Part I

► **Discovering** eBay Web Services

- Learning about eBay Web Services
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Chapter 1

Discovering the eBay Web Services Considering Uses for the eBay Web Services

Learning about eBay Web Services

Getting and Setting Up the eBay Web Services Kit Understanding System Setup Considerations

One of the most successful online businesses in the world is eBay. With 85.5 million (and growing) users, it's easily the most used Web site anywhere. Given the complex set of rules that many buyers and sellers follow, plus all of the functionality that eBay provides, it's only natural that eBay would eventually come out with a Web services package. Web services can help you automate and reduce the complexity of the tasks you perform with eBay. In short, you become faster and more accurate, while reducing the risk of a missed opportunity.

Web services are very useful, but they can also become quite confusing. In fact, of all the Web services that I've used, eBay Web Services is easily the most complex, yet well thought out, product. Fortunately, eBay understands the problems that developers could face. When other Web services leave you scratching your head trying to figure out what to do next, eBay Web Services does provide some level of help.

This chapter is your introduction to eBay Web Services. It won't show you how to write code, but it will tell you about Web services in general and eBay Web Services in specific. You'll want to read this chapter even if you already have Web services experience because eBay Web Services can be a little overwhelming at first, even with eBay's stellar support system. The documentation you get from eBay doesn't really provide a gentle introduction to the topic—that's what you get from this chapter.

You'll also get a wealth of practical information from this chapter. For example, many of you probably don't know how to set up a development system for maximum flexibility. This chapter tells you how I've set up my system and provides guidelines on how you can set up your system to make it easier to use. After all, no one wants to make the development process difficult. Part of the setup and installation process includes pointers on getting the eBay Web Services Kit and installing it on your machine.

Understanding the eBay Web Services

Whenever a new technology appears on the scene, it's important to compare it with other technologies. The comparison process often helps you decide how this new technology differs from what you used in the past and reduces problems caused by hype. The media might try to convince you that a new product or service is something completely different, when in fact it's merely an update or a new implementation of an existing technology.

Currently, there's a lot of hype about Web services that makes them sound like something new and very complex. This section of the chapter defines Web services generally, examines eBay Web Services specifically, and compares this technology to older technologies. What you'll find might surprise you because Web services are really a new implementation of an old technique.

▶ NOTE

Don't confuse *new* with *useful*. Web services are very useful because they add new functionality to an existing idea that has worked for a long time. They're also new in that they use a different process from other technologies. However, the technology itself builds on other techniques that you've already used in some way. In sum, the implementation is new, the process is useful, but the technique is the same one you've used in the past.

What Is a Web Service?

You can look at a Web service from a number of perspectives. The easiest way to view a Web service is as a means of obtaining access to information. Essentially, you ask the server for information and the server returns that information in some form. The request and the returned information normally appear in eXtensible Markup Language (XML) form. Using XML preserves the meaning behind the information, regardless of the diversity of the platforms involved, so that you receive not only the information, but understand the context in which the information is used. The "Understanding XML Basics" section of Chapter 4 tells you more about XML. All you need to know now is that you receive information in XML format.

From an eBay Web Services perspective, you request information based on any of a number of search, buy, sell, management, or comment criteria (feedback). Many of your interactions with eBay will begin with some type of search. eBay supports a number of search techniques and not every technique works well for every kind of search. Chapter 2 discusses search techniques in detail. For now, just think of the search criteria as a form of request.

The request defines the kind of information you want to know and how detailed that information will be. eBay Web Services returns the information you request (when available) in a standardized format.

A Web service also performs some type of useful work. The useful work might be something as simple as interpreting your request, calculating the answer, and sending the result back. In the case of eBay Web Services, the Web service accepts your request in the form of a search string, bid for a product, upload of a new product or change to an existing product, account or other configuration, or a comment. The Web service interacts with the database through a search engine to obtain the information you requested and sends the information back to you. The search can take various forms. For example, you don't have to search all product categories—you can concentrate on just one. You might want to look for product pictures rather than text. For that matter, you might have an interest in payment or shipping options rather than a product description at first. The rest of the book shows how to perform all of these tasks. The main idea is that you can submit a variety of search request types—the request type affects the information you receive back from eBay.

The final consideration for a Web service (at least from the Web service user perspective) is that it executes on the remote machine, not on your machine. In short, this means you're using resources on that other machine with the permission of the machine's owner. The remote machine can set requirements for using the Web service, as well as require you to perform specific setup and security checks as part of your request. In the case of eBay Web Services, you need to obtain this permission by requesting a license. You also need to download the eBay Web Services Kit to ensure you follow the terms of the licensing agreement. The "Downloading and Installing the Kit" section of this chapter tells how to obtain the required permission and what this permission means to you.

