

## Introduction

Health information technology continues to expand rapidly across the entire spectrum of the healthcare community. Although electronic health records have been a part of the healthcare community since the 1960s, a major adoption of informatics in the general population has only recently been witnessed. Affordability in computer technology and healthcare software is now exerting a major influence on providers in private practice groups of eight or less to adopt electronic health records. This enclave of healthcare providers makes up nearly 78% of all practices in the United States. The availability and reliability of wireless computer networks, the public concern for patient safety, and the affordability of health information technology are being met with the federal government's involvement in coordinating and setting technical standards for electronic health records. These converging forces are bringing about a virtual explosion in the electronic healthcare industry, leading business experts to concur that in less than five years 90% of small- to medium-sized practices will be using electronic health record systems. The remarkable surge of interest in electronic health records (EHRs) is leading to further development in comprehensive clinical decision support that continues to enhance computerized knowledge management systems and create even more robust EHRs.

Never in the history of nursing has there been a greater need for the exposure to and hands-on experience with electronic documentation. Specialization of informatics that now manages and processes health data has created the urgent need to provide nursing students and educators with the ability to document patient care in an electronic health record system.

*Nursing Documentation Using Electronic Health Records* arose from the need to educate nurses for the anticipated phenomenal growth of electronic health records in the healthcare field. This text provides nursing students with an exceptional tool that integrates health informatics into the nursing curriculum. Twenty percent of the text is devoted to the theory, history, evolution, and legal/ethical considerations of electronic documentation and the remainder of the text provides nursing students with a technology-rich, hands-on, informatics environment. Students learn to document electronically using the SOAPIER format, NANDA-I nursing diagnoses, NOC, and NIC with the click of a mouse, and to document procedures, patient education, and care plans from pick lists. A wealth of resource material is provided to develop individualized electronic documentation.

*Nursing Documentation Using Electronic Health Records* provides a detailed history of the EHR from the inception of electronic records in the 1960s and traces the influence of several federal agencies and private-sector organizations from the Health Insurance Portability and Accountability Act of 1996, through the Certification Commission of Health Information Technology formed in 2004 to the HITECH ACT of 2009. This text devotes 11 chapters to practical, hands-on experience with *SpringCharts EHR™*, a popular electronic health records program used by a wide range of healthcare professionals in a variety of specialties both nationally and internationally. At the completion of this course, students are awarded a Completion Certificate acknowledging their successful training as *SpringCharts EHR* users.

## Key Features:

- **The ONC Certified SpringCharts premium EHR program is available with each text at no additional cost to the student or school.** Students learn EHR documentation through this industry-standard software. It combines the right mix of rich functionality and intuitive ease of use to enable rapid and complete clinical and clerical documentation.
- An abundance of screen captures and menu icons from SpringCharts™ EHR software provide step-by-step instructions for easy reference and application.

“That is well thought through, provides the latest regulations with charting and is a comprehensive, integrated charting system.”

—Donna Gloe,  
EdD, MSN,  
RN-BC, Missouri  
State University

“As an effective method of teaching EHR and documentation; provides the learner with a comprehensive course that facilitates practical application of EHR documentation in nursing practice.”

—Donna Beuk,  
MSN, BSN, RN,  
Auburn University

“An activity-based learning tool that teaches electronic charting in a realistic setting. It gives the student the opportunity to learn and perform charting in a simulated, therefore less stressful environment than the hospital.”

—Anita Fitzgerald,  
RN, MSN,  
California State  
University  
—Long Beach

“I am impressed with the emphasis on nursing as it relates to electronic documentation. I am most impressed with the clarity that prevails throughout all chapters.”

—Kate Lein,  
MS, FNP-BC,  
Michigan State  
University

- *Nursing Documentation Using Electronic Health Records* incorporates **four levels of nursing instruction** and arranges the material from the simple to the more complex, enabling the text to be used over a four-semester program.
- **Concept Checkups** follow each topic and break down learning outcomes into manageable components.
- **Focal Points, Documentation Tips, Legal/Ethical Considerations, and Evidence-Based Practices** appear in the margins throughout the text to spotlight critical data necessary to master end-of-chapter review quizzes. **Key Term Definitions** appear in the glossary.
- A **Certificate of Training** is available on McGraw-Hill's Online Learning Center (OLC) for each student completing the course.

## Text Overview

*Nursing Documentation Using Electronic Health Records* is organized into four different levels of charting, moving from simple to complex.

**Level 1**—Level 1 includes Chapters 1, 2, 3, and 4. These chapters focus on the history and development of the electronic health record (EHR) and trace the impact of standards development, certification, and the government's involvement. The theory, purpose, and types of nursing documentation are discussed with a focus on the medication administration record (MAR) and the relevance of standardized nursing language. Students are introduced to SpringCharts™ and learn essential documentation on an industry standard EHR program. They are also introduced to the *Nurse Note* and are given hands-on practice in documenting chief complaints, vital signs, and physical assessments on 10 different patient case studies.

### Chapter 1—An Introduction to Electronic Health Records

Chapter 1 provides a concise history of the EHR and unravels the multiple nomenclatures surrounding its evolution. It explores standards development and nursing's role in that development. Students learn about the benefits of EHRs in both inpatient and ambulatory settings. The chapter concludes with a discussion of EHR certification, the federal government's role in the promotion of the EHR, and the current financial remuneration available through the HITECH portion of the American Recovery and Reinvestment Act of 2009.

### Chapter 2—Nursing Documentation Overview

Chapter 2 examines the purpose and methods of nursing documentation. The MAR is examined and the importance of standardized nursing language for nursing diagnoses, nursing outcomes, and nursing interventions is highlighted.

### Chapter 3—Essential EHR Documentation

This chapter initiates hands-on training in nursing documentation on SpringCharts EHR program. Students learn to set up personal user preferences and create ten patients with different disease processes to be used throughout the remainder of the course. Students are also introduced to the electronic chart, specifically learning about the *Face Sheet* and *Care Tree*.

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**Note:** The individual SpringCharts program must be downloaded from the text website [www.mhhe.com/nursingehr](http://www.mhhe.com/nursingehr) or the networked program needs to be installed by the nursing school's IT department before students start this chapter.

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### Chapter 4—Nurse Note Documentation—Level 1

In Chapter 4, students begin to practice *Nurse Note* documentation. Students work with their patients with diabetes, congestive heart failure, and pneumonia and electronically document chief complaints, vital signs, and physical exams.

**Level 2**—Level 2 includes Chapters 5, 6, 7, and 8. These chapters take students deeper into the EHR features of documentation and enable them to enhance their *Nurse Note* documentation using these more advanced features. Students are introduced to the ambulatory healthcare setting and its documentation requirements. Exercises are provided for the student to create an *Office Visit Note* while assuming the roles of nurse and nurse practitioner.

