google checks the page functionality before presenting the next page in the sign-up process, Choose Keywords.

You've already figured out your best keywords, so go ahead and enter them here. Click Continue. Now, you've entered the most confusing part of the sign-up process, at least

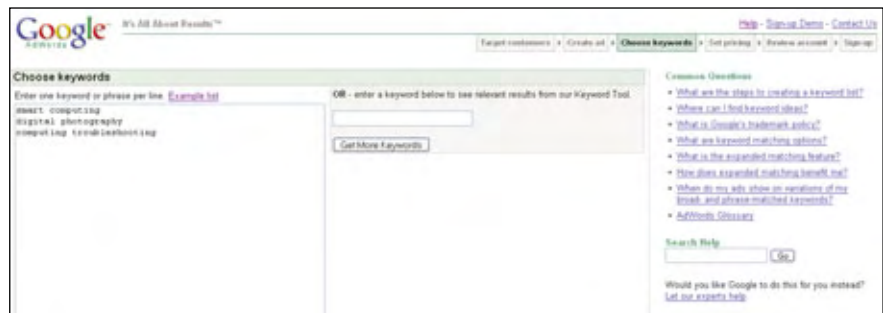
until you have some ad campaign results to work with. Based on your keywords, Google calculates traffic and pricing estimates. The first time you run a campaign, it may be difficult to figure out how much you should be paying per click to gain a new customer. Therefore, we recommend you follow Google's guidelines. Google will suggest a maximum cost per click, which is the highest price you're willing to pay for a customer to click on your ad. The higher the maximum cost per click, the higher up on the search results page your ad will appear.

On the Set Pricing page, select the currency with which you'd like to pay Google, and then enter the maximum amount you'd like to spend per day, on average, for this advertising campaign. This ensures that you don't go over your budget, because once you've reached your spending limit, your ad will not

Lastly, review your AdWords application and click Edit next to any of the items to change your data. When you're satisfied with your ad, click Continue To Sign Up, and fill in the information necessary to create your AdWords account: your email address and a password. Google sends you a confirmation email, and you can activate your account by clicking the link in the email and entering billing information. Google charges advertisers paying in U.S. currency a \$5 fee to get started, and from then on your costs are determined by your chosen budget and cost per click.

Beyond Google

With potential customers performing millions of Google searches each day, the opportunities for reaching your target audience are numerous. Keep in mind, though, that



Customize your AdWords ad placement by choosing relevant, specific keywords.

appear again that day. Then, it's on to the cost per click. The Enter Your Maximum CPC box may already be filled in with Google's suggestion, but you can also click the View Traffic Estimator link toward the bottom of the page to view estimates for keywords based on how many clicks current advertisers—likely your competitors—are getting on their ads. Typically, you will want the cost-per-click amount to be somewhere in the 5 to 10 cent range, although you may desire a higher or lower amount. Click Continue.

getting your site noticed is just the first step. Before you place an AdWords ad, submit your URL to Google or attempt to increase your search ranking, make sure your site is in tip-top condition and that it stays that way. Because once you've captured a customer's attention online, you want to make sure he walks through your virtual doors—and comes back for a second visit. **RS**

BY HEIDI V. ANDERSON

Give Your Web Site Google Power

Adding Site Search & More To Your Web Site



When it comes to the Internet, “Google” is practically synonymous with “search.” Wouldn’t it be nice if you could use the same accurate and blazing-fast search technology that Google uses to catalog the Internet to search your personal or small business Web site? Thanks to Google’s free Site Search service, you can, and if you have a larger site or run a corporate Web site, check out our “Big Business” sidebar, which contains information about Google’s more powerful hardware-based search products.

Site Search: Benefits & Drawbacks

Site Search is a subset of the Internet search service for which Google is well-known. Normally when users enter a search term in a Google Search box, they get results from the entire Internet. This is great unless you run a business that sells wind chimes, and visitors see links to your competitors every time they run a search for that product at your Web site. Site Search eliminates that problem by giving users the option to only search pages at your Web site.

Of course, there are several catches. Firstly, your pages must be in Google’s database to show up in the search, so if you update information often, it may be outdated in Google’s database or not even show up at all. The search results page is also a Google page, using its layout and not that of your site, although some basic modifications can be made, so it better fits in with your Web site.

The interface is potentially confusing to customers because two radio buttons appear under the Google search box that appears on your site. The first radio button is labeled WWW, and if your visitor selects it, the search is carried out as a normal Google search that returns results from the entire Internet. The second radio button is labeled with your Web site’s domain name (for example, www.mysite.com), and if it is selected, the search is only carried out on pages stored in Google’s database that belong to that domain. If visitors get confused and select the WWW radio button, they may see results from competitors or links that take them away from your site.

Site Search isn’t perfect, but it is free, incredibly easy to implement, and gives your customers a basic search engine for your site if you don’t have the tools or ability to custom-design a search tool. You can easily add Google to your site so long as you know how to let Google find your site and how to make some basic modifications to the HTML (Hypertext Markup Language) code used to create Web pages.

Let Google Know You’re There

Site Search only returns search results for your Web site if Google’s search engine, called Googlebot, has “crawled” the site. **Crawling** is a process in which Googlebot makes a copy of your entire Web site and stores the data on Google’s servers where it is indexed and added to the main Google search database. If

Google doesn't know your site is there, it won't crawl through it, so the first order of business is to let Google know where the site is located.

You can find out more about registering your site with Google in "Get The Word Out" on page 123, but here's the short version. Launch your Web browser and go to www.google.com/addurl. Enter the entire address for your Web site in the URL box. (For example, type <http://www.smartcomputing.com> instead of just typing www.smartcomputing.com.) Next, type a short description of your site or a few keywords that pertain to your site in the Comments box to help establish the site's legitimacy, so it has a better chance of being indexed. Type the letters you see pictured in the text box near the bottom of the page and click Add URL.

How To Implement Site Search

Now that Google likely has your site copied into its search database, it's time to add Site Search to the site. This is as simple as copying and pasting a few lines of automatically generated HTML code into the Web editor of your choice, but there are several customization options to consider. We'll cover most of these in detail using Microsoft FrontPage 2003 as our HTML editor.

First, go to the Google Business Solutions page at www.google.com/services and click the Add Web-Search To Your Site link at the bottom-left corner of the page. WebSearch is Google's main search service, which searches the entire Google database, and you have to install it in order to use Site Search.

Click Google Free WebSearch, click the Terms Of Service link, read the document, and if you agree, check the I Have Read And Agree To The Terms Of Service box and click Get The Free Search Code.



The default search box must be modified to include your site's address.



With a little editing, it is possible to completely change the look of the search box.

The next page that appears contains three boxes filled with HTML code, and the one you are interested in is the Google Free Web Search With Site Search box at the bottom. Beneath the box you see a preview of what the search box will look like on your Web page, but this is customizable, and we'll talk about that in greater detail later.

To add the most basic form of Site Search to your site, click inside the Google Free Web Search With Site Search box, open the Web browser's Edit menu, and click Select All. This highlights all of the HTML code in the box. Open the Edit menu again, click Copy, and open your HTML editor. Open the page where you want to insert the Site Search box and press Ctrl-V to insert the code into your Web page just like you would add any other lines of HTML. Note that the Google search box will appear on the area of your Web page where you paste the HTML code, such as the top or bottom of the page. In FrontPage 2003, open your Web site, open the page where you want to inset the search box, and click the Code tab near the bottom of the window to view the raw HTML code. If you want to place the box at the top of the page, click next to the `<html>` tag at the top of the code window, press ENTER to create a new empty line, and press CTRL-V to paste the code

into your page. Click the Preview tab to see what it will look like to visitors and remember that you can move the entire block of code (which is designated by `<!-- Search Google -->` at both the top and the bottom) within your page if you need to reposition the search box.

You aren't finished yet. The auto-generated code contains **placeholder text** that must be changed before it will work properly. Placeholder text is text in a template that is only there to show you where to put pieces of code or alternate text and is

meant to be changed. Scan through the code, and you'll see three places where the text **Your Domain Name** appears. You may need to scroll to the right to see all of the HTML text. Your job is to replace each of those blocks of text with the address of your Web site. Don't remove any formatting such as quotation marks that are around the text, and you don't need to put `http://` in front of the address.

At this point, you've implemented the most basic version of Google Site Search. You can copy and paste the block of code into all of your other pages to add it to them as well, or you can customize the service so it integrates more smoothly with the look and feel of your Web site.

Search Customization

If you don't like the look of the Google search box, there are many ways to modify it. Have you noticed that the radio button under the search box says the address of your Web site instead of the name of your business? You can change the radio button text to anything you like by editing the last Web address entry you entered. Look for the line where you changed **Your Domain Name** to your Web address and ignore the entries that are in quotes—they need to stay like they are for the search engine to work. You can change the entry that is sandwiched

between the `<checked>` and `
` tags, however. If your company's name is Wind Chimes Inc., you could change the entry from **Your Domain Name** to **Search Wind Chimes** or **Search Our Store** to give visitors a better idea of what radio button to select.

You also can modify the other radio button, which by default is labeled WWW. Look for the WWW text between `value=""` and `<input` and change it to something more intuitive such as **Internet Search** or **Search The Web** to make the choice easier for visitors. Be sure to preview any changes you make to be sure they don't break the formatting or otherwise make the search feature unusable.

By default, the button people click to search is labeled Google Search, but you can change that as well. Look for the line that says `<INPUT type=submit name=btnG VALUE="Google Search">` and change Google Search to something else, such as simply **Search**.

Google's logo appears on every page that includes Site Search, but you can remove or change the logo so that your company's logo appears instead. To remove the logo, delete the line (or lines) of HTML code that read ``. Poof, there goes the logo. Alternatively, you can modify this code, so a picture of your choosing appears next to the search box. Replace `http://www.google.com/logos/Logo_40wht.gif` with the address on your Web site where your logo is stored, such as `www.windchimes.com/images/logo.gif`. For this to work, you must include the file name of the actual image, including its three-character file extension, for example .GIF or .JPG.

Results Customization

Although you have to customize the search box by hand, there are several changes you can make to the Search Results page via a Web-based interface that will make the Search Results page

look better in your site. Go back to the Google page that generates the Site Search code and click the Customizable Google Free Web And Site Search Services link at the bottom of the page. Read and agree to the terms of service and click the Customize Google For Your Site box. Select the Customizable Google Free WebSearch Plus Site-Search radio button and enter the domain names that you want to include. (You can add multiple domain names so long as you separate each domain name using semicolons.)

Click Continue, and several customization options appear. You can edit the domains you entered at the top of the page, but the most interesting options are in the Optional Customization Of Results Page section. Although it is impossible to remove the Google



Google automatically generates search box code that you can copy and paste into your Web pages.

logo from the search page, it is easy to add your company logo to the top of the page. Just enter the Web address where your company logo is stored (including the file name and three-character extension) as described earlier. Don't forget to include `http://` at the beginning of the address.

By default, the Results Page displays a thumbnail of your logo. If you want to display it at a larger size, enter the logo's dimensions in pixels in the Width and Height boxes. If you use WinXP, you can find out your logo's size by

right-clicking the icon for the logo followed by Properties. Next, select the Summary tab, which lists the exact width and height. Otherwise use a program such as IrfanView (free; www.irfanview.com) to easily find out the logo's dimensions. If you want to place your logo on the left side of the top of the Results Page, choose Left in the Alignment Of Your Logo box or select Center if you want the logo to appear in the middle at the top of the page.

The remaining boxes let you modify the colors of the Results Page, so they better match those of your Web site. If your site uses a gray or black background color, select the appropriate setting in the Google Logo Background Color drop-down menu. Otherwise leave it at its default White setting.

All of the other entries except Background URL let you modify the colors of text, links, and the page's background. You can enter values such as red, blue, white, orange, green, etc. if you want to use the pure forms of various colors, or you can enter **hexadecimal values** for colors to perfectly match them to those used by your Web site. Hexadecimal (also called hex) is a mathematical number system where values are represented by the numbers 0 to 9 and the letters A to F. At their most basic level, PCs use strings of ones and zeros called binary code to operate, and hexadecimal provides a convenient sort of shorthand for representing long strings of binary digits using only a few numbers or letters. It is the standard system used for representing specific color values in HTML. For example, FFFFFFFF is the hexadecimal code for pure white, 000000 is the code for pure black, and 336633 is the code for a particular shade of green.

You can obtain the color values your site uses by looking at the site's HTML code. BGCOLOR indicates the background color, TEXT indicates the color for standard text, LINK indicates the color used by active hyperlinks on a page, and VLINK is the color used by links a visitor has already clicked. There are

entries for these values in the Optional Customization Of Results Page section. The Faint Text Color entry controls the look of Cached and Similar Pages links on the Search Results page, and Alternate Text Color controls the look of the Web site links included at the bottom of



Google's Search Appliance is much more expensive, expandable, and powerful than the Mini, and it is easy to install and maintain.

each search result entry. Skip the Important Text Color setting because it doesn't affect anything on the Search Results page.