► TIP

You may find that eBay Web Services is so indispensable that you'll want to work with Web services from other vendors. For example, Microsoft supports the MapPoint Web Service (http://www.microsoft.com/mappoint/net/). In time, standards organizations will set up directories of these Web services that you can access with ease. In the meantime, you can search for companies that offer Web services using the Web Services Finder page at http://www.15seconds.com/WebService/. Some people have problems using the Web Services Finder; it might produce an error instead of presenting a list of Web services. In some cases, you'll need to use a specialty Web service list such as the one at http:// www.flash-db.com/services/. The Web services on this site are special because many of them perform one task well, such as providing you with a location based on a domain name.

How Do Web Services Work?

Many people fear new technology because they don't understand how it works, and many of those who do know how it works enjoy the mystique of knowledge too much to share it with anyone else. Web services are actually quite easy to understand if you look at them in a way that relates the task to everyday occurrences. For example, you might compare the operation of a Web service to making a withdrawal at the bank—the process really is the same. The one thing to remember is that the process a Web service uses to perform a task is always the same. No matter what technology you use to make a request or receive a response, the steps are still the same. Here are the steps that most Web services, including eBay Web Services, use to complete a transaction.

- 1. The client discovers the Web service. During the act of discovery, the client might do things like download a file that tells how to interact with the Web service. This step is the same as someone walking into the bank. The person knows the bank exists and the bank teller might have noticed the person. The bank posts the rules for making a withdrawal or the teller might help a first-time customer understand the rules.
- 2. The client makes a request based on the rules delivered during the discovery phase. The rules might specify that the request has to appear in a certain form and the client must provide specific data. This step is the same as the person walking up to the teller's window with a withdrawal request. The request must contain the person's account number, the amount they wish to withdraw, and other identifying information. The bank specifies the format of the request and the information it must contain.
- 3. The server might ask the client for credentials depending on the openness of the Web service. eBay Web Services is public but still requires that you supply a developer license (account) number as identification. This step is the same as the bank teller asking you for a driver's license or other form of identification before honoring your withdrawal request.
- 4. The Web service performs the work required to honor your request. In most cases, the Web service accesses a database for information, it could enter an order, and it might even provide some level of formatting information about the original information (such as the typeface used for a word-processed document). eBay Web Services performs a number of tasks depending on the request you make. The easiest request is a general search, but you can also perform checks such as learning about a buyer or seller. This step equates to the bank teller getting the money from the drawer and counting it.
- 5. The Web service sends the data to the client. The content of the information depends on the Web service. eBay Web Services provides data in a very specific format based on the content of the associated database and the nature of the request. This step equates to the teller handing the person their money. In general, the teller orders the money in a specific way and counts it out to the person, rather than simply handing the money over.

- **6.** The client logs out of the Web service or the Web service disconnects the client after some period of *inactivity*. This step equates to the person leaving the bank, money in hand. If the person doesn't leave the bank (they just hang out in the lobby), you can be sure that someone will ask them to leave.
- 7. The client does something with the data it receives. In many cases, it formats the data and presents it on screen for the user. This step equates to the person spending the money they receive from the bank.

You can add any amount of complexity needed to the individual steps, but these seven steps define the process every Web server follows. When you break a Web service down into these seven steps, the process that used to appear as magic suddenly becomes quite doable. Chapters 6 through 11 are essentially options you can use to perform these seven steps using different technologies. This book explores the seven steps using various languages and platforms—eBay Web Services makes information available to just about anyone who needs it. However, it's important to remember that everything comes down to a client making a request and the Web server returning data.

► TIP

You don't have to be a programmer to work with eBay Web Services. In fact, Chapters 6 and 7 are specifically designed for people who want to automate tasks without developing extensive programming skills. Of course, you can do a lot more with eBay as you learn some programming techniques.

Considering the Usage Requirements

There's no free lunch. Some people would have you believe that the Web service does everything for you and that the client does nothing at all. However, the client interacts with the Web service, which means the client must possess some intelligence to perform the task. To use a Web service, you must understand the usage requirements.

From a client perspective, the type of device you use to access the Web service (including the connection type and speed it offers) determines the access speed, as well as what you can do with the data once you receive it. Although a PDA such as the Pocket PC can access eBay Web Services just fine, you wouldn't want to use it to perform detailed searches or attempt complex activities such as uploading new products for sale. A PDA or cellular telephone do work well enough to bid on products or check the status of an auction. You could possibly use these devices to check the price of an item as well. (See The Wall Street Journal article at http://www.sfgate .com/cgi-bin/article.cgi?file=/news/archive/2003/12/08/financial1006EST0033.DTL for

details about this use of eBay.) On the other hand, a desktop or laptop machine has all of the processing power, screen real estate, and functionality to perform any task. eBay Web Services hasn't changed, but the capability of the client has.