### **Chapter 5—Fundamental EHR Documentation**

Chapter 5 explains EHR features of documenting telephone calls, letters, diagnostic test reports, and excuse notes. Students are exposed to the Plan of Care Manager where they import practice guidelines. This chapter includes EHR utilities such as linking to favorite websites and using SpringCharts calculators.

### **Chapter 6—Nurse Note Documentation—Level 2**

Here, students begin to use NANDA-I nursing diagnoses, identify patient goals using nursing outcomes classifications (NOC), and employ nursing interventions using nursing intervention classifications (NIC) verbiage from within the EHR program as they continue to build *Nurse Notes* on designated patients with different disease processes. Level two of the *Nurse Note* also deals with documentation on the electronic MAR and intake and output (I&O) forms.

### **Chapter 7—Ambulatory Healthcare**

Chapter 7 introduces students to the ambulatory healthcare setting and its documentation requirements. Students learn the role of an ambulatory nurse, document in an *Office Visit Note*, and modify and make addendums to the note.

### **Chapter 8—Ambulatory Healthcare Exercises**

This chapter provides students with eight ambulatory healthcare documentation exercises. Students practice documenting in the EHR program using features learned in Chapter 7. They create, modify, and make addendums to *Office Visit Notes*. Students also generate reports and excuse notes.

**Level 3**—Level 3 includes Chapters 9, 10, and 11. These chapters promote a deeper understanding of EHR features and enable students to add to their *Nurse Notes* using these advanced features. Students learn EHR administrative features such as working through a ‘to do’ list, and sending and receiving internal messages. Chapter 10 is devoted to patient education where students learn patients’ rights and nurses’ responsibilities. The *Nurse Note* documentation becomes increasingly complex and students complete notes created in Levels 1 and 2.

### **Chapter 9—Routine EHR Documentation**

Chapter 9 exposes students to various administrative EHR functions. They learn how to use the *ToDo* feature, send and receive internal messages, complete immunization records, and create patient instruction sheets. Students also learn how to use the draw program to enhance nursing documentation within the EHR.

### **Chapter 10—Patient Education**

This chapter focuses on patients’ rights, nurses’ responsibilities, and accreditation requirements related to patient education. Students learn how to apply appropriate NANDA-I nursing diagnoses, NOC, and NIC for patient education. They assess patients’ learning needs then implement, evaluate, and document patient education.

### **Chapter 11—Nurse Note Documentation—Level 3**

This chapter continues to take students deeper into the *Nurse Note*, moving from simple to complex. Students document patient education interventions, evaluate patient responses to nursing interventions, and make revisions to the plan of care as needed. The *Nurse Note* is built using stroke, cellulitis, and chest

“A great help in teaching the students to learn electronic charting and documentation. The exercises provided will be sure to provide adequate practice which will assist the student to function with EHR in the clinical setting.”

—Carmen Vela,  
MSN, RN,  
Covenant School of  
Nursing

“Unifies electronic health record documentation applying nursing process and current regulatory requirements of nursing care including JCAHO requirements, NPSS, CDC requirements etc. The program is supported by threads of evidenced based practice, legal ethical, and documentation tips. The practical applications afford the student the opportunity to apply the concepts utilizing SpringCharts EHR. The program is well written, concise, and predictable in its applications as well as fun to use.”

—Cynthia Neff,  
MSN, RN,  
Allegany College of  
Maryland

pain patient case studies. Students also create *ToDo* items and reminders from within the *Nurse Note*.

**Level 4**—Level 4 includes Chapters 12, 13, and 14. In this final level, students learn more complex EHR documentation functions. Level Four is the EHR capstone section. Chapters 13 and 14 present students with case studies that require them to navigate through all SpringCharts screens as they build *Nurse Notes* for multiple patients.

#### **Chapter 12—Advanced EHR Documentation**

Chapter 12 introduces students to more advanced EHR documentation features of SpringCharts. Students learn to order diagnostic tests, perform electronic chart evaluations, and export elements of the chart. They also create addendums to existing Nurse Notes.

#### **Chapter 13—Nurse Note Documentation—Level 4**

While no new information is introduced in the last two chapters, students are presented with exercises that take them through all the main screens of the EHR program. Students document Face Sheet information, build Nurse Notes, import documents, and print Nurse Notes. Screen shots are provided throughout the exercises, providing immediate feedback to students.

#### **Chapter 14—Learning Assessment**

This chapter consists of 15 documentation exercises. Students use copies of documents typically used in a paper environment to gather information and place it in an electronic format within the EHR program. These exercises take the students through multiple screens in SpringCharts as they build electronic records and Nurse Notes.

## **Instructor Support**

Access instructor resources from the text website at [www.mhhe.com/nursingehr](http://www.mhhe.com/nursingehr).

- **PowerPoint® slide presentations**, available for every chapter, contain teaching notes keyed to learning outcomes, making the teaching and learning experience exciting for both the instructor and the student.
- The **Instructor's Manual** contains a course overview, chapter summaries, answer keys, and instructions for installing the SpringCharts EHR software.
- **Exercise Checkup References** are supplied via screen captures from SpringCharts EHR at critical points in each exercise to ensure that students are completing exercises accurately.
- McGraw-Hill's **EZ-Test Test Generator** is an electronic testing program that allows instructors to create tests from book-specific items. It accommodates a wide range of question types, and instructors may add their own questions. Multiple versions of the test can be created, and any test can be exported for use with course management systems such as WebCT, BlackBoard, or PageOut. EZ-Test Online is a new service that provides you with a place to easily administer the exams and quizzes you created with EZ-Test. The program is available for Windows and Macintosh environments.

## **Downloading SpringCharts Is Easy!**

### **Overview**

SpringCharts EHR is an electronic health records software suite based on the latest industry standard Java technology. It requires a very modest network system for installation. SpringCharts is available in two system configurations: single computer and network option.



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**Note:** Before beginning to work on the exercises in *Nursing Documentation Using Electronic Health Records*, access and download both the SpringCharts EHR software and the *EHR Material* folder located on the OLC at [www.mhhe.com/nursingehr](http://www.mhhe.com/nursingehr). The *EHR Material* folder contains images, documents, and files to give students real scenarios for EHR documentation throughout the course.

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Please follow the instructions below to download the Java Runtime Environment, the SpringCharts EHR program, and the *EHR Materials* folder onto your computer. For problems with the download, contact one of the support teams listed below.