Finally, you can use a background image instead of a background color to further modify the page. Just enter the address for the image in the Background URL box just as you did for the logo earlier. Small images are repeatedly tiled on the background, making it easy to create a pattern.

Click Continue and enter the required registration information if necessary before clicking Continue again. A block of HTML code appears, which you can copy and paste into your Web pages and modify it as described earlier in the article.

Shakedown

Don't forget to upload your modified Web page to your Web site and test everything out to see if customers will run into any problems. If you find that Google isn't crawling your Web site to your satisfaction or that customers are having trouble finding things at your site, the only recourse is to upgrade to a full-fledged search engine that is customizable and scalable. Check out the "Big Business" sidebar for more on how Google can help you with that. **RS**

BY TRACY BAKER

Big Business? Consider A Google Hardware Solution

Site Search is great for adding a free, basic search engine to a small Web site, but larger and corporate sites need to offer visitors a more powerful and customizable way to search content. Google's search engine hardware, the Google Search Appliance and Google Mini, makes this task as easy as forking over some cash, plugging in a few cables, and letting some hardware do most of the hard work. You'll need to tweak several things manually, but these configuration hassles are nothing compared to creating a reliable search engine from scratch, and with Google's tools it is possible to implement a world-class search engine for your Web site in less than an hour.

Size Up The Costs

Of course, all of this costs money, but Google's prices are reasonable when one considers how much it costs to create a search engine from scratch. "A midsized organization is going to spend between \$50,000 to \$300,000 to license, customize, manage, build out infrastructure, and update a search system in its first year of operation," says search technology guru Stephen Arnold, President of AIT

(Arnold Information Technology; www.arnoldit.com) and author of several books, including "The Google Legacy" (\$180; www.infonortics.com).

The Google Mini, which indexes up to 100,000 files, is designed to serve small and medium-sized businesses and costs \$2,995 for the hardware, software, replacement coverage, and one year of support. After that you are free to keep and use the hardware, but maintaining the support, hardware coverage, and software updates costs an additional \$995 each year.

Google's Search Appliance, which is designed for medium-sized and large businesses, indexes up to 500,000 documents in its basic \$30,000 GB-1001 version, whereas a fully upgraded \$450,000 GB-8008 model indexes up to 15 million documents.

Feature-Rich On A Budget

Despite its ease of installation and configuration, the Google Search Appliance has some very powerful features. It uses the same PageRank technology Google does to organize search results by relevance with terrific accuracy, and it also incorporates the same automatic spellcheck technology that's

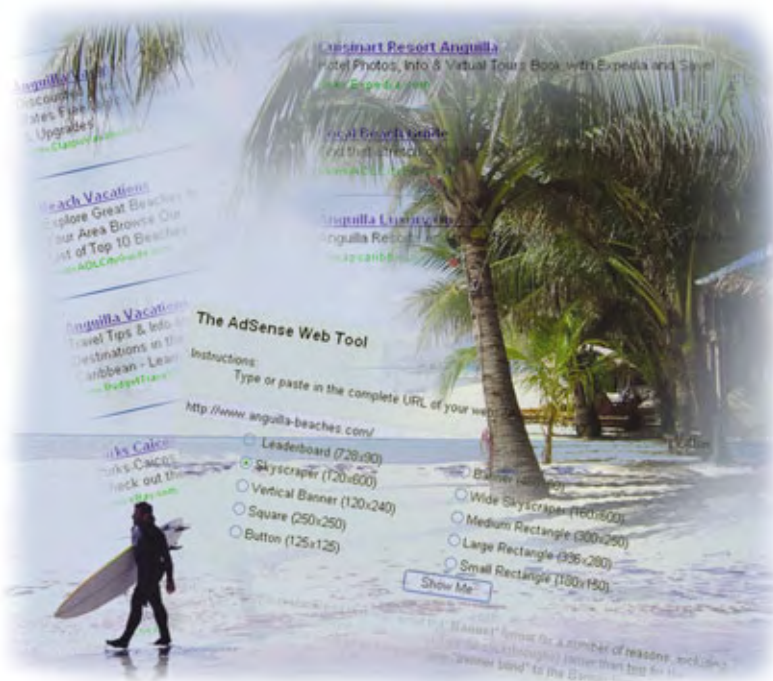
familiar to Google users. It can index more than 220 types of files, including databases, and it lets administrators divide up content so that only authorized users can search sensitive documents. RAID support helps keep data safe by constantly mirroring data to separate hard drives, and the company using the Search Appliance can completely customize search boxes and search results pages.

The Google Mini is much less capable than its big brother, but still offers great value to small business owners. It doesn't have the ability to scan databases and lacks RAID support, but it uses the same search technology as the Google Search Appliance and also has a limited ability to divide Web content into separately searchable collections.

Perhaps most importantly, none of the Google hardware products requires much maintenance. After the initial configuration, they automatically and constantly scan your Web site and network for new content and index it instantly, letting you add new content without having to do any extra work afterwards. You can't put a price on that for harried business owners who may not have an IT staff on which to rely. **■**

The Ins & Outs Of AdSense

Depending On Your Web Site,
Google's Ad Program Could Earn You Money



If you're reading this, you likely have a Web site.

And if you're like millions of other companies (or just a single person) with a well-designed Web site, you may have spent weeks or even months in production, haggling with designers over the difference between aqua and teal, or dealing with coder-curmudgeons whose job is to make your site's back-end sing. And after the late nights and early mornings, the design sessions and project management meetings, you're left with a single, all-too-important question: How do I make the Web site make money?

Enter Google, the rising star that has everyone from Wall Street to main street watching. Google's AdSense program, once the province of big companies with more than 20 million page views per month, now lets even the smallest of Web sites monetize their content by showing relevant ads from the Google network. Google's PR team even claims that AdSense could be the fastest (and simplest) way to make your Web site resemble a cash register.

And it may be right. After all, it takes a phalanx of salesmen, bookkeepers, designers, and programmers to find advertisers, sign them up,

design ads, and host them on your Web site. With AdSense, Google can do that for you, drawing on a base of thousands of advertisers and sending you a check based on how many ads you show and how many of those ads are clicked. You can set yourself up in a matter of minutes, choose how ads are displayed (or even choose *which* ads are displayed), and get real-time reports on your site's profit potential, all for free.

But how much sense does AdSense make? Does it really work, and if it does, what kind of sites does it work for? If you're a lone Webmaster building a site with no staff or support team, do you have enough time to dabble in AdSense, and does it pay?

Let's find out.

The Nuts & Bolts

As long as there's been a World Wide Web, there's been a problem with ads. Most often it's a problem of quantity: There are just too many ads for too little content on a given Web page, and users who want nothing but information are hit with dozens of ads that blink, shimmer, or pop up in annoying windows. What's more, the ads are rarely relevant. A visit to a Web site on puppies can give you ads about cat food, French cuisine, or a low-rate mortgage.

Not so with AdSense. Google's program lets you put relevant ads on your Web site; ads that are aimed at your viewers and the content they want. And it lets you get paid for them, too.

How? First is the AdSense For Content program. Just sign up your Web site with Google, which spiders (or reads) the site and makes judgments about its content. Google then gives you a snippet of code that you drop into a Web page on your site. That code will display ads tailored to your site's content, and you can put those ads on as many or as few pages as you like, in nearly any position you like. You can even choose the

If you'd like to see the kind of ads that Google will put on your site, just use the free AdSense Web tool at www.about-adsense.com/adsense-web-tool.html.

shape, color, and size of the ads that will display to match your existing design. Google offers you 200 colors and 24 preset palettes, but you can also build your own palettes to ensure that ads are displayed exactly as you want them. As for size, visit www.google.com/adsense/adformats for a sample of the format that Google ads can take.

With AdSense For Search, the second AdSense program, you can add a Google search box to your Web site. When users search on a keyword, they view a results page with targeted ads that match your site, the search term, or both, and you're paid for those ads.

You can use AdSense For Content and AdSense For Search on the same Web site. In fact, Google recommends you do so to bolster your earnings, since Google pays you for both the number of ads displayed on your site (an impression) and the number of times they're clicked (a click-through).

AdWords: The Building Blocks

AdWords are the ads that Google displays on your Web site, and no doubt

you've seen them before. In fact, anyone who's done a Google search has seen AdWords: They're displayed in a vertical column on the right side of the results page. But unlike the ads on other Web sites, they're modest and fairly unobtrusive, and they tend to match the content of your search query.

How does Google make that match? And how do you know the AdWords you show on your site will

be relevant? That, believe it or not, is one of the best-kept secrets on the Internet. Google has a phalanx of linguists, mathematicians, statisticians, and high-end programmers who build the technology that reads your Web site and determines its content, but Google keeps mum on its magic formula. It does, however, state that keywords, placement, repetition, and even your domain name are all part of the mix. For instance, a Web page that puts the word "artichoke" six times at the top of the page will score better for artichoke content than one that mentions the word only once at the bottom of the page.

If you'd like to see the kind of ads that Google will put on

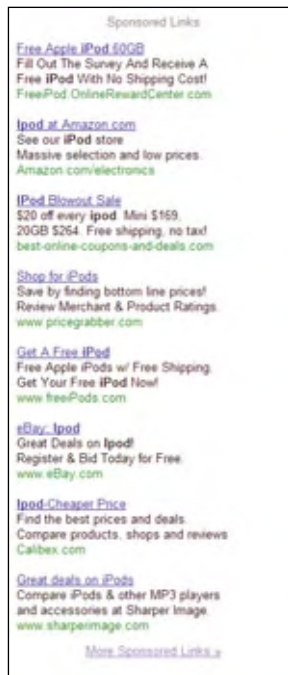
your site, just use the free AdSense Web tool at www.about-adsense.com/adsense-web-tool.html. In the yellow The AdSense Web Tool box, enter your Web site in the search field, click the Show Me button, and you'll see a sample of ads that could be shown on your site. Google itself offers the AdSense Preview Tool to AdSense members. It lets you right-click your mouse on any Web page and get a list of relevant keywords and ads that might be shown with the AdSense program.

If you're not satisfied with the ads that AdSense puts on your page, take heart: You can tweak the system to give you only the ads you want. You can even block competitive ads or choose your own default ads, using a number of little-known AdSense features such as the Competitive Filter (which lets you remove ads of your competitors) and the Contextual Filter (which lets you fine-tune Google's sense of your site's content, to keep the wrong ads from showing up in the first place). You can even choose a default ad that displays on your Web site if Google can't find one to match your criteria.

How Long & How Much?

Once they know the basics, most AdSense users ask the same two questions: How long does it take to set up, and how much will I make?

Let's tackle the first question. It takes about five minutes to sign up for AdSense. Just point your browser to www.google.com/adsense and click the button marked Click Here To Apply. You'll be asked to fill out a brief form with your name or



Google has a special name for an advertisement: AdWord. Pictured above are AdWords displayed on the results page of a search for "iPod." AdSense counts the number of AdWords shown on your Web site, as well as the number of times a user clicks them, to determine how much to pay you each month.

Google's Not The Only Game In Town

AdSense is by far the kingpin of online ad programs for small and midsized Web sites (and some would argue for large sites, as well). But it's not the only game in town. There are dozens of other ad networks that will trade you a fee for a bit of on-screen real estate. Some of them include:

Tribal Fusion

TribalFusion serves 9 billion monthly impressions on all kinds of Web sites, including marquee names such as Apartments.com and *The Chicago Sun-Times*. But to qualify for its program you must have at least 2,000 unique users per day. (Google, by contrast, has no minimum user count.)

www.tribalfusion.com

MaxOnline

A division of rival search engine AskJeeves.com, MaxOnline works with site publishers and email marketers. Members of their network must have 500,000 page impressions per month.

www.maxonline.com

FastClick

FastClick pays up to a whopping 65% of ad revenues directly to Web site owners, and it asks for only 3,000 page impressions per month. Like Google's AdSense, the FastClick system has tools that let you filter and exclude ads based on the relevance of their content.

www.fastclick.com

company name, address, and other basics. Then you'll enter your Web site's URL and choose a username and password for your account. Once you're done, Google will review your application and approve or deny it within two days. (Google denies sites that have illicit content, such as pornographic material, drugs, or gambling.)

Once you're approved, you'll need to drop some Google code into your Web site. Simply log on to your AdSense account and choose the size, shape, and color of the ads you'd like to show. Google will spit out a block of code that you cut and paste into the HTML (Hypertext Markup Language) on your own Web site. If you're not sure how to do this, you'll need the help of a good Web designer to work the code and make sure it's done well. But don't worry: It's a simple task that most designers can do in minutes.

With the code in place, Google will put AdWords on your Web site at once, tracking the number of times they've been viewed and clicked, which adds money to your account.

How much money? That depends on a number of factors. First, sites with more traffic will be paid more, since Google pays AdSense users for the number of impressions as well as the number of click-throughs.

