

Guide to Securing Your Web Site for Business

1. Introduction

Businesses that accept transactions via the Web can gain a competitive edge by reaching a worldwide audience, at very low cost. But the Web poses a unique set of security issues, which businesses must address at the outset to minimize risk. Customers will submit information via the Web only if they are confident that their personal information, such as credit card numbers, financial data, or medical history, is secure.

VeriSign, Inc., the leading provider of trust services for electronic commerce and communication, offers a low-cost, proven solution for securely conducting business over the Web. By installing a VeriSign® Server ID (available as part of VeriSign's Site Trust Services) on your server, you can securely collect sensitive information online, and increase business by giving your customers confidence that their transactions are safe.

Acquiring airtight security for your Web site is as easy as installing a VeriSign Server ID. The simple installation process turns on the SSL encryption capabilities already built into your Web server software. Immediately after installing your Server ID, you can communicate securely with the tens of millions of potential customers who use Netscape and Microsoft browsers.

Immediately after installing your VeriSign® SSL Certificate, you can establish secure communications with any customer using a browser from Netscape or Microsoft. This proven technology is in use now— by the top 40 e-commerce sites, all of the Fortune 500 companies with a Web presence, and thousands of other leading sites.

This guide explains key issues related to Web security, describes the technologies VeriSign uses to address the issues, and provides step-by-step instructions for obtaining and installing a VeriSign SSL Certificate. We invite you to purchase one of VeriSign's Site Trust Services, which includes either a full one-year SSL Certificate or a Global Server ID, at [\[INSERT YOUR URL HERE\]](#)

Increase your competitive edge with a secure Web site

A secure Web site can provide your business with powerful competitive advantages, including online sales and streamlined application processes for products such as insurance, mortgages, or credit cards. Credit card sales can be especially lucrative: according to independent analysts, cash transactions on the Internet will reach \$30 billion in 2005. No merchant can afford to ignore a market this large.

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To succeed in this market, however, you must become fully aware of Internet security threats, take advantage of the technology that overcomes them, and win your customers' confidence. This section describes the benefits of e-commerce, and the specific risks you must

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Extend your reach to more customers
By offering your product on the Web, your business can gain unique benefits:

- **Worldwide presence**—The Web represents a new source of customers. Anyone with an Internet connection is a potential customer. More than 50 million people around the world are already using the Internet for business transactions. Your Web storefront is open all the time and requires no investments in brick and mortar.
- **Market share**—In a 1998 Yankelovich Partners study, eighty-five percent of Web users surveyed reported that a lack of security made them uncomfortable sending credit card numbers over the Internet. The merchants who can win the confidence of these customers will gain their loyalty – and an enormous opportunity for expanding market share.
- **Cost-effective delivery channel**—Many products and services, such as software or information, can be distributed directly to customers via the Web. This saves time for your customers, which increases your competitive appeal. It also increases your profitability by eliminating the shipping and overhead costs associated with order fulfillment.
- **Streamlined enrollment**—Paper-based enrollment workflows are fraught with delays. Applications for insurance, a mortgage, or a credit card, for example, can be held up in the mail and your mailroom. Once received, the application must be entered into your computer system, a labor-intensive process that can introduce errors. By accepting applications via a secure Web site, you can speed application processing, reduce processing costs, and improve customer service.
- **Better marketing through better customer knowledge**—Establishing a storefront on the Web positions you for one-to-one marketing – the ability to customize your products and services to individual customers rather than large market segments. The Web facilitates one-

When you secure your Web site, you can increase business by reassuring the 85 percent of Web users with concerns about Internet security. You can also improve competitiveness by securely delivering electronic products at no cost, streamlining enrollment, and learning valuable information about your customers.

Securing your Web site for business protects both your company and your customers. A VeriSign SSL Certificate makes it safer to conduct business on the Web than in the physical world.

large market segments. The Web facilitates one-to-one marketing by enabling you to capture information about demographics, personal buying habits, and preferences. By analyzing this information, you can target your merchandise and promotions for maximum impact, tailor your Web page to appeal to the specific consumer who is visiting, and conduct effective, tightly focused marketing campaigns.