## Support

McGraw-Hill Higher Education technical support team: 1-800-331-5094

- 8 a.m.–11 p.m. CST, Monday–Thursday
- 8 a.m.–6 p.m. CST, Friday
- 6 p.m.–11 p.m. CST, Sunday
- [www.mhhe.com/support](http://www.mhhe.com/support)
- Med-Soft National Training Institute textbook support: [questions@springmedical.com](mailto:questions@springmedical.com)

## Single Computer Version

The single computer version of SpringCharts needs to be installed onto each student's computer in the classroom. We recommend that SpringCharts be installed to and run from a 2GB flash drive (see **Running SpringCharts from a Flash Drive** instructions below) to eliminate the need to back up and restore data on a daily basis. The use of a flash drive enables a portable application of SpringCharts on any computer that will accept the flash drive and enables students to work outside the classroom. The single computer version of SpringCharts is not networked; therefore, the instructor is unable to view the students' exercises online. Exercises must be printed and submitted, e-mailed in pdf format (see instructions below), or viewed by the instructor on the students' computers.

## Network Version

The network version of SpringCharts EHR comes in two applications: SpringCharts server and SpringCharts client. The downloadable network version of SpringCharts EHR is provided via a personalized link. Upon receipt, open and save the zipped file, as shown in Figure 1.

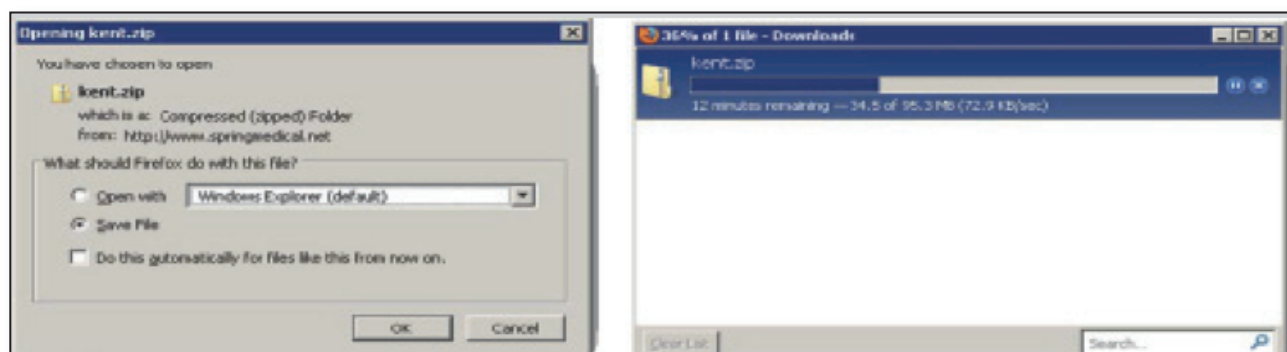
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**Note:** The network version SpringCharts file is large and may take 15 minutes or more to download.

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SpringCharts server must be installed on the server in the network and SpringCharts client must be installed on all the computer workstations in the network. Since the instructor and students are on the same network, completed exercises can be

**Figure 1** Saving SpringCharts file to the computer



viewed across the network. The limitation of the local network version is that students cannot work on exercises outside of the classroom.

The optimum network configuration is to install SpringCharts server and SpringCharts client versions in the same local computer lab. Because the system requirements for SpringCharts EHR are very conservative, a local computer can be designated as the server and the other workstations pointed to this server within the SpringCharts client program.

## System Requirements

The minimum requirements for **SpringCharts single** computer version are:

- An 800 MHz, or faster, processor.
- 400 MB of available disk space.
- 1 GB of memory (2 GB is preferable).
- A computer running one of the following operating systems: Windows 2000 or above, Mac OS 10.5 (Leopard) or above.

To complete all exercises in this text, access to a network printer and the Internet is required.

The minimum requirements for the **SpringCharts server** network option are:

- Pentium 4, or faster, processor (Xeon preferred).
- 150 GB of available disk space (after loading the JRE), primarily for the File Cabinet and local backups.
- 2 GB of memory (4 GB is preferable).
- Computer running the following operating systems: Windows 2000 or above, or MacOS Leopard (10.5) or above. (The network computers do not need to be running the same operating system.)
- **Note:** SpringCharts uses ports 4447 and 4448.

The minimum requirements for the **SpringCharts client** network option are:

- 800 MHz, or faster, processor.
- 25 MB of available disk space.
- 1 GB of memory (2 GB is preferable).
- Workstation computers running the following operating systems: Windows 2000 or above, or MacOS Leopard (10.5) or above. (The network computers do not need to be running the same operating system.)

## Operating Environment Notice

SpringCharts is an online system that requires uninterrupted access to a minimum level of system resources. As a result, it is recommended that SpringCharts server be located on a dedicated computer when possible.

It is also recommended that highly resource-intensive programs and/or programs that may intermittently use up the majority of system processing capacity or network bandwidth *not be run at the same time as SpringCharts*. Examples of these types of programs are:

- Virus scans of the entire hard drive (scans of individual files are acceptable).
- Music streaming programs.
- Certain backup programs (when activated).

## Single Computer Installation

### Installing Java Runtime Environment (JRE) 1.6

JRE 1.6.0\_17 must be installed before running SpringCharts EHR.

- Access the following website on the Internet: [www.java.com](http://www.java.com).
- Click the *Do I have Java?* link to test the computer system for the correct version of Java.
- If the computer has JRE 1.6\_17, an upgrade is not needed.

- If the system does not meet the requirements of JRE 1.6, download JRE 1.6.0\_17 from the online learning center. **Do not download the latest version of JRE from the Java website.**

## Running SpringCharts from a Flash Drive

In a computer environment that uses a product like Deep Freeze™ to return the computer to its baseline configurations each day, all work in SpringCharts is eradicated when the computer is reset to its original state. To bypass the need to back up and restore SpringCharts data on a daily basis, the SpringCharts program can be run from a 2GB flash drive, as seen in Figure 2, that is placed into the computer's USB port daily. **If the school requires an administrative password to run programs from a flash drive, this method may not be feasible. Please consult with the school's IT department before proceeding.**

To use the alternate flash drive method, install JRE 1.6.0\_17, SpringCharts EHR, and the *EHR Material* folder as outlined in the next sections; however, **install the Java Runtime (JRE) onto the computer**, and the SpringCharts program and *EHR Material* folder to the flash drive. When installing SpringCharts an option to change the default location of installation is presented (see Figure 3). To install SpringCharts to the flash drive, select this option, locate *My Computer*, and select the USB port where the flash drive is located. Once installed, a SpringCharts icon appears on the desktop. To access SpringCharts, place the flash drive into the computer's USB port and double-click on this icon. If the icon has been removed from the desktop, locate the flash drive and double-click the SpringCharts icon in the SpringCharts folder.

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**Note:** Backing up and restoring SpringCharts data is not required when SpringCharts is operating from a flash drive.

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When closing down the SpringCharts program the option to back up is given. If using a flash drive select **No**. The flash drive may be used in any computer's USB port to work on the exercises in this text.