And some ads pay more than others. Ads for iPods, for instance, may pay more than ads for artichokes. (When was the last time you ate one?) Only Google and the advertisers themselves know the exact price of an ad, which is always in flux as Google auctions off search terms and ad placements all day, every day through its Web site. And bear in mind that you won't get the full amount that an advertiser pays for the display of an ad on your site; it will be

split between you and Google in a ratio that Google has yet to release to the public.

But there's one thing that's certain with AdSense, and that's when you'll get paid. Like clockwork, Google will send you a check or an electronic funds transfer within 30 days of the end of the month in which your account balance is \$100 or greater.

The best way to know how big that check will be—and in truth, the only certain way to do so—is to sign up for AdSense and start putting ads on your site. AdSense users can view their earnings at any time by logging on to their account and choosing the Reports tab. You'll see a display of the number of impressions and clicks, the click-through rate, and of course your earnings to date.



You can format AdWords in a number of shapes, sizes, and colors to make them less obtrusive on your Web page. Three common formats are shown above. At the top is a banner that's 468 x 60 pixels. On the bottom left is a button that's 125 x 125 pixels. And on the bottom right is perhaps the most popular format, known as a skyscraper. This version of the skyscraper is 160 x 600 pixels.

ScienceDaily relies on Google's AdSense for two-thirds of its revenue. Here, The Google AdWords are shown with a red border for emphasis. The owners of ScienceDaily saw their revenue jump 10% when they moved the AdWords toward the top of the page.

Making The Most Of It

Once you know how to get moving, how can you make the most of AdSense? To some, AdSense can seem less of a science and more of an art, and there are plenty of tricks to using it well.

First, you should know that AdSense won't perform equally well for every Web site. It works best on sites with heavy traffic. (The more traffic, the more money you make.) Of course, sites with heavy traffic are most often sites with useful, fresh content, so don't expect a stale electronic brochure that's been online since last quarter to bring in major dollars through AdSense.

Niche sites, on the other hand, tend to do well. Sites that talk about specialized fields with an eager audience are likely to have many viewers, be they neurologists or Tibetan Buddhists. And of course, if your niche site draws ads with high-paying keywords, all the better.

Personal Web sites rarely do well with AdSense, unless they have a

stock of fresh content that draws large numbers of users. And Google prohibits the use of AdSense on sites with "excessive" profanity or violence (a distinction that's up to Google, not you, to make) or the presence of any form of bigotry. Content about illicit or even prescription drugs, hacking, and tobacco are verboten, as are pornography, gambling, or simply excessive advertising and pop-ups that exceed five windows per user session.

All this aside, you'll benefit from choosing the right format for your AdWords. Google claims that wide formats tend to work better than tall formats, since they let viewers read a block of words or a whole ad without having to scan down a page. The large rectangle format (336 x 280 pixels), the medium rectangle (300 x 250 pixels), and the wide skyscraper (160 x 600) are known to work best.

The Fine Print

As always, there are restrictions to deal with. You should know the basics before you sign up for AdSense.

First, you can put up to three ad units on any page of your Web site. (For most site owners, of course, three is more than enough.) And you can put no more than two AdSense For Search boxes on any one page.

You can't put a Google ad on any page of your site that doesn't display useful content, such as a contact screen or a page that describes your Web site's legal policy. Those may be useful to you, but Google wants nothing to do with them. And you can't put ads on pages that show nothing but ads. It's a trick that Google has long been wise to, and it can get you thrown out of AdSense.

Yes, you can sell other ads on your site—AdSense does not make an exclusive claim to your on-screen real estate—but you must let an AdWord launch a new window from your Web site. In other words, people who click an AdWord on your Web site will leave your Web site.

There are other restrictions, of course. Among these is the rule against using incentives that ask users to click ads, including a "Visit Our Sponsors" line that's all too common on the Web. Google insists on avoiding these techniques because it lowers their advertisers' costs. And you can only label your ads with the words "Advertisements" or "Sponsored Links," nothing else.

But apart from such restrictions, AdWords can be a useful and even lucrative tool for your Web site. It not only pays you for ads you display, but it also tends to display only those ads that users want to see, based on the nature of your content. In the end, that means you're doing more than making some money; you're using Google to give users a better Web site, and that's a useful pursuit indeed. **RS**

BY DAVID GARRETT

Google Desktop Search For Enterprise

Simplify Your Search For Documents, Emails & Web Sites



A productive company can no longer be identified by scurrying employees and the continual jangle of telephones. Today's wired workforces display their productivity by the steady click-clack of keyboards and, more tellingly, by the creation of hundreds, if not thousands, of new documents every day.

But creating so many new documents is only half of productivity. Without the ability to find relevant information and reference past work quickly, employees will be left spending far too much time searching for what they need, rather than using

it to continue in their tasks. That's why Google introduced its Desktop Search For Enterprise, a free tool that helps employees find what they need on their own computers in a way that's similar to doing a search on Google (www.google.com).

The application grew out of Google Desktop, a Windows-based PC tool for consumers that gives them easy access to information on their computers and from the Web. It can look through email, computer documents, music, photos, instant messaging chat sessions, and Web pages that have been visited.

The search page looks like the Google page, with a single entry field where a user inputs keywords and then gets relevant results that provide links to the information. With Desktop, a result might link to an email, for example, and provide basic information about the sender, when it was sent, and the subject line.

Google Desktop Search For Enterprise has the same capability as the consumer-oriented version, but with several features specifically geared for company use, such as enhanced security, centralized configuration, and easy companywide installation.

How It Works

Find Google Desktop Search For Enterprise at desktop.google.com/enterprise. After filling out a registration form, you can download the application for free. The download includes a PDF file for administrators that's designed to make installation easy on a computer network.

Following its fairly quick installation process, the application begins to index files, so it can have them handy for later searches. This is akin to going through a company file room and looking at every document in the cabinets to know where each file folder is, what's in it, and what content is included in those papers.

The time it takes for the indexing process depends on how much information is on a company network and how much hard drive space is taken up by searchable files, so users shouldn't plan to download the software and begin using it immediately. For an indication of indexing time, users have reported that the process tends to take between three to five hours for a 10-computer network.

Network admins can set the software to index only certain file types, if a company is reluctant to peer into email and Web history information. Once the selected files are indexed, Google is able to quickly tap in to that information and provide small snippets of

descriptions in its search results. To go back to the file room analogy, it's like asking someone that's just evaluated every document what they know about a certain letter, for example, and having them tell you who it's from, when it was sent, and which line in the letter is relevant to your question.

Benefits For Users

Google has made sure to include a large number of popular business file types and applications in the search capability, including Outlook, IBM Lotus Notes, Outlook Express, Netscape Mail, Mozilla Mail, and Thunderbird. Business file types that can be searched include Word, Excel, PowerPoint, PDF, MP3, image, audio, and video files. The tool can look through some sections of a company



After indexing the hard drive, Google Desktop Search For Enterprise can locate files and identify if they're emails, viewed Web pages, or other kinds of documents.

intranet, but with much less capability than using one of Google's appliances (see sidebar).

For recently viewed Web pages, the tool can look through Internet Explorer, Netscape, Mozilla, and Firefox. It doesn't cover the Safari browser from Apple or the Opera browser.

One limitation for the searches is in the chat sessions. Because the enterprise search tool can only look through AIM (AOL Instant Messenger), companies that use Yahoo! or Microsoft's MSN Messenger may find they have limited search capability using the

desktop search tool. But it's likely that Google will be tweaking this part of the software in the future because in late August the company came out with its own instant messaging and voice application called Google Talk.

Desktop Search For Enterprise sorts results in several ways. At the top the page tells the user how many emails, files, Web histories, and chats a term appears in and then gives more description in subsequent listings. For example, a search for "sales presentation" could bring up an AIM chat with another employee, a page from the company intranet about conference room booking schedules, or an email announcement about an upcoming presentation. You can sort the results either by date or relevance.

When combined with one of Google's search appliances, the Desktop Search For Enterprise application can also tap in to the Internet for search results or dig deeper in a company network and provide a single page of results that pull together information from across hard drives, the intranet, and online resources.

Administrator Features

Where Desktop Search For Enterprise distinguishes itself as a corporate tool is in its administrative features,

which are designed to keep company information secure and streamline implementation and maintenance.

Unlike the consumer-based Desktop Search, which is installed by a single user for a single machine, the enterprise version is meant to be distributed and updated from a central location and configured by a Windows administrator. It can be updated with patches and new versions on the administrator's computer and then pushed to employee desktops through the network.

The application comes with a Microsoft Windows Installer package,

which includes Microsoft Group Policy settings. These settings let a systems administrator—or anyone at a company that's installing the software—put security controls in place during the indexing process. This is vital for protecting sensitive company

Advanced Search

For companies that need more advanced search capabilities and are willing to spend some money to achieve it, Google has stronger stuff with the Google Mini appliance for small and medium-sized businesses and the Google Search Appliance for large companies.

Both appliances function in a way that's similar to Google Desktop Search For Enterprise but with much more power and search functions that are specifically geared for company intranets and internal documents.

One immediately noticeable way that the appliances differ from Desktop is that they are appliances, rather than software. This means they are both pieces of hardware, each looking similar to a small pizza box, that are hooked up directly to a company's network hardware.

Because everything that's needed for searching is in this appliance, it gives a company greater capability than software, which has to be downloaded and installed on every computer or accessed from a central point on the network. With the appliance, Google searches become integrated with the network and can therefore look more deeply into its nooks and crannies to find information.

The appliances differ from each other in how much they search, and their cost. The Google Mini can search up to 100,000 documents and costs \$2,995, while the Google Search Appliance starts at \$30,000 for searching 500,000 documents and can be scaled up in cost and capability to the point of searching 15 million documents. ■

information that's at different levels. After all, making salary information that's in the network available to anyone who does a search isn't quite what many companies have in mind when they want to boost employee productivity through file searching.

User preferences can be centrally managed by Group Policy so that certain intranet pages are blocked from indexing or only secure Web pages can be accessed during a history search.

Even if there are multiple users on the same computer, which happens often with interns, part-time employees, or centrally located workstations, the settings can be tweaked according to user, not to the machine. So even if Billy the intern and Greta the accounting assistant use the same computer, she would be able to search on financial documents, but he would be blocked from seeing them as part of his search results.

Administrators are also able to create search tabs for their Desktop Search For Enterprise applications. These tabs appear at the top of a search page and include locations to search, such as Web, Images, Groups, Local, and Desktop. If an administrator notices a large number of searches that lead users to the intranet, for instance, she may want to add a search tab that relates specifically to that area of the network, so users can choose to search only the intranet, and not hard drives and chat transcripts, by first clicking that tab and then entering their search term.

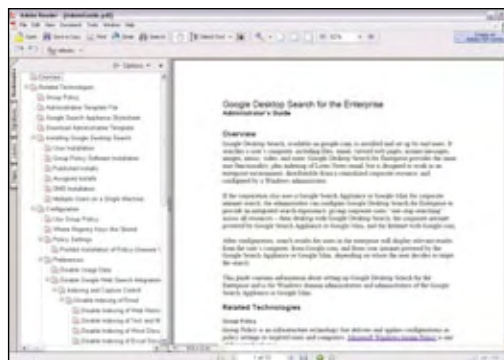
The search application can also be integrated with one of Google's search appliances (see sidebar) and provide the same level of security, but with a broader swath of search results that can access more of the network.

Support Service

Although Desktop For Enterprise is free to download, there is a premium



Google lets you know how much of the hard drive has been indexed and how many files are included in the process.



The Desktop Search For Enterprise tool comes with an extensive administrator's guide that goes into great detail on security, access, and setting information.

support package available for \$20,000 per year for an unlimited number of users. Google notes that many companies sign up for the support service so employees can get immediate help, without having to put in a request for assistance from the IT department or struggle through Google administrator documentation on their own.

With premium support, companies are guaranteed quick response from Google Desktop Search experts, as well as access to a support site specifically geared toward the enterprise edition. The support site can be useful for IT managers as well as users, since it provides in-depth technical detail that helps users tweak the software and make the most of their searches.

The premium support fee also grants membership to a robust user forum, where employees can interact

with their counterparts at other companies who are also using Google's desktop search tools.

For IT the support package is handy as well because you're notified about new Desktop Search releases, which lets the IT department test versions before deploying them companywide.

Looking Ahead

In terms of where Google is going with its Desktop Search For Enterprise, the company points to a major update to its private user software, now called Google Desktop 2, which was revamped in August.

The update is geared toward making Desktop easier to use and to make it possible for users to get information without searching. The company compares it to a personal Web assistant that learns about your habits and interests and then presents Web pages, news stories, and photos it thinks you'll be interested in.

The results come up in a small box called the Sidebar on the user's Desktop, arranged by category. For example, email alerts from personal contacts are in one section, while news headlines have their own section, and Web video clips can be accessed from another section.

The Desktop 2 refreshed features aren't yet available in the enterprise edition, but Google notes that glancing through the tweaks in Desktop 2 will give users a good idea of where the enterprise edition is headed.