▶ NOTE

This book discusses a number of mobile devices. The Pocket PC provides additional functionality and features that make it a better target for some types of applications than devices such as the Palm. On the other hand, most Palm devices are much easier to carry and cost less than the Pocket PC. This book examines the entire range of mobile devices to ensure you understand the limitations of using a specific device to access eBay Web Services. I'm not saying one device is better than another—simply that one device works better than the other for a given application.

eBay Web Services also has some usage requirements, and these requirements might change the way that you use your client. The limitations on your account depend on the kind of license you purchase from eBay. Most developers will begin with the Individual license that limits you to 50 API calls per day. These limitations assure that the eBay servers won't become overwhelmed with calls. You can learn more about the eBay licensing levels at http://developer.ebay.com/DevProgram/membership/services.asp. One of the issues the terms listed on this Web page doesn't make clear is that the 50 API calls apply to work performed with the actual Web service. In addition, even if you exceed the 50 call limit, you can still make listing and relisting calls. You can make up to 5,000 sandbox (test environment) API calls per day (see the "What Is Sandbox Mode?" section for a description of sandbox calls). Since all of your work with eBay is in sandbox mode until you get an application approved, the 50 API call limit shouldn't pose much of a problem.

► WARNING

If you violate the licensing terms, eBay Web Services simply denies your request. In addition, you might receive a message from eBay requesting that you adhere to the terms of usage for the Web service.

Often, you can get around the licensing requirements for a Web service by using smart programming techniques. For example, using good caching techniques means that you can create applications that are lightning fast, unless the request is new or the data is too old. Obviously, given the fast-paced nature of eBay auctions, you'll need to weigh the costs of making your application fast and resource friendly against the possibility of losing an auction to a competitor.

What Is Sandbox Mode?

Unlike many Web services on the market, eBay provides access to sensitive data with its Web service. In addition, you wouldn't want just anyone to have access to the various items for auction or to the buyer's personal information. It's also important that eBay maintain the integrity of its servers and ensure that none of the requests cause errors. For all these reasons, your first applications will operate in what eBay calls sandbox mode. Essentially, this is a safe area where you can create your application without working with real eBay data. The initial data won't affect anyone, but will give you useful results that you can use to create your application. Consequently, you can work with eBay Web Services even if you don't really understand what you're doing at first because using the sandbox limits the possibility of error.

Once you feel confident about your programming skills, you can create a better application—one that works with eBay Web Services flawlessly. This application goes through a certification process. The certification process is the time when eBay can discuss any potential application problems with you and help you fix them. After your application is certified (everyone is happy that it works as anticipated), you can begin using it with real eBay data.

The sandbox mode offered by eBay is an important feature that most Web services don't provide. You can experiment and work with data without presenting any kind of problem to other developers and users of eBay. This safety feature means that you can learn to work with eBay without losing sleep at night over potential problems with your application.

Discovering Uses for the eBay Web Services

You can perform any task with eBay Web Services that you can with the manual or eBay.com user interface. However, you can perform these actions significantly faster using the automation that a custom application provides. In addition, you can perform some tasks with eBay Web Services that the manual interface doesn't support. For example, you can search for specific shipping criteria or you can locate products that meet certain conditions, such as antique dishes without nicks. That's the quick overview. However, this short description doesn't even begin to scratch the surface of what you can do with eBay Web Services. The following sections provide a much better overview and the rest of the book provides a wealth of specifics.

▶ NOTE

At the time of writing, eBay releases new versions of eBay Web Services every few weeks. These new versions are compatible with the previous versions—they simply add new features. Consequently, when you read this, you might find that eBay has already added new features you can use to make your experience better. Make sure you also read the late-breaking news found in Appendix C.

Buying Products

Most people start learning how to use eBay by buying products. It doesn't take long to learn that you need to maintain a close watch on the bidding process or you'll lose out on whatever product you want. The fact that bidding takes place worldwide doesn't help because you have competitors in other countries in other time zones. In short, you're stuck watching your email or checking out the online service with your browser.

Fortunately, an eBay Web Services application can help you overcome the problem of waiting. You can use eBay Web Services to monitor the items that you want to bid on. Whenever the high bid changes, the application can notify you so that you don't end up waiting for the change to occur (or miss the change completely).

Of course, before you can buy a product, you need to find a product that meets your needs. Locating a product is one area where eBay Web Services has a definite advantage over the manual interface. For example, the online search engine only lets you search for items that you can purchase with PayPal—with eBay Web Services, you can search for other forms of payment such as Cash on Delivery (COD) or American Express. The idea is to find an item that meets your expectations and to ensure you can actually get purchasing terms that you like.

