SMARTFORCE WEB 4.6
Installation and Administration Guide
We’d like to hear from you

SmartForce endeavors to design and produce documentation that is comprehensive, accurate, and easy to use. However, there’s always room for improvement. As a customer, we consider you the most important critic of our documentation. If you think there’s anything in this guide that we could have done better, we’d like to hear from you. Please mail your comments to

technical_publications@smartforce.com
SmartForce Technical Support

USA
Tel 1 800 938 3247
Fax +1 650 817 5056

International
Tel +353 1 283 0380
Fax +353 1 260 1923

UK
Tel 0 800 973 184
Fax +353 1 260 1923

Australia
Tel +61 2 9941 6333
Fax +61 2 9887 1780

Technical queries may be e-mailed to the SmartForce Technical Support Department at support@smartforce.com
Conventions

The following conventions are used throughout this guide.

This icon indicates a note in the text. Notes are used to provide important background material or expanded explanations to help you fully understand the concepts being discussed in the text.

This icon indicates a tip in the text. Tips provide alternative ways to accomplish a task being described in the text. They are also used to inform you of ways you can apply skills described in the text to enhance your productivity.

This icon indicates a caution or warning in the text. Cautions are used to advise you of a safe way to accomplish a task that, if carried out incorrectly, could result in the loss of data or some similar mishap.
CONTENTS

1 INTRODUCING SMARTFORCE WEB
What is SmartForce Web ......................................................... 1-1
Benefits of SmartForce Web ..................................................... 1-1
Key concepts ............................................................................ 1-2
What’s new in SmartForce Web 4.6 ............................................. 1-2

2 PLANNING YOUR SMARTFORCE WEB INSTALLATION
SmartForce Web components .................................................. 2-2
Compulsory components ........................................................... 2-2
The SmartForce Web server ...................................................... 2-2
  HTML pages ............................................................................ 2-2
  Web page options ................................................................... 2-3
  Courseware .............................................................................. 2-3
  SmartForce Player setup program ......................................... 2-4
  Web server specifications ....................................................... 2-4
The desktop client ................................................................. 2-5
  Client specifications for standard LivePlay and/or Download .... 2-5
  Client specifications for Java LivePlay ................................. 2-5
Optional components ............................................................. 2-6
  FTP server ............................................................................. 2-6
  FTP server specifications ..................................................... 2-7
SmartForce Data Server ......................................................... 2-7
  SmartForce Data Server specifications ................................. 2-7
SmartForce Admin ................................................................. 2-7
  SmartForce Admin specifications ....................................... 2-8
The CGI version of SmartForce Web ....................................... 2-8
  CGI and student logon .......................................................... 2-8
  Logon page options ............................................................. 2-9
  Tracking download and LivePlay activity ............................... 2-9
Localized SmartForce Web .................................................... 2-10
SmartForce Web and Java-enabled courseware ..................... 2-10
The installation process ......................................................... 2-11

3 INSTALLING SMARTFORCE WEB
Before you install SmartForce Web ........................................... 3-1
Upgrading from CBTWeb 4.1x or later ...................................... 3-1
Installing SmartForce Web on Windows NT ......................... 3-2
Installing SmartForce Web on UNIX ....................................... 3-5
## 4 Installing Perl/CGI

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing Perl on Windows NT</td>
<td>4-1</td>
</tr>
<tr>
<td>The cgi-lib.pl library</td>
<td>4-2</td>
</tr>
<tr>
<td>Configuring Perl on Windows NT</td>
<td>4-2</td>
</tr>
<tr>
<td>File associations on NT 4.0</td>
<td>4-2</td>
</tr>
<tr>
<td>File associations on NT 3.51</td>
<td>4-3</td>
</tr>
<tr>
<td>Log file attributes</td>
<td>4-3</td>
</tr>
<tr>
<td>Installing Perl on UNIX</td>
<td>4-4</td>
</tr>
<tr>
<td>Preregistering students</td>
<td>4-4</td>
</tr>
</tbody>
</table>

## 5 Configuring a Web Server for CGI

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting file and directory permissions</td>
<td>5-1</td>
</tr>
<tr>
<td>Microsoft Internet Information Server 2.0 and 3.0</td>
<td>5-2</td>
</tr>
<tr>
<td>Creating a virtual directory for cbtdata</td>
<td>5-2</td>
</tr>
<tr>
<td>Creating a virtual directory for cbtdata\student</td>
<td>5-3</td>
</tr>
<tr>
<td>Creating Registry associations</td>
<td>5-4</td>
</tr>
<tr>
<td>Internet Information Server 4.0</td>
<td>5-5</td>
</tr>
<tr>
<td>Creating application mappings for .cgi and .pl</td>
<td>5-5</td>
</tr>
<tr>
<td>Netscape Enterprise Server</td>
<td>5-6</td>
</tr>
<tr>
<td>Defining cbtdata as a shell CGI directory</td>
<td>5-6</td>
</tr>
<tr>
<td>Creating an additional document directory for cbtdata\student</td>
<td>5-7</td>
</tr>
<tr>
<td>Lotus Domino</td>
<td>5-7</td>
</tr>
<tr>
<td>Replacing the CGI scripts with PERL scripts</td>
<td>5-7</td>
</tr>
<tr>
<td>Configuring Lotus Domino for SmartForce Web CGI</td>
<td>5-9</td>
</tr>
<tr>
<td>Defining cbtdata as your Domino CGI directory</td>
<td>5-9</td>
</tr>
<tr>
<td>Creating a directory mapping for cbtdata</td>
<td>5-9</td>
</tr>
<tr>
<td>Creating a directory mapping for cbtdata\student</td>
<td>5-9</td>
</tr>
</tbody>
</table>

## 6 Configuring a Web Server for Download

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Internet Information Server</td>
<td>6-1</td>
</tr>
<tr>
<td>IIS 2.0 and 3.0</td>
<td>6-1</td>
</tr>
<tr>
<td>Denying execute access to your site</td>
<td>6-1</td>
</tr>
<tr>
<td>Creating an alias for the cbtlib directory</td>
<td>6-2</td>
</tr>
<tr>
<td>IIS 4.0</td>
<td>6-3</td>
</tr>
<tr>
<td>Netscape Enterprise Server</td>
<td>6-3</td>
</tr>
<tr>
<td>Editing the MIME types</td>
<td>6-4</td>
</tr>
<tr>
<td>Netscape Enterprise Server 2.0</td>
<td>6-4</td>
</tr>
<tr>
<td>Netscape Enterprise Server 3.x</td>
<td>6-4</td>
</tr>
<tr>
<td>Editing the obj.conf file</td>
<td>6-5</td>
</tr>
<tr>
<td>Lotus Domino</td>
<td>6-6</td>
</tr>
<tr>
<td>Editing the server’s MIME types</td>
<td>6-6</td>
</tr>
<tr>
<td>Creating a directory mapping for cbtlib</td>
<td>6-6</td>
</tr>
</tbody>
</table>
# Configuring SmartForce Web for Online Reporting

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmartForce Data Server Setup</td>
<td>7-1</td>
</tr>
<tr>
<td>Preparing to install SmartForce Data Server</td>
<td>7-1</td>
</tr>
<tr>
<td>SmartForce Data Server and DNS</td>
<td>7-2</td>
</tr>
<tr>
<td>Installing SmartForce Data Server</td>
<td>7-3</td>
</tr>
<tr>
<td>Changing SmartForce Data Server settings after installation</td>
<td>7-5</td>
</tr>
<tr>
<td>Configuring server components as Windows NT services</td>
<td>7-5</td>
</tr>
<tr>
<td>Launching server components</td>
<td>7-6</td>
</tr>
<tr>
<td>Installing SmartForce Admin</td>
<td>7-7</td>
</tr>
<tr>
<td>Launching and logging on to SmartForce Admin</td>
<td>7-9</td>
</tr>
<tr>
<td>Changing the SmartForce Admin password</td>
<td>7-10</td>
</tr>
<tr>
<td>Loading courses into SmartForce Data Server</td>
<td>7-10</td>
</tr>
<tr>
<td>Loading courses</td>
<td>7-10</td>
</tr>
<tr>
<td>Updating student details</td>
<td>7-11</td>
</tr>
<tr>
<td>Deleting students</td>
<td>7-12</td>
</tr>
<tr>
<td>Deleting students individually</td>
<td>7-12</td>
</tr>
<tr>
<td>Deleting students in batches</td>
<td>7-12</td>
</tr>
<tr>
<td>Reports</td>
<td>7-13</td>
</tr>
<tr>
<td>Report types</td>
<td>7-13</td>
</tr>
<tr>
<td>Running reports</td>
<td>7-13</td>
</tr>
<tr>
<td>Saving reports</td>
<td>7-14</td>
</tr>
<tr>
<td>Opening saved reports</td>
<td>7-14</td>
</tr>
<tr>
<td>SmartCourse Location reports</td>
<td>7-14</td>
</tr>
<tr>
<td>Running SmartCourse Location reports</td>
<td>7-14</td>
</tr>
<tr>
<td>Importing student history files</td>
<td>7-15</td>
</tr>
</tbody>
</table>

# Configuring SmartForce Web for Offline Reporting

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introducing offline reporting</td>
<td>8-1</td>
</tr>
<tr>
<td>Record return and LivePlay</td>
<td>8-2</td>
</tr>
<tr>
<td>Record return and Download</td>
<td>8-2</td>
</tr>
<tr>
<td>Configuring your FTP server</td>
<td>8-2</td>
</tr>
<tr>
<td>Creating an FTP user account</td>
<td>8-3</td>
</tr>
<tr>
<td>Creating a new user account in Windows NT</td>
<td>8-3</td>
</tr>
<tr>
<td>Creating a directory for a new user account</td>
<td>8-4</td>
</tr>
<tr>
<td>Creating a virtual directory for sfuser</td>
<td>8-6</td>
</tr>
<tr>
<td>Testing your new configurations</td>
<td>8-9</td>
</tr>
</tbody>
</table>

# Updating and Customizing SmartForce Web

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customizing the Getting Started page</td>
<td>9-1</td>
</tr>
<tr>
<td>Installing the SmartForce Player on a network drive</td>
<td>9-1</td>
</tr>
<tr>
<td>Client compatibility</td>
<td>9-3</td>
</tr>
<tr>
<td>Generating CKN files</td>
<td>9-4</td>
</tr>
</tbody>
</table>
10 TROUBLESHOOTING

Error messages .............................................. 10-1
  SmartForce Web error messages ..................... 10-1
  Client error messages .................................. 10-3
  Web server error messages ............................ 10-3
    Microsoft Internet Information Server error messages . 10-3
    Netscape Enterprise Server error messages .......... 10-5
    Lotus Domino error messages ....................... 10-6
  Progress tracking error messages ................. 10-7
Other troubleshooting sources ....................... 10-8

Index ............................................................. I-1
INTRODUCING SMARTFORCE WEB

Welcome to SmartForce Web, the HTML-based courseware deployment system from SmartForce.

What is SmartForce Web?

SmartForce Web allows you to provide students with access to SmartForce’s library of interactive training courseware using your organization’s intranet.

To students, SmartForce Web looks like a typical web site, with HTML pages linked so that they can navigate their way around the product easily. The HTML pages are stored on your web server along with the SmartForce™ courseware. All students need to do is use a browser to access SmartForce Web, and navigate through its graphical pages as they would any web site until they find the courses they want.

SmartForce Web is designed to

• allow students and administrators to access current SmartCurricula and course information using a web browser

• provide students with an easy method of downloading SmartCourses or running them online over their organization’s intranet

• allow students to download utilities that will remove courses from their workstations, and send their course progress back to the training department

• enable training administrators to keep all students up to date with SmartForce courseware, reduce training administration costs, and keep records of—and produce reports on—student progress

Benefits of SmartForce Web

SmartForce Web is designed to give students easy access to the courses available to them over their organization’s intranet. Students can download and install courses on their workstations, or take courses online over the intranet. They can plan their study by viewing the contents of the SmartForce library, curriculum planners, and detailed course descriptions.

SmartForce Web facilitates training administration by reducing the need for training departments to copy and ship diskettes and CD-ROMs to students. It allows administrators to keep records of students’ progress. Students who have been working on courses installed on their workstations can return their progress to the
training administrator. If a student has been working online, their progress is automatically returned to the administrator when the student exits the course. Administrators may also opt to keep records of which courses students are accessing.

Key concepts

As you read through this guide, you will come across a number of concepts that are central to understanding how SmartForce Web works. It’s a good idea to familiarize yourself with these terms now, before you start planning your SmartForce Web installation.

**LivePlay:** SmartForce’s LivePlay™ capability allows students to run SmartForce courses online over their organization’s intranet. When you install SmartForce Web on your server, you can choose to provide students with LivePlay courses, Download courses, or both. A new feature in SmartForce Web 4.6 is “Java™ LivePlay” which does not require any extra software on the client side for courses to run over your organization’s intranet.

**Download:** As well as LivePlay courses, SmartForce Web can deploy Download courses, which students can download to their machines and play from there. Once they have finished with courses, they remove them from their machines using SmartCourse Manager.

**CGI:** When you install SmartForce Web, you can choose to keep records of student download and LivePlay activity. SmartForce Web uses the Common Gateway Interface (CGI) specification to write the student and course details to the download and LivePlay log files. It also requires the Perl programming language to interpret the CGI scripts. In addition, a number of the new features available in SmartForce Web 4.6 are available only in the CGI version. See “What’s new in SmartForce Web 4.6” below.

**SmartForce Player:** Unless your organization has its SmartForce courseware for Java LivePlay only, your students will need to download the SmartForce Player from the SmartForce Web site and install it on their machines before they can run a course.

**Progress tracking:** SmartForce Web provides training administrators with the option to monitor how far students have progressed in the SmartCourses they have taken, and how they have performed in the tests that every course contains. For this, administrators will need either an FTP server or a database, known as SmartForce Data Server, to store student progress records centrally. When students exit a LivePlay course, their progress is returned to the FTP server or SmartForce Data Server automatically. For Download courses, progress is returned automatically if the CGI version of SmartForce Web is installed. Otherwise students upload their records to the FTP server using SmartCourse Manager.

What’s new in SmartForce Web 4.6

The following features are new in SmartForce Web 4.6.
Support for Java-enabled courseware: SmartForce Web 4.6 supports a new Java-based courseware architecture that allows SmartForce LivePlay courses to be played directly through a web browser, regardless of the client platform. With Java-enabled courses, students no longer have to install the SmartForce Player on their desktop. Progress tracking for Java-enabled courses requires a CGI implementation of SmartForce Web. If you want to track student progress, you need to install a database—SmartForce Data Server—to receive progress data.

Online reporting: Online reporting is a new way of tracking student progress and generating reports in SmartForce Web. It is available with SmartForce Web installations where LivePlay courseware has been enabled for Java. Instead of student progress being uploaded to an FTP server, it is returned to a database known as SmartForce Data Server. Another program, SmartForce Admin, is then used to manage students and courses and to generate reports.

SmartCourse Manager: SmartCourse Manager replaces the Remove/Record Return utility. It allows students to remove courses from their hard drives once they’ve finished with them and to upload their progress records to an FTP server. It is installed along with the SmartForce Player during SmartForce Player Setup.
Before you install SmartForce Web, you need to decide which types of courses you want to make available to your students and which, if any, of SmartForce Web’s reporting and tracking capabilities you want to use.