## Installing SpringCharts EHR on a Single Computer

The SpringCharts installation is accomplished in a few easy steps. Remember, the JRE must be installed before SpringCharts EHR will run.

- Type the following address in the Internet browser: [www.mhhe.com/nursingehr](http://www.mhhe.com/nursingehr).
- Click the *SpringCharts* link in the menu on the left.
- Locate the *Downloading and Installing SpringCharts EHR* portion of the page.
- Click either the *SpringCharts PC Demo installer zip file* link or the *SpringCharts Mac Demo installer stuffed file* link as appropriate for the computer's operating system.
- Download the installer file to the computer desktop.
- Decompress the downloaded file (use a file program such as Winzip or StuffIt.)
- Double click either the **SpringChartsDEMOSetup.exe** or **SCDemoSetupMac** installation applications as appropriate for the computer's operating system.
- Follow the directions offered by the installer. A screen similar to the one displayed in Figure 3 appears.

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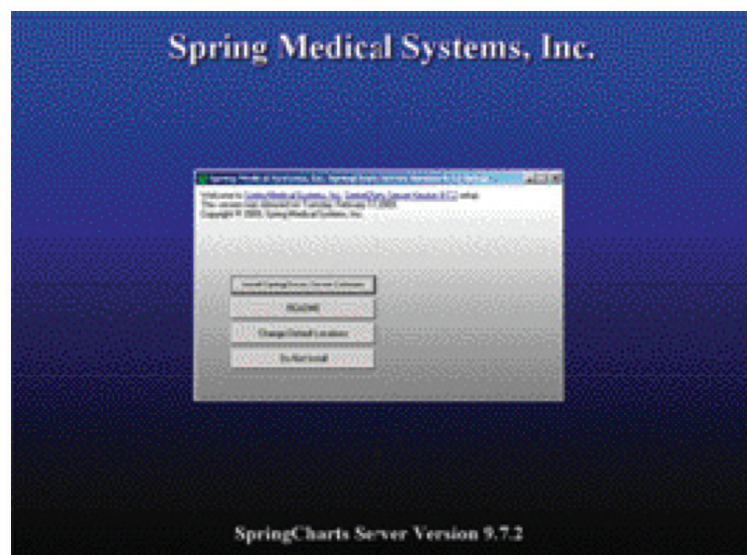
**Note:** If you are using the Windows Vista Operating System, please see **Installing SpringCharts in Window Vista** section below.

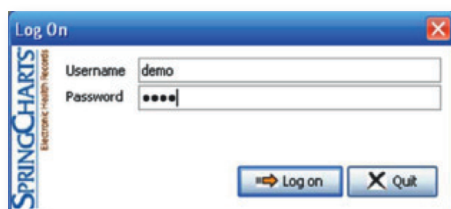
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**Figure 2** A flash drive is a portable device for memory storage. It can also be referred to as a jump drive or a thumb drive. Flash drives will fit into any USB (universal serial bus) port on a computer.

**Figure 3** SpringCharts installation window





**Figure 4** SpringCharts Log on window

- SpringCharts program files are installed in the default location of C:\Program Files\SCDemo, the recommended installation location for a computer. To accept this default, click on the **Install SpringCharts Demo Software** button. However, if installing SpringCharts to a flash drive, select the **Change Default Locations** button and select the appropriate drive.
- Accept the license agreement and the installation begins.
- After the files have been successfully installed, the final installation completion screen appears.
- Click on the **Thanks!** button and the installation is complete.
- Close open windows and a shortcut icon to SpringCharts appears on the desktop. Double-click on the SpringCharts icon to open the program. A *Log on* window appears as illustrated in Figure 4. The user name and password are hard coded; simply select the **Log on** button.

## Downloading the EHR Material Folder

**Note:** Several files must be imported into the SpringCharts program to complete some of the exercises in the textbook. These files are contained in the folder titled *EHR Material* on the McGraw-Hill OLC.

- Access the following Website via the Internet browser: [www.mhhe.com/nursingehr](http://www.mhhe.com/nursingehr).
- Click the *SpringCharts* link in the left-hand menu.
- Locate the *Downloading the EHR Material folder* portion of the page.
- Click the *EHR Material* link.
- Download the zip file to the computer desktop.
- Decompress the downloaded file (use a file decompression program such as Winzip or StuffIt.)
- Once the folder has been copied to the desktop or a flash drive, close the Web browser window.

## Installing SpringCharts Network Option

### Installing SpringCharts Server

The SpringCharts installation is accomplished in a few easy steps:

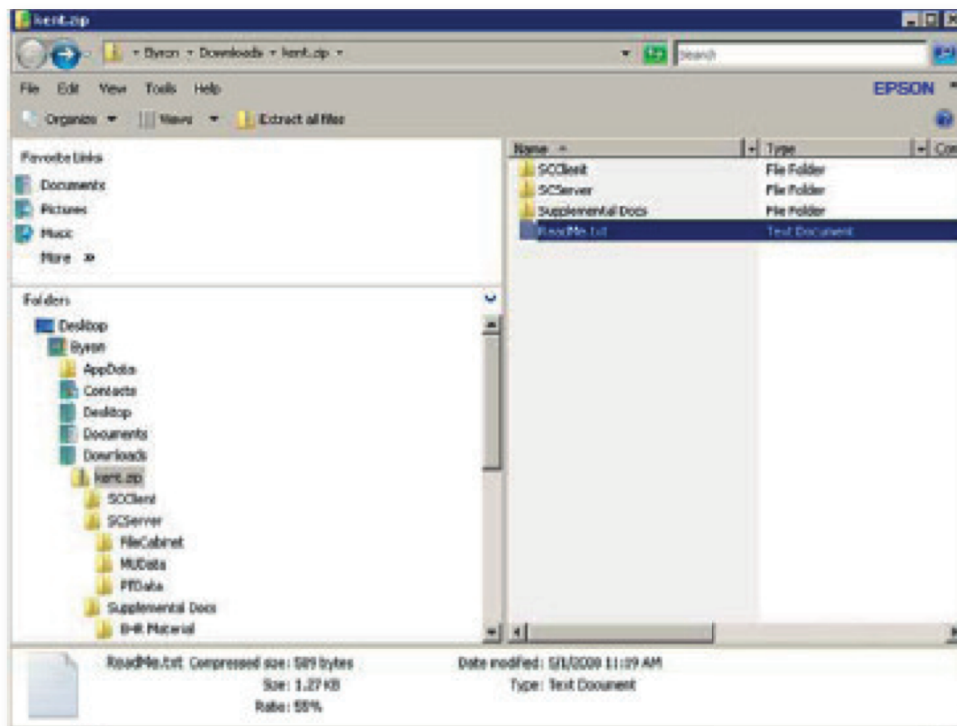
1. Verify hardware requirements (see above).
2. Ensure the correct version of JRE (see above).
3. Install SpringCharts server on the server.
4. Install SpringCharts client on all the client computers.
5. Set the IP address of SpringCharts server in SpringCharts client version.