► TIP

If you haven't spent a lot of time working with eBay, you might want to check "The Life Cycle of an Auction on eBay" help topic in the User's Guide section of the eBay SDK Reference. This description is relatively short, yet describes the auction process clearly. More important, you'll learn some eBay jargon that will help you understand the remainder of the eBay SDK Reference.

In many cases, the people who buy products online don't know the seller. Fortunately, using eBay Web Services you can also check on seller statistics without having to jump through a lot of screens. The seller information appears as part of the item statistics, so you can learn about the seller immediately and filter out sellers that don't meet your purchasing criteria.

Selling and Relisting Products

The main reason that some people spend time on eBay is to sell items. Generally, the seller uses a manual interface to define facts about the item, such as an item description and picture. The seller also provides information such as the payment terms and method of shipment. You can automate all of these tasks using eBay Web Services. Any task that you can perform using the manual interface, you can also perform using the automation of eBay Web Services. This includes relisting a product if it doesn't sell the first time.

It might be hard to envision much time savings in using automation to create the product entry—after all, you still need to collect the data and take pictures. The time savings occur when you begin uploading the data. Instead of waiting for the interface to display the next page, you simply press a button and let your application send the data. All of the items still require the same amount of time to upload; the difference is that you don't have to wait for the upload to complete.

Automation also helps when you want to monitor the auction. For example, you can obtain a list of bidders automatically and track the highest bid with ease. The information you receive can also act as input for second chance offers—a method of selling other items to users who didn't win the current auction, but might be interested in another copy of the same item or a similar item you have in stock. In fact, eBay Web Services includes special calls for making the second chance offer, so you can build this functionality directly into your application.

Using eBay Web Services can also help you garner some important security information faster than using the manual interface. For example, you can use special features to authenticate the user you're working with. The eBay SDK Reference discusses this topic in the "User Authentication & Authorization" section of the "Working with Users" part of the Developer's Guide. This help topic also discusses the proper way to perform security-related tasks, such as a Web site logon page redirection. In short, using eBay Web Services can actually improve the security of your online selling experience by providing additional input about the user.

Determining Product Facts

Any piece of information you can learn about a product using the manual interface, you can also learn using eBay Web Services. However, when you use the manual interface, you need to visit each product separately. Sure, you can learn a little about the product by reading the summaries, but if you really want to learn all the facts you have to go farther and select that item. Using eBay Web Services lets you download all the information in the background and review the information you want to see all at one time. The time savings in searching for a particular product can be significant.

You also define the amount of information that eBay sends you for a particular product or search. When using the manual interface, you normally have to wait for all of those graphics to download. Using eBay Web Services, you only download time-consuming items such as graphics when you need them.

The best part about using eBay Web Services is that you can perform product analysis. For example, you might want to create a table comparing various products based on the keywords in their description. You can't perform that task using the manual interface, but you can do it

using eBay Web Services. Data mining includes the idea of combining information from various sources to create a better composite image of the product. You could easily combine data from various areas from eBay (or even other Web services) to learn more about a particular product.

Discovering Product Payment and Shipping Methods

The manual interface doesn't allow you to do much in the way of searching for specific product payment and shipping methods. Even when you use the advanced search, you can only specify PayPal as a payment option. You couldn't search for someone selling an item that accepts COD. However, by checking the results you receive using eBay Web Services, you can find items that meet your particular payment and shipping needs.

However, you can go further than simply finding favorable payment and shipping options: you can also perform comparisons between sellers. For example, two sellers might offer acceptable items and a similar price. However, one seller charges a premium for shipping. You'd normally need to tabulate such information using paper and pencil, but an eBay Web Services application can perform this analysis automatically and highlight the better buy.

Giving and Receiving Feedback

Most eBay users know that eBay allows responses to every feedback that someone offers about either a buyer or a seller. The response system ensures that you understand both sides of the issue when viewing feedback. In many cases, one person's negative comment is a positive comment when viewed in another light. For example, using a substantial amount of packing material to protect antique glassware could evoke a negative comment from a buyer who thinks the shipping prices are too high. However, ensuring the antique actually arrives at its destination is the positive side of this particular issue. A conscientious seller who wants to ensure the buyer actually receives the goods purchased will ensure the packing material meets the requirement, even if the cost of shipping is a little higher.

An eBay Web Services application won't significantly reduce the time required to provide feedback for buyers and sellers (automation does help speed downloads and uploads). You still have to create the comment and phrase it in a way that won't be misunderstood online. (Phrasing your comments correctly can prove very time consuming because you can't depend on visual cues such as facial expression or aural cues such as voice inflection to make your point.) This fact points out one of the expectation factors discussed in the "Limitations of the eBay Web Services Output" section of Chapter 2. Fortunately, an eBay Web Services application can help you manage the feedback. For example, it can continuously monitor eBay for new comments and alert you to their arrival. You can also depend on such an application to sort and classify feedback based on content or other criteria.