For example, do you want your students to be able to run LivePlay courses, Download courses, or both? If you choose LivePlay, do you want to provide the Java implementation of LivePlay, which does not require any additional software on the client machine and which allows for online reporting? Or are you happy for your students to install the SmartForce Player and have their student progress records returned to an FTP server?

If you choose Java LivePlay courses, you will be unable to offer Download courses as well.

LivePlay courses play efficiently over a 28.8 Kbps modem. But if you have a number of students taking LivePlay courses at the same time, you may need to increase your network’s bandwidth to accommodate the increase in traffic.

On the other hand, if you want to deploy Download courses, you should ensure that your students have enough space available on their hard drives to install the course and the SmartForce Player (see “Client specifications for standard LivePlay and/or Download” on p. 2-5 for more details).

Do you want to be able to monitor student LivePlay or download activity? If you do, you need to install the CGI version of SmartForce Web and the Perl interpreter on your SmartForce Web server and configure your system accordingly.

Do you want to track how your students are performing in the tests that are included in all SmartCourses and how they are progressing in the courses themselves? If the answer is yes, you will need to put in place a system for receiving student progress data. For standard LivePlay and Download courses this will involve setting up an FTP server to store the data and using SmartForce Reporter to generate reports. For Java LivePlay courses, you will need to install SmartForce Data Server to receive progress and SmartForce Admin to generate reports.
SmartForce Web components

Before you start planning your SmartForce Web installation, you should consider which components you will need to install, as well as the specifications for your server and client machines.

Compulsory components

The compulsory components of any SmartForce Web installation are

- the SmartForce Web server
- the desktop client

The SmartForce Web server

The SmartForce Web server stores the following components:

- HTML pages
- courseware
- setup programs for the SmartForce Player and SmartCourse Manager

HTML pages

To students, SmartForce Web looks like any other web site, with a home page and various other links off it.

The Getting Started page is where students go to download any software that they may need to play courses or remove courses from their machine.

The Courseware page is where SmartForce Web stores the SmartForce e-Learning Catalog, curriculum and course planners, and links to the courses themselves.
Planning your SmartForce Web installation

The About SmartForce page contains some information about SmartForce, and the Strategic Partners page gives details of SmartForce’s alliances with key players in the information technology industry.

The Customer Support page provides links to the SmartForce Technical Support home page, as well as to a list of frequently asked questions and a support database. The Feedback page gives you some details of where to address your comments about SmartForce courseware and deployment products. Finally, the What’s New page tells you what courses have been added to the SmartForce courseware library in a particular month.

Web page options
The appearance of the web pages that your students can access will vary according to the options you select during SmartForce Web Setup.

For example, JavaScript variables within the HTML code in the Getting Started page will dictate how the page appears, depending on what choices you made during Setup.

So if you decide to offer your students Download courses either alone or in conjunction with standard LivePlay courses, Setup will create a Getting Started page from which students can download a program that installs both the SmartForce Player and the SmartCourse Manager.

With Java LivePlay courses, the Getting Started page will simply provide the student with a brief introduction to SmartForce Web. There is no need for the student to install any extra software on their machine in order to play Java LivePlay courses.

Courseware
SmartForce courses are stored in a directory called cbtlib, which is usually located under the root of your web server.

You need to have courses installed on your server before you install SmartForce Web. To see how to do this, see SmartForce e-Learning Library Administrator’s Guide.
**SmartForce Player setup program**

When you install SmartForce Web, the setup program for SmartForce Player is copied across to the SmartForce Web server. This setup program installs the SmartForce Player and the SmartCourse Manager on students’ machines.

The setup programs for the SmartForce Player Plugin and the diskette creator are not automatically copied across to the SmartForce Web server, but can be found on the SmartForce Web installation CD.

The SmartForce Player Plugin allows you to install the SmartForce Player on a network drive and have your students run it from there, while the diskette creator allows students to copy a setup program for the Player and the SmartCourse Manager to a set of diskettes. This is particularly useful if students wish to run a SmartCourse from home. For more information on both the plugin and the diskette creator, see “Customizing the Getting Started page” on p. 9-1.

Students can download these setup programs by accessing the SmartForce Web Getting Started page. The programs that are available from this page vary according to the type of course you want students to run and whether or not you want to track student progress.

**Web server specifications**

SmartForce Web runs on the following web servers and operating systems:

<table>
<thead>
<tr>
<th>Web server</th>
<th>Operating system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft® Internet Information Server 2.0, 3.0,</td>
<td>Microsoft Windows NT® Server 4.0</td>
</tr>
<tr>
<td>and 4.0</td>
<td></td>
</tr>
<tr>
<td>Netscape® Enterprise Server 2.x</td>
<td>Windows NT Server 3.51, UNIX®</td>
</tr>
<tr>
<td>Netscape Enterprise Server 3.x</td>
<td>Windows NT Server 4.0, UNIX</td>
</tr>
<tr>
<td>Apache™ Web Server 1.2</td>
<td>UNIX</td>
</tr>
<tr>
<td>Lotus® Domino™ Server</td>
<td>Windows NT Server 4.0</td>
</tr>
<tr>
<td>Novell® NetWare® Web Server 2.51</td>
<td>Novell intraNetWare®, NetWare® 4.11</td>
</tr>
</tbody>
</table>

The web server hardware you need will depend on a number of factors, including the number of students you expect to be accessing the SmartForce Web server at any one time and the speed of your network links.

Before you choose your web server hardware, you should consult your MIS department for recommendations based on your network infrastructure.

These are the minimum requirements for installing SmartForce Web:

- Intell® Pentium® Pro processor (200 MHz)
Planning your SmartForce Web installation

• 128MB RAM
• 4GB hard drive—this figure depends on the number of courses you plan to install on your SmartForce Web server

The desktop client

The components included on the desktop client and their specifications vary according to whether you have chosen to provide your students with standard LivePlay courses and/or Download courses, or with Java LivePlay courses.

Client specifications for standard LivePlay and/or Download

In cases where standard LivePlay and/or Download courses are deployed, the desktop client includes the following components:

• a web browser—Netscape Navigator® 3.0 or higher and Microsoft® Internet Explorer 3.0 or higher are supported
• an appropriate Windows® environment—the student side of SmartForce Web runs on Windows® 3.x, Windows® 95, Windows® 98, and Windows NT
• the SmartForce Player—this allows the student to play both standard LivePlay and Download courses. Java LivePlay does not require the SmartForce Player. Students can download the SmartForce Player from the SmartForce Web Getting Started page.
• the SmartCourse Manager—this removes SmartCourses from students’ machines once they have finished with them, and can be used to return student progress records to an FTP server.

The following is the minimum machine specification for client machines running non-Java courses:

• 486 processor (33 MHz)
• 8MB RAM
• 20MB hard disk space for students running Download courses
• 4.5MB hard disk space for students running standard LivePlay courses

Our recommended machine specification is as follows:

• Pentium processor (90 MHz)
• 16MB RAM
• 20MB hard disk space for students running Download courses
• 4.5MB hard disk space for students running standard LivePlay courses

Client specifications for Java LivePlay

Java LivePlay courses are supported by any browser that supports version 1.1.6 of Java or later. These include

• Netscape Navigator 4.05
• Microsoft Internet Explorer 4.0 or later
• HotJava™ Browser

The following platforms support Java LivePlay courseware:
• Windows 95
• Windows 98
• Windows NT 4.0
• Windows 2000
• Linux® and Sun Microsystems® Solaris™
• Apple® Mac® OS 8

Optional components

The optional components of any SmartForce Web installation are
• an FTP server
• SmartForce Data Server
• SmartForce Admin

FTP server

The FTP server is an optional component which can be used to store student progress files in a SmartForce Web installation that does not include Java LivePlay courses.

With both standard LivePlay courses and Download courses, student progress files are usually created on the student’s machine every time they take a course.

If you opt to track student progress, but you didn’t choose Java LivePlay, the following will happen:
• when students run a LivePlay course, their progress is returned to the FTP server automatically after they exit the course
• when students run a Download course, their progress is returned to the FTP server in one of two ways. If the CGI version of SmartForce Web is installed, progress is returned automatically the next time they log on to SmartForce Web. Otherwise they use the SmartCourse Manager to manually return their progress to the FTP server.

You can import the data stored on the FTP server into the SmartForce Reporter utility to produce training progress reports.

If you choose to track student progress, you will be asked for the IP address of your FTP server during SmartForce Web Setup. So if you plan to use an FTP server, you should designate a machine and take a note of its IP address before you install SmartForce Web.
Planning your SmartForce Web installation

FTP server specifications
The FTP server may be run from the same machine as the web server or from another machine.

The specification for a separate FTP server machine will depend on the number of simultaneous users and the speed of your network links. However, we recommend the same hardware specifications for an FTP server machine as for the web server machine.

The FTP server does not require the same hard disk space as the web server. A single record upload is 1KB in size. However, you should remember that you might want to use the FTP server for other internal file transfers.

SmartForce Data Server
The SmartForce Data Server is an optional component that is used to provide online reporting in SmartForce Web installations that feature Java LivePlay courses. The Data Server stores details of students and courses and student progress records.

When you install SmartForce Data Server, SmartForce Connect Server is also installed. SmartForce Connect Server is responsible for passing progress data generated by Java-enabled courseware to the Data Server.

SmartForce Data Server specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard disk space</td>
<td>1GB*</td>
</tr>
<tr>
<td>Operating system</td>
<td>Microsoft Windows NT Server 4.0</td>
</tr>
<tr>
<td>Minimum system requirements</td>
<td>Intel Pentium Pro 200 MHz processor, 128MB RAM</td>
</tr>
</tbody>
</table>

*The disk space required depends on the number of students, student records, and so on. Allow 200KB per student.

SmartForce Admin
If you have chosen online reporting, you need to install SmartForce Admin to be able to manage SmartForce Data Server. SmartForce Admin allows you to generate reports on student progress.
SmartForce Admin specifications

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard disk space</td>
<td>12MB</td>
</tr>
<tr>
<td>Operating systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microsoft Windows 95</td>
</tr>
<tr>
<td></td>
<td>Windows NT Workstation 4.0</td>
</tr>
<tr>
<td></td>
<td>Windows NT Server 4.0</td>
</tr>
<tr>
<td>Minimum system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>requirements</td>
</tr>
<tr>
<td></td>
<td>Pentium 120 MHz</td>
</tr>
<tr>
<td></td>
<td>32MB RAM</td>
</tr>
</tbody>
</table>

The CGI version of SmartForce Web

During SmartForce Web Setup you can choose to install a Common Gateway Interface (CGI) version of SmartForce Web. CGI is a standard that allows users to interact dynamically with a web server. With the CGI version of SmartForce Web, students are required to log on to the SmartForce Web site before they can download a course or play it live. This allows you to track student LivePlay and download activity.

You also need to install the CGI version of SmartForce Web if you want to avail of Java-enabled courseware and online reporting, single upfront logon to SmartForce Web and courses, and batch registration of students.

Selecting the CGI option requires you to install the Perl interpreter and to carry out further configuration on your web server after you have installed SmartForce Web itself.

CGI and student logon

If you select the CGI option during SmartForce Web Setup, every time a student navigates to the SmartForce Web site they are taken to a Logon page, which displays an HTML form that allows the student to log on to SmartForce Web.

The options available in this form will vary depending on the selections you make during SmartForce Web Setup (see "Logon page options" below).
The student enters their student number and clicks the Submit button to log on to SmartForce Web. A CGI script then checks the student’s ID number against a log file called users.txt, which is stored on the SmartForce Web server. If the details are correct, the student will be taken to the SmartForce Web home page. If not, they will be given the choice to return to the Logon page and re-enter their details.

If the student clicks the Register button on the page, they are taken to a screen where they can enroll as a SmartForce Web student. Once the student fills in their details and clicks Submit, a CGI script checks the users.txt file to make sure that the student number is not already in use.

Once the student has registered, they will be taken to the SmartForce Web home page from where they can access the SmartForce e-Learning Catalog, view course and curriculum planners, and download courses or play them live over the intranet.

Logon page options
During SmartForce Web Setup you can choose which options to make available to students on the Logon page. JavaScript variables embedded in the HTML headers dictate the text, fields, and buttons that appear on the page.

**Preregistering students:** You can make your SmartForce Web site more secure by preventing students from self-registering to SmartForce Web. If you prevent self-registration, no Register button will appear on the Logon page. You preregister students using the SmartForce Web Admin utility to populate the users.txt file with the students’ names, identification numbers, and locations. For more details, see “Preregistering students” on p. 4-4.

**Passwords:** You can require students to enter a password along with their student ID number before they can access the SmartForce Web site—this option is only available if you allow your students to self-register.

**Anonymous access:** You can allow anonymous access to the SmartForce Web site. A Skip button will appear on the Logon page, so that students can bypass the logon and registration process and browse the SmartForce Web site.

**Tracking download and LivePlay activity**
Installing the CGI version of SmartForce Web will allow you to track student download and LivePlay activity. Once students have successfully logged on to the
SmartForce Web site, they will be able to play courses live over the intranet or download them to their hard drives.

For example, say a student who has logged onto SmartForce Web wants to run the course Microsoft Office 97: Beginning Word 97 live over the intranet. The student navigates to the course description page and clicks the LivePlay icon. A CGI script writes the student’s details and the name of the course they are playing to a file called liveLog.txt, and the course starts to play.

Similarly, when a student wants to download a course, they click the Download icon on the course description page. The student is then taken to a download page—also known as a Z page because the filename ends in *.z.htm.

Once the student clicks the Download button on the Z page, a CGI script writes the student details and the name of the course they are downloading to a file called downLog.txt. At the same time, the course is downloaded as a self-extracting EXE file to the student’s machine. The course will run automatically if you have installed the CGI version of SmartForce Web. If you’ve installed the non-CGI version, the student will need to run the EXE file to install the course.

### Localized SmartForce Web

SmartForce Web has been localized to include courses in French, German, Italian, Portuguese, Spanish and Finnish. You may have SmartCourses installed on your SmartForce Web server that are written in languages other than English. SmartForce Web Setup will detect the presence of these courses and will ask you which language versions of the SmartForce Web pages you want to make available to your students. The SmartForce Player will play all courses, regardless of the language they are in.

For example, if you have installed courses in German, English, and French on your web server, you can opt to present each of the primary SmartForce Web pages in German and to provide links from each German page to the equivalent pages in English and French.

### SmartForce Web and Java-enabled courseware

Using Java LivePlay means that students never need to have information written to their hard drive, avoiding any potential security issues and ensuring a 100 percent lock down desktop. Student progress files will be written to SmartForce Data Server using SmartForce Connect. You can then use SmartForce Admin to generate reports on student progress.
Java-enabled courseware is only available with the CGI version of SmartForce Web.

The installation process

Once you have decided which options you want to use with SmartForce Web, you can install the SmartForce courseware and then SmartForce Web itself. The following chapters in this guide will take you through the installation process.

Depending on the choices you make during SmartForce Web Setup, some sections of this guide may not be relevant to you. The flow chart on page 2-12 summarizes the options available while the following text points you to the chapters you need to study.

Install SmartCourses: You need to have installed SmartForce courses on your designated SmartForce Web server before you install SmartForce Web. You can install LivePlay courses, Download courses, or both. Courses should be installed in a directory called cbtlib under the root of your web server. For example, if using Microsoft Internet Information Server as your web server, courseware would be stored in the following directory:

```
c:\inetpub\wwwroot\cbtlib
```

If you are upgrading SmartForce Web from a version earlier than 4.0, you need to replace all previous courses and install the latest courses in the cbtlib directory.