As employees create more documents, their hard drives filling up with presentations, spreadsheets, emails, and company news, the ability to search through all the data will become increasingly important, making Google Desktop Search For Enterprise a valuable way to pick relevant needles out of very large haystacks. **RS**

BY ELIZABETH MILLARD

Delve Deep With Urchin

Analyze Your Web Traffic For Fun & Profit

Google's use of targeted advertising helped turn the millions of daily Google visitors into billions of dollars. If Google's omnipresence isn't proof enough of its success, consider that Microsoft's CEO, Steve Ballmer, recently said his company only needed \$29 billion in advertising and possibly "a few years" to beat Google in the search engine market. With the acquisition of the Urchin Software Corporation, Google is out to help businesses target their advertising and optimize their Web content. Whether your Web site's goal is to attract customers or provide information, Urchin can take the anonymity out of your Web site's traffic.

Before Google

Google agreed to acquire Urchin Software Corporation in March of this year, but dozens of high-profile companies were already using Urchin's Web site reporting technology, such as British Telecom, Paramount, Symantec, and NBC. Even the U.S. House of Representatives was using Urchin to gauge traffic on www.house.gov and other associated government pages. Not much has changed since Google's acquisition. Urchin still offers its Web site analysis tools as both a service that companies can subscribe to and as a downloadable software package.



Build A Better Web Site

If you've spent any time scouring the Web for specific information or a product you're not sure exists, then you've no doubt seen your share of poorly-designed Web pages that were frustrating to navigate. Web sites don't have a built-in mechanism for reporting how easy it is for users to find the information they're looking for. Rather than relying on the intuition of a Web designer or marketing professional, companies like Urchin offer Web site analytics software and services that can help a company determine the effectiveness of a Web site or advertising campaign.

Analytics software and services offer advertisers and Web site owners a detailed record and interpretation of every visitor's experience while browsing a company's Web page. The

company can use this information to improve the customer's Web browsing experience. For instance, if the Web analysis software reports that 90% of a given Web page's visitors are leaving before ever seeing a single product, then the company might consider introducing a few of the more popular products on the home page. This is just one of the many ways in which companies can make sure they get the most for their advertising dollars.

Urchin 6 On Demand

The primary goal of any company that has a retail presence on the Internet is to attract visitors to the site and convert those visitors into customers. Urchin's On Demand service, the latest version of Urchin's Web analytics offering, provides more than 80 reports encompassing e-commerce development, visitor tracking, marketing campaign results, search engine marketing, and navigational analysis. Companies can use Urchin 6 On Demand's reports to track their customers and visitors from the moment they are directed to the site (via search engines, links, banner ads, keywords, and emails) to the moment they leave.

Who's who. Urchin 6 On Demand features more than 13 visitor tracking reports that can help you learn more about your customers. The service compiles data about the behaviors of your site's visitors and then rates those visitors. The best visitors are the ones that become recurring customers. By revealing the habits of these visitors, you can tailor your site to attract more of them and ultimately increase revenue.

Urchin records and reports the visitors' click paths so that you can determine which links are the most effective and which ones don't generate a lot of traffic. You can also use Urchin's service to segment your visitors. If your

Web site asks visitors to supply data such as job title, age, or any other personal information, the software can calculate which types of visitors become your best customers. Urchin can track your visitors' activities based on their language, browser, and connection speed. These visitor tracking features can also help a company develop a marketing strategy that aims to target a specific type of Web user.

Progress report. Urchin 6 On Demand includes reports that keep track of your paid, organic (unpaid), and keyword search results. Based on your advertising budget, this feature can report on several items, such as ROI (return on investment), cost per click, and revenue per click. Since Google's acquisition, Urchin has added the ability to import pay-per-click costs directly from Google's AdWords accounts. You can also compare your results within customizable date ranges to learn how a new marketing or design strategy is working.

For many online businesses, Web sites serve as the only way that customers can access their products or services. Urchin 6 On Demand features a host of reports that can rate various elements of your site. For instance, you can determine how well your landing page (or home page) directs visitors to your products. Urchin also details the number of times a visitor reaches your landing page and then leaves without viewing any other pages. This "bounce rate" can help you find the weak links in your Web presence, so you can address the problem.

Take a spin. When you sign up for Urchin 6 On Demand, all you need to do is register a new account from the Web site and then follow the instructions to insert the UTM (Urchin Tracking Module) at the top of every HTML (Hypertext Markup Language, a kind of computer language that tells a Web browser how to display Web pages) page on your site. You simply copy the `__utm.js` file to the main directory of your Web site and then insert a line of HTML code

near the head of each of your site's pages. Once you've finished updating your pages, you're ready to view Urchin 6 On Demand's reports.

As we went to press, Urchin was offering a free 30-day trial of Urchin 6 On Demand. In May Google announced that it was slashing the On Demand pricing from \$495 per month to \$199 per month for up to 100,000 page views (viewable report screens). You can also purchase additional page views at \$99 per million.

Urchin 5 Profit Suite

Urchin offers several of its reporting tools for download as separate modules; however, the Urchin 5 Profit Suite combines three of the most popular modules and offers them for a one-time fee of \$4,995. The Urchin 5 Profit Suite consists of the Urchin Base Module, the E-Commerce Module, and the Campaign Tracking Module.

The Urchin 5 Profit Suite provides customers with more than simple "counters" that log each new IP (Internet Protocol) address (a unique computer address for a PC connected to the Internet) as it accesses your site. Urchin's Base Module reports visitor, session, and page view counts, as well

as each unique visitor, the visitor's click paths, first-time visitors, returning visitors, and frequently returning visitors, similarly to Urchin 6 On Demand.

Urchin developed the E-Commerce Module with online businesses in mind. This module analyzes your ecommerce site's revenues both by product and by quantity. You can also see what percentage of your total revenue is coming from customers referred to your site by specific search terms and domains. The E-Commerce Module lets you tailor your site to all the right markets by revealing where your customers are coming from, by country, state, and city. A few of the E-Commerce Module's reports include revenue by region, ecommerce summary, and revenue by search engines.

Any successful business knows that the best customers come from advertising that is tailored to attract specific buyers. The Campaign Tracking Module is Urchin's tool for determining the effectiveness of your marketing plan. If you use keywords, banner ads, and email campaigns to get the word out about your product or service, Urchin's Campaign Tracking Module can reveal the strategies that work, so you can eliminate those that don't. Use the software to set traffic goals and then



You can access your Urchin account from any computer connected to the Internet.

check to see how often your goals are being met. Urchin's Campaign Tracking Module can also help you identify and prevent click fraud—scams that artificially inflate the click rates of pay-per-click advertisements.

Both Urchin 6 On Demand and the Urchin 5 Profit Suite are compatible with multiple operating systems, including Windows 2000/2003/NT/XP, Mac OS X, UNIX/Linux, and Cobalt. You can also export Urchin's charts, graphs, and spreadsheets into Word, Excel, and XML documents.

A Second Opinion

Urchin isn't the only Web analytics vendor out there. Google has its fingers in a lot of pies, but for a taste of something decidedly not Google, check out these companies and their offerings.

ClickTracks. ClickTracks (www.clicktracks.com) offers its analytics software in three tiers: ClickTracks Analyzer, ClickTracks Optimizer, and ClickTracks Pro. ClickTracks mainly focuses on selling software for a one-time fee; however, you can pay \$49 a month to get ClickTracks Analyzer Hosted. Unlike Urchin, you'll need to download the ClickTracks Viewer to the computer's Desktop in order to view the hosted reports.

Similar to Urchin's offerings, ClickTracks Analyzer categorizes visitors to your site based on various factors, such as the keyword they used to find your site, the amount of time they spent on your site, and from which page they exit. Urchin's reports can show you your visitors' click paths. However, the ClickTracks Analyzer features Navigation Report movies, which let you see exactly how the visitors navigated your site. The ClickTracks Optimizer takes the features included in the Analyzer application and adds Robot Reports, integrated email tracking, extra user licenses, and the ability to track custom advertising campaigns. ClickTracks Pro includes the features of the Analyzer and Optimizer applications, but adds the Custom ROI (return on

investment) Analysis, a Campaign Manager tool, Revenue Focus reports, and also search engine reports.

You can purchase a ClickTracks Analyzer single user license for \$495, while a three-user license for ClickTracks Optimizer costs \$1,195. The ClickTracks Pro single server license starts at \$2,995.

Metasun. Metasun (www.metasun.com) is a Web analysis software package that lets you access your statistics and reports from any computer connected to the Internet. The application can track the same types of content that Urchin tracks, including Web pages, file downloads, and multimedia files. Like Urchin, Metasun's reports can help you determine which advertising campaigns, specific links, or site revisions are delivering sales, subscriptions, registrations, and return visits. Metasun also lets you categorize your visitors into user-definable demographics, which can help you get the most out of your advertising budget.

Metasun's Web site lets you download MetaTraffic Lite 2.11, which is a 30-day trial version that features support for tracking Web pages, downloads, and multimedia files, as well as MS Access, SQL Server, and MySQL database support. MetaTraffic Lite also includes secure multiple-user access to the report generator, CSV format export, print preview of reports, graphing, and full Web-based configuration. You'll need to upgrade to MetaTraffic Pro in order to get ad campaign tracking, Web site action tracking, drill down reporting, and free email support. According to the license agreement, any commercial site that chooses to use MetaTraffic Lite must register it after the 30-day trial has expired. A MetaTraffic Pro 2.1 license for




Urchin provides dozens of Marketing Optimization reports.

one Web site costs \$50, and a five Web site license costs \$125.

OneStat.com. Urchin's software takes a modular approach, so businesses can purchase the features they need. OneStat offers software based specifically on the size of the business. From www.onestat.com, you can access free trials and demos of each of OneStat's offerings.

OneStat Enterprise and Platinum are designed for medium-sized to large organizations and cost \$3,400 per year and \$1,870 per year, respectively. OneStat eBusiness, Premium, and Pro are all aimed at small to medium-sized businesses and start at \$560, \$275, \$125, respectively. OneStat AdWorks, like Urchin's products, lets you track your online advertising campaigns, sales, and visitor activity for your Web site. Both Urchin and OneStat's products deliver reports on other traffic sources, including search engines, banner advertisements, text links, email campaigns, and affiliate campaigns. OneStat offers a four-week trial of AdWorks, after which you'll have to pay \$467 per year.

OneStat differs from Urchin in that it offers some services for free. OneStat Basic is a free Web site counter that reports who and how many people visit your site, where the visitors came from, which pages they looked at, and what type of information they seem interested in. OneStat Basic also reports the times of the day, days of the week, and months of the year when your site's visitors are the most active. You can download OneStat Basic by visiting www.onestat.com/aspx/signup.aspx and clicking Sign Up Immediately. 

BY ANDREW LEIBMAN

Beyond Classified Ads

Google Ad Professionals



By the time Google (www.google.com) arrived on the Internet search landscape, major players such as Yahoo! and AltaVista had already built strong positions in the Internet search arena. More than a few people cast a ho-hum glance toward “just another search engine.” That didn’t last long, of course, as Google roared quickly to a dominant position that has thus far beautifully endured. The robust and relevant results produced in Google searches were (and are) a key factor in its success, but there is another Google element that has always played an important role.

While other search engines peppered users with advertising, ranging

from subtle to intrusive, Google refused to join the pack. From Day One, the Google interface has been a thing of simple beauty: clean and airy screens decorated only by the colorful company logo. No banners. No pop-ups. No multimedia presentations that fly in and dominate the field of view. Just a straightforward search interface that generates arguably the best results on the Internet.

Google is, however, a business that must sell something in order to survive. Enter AdWords, an advertising program that advertisers can manage themselves or have managed for them. The latter is available through the Google Advertising Professionals program, the focus of this article.

AdWords are highly targeted ads that appear based upon the keywords and phrases users search for. They’re text-only, reflecting Google’s ongoing commitment not to invade their users’ workspace with obtrusive advertising. Appearing on the top and/or right side of the search results page, the sections that display AdWords advertisements are always clearly identified as “Sponsored Links.”

As noted, these advertisements are designed to reach searchers who are more likely to have an interest in the product being advertised. A user who searches for **hair brush**, for example, will see AdWords advertisements that are relevant. Such narrow targeting results in marketing campaigns that are far more effective than the “shotgun” approach of blanketing the

Internet with ads without regard to demographics, and the advertiser only pays when someone actually clicks the ad. That’s the good news. The bad news is that creating an AdWords campaign that works in a cost effective manner isn’t always as simple as plugging in a list of keywords and hoping for the best. Sometimes help is needed, help from professionals who understand the complexities of reaching and motivating today’s more-savvy-than-ever online audience.

Pros To The Rescue

In November 2004 Google announced the inception of its Google Advertising Professionals program (www.adwords.google.com/select/ProfessionalWelcome), opening up a new world of assistance to advertisers who aren’t comfortable managing their own campaigns.

Not every advertiser needs a Google Ad Pro; many advertisers handle their own AdWords accounts. To understand the challenge, we’ll look at the process of setting up a Google AdWords campaign.