Learning about a Store

Some sellers use a store-style auction to sell their goods. When you're interested in such as product, you can use special calls to learn more about the store. For example, you can learn the owner's name. You can also obtain any special information that eBay can supply about the store or its owner. In some cases, the store owner also supplies specialized information (departments) that you can retrieve. This information varies by store—it usually provides helpful information that you can use to make a buying decision.

Working with User Information

For the purposes of eBay Web Services, both buyers and sellers are users. Anyone involved in eBay in any way is a user of some sort. You can obtain a wealth of information about eBay users. Some of it's supplied by the user. For example, you can learn about the user by viewing the About Me page the user sets up. You can also let the application scan the user's information for particular keywords and phrases.

User information also includes eBay specifics. For example, you can discover whether the user is in good standing with eBay. Other information includes whether the user is allowed to perform live auctions. All other information, such as the user's seller level or feedback star indicator is also available.

In some cases, you'll also find some localized data. For example, you can learn whether a German user has the Computer Investment Program (CIP) in checkout option—essentially a banking option that isn't available elsewhere.

All of this information allows you to reduce the risks of working with other people through eBay. It's important to understand that the eBay automation isn't always correct or factual because some of it's provided by the user. However, by using multiple Web services (such as eBay Web Services with Google Web Services), you could automatically search for additional details about the person and either confirm or deny much of the information you find on eBay.

Performing Research

Some people assume that eBay is only about buying and selling products. In most cases, that's what happens—a seller offers an item that someone else buys. The buying and selling on eBay does lend itself to other forms of activity. One of the most important alternative activities today is the use of all that data for research purposes. For example, you might want to know how well a particular item retains its value. By comparing the list price, the new selling price, and the prices for items of various ages on eBay, you can learn how well the item retains its value.

Another way to use eBay for research is in the area of collectibles. Even though you can find a lot of books on the market that describe dishes created by various vendors over the years, these books are incomplete. By knowing even a little about a particular dish, you can research it on eBay and find out more about it. This additional information helps you perform extended research using other techniques. In sum, eBay can act as a stepping stone for research where you only have a little information in the beginning. Obviously, this technique can work for any product—dishes to cars.

► TIP

eBay understands the value of data to many companies and individuals. If you're really interested in using eBay for data mining, you should also check out the eBay Data Licensing Program at http://developer.ebay.com/devprogram/membership/data.asp.

Creating an Offline Archive

Generally, you can build an offline archive of data with any Web service. Some Web services restrict the amount of time you can store the data. In most other ways, however, the Web service leaves the details of how you store the data you receive up to you. eBay Web Services go a lot farther by providing integrated database support as part of the library. At the time of this writing, eBay Web Services provides support for both Microsoft Access and Microsoft SQL Server. This support isn't available unless you use eBay Web Services.

An offline archive can help your business become a lot more efficient. Whenever someone requests information, an application can store the data locally. The next time someone requests the information, the application can use the local data store for most of the information, rather than request it from eBay. The response is almost immediate, rather than requiring the user to wait until eBay processes the application request and the application downloads the response.

You can also use an offline data store to provide some fault tolerance in your application. Disruptions of your connection with eBay might not happen very often, but they can be devastating when they do. Using an offline data store allows you to continue working, albeit at a slightly reduced pace. No, the information doesn't magically get updated, but you can still make decisions and upload changes based on the data you had when the connection was severed.

Offline archives are also valuable analysis tools because they show how your company interacts with eBay. You might discover that you're buying an expensive item from a local retail store when you could be buying it for much less on eBay. The database archive can also provide historical information on which products sell best and at what price. If you have

more than one employee working with eBay, you could monitor which employees work with which products most often and use that information to build pools of expertise. Individual users could use the same analysis to discover areas of future research and training so that you become better at managing your business.

Downloading and Installing the Kit

Like many Web services, eBay provides an application development kit and means of obtaining a license to use their Web service. You need to spend time getting the license, downloading and installing the kit, and determining specifics of your setup before you begin writing the application. In addition to the normal Web service requirements, eBay also requires that you determine a licensing level—most levels aren't free, but you get quite a bit of support in return. The following sections discuss these elements of the setup process.

▶ NOTE

The following sections and the rest of the book contain a few URLs that you can't access unless you log in as an eBay member. These URLs generally lead to information that's specific to the developer program. If you can't access a particular URL, please try it again logged on as an eBay member.

Determining Which Licensing Level Is Best

Unlike many Web services, eBay offers their Web service as a free or paid service. If you choose the free option, you'll find that you're limited in what you can do with eBay Web Services, but this is the best option for first time Web service developers. The free option lets you experiment without cost until you're ready to work with eBay on a regular basis. All of the paid options have an annual fee plus a monthly usage charge, which means the clock is ticking from the moment you join the program. You can learn about the various licensing options at http://developer.ebay.com/DevProgram/membership/services.asp. As you can see from Figure 1.1, eBay currently offers four programs and you can move from the free option to any of these programs once your project starts to take shape.