For details of how to install SmartForce courses, you should consult SmartForce e-Learning Library Administrator’s Guide.

Install SmartForce Web: Make sure you have appropriate web server software, such as Microsoft Internet Information Server or Netscape Enterprise Server, installed on your designated SmartForce Web server machine. See Chapter 3, “Installing SmartForce Web” for more details.

Install Perl: Perl is the language that interprets the CGI scripts uses in CGI. For more on the benefits of CGI, see ”The CGI version of SmartForce Web” on p. 2-8. If you chose CGI during SmartForce Web Setup, you need to install the Perl programming language and CGI scripts on your SmartForce Web server. Turn to Chapter 4, “Installing Perl/CGI”.

If you are a UNIX user, then you will need to install Perl before you can install SmartForce Web.
Configure web server for CGI: Once you’ve installed Perl and the CGI scripts, you need to carry out further configuration on your web server. See Chapter 5, “Configuring a web server for CGI”.

Configure web server for download: If you’ve opted to provide your students with Download courses, you need to configure your web server to treat the self-extracting executable programs as downloadable files. See Chapter 6, “Configuring a web server for download”.

---

**Diagram:**

- Install SmartCourses
  - Are you installing on UNIX?
    - Yes: Install Perl
    - No: Install SmartForce Web
  - Did you select Download courses?
    - Yes: Configure web server for Download courses
    - No: Did you select student progress tracking?
      - Yes: Are you using SmartForce Player?
        - Yes: Install SmartForce Data Server
        - No: Install SmartForce Admin
      - No: Configuration complete

---
Install SmartForce Data Server: If you want to track student progress using online reporting, you need to install the SmartForce Data Server to store the student progress records. Remember, online reporting is available only if you have enabled your courseware for Java LivePlay. Refer to Chapter 7, “Configuring SmartForce Web for online reporting”.

Install SmartForce Admin: If you have chosen online reporting, you need to install SmartForce Admin so that you can add details of students and courses to the SmartForce Data Server. See Chapter 7, “Configuring SmartForce Web for online reporting”.

Load courses in SmartForce Admin: If you are using online reporting, you need to use SmartForce Admin to load the courses into the SmartForce Data Server.

Configure FTP server: If you want to track student progress without online reporting, you will need to configure an FTP server. Refer to Chapter 8, “Configuring SmartForce Web for offline reporting”.
INSTALLING SMARTFORCE WEB

Once you have installed the latest courseware on your designated SmartForce Web server machine, you can run SmartForce Web Setup from the installation CD.

Before you install SmartForce Web

During Setup, you will be asked for several details. These will vary depending on how you choose to configure SmartForce Web—it’s a good idea to have these details to hand before you run Setup.

You will need the IP address or domain name and the port number of your web server.

If you choose to track student progress for Java-enabled courses, you will be asked for the IP address or domain name and the port number of your SmartForce Connect Server. This component is installed by the SmartForce Data Server Setup program.

You should install SmartForce Data Server after you have installed SmartForce Web and configured your web server for CGI. However, you need to set aside an IP address and port number for the SmartForce Connect Server before you run SmartForce Web Setup. The port number should be greater than or equal to 10,500 and should be unique across all SmartForce Web products. For more details, see “SmartForce Data Server Setup” on p. 7-1.

Upgrading from CBTWeb 4.1x or later

If you are upgrading your SmartForce Web server from version 4.1x or later, the installation program keeps a backup of everything stored under the cbtweb directory, everything in the cbtdata directory, and the custom.htm page. Data on
students already registered in the users.txt file will also be copied from the backup directory to the new version of cbtdata.

Installing SmartForce Web on Windows NT

Before you start installation, you should close down any applications running on the server machine.

To install SmartForce Web on Windows NT:

1. Insert the SmartForce Web installation CD into the CD-ROM drive of your designated SmartForce Web server.
2. Run setup.exe from the root of the installation CD.
3. Setup displays a message to remind you to install SmartForce courses on your server before you continue. If you have not already installed courses for use with SmartForce Web, you should exit Setup and install the courses now. For instructions on installing courses, see SmartForce e-Learning Library Administrator’s Guide. Otherwise, click Continue.
4. In the Web Server Details dialog box, type the path to the document root directory of your web server in the field provided, for example
d:\inetpub\wwwroot
   Where d: is the document root directory.
5. Type the IP address or domain name of your web server.
6. Enter the port number of your web server and click Next.

7. Setup then scans the cbtlib directory on your web server for installed courses and lists the languages that the courses are available in. You will be asked which language versions of the SmartForce Web interface you want to make available to your students. In the Select Language Options dialog box, select the languages that you want to make available on your SmartForce Web site in the Available Languages list box.
8. In the Default Language list box, select the language that you want to appear when students first visit the SmartForce Web site, then click Next.

9. Now you are asked to choose the kind of course you want to make available through SmartForce Web. You can choose LivePlay, Download, or both. Select the checkbox beside each feature you wish to install and click Next.

Remember, if you select a course type in this dialog box, you must have that type of course already installed on your web server.

10. Next you will be asked to select the CGI or non-CGI version of SmartForce Web. CGI enables you to track student LivePlay and download activity. For more details on the benefits of CGI, see “The CGI version of SmartForce Web” on p. 2-8. Make your selection and click Next.

The CGI version of SmartForce Web must be selected if you intend to use Java-enabled courseware.
11. If you selected non-CGI in the previous dialog box, go to step 17. If you selected CGI and chose to install LivePlay and Download courses, or Download courses only, go to step 13. Alternatively, if you selected CGI in the previous dialog box and chose to install LivePlay courses only, go to step 12.

12. If you selected LivePlay only with CGI, the LivePlay Options dialog box will display. You are asked how you want your students to access the LivePlay courses. You can choose to use the SmartForce Player or a Java-enabled browser. For more information on using a Java-enabled browser, see “SmartForce Web and Java-enabled courseware” on p. 2-10. Make your selection and click Next.

13. Now you are asked to choose how you want your students to log on to SmartForce Web. You can require them to register their student numbers, usernames, and locations when they visit the SmartForce Web site for the first time by selecting the Self-registration checkbox.

14. If you select Self-registration, you will be given the option of requiring students to enter their password.

If you don’t select the Self-Registration checkbox, you will have to preregister your students before they can access the SmartForce Web site. See “Preregistering students” on p. 4-4.

15. By selecting the Anonymous access checkbox, you can allow students to browse the SmartForce Web site but without taking any courses.

16. Once you have made your selections, click Next.

17. The Progress Tracking dialog box enables you to allow student progress tracking. If you select No, Setup will start copying files and complete the installation.

18. If you select Yes, you will have to provide information on how progress is to be returned. If you have chosen to install only Java-enabled LivePlay courses, go to step 19. Otherwise, go to step 20.

19. If you selected progress tracking with Java-enabled LivePlay courses, the Online Reporting Details dialog box will display. Enter your SmartForce Connect Server.
address and port number in the spaces provided and click OK. Setup will start copying files and inform you when the installation is complete.

20. If you selected progress tracking with standard LivePlay or Download courses, the Offline Reporting Details dialog box will display. Type the FTP server's IP address, a username, and a password in the fields provided.

If you plan to allow anonymous access to your FTP server, you can enter the username Anonymous here. Otherwise refer to the section “Creating an FTP user account” on p. 8-3.

21. You will be given the option of storing student progress files on the FTP server. For more details see “FTP server” on p. 2-6.

22. If your students will be accessing the FTP server through a firewall, you need to select the appropriate checkbox.

23. When you have entered all the details, click Next.

Progress dialogs keep you informed as the installation process continues. A message informs you when installation is complete.

Installing SmartForce Web on UNIX

The UNIX installation of SmartForce Web runs from the Perl script, setup.pl, which you’ll find at the root of the SmartForce Web installation CD. Before you can run the script, you need to install Perl on your UNIX machine—see Chapter 4, “Installing Perl/CGI”, to see how.

To install SmartForce Web on a UNIX machine:

1. Mount the SmartForce Web installation CD on your designated SmartForce Web server.

2. Make sure that you are at the root of the installation CD.
3. At the command line, run `perl` with the parameter `setup.pl`.

4. A message appears reminding you to install all courses before you continue. If you have not already installed courses for use with SmartForce Web, you should exit the installation program and install the courses now. For instructions on installing courses, see SmartForce e-Learning Library Administrator’s Guide. Type N for Next or C to cancel the installation, then press Enter.

5. You will be asked for the details of your web server. Type R, then press Enter. Type the path to the root of your web server and press Enter again.

6. Type I and press Enter. Type the web server’s IP address or domain name and press Enter.

7. Type P and press Enter. Type the web server’s port number and press Enter.

8. Check that the information you have entered is correct. If it is, type N for Next and press Enter to continue. If not, type C for Cancel and retype the details.

9. Setup then scans the cbtlib directory on your web server for installed courses and lists the languages that the courses are available in. You will be asked which language versions of the SmartForce Web interface you want to make available to your students. In the example shown below, Setup has detected courses in seven languages. Type the number for the language that you want to install and press Enter.

10. If you want to make other languages available to your students, select the number corresponding to the language you want and press Enter again. Repeat this process until you have selected all the languages you want, then type C and press Enter to continue.
11. You will then be asked to select the default language for SmartForce Web. This is the language that will appear when students first visit the SmartForce Web site. Type a number and press Enter.

12. Now you are asked to choose the type of courses you want to make available through SmartForce Web. You can choose LivePlay, Download, or both. Type L for LivePlay courses and D for Download courses. Then type N for Next and press Enter.

13. You are next presented with the option of installing either the CGI or non-CGI version of SmartForce Web. CGI enables you to track student LivePlay activity and download activity. For more details on the benefits of CGI, see “The CGI version of SmartForce Web” on p. 2-8. Type G for CGI or O for non-CGI and press Enter. Then type N for Next and press Enter again.
The CGI version of SmartForce Web must be selected if you intend to use Java-enabled courseware.

14. If you selected non-CGI in the previous dialog box, go to step 20. If you selected CGI and chose to install LivePlay and Download courses, or Download courses only, go to step 16. Alternatively, if you selected CGI in the previous dialog box and chose to install LivePlay courses only, go to step 15.

15. You are now asked how you want your students to access the LivePlay courses. You can choose to use the SmartForce Player or a Java-enabled browser. For more information on using a Java-enabled browser, see “SmartForce Web and Java-enabled courseware” on p. 2-10. Type S to select the SmartForce Player or J to select the Java-enabled browser and press Enter. Then type N for Next and press Enter.

16. You will be asked to choose how you want your students to log on to SmartForce Web. You can require them to register their student numbers, usernames, and locations when they visit the SmartForce Web site for the first time by selecting Self-registration.

If you don’t select Self-Registration, you will have to preregister your students before they can access the SmartForce Web site. See “Preregistering students” on p. 4-4 for further details.

17. If you select Self-registration, you will be given the option of requiring students to enter their password, which they will have to enter at logon.

18. By selecting Anonymous access, you can allow students to browse the SmartForce Web site without taking any courses.

19. Check that the information you have entered is correct. If it is, type N for Next and press Enter to continue. If not, type C for Cancel and re-enter the details.

20. Next you will be asked whether you want to track student progress. If you select No, the installation program will start copying files and complete the installation. If you select Yes, you will have to provide information on how progress is to be returned. Make your choice and press Enter. Then type N for Next and press Enter again.
21. If you have chosen to install Java-enabled LivePlay courses only, go to step 22. Otherwise, go to step 25.

22. To enable online reporting, you will need to supply the IP address and port number for your SmartForce Connect server. Type I and press Enter. Type the IP address of the server and press Enter.

23. Now type P, press Enter, and type the server’s port number. Press Enter again.

24. Check that the information shown is correct, type N for Next, and press Enter. The installation program will start copying files and a message will inform you when installation is complete.

25. If you selected progress tracking with the SmartForce Player, you will be asked for details about your FTP server to enable student progress tracking. First type I, press Enter, and type the FTP server’s IP address. Then press Enter again.

26. You must then provide the username and password that your students will need to access the FTP server. Enter the details and press Enter.

27. You will be given the option of storing student progress files on the FTP server. For more details, see “FTP server” on p. 2-6. Type S to select this option and press Enter.

28. You can also choose to use a firewall to protect your FTP server. Type A to select this option and press Enter.

29. Confirm that your selections are correct, type N for Next, and press Enter.
The installation program starts copying web pages—this may take a few minutes. Finally, it creates a custom page—the web page that shows the list of courses available from your SmartForce Web site. A message informs you when installation is complete.
INSTALLING PERL/CGI

If you are running SmartForce Web on Windows NT and you did not select the CGI option during SmartForce Web Setup, you can skip this chapter. However, if you did choose the CGI version, you need to install the Perl programming language and configure your NT machine accordingly. For more on the benefits of CGI, see “The CGI version of SmartForce Web” on p. 2-8.

If you plan to run SmartForce Web on a UNIX server, you should install Perl before you run SmartForce Web Setup. See “Installing Perl on UNIX” on p. 4-4.

Installing Perl on Windows NT

The programming language that is used to interpret CGI scripts in SmartForce Web is Perl, so once you’ve installed SmartForce Web, you need to install Perl on your web server and configure it to recognize Perl and CGI scripts.

The main Perl interpreter for Win32® platforms is Perl for Win32, which is loaded onto your web server as a self-extracting installation program during SmartForce Web Setup.

To install Perl for Win32 on your web server:

1. Go to the support\samples directory on the SmartForce Web installation CD and launch the self-extracting executable file pw32i302.exe.

2. Click OK to clear the About dialog box.

3. In the WinZip Self-Extractor dialog box, type c:\perl in the Unzip To Folder field.

4. Make sure that both the Overwrite Files Without Prompting and the When Done . . . install.bat checkboxes are checked.

5. Click the Unzip button to extract the files and run perlw32-install.bat.
6. In the MS-DOS® window, type Y and press Enter to confirm that you want to proceed.

7. Type Y and press Enter to modify the search path.

8. Type Y and press Enter to associate the .pl extension with perl.exe.

9. A text file, release.txt, will appear on your screen. Choose File - Exit to return to the DOS window.

10. Press any key to finish the installation.

The cgi-lib.pl library

The cgi-lib.pl library is the industry standard for parsing and passing data to CGI scripts in the Perl language.

You’ll find a copy of cgi-lib.pl in the cbtdata directory, which is installed during SmartForce Web Setup. You should copy it to both the c:\perl\lib and c:\perl\bin directories.

Configuring Perl on Windows NT

To get Perl running with your SmartForce Web server, you need to create an association between CGI scripts, which have the extension .cgi, and the Perl interpreter, perl.exe.

The association between .pl and perl.exe is made when you install Perl.

File associations on NT 4.0

To associate CGI files with perl.exe in Windows NT 4.0:

1. In Windows NT Explorer, locate the cbtdata directory.

2. Highlight one of the CGI scripts.

3. Hold down the Shift key and click the right-hand mouse button.

4. Select Open With from the shortcut menu.

5. In the Open With dialog box, select the Always use this ... file checkbox.

6. Click the Other button.
7. In the Open With dialog box, navigate to the c:\perl\bin\ directory and open the Perl interpreter, perl.exe.

8. Click OK to create the association.

![Open With dialog box](image)

In order for these changes to take effect, shut down and restart your computer, then shut down and restart your web server.

**File associations on NT 3.51**

To associate CGI files with perl.exe in Windows NT 3.51:

1. In File Manager select **File - Associate**.
2. In the Associate dialog box, type **cgi** in the Files with Extension field.
3. In the Associate With field enter the path to the Perl executable (for example c:\perl\bin\perl.exe). Alternatively, if the path is listed in the drop-down list, select it from there.
4. Click OK to save the association.