When these steps are completed successfully, SpringCharts is ready to use!

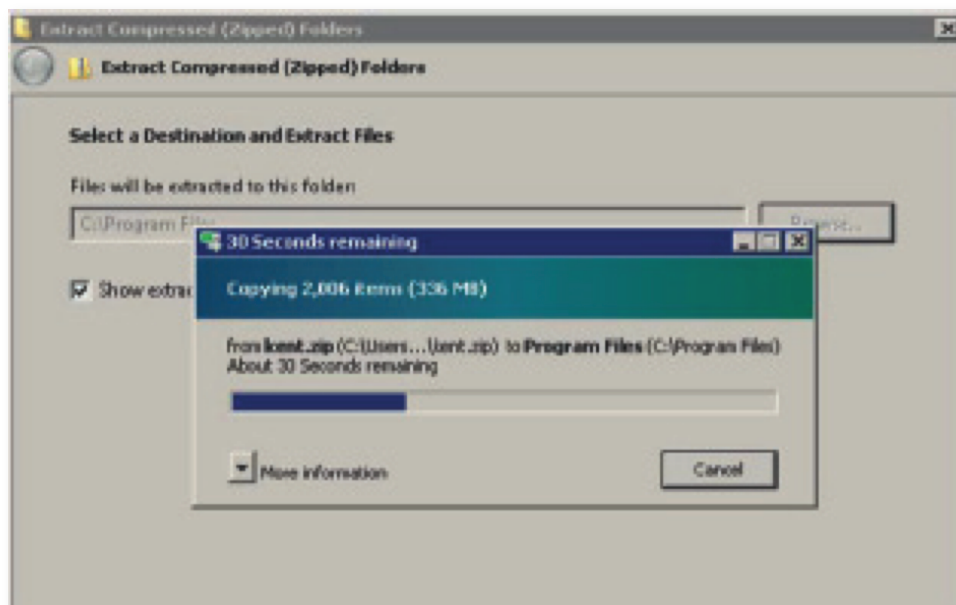
**Note:** Download the SpringCharts program via the link provided by your McGraw-Hill sales representative. The zipped file contains the server folder, client folder, supplemental docs folder, and text file.

Double-click on the SCServer folder to see the following files: FileCabinet folder, MUDData folder, PtData folder, and the compressed executable file **SpringChartsServer.exe**, as seen in Figure 5. Double-click on the executable program and extract the files to the *Program Files* folder on the C: drive (or other designated drive), illustrated in Figure 6. (See *Installing SpringCharts in Windows Vista* below for installation within the Vista operating system.)





**Figure 5** Downloaded file

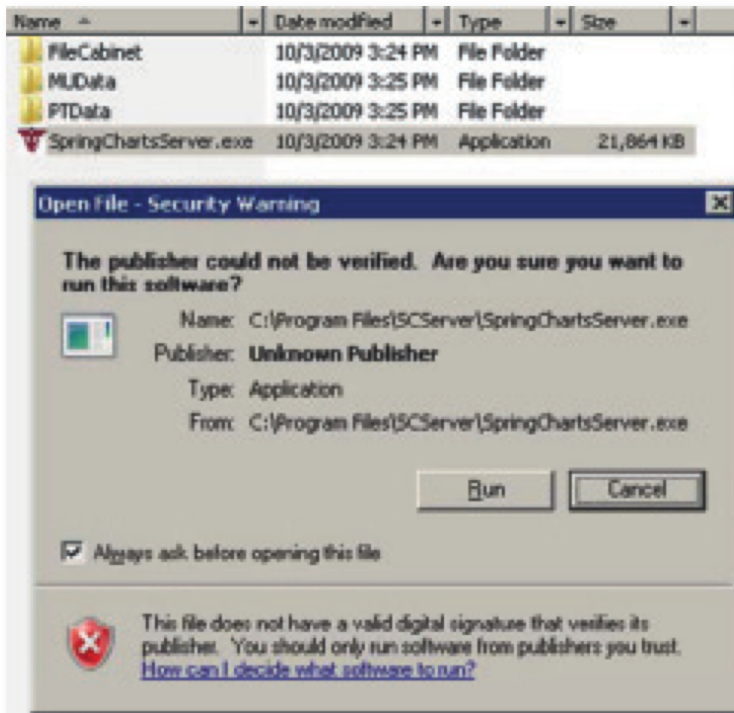


**Figure 6** Extracting zipped SpringCharts program files

An SCServer folder and an SCClient folder are created in the *Program Files* folder containing the above-mentioned folders, and an SCServer folder is placed on the desktop. Double-click on **SpringCharts Server.exe** in this folder to launch the installation program, shown in Figure 7.

**Note:** The SpringCharts server program must be running at all times for the SpringCharts client program to access the database.

To locate the IP address of SpringCharts server, click on the *File* menu and select *SpringCharts Info*. The *Program Information* window contains the IP address needed when activating each SpringCharts client program for the first time, seen in Figure 8. Record this IP address for future reference.



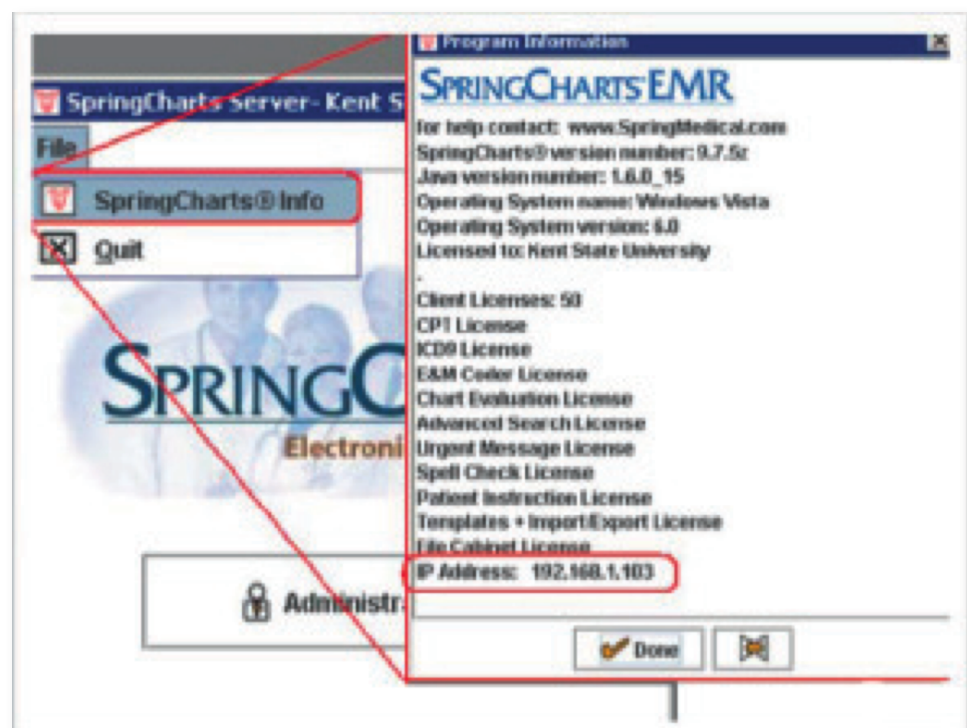
**Figure 7** Installing SpringCharts server

copied across the network and placed on each workstation. Students access this folder and retrieve files to complete various exercises.