You need to consider a few developer program highlights almost immediately. The most important is that you're limited to 50 calls per day. Given the amount of documentation eBay provides, this limit might not be as severe as you think. Most developers can work on a project without running up against this limit, so long as you're not testing your code every five minutes.

FIGURE 1.1:

Determine which licensing level best suits your needs before you do anything else.



The eBay documentation is truly stellar, but it's not perfect. Unfortunately, if you choose the free option, eBay won't provide any help in using the development kit. However, you can get peer support using the Developer Zone Website and the Member Forums. The free option also affords access to the Developer Newsletter and NewsFlashes. Finally, you have access to all of the tools and notifications supplied to paying members, except for the Platform Notifications feature.

▶ TIP

Make sure you read the Developer Newsletter each time you receive it in your email. The Developer Newsletter contains notification of new features, as well as coding examples and other aids. You'll notice that the developer program currently has several new features underway, including an eBay Developer Conference and Developer Education Services.

Becoming an eBay Developer Program Member

Once you decide on a licensing level, you need to join the eBay Developer Program. You'll find the easy five-step process at http://developer.ebay.com/DevProgram/membership/ join.asp as shown in Figure 1.2.

► WARNING

Make sure you enable full cookie and scripting support for the membership process. Otherwise, the process will fail and you'll need to contact eBay support at developer-relations @ebay.com for help.

One of the more important steps appears near the bottom of the page. Make sure you have your eBay user identification and password available because you can't join the developer program without joining eBay as a member first. Join eBay by registering at https://scgi .ebay.com/saw-cqi/eBayISAPI.dll?ReqisterEnterInfo&siteid=0. The developer registration process also assumes that you know how to speak English. If you want to work with the developer program in another language, contact the International Developer Program Team at http://developer.ebay.com/DevProgram/Userform.asp?contact=intl.

FIGURE 1.2:

Make sure you join the eBay developer program before you attempt to download the kit.



To start the registration process, click the Next link at the very bottom of the page. You'll begin by providing your eBay user identification and selecting a program. Most of the steps are self-explanatory—all you need to do is follow the on-screen prompts and provide the required information. Step 3 requires special consideration. At this point, you'll view a unique part of your license named Exhibit D. This portion of the license is unique, and you should save a copy of it for your records. Appendix B discusses licensing issues in greater detail.

Obtaining Your License

After you complete the initial registration process, you'll receive a confirmation message in your email. This message includes a link you must click to confirm your new account. Clicking this link starts the key generation process. You'll eventually see a Web page containing the three keys that you'll use during the development process. Print out a copy of these keys so that you have them for your records. If you lose the keys, you'll need to contact eBay support (developer-relations@ebay.com) to have them clear the old keys (they can't send them to you again) and send you another confirmation process.

Performing the Download

Now that you have an eBay user account and you've obtained your developer license, you can visit the developer area. Go to the developer Web site at http://developer.ebay.com/
DevProgram/ and click the Member Sign In link near the top of the page. Provide your name and password, and then click Sign In. After you sign in, the Web page will change, as shown in Figure 1.3. You'll see various new entries for tools and documentation. Many of these tools appear in other areas of the book. For example, check the "Using the eBay API Tool" section of Chapter 4 for an exciting tool that helps you develop applications faster.

The eBay Web Services Kit, or Software Development Kit (SDK), appears at http://developer.ebay.com/DevZone/build-test/sdk.asp. Make sure your system meets the minimum requirements for installation and then click the Download With Installer link. Always use this option for an initial installation of the eBay Web Services Kit. However, you can save time when making an update by using the Download Without Installer link.

Installing the Kit

The Zip file you receive from eBay contains the compressed installation file. If you have Windows XP or a newer version of Windows, you can open the file using the built-in features of the operating system. Otherwise, you'll need a program such as WinZip (http://www.winzip.com/) or WinRAR (http://www.rarlabs.com/) to decompress the file. Double-click the resulting file and you'll see the installation dialog box. Follow the prompts to accept the

licensing agreement and select an installation directory. You can choose between a Typical and a Custom installation. When you choose the Custom installation, you'll see a Custom Setup dialog box like the one shown in Figure 1.4.

FIGURE 1.3:

The initial developer's page provides access to documentation and tools.



FIGURE 1.4:

Choose the options you want to install to save disk space.