The first screen in setting up an AdWords campaign requires choosing a geographic target, which can be

anything from a certain city to multiple countries.

Moving forward, AdWords users must choose appropriate keywords. The ad will display when these keywords or phrases are a part of a user's search. This looks simple enough on its face. However, choosing the best keywords for marketing efforts involving more complex products and multiple products can be much more difficult.

The deeper we move into the process of designing a campaign, the more complex the options. AdWords is a PPC program (pay-per-click: an advertising model in which advertisers only pay when a user clicks the ad's link to their site). PPC advertising is a dynamic, rapidly changing marketplace, and the settings entered here can literally make or break a campaign. For example, two important parameters in the AdWords program are CPC and CTR. CPC stands for cost-per-click; an advertiser can specify the amount he is willing to pay for each click-through to the site, although he must pay at least 5 cents. CTR, or click-through rate, is the percentage of ad views that generate a click-through. In the AdWords model, advertisers who are willing to pay more for each click-through will receive more views and better placement on the Google search results page. So, a CPC that is set too low may not generate a sufficient CTR to be a viable campaign. Conversely, an excessive maximum CPC setting may generate a high CTR, but the higher costs may render the campaign ineffective. If a user doesn't understand this process or if a user already has a campaign up and running that isn't generating the expected results, it may be time to bring in reinforcements.

Google has done a nice job of setting up an interface that's easy to understand and easy to use, but the simplicity is, in some cases, only skin-deep,

concealing an underlying complexity. Setting the maximum CPC too high or too low can result in such a poor ROI (return on investment) that the advertising campaign isn't viable. By contrast, hitting that perfect combination of figures can dramatically increase an advertisement's response rate and the subsequent profitability of the campaign. How is this perfect combination defined? Short answer: There is no short answer. Different products require different approaches, and these



This is the interface that Google has ridden to success thus far. Its search technology is crucial, but the sparse design of this home page has also created many a loyal fan for the company.

approaches may be best understood by someone who understands the intricacies of online marketing.

Google Ad Pros fills essentially the same role as conventional advertising agents and consultants who help their clients craft effective marketing campaigns across a variety of non-Internet media. In fact, many Google Ad Pros do indeed offer complete campaign management for their clients, encompassing both online and offline media. Some are seasoned consultants, with years of experiencing directing marketing efforts. Others are relative newcomers looking to make a name as a marketing professional.

Straight From The Source

To get a better feel for the program and what these consultants have to

offer, we spoke with Andreas Ramos of Creative Consultants Group, a marketing consulting firm based in Palo Alto, Calif. When Google announced the Ad Pros program in November 2004, Ramos was one of the first hundred people to earn Google's designation of Qualified Advertising Professional, a quasi-certification. This designation requires the consultant, among other things, to pass a test that demonstrates a commanding understanding of the Google AdWords process.

According to Ramos, even though the Ad Pros program is fairly new, it's already a major part of the service package his firm offers to clients. He attributes a great part of his success as a Google Ad Pro to the fact that he has earned the "Qualified" designation.

"It's a great credential," Ramos said. "We've gotten quite a few clients because of that. On the Web anyone can claim whatever they want, and it's nearly impossible to know if someone really understands Google AdWords. With Google's certification clients know that I understand the tools."

When we asked him to tell us why a client should use a service like his as opposed to going it alone, he said, "Because PPC is extremely complex. . . . We've worked with so many companies, from one-person shops all the way to billion-dollar corps, in many markets. . . . We learned what doesn't work and what works."

Ramos also talked about the access he enjoys as a successful Ad Pro and how that access enables him to better serve his clients. For example, if an individual client running a single AdWords account encounters some difficulty with his campaign, it can take days or perhaps even weeks to resolve the situation. This is not a negative comment on Google. In a perfect world, a company's smallest customer would enjoy the same level

of service as its largest, but we don't live in a perfect world, and we surely don't operate in a perfect business world. Companies are usually forced by practicality to deal with larger customers first.

"We have high-level account reps that service only large accounts, so we can get things fixed right away," said Ramos. "We hear about tools, so we can suggest appropriate technologies to clients, and we know that the tools will work, thus preventing expensive and time-consuming experimenting."

Meritocracy In Action

In many ways the Internet has played the role of equalizer, and this program could certainly be considered an example. Advertising consultants who may not have the experience of Ramos can enter the program, work hard, and earn the "Qualified" label. The steps to the "Qualified" level are:

The scan was performed using Nessus 2.0.0 and NMAP.

This report gives details on hosts that were tested and issues that were found. Please follow the recommended steps and procedures to evaluate it.

Scan Details	
Hosts which were alive and responding during test	1
Number of security holes found	6
Number of security warnings found	18

Host List	
Host(s)	Possible Issue
191.108.232.190	Security holes found
[Return to top]	

Analysis of Host		
Address of Host	Port / Service	Issue regarding Port
191.108.232.190	smtp (25/tcp)	Security warning(s) found
191.108.232.190	http (80/tcp)	Security hole found
191.108.232.190	irc-srv (6660/tcp)	Security warning(s) found
191.108.232.190	netbios-ssn (139/tcp)	Security hole found
191.108.232.190	https (443/tcp)	Security notice found
191.108.232.190	microsoft-sql (1433/tcp)	Security notice found

AdWords advertisements appear at the top and/or right side of the Google search results page. The Sponsored Links tags distinguish the ads from standard nonpaid search results.

- Manage at least one AdWords account for 90 days.
- Spend at least \$1,000 total across all managed accounts.
- Pass the Google Advertising Professional Examination.

Achieving this status will not guarantee success as an advertising consultant, of course, but it lets a

consultant demonstrate a level of competency to potential clients.

The Process

The actual ad campaign management process is handled in Google's typically straightforward fashion. Once an advertiser and an Ad Pro reach agreement on how the account(s) will be managed, the advertiser furnishes the Ad Pro with the login credentials necessary to access the advertiser's account, if an AdWords account already exists for that advertiser. If an advertiser is brand new to the AdWords program, he or she may want the Ad Pro to handle everything, including initial setup of the account.

The Ad Pro can link all his advertiser clients under a single master username, which lets the Ad Pro log in once and have access to the accounts for all his clients. Each client also retains access to his individual accounts through his own original login credentials.

Using this linked set of client accounts, the Ad Pro can move easily between clients, configuring every aspect of the various AdWords campaigns, from defining keywords, to setting up the ideal CPC parameters, to reports that gauge the performance of each campaign across a broad array of metrics.

Money Matters

Ad Pros offer different rates and different ways of calculating those rates. Some work by the hour. Some, like Ramos, work on a percentage of the amount of advertising bought. The key thing to remember is that Google has no position in this element. All such agreements are negotiated completely between an Ad Pro and his clients. Google makes no recommendations and offers no standards as to what the Ad Pros should charge. The advertiser should

always do his homework before entering into a contract with an Ad Pro, and certainly before paying an Ad Pro. For example, can the Ad Pro provide past clients as references? If the Ad Pro is new, are they offering something else that increases the value of her services, such as introductory rates? In any event, the advertiser needs to clearly understand what he's paying for.

Google sells its own AdWords product, and payment for the ads takes place directly between the advertiser and Google. But Google does not serve in a collection capacity at all for Ad Pros. It will be incumbent upon each Ad Pro to set up a mechanism to receive payment from their clients.

Bottom Line

Marketing, whether through AdWords or any other media, is an essential component of any business. An exciting aspect of PPC advertising through providers such as Google is the fact that it is so flexible, pliant enough that almost any size business can partake. Google, Yahoo!, and other 21st-century media outlets offer a way for the tiniest business to target their ideal customers, and to do so on a national, or even global, level. The Ad Pros program extends this access by letting advertisers enlist help in crafting more effective online marketing campaigns.

"For nearly every client," Ramos says, "Google AdWords produces better results than other PPC services. But we've found that for a few clients, Yahoo! PPC works better. The only way to know is to test both services and go with the one that works better."

For many businesses, the Google Ad Professionals program can enhance their online opportunities. And as is often the case, those opportunities run in both directions. Advertising consultants may find that the program offers a perfect opportunity for them to expand an existing business or to create a new one from scratch. **RS**

BY JERRY HATCHETT

Google Hacking

How Hackers Use Google To Invade Web Sites



Everyone knows that Google can find practically anything on the Internet. Google can help you find the best Caribbean restaurants in your neighborhood or Web sites that sell antique car accessories, but in the skilled hands of a hacker, Google can also find Web sites that contain easily exploitable flaws, sensitive files that system administrators may not want revealed to the public, and even password and account information to all users on a particular system. Google can not only search the Internet, but it can also pry it apart.

Casing A Web Site

The key to breaking into any computer is to learn what type of software a target computer runs. It's possible to obtain this information by connecting directly to a target computer and running one of many hacker programs that probe a computer's perimeter, much like a burglar

peeking through the windows of a house that he plans to break into. It may work, but connecting directly to a computer risks alerting a target computer that it's being cased and also leaves a potential trail that could lead back to the hacker.

So rather than take this risk, hackers simply let Google find this information for them. Not only does this keep the hacker's identity hidden, but it also prevents the target from knowing it's being probed by a hacker.

The key to finding out the type of software running on a Web site is to examine its directory listing, which reveals both the way the Web site organizes its files and the name of the Web server software running that particular Web site.

To search for Web sites that run specific Web server programs, search for the name of the software you want to find, such as Microsoft IIS 5.0 or Red Hat Server 3.0 using the following query:

`intitle:index.of (Software name)`

- `intitle`—searches for Web pages that contain a particular word in its title
- `index.of`—searches for the directory listing of a Web site, which often has the title “Index of” near the top of the page
- `(Software name)`—searches for a particular Web server program name, such as Microsoft IIS 6.0 or Apache 2.2

Search Specific Web Sites

Another powerful Google searching tool is the `site` operator, which narrows your search to a specific Web site domain (the name of a Web site, such as `www.smartcomputing.com`) such as:

`site:Domain name (Search term)`

- `site`—searches for Web pages stored on specific domain sites
- `Domain name`—searches Web sites that belong to a specific domain such as `.edu` or `army.mil`
- `(Search term)`—searches a domain for a specific word or phrase

While this can be useful to find information on specific types of Web sites, such as looking for information about “terrorism” on all `.gov` Web site domains, the real power of the `site` operator appears when combined with the `intitle` operator. The combination of the `intitle` and `site` operators can search certain Web site domains running specific Web server programs.

So, if you know how to break into an Apache Web server and you want to know which U.S. Army Web sites might be running the Apache Web server, you could use the following query, which would display a listing as shown in Figure 1:

`site:army.mil intitle:index.of apache`

Once you know which of your targeted Web sites run specific versions of a Web server program (such as Apache 1.3), use Google once more to search for **Apache vulnerabilities** or a similar string to view information

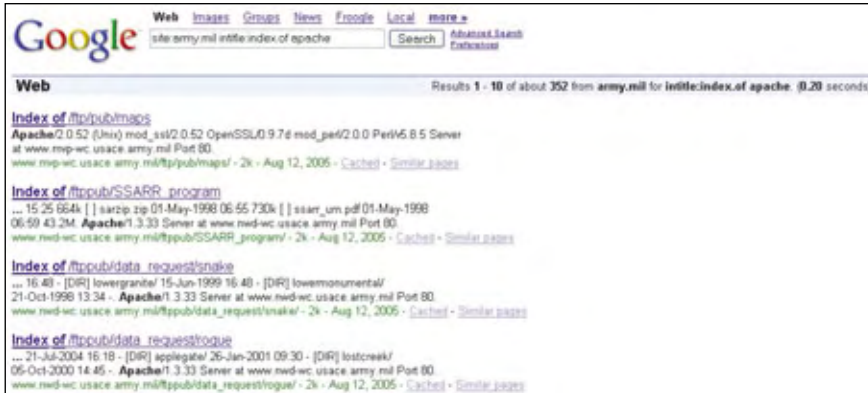


Figure 1: By using the **intitle** and **site** keywords, you can determine if a certain Web site runs a particular Web server program.

about known flaws in that particular Web server program. Rather than use Google to search for software flaws, you can also browse through computer security sites, such as Packetstormsecurity.org and CERT.org, that list the latest software vulnerabilities found in Web servers.

Such security bulletins are meant to alert system administrators to flaws that they should patch immediately. However, many system administrators either never see these bulletins or don't implement them right away. As a result, many hackers use security bulletins to find vulnerable Web sites.

For example, suppose you find a security bulletin that identifies a flaw in Apache and recommends that users upgrade to Apache version 1.3.27. Armed with this information, you just have to search for any Web site running an earlier version of Apache. Once you find a Web site running a pre-1.3.27 version of Apache, you'll know that this Web site is likely vulnerable to the specific security flaw described in the security bulletin. In many cases, security bulletins can be just as helpful to hackers as they are to system administrators.

Probing A Web Site's Defenses

Naturally, security is a major concern for Web masters, so it's likely that a particular Web site will defend itself against hackers in some way.