### Adding Additional Users

The network version of SpringCharts EHR that accompanies the *Nursing Documentation Using Electronic Health Records* textbook comes loaded with 50 user accounts and the accompanying pop-up text for each user. These 50 user licenses employ the same format for Username and Password, as follows: user1, password; user2, password; and so on. Each user account is already set up on the SpringCharts server under the **Users** button. Additional user accounts are required if more than 50 users are operating in SpringCharts

**Figure 8** Locating SpringCharts server IP address



### Installing SpringCharts Client

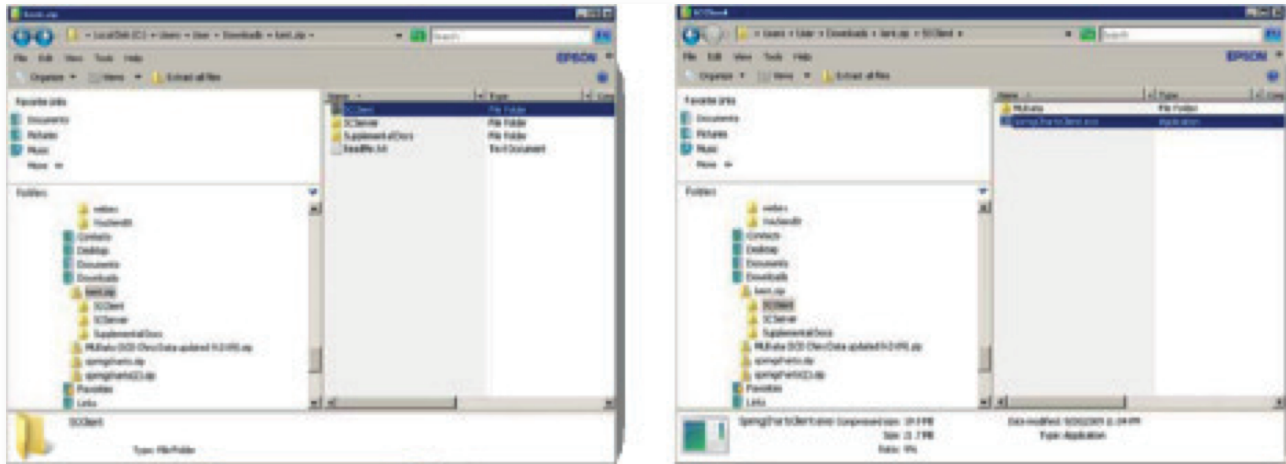
The SCClient folder on the server can now be copied across the network and installed in the *Program Files* folder on the C: drive (or other designated drive) of each workstation, as seen in Figure 9. (See **Installing SpringCharts in Windows Vista** below for installation within the Vista operating system.)

Double-click on the **SpringCharts Client.exe** in this folder to launch the installation program. In the *Log on* window, seen in Figure 10, enter the following: **Username:** demo and **Password:** demo.

When asked for the IP address of SpringCharts server, enter the IP address recorded earlier in the *Program Information* window of SpringCharts server. You will be prompted to log on again.

### Loading the EHR Materials Folder

The *EHR Materials* folder is in the *Supplemental Docs* folder that was downloaded earlier. The *EHR Materials* folder must be



**Figure 9** Installing SpringCharts client program

simultaneously. To add users, locate the **Adding Additional Users and PopUp Text.pdf** file in the *Supplemental Docs* folder of the downloaded file and follow the instructions.

## Installing SpringCharts EHR on a Windows Terminal Server

SpringCharts can run on a Microsoft Windows Terminal server in one of two fashions, depending on the hardware resources available and the number of concurrent users expected to access SpringCharts during peak usage. In either case, the installation procedures are the same for installing the SpringCharts server or the SpringCharts client.



**Figure 10** Logging on to SpringCharts client program

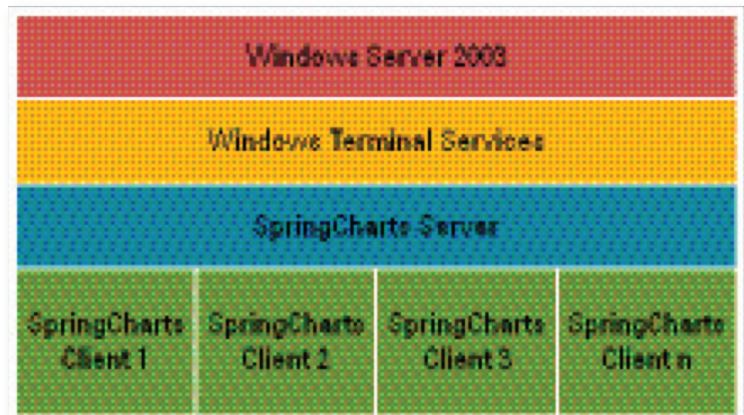
### Single Server Method

If resources are not an issue, the Single Server Installation (Figure 11) is a good choice.

- Set up terminal services as instructed by Microsoft, and create a user account for each student accessing SpringCharts.
- Install SpringCharts server (see Installation Guide for instructions).
- Install SpringCharts client to the desired folder (see Installation Guide for instructions). Run the SpringCharts client once to configure the client with the server's IP address.

**Note:** The folder where the SpringCharts server was installed must have modified permissions for all users.

- Copy the SpringCharts client folder to each user's home directory, giving each user a copy of the SpringCharts client.
- Set the login script to run SpringCharts client whenever the user logs in (this is optional), or simply put a shortcut on each user's desktop.



**Figure 11** Running SpringCharts on a single terminal server

### System Requirements

The minimum requirements for running SpringCharts on a single terminal server are:

- (2) Dual Core 2.8 GHz Xeon Processors or comparable.
- 24+ GB RAM (1 GB per user plus 2 GB for the SpringCharts server).
- 10 GB of Free Disk Space.



**Figure 12** Running SpringCharts on multiple terminal server

This configuration should support 20 to 30 concurrent SpringCharts client users depending on the amount of physical memory.

### Multiple Server Method

The multiple server method of installing SpringCharts, shown in Figure 12, is preferable if hardware is limited and users need to be spread over multiple resources.