Ensure the security of your electronic transactions

In person-to-person transactions, security is based on physical cues. Consumers have come to accept the risks of using credit cards in places like department stores because they can see and touch the merchandise and make judgments about the store. On the Internet, without those physical cues, it is much more difficult to assess the safety of a business. Also, serious security threats have emerged. By becoming aware of the risks of Internet-based transactions, businesses can acquire technology solutions that overcome those risks:

- **Spoofing**—The low cost of Web site creation and ease of copying existing pages makes it all too easy to create illegitimate sites that appear to be published by established organizations. In fact, con artists have illegally obtained credit card numbers by setting up professional-looking storefronts that mimic legitimate businesses.
- **Unauthorized disclosure**—When transaction information is transmitted "in the clear," hackers can intercept the transmissions to obtain your customers' sensitive information.
- **Unauthorized action**—A competitor or disgruntled customer can alter your Web site so that it refuses service to potential clients or malfunctions.
- **Data alteration**—The content of a transaction can be intercepted and altered en route, either maliciously or accidentally. User names, credit card numbers, and dollar amounts sent "in the clear" are all vulnerable to such alteration.

Secure your Web site with a VeriSign SSL Certificate

A proven, low-cost solution to secure online transactions is available today. VeriSign SSL Certificates have earned the trust of businesses worldwide, including virtually all of the Fortune 500 companies on the Web and all of the top 40 e-commerce sites. To date, VeriSign has issued over 410,000 SSL Certificates. This section describes how VeriSign SSL Certificates work to make online transactions secure.

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Present your credentials via a VeriSign SSL Certificate

An SSL Certificate, also known as a digital certificate, is the electronic equivalent of a business license. SSL Certificates are issued by a trusted third party, called a Certification Authority (CA). VeriSign is the world's leading CA, having issued more than 410,000 SSL Certificates. The CA that issues an SSL Certificate is vouching for your right to use your company name and Web address, just as the office of the Secretary of State does when it issues Articles of Incorporation. CAs can also issue digital certificates to individuals.

Before issuing a SSL Certificate, VeriSign reviews your credentials - such as your organization's Dun & Bradstreet number or Articles of Incorporation - and completes a thorough background checking process to ensure that your organization is what it claims to be, and is not claiming a false identity. Then VeriSign issues your organization a SSL Certificate, which is an electronic credential that your business can present to prove its identity or right to access information (see "How Digital Certificates Work" below).

An SSL Certificate from VeriSign provides the ultimate in credibility for your online business. VeriSign's rigorous authentication practices set the industry standard. VeriSign documents its carefully crafted and time-proven practices and procedures in a Certificate Practices Statement. And VeriSign annually undergoes an extensive SAS 70 Type II audit by KPMG. (The Statement of Auditing Standard 70, SAS 70, was established by the American Institute of Certified Public Accountants to certify trusted practices.) Employees responsible for dealing with certificates undergo complete background checks and thorough training. VeriSign has achieved its unsurpassed reputation as a trusted third party by paying as careful attention to physical security as electronic security. For example, the company's 22,000-square-foot plant where keys are issued has five tiers of security, the last three requiring fingerprint identification.

VeriSign's rigorous authentication practices, leading-edge cryptographic techniques, and ultra-secure facilities are designed to maximize your confidence in

facilities are designed to maximize your confidence in our services. These practices, technology, and infrastructure are the foundation for SSL Certificates to secure transactions working in conjunction with your Web server.

"By checking your VeriSign SSL Certificate, your customers can verify that the Web site belongs to you, and not an impostor. This bolsters their confidence in submitting confidential information."

Secure your online transactions without hardware investment

VeriSign SSL Certificates work in conjunction with Secure Sockets Layer (SSL) technology, which is the industry-standard protocol for secure, Web-based communications. Your Web server is ready now to work with VeriSign SSL Certificates if it's from Apache Freeware, C2Net, IBM, Lotus, Netscape, Microsoft, OpenMarket, or dozens of other vendors.

After you install your VeriSign SSL Certificate, your server automatically activates SSL, creating a secure communications channel between your server and your customer's browser. Your site can communicate securely with any customer who uses Netscape Navigator, Microsoft Internet Explorer, or most popular e-mail programs. Once activated by your SSL Certificate, SSL immediately begins providing you with the following components of secure online transactions:

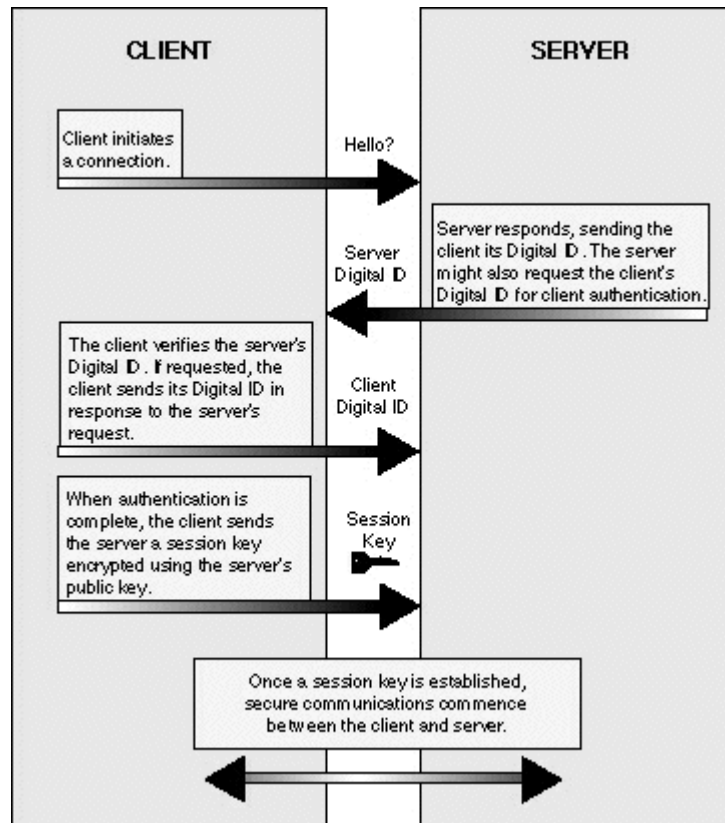
- **Authentication**—By checking your VeriSign SSL Certificate, your customers can verify that the Web site belongs to you, and not an impostor. This bolsters their confidence in submitting confidential information.
- **Message privacy**—SSL encrypts all information exchanged between your Web server and customers, such as credit card numbers and other personal data, using a unique session key. To securely transmit the session key to the consumer, your server encrypts it with your public key. Each session key is used only once, during a single session (which may include one or more transactions) with a single customer. These layers of privacy protection ensure that information cannot be viewed even if it is intercepted by unauthorized parties.
- **Message integrity**—When a message is sent, the sending and receiving computers each generate a code based on the message content. If even a single character in the message content is altered en route, the receiving computer will generate a different code, and then alert the recipient that the message is not

With a VeriSign SSL Certificate, you become part of the VeriSign® Trust Network, tapping into millions of browsers already enabled with VeriSign's digital certificate technology. As your credibility grows, so does your potential market share.

then alert the recipient that the message is not legitimate. With message integrity, both parties involved in the transaction know that what they're seeing is exactly what the other party sent.

The diagram below illustrates the process that guarantees protected communications between a Web server and a client. All exchanges of SSL Certificates occur within seconds, and require no action by the consumer.

When you secure your Web site with a SSL Certificate, your customers are assured that your site is legitimate. Information sent either way remains private, even if intercepted. And both parties know that messages are received exactly as sent.



VeriSign offers you two varieties of SSL Certificates as part of its Secure Site services. Each variety enables different levels of SSL encryption power that vary according to the browser version used by visitors to sites secured by the SSL Certificate.

40-bit SSL Certificates (included with VeriSign's Secure Site and Commerce Site Services) enable 40-bit SSL sessions when communicating with export-version Netscape and Microsoft® Internet Explorer Web browsers. Export-version browsers are used by over 50 percent of Internet users. 40-bit SSL is strong enough for most intranets and lower-volume Web sites. But when communicating with domestic-version Web browsers, SSL Certificates enable super-strong 128-bit SSL encryption, the world's most powerful. To date, 128-bit SSL encryption has never been broken; according to RSA Labs, it would take a trillion-trillion years to crack using today's