In order for these changes to take effect, shut down and restart your computer, then shut down and restart your web server.

**Log file attributes**

Since the CGI scripts need to write information about students and LivePlay and download activity to the users.txt, livelog.txt, and downlog.txt files, you need to ensure that these files have read-only access turned off.

To do this in Windows NT:

1. Go to the cbtdata directory.
2. Right-click the downlog.txt file.
3. Select **Properties** from the shortcut menu.
4. In the General tabbed page, clear the **Read-only** checkbox and click OK.
5. Repeat steps 1 through 4 for the users.txt and livelog.txt file.
Installing Perl on UNIX

The source code for the UNIX version of Perl is contained in a file called perl.tar.gz, which you’ll find in the cbtdata\samples directory on the SmartForce Web installation CD.

The command line to extract this is as follows:

```
ZCAT perl.tar.gz tar XVF -
```

or

```
gzip -d perl.tar.gz tar -XVF
```

You should extract this file to the install directory on your UNIX system (typically, this is /opt on Sun™ systems). For more information, you should consult the readme and install documents that accompany the code.

The cgi-lib.pl library is generic to all platforms. However, the location of Perl for UNIX users needs to be specified in cgi-lib.pl’s header information. Typically, the line would read either

```
#!/usr/bin/perl
```

or

```
#!/usr/local/bin/perl
```

Preregistering students

During SmartForce Web Setup you will have come across the following dialog box:

![Select Student Logon Options Dialog Box]

If you did not select the **Self-registration** check-box in the Select Student Logon Options dialog box, you will need to preregister your students. This involves creating a batch registration file containing the names, student numbers, and locations of your students and populating the users.txt log file with it.

To preregister students, you first need to create a batch registration file called batchreg.txt using the following format:

```
"Last Name", "First Name", "Student ID", "Password", "Location"
```

The batch file should be an ASCII text file and must include the first three fields. If you don’t want to use some of the other fields, you should insert the inverted commas but leave the fields blank—for example,
"Last Name", "First Name", "Student ID", "", "Location"

Only "Last Name", "First Name", "Student ID" will be transferred to the course.

Once you have created the batch registration file, you need to save it in the cbtdata directory.

Now you can preregister your students using the admin.exe program.

To preregister students on Windows NT:
1. Run admin.exe from the root of the SmartForce Web installation CD.
2. Type the path to the root of your web server in the SmartForce Web Administration dialog box, or select the appropriate directory using the Browse button.
3. Select Preregister students and click OK.
4. Click Yes to confirm your selection.
5. Click Exit once preregistration is complete.

To preregister students on UNIX:
1. Run perl with the parameter admin.pl from the root of the installation CD.
2. Type the path to the root of your web server and press **Enter**.

   ![SmartForce Web Administration](image)
   
   Please enter the document root of your SmartForce Web installation:
   
   /usr/waile_gptt/Mac

3. Type 4 to preregister students and press **Enter**.

4. Type Y and press **Enter** to confirm your selection.

5. Type 8 and press **Enter** to exit.

   The contents of the batch registration file will be copied to the `users.txt` file. You will now need to tell your students what student ID they should use to log on to SmartForce Web. You may want to use a student’s telephone extension or the last four digits of their social security number to make this process easier.

   If you want to preregister more students at a later date follow the same procedure and these details will be appended to the `users.txt` file. Students should not change their last name, first name, or student ID after registering, otherwise they will be locked out of SmartForce Web.

---

If you want to delete all students from the `users.txt` file before preregistering, run `admin.exe` or `admin.pl` and select **Purge users.txt**.
If you selected the CGI option during SmartForce Web Setup and you have installed and configured PERL on your SmartForce Web server, you need to carry out some further configuration on your web server.

If you did not select CGI during SmartForce Web Setup, you can skip this chapter.

Setting file and directory permissions

When you install the CGI version of SmartForce Web, the first thing you need to do, no matter what web server software you are running, is ensure that the correct permissions are set for intranet users accessing the \cbtdata and \cbtdata\student directories. This is done in the file system and not on the web server itself. For example, in Microsoft Internet Information Server the Internet user guest account is called IUSR_computername, where computername is the name of the host machine.

The \cbtdata directory contains the CGI scripts, which need to be executable, and the log files, which need to be written to. The \cbtdata\student directory contains CKN files that need to be deleted every so often. Accordingly, the permissions for an anonymous Internet user on \cbtdata and its subdirectories should be set to change (RWXD).

To set permissions for a file or directory in Windows NT:

1. Right-click the file and select Properties from the shortcut menu.
2. In the Properties dialog box, click the Security tab.
3. Click the Permissions button.
4. In the File Permissions dialog box, click the Add button.
5. In the Add Users and Groups dialog box, click the Show Users button to display all the users on the system.
6. Scroll down until you find the account you want, for example IUSR_computername.
7. Click the Add button.
8. Select the permission that you want from the Type of Access drop-down list and click OK.
9. Select the **Replace Permissions on Subdirectories** checkbox.

10. Click **OK** again to confirm your selection.

**Microsoft Internet Information Server 2.0 and 3.0**

The following section applies to versions 2.0 and 3.0 of Microsoft Internet Information Server (IIS).

**Creating a virtual directory for cbtdata**

You need to configure IIS 2.0 and 3.0 to recognize where the SmartForce Web CGI scripts are installed. You do this by setting up a virtual directory for the **cbtdata** directory and assigning it execute rights. This virtual directory is then translated by IIS to a physical location when it receives a request for the CGI script.

**To set up a virtual directory for cbtdata:**

1. From the **Start** menu select **Programs - Microsoft Internet Server (Common) - Internet Service Manager**.
2. Select the **WWW** service.
3. From the **Properties** menu, select **Service Properties**.
4. Click the **Directories** tab in the WWW Service Properties dialog box.
5. Click the **Add** button.
6. In the Directory Properties dialog box, enter the physical location of the SmartForce Web scripts, for example
   `c:\inetpub\wwwroot\cbtdata`
7. Click the **Virtual Directory** radio button.
8. Type `/cbtdata` in the Alias field.
9. In the Access section, make sure that the **Execute** checkbox is selected.
10. Click **OK** to exit the Directory Properties dialog box.

![Directory Properties dialog box]

11. Confirm that the alias has been set up in the Directories tabbed page of the WWW Service Properties dialog box.

![WWW Service Properties dialog box]

---

**Creating a virtual directory for cbtdata\student**

If you have configured your SmartForce Web server for LivePlay, you also need to create a virtual directory for the **cbtdata\student** directory. This directory holds the CKN files that are generated every time a student tries to play a LivePlay course. The CKN file passes on information that the SmartForce Player needs to play the course.

**To create a virtual directory for cbtdata\student:**

1. From the **Start** menu select **Programs - Microsoft Internet Server (Common) - Internet Service Manager**.
2. Select the **WWW** service.
3. From the **Properties** menu, select **Service Properties**.
4. Click the **Directories** tab in the WWW Service Properties dialog box.
5. Click the **Add** button.
6. In the Directory Properties dialog box, enter the physical location of the cbtdata\student directory, for example:
c:\inetpub\wwwroot\cbtdata\student

7. Click the Virtual Directory radio button.

8. Type /cbtdata/student in the Alias field.

9. In the Access section, make sure that the Read checkbox is selected and the Execute checkbox is cleared.

10. Click OK to exit the Directory Properties dialog box.

11. Confirm that the alias has been set up in the Directories tabbed page of the WWW Service Properties dialog box.

For these changes to take effect, shut down and restart your computer, then shut down and restart your web server.

Creating Registry associations

For IIS 2.0 and 3.0, you need to associate the extension for your scripts with the PERL interpreter in the Windows NT Registry Editor script map.

This is not the same as associating extensions to applications, and it must complement any associations, for example between .cgi and perl.exe.

To associate .pl and .cgi with perl.exe in the Windows NT Registry Editor:

1. If you are using Windows NT 4.0, run c:\winnt\system32\regedt32.exe. If you are using Windows NT 3.51, run c:\winnt35\system32\regedt32.exe.

2. Select the Registry key

   HKEY_LOCAL_MACHINE\system\currentcontrolset\services\w3svc\parameters \script map

3. In the Registry Editor window, select Add Value from the Edit menu.

4. In the Add Value dialog box, type .pl in the Value Name field.

   Remember to include the period (.) before pl.

5. Select REG_SZ from the Data Type drop-down list, and click OK.

6. In the String Editor dialog box type the following:

   c:\perl\bin\perl.exe %s %s

7. Click OK to confirm the Registry association.
You now need to repeat this procedure to associate .cgi extensions with perl.exe.
For these changes to take effect, shut down and restart your computer, then shut down and restart your web server.

Internet Information Server 4.0

Unlike earlier versions, IIS 4.0 keeps separate configuration settings for directories under the web server root, so there is no need for you to set up a virtual directory for cbtdata or cbtdata\student. You need to ensure, however, that cbtdata has execute access enabled, so that the CGI scripts stored there can be executed.

If you have chosen to store cbtdata in a location other than under the web server root, you will still need to set up a virtual directory for cbtdata.

To enable execute access on cbtdata in IIS 4.0:

1. Open Internet Service Manager or the Microsoft Management Console.
2. Expand the Default Web Site folder.
3. Right-click the cbtdata directory.
4. Select Properties from the shortcut menu.
5. Click the Directory tab if it isn’t already selected.
6. In the Permissions section, click the Execute radio button.
7. Click Apply to apply your changes.
8. Click OK to return to the console screen.

Creating application mappings for .cgi and .pl

To be able to run PERL and CGI scripts on an IIS 4.0 machine, you need to map the .cgi and .pl extensions to the PERL interpreter.

To create application mappings for .cgi and .pl:

1. Open Internet Service Manager or the Microsoft Management Console.
2. Right-click the Default Web Site folder.
3. Select Properties from the shortcut menu.
4. In the Default Web Site Properties dialog box, click the **Home Directory** tab.

5. In the Application Settings section, click the **Configuration** button.

6. In the Application Configuration dialog box, click the **Add** button.

7. In the Add/Edit Application Extension Mapping dialog box, type the path to the PERL interpreter in the Executable field as follows:

   `c:\perl\bin\perl.exe %s %s`

8. Type `.cgi` in the Extension field.

9. Make sure that the **Script engine** and the **Check that file exists** checkboxes are cleared.

10. Click **OK** to create the mapping.

11. Repeat steps 6 through 10 for the `.pl` extension.

### Netscape Enterprise Server

In order to run the CGI version of SmartForce Web on Netscape Enterprise Server, you need to define `cbtdata`—the directory that stores the CGI scripts—as a shell CGI directory. Shell CGI is a server configuration available in Netscape Enterprise Server, version 2.0 and higher, that lets you run CGI scripts using the file associations set in Windows NT.

#### Defining cbtdata as a shell CGI directory

To define `cbtdata` as a shell CGI directory:

1. Make sure that you have already associated files with the extensions `.cgi` and `.pl` with the PERL interpreter, `perl.exe`, in Windows NT. Refer to Chapter 4, "Installing Perl/CGI" to see how to do this.

2. Open the Netscape Enterprise Server Administration program.

3. Click the **Programs** tab on the top menu bar.

4. In the Programs frame on the left, click the **ShellCGI Directory** hyperlink.

5. In the URL prefix field, type `cbtdata`. 
6. In the ShellCGI directory field, enter the full pathname to cbtdata.

7. Click OK.

8. Click Save and Apply to apply your changes.

Creating an additional document directory for cbtdata\student

If you have configured your SmartForce Web server for LivePlay, you also need to create an additional document directory for cbtdata\student. This directory holds the CKN files that are generated every time a student tries to play a LivePlay course. The CKN file passes on information that the SmartForce Player needs to play the course.

To create an additional document directory:

1. Open the Netscape Enterprise Server Administration program.
2. Click the Content Management tab in the top menu bar.
3. In the Content Management frame on the left, click the Additional Document Directories hyperlink.
4. In the URL prefix field, type cbtdata/student.
5. In the Map To Directory field, enter the full path to cbtdata\student
6. Make sure that None is selected in the Apply Style drop-down list.
7. Click OK.
8. Click Save and Apply to apply your changes.

Lotus Domino

The current SmartForce Web Setup program does not automate the implementation of CGI for SmartForce Web on a Lotus Domino web server.

Replacing the CGI scripts with PERL scripts

The Domino implementation of SmartForce Web currently uses PERL scripts rather than CGI scripts to write to the users.txt file and to process records of student download and LivePlay activity. For this reason you need to replace the CGI scripts that are stored in the cbtdata directory with equivalent PERL scripts. You also need
to edit the SmartForce Web Logon, course description, and download pages so that they call PERL scripts rather than CGI scripts.

You can carry out these changes automatically using an option in the SmartForce Web Administration program, which is included on the SmartForce Web installation CD.

To complete SmartForce Web Setup for a Domino installation on Windows NT:
1. Run admin.exe from the root of the SmartForce Web installation CD.
2. In the SmartForce Web Administration dialog box, type the path to the root of your web server.
3. Select the Complete CGI configuration for Domino option and click OK.
4. Click Exit once Setup is complete.

To complete SmartForce Web Setup for a Domino installation on UNIX:
1. Run perl with the parameter admin.pl from the root of the SmartForce Web installation CD.
2. Type the path to the root of your web server, then press Enter.
3. Type 1 and press Enter to complete Setup for Domino.
4. Type Y and press Enter to confirm your selection.
5. Type 0 (zero) to exit once Setup is complete.
Configuring Lotus Domino for SmartForce Web CGI

To ensure that the PERL/CGI scripts installed in your cbtdata directory run successfully, you can define cbtdata as your Domino CGI directory. This will mean, however, that any scripts that are stored in the default CGI directory, cgi-bin, will not run. You can get around this problem by creating a directory mapping for cbtdata and making sure that the directory is executable.

Defining cbtdata as your Domino CGI directory

To define cbtdata as your Domino CGI directory:

1. Open the Address Book in Lotus Notes.
2. Select the Servers view.
3. Open the SmartForce Web server.
4. Click the Edit Server button.
5. Expand the HTTP Server section.
6. In the Mapping section, type /cbtdata in the CGI URL path field.
7. Type domino\html\cbtdata in the CGI directory field.
8. Save your changes.

Creating a directory mapping for cbtdata

To create a directory mapping for cbtdata:

1. Open your Domino server’s Domino Configuration database in Lotus Notes.
2. From the Create menu, select Mapping URL -> Directory.
3. Type the IP address of your Domino server in the field provided.
4. Type /cbtdata in the URL path field.
5. Type the path to the cbtdata directory as follows:
   c:\notes\data\domino\html\cbtdata
6. Click the Execute radio button.
7. Save the directory mapping.

Creating a directory mapping for cbtdata\student

If you have configured your SmartForce Web server for LivePlay, you also need to create a directory mapping for the cbtdata\student directory. This directory holds the CKN files that are generated every time a student tries to play a LivePlay course. The CKN file passes on information that the SmartForce Player needs to play the course.
To create a directory mapping for cbtdata\student:

1. Follow steps 1 through 3 above.
2. Type /cbtdata/student in the URL path field.
3. Type the path to your cbtdata directory as follows:
   c:\notes\data\domino\html\cbtdata\student
4. Click the Read radio button.
5. Save the directory mapping.
If you plan to provide your students with LivePlay courses only, you can skip this section. But if you selected the download option during SmartForce Web Setup, either in conjunction with LivePlay or on its own, you need to carry out some further configuration on your web server.