- Set up terminal services as instructed by Microsoft, and create a user account for each student accessing SpringCharts.
- Install SpringCharts server (see Installation Guide for instructions).
- Install SpringCharts client to the desired folder (see Installation Guide for instructions). Run the SpringCharts client once to configure the client with the server's IP address.
- Copy the SpringCharts client folder to each user's home directory, giving each user a copy of the SpringCharts client.
- Set the login script to run SpringCharts client whenever the user logs in (this is optional) or simply put a shortcut on each user's desktop.

### System Requirements

The minimum requirements for running SpringCharts on multiple servers are:

#### SERVER:

Dual Core Pentium 2 GHz or higher.

4 GB RAM (2 GB for SpringCharts Server and 2 for the OS).

10 GB of Free Disk Space.

#### CLIENTS:

(2) Dual Core 2.8 GHz Xeon Processors or comparable.

24+ GB RAM (1 GB per user plus 2 GB for the SpringCharts Server).

This configuration should support 20 to 30 concurrent SpringCharts client users depending on the amount of physical memory. As an option, server requirements for each client server may be decreased by splitting the clients over multiple terminal servers.

### Backing Up Files

When working in a computer environment that uses a product like Deep Freeze™ to return the computer to its baseline configurations each day, all work in SpringCharts is eradicated when the computer is reset to its original state. It is important to back up SpringCharts at the close of each session. **A 2GB flash drive is needed.**

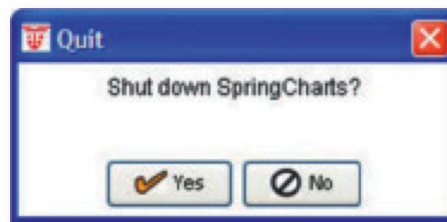
**Note:** If running SpringCharts from a flash drive, a backup of the program files is not necessary. See earlier section titled **Running SpringCharts from a Flash Drive** for details.

The SpringCharts application automatically activates the system backup each time the program is closed. The process may take several minutes. The MUDData, PtData, and File Cabinet folders from the SpringCharts directory are included in the backup.

Use the following steps to back up and restore data:

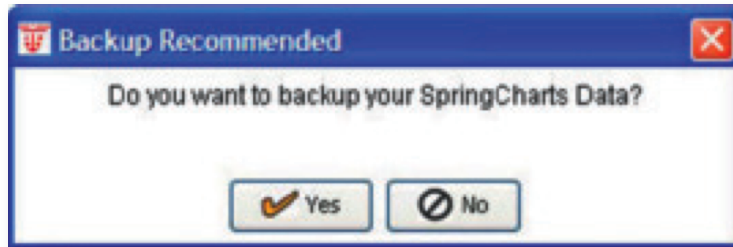
1. Click on the main **File** menu option in the **Practice View** window.
2. Click on the **Quit** submenu option to exit the program. The following window opens.





**Figure 13** Shut down SpringCharts confirmation window

- Click on the **Yes** button to close the program. The following window opens.

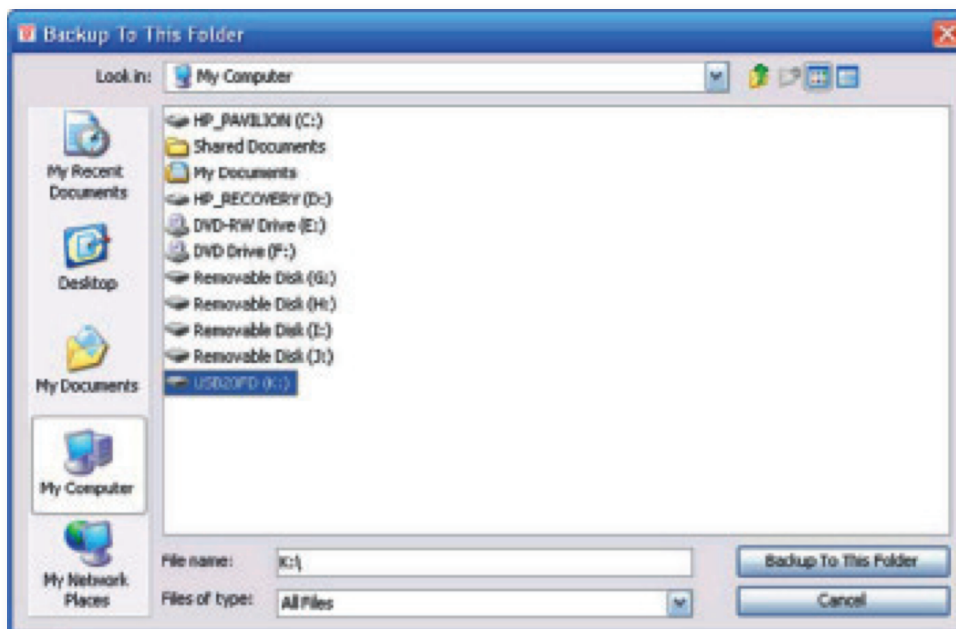


**Figure 14** Backing up SpringCharts data option window

- Click on the **Yes** button to start the backup process. The following window opens.



**Figure 15** Regular or zip backup option window

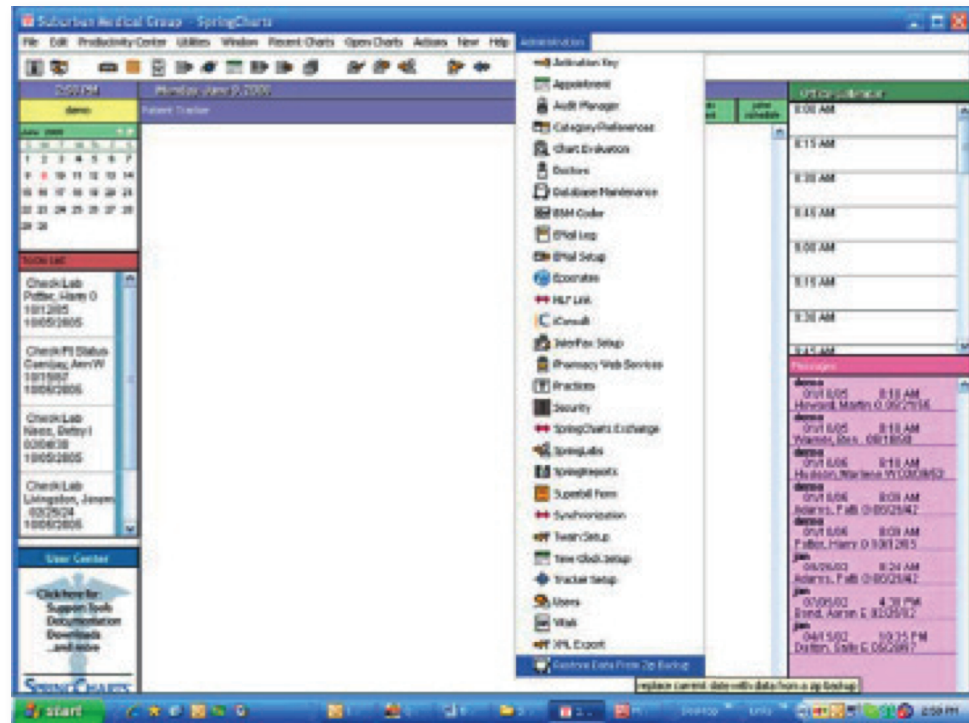


**Figure 16** Backup destination window

- Click on the **Zip** button.
- Click on **My Computer** in the left column. Select the USB drive where the USB flash drive is placed. The drive name appears in the **File Name** field as seen in Figure 16.
- Click on the **Backup To This Folder** button to start the backup process.