At the simplest level, system administrators may run a security scanner on their own sites to probe for holes. When a security scanner probes a system, it often creates a report for the system administrators to study. Naturally, many system administrators never delete these security scanner reports, so you can use Google to look for these files using the **intitle** operator. Once you know the heading that a security scanner always stores on its reports, you can use Google to search for those particular files.

For example, one popular security scanner is Nessus (www.nessus.org), which you can search for using the following query:

intitle:"Scanner header"

To look for Nessus security scanner reports, the Scanner header is "Nessus Scan Report" such as shown in Figure 2:

intitle:"Nessus Scan Report" "This file was generated by Nessus"

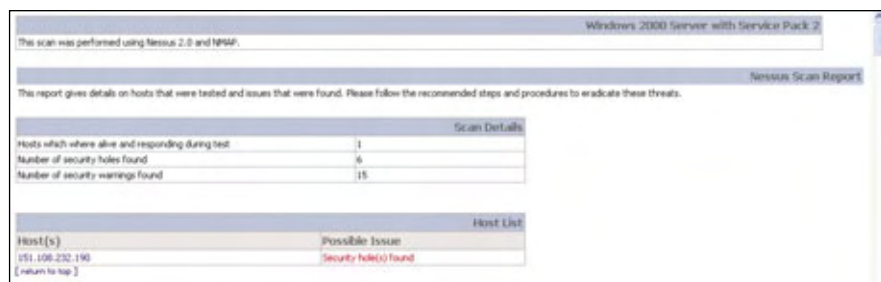


Figure 2: By searching for a security scanner report, you can learn what holes might still be open on a particular Web server.

Even if any vulnerabilities reported by a security scanner report have been closed, a security scanner report can help hackers understand the defenses of a target computer better. Because security scanners can't detect every possible exploit, they can even give lazy system administrators a false sense of security. If a knowledgeable hacker knows of a security flaw that a scanner didn't detect, the system administrator probably didn't detect that flaw either, so there's a good chance that the flaw can be exploited.

Besides security scanners, many system administrators rely on intrusion detection systems, such as the popular Snort (www.snort.org). To create reports, Snort users often can run a program called SnortSnarf.

Once again, if system administrators don't delete the SnortSnarf files from their systems, Google can help hackers find them by simply searching for "SnortSnarf alert page." Not only can this alert hackers that a particular Web site is running an intrusion detection system, but the SnortSnarf report can also show the types of attacks that other hackers have tried (and presumably failed) as shown in Figure 3.

Combine the "SnortSnarf alert page" query with the **site** operator, and you can search for which types of Web domains are running the Snort intrusion detection program, such as:

site:edu snortsnarf alert page

The above query tells Google to search for all educational Web sites (.edu) that have used the SnortSnarf program to create a report.

Finding & Copying Files

Sometimes hackers don't even need to break into a computer to find what they want. Many system administrators store user account information (such as names and passwords) in special database files. Naturally, these database files aren't accessible through normal Web pages, but such a file isn't invisible to Google's prying eyes.

Lazy system administrators often use the default settings when setting up their Web server's software. Hackers know these default settings, as well, which can tell a hacker the specific name of a file that contains user account information and where it's usually stored.

To find a specific file, you need to know the filename and then use Google's `allinurl` search operator to find it. Once hackers download these account or password files to their own computers, they can happily try to crack them open, all within the safety and comfort of their own PCs. Once hackers find the user accounts and passwords they need, they can return to a target computer, armed with this information, and slip right in as a "legitimate" user.

Sometimes hackers may not know the exact filename they want to find, but they do know the extension of the file they're looking for, such as a Word document (.DOC file extension) or an Excel spreadsheet (.XLS file extension). To search for specific file types, hackers can use the `filetype` Google search operator. So if you wanted to find all Microsoft Word documents that contain the phrase "for internal use only," you could use this query:

`filetype:doc "for internal use only"`

Combine the `filetype` operator with the `site` operator, and you can search for all Microsoft Word documents



Figure 3: Viewing the report files of a Web site can tell you in advance what types of attacks a Web site is already protected against.

that contain "for internal use only" on military Web sites running Apache Web servers, with known flaws in versions 1.3, and . . . can you see how dangerous Google hacking can be in the wrong hands?

Guarding Against Google Hackers

If you're a system administrator who wants to defend against Google hackers, keep any sensitive files off your Web server. Just because a file can't be accessed through your site's Web pages doesn't mean that a hacker can't find that file anyway. Don't think you'll be safe even if you just store a sensitive file on a Web site temporarily.

Search engines, such as Google, constantly troll Web sites and store the files they find in temporary storage called the cache. Once your Web site's files are stored in Google's cache, anyone can view those files by using the `cache` operator. For example, if you want to view Web pages previously displayed on a Web site, just use the `cache` operator followed by the Web site address, such as:

`cache:cnn.com`

The above Google query will show you the previously seen Web pages

stored on the CNN.com site. These pages will remain in Google's cache until the next time Google refreshes its cache by visiting CNN.com.

Google, like most search engines that regularly "crawl" the Internet to find Web sites to index, follows certain rules when visiting Web sites. One of those rules is that Web site administrators can create a special robots.txt file, which defines which parts of your Web site you don't want the search engine to explore and store in its cache. So if there are sensitive files that you don't want others to see, you can create a robots.txt file to tell

Google not to search for them. (Of course, it's much safer not to put sensitive files on the Web server computer in the first place.) To learn more about how the robots.txt file works, visit www.robotstxt.org.

For another alternative, you can request that Google ignore your Web site altogether. While this can eliminate hackers from scanning your site, it also keeps legitimate users from finding it, too. To request that Google remove your site from its index, follow the steps listed at www.google.com/remove.html, which provides instructions for removing some or all of your Web site from Google's prying eyes.

Finally, use Google to hack your own Web site and see what potential hackers might find. By visiting the GHDB (Google Hacking Database; johnny.ihackstuff.com), you can see how Google has exposed other Web sites, so you can (hopefully) learn not to fall victim to the same tricks.

Every tool on the Internet can be used for good and bad, and Google is no exception. If you run a Web site, you must learn about Google hacking to lock down your system's defenses. **RS**

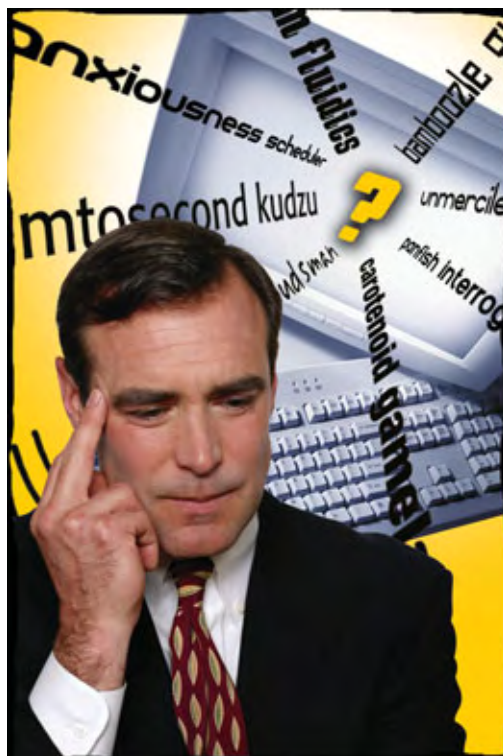
BY WALLACE WANG

Agog About Googlewhacking

A New Google Lexicon

It's a dark and stormy night in Denver, Colo., and Johnny Uhlenbrock is hunched over a keyboard in a dusky room. A candle sputters and dies on the table beside him, but J. doesn't see it. He's staring at a computer screen with bloodshot eyes. His cracked lips mouth bizarre incantations: "wejack goggles . . . antediluvian herpetology . . . Longfellow radish." The wind outside and the soft whisper of fingers on keys are the only sounds in the room, until suddenly: "Dysacusis Cabbage! Got it!" Johnny leans back in his chair with a satisfied smirk.

A Satanic spelling bee? Not exactly. Johnny's just Googlewhacking again. Googlewhacking—a clever term for a mostly innocent pastime—is the art of finding two words which, entered into Google's search engine absent any quotation marks, return exactly one result. Why would anyone want to spend time this way? If you have to ask, you'll never know. Says Johnny, "I used to spend all summer at the country club laying out at the pool, polishing my tan, and beating off babes with a stick. Now that I'm inside all day, my skin is safe from the sun's damaging UV rays, and I'm improving my vocabulary to boot." The sport, he acknowledges, is a tad addictive. "Some days I'm so intent on Googlewhacking I don't leave my chair at all. Nothing



gets me up—well, I still walk the dog, of course."

Let Johnny's passion for the sport be a warning to you. At one time, Johnny believed he'd be immune to the siren's call of Googlewhacking's brand of sheer, unmitigated lexicographical tomfoolery (41 hits). After all, he'd never really done any etymological skylarking (78) and never been interested in logographic shenanigans (11 hits). But Johnny and others quickly found their feeble defenses overcome by this powerful procrastination innovation (42,000 hits—whoops). Take our advice: Don't try it at work (unless you're a journalist

doing research for a piece, of course). It will certainly cost you the rest of the afternoon and quite possibly your job.

The History

Historians agree that all pointless human endeavor, from the Space Shuttle to tribal warfare, was first conceived by a guy either 1) trying to get out of some kind of writing assignment or 2) dateless and alone on a Friday evening. Most scholars attribute Googlewhacking to category one, though history has lost track of the very first person to throw two oddball words into a search engine and look for a single result. We can reasonably date the phenomenon to sometime in the neighborhood of Tue, 08 Jan 2002 22:37:34 GMT, when an ex-cryptography expert from the National Security Agency named Gary Stock (now of Nexcerpt) first coined the famous phrase after hearing about the challenge from an Internet buddy. The name was inspired, says Gary, by the notion of "bushwhacking" around a search engine, or perhaps "whacking away" at results until a single one is left.

Such a deadly combination of insipid amusement and catchy moniker was bound to spread like wildfire. In the years since that fateful day, Gary has been honored by Google with a signature on a huge banner adorning the wall at the Googleplex, lionized in news stories across the nation, blessed with tremendous personal whacking success ("I can always find a whack in less than a minute," he claims), and besieged by hordes of aspiring whackers eager to drink from his fount of wisdom. All the while, Gary has faithfully collected and certified true whacks in his online Whack Stack at www.googlewhack.com, which in July 2005 celebrated its 500,000th official whack to great fanfare. Gary acknowledges his role as teacher and guide in the early stages of the movement but refuses to hog all the credit, noting that "Many people—myself included—have done such searches for years. It's a natural thing for

curious people to do.” We should point out that Gary is also credited with a little game he calls “unblinking” (see www.unblinking.com), in which the object is to click through a convoluted chain of hyperlinks until you reach a page with no links on it at all—the edge of the Internet. Between unblinking and googlewhacking, it seems clear that Gary’s ideas are responsible for billions of dollars of lost American productivity and that he should probably be prosecuted by the SEC, or at least required to teach Googlewhacking to the Chinese so that we can catch up.

Google’s official reaction to Googlewhacking has mostly consisted of inviting Gary to lunch. In fact, Google recognizes that the relationship is symbiotic: The whackers get the have their fun, and Google finds out sooner about bugs in its search engine software. It was whackers who called attention, for instance, to the famous “girl cleaner” glitch of October 2003—where for a few tense hours the phrase “girl cleaner” was a googlewhack, and the other 499,999 or so Web pages that actually contain both words were mysteriously absent from the list of results. Whackers also played a crucial role in pointing out the “Essless” crisis of February to March 2005, when for a solid week Google refused to link to Answers.com any word ending in the letter “s.”

If the venerable Gary Stock is Googlewhacking’s King Arthur, then British comedian Dave “Bamboozled Panfish” Gorman is its Lancelot. Gorman, already of some renown for his comic book recounting a globetrotting pursuit of 54 guys named Dave Gorman, married his wanderlust with a passing Google-whacking interest by tracking down large numbers of whacks (a Googlewhack, noun, refers to both a successful word pair and the proprietor of a Web site returned by a successful word pair) across three continents. His odyssey is now packaged as both a charming book (“Dave Gorman’s Google-whack Adventure”)

and an award-winning one-man stage show in the United States and Europe. Between the book and the stage act, Gorman has done more than any other man to publicize the googlewhacking phenomenon, and as such belongs right up there with Gary Stock on the SEC’s Most Wanted list. Talk to Gorman, and he’ll probably protest that he’s neither hero nor villain, that he stumbled into a Googlewhack adventure quite by accident, that in fact he “doesn’t love Googlewhacking and never did.” But volition aside, Gorman is clearly Googlewhacking’s greatest prophet. The pointless meandering that Googlewhacking inspires, says Gorman, “. . . is what the Internet is really for. I love quirky home pages. I love boring home pages. I love the Internet, and the smaller it makes the world seem, the more I love it.”