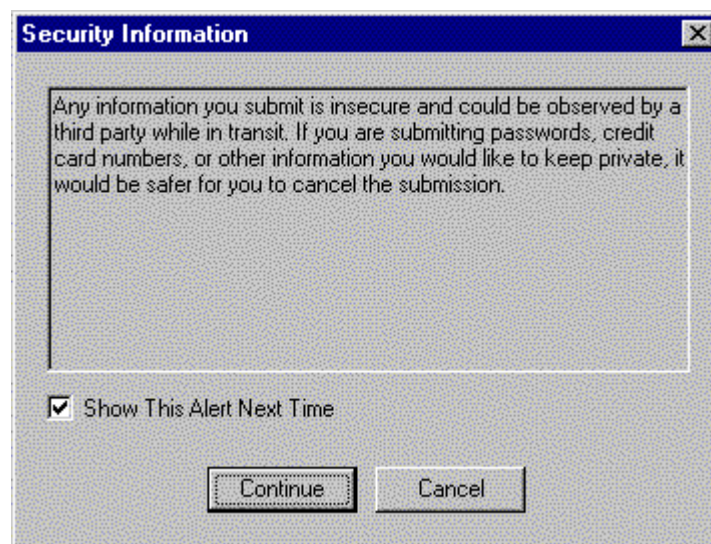
technology.

128-bit Global Server IDs (included with VeriSign's Secure Site Pro and Commerce Site Pro Services) automatically ensure a minimum level of 128-bit SSL encryption when communicating with both domestic and export versions of Netscape® Communicator and Internet Explorer. The encryption power of 128-bit SSL Global Server IDs make them ideal for sites that exchange sensitive, personal information, such as credit card numbers, with customers. VeriSign is one of the only providers authorized by the U.S. Department of Commerce to sell 128-bit SSL IDs in the U.S.

The ultimate result of a VeriSign SSL Certificate on your site: safe online transactions that protect customers and your business. Customers gain confidence that they are sending their personal information to a legitimate business and not an impostor. In turn, you know that your company is receiving accurate information that the customer cannot later refute.

Make online commerce easy for your customers

Installing VeriSign SSL Certificates not only makes e-commerce safer for your customers; it actually makes it easier to submit information, such as a credit card number, over the Internet. The Netscape Navigator and the Microsoft Internet Explorer browsers have built-in security mechanisms to prevent users from unwittingly submitting their personal information over insecure channels. If a user tries to submit information to an unsecured site (a site without a SSL Certificate), the browsers will, by default, show a warning, which can make the purchase process seem threatening.



In contrast, if a user submits credit card or other information to a site with a valid SSL Certificate and an SSL connection, the warning does not appear. The secure connection is seamless, making the online shopping experience more pleasant. In addition, when you install a VeriSign SSL Certificate, the over 100 million prospective customers with Microsoft and Netscape browsers are reassured that they are shopping on a secure site. Visitors can be sure that transactions with your site are secured by looking for the following cues:

- The URL in the browser window displays "https" at the beginning, instead of

http.

- In Netscape Communicator, the padlock in the lower left corner of the Navigator window will be closed instead of open. Netscape users can also follow these steps to see what level of encryption is protecting their transactions with your site:
 - Go to the Web site you want to check.
 - Click the Security button in the Navigator's toolbar. The Security Info dialog box indicates whether the Web site uses encryption.
 - If it does, click the Open Page Info button to display more information about the site's security features, including the type of encryption used.
- In Internet Explorer, a padlock icon appears in the bar at the bottom of the IE window. IE users can find out a Web site's encryption level by following these steps:
 - Go to the Web site you want to check.
 - Right-click on the Web site's page and select Properties.
 - Click the Certificates button.
 - In the Fields box, select "Encryption type." The Details box shows you the level of encryption (40-bit or 128-bit).

Enhance sales, convenience, and security with VeriSign® Solutions

When you have established your secure Web site, you can take advantage of a wealth of options from VeriSign to further enhance your e-commerce operation.

Attract more customers with VeriSign's Secure Site Seal



With the Secure Site Seal, included with every Site Trust Service, you can display the number-one trust brand on the Internet (Cheskin/Studio Archetype Study) to give your customers the confidence to communicate and transact business with your site. The Seal allows your visitors to check your SSL Certificate's information and status in real time, and provides additional protection against the misuse of revoked and expired certificates.

A Secure Site Seal icon also appears next to your organization's listing in VeriSign's comprehensive Web site directory at <http://www.dotcomdirectory.com>, alerting every directory user that your site is set apart from the crowd by VeriSign's superior security features.

Learn more about your customers through client authentication

An SSL Certificate tells your customers exactly who you are. Suppose you want to learn who your customers are, or to restrict access to your content to certain consumers. You can set up your Web site to authenticate visitors' identities with VeriSign SSL Certificates for Individual Users. Compared to asking customers to supply a user name and password, SSL Certificate registration is more convenient for customers and more informative for your business.