The program automatically shuts down when the backup is complete. Remove the flash drive.

**Figure 17** Locating the restore data window

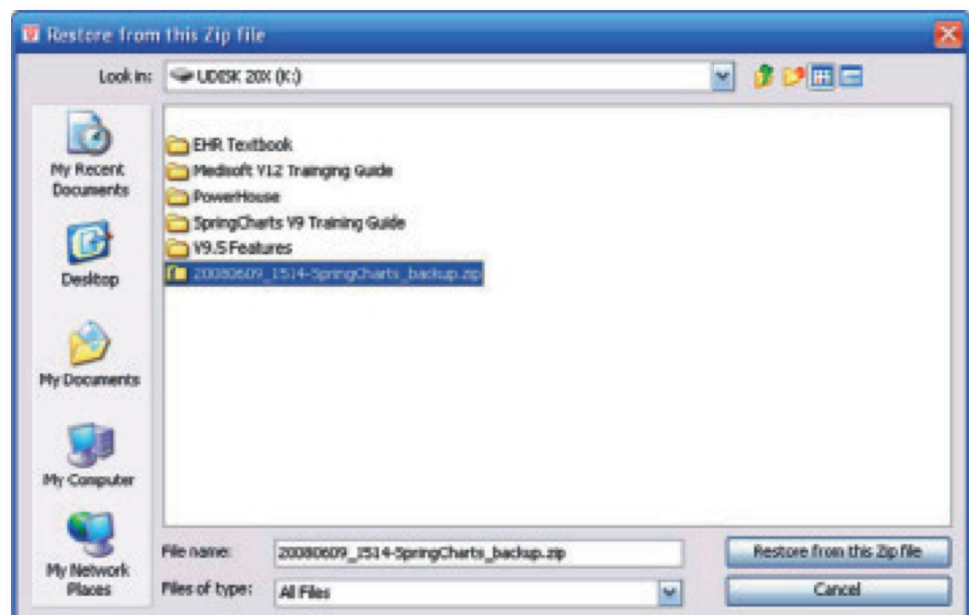


## Restoring SpringCharts Files

SpringCharts data must be restored only if working in a computer environment that removes all added data to the program and restores the computer to its original configuration each day. To restore data follow these steps:

1. Open the SpringCharts program.
2. Click on the **Administration** menu. Select the **Restore Data From Zip Backup** option, seen in Figure 17.
3. In the subsequent **Restore from this zip file** window, click on **My Computer** in the left column. Double-click on the USB drive where the USB flash drive is placed. The next window displays the files on the flash drive. Select the backup zip file. The file name appears in the **File name** field, seen in Figure 18.

**Figure 18** Locating the restore data file window



4. Click on the **Restore from this Zip file** button in the lower right corner as seen in Figure 18.
5. Confirm that data are to be restored from the backup zip file, seen in Figure 19. SpringCharts automatically shuts down to perform the restoration process.
6. Once the restoration of the backup data is completed, restart the SpringCharts program.

**Figure 19** Restore backup confirmation window

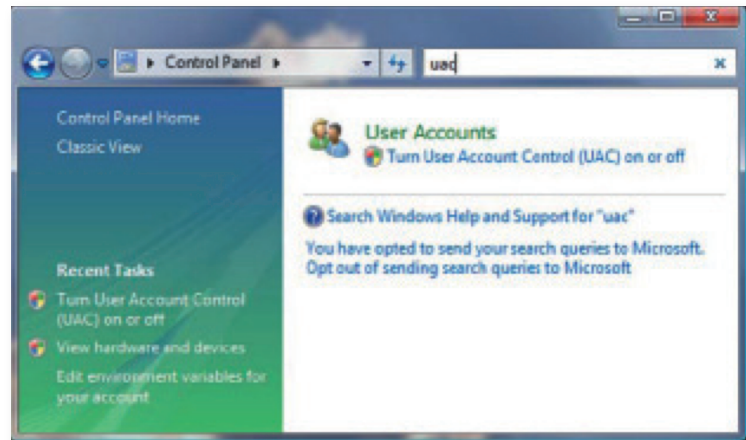


## Installing SpringCharts in Windows Vista and Windows 7

SpringCharts is compatible with Microsoft Windows Vista and Windows 7; however, because of the added security features it is **not** recommended that SpringCharts be installed to the normal default location of **Program Files**. In order to configure SpringCharts client or SpringCharts single computer version to run on a Windows Vista or Windows 7 computer, follow the steps below:

1. Turn off User Account Control (UAC). The easiest way to disable UAC is through the **User Account Control Panel** shown in Figure 20.
2. Make sure that the SpringCharts client folder (SCClient) or single computer version folder (SCDemo) is located in the Root folder (C:). If SpringCharts client or single computer version is already installed on the computer, simply cut and paste the corresponding folder to the C: drive. If this is a new installation, the location of the installation can be changed by clicking on **Change Default Location** on the first screen of the installation program.
3. Finally, change the permissions on the folder to **Modify Access for Users and Everyone** by right-clicking on the folder and clicking on **Properties**. Then, click on the tab labeled **Security**. In this panel, make sure that Users and Everyone have modify access.

**Figure 20** Turning off user accounts



**Figure 21** Changing permission accounts window.

## Submitting Assignments Electronically

Many of the exercises in this text instruct the students to print completed assignments and turn the document into the instructor. To submit coursework electronically, the student's computer must be able to create a .pdf file that can be e-mailed to the instructor. A free program that will re-create a word document in pdf format may be downloaded from <http://www.primopdf.com/index.aspx>. Once downloaded, *PrimoPDF* is installed as a printer option in the *Printer Select* window. To create a pdf document, the *PrimoPDF* printer is selected and the document appears on the screen viewed in *Acrobat Reader*™. Under the *File* menu the option to *attach to e-mail* allows the pdf document to be e-mailed to the instructor.