🖟 eBay API SDK - InstallShield Wizard				
Custom Setup Select the program features you want installed.				
Click on an icon in the list below to change how a feature is in: Integration Library Somple Selling Application SDK Source Code	Feature Description SDK source code of eBay SDK libraries and applications. This feature requires 5744KB on your hard drive.			
Install to: D:\Program Files\eBay\SDK\	<u>C</u> hange			

Choose the features you want to install by selecting options from the drop-down list boxes next to the drive icons. In many cases, you can save a little over 5MB of disk space by telling the installer to only install the Sample Selling Application when needed. You could also choose to simply make the feature unavailable. The Integration Library feature is only necessary if you want to perform advanced programming, such as using a database with your eBay application. Likewise, the SDK Source Code is only useful if you want to see how eBay has implemented certain features or if you want to understand errors better when you debug your application. After you choose the features you want, follow the prompts to install the eBay Web Services Kit.

▶ NOTE

You can use many of the examples in this book without adding all of the eBay Web Services Kit features. However, I did perform a full installation as part of my setup so that I could demonstrate as many features of the eBay Web Services Kit as possible. You might want to perform a full installation while learning to use eBay Web Services, and then reinstall later with just the features you need. As with most modern installations, you can add and remove features as needed.

System Setup Considerations

Once you obtain the eBay Web Services Kit and a developer license, it's easy to think that you're ready to write your first program. Theoretically, you can do just that. The problem with proceeding at this point though is that you don't know about the viability of your system configuration. For example, if you have a very fast processor and a lot of memory, it's easy to assume that the eBay application you've designed will work fine on all systems. However, once you load the resulting application on someone else's machine, it might not work very quickly (if at all).

Defining a usable development setup can save you considerable time and effort later. When you create a great development environment, you ensure that you'll see the application as the user does, which reduces the potential for deadly errors. Because the eBay Web Services Kit is so accommodating, you'll need to spend a little extra time considering all of the possible usage scenarios. The following sections provide tips you can use to reduce the setup complexity.

Understanding Connectivity Requirements

You must consider three kinds of connectivity when you set up your development system. The first level of connectivity is your own machine. Make sure your machine has a connection to

the Internet. Otherwise, any tests you run will fail. Remember that a Web service runs on the remote machine, not your local machine. You're borrowing the resources of that remote machine to perform useful work.

The second level of connectivity is the user's machine. If you create a Web site that simply contains links to eBay's Web site, you can assume the user has a connection, but how fast is that connection? The best Web sites I've seen ask about the user's connection speed. This question allows the application to send the user the level of information that their connection can comfortably support. If you know that most users will rely on a dial-up connection for your Web site, make sure you also use a dial-up connection for testing. This additional step can greatly reduce the chances that you'll make the application too robust. Users who leave your site and don't use your application are users who are probably visiting someone else.

The third level of connectivity is the non-connected mode. You need to consider what happens when the user loses the connection or doesn't have one available. Applications can store static data locally to enable the user to continue using data they have already queried from the Web service. However, you need to observe any refresh requirements and ensure the data retains the same information the user would see online. For example, the local copy of the data must include any required copyright statements or trademarks.

▶ NOTE

eBay's licensing terms are flexible in that they allow you to store information as long as that information remains viable to you and you retain your relationship with eBay. This flexibility means you can create user applications that only query eBay when necessary, instead of for each request. It's important to note that any application you create using eBay Web Services will require your license to access the site. Any queries a user makes using your application will count against your licensed access total for the day.

Programming Setups for the Non-Developer

Many of the people reading this book have marginal experience with programming or do it as a hobby. It's true that Web services rely on the resources of the remote machine, but it's also true that the client must perform some work too. If you have a machine that's already marginal—that doesn't run applications well—trying to write a Web service application for it could make matters worse. The local machine must have some resources for using the Web service application. Fortunately, eBay makes the requirements for their Web service clear. You can find these requirements on the developer site at http://developer.ebay.com/ DevZone/build-test/sdk.asp. These requirements really are the minimum you can use though, so don't try to squeak by with something less.

▶ NOTE

This book doesn't teach you how to program, so make sure you spend at least a little time learning one of the programming languages discussed in this book before you begin working with the examples. I do provide good descriptions of the applications, but these descriptions won't be enough if you don't understand basic programming concepts.

Depending on the kind of application you create, you'll also need local resources for the programming environment. For example, VBA users have not only the Office application of choice running, but also the VBA development environment. The addition of the VBA development environment can reduce your system performance to a crawl and give you unrealistic performance for your application.

It's also possible for you to speed things up too much. If the target platform is a 400MHz Pentium and you're using a 3GHz development machine, your application performance will look nothing like the user's performance in most cases. For a Web site, the machine performance differences might not be quite as significant as when you develop applications that run on the desktop.