These are two of Googlewhacking’s greats, but the real force behind Googlewhacking is a cast of thousands of uncelebrated, unwashed small-time Googlewhackers all across America. You can find them in shantytowns or skyscrapers, in bus stations or bungalows—anywhere modems ring, Googlewhackers are there. You say you want to join their teeming horde? Read on . . .

The Rules

Many folks have different spins on the game, but the standard set of rules is Gary’s at www.googlewhack.com.

Rule 1: No quote marks allowed. (Quote marks around your query will return an exact phrase and thus shrink your results list dramatically.)

Rule 2: The two words must appear in the Answers.com dictionary. If they are, they’ll be underlined in blue (hyperlinked) on the right side of the search bar when you perform your search. (These underlines used to link to dictionary.com, so the rules have been modified to accommodate this change.)



“Bamboozled panfish,” an alleged historical whack, has been corrupted by excessive publicity. More importantly, the absence of “panfish” from Answers.com (no blue underline) disqualifies this whack.

Rule 3: Google must return “Results 1-1 of about X”, where X can be as large as you want. (This phenomenon occurs when multiple subpages on the same site duplicate the same information.) There is some debate on this point, as you might expect, with the ultra-orthodox camp eschewing any whack but the most pure—that is, a “Results 1-1 of 1” hit—but for beginners, at least, multiple subpages are okay.

Rule 4: A Googlewhack that returns a wordlist doesn’t count. In bygone times Google only indexed the top 101KB of data for any given Web page, cutting off most of any wordlists that were floating around. When that cap was removed, rants against “wordlist contamination” became a staple of both Googlewhacking forums and Gary’s inbox. Says Gary, “regular whackers come to know (and hate) specific wordlists, giving them nicknames and frequent curses.” Hopefully, as wordlists are considered a nuisance by the wider search engine community, Google may take steps to address the problem.

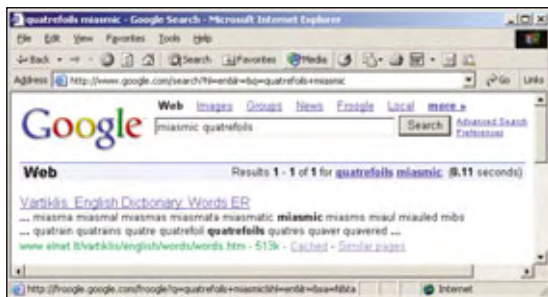
Rule 5: No corking the bat by writing computer programs or scripts to come up with wacky word pairs. You may, however, haul out your

dictionary and run your fingers down the page. David Harris—physicist, Googlewhack, Googlewhacker, and best supporting actor in “Dave Gorman’s Googlewhack Adventure”—endorses the use of such props, especially for the novice. “Given the way your brain makes connections, it’s very hard to come up with two words that aren’t related in some way,” he says. “You’ll have a lot more success with truly random word pairs.”

Rule 6: Respect the googlewhacks of others by not listing them on your Web site, which will almost immediately render them obsolete. Fortunately, there is a way around this publicity paradox: Because the Whack Stack at www.googlewhacking.com is not spidered by Google, you can post your success there safely.

Rule 7: No cursing. Because the Whack Stack is frequently visited by preteens, and even appears in some middle-school curriculums, Gary keeps it clean.

Rule 8: Keep score if you feel you really must. The easiest and most accepted scoring system is this one: Type each of your winning words into Google separately and record the number of hits, then multiply them together. The highest number wins. Critics rightly contend that this scoring system fails to take into account a number of important subjective factors such as elegance, syntactic and semantic sensibility, poetic merit, etc. Nevertheless, it will give you some rough estimate as to the intrinsic value of your whack.



“Miasmatic quatrefoils”—a bona fide Googlewhack. (Proudly contributed by the author.)

Advanced Play

If you’re ready to graduate to advanced whacking school, tickle your vocabulary bone with some real brain-teasers. (Remember, we’re not responsible for any lost wages.) Try for instance, the Batman Whack (sounds like something Robin would have said on the original Batman television show) or the Whack Whack (a Googlewhack in which one half of the word pair is “Googlewhack”—technically against the rules, as “Googlewhack” is not a dictionary word—but fun nevertheless). The Alliterative Whack is also tough; because two words beginning with the same letter are likely to be found together in a one-letter-per-page wordlist, your alliterative ambitions will be frequently stymied. Or try the Themed Whack: word pairs in keeping with a particular theme of your choice. Gary Stock has an exceptional collection of Enron-themed whacks. For example, consider the now-defunct “Squirreling Dervishes” and ask yourself the question, “How did an SEC spokesman privately describe Enron executives who had busily packed away their ill-gotten gains?”

The Rhyming Whack is a rare gem but well worth the effort. Bask in “whangdoodle strudel” and “intergalactic osteoblastic.” If you have a whole week-end to kill, try the Chain Whack: a chain of googlewhacks, a la A+B, B+C, C+D, etc. (Gary claims to have seen a 13-link chain.) Perhaps you’d like the Nonsense Whack: a


Googlewhack composed of gibberish—again, technically disallowed, but fun. Whacker James MacDougall, who suggests this challenge, recalls being befuddled when many of his nonsense words (including hanatsim, gloost, gharg, blimter, and spanunk) turned out to be very sensible words in other

languages. Finally, for the inspired masochist, we offer: the Palindromic Whack, which reads the same backwards as forwards. Yikes.

The Future

There’s never been a better time than now to take up the sport. In fact, it’s possible that the Net is running out of Googlewhacks, as Google indexes billions more pages every year. David Harris reasons that there are still plenty left, but he confesses that he’s somewhat stymied as to how to prove it analytically. (The best way, he says, would be to write some software to measure the success rates of sets of randomly generated word pairs over time.) “Most of the new Web sites going up are blogs, and many blogs tend to copy lots of text from other sites; this would have the effect of eliminating Googlewhacks. On the other hand, many blogs are quite eclectic and might add more Googlewhacks.” He pauses. “Clearly I need to think about this some more.”

No Matter

The mathematics mean little to aficionados such as Johnny Uhlenbrock. He’s haunted, he whispers, by the fear that somewhere in the cyber-ether the world’s greatest whack is waiting—the mother of all whacks, a whack so pure and powerful that the mere whisper of its name will bring down Google itself—and that some-one else might find it first. Those elusive magic words are what Gary Stock calls “The One True Whack,” and many of the true believers search for it long into the night, even if they won’t admit what they’re doing. Until Johnny finds his whack, his neighbors will just have to put up with his shrieks and moans. “Sweet phytoestrogen candelabras!” 

BY RYAN TURNER

Beware The Jabberwock, My Son

Google Talk Is The New “Mad Libs”



Smart Computing makes frequent use of the Internet and World Wide Web Conference Committee IW3 C.

Say again?

Smart Computing helps users of all ages by R/ E.

OK, then. You’ve already seen Google’s useful side and have an inkling of its vast, vast potential. But now it’s time to play.

Google Talk (douweosinga.com/projects/googletalk/googletalkframe) is a silly random sentence generator invented by Nederlander Douwe Osinga (not to be confused with Google’s new instant messaging program, also called

Google Talk). It taps Google’s awesome power not for good, not for evil, but just for fun.

Automated Gobbledygook

Google Talk, the non-Google-affiliated Web site, is basically a new twist on old games such as Mad Libs and Telephone. But Google Talk is in a new class of word game, powered by the Internet itself.

To Google Talk at the Web page listed above, you type a short phrase of three or four words into the Enter Your Words field, such as:

Rounding third base in

After Google searches for the phrase, the Google Talk code will choose the most common word that follows that phrase on the Web pages in the list of results. Next, Google Talk adds that word to the end of the phrase. In this case, the word is “the”:

Rounding third base in the

Next, the code will submit a new phrase to Google, dropping off the first word you typed but including the most recent word:

third base in the

From the results of this new search, Google Talk grabs yet another word. It adds it to the end of the growing sentence, and then submits a new phrase to Google minus the first two words:

base in the Middle

On our test PC, the process continued to build a nonsense sentence until it reached a time or word limit—we couldn’t really tell which—whereupon Google Talk cleared the sentence from the field. Experimentation taught us that clicking Back and then Forward in our browser sometimes helped us find our sentences again, but not always.

Rounding third base in the Middle East and North Africa. Region has been a while since I ve been to the Mountaintop Martin Luther King Jr. was born on July in the Big bang . . .

You can also click Stop to end the current sentence construction. However, Stop makes your sentence disappear. Again, the Back and Forward buttons might help.

On occasion, Google Talk stopped a sentence on its own without erasing it. Perhaps it couldn’t find any pages that had all of the final three words as a phrase. Here’s an example, based on “Just wanna hear”:

Just wanna hear you say! that you Love Me I ma liberal. I m Male,

Google Talk’s code seems to be sophisticated enough to choose the

Looking for popcorn machine on the Internet www. and e- mail Directories for each of the states present the Seventeenth Day of the Dead, in the water industry is a major turn- on?

right type of word, such as an article or noun, most of the time. This is an illusion, Osinga says, but Google Talk is nevertheless better at constructing sentences that make a little sense than a truly random word generator would be.

Sometimes Google Talk gets stuck repeating the same phrase or word in an endless loop, such as:

Smart Computing offers help did did did did . . .

At other times, it may veer off into another language:

But i won't call you over to the judge, and the Assassin The Jing ke ci qin wang . . .

At this writing, it's difficult to Copy a Google Talk sentence to Paste elsewhere. The script continues to add new words to the sentence until it resets, so it tends to deselect the text you've highlighted with your mouse pointer every time a new word appears. If you're quick, however, you can press CTRL-A to select all the text in the Google Talk box and CTRL-C to copy it. Paste the text into a word processor or text editor with CTRL-V, and then trim off everything but your Google Talk sentence.

A funny thing about Google Talk is that its results change over time. Because Google, the search engine, is

continuously revising its page rankings and revisiting sites around the globe, you can often get different sentences by typing in the same phrase.

Blue-gle Talk

Osinga provides HTML code at douweosinga.com/projects/googletalk that lets Web developers add Google Talk fields to their own sites. Watch out, though, as there may be offensive language further down the page in the visitor submissions section.

On a similar note, because Google's search database spans a good chunk of the Internet, Google Talk can sometimes return inappropriate words or phrases. Occasionally, an innocuous phrase you type in to start a Google Talk might unearth some nasty language before the sentence is done. If you're easily offended, Google Talking may not be for you.

So, until next time, remember:

Smart Computing helps users of the Internet s Future. is In Your hand for a hand held computer and a modem to a telephone line?

BY MARTY SEMS

In The Beginning Was The Random Word

Thirty-seven-year-old Douwe Osinga is a friendly, affable sort of chap. He works in Google's European Engineering office in Zurich, Switzerland, and has a fascination with artificial intelligence simulations.

He's also the inventor of one of the simplest, most surprising time-wasters ever to cut into an office's productivity: Google Talk.

"I had decided to work four days a week and spend the last day on random projects—see the other stuff on my Web site (douweosinga.com)," he says. "This was one of them."

"I had been playing with things like this for a long time, but mostly on a per-letter basis," Osinga says. "Having a large enough corpus to autogenerate actual sentences seemed always impossible, but then it hit me that you can just use Google to do the trick."

Osinga programmed Google Talk in Python using the Google API. The script's uncanny ability to construct a sentence makes users think Osinga spent weeks teaching Google Talk to choose proper parts of speech, such as nouns or verbs.

"It doesn't," Osinga confesses. "It just looks at the last four words of the sentence being generated and uses Google to guess what the most common next word is. I.e., it just does a Google search on those last words in double quotes and skims through the snippets looking for the four words and notes what follows those."

There's no real point to Google Talk, unless it's the joy of whiling away an afternoon emailing friends with the gibberish of the Web. But Osinga is sanguine. "I hope to think that some of the more



weird results of Google Talk can be inspiring and fire up creativity," he says. **I**

Search Engine Silliness

Googlefight & Guess-The-Google Kill Hours Dead



Google is much more than a search engine. It's a social phenomenon, and as such, Google has millions of devotees, some of whom pour their affection for this site into sites of their own.

Some of these knockoff Web sites even use Google to power their capabilities. Googlefight (www.googlefight.com) and Guess-The-Google (grant.robinson.name/projects/guess-the-google) are two fun Google offshoots as habit-forming as the search engine that spawned them.

Ring The Bell

Our world has been a stage for epic battles in every era and in every facet

of human life. David vs. Goliath. The Axis against the Allies. The Jets' Broadway Joe vs. the Colts' Johnny Unitas in Super Bowl III. A mob of angry, rabid squirrels facing off against Tiger Woods. Mike Tyson vs. a fern—and the fern wins!

OK, some of these battles haven't actually happened. Not yet, anyway. But online, these kinds of matchups rage continuously thanks to the Googlefight, where cyber-fighting is a way of life.

Googlefight is a simple brawl of words. Load this Web site and you'll see two text boxes, one that reads Keyword #1 and the other, Keyword #2. Enter any keywords you'd like into these text boxes, click Make A Fight,

and you'll see two stick figures punching and kicking each other in a flurry of pale stick limbs.