Most web servers are configured to recognize EXE files as programs that can be executed. However, for students to be able to download SmartForce courses, the web server has to recognize EXEs as files that can be downloaded.

The following sections show how to get around this problem in Microsoft Internet Information Server, Netscape Enterprise Server, and Lotus Domino.

**Microsoft Internet Information Server**

How you go about configuring an IIS server for download will vary depending on which version of the software you are running.

**IIS 2.0 and 3.0**

To make sure that SmartForce courseware EXE files are not executable on IIS 2.0 and 3.0, you can do one of two things. You can make sure that the root of your web server has execute access switched off. However, for some organizations, turning off execute access to their entire web site is not an option. So the alternative is to create an alias for cbtlb, the directory that stores the SmartForce courses, and turn off execute access for the alias.

**Denying execute access to your site**

To turn off execute access for your entire web site on an IIS 2.0 or 3.0 machine:

1. Open Internet Service Manager.
2. Select the **WWW** service.
3. Select **Properties - Service Properties**.
4. Click the **Directories** tab in the WWW Service Properties page.
5. Select the Home directory (c:\inetpub\wwwroot) and click Edit Properties.

6. In the Directory Properties dialog box, make sure the Read checkbox is selected.

7. Clear the Execute checkbox and click OK.

8. Click OK again to confirm your changes.

Creating an alias for the cbtlib directory

To create an alias for cbtlib on IIS 2.0 or 3.0:

1. Follow steps 1 through 4 above.

2. In the WWW Service Properties dialog box, click the Add button.

3. In the Directory Properties dialog box type the path to cbtlib as follows:
   c:\inetpub\wwwroot\cbtlib

4. Click the Virtual Directory radio button.

5. In the Alias field type /cbtlib.
6. In the Access section, select the **Read** checkbox and clear the **Execute** checkbox.

7. Click **OK** to exit the Directory Properties dialog box.

**IIS 4.0**

Unlike earlier releases of IIS, version 4.0 keeps separate configuration settings for each directory under the web server root. This means you can easily turn off execute access for `cbtlib` without having to change any of the properties of the home directory, or of any other directories in which you want to keep executable EXE files.

If you have chosen to store `cbtlib` in a location other than under the web server root, you will still need to set up a virtual directory for `cbtlib`.

---

**To turn off execute access to `cbtlib` on IIS 4.0:**

1. Open Internet Service Manager or the Microsoft Management Console.
2. Expand the **Default Web Site** folder.
3. Right-click the `cbtlib` directory.
4. Select **Properties** from the shortcut menu.
5. Click the **Directory** tab if it isn’t already selected.
6. In the Access Permissions section, make sure that the **Read** checkbox is selected.
7. In the Permissions section, click the **None** radio button.
8. Click **Apply** to apply your changes.
9. Click **OK** to return to the console screen.

**Netscape Enterprise Server**

To make sure that Netscape Enterprise Server recognizes SmartCourse EXE files as files to be downloaded, rather than executed, you can either

- turn off execute access to your entire web site by editing the server’s MIME types
• edit your server’s obj.conf file to set up a download directory

Editing the MIME types

MIME, or multipurpose Internet mail extensions, is a specification that allows web browsers to display files that are not in HTML format. By editing a server’s MIME types you can influence how your web server treats different types of file. In other words, you can edit your Netscape Enterprise Server’s MIME types so that it treats all EXE files as downloadable.

Netscape Enterprise Server 2.0

To edit the MIME types on Netscape Enterprise Server 2.0:

1. Go to the config directory under the root of your web server.

The web server root is not the same as the web document root. On Enterprise Server version 2.0, the web server root is usually C:\netscape\server\https-servername.

2. Find the file mime.types and open it with a text editor such as Notepad.

3. Find the MIME type application/octet-stream—this is the MIME type for downloadable files—and add the extension exe. In other words, change the line

   type=application/octet-stream exts=bin

   to

   type=application/octet-stream exts=bin,exe

4. Find the MIME type magnus-internal/cgi—this is the MIME type for executable files—and delete the extension exe. In other words, change the line

   type=magnus-internal/cgi exts = cgi,exe,bat

   to

   type=magnus-internal/cgi exts = cgi,bat

Netscape Enterprise Server 3.x

To edit MIME types on Netscape Enterprise Server 3.0 or higher, you can edit the mime.types file as above, or you can use the GUI interface in the Netscape Enterprise Server Administration program.

If you do edit the mime.types file, you need to apply your changes in the Administration program.

To edit the MIME types using the Administration program:

1. Open the Netscape Enterprise Server Administration program.
2. Click the Server Preferences tab if it is not already selected.

3. Click the MIME Types hyperlink in the Server Preferences frame on the left of the screen.

4. Find the content type application/octet-stream—this is the MIME type for downloadable files—and click the Edit button.

5. Type exe in the File suffix field.

6. Click the Change Mime Type button.

7. Click Save and Apply to apply the changes.

8. Now find the content type magnus-internal/cgi—this is the MIME type for executable files—and click the Edit button.

9. Delete the extension exe from the File suffix field.

10. Click the Change Mime Type button.

11. Click Save and Apply to apply the changes.

Editing the obj.conf file

If your Netscape Enterprise Server needs to run EXEs, you need to edit the server’s obj.conf file to set up a download directory. This will ensure that anything in that directory will be downloaded to a client instead of being executed, and that EXEs in other directories won’t be affected.

In Enterprise Server 2.0, you’ll find the obj.conf file in the directory

```
c:\netscape\server\https-servername\config
```

In version 3.x, you’ll find it in

```
c:\netscape\suitespot\https-servername\config
```

To set up a download directory in the obj.conf file:

1. Use a text editor to open obj.conf.

2. Add the following line under the default object:

   ```
   NameTrans fn="pfx2dir" from="/cbtlib" dir="c:/netscape/server/docs/cbtlib" name="Download"
   ```
If you’re running version 3.x of Enterprise Server, you should set the path to `c:/netscape/suitespot/docs/cbtlib`.

3. You also need to add this section to the end of the obj.conf file:

   ```xml
   <Object name="Download">
   ObjectType fn="type-by-exp" exp="*/" type="magnus-internal/directory"
   ObjectType fn="force-type" type="application/octet-stream"
   </Object>
   ``

**Lotus Domino**

To ensure that a Lotus Domino web server treats SmartCourse EXEs as downloadable files, you can do one of two things. You can edit the server’s MIME types so that all the EXE files stored on the server can be downloaded rather than executed. Alternatively, you can use the Domino Configuration database to create a directory mapping for `cbtlib`, the directory that stores the SmartForce courses. You then turn execute access off for the directory mapping. This way, EXE files stored elsewhere under the root of your web server will continue to be treated as executable.

**Editing the server’s MIME types**

To edit your Domino server’s MIME types so that all EXE files can be downloaded:

1. Navigate to the `notes\data` directory.
2. Open the `httpd.cnf` file using a text editor such as Notepad.
3. Add the following line:
   ```plaintext
   AddType .exe application/octet-stream binary 1.0
   ```
4. Save and close the `httpd.cnf` file.

**Creating a directory mapping for `cbtlib`**

To create a directory mapping for `cbtlib`:

1. Open your Domino server’s Domino Configuration database in Lotus Notes.
2. From the `Create` menu, select **Mapping URL -> Directory**.
3. Type the IP address of your Domino server in the field provided.
4. Type `/cbtlib` in the URL path field.
5. Type the path to your `cbtlib` directory as follows:
   ```plaintext
c:\notes\data\domino\html\cbtlib
   ```
6. Click the **Read** radio button.

7. Save the directory mapping.
CONFIGURING SMARTFORCE WEB FOR ONLINE REPORTING

This chapter is specific to Java-enabled LivePlay courseware, so if you have chosen to make standard LivePlay or Download courses available to your students you should refer to Chapter 8, “Configuring SmartForce Web for offline reporting”.

Online reporting enables you to track student usage of Java-enabled courses and monitor student progress. It requires that you install a database called SmartForce Data Server to hold student records and course details.

You also need to install the SmartForce Admin program so that you can generate reports on progress information returned to the SmartForce Data Server.

Instructions for planning and executing the installation and configuration of these components are provided below. You should install SmartForce Data Server first. This is because the installation process for Data Server creates an information file that is required during SmartForce Admin Setup.

SmartForce Data Server Setup
The SmartForce Data Server setup program enables you to install an entirely new SmartForce Data Server. This is a database that holds details of courses, students, and student progress. When you carry out the installation for SmartForce Data Server, you also install SmartForce Connect Server. SmartForce Connect is responsible for passing progress information generated by a Java course to the Data Server.

Preparing to install SmartForce Data Server
Whichever option you require, there are a number of steps you should take before you proceed with the installation.

• Log on to Windows NT Server as administrator.
• Assign a unique name to the SmartForce Data Server you plan to install. This name can be no longer than eight characters, should be comprised only of the letters A–Z and the numbers 0–9, and should not include spaces or underscores. It is best to choose a name before running Setup so that it can be used to name the directory where the server’s files are installed and to create a CNAME record on a DNS name server if required.
• Prepare the SmartForce Data Server computer and DNS name server if necessary (see the section “SmartForce Data Server and DNS” on p. 7-2). Before running Setup you should make a note of the fully qualified domain name of the computer you install SmartForce Data Server on, as this must be entered during Setup.

• Ensure that the machine on which you plan to install SmartForce Data Server has a static IP address. The setup program will automatically detect the IP address of any computer you run the installation program on.

• Shut down any SmartForce Data Server programs you plan to update before running Setup. If the server is running as a Windows NT service, stop the service before running Setup.

• Assign port numbers to the SmartForce Data Server and its associated SmartForce Connect Server. These port numbers should be greater than or equal to 10,500 and should be unique for that machine.

You should have already assigned the SmartForce Connect port number before you installed SmartForce Web. Refer to Chapter 3, “Installing SmartForce Web”.

• If any SmartForce Web client components need to communicate with the SmartForce Data Server through a firewall, you must open the firewall to the port numbers assigned to both the SmartForce Data Server and the associated SmartForce Connect Server.

• When you install SmartForce Data Server on a Windows NT Server machine, you will be prompted to choose whether to install SmartForce Connect to run as a service. If you choose to install it as a service, Setup will automatically set SmartForce Data Server to run as a service also.

SmartForce Data Server and DNS

If you plan to use the Domain Name System (DNS) on your network for name resolution, there are a number of important steps you need to take to ensure your SmartForce Web system components can communicate. Most importantly, you must install SmartForce Data Server on a computer with a static IP address, even if the rest of your network uses the Dynamic Host Configuration Protocol (DHCP).

If you are using a DNS name server to resolve domain names on your network, you should ensure that the hosts file on the SmartForce Data Server computer contains no entries relating to SmartForce Web components, and that the services file contains the port number assigned to the SmartForce Data Server. You must also ensure that the computer SmartForce Data Server is installed on has an entry in your DNS name server’s mapping table, associating the computer’s host name to its static IP address. In Windows NT Server 4.0 Domain Name System Manager, the entry for a machine called Server1 with an IP address 175.12.133.213 would look like this:

Server1 A 175.12.133.213
If this machine is in a zone called “SFWeb”, the fully qualified domain name for the SmartForce Data Server computer would be server1.sfweb. This fully qualified domain name will be required during SmartForce Data Server Setup, so you should make a note of it before running Setup.

You must also assign an alias for the SmartForce Data Server on your DNS name server. This will enable the DNS name server to resolve the SmartForce Data Server’s name as the SmartForce Data Server computer’s fully qualified domain name. To continue the example above, the entry for the alias (or CNAME record) for a SmartForce Data Server named “apollo” would look like this in Domain Name System Manager:

```
apollo CNAME server1.sfweb
```

**Installing SmartForce Data Server**

Once you have made all the necessary preparations, you are ready to run SmartForce Data Server Setup.

**To install SmartForce Data Server:**

1. Insert the SmartForce Web installation CD into your CD-ROM drive and select Start - Run.

2. In the Run dialog box, type `d:\sfserver\setup` where `d` is the letter assigned to your CD-ROM drive. Click OK.

3. The Welcome dialog box displays. If you have not already shut down all other applications, do so now. Click Next to proceed with the installation process.

4. The Software License Agreement dialog box displays. If you accept the terms of the license agreement, click Yes to continue with the installation. Otherwise, click No to exit Setup.

5. The User Information dialog box displays. Enter your name and the name of your organization or accept the user details suggested by Setup. Click Next when you are ready to proceed.

6. The DNS Access Options dialog box displays. Select the appropriate radio button to inform Setup if the SmartForce Data Server you are installing or updating will be accessed using DNS. When you have made your selection, click Next.

7. The Destination Directory dialog box displays. This dialog box contains two Browse buttons:

   - The first allows you to specify the location of the SmartForce Data Server files. The default path is `sfserv\tcpip`. However, you may want to locate this structure under a directory named for the SmartForce Data Server. For example, you could install a SmartForce Data Server named “ajax” in the path `ajax\sfserv\tcpip`. Note that you cannot use long directory names in the path to a SmartForce Data Server.

   - The second lets you select a location for the information file (`reginfo.txt`) for the server being installed. You should store this file in the same directory as
your SmartForce Data Server (ajax in this example) to prevent it being overwritten by information files belonging to other SmartForce Data Servers.

Make a careful note of the location of the reginfo.txt for the SmartForce Data Server, as this location must be entered during the installation processes for other SmartForce Web components and may need to be distributed to remote clients.

When you have selected directories for both these components, click **Next**.

**8. The Server Information dialog box displays. Certain fields may need to be completed, depending on the options you selected earlier in the process.**

- Enter a name for the SmartForce Data Server. Choose a name that conforms to the guidelines outlined in "Preparing to install SmartForce Data Server" on p. 7-1. If you are updating an existing SmartForce Data Server, this field will be completed from the relevant information file.

![Server Information Dialog Box]

- SmartForce Data Server IP address. Setup will detect the server’s IP address, so there is no need to enter it. If you are updating an existing SmartForce Data Server, Setup will read the IP address from the information file. If you have chosen to use DNS in a new SmartForce Data Server installation at step 6, this field is unnecessary and will be unavailable.

- SmartForce Data Server port number. This number should be greater than or equal to 10,500, and should be unique across all SmartForce Web components. If you are updating an existing SmartForce Data Server, this field will be completed from the relevant information file and will therefore be unavailable.

- SmartForce Connect port number. As with the SmartForce Data Server port number, this should be a number greater than or equal to 10,500 and must be unique across all installed SmartForce Web components.

- SmartForce Connect DNS host name. Enter the fully qualified domain name of the computer you are running Setup on, unless you chose not to use DNS at step 6 above. In that case, this field is unnecessary and will be unavailable.
When you have entered all the required information, click **Next**.

9. The SmartForce Connect dialog box opens and asks whether you want SmartForce Connect to run as a Windows NT service. Select the appropriate radio button and click **Next**. If you do not select this option now, you can set both SmartForce Connect and SmartForce Data Server to run as NT services at a later date (see the section “Configuring server components as Windows NT services” on p. 7-5).

10. Setup checks available disk space. If it finds there is insufficient disk space to complete the installation, a message box will display informing you of this. You should free sufficient disk space in the location selected at step 7 or use the **Back** button to retrace your steps through Setup and select a different location for the installation.

11. The Choose a Folder Name dialog box opens, prompting you to select a folder in which to store the program icons. You can choose to accept the default option, enter the name of a new folder, or select an existing folder from the list provided. When you have selected or entered a folder name, click **Next**.

12. The Confirm Selections dialog box opens and displays the options you have selected in the installation process. If you want to change any of the selections you made, click **Back** to retrace your steps through Setup. Note that no further **Back** buttons will be available after this point in the installation process. When you are happy with the selections displayed in this dialog box, click **Next**. Setup begins copying files and configuring your system.

13. When Setup has finished installing SmartForce Data Server, the Setup Complete dialog box displays. Click **Finish**.

The setup program will close and the program icons for launching, removing, and updating SmartForce Data Server with client data will be added to the Windows NT Start menu.

### Changing SmartForce Data Server settings after installation

To change SmartForce Data Server settings after Setup is complete, you will have to run the installation process again. However, this will not be sufficient if you have installed SmartForce Admin using the affected SmartForce Data Server’s information file. In this case, you must either reinstall the SmartForce Data Server and all client components or edit system files on the server and client machines. If you need to edit system files, you should contact SmartForce Technical Support Department for guidance.

### Configuring server components as Windows NT services

If you chose not to install SmartForce Data Server and SmartForce Connect as services on a Windows NT Server system, you can set these components up as services later using the procedure described below. You should configure the services to run automatically when you have set them up.
To set up SmartForce Data Server as a Windows NT service:

1. Select Start - Programs - Command Prompt to open an MS-DOS window.

2. Change directory to the bin directory of the SmartForce Data Server installation. For example, if your SmartForce Data Server is installed under c:\ajax, change directory to c:\ajax\sfser\tcpip\bin.

3. Enter the command instrds -s followed by the name of your SmartForce Data Server, the path to the file rds.exe (located in the server’s bin directory), and then the path to the server’s catalog directory. To continue the example from step 2, you type

    instrds -s ajax c:\ajax\sfser\tcpip\bin\rds.exe c:\ajax\sfser\tcpip\catalog

To set up SmartForce Connect as a Windows NT service:

1. Select Start - Programs - Command Prompt to open an MS-DOS window.

2. Change directory to the cbtcs directory of the SmartForce Data Server installation. For example, if your SmartForce Data Server is installed under c:\ajax, change directory to c:\ajax\sfser\tcpip\cbtcs.

3. Enter the command sfconnect -install.

To remove the SmartForce Data Server service:

1. Stop the service using the Services dialog box available in the Windows NT Server Control Panel.

2. Change directory to the bin directory of the SmartForce Data Server installation. For example, if your SmartForce Data Server is installed under c:\ajax, change directory to c:\ajax\sfser\tcpip\bin.

3. Enter the command instrds remove followed by the name of your SmartForce Data Server. To continue the example from step 2, you type

    instrds remove ajax

To remove the SmartForce Connect service:

1. Stop the service using the Services dialog box available in the Windows NT Server Control Panel.

2. Change directory to the cbtcs directory of the SmartForce Data Server installation. For example, if your SmartForce Data Server is installed under c:\ajax, change directory to c:\ajax\sfser\tcpip\cbtcs.

3. Enter the command sfconnect -remove.

Launching server components

In most cases you will probably run SmartForce Data Server and SmartForce Connect as Windows NT Services, as shown above. However, if you choose not to, you can launch the server components as follows:
To launch SmartForce Data Server, select Start - Programs - SmartForce Web - Launch servername server. The server will launch in an MS-DOS window. To shut down the server, simply close the DOS window.

To launch SmartForce Connect:
1. Select Start - Programs - Command Prompt to open an MS-DOS window.
2. Change directory to the cbtcs directory of the SmartForce Data Server installation. For example, if your SmartForce Data Server is installed under c:\ajax, change directory to c:\ajax\sfserv\tcpip\cbtcs.
3. Enter the command sfconnect -con.

Installing SmartForce Admin
SmartForce Admin is a program that allows you to manage students and courses that are registered on SmartForce Data Server, track student progress, and generate reports. SmartForce Admin should be installed on the training administrator’s workstation.

During installation you will be asked to provide the location of the information file reginfo.txt. You may find it helpful to have a note of its location before you proceed with the installation.

To install SmartForce Admin:
1. Insert the SmartForce Web installation CD into your CD-ROM drive and select Start - Run.
2. In the Run dialog box, type d:\sfadmin\setup where d is the letter assigned to your CD-ROM drive. Click OK.
3. The Welcome dialog box displays. If you have not already shut down all other applications, do so now. Click Next to proceed with the installation process.
4. If you already have a version of SmartForce Admin installed, the Existing Version Detected dialog box displays. This dialog box provides you with three alternatives:
   • remove the existing version and save settings
   • remove the existing version but do not save settings
   • leave the existing version and exit Setup—if you choose this option, proceed to step 19

   Choose an option and click Next to continue.
5. The Software License Agreement dialog box displays. If you accept the terms of the license agreement, click Yes to continue with the installation. Otherwise, click No to exit Setup.
6. The User Information dialog box displays. Enter your name and the name of your organization or accept the user details suggested by Setup. Click Next when you are ready to proceed.
7. The **Add Server** dialog box opens. You need to use this dialog box to add the SmartForce Data Server you want to administer to this installation of SmartForce Admin.

You should already have installed the SmartForce Data Server and stored the `reginfo.txt` file.

To add a server:

- Click the **Add Server** button to open the Add Server dialog box used to browse SmartForce Data Server information files.
- Browse to select a directory containing a SmartForce Data Server information file (`reginfo.txt`). Click **OK**.
- The server name and its network protocol will appear in the left-hand pane of the first Add Servers dialog box. Click the arrow button to move the server details into the right-hand pane.

To remove a server from your selection in the Add Server dialog box, select the server in one of the panes and click **Remove Server**. When you have finished adding the SmartForce Data Server, click **Next**.

8. The Choose Destination Location dialog box displays and you are prompted to specify a location to install SmartForce Admin to. Click **Browse** to specify a location or accept the default suggested by Setup (`c:sfadmin`). Click **Next** when you have finished.

9. The Cache Information dialog box opens and you must specify a location and size for your cache directory. To specify these details:

- Click the **Browse** button to designate a location for the cache directory or accept the default location (`c:sfadmin\cache`).
- Enter a size for the cache directory in megabytes or accept the default size (50MB).
When you are satisfied with the cache location and size settings, click the Next button.

10. The Setup program checks the location you specified to see whether there is enough space on the disk. If there is too little disk space, you will have to free up some space or select another location.

11. The Choose a Folder Name dialog box opens, prompting you to select a folder to store the program icons in. You can choose to accept the default option, enter the name of a new folder, or select an existing folder from the list provided. When you have selected or entered a folder name, click the Next button.

12. The Confirm Selections dialog box opens and displays the options you have selected so far. If you want to change any of the selections you made, click the Back button to retrace your steps through the Setup program to change these settings. When you are happy with the selections displayed in this dialog box, click the Next button. Setup begins copying the necessary files to your computer.

13. Setup checks to see whether you have Open Database Connectivity (ODBC) drivers installed on your computer, as these are required by SmartForce Admin. If you have, the Installed Drivers dialog box appears—click Next and jump to step 19. If you have no ODBC drivers installed, an ODBC driver installation process starts.

14. The ODBC installation process opens with a Welcome dialog box. Click OK.

15. ODBC Setup prompts you to enter your name and the name of your organization. When you have finished, click OK.

16. You are prompted to confirm the details you entered. Click Change to alter the details or click OK to proceed with the installation.

17. ODBC Setup prompts you to choose a typical or custom installation. Click Typical.

18. ODBC Setup copies the ODBC drivers to your windows\system or winnt\system32 directory. A message box displays informing you when the installation has finished. Click OK to return to the SmartForce Admin Setup program.

19. When SmartForce Admin Setup has finished, the Setup Complete dialog box displays. Click Finish.

Launching and logging on to SmartForce Admin

Before you launch SmartForce Admin, make sure that the SmartForce Data Server is running.

To launch SmartForce Admin:

1. Choose Start - Programs - SmartForce Web - Launch SmartForce Admin.

2. In the SmartForce Admin - Logon dialog box, type secret in the Password field and click OK.
Changing the SmartForce Admin password

To change the password that you use to log onto SmartForce Admin:

1. Select **Tools - Change Admin Password**.
2. Type your old password in the Old Password field—you are allowed three attempts to enter the correct old password.
3. Type the new password in the New Password field.
4. Confirm that the new password is correct by typing it again in the Confirm Password field.
5. Click **OK**.

Loading courses into SmartForce Data Server

Before you can track progress for Java-enabled courses, you need to load the course details into SmartForce Data Server using SmartForce Admin.

Loading courses tells SmartForce Data Server:

- where the courses are located
- the names of the courses

Loading courses

Before you load courses you must ensure that the courses are installed on the SmartForce Web server. For instructions on how to install courses refer to **SmartForce e-Learning Library Administrator's Guide**.

You need to know the IP address and port number of the web server before you start the load process. If you are using a proxy configuration, you will also need to know the proxy server address and port number.

Java-enabled LivePlay courses can be launched from the course description page.

To load SmartForce courses:

1. Launch SmartForce Admin by selecting **Start - Programs - SmartForce Web - Launch SmartForce Admin**.
2. Select **Load Courses** from the **Course** menu.
3. In the Server Address screen type the IP address and port number of your course server in the fields provided.
4. If you are using a proxy configuration, you can add the address and port number of your proxy server in the fields provided.
5. A log is kept of courses that are loaded for future reference. Accept the default location or click **Browse** to select a different location.
6. Click **Load**. The courses are now loaded into SmartForce Data Server. Click **Finish** when prompted.
After you have loaded the courses, the details of each course, including its name, version, and code, are listed in the Courses pane.

You can then work with any of the courses in the Courses pane by selecting a course and choosing an option from the Course menu. Or you can right-click a course and choose an option from the shortcut menu.

### Updating student details

Student details will appear in the Student pane of SmartForce Admin once the student logs on to SmartForce Web—so if you preregistered your students as described in Chapter 4, “Preregistering students”, their details will not appear until they actually log on to SmartForce Web.

However, you may at some point need to update your students’ details. The Update Student Details facility in SmartForce Admin allows you to change your students’ first and last names.

To update student information, you first need to create an ASCII text file. Each student record in the batch update text file must be on a separate line. The detail fields, which are separated by commas, are as follows:

- Last Name
- First Name
- Student ID
- Password
- Location

Information must be provided for each detail field but only the first two fields may contain new information. The details may or may not be enclosed in quotes. Quotes and any leading and trailing spaces will be removed during update.

Two examples of batch update files are shown below. The first shows the student details contained in quotes and separated by commas.

```
"MacPherson","Weather","1937","password","Glasgow"
"Chamanda","Alex","1252","password1","New York"
"Hanen","Lou","1432","password2","Phoenix"
"Lafayette","Renee","2542","password3","Paris"
"Park","Betty","1154","password4","Dublin"
"Habinnutez","Michael","2254","password5","New York"
"Woo","Jon","2547","password6","New York"
"Jones","Vicky","1790","password7","San Francisco"
"Rodriguez","Marlo","3590","password8","Phoenix"
```

The second example shows the student details simply separated by commas. Spaces are not required and will be removed during update.
If you originally preregistered your students as described in Chapter 4, “Preregistering students”, you can simply change the relevant details in the batchreg.txt file you created then, and use it to update your students’ records.

**Deleting students**

Deleting students removes them from the Students pane and deletes records of any progress they made from the SmartForce Data Server. You can delete students individually or in batches.

**Deleting students individually**

To delete an individual student:

1. Select the student in the Students pane.
2. Choose **Student - Delete** or right-click the student ID in the Student pane and select **Delete**.

**Deleting students in batches**

It is possible to remove more than one student at a time. The student ID for each student to be removed is entered in a text file such as this one.