Deploy strong security for worldwide commerce

Until recently, strong 128-bit encryption was not exportable. The United States

Department of Commerce has approved VeriSign to issue certificates for 128-bit encrypted communications, the highest level of encryption ever allowed across United States borders. With a VeriSign 128-bit Global Server ID, available from VeriSign as part of its Secure Site Pro and Commerce Site Pro Services, your 128-bit customers can now enjoy unparalleled security when visiting your Web site. The VeriSign Global Server ID is a septillion times more secure than other products.

Facilitate Payments with VeriSign's Payment Processing Services

Extending a business to the Web and opening an e-commerce storefront requires merchants to master many tasks – not only Web site development and design, but also maintaining the confidentiality and security of consumer data and accepting and processing payments. VeriSign takes the headache out of payment processing by managing a secure, reliable and low-cost solution for accepting payments.

VeriSign® Payment Processing Services provide the ideal payment transaction platform for merchants who want to conduct business on the Internet. Regardless of your business's size or demands, VeriSign delivers the right solution: a fast, scalable, and reliable Internet payment platform that enables companies to authorize, process, and manage multiple payment types. VeriSign Payment Processing Services bring affordability, flexibility, and convenience to Internet payment processing by combining a flat-fee monthly pricing model with a growing menu of services and solutions for merchants, financial institutions, resellers, and developers.

VeriSign's Commerce Site and Commerce Site Pro Services combine SSL Certificates with the VeriSign® Payflow Pro™ service to form a complete, integrated solution that's ideal for e-merchants and online stores.

- Commerce Site includes a 40-bit SSL Certificate and Payflow™ Pro, plus additional value-added services.
- Commerce Site Pro includes a 128-bit SSL Global Server ID and Payflow Pro, plus value-added services.

VeriSign's Payflow Pro is designed especially to help Web merchants securely accept and process credit card, debit card, purchase card, and electronic check payments. Payflow Pro is the most robust, versatile solution for online payment processing – ideal for large-scale e-commerce merchants that require peak performance and complete customizability. Payflow Pro enables payment processing through a small SSL TCP/IP-enabled client that controls communications between merchants' applications and the Payflow platform. Designed for scalability and reliability, Payflow Pro creates a dedicated SSL TCP/IP level communication thread for each transaction between the client and the server. Payflow Pro is downloadable as a Software Development Kit (SDK) or comes pre-integrated with most shopping carts and e-commerce platforms. Up to 5,000 transactions are included. See and try VeriSign Payment Processing Services at [\[INSERT URL HERE\]](#)

Step-by-step instructions

You can purchase a one-year full-service 40-bit SSL Certificate as part of VeriSign's Secure Site or Commerce Site Services from VeriSign by visiting [\[INSERT URL HERE\]](#) The application process takes about 15 minutes. In one to three days, after VeriSign has verified your credentials, you will receive your SSL Certificate via e-mail. Simply

install the SSL Certificate on your server, and then immediately begin conducting transactions online — with the confidence that you and your customers are protected.

The U.S. Department of Commerce requires your company to qualify before buying the 128-bit SSL encryption power of Global Server IDs, included with Secure Site Pro and Commerce Site Pro Services. All companies within the United States are eligible for Global Server IDs. The U.S. Government determines the categories of companies that can implement the powerful 128-bit SSL encryption technology of Global Server IDs outside the U.S. and across U.S. borders. New regulations make Global Server IDs available to a wider group of customers than ever before: any company or organization around the world may purchase a Global Server ID, with the following exceptions:

- Persons listed on the U.S. Government's Denied Person's List
- Customers located in the following countries: Afghanistan (Taliban-controlled areas), Cuba, Iran, Iraq, Libya, North Korea, Serbia, Sudan, and Syria

Conclusion

With its worldwide reach, the Web is a lucrative distribution channel with unprecedented potential. By setting up an online storefront, businesses can reach the millions of people around the world already using the Internet for transactions. And by ensuring the security of online payments, businesses can minimize risk and reach a far larger market: the 85 percent of Internet users who still hesitate to shop online because of security concerns.

VeriSign SSL Certificates are a proven solution, working today on more than 410,000 Web sites worldwide, including all of the Fortune 500 companies with a Web presence. Join them today, and expand your market by securing your online business.

A VeriSign SSL Certificate enables you to immediately begin conducting online business securely, with authentication, message privacy, and message integrity. As a result, you can minimize risk, win customer confidence, and, ultimately, gain a competitive edge.