Considering the User

Depending on how you use the Web application you build, user needs will take on significant importance. Many applications start out as projects that the developer is creating for personal use. Some of the best applications I've written fall into this category. However, taking shortcuts in developing the user interface, even if you're the only user, is never a good idea. At one time, I wrote rough applications that I understood but couldn't use efficiently because they were only for test purposes. After I ended up rewriting a number of the applications because I couldn't figure them out or other people asked me for copies, I began writing every program as if it were for someone else.

The applications you write with eBay Web Services will likely see use from other people, even if you don't know it right now. Consequently, you need to consider what a hypothetical user will need. For example, you might need to include a few special search options. Sure, you could get the same results by typing a little extra text, but adding the functionality directly into your application makes it easier to use (faster, in most cases, as well).

It's also important to consider users with special needs. The "Addressing Users with Special Needs" section of Chapter 13 contains details on this topic, but you might need to perform setups before you even begin coding. For example, if you work on a Windows machine,

you'll probably want to set up the Accessibility features (these features normally appear in the Control Panel and within the Start\Programs\Accessories\Accessibility folder).

Using Multiple Test Devices

If your application will appear on the Internet, you need to perform testing using multiple devices. It's no longer safe to assume that only desktop users will have any interest in your application. You might attract some Personal Digital Assistant (PDA) and cellular telephone users as well. This is especially true of a Web application that helps users find a particular kind of information quickly. People often rely on these applications when time is tight and they don't have time to look for a product themselves.

▶ NOTE

Not every developer is concerned about writing applications for every platform—sometimes it's a matter of time; other times it's a matter of skill or perceived need. When an application you write falls into this category, you can still provide a modicum of support for wireless users by directing them to the eBay Anywhere Wireless service at http://pages.ebay .com/anywhere/index.html?ssPageName=STRK:SRVC:009.

It would be nice if everyone could afford to test every application on every device, but that's not realistic for the developer. Sometimes you need to use an emulator to perform the testing because you don't have the real device handy. Fortunately, you can find a vast array of useful emulators on the Internet—everything from the Pocket PC to cellular telephones of all types. Emulators have limitations, but they do make good test devices in many cases. We'll discuss the advantages and concerns of using emulators in the "Working with Emulators" section of Chapter 11.

Sometimes it also helps to have multiple desktop machine setups. For example, you might need to consider how a Web page looks and acts in Netscape versus Internet Explorer. (Theoretically, you can run both browsers from the same machine, but doing so causes interference problems that some developers find distasteful.) Differences in how the browsers react to specific Web page designs could cause problems in your application. In some cases, you'll need multiple machines to perform this kind of testing. For example, you might need to consider how the application looks on a Macintosh versus a PC if your application has broad enough appeal. Obviously, you can still write eBay Web Services applications if you don't have a multiple machine setup, but having more than one machine does make development tasks a lot easier and less error prone.

Emulating the Real World

Developers often live in a laboratory. In the laboratory, everyone has the proper equipment, fast machines, and an even faster connection. The user never disconnects unexpectedly and always knows how to get the most out of their computer. The problem with the lab is that it doesn't model the real world. In the real world, users get bored, try odd key combinations just to see what they do, don't understand their computer very well, but do know how to complain about the smallest application problems. If you want to avoid problems with the application you develop, you need to create a development environment that models the real world.

It's also easy to get lost in the development environment setup. Make sure you understand the person who uses your application. For example, it's quite possible that only desktop users will have any interest in your site on desktop machine maintenance, but you need to determine that fact in some way (online surveys work well). You also don't want to spend a lot of time testing the application to meet the needs of users who have no use for your product. Again, surveys and newsgroup polls are helpful in determining the real world environment that you must emulate with your system.

Your Call to Action

If you've read the entire chapter, you know what a Web service is, how the eBay Web Services fits within the general definition of a Web service, and what you can use the eBay Web Services to do. You can use this knowledge to create opportunities to exercise eBay as a search engine, a place to buy or sell products, or as a means to perform research. Data mining is increasing in importance as companies strive to gain more from the resources of the Internet—this technique accesses the needed information and discards unneeded information. At this point, you also have a machine that's set up to create a eBay Web Services application of some sort and you have the eBay Web Services Kit installed.

The next step of the process is to evaluate where you're going based on the content of this chapter. You need to consider what you want to do with the information eBay provides, how you plan to present it, your own capabilities, and the capabilities of the person using your application. This may sound like a lot of work, but it's important to create a firm foundation for your application. When you take these preliminary steps, you begin thinking about problems and solutions to those problems.

Chapter 2 builds on the knowledge you gained in this chapter. The emphasis of Chapter 2 is on data mining—the process of using specialized search techniques to whittle search results down to just the information you need. In many cases, you can also access these search techniques using the eBay search page, but the emphasis of data mining is automation. Only by using the eBay Web Services can you automate the search process and then display the results in the form you want, rather than rely on eBay's formatting methodology.