```
MacPherson,Heather,1987,password,Glasgow
Chawanda,Alex,1252,password1,New York
Hoang,Lou,1837,password2,Phoenix
Lafayette,Rene,2542,password3,Paris
Park,Betty,1154,password4,Dublin
Rabinowitz,Michael,2254,password5,New York
Voo,Jon,2547,password6,New York
Jones,Vicky,1798,password7,San Francisco
Rodriguez,Marie,3598,password8,Phoenix
```

You must include the “Delete” identifier at the top of the file.

To perform a batch delete of students:

1. Choose **Batch Delete** from the **Tools** menu.
2. Click **Browse** to locate the batch deletion file or enter the path in the field provided.
3. Click **OK**.

The batch delete facility is particularly useful when you have more than 1000 students to delete.

The Students pane displays 1000 students at a time. To delete 4000 students, you would have to select 1000 students, delete them, and repeat the operation three times. Batch deletion allows you to delete all the students at once.

**Reports**

SmartForce Admin allows you to generate reports from the data stored in SmartForce Data Server. Reports allow you to gather statistics on students and courses. They are generated using the Reports Wizard, which allows you to filter the data extracted from the SmartForce Data Server. For example, you can generate reports for a specific student or group of students, or for a specific course. You can also generate reports on data gathered between certain dates.

**Report types**

The Report Wizard lets you choose from six different reports that can be divided into two types—Student reports and Course reports.

The level of detail included in each report varies, so you can choose to view progress at course level, unit level, or see an overall summary.

The six reports are:

- Student course level
- Student unit level
- Student summary
- Course level
- Course unit level
- Course summary

If you select more than one report type, the wizard will run for each report type chosen. So, if you choose all three student reports and a course report, the wizard will run twice—once for the student reports and once for the course report.

**Running reports**

To run a report:

1. Choose **Report - Run**.
2. Double-click the report or reports that you want to run. An X will appear in the report checkbox, indicating that it has been selected. Click OK when you are ready to continue.

3. In the dialog box that appears, click Next to narrow the extent of your report or Finish to generate a report on all students.

If you decide to narrow the extent of your report, the wizard will present you with further dialog boxes which allow you to specify the date range of the report, and the locations and students to be included in the report.

**Saving reports**

To save your newly generated report:

1. Ensure the relevant report is open and select Save As from the Report menu.
2. Name your report and select the folder that you want the report to be saved to. Click Save.
3. A dialog box appears, confirming that the report has been saved correctly.

You must ensure that you don’t try to save your newly generated report with the name of the master report, as it will be overwritten.

**Opening saved reports**

Once you have saved your report you can easily access it again.

To open a saved report in SmartForce Admin:

1. Select Report - Open.
2. In the Open dialog box, open the folder that the report is saved in, select the correct report, and click Open.

**SmartCourse Location reports**

SmartCourse Location reports are used to provide a snapshot of your SmartForce Data Server database at a given time and enable you to generate detailed reports on course locations.

**Running SmartCourse Location reports**

SmartCourse Location reports are generated differently from other reports.
To generate a SmartCourse Locations report in SmartForce Admin:

1. Select **Report - Open**.
2. In the Open dialog box, select the SmartCourse Location report. Click **Open**.

The report will now run, query the SmartForce Data Server database, and display the results as a formatted report.

SmartCourse Location reports can be saved and opened in the same way as all other reports.

---

**Importing student history files**

If you are upgrading from an earlier version of SmartForce Web, you will probably want to import the student history files that you have stored on your FTP server into SmartForce Data Server. This will allow you to move your organization from offline reporting to online reporting without losing any progress data.

**To import a student history file:**

1. Make sure that you have the Catalog and Conversion CD in your local drive or mounted on a network drive throughout the importation process.
2. Choose **Tools - Import Student History Files**.
3. Select the **Create audit file** checkbox if you would like to create an audit file.
4. Select the **Audit only errors** checkbox to ensure that audit information is stored for only those student history files for which the importation process fails.
5. Click **Browse** to choose the location in which to create the audit file, enter a name for the file, and click **Next**.
6. Click **Browse** to locate the Catalog and Conversion CD and click **Next** when you have finished.
7. Click **Browse** to select the directory where the courses associated with the student history files are stored, then click **Next**. If you want to import multiple student history files, select the parent directory of the relevant courses. If you are importing files for just one course, select the directory at the individual course level.
8. Select a subsection of courses you want to import student history files from and click **Next**.
9. Select the **Import inactive student history files** checkbox to import student history files that do not contain any progress.
10. To delete successfully imported history files, select the **Delete successfully imported student history files** checkbox. To delete unsuccessfully imported history files, select the **Delete unsuccessfully imported student history files** checkbox.
11. Select the **Last Name, First Name** radio button or the **First Name, Last Name** radio button, depending on the way you want the student name parsed. Choose a delimiter and click **Next**.

12. Examine the options you have specified and click **Next** if you are satisfied with them. If they are not correct, click **Back** to navigate back through the dialog boxes and choose the correct options.
CONFIGURING SMARTFORCE WEB FOR OFFLINE REPORTING

If, during SmartForce Web Setup, you did not opt to track student progress, you can skip this chapter. Similarly, if you chose progress tracking in conjunction with online reporting (Java LivePlay courses only), you should refer to Chapter 7, “Configuring SmartForce Web for online reporting” instead.

However, if you enabled student progress tracking for LivePlay courses with the SmartForce Player, or for Download courses, you’ll have to configure SmartForce Web for “offline reporting”.

Introducing offline reporting

Every time a student uses the standard SmartForce Player to run a SmartCourse, whether locally or over the intranet, details of the progress they make in the course and their test results are written to a special student progress file—also known as a NAM file or student history file. NAM files are usually stored on the student’s machine under the path

\cbtlib\coursedirectory\student

The NAM file takes its name from the number the student uses to access the course followed by the extension .nam. A NAM file exists for every course that a student takes. So, for example, the path to the NAM file generated by student number 123 taking the course PowerBuilder 6.0: The Basics will be as follows:

\cbtlib\pb6001e\student\123.nam

Offline reporting involves students uploading their student progress files to an FTP server, where you can generate reports using SmartForce Reporter.

The process of sending student progress files back to an FTP server applies to both standard LivePlay courses and Download courses, but is deployed differently for each type of course.
Record return and LivePlay
After a student runs a standard LivePlay course, the SmartForce Player automatically uploads their NAM file to the FTP server. The SmartForce Player refers to a file named `cknet.ckn` to find out where the FTP server is located. In turn, the CKN file picks up the FTP server details from a file on the SmartForce Web server called `cbtweb.ini`.

If you installed the CGI version of SmartForce Web students don’t have to log on to individual courses—theyir details will be picked up automatically. However, if you are not running the CGI version, students will have to register for each course.

Record return and Download
If you are running the CGI version of SmartForce Web, students can download a course to their machine and their progress will be returned automatically the next time they log on to SmartForce Web.

However, if you did not enable CGI with Download courses, student progress files are not returned to the FTP server automatically. Instead, students upload their NAM files using the SmartCourse Manager. Alternatively, if your students decide to take a course at home, they will also have to use SmartCourse Manager to manually upload their progress files.

If you selected Download courses and progress tracking during SmartForce Web Setup, you will have been asked for the IP address of your FTP server, as well as the username and password required to access it. Before your students can use SmartCourse Manager however, these details must be passed to the `cbtupld.ini` file on the client machine. In non-CGI installations, students must click the Configure for Progress Return link on the Getting Started page of SmartForce Web to do so.

Configuring your FTP server
To protect the root of the FTP server, you can create a `cbtlib` directory under the root and grant read and write privileges to students at this level. If you decide not to set up a directory structure however, one will gradually be created for you.

When a student first uploads NAM files for a particular course, a directory is created for the course under the `cbtlib` directory and a `student` directory is created off the course directory for each student who returns their progress.

Eventually, the FTP server will contain a directory structure that includes directories for all the courses for which students have returned their progress.

---

You may wish to allow anonymous user access to the FTP server. Because create and write actions cannot typically be carried out with anonymous user access, it is important to grant create and write privileges to the `cbtlib` directory.
directory. Otherwise, anonymous users will be unable to upload their progress records to the FTP server.

Creating an FTP user account

If you don’t want to allow anonymous access to your FTP server and the file system on your server is NTFS, you can set up a user account for your SmartForce Web students and allow access to the FTP server through this user account. This can be done in several stages.

Creating a new user account in Windows NT

The first thing you have to do is create a new user account for your students in Windows NT.

To create a new NT user account:

1. Select Start - Programs - Administrative Tools - User Manager for Domains.
2. From the User menu, choose New User.
3. Type a name in the Username field, for example sfuser.
4. In the Full Name field, type the full name of your user, for example SmartForce Student.
5. In the Description field, type For ftping student history files.
6. Type a password in the Password field and re-enter the password in the Confirm Password field.
7. Clear the User Must Change Password at Next Logon checkbox and select Password Never Expires.
8. Click the Groups button to open the Group Membership dialog box.
9. If necessary, add the group Users to the Member of field and click **OK**.

![Group Membership dialog box]

10. You will be brought back to the New User dialog box. Click **Add** to add the user and click **Close** to exit.

**Creating a directory for a new user account**

You will also have to create a directory under `ftproot` for this new user account and set the user permissions.

**To create a directory for a new user and set user permissions:**

1. Open Windows NT Explorer and navigate to the root of the FTP server, for example
   `c:\inetpub\ftproot`
2. Create a directory named `sfuser` on the root of the FTP server.
3. While still in Explorer, right-click `inetpub\ftproot\sfuser` and select **Properties**.
   The sfuser Properties dialog box opens.

![Directory Permissions dialog box]

4. Choose the **Security** tab and click the **Permissions** button. The Directory Permissions dialog box opens.
5. Select the **Replace Permissions on Subdirectories** and **Replace Permissions on Existing Files** checkboxes and click **Add**.

![Directory Permissions dialog box](image)

6. Highlight the **Administrators** group in the Add Users and Groups dialog box that opens and click **Add**.

![Add Users and Groups dialog box](image)

7. In the Type of Access drop-down list box, choose **Full Control**. Click **OK** to be brought back to the Directory Permissions dialog box.

8. Highlight the group **Everyone** and click **Remove**.

9. Select the **Replace Permissions on Subdirectories** and **Replace Permissions on Existing Files** checkboxes. Click **Add**.
10. The Add Users and Groups dialog box opens again. Highlight the Users group and click Add.

11. In the Type of Access drop-down list box, select Change.

12. Click OK to close the Add Users and Groups dialog box.

13. Click OK to close the Directory Permissions dialog box.

14. Click Yes if you are asked to confirm that you want to replace the security information on all existing subdirectories within \inetpub\ftproot\sfuser.

15. Click OK to close the sfuser Properties dialog box.

Creating a virtual directory for sfuser

Once you have created a new user account and a new sfuser directory, you will have to create a virtual directory for sfuser in Microsoft Internet Information Server (IIS). This will be carried out differently, depending on the version of IIS you are using.

To create a virtual directory for sfuser if using IIS 2.0 or 3.0:

1. Open Internet Service Manager by selecting Start - Programs - Microsoft Internet Server - Internet Service Manager.

2. Right-click FTP service and select Service Properties to open the FTP Service Properties dialog box.
3. Select the **Service** tab and clear the **Allow only anonymous connections** checkbox. (This is the **second** checkbox).

![FTP Service Properties dialog box]

4. An Internet Service Manager warning will appear, asking whether you wish to continue. Click **Yes**.

5. Now select the **Directories** tab and click the **Add** button. The Directory Properties dialog box opens.

6. In the Directory field, type the path of the new **sfuser** directory, for example `c:\inetpub\ftproot\sfuser`

7. Select the **Virtual Directory** radio button.

8. Type `/sfuser` in the Alias field and select the **Read** and **Write** checkboxes in the **Access** section.

![Directory Properties dialog box]

9. Click **OK** to save your settings and exit the Directory Properties dialog box.

10. Click **OK** to exit the FTP Service Properties dialog box.

**To create a virtual directory for sfuser if using IIS 4.0:**

1. Open Internet Service Manager or the Microsoft Management Console by selecting **Start - Programs - Windows NT Option Pack 4 - Microsoft Internet Information Server - Internet Service Manager**.
2. Right-click the **Default FTP Site** and choose **New - Virtual Directory**.

3. Type **sfuser** in the Alias to be used to access virtual directory text box and click **Next**.

4. Type the path to the new **sfuser** directory, for example `c:\inetpub\ftproot\sfuser` and click **Next**.

5. Select the **Allow Read Access** and **Allow Write Access** checkboxes and click **Finish** to close the New Virtual Directory Wizard.

6. While still in the Microsoft Management Console, right-click **Default FTP Site** and choose **Properties**.

7. Choose the **Security Accounts** tab in the dialog box that opens.
8. In the Allow Anonymous Connections section, clear the **Allow only anonymous connections** checkbox.

![Default FTP Site Properties dialog box](image)

9. An Internet Service Manager warning will appear, asking whether you wish to continue. Click **Yes**.

10. Click **OK** to close the Default FTP Site Properties dialog box.

**Testing your new configurations**

Once you have completed the steps above, you should test the new configurations to ensure that the FTP server is configured correctly.

**To test your new FTP configurations:**

1. Select **Start - Run** and type **CMD** in the dialog box that opens. Click **OK**.
2. Type **FTP your FTP IP address** and press **Enter**.
3. When asked for a username, type the username you created earlier in Windows NT, and press **Enter**.
4. When asked for a password, type the password you created earlier and press **Enter**.
5. Type **pwd** and confirm that you are in the **sfuser** directory.
6. Type **mkd test** and press **Enter**. Ensure that you get a message saying the command was successful.
7. Type **rmd test** and press **Enter**. Make sure that you get a message saying the command was successful.
8. Type **bye** and press **Enter** to log out of the FTP session.
9. Type **exit** and press **Enter** to close the Command window.
UPDATING AND CUSTOMIZING SMARTFORCE WEB

As you have seen, SmartForce Web provides a number of options that you can either select or ignore according to the needs of your organization. You can allow students to play courses online using SmartForce’s LivePlay capability, you can have them download courses to their local hard drives and play them from there, or you can allow them to do both. You can choose to track student progress by having student progress files uploaded to an FTP server or to SmartForce Data Server. And you can opt to track which courses students are accessing using CGI. But there are other ways in which SmartForce Web can be updated, customized, and generally tailored to your organization’s needs.

Customizing the Getting Started page

You can customize the Getting Started page to provide your students with instructions that are relevant to your organization only. In addition, you can add extra components for students to download from the Getting Started page, such as the SmartForce Player Plugin (see “Installing the SmartForce Player on a network drive” below) or the diskette creator version of the SmartForce Player and SmartCourse Manager.

The diskette creator allows students to copy a setup program for the SmartForce Player and SmartCourse Manager to a set of diskettes. This allows them to install the SmartForce Player and the SmartCourse Manager on a remote machine such as a laptop or a home computer, run SmartForce courses from there, and return progress once they get back to the office.

Installing the SmartForce Player on a network drive

In a standard SmartForce Web installation, students need to download and install the SmartForce Player before they can run a SmartForce course. However, some organizations prefer to keep the number of files their users have on their machines to a minimum. For this reason, you may want to install the SmartForce Player on a network drive and have your students run it from there. All students have to do is install the SmartForce Player Plugin, npcknet.dll, on their machines.

If you choose this option, you will need to customize the links on the Getting Started page, so that students download and run only the plugin installation program. You
will also need to tell students where the SmartForce Player is stored on the network, because they will be asked for this information when they install it.

**To install the SmartForce Player on a network drive:**

1. Run the SmartForce Player setup program `plyplg32.exe` from the `cbtweb\english\cbtweb\cbtutili` directory.
2. Shut down any other Windows programs you have running and click **Next** in the Welcome dialog box.
3. Click **Yes** to accept the license agreement.
4. Type your name and the name of your organization in the User Information dialog box.
5. In the Choose Destination Location dialog box, click the **Browse** button to choose a network drive.
6. In the Choose Folder dialog box, select a network drive from the Drives drop-down list, and type the following in the Path field:

   `driveletter:\cbtlib\cbtplay`

   If the network drive you require does not have a drive letter, you can assign one to it by clicking the **Network** button.

7. Click **OK**.

8. If the directory path `cbtlib\cbtplay` does not exist, you will be asked whether you want to create it. Click **Yes**.

9. Click **Next** to continue.

10. In the Select Components dialog box, select the **Custom Install** radio button if you are running a proxy server on your intranet, and if you want to specify the name of the folder that will be added to your Windows **Start** menu. Otherwise click the **Default Install** radio button and click **Next** and **Finish** when the installation is complete.

11. If you selected **Custom Install**, you will be prompted to select the location where you want the cache to be located. A cache improves performance by storing recently accessed data in a location where it can be quickly retrieved. The default cache location is `c:\cbtlib\cbtplay\cache`. Click **Next** to continue.

12. If you chose **Custom Install**, you will also be asked to choose the name of a folder that will be added to the **Programs** group under your Windows **Start** menu. You are recommended to accept the default. Click **Next**.
13. Setup will install the plugin to work with the browsers listed in the dialog box shown. If this information is correct, click **Next**. If it’s not, click **Back** and change your browser listing by performing an extended search.

14. Setup then displays the options that you have chosen so far. If you’d like to change any of the settings, click **Back** to return to the appropriate screen, make the required change, and click **Next** repeatedly until you return to this point.

15. Setup then installs the SmartForce Player Plugin, `npcknet.dll`, in the plugins directory of the browser or browsers installed on your machine. Click **Next**.

16. Click **Finish** once the installation is complete.

### Client compatibility

SmartForce Web 4.6 contains an administration setting that offers control over client rollout. Until the administrator is ready to roll out the 4.6 client, students can access SmartForce Web in 4.2 mode. In other words, the student doesn’t waste time waiting for the administrator to roll out the new version.

**To turn on client compatibility in Windows NT:**

1. Run `admin.exe` from the root of the SmartForce Web installation CD.

2. Type the path to the root of your web server in the SmartForce Web Administration dialog box.

3. Select **Enable client compatibility**.

4. Click **Yes** to confirm your selection.

5. Click **OK**.
To turn on client compatibility in UNIX:

1. Run `perl` with the parameter `admin.pl` from the root of the installation CD.
2. Type the path to the root of your web server and press **Enter**.

```
$ perl admin.pl
```

3. Type `5` to enable client compatibility and press **Enter**.

```
5. This option is selected.
```

4. Type `Y` and press **Enter** to confirm your selection.

5. Type `8` and press **Enter** to exit.

### Generating CKN files

If you are running the non-CGI version of SmartForce Web, your web server looks for specific information about LivePlay courses in a file called `cknet.ckn`. One of these files will be present in each LivePlay course directory.

The information in the `cknet.ckn` file directs the web server to the LivePlay course location and allows students to automatically upload progress to an FTP server. Sometimes, it may be useful to be able to quickly generate `cknet.ckn` files for the courses installed on your SmartForce Web server. You can do this using the `admin.exe` program.