When the dust settles a moment later, you'll see a bar graph with two rising bars, one for each keyword string you typed, along with a number that indicates how many instances of your string Google found on the Web. The more common keyword combo, obviously, wins. The Beatles returned 3.8 million results; The Rolling Stones came back with only 1.6 million.

Googlefight has minimal system requirements. All you need is an Internet connection and a free copy of Macromedia Flash (www.macromedia.com), which lets you see the animated fighting in all its stick-figure glory. You also need your imagination. Cheeseburgers vs. hamburgers. Teddy bears vs. Godzilla.

If you need help conjuring a few ideas to make Googlefight more fun, look no farther than the left side of the screen. Here, you'll find links to The Classics, Funny Fights, Fight Of The Month, and The Last 20 Fights. The Classics includes fights such as Luke Skywalker vs. Darth Vader and Bill Gates vs. Linus Torvalds. In Funny Fights, you'll see Me vs. Myself and headache vs. aspirin. You get the idea.

Googlefight fun. Googlefight is endless fun because every fight idea leads to new ones. In other words, don't start a Googlefight session at work unless you're prepared to lose hours of productivity.

But because you likely *are* at work, why not start with some obvious fights? Pit your name against your boss', co-worker vs. co-worker. Start an office civil war.

Googlefight does have useful purposes, too. For example, if you want to use a figure of speech but you're not exactly sure about it, you can use Googlefight to double check the expression. So, if you're not sure if it's "feed a fever and starve a cold," or "feed a cold and starve a fever," you can use Googlefight to find out which one appears most often on the Web.

Keep in mind that there are a couple of ways to conduct a Googlefight, and only one of them makes the fight fair. You should put quotation marks around your keywords so that Google returns only exact matches instead of those that have various incarnations of your keyword combinations. So “Hunter S. Thompson” will kick back only those results that have this exact combination of words, instead of those with the individual words hunter or Thompson that have nothing to do with the journalist.

Guess-The-Google

Googlefight is all about word fights, but another programmer found Google’s image search capabilities more intriguing. That’s where Guess-The-Google comes in. This game site is the brainchild of Grant Robinson, a Web developer from New Zealand.

Unlike Googlefight, Guess-The-Google doesn’t let you call the shots with your own keywords. Instead, it shows you results, and your job is to guess the keyword that conjured those results. The results you see aren’t words. Instead, Guess-The-Google shows you a grid of 20 images. You might see, for instance, many images of colorful winged insects. You might guess that the keyword “butterfly” generated these results.

If you’re right, you score points. You get bonus points for guessing the correct answer quickly, too. But beware, because you have only 20 seconds to find the right word. The good news is that you can guess as many times as you want during that time period.

Like Googlefight, Guess-The-Google requires Macromedia Flash to run its glossy graphical elements. When you’re ready, load the game

and you’ll see three sections, including buttons that let you start the game and view instructions, as well as a list of the day’s top scores.

Fire it up. When the game starts you’ll frantically begin typing your guesses. On the bottom-right portion



Enter two keywords and start a Googlefight. You’ll see stick figures battling it out on your computer screen for keyword supremacy.

of the screen, you’ll see a list of the words you’ve used so you don’t accidentally type them again.

An information bar graces the bottom of the game. Here, you can see your overall score, and you can see how far you’ve progressed through your round of 10 grids. If you can’t figure out what the keyword is for a grid—and odds are you’ll hit a toughie—Guess-The-Google won’t give you the answer. Rather it teases you by offering just the first letter of the keyword. Once you finish the last grid, the game ends.

After you play each round, the site updates your score and lets you click Pause if you need a breather (or if you need to make it seem as if you’re actually working for a few minutes). At the end of your round, the game shows the total time you needed to complete each grid, the average time to complete each grid, total guesses made, the average number of guesses you typed, and of course, your final score.

You can also type your name and submit your score to the site. If you

did exceptionally well, your name will appear on the list of high scores for the day.

Robinson said he was inspired to create the game partly because he loves Google’s Image Search, which he uses a lot in his job as a Web designer. Two of Robinson’s friends suggested the idea for the game, and he said he’s glad he followed through on the concept.

A lot of people play Guess-The-Google every day. “It varies, but it can be up to 10,000 people a day. It’s leveled off a bit, which is just as well,” said Robinson. “I no longer get angry emails from my hosting company.”

You can count Robinson as one of the game’s devotees. “I can get the top score easily, as I know all the answers,” he said.

“But the fun thing is that it is always changing as Google updates, so if I don’t play for a week or two it gets harder for me again.”

Robinson might not have much time to play, though, because he’s planning a two-player version of the game that he hopes to release by the end of 2005. He wants to call the game Guess-The-Google Challenge, and players will create their own list of keywords to send to a friend.


Endless Silliness

It’s a credit to Google’s popularity that so many people create and use fun sites such as Googlefight and Guess-The-Google. If Google continues to dominate the search engine scene, you’ll see more and more fun Google-powered sites appear, all the better for whiling away those long hours. **RS**

BY NATHAN CHANDLER

Logos Make The Man

When You're Desperate To Demonstrate
How Hip You Are

If you're in the market for Google-branded merchandise, your search is over; visit the Google Store (www.googlestore.com) and select either the North/South America button or the Africa, Antarctica, Asia/Pacific, Australia, Europe button. There's no sales tax unless you live in Missouri, and, at press time, Google offered free shipping on anything going UPS Ground in the continental United States. You'll probably want to read the Warranty>Returns area on the site before you buy anything, and according to Megan Quinn of Google, "Everything on the store is subject to change without notice, including offerings, prices, availability, etc." So, caveat emptor. 

BY KATHRYN DOLAN



Fun Stuff

← Goo • Item #G00096 • \$14.50



This blue Google goo is similar to the once-popular green Gak (remember that stuff?), and it comes in a handy little tin for easy storage. You're supposed to ball it up and squeeze it for a bit of stress relief, but lobbing it into the back of an annoying co-worker's head won't hurt a thing: It's nontoxic and doesn't stain.

Light-Up Pen • Item #G00063 • \$5.95 →

Clicking this button-cell-battery-operated pen lights up your life—or at least the pen's barrel, so you can see what you're writing on a dark and stormy night. Shed light on your prose or poetry with one of seven colored lights: red, blue, green, orange, purple, aqua, and pink. Click your pen an eighth time to cycle through all of the colors.



Get Fit



Bib Bike Shorts • Item #G00118 • \$76.25

Hincapie (yes, the cyclist George Hincapie and family) Performa Bib Shorts provide comfort and wick moisture from your body as you bike. Although they're adorned with the Google doodle of the Tour de France, the bib shorts still remind us of wrestling singlets, which is a bad look for most people.

Arm Warmer • Item #G00127 • \$34.95

Whether you're trying to keep your arms warm as you cycle, buff up, or type really, really fast, these Hincapie gel-gripping arm warmers should do the trick. And they probably even glow in the dark.



Nalgene Water Bottle • Item #G00094 • \$16.50

This is what we call a two-fer: For the price of one water bottle, you get the Nalgene cool factor, which says you're clearly part of the crowd, as well as a sturdy bottle that doesn't harbor odors or flavors from whatever you toted around in it the previous day.

Sit Anywhere



Travel Chair • Item #G00069 • \$32.25

This compact, collapsible canvas chair comes with its own travel bag, so you can escape your four walls and pretend to work at your campsite. Ambidextrously placed cup holders accommodate the beverage (or beverages for you two-fisted folk) of your choice.

Bean Bag • Item #G00143 • \$150

This Google-blue (red, green, or yellow) bean bag chair is a bit pricy, but as it's water resistant, you can take it out next to the pool and relax with your laptop. In fact, that's probably where you'll want it anyway: It's likely the blindingly bright colors will clash with everything else in your house.



Office Supplies



Wireless Hotspot Finder • Item #G00116 • \$35.75

If your nondescript white van is arousing suspicion as you war drive the neighborhood attempting to pirate wireless access points, you can probably find some legitimate uses for this device. You can definitely use this hotspot finder in a city such as Philadelphia, which hopes to have its 135-square-mile network up and running in 2006. And many cities currently have public parks, Internet cafes, and coffee houses that encourage you to hop online.



Icon Vase Speaker • Item #G00130 • \$30.75

We initially thought this was a pepper mill. Doesn't it look like a pepper mill? There's just nothing like the flavor of fresh ground pepper; it tastes markedly better than its canned, pulverized counterpart, doesn't it? Anyway, it's not a pepper mill. It's a USB-powered computer speaker, so it would be utterly useless on your kitchen table.

Gifts & Accessories



Grommet Tote • Item #G00147 • \$16.75

This tote, available in black, baby blue, and pink, seems pretty serviceable. It's made of a poly material, so it's probably sturdy enough to carry "Crime And Punishment", "The Rise And Fall Of The Third Reich", and "Ulysses", all at the same time. (We have to admit, one reason we like this bag so much is because it has the word "grommet" in the title.)

Infoglobe • Item #G00120 • \$64.95

Now you and your friends can have your own snow-globe-looking message center for your phones. It features a clock, a 100-year calendar, and an LED with a ticker tape to which you can add customized messages. If you have voicemail and caller ID, you can use both with this center, too. You'll have to resist the urge to pick it up and shake it; there's no snow-like confetti in the blue-glass dome.



Beach Towel • Item #G00044 • \$27.95

This is the brightest, shiniest white beach towel we've ever seen! It's also huge (36 x 70 inches) and expensive, and it'll probably keep you toasty after a chilly dip in the ocean, but if west-coast beaches are anything like their eastern counterparts, the ashes from bonfires and residue from fire-works will turn it dingy and dull in no time.

What's Next?

Google Takes On The Future

BY JOSHUA GULICK

Millions of Internet users love Google for its powerful Web-search capabilities, but the more savvy among them also know that Google offers many other tools, such as Google Alerts (an email alert service), Maps, and Picasa (a photo-editing tool). Not surprisingly, Google incorporates search features into many of these tools. Picasa, for example, has features that help users find pictures on their computers.

Although many Google features let users search the digital realm, some Google tools help users find real-world objects and locations. Froogle, for example, searches for products, whereas Google Maps finds specific geographic locations and provides both driving directions to them and satellite images of them.

This got us wondering: What other real-world tasks will Google tackle next? We kicked back, took off our shoes, and cooked up some possibilities for future generations.



Instant Genealogy



Google recently (and famously) stopped all communication with a tech news service after an intrepid journalist posted some personal information about Google's CEO—information she found by **Googling** him (searching

for his name on Google). This incident showed that Google's reach extends deep into many people's personal information. That said, it's not a bad thing, especially if you search for family members via the Web. We'd love to see Google offer a special search engine that draws

on the company's many resources to create detailed family trees for amateur genealogists. We imagine entering the family name, clicking the Search button, and then seconds later seeing a family tree, complete with photos.

Home Google



As you video chat with your friend online, do you find yourself checking out

her house in the background? If you frequently scrunch your eyes to make out the blurry object sitting on the shelf behind her, you'll love Home Google. Users who have Web cams sign up for free accounts and then leave

their Web cams powered on so other Google Home users can scope out their home offices, dens, or living rooms. Although this tool doesn't really benefit most users (other than satisfying their curiosity), we bet advertisers would love a Google search engine that could

scope out your bookshelves, electronics stash, and choice in posters. Thanks to this search engine, advertisers could target ads at you based on items you already have. Now that we think about it, we hope Home Google doesn't get off the ground.

Google Dating History



Online dating Web sites not only match singles: they also create digital dating histories. Although you can check up on your potential

soul mate by Googling him, you probably won't find out who he has dated. A Google Dating History feature could crawl through

those online dating sites, collecting tons of dating info: who he's seen, who he hit it off with, and who he didn't.

Google Groceries



Sure, you've seen online grocers such as Webvan and Peapod before, but grocery shopping Google-style is a completely different ball game. Rather than deliver your groceries, Google compiles its

many features to make your shopping experience an exercise in search engine efficiency:

Search. Your shopping experience begins at (you guessed it) Google's new grocery shopping feature, Frooglelicious. If this is your first time using the feature, the big G will search your computer for documents that contain shopping lists (ala Google Desktop Search). If none are present, you'll choose products in the site's massive online grocery store, read user opinions

of your choices (culled from Google Groups), and then kick back while Google Local tracks down nearby stores.

Shop. Google assembles your shopping list, complete with pictures and a list of local stores that carry the items you want to buy, and then delivers it to your cell phone via Google Mobile. Just in case you haven't heard of some of these grocery stores (Frooglelicious prides it-self on its comprehensive listings, which even include health food co-ops and tech-savvy

farmers' markets), Google delivers driving directions and sat-ellite images of your destinations to your cell phone.

Once you arrive, you'll use your phone to access another new Google phenomenon, Googaisle, to locate products on store shelves. And don't despair if you find product labels in other languages: once you snap a pic of the label with your phone's camera, Google Translate saves the day and your meal.