```
SmartForce Web Administration
Please enter the document root of your SmartForce Web installation:
/user/suitespot/docs
```

If you are running the CGI version of SmartForce Web, you should not use this option. With CGI, CKN files are generated dynamically when a student plays a course using LivePlay.

### To generate `cknet.ckn` files on Windows NT:

1. Run `admin.exe` from the root of the SmartForce Web installation CD.
2. Type the path to the root of your web server in the SmartForce Web installation Details dialog box.
3. Select the **Generate CKN files for non-CGI versions** option and click **OK**.
4. Click **Yes** to confirm your selection.
5. Click **Exit** once the CKN files have been generated.

**To generate cknet.ckn files on UNIX:**

1. Run `perl` with the parameter `admin.pl` from the root of the installation CD.
2. Type the path to the root of your web server and press **Enter**.
3. Type `2` and press **Enter** to generate the CKN files.
4. Type `Y` and press **Enter** to confirm your selection.
5. Type `8` and press **Enter** to exit.
This troubleshooting guide describes how to deal with some of the error messages that your students may encounter while running SmartForce Web.

**Error messages**

There are four types of error message that students are likely to receive when running SmartForce Web:

- errors generated by SmartForce Web itself
- errors generated by the client
- errors generated by the web server
- errors generated by the progress tracking system

**SmartForce Web error messages**

The following error messages can occur when a student tries to log on to SmartForce Web.

<table>
<thead>
<tr>
<th>Error message text</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing student number. Please return to the form and enter your student number.</td>
<td>This message is displayed when a student leaves the Student Number field blank and clicks Submit.</td>
</tr>
<tr>
<td>You have entered invalid data. Please return to the form and re-enter your student number.</td>
<td>This message is displayed when a student enters invalid data in the Student Number field and clicks Submit. Invalid symbols include :, ?, + ; *</td>
</tr>
</tbody>
</table>
And these messages can occur when a student tries to register with SmartForce Web.

<table>
<thead>
<tr>
<th>Error message text</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect or missing student number. Please return to the form and enter a valid student number.</td>
<td>This message is displayed when a student enters a student number that doesn’t exist in users.txt. The student either has to enter the correct student number, or if they don’t have a student number, they have to self-register.</td>
</tr>
<tr>
<td>You have not entered your password. Please return to the form and enter your correct password.</td>
<td>This occurs when a student leaves the Password field blank.</td>
</tr>
<tr>
<td>Your password did not match your student number. Please return to the form and enter your correct password.</td>
<td>This happens when a student enters the wrong password. Passwords are case sensitive.</td>
</tr>
<tr>
<td>The student number 0000 already exists. Please return to the form and enter a different student number.</td>
<td>This message is displayed when a student tries to register using a student number that already exists in users.txt. The student number must be unique.</td>
</tr>
<tr>
<td>Missing first name/last name/student number/location. Please return to the form and enter your first name/last name/student number/location.</td>
<td>This message is displayed when a student leaves a field blank when registering. All the fields must be filled in.</td>
</tr>
<tr>
<td>You have not confirmed your password correctly. Please return to the form and re-enter and confirm your password.</td>
<td>This occurs when a student has mistyped while confirming their password. Passwords are case sensitive.</td>
</tr>
<tr>
<td>You have entered invalid data. Please return to the form and re-enter your student number/first name/last name/password/location.</td>
<td>This occurs when the student enters an invalid symbol in one of the fields in the registration form. Invalid symbols include : ?. + ; *</td>
</tr>
</tbody>
</table>
**Client error messages**

The following error may arise because of a misconfiguration on the student’s own machine.

<table>
<thead>
<tr>
<th>Error message text</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could not load the plugin ‘SmartForce cknet’ for MIME type ‘application/x-ckn’. Make sure enough memory is available and that the plugin is installed correctly.</td>
<td>A student will receive this message if they try to play a course using LivePlay and do not have the npcknet.dll plugin installed in their browser’s plugins directory.</td>
</tr>
</tbody>
</table>

**Web server error messages**

The following error messages arise from misconfiguration of your web server for use with SmartForce Web.

**Microsoft Internet Information Server error messages**

You may come across the following error messages while running Microsoft Internet Information Server.

<table>
<thead>
<tr>
<th>Error message text</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP/1.0 404 Object not found</td>
<td>This message is displayed when SmartForce Web is looking for an object (e.g. an HTM file, CGI script, or *.exe) but cannot find it. For example, if you have not installed the SmartForce courses on the cbtlib directory, this message is displayed when you attempt a download. Use the Back button on your browser to access the originating page and then check that your installation is correct. The path within the File Location field shows which file SmartForce Web is looking for.</td>
</tr>
<tr>
<td>HTTP/1.0 501 Not supported</td>
<td>This message is displayed when SmartForce Web tries to execute a CGI script while your web server has execute access switched off for the cbtdata directory. Ensure that cbtdata has execute access turned on. See Chapter 5, “Configuring a web server for CGI”.</td>
</tr>
<tr>
<td>Error message text</td>
<td>Comments</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------</td>
</tr>
<tr>
<td>CGI Error</td>
<td>This message is displayed if <code>cgi-lib.pl</code> cannot be found. Ensure that it exists in both the <code>cbtdata</code> directory, and the <code>c:\perl\lib</code> and <code>c:\perl\bin</code> directories.</td>
</tr>
<tr>
<td>The specified CGI application misbehaved by not returning a complete set of HTTP headers. The headers it did return are <code>Can’t locate cgi-lib.pl in @INC at C:\InetPub\wwwroot\cbtdata\registr1.cgi line 20</code></td>
<td></td>
</tr>
<tr>
<td>HTTP Error 403</td>
<td>This error can be caused if you try to execute a CGI, ISAPI, or other executable program from a directory that does not allow programs to be executed. This message will be displayed if you are running the CGI version of SmartForce Web and you do not allow execute access to the <code>cbtdata</code> directory. See Chapter 5, “Configuring a web server for CGI”.</td>
</tr>
<tr>
<td>403.1 Forbidden: Execute access forbidden</td>
<td></td>
</tr>
<tr>
<td>HTTP/1.0 500 Server Error (/cbtdata/registr1.cgi is not a valid Windows NT application) Or %1 is not a valid Windows NT application</td>
<td>Both these errors are displayed if you haven’t associated the CGI files with <code>perl.exe</code> in Windows NT. They will also occur in IIS 2.0 and 3.0 if you haven’t associated <code>.pl</code> and <code>.cgi</code> with <code>perl.exe</code> in the registry, and in IIS 4.0 if you haven’t mapped the <code>.pl</code> and <code>.cgi</code> extensions to <code>perl.exe</code> in Internet Service Manager. See Chapter 5, “Configuring a web server for CGI”</td>
</tr>
</tbody>
</table>
Netscape Enterprise Server error messages

The best way to start finding out the source of an error when you’re running Netscape Enterprise Server is to view the server’s error log. The errors log file is usually stored under

\`c:\netscape\suitespot\https-servername\logs\`

Alternatively, you can view the error log by clicking the Server Status tab in the main view of the Netscape Server Administration program and then selecting View Error Log.

Here are some messages that you may come across in the error log.

<table>
<thead>
<tr>
<th>Error message text</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP Error 403 403.2 Forbidden: Read access forbidden</td>
<td>This message will be displayed if a student tries to access the SmartForce Web site and either the web root directory or the cbtweb directory has read access switched off. You need to ensure that read access is turned on for both the root and cbtweb directories. The error will also occur if the student tries to download a course and read access is switched off for the cbtlib directory. Make sure that cbtlib has execute access turned off and read access turned on. See Chapter 6, “Configuring a web server for download”.</td>
</tr>
<tr>
<td>The data that the plugin requested did not download successfully.</td>
<td>This error can be generated by the student’s browser if you have installed a CGI version of SmartForce Web and a student tries to play a course using LivePlay. This will occur if the cbtdata/student directory is not configured properly on your web server. You need to make sure that the IUSR_computername account has change (RWXD) rights to the cbtdata/student directory. If you are running IIS 2.0 or 3.0, you also need to create a virtual directory for cbtdata/student. See Chapter 6, “Configuring a web server for download”.</td>
</tr>
</tbody>
</table>
Lotus Domino error messages
You may come across the following error messages while running a Lotus Domino web server.

<table>
<thead>
<tr>
<th>Error message text</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure: cgi_send_:cgi_start_exec c:\perl\bin\perl.exe failed</td>
<td>This error can occur if you have installed the CGI version of SmartForce Web but failed to set up cbtddata as a shell CGI directory. See Chapter 5, “Configuring a web server for CGI”.</td>
</tr>
<tr>
<td>Config: for host 172.16.0.59 trying to GET /cbthlib/ns3001e/ns3001ez.exe, handle-processed reports: no way to service request for /cbthlib/ns3001e/ns3001ez.exe</td>
<td>This error may occur when a student tries to download a course. It means that Enterprise Server is unable to treat the course EXE file as downloadable. You need to either edit your server’s MIME types or edit the obj.conf file. Refer to Chapter 6, “Configuring a web server for download”.</td>
</tr>
</tbody>
</table>

| Unknown file type  
You have started to download a file of type www/unknown. | A student running Netscape Navigator may receive this message if you have not configured your Domino web server to treat EXE files as downloadable. Refer to Chapter 6, “Configuring a web server for download”. |
| Error 500  
The server is not configured to handle POST. | If you have enabled CGI, this error can occur when a student tries to run a PERL script, either by trying to register as a new user or trying to download a course or play a course using LivePlay. Make sure that you have configured your Domino server for CGI. Refer to Chapter 5, “Configuring a web server for CGI”. |
## Troubleshooting

### Progress tracking error messages

The following error messages may be generated when the progress tracking system is misconfigured or is not running.

<table>
<thead>
<tr>
<th>Error message text</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The data that the plugin requested did not download successfully.</td>
<td>This error can be generated by the student’s browser if you have installed a CGI version of SmartForce Web and a student tries to play a course using LivePlay. This will occur if the <code>cbtdata/student</code> directory is not configured properly on your web server. You need to make sure that the Internet guest user account has change (RWXD) rights to the <code>cbtdata/student</code> directory. You also need to create a directory mapping for the <code>cbtdata/student</code> directory. See Chapter 5, “Configuring a web server for CGI”.</td>
</tr>
<tr>
<td>Connection to student administration server timed out.</td>
<td>In an online reporting scenario, these error messages can appear when a student tries to log on to SmartForce Web but either the SmartForce Data Server or the SmartForce Connect Server is not running. See “Launching server components” on p. 7-6. These messages may also appear if you entered an incorrect IP address or port number for SmartForce Connect when you installed SmartForce Web. Check your SmartForce Connect details against the relevant entries in the <code>cbtweb.ini</code> file and the <code>registr1.cgi</code> and <code>registr2.cgi</code> scripts, all of which can be found in the <code>cbtdata</code> folder off the root of your web server. In <code>cbtweb.ini</code>, the details are stored under the <code>[WOLF]</code> section. In the CGI scripts, you should look for the <code>$wolfip</code> and <code>$wolfport</code> entries.</td>
</tr>
<tr>
<td>Course cannot be found on server! Cannot connect to administration server.</td>
<td>In an online reporting scenario this message appears when a student tries to launch a LivePlay course, but the course has not been loaded into SmartForce Data Server. See “Loading courses into SmartForce Data Server” on p. 7-10.</td>
</tr>
</tbody>
</table>
Other troubleshooting sources

If you continue to have problems, you should contact the SmartForce Technical Support Helpdesk. Telephone and fax numbers, as well as an e-mail address, are available at the start of this guide.
INDEX

A
admin.exe program . 4-5, 9-3, 9-4
anonymous access . 3-4, 3-8

C
cbdata directory . 3-1, 4-5
CGI . 1-2, 2-8–2-10, 4-1, 5-1
CKN files . 8-2
generating . 9-4
client compatibility . 9-3
courses
loading . 7-10

D
DNS
SmartForce Data Server support . 7-2
Download courses . 1-2
downlog.txt file . 2-10

E
error messages
client . 10-3
progress tracking . 10-7
SmartForce Web . 10-1
web server . 10-3

F
FTP server . 2-6, 3-5, 3-9
specifications . 2-7

G
Getting Started page . 2-2
customizing . 9-1

I
installing
SmartForce Admin . 7-7
SmartForce Player . 9-1
SmartForce Web on UNIX . 3-5
SmartForce Web on Windows NT . 3-2

L
live.log.txt file . 2-10
LivePlay . 1-2
Lotus Domino

M
Microsoft Internet Information Server
configuring for CGI . 5-7
configuring for download . 6-6

N
NAM files . 8-1
Netscape Enterprise Server
configuring for CGI . 5-6
configuring for download . 6-3

P
PERL
installing . 4-1–4-6
preregistering students . 4-4

R
Record return . 8-2
reginfo.txt file . 7-7
registration
preregistering students . 4-4
self-registration . 3-4, 3-8
Remove/Record Return utility . 8-2
reports
standard . 7-13
supplementary . 7-14

S
self-registration . 3-4, 3-8
setup programs . 2-4
SmartForce Admin
changing password . 7-10
installing . 7-7
launching . 7-9
logging on to . 7-9
specifications . 2-8
SmartForce Connect
configuring as an NT service . 7-5
installing . 7-1
IP address . 3-1
launching . 7-6
port number . 3-1, 7-2
SmartForce Data Server . 2-7, 7-1
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>changing settings after setup</td>
<td>7-5</td>
</tr>
<tr>
<td>configuring as an NT service</td>
<td>7-5</td>
</tr>
<tr>
<td>DNS support</td>
<td>7-2</td>
</tr>
<tr>
<td>installing</td>
<td>7-3</td>
</tr>
<tr>
<td>IP address</td>
<td>7-2</td>
</tr>
<tr>
<td>launching</td>
<td>7-6</td>
</tr>
<tr>
<td>port number</td>
<td>7-2</td>
</tr>
<tr>
<td>specifications</td>
<td>2-7</td>
</tr>
<tr>
<td>SmartForce Player</td>
<td>1-2</td>
</tr>
<tr>
<td>installing on a network drive</td>
<td>9-1</td>
</tr>
<tr>
<td>SmartForce Reporter</td>
<td>8-1</td>
</tr>
<tr>
<td>SmartForce Web</td>
<td></td>
</tr>
<tr>
<td>benefits</td>
<td>1-1</td>
</tr>
<tr>
<td>components</td>
<td>2-2</td>
</tr>
<tr>
<td>installing</td>
<td>3-1–3-10</td>
</tr>
<tr>
<td>introducing</td>
<td>1-1–1-3</td>
</tr>
<tr>
<td>localized versions</td>
<td>2-10</td>
</tr>
<tr>
<td>logging on to</td>
<td>2-8</td>
</tr>
<tr>
<td>server specifications</td>
<td>2-4</td>
</tr>
<tr>
<td>troubleshooting</td>
<td>10-1–10-8</td>
</tr>
<tr>
<td>updating and customizing</td>
<td>9-1</td>
</tr>
<tr>
<td>upgrading</td>
<td>3-1</td>
</tr>
<tr>
<td>UNIX</td>
<td></td>
</tr>
<tr>
<td>installing SmartForce Web on</td>
<td>3-5</td>
</tr>
<tr>
<td>users.txt file</td>
<td>4-4</td>
</tr>
<tr>
<td>Windows NT</td>
<td></td>
</tr>
<tr>
<td>web server</td>
<td></td>
</tr>
<tr>
<td>configuring for CGI</td>
<td>5-1–5-10</td>
</tr>
<tr>
<td>configuring for download</td>
<td>6-1–6-7</td>
</tr>
<tr>
<td>installing SmartForce Web on</td>
<td>3-2</td>
</tr>
</tbody>
</table>