

Classroom Setup Guide

The Classroom Setup Guide is divided into three sections:

1. **Before You Begin** — This section includes courseware update links for instructors, a revision history outlining the revisions made to a coursebook since the last version, an explanation of the requirements for preparing a classroom behind a proxy server, and additional notes that you should consider before you set up the classroom.
2. **Classroom Requirements** — This section lists the hardware, software, and network and connectivity requirements to implement this course.
3. **Setup Instructions** — This section includes the configuration requirements for both instructor and student systems, and a detailed list of required software installation procedures.

Before You Begin

This section includes courseware update links for instructors, a revision history outlining the revisions made to a coursebook since the previous version, an explanation of the requirements for preparing a classroom behind a proxy server, and additional notes that you should consider before you set up the classroom.

Courseware updates

Instructors must download the latest courseware updates from the CTP Web site (www.CTP-certified.com) before teaching the course. Prosoft's CTP courseware is updated continually, and the courseware updates provide the most current changes, revisions and notes for this courseware.

Courseware updates include feedback from partners, customers and instructors who implement Prosoft's CTP courseware. Feedback is reviewed and updates are posted in dynamic documents for both students and instructors. Each updates document correlates with the identical version of the coursebook (e.g., *Convergence Technologies v4.0 Update* is designed to be used only with v4.0 of the *Convergence Technologies* coursebook). Updates are available for both the current versions and the immediately previous versions of the coursebooks.

Revision history

Released April 2007 (version 4.0)

This release is considered a course revision and corresponds to the CTP 2007 exam, released February 2007.

The main differences between this *Convergence Technologies* version 4.0 course and the previous version (version 3.0 released June 2006) are as follows:

- Created separate books for EMEA and North American standards, reducing the amount of comparative text in each course.
- Moved content on Quality of Service (QoS) technologies, E-carrier and T-carrier services, and industry standards bodies to the Data Networking course.
- Added content on Telephony Application Programming Interface (TAPI) and Messaging Application Programming Interface (MAPI), Telephone Number Mapping (ENUM), wireless convergence

technologies (including Digital Enhanced Cordless Telecommunications [DECT] and Personal Wireless Telephone [PWT]), presencing and unified messaging.

- Added content on video services, videoconferencing, Internet Protocol television (IPTV), IP Multimedia Subsystem (IMS), and steps for qualifying a network's ability to support convergence.
- Added content on convergence hardware devices, power issues, convergent terminal equipment and software, Mean Opinion Scores, Call Detail Records, traffic analysis, and troubleshooting convergence in wireless networks.
- Added content on security issues in convergent networks such as VLAN hopping, denial-of-service attacks and countermeasures, intrusion detection, MAC address movements, and system backups and upgrades.
- Enhanced content on numbering plans, store-and-forward faxing, real-time faxing and emergency services.

Released June 2006 (version 3.0)

This release is considered a course revision. The main differences between this *Convergence Technologies* version 3.0 course and the previous version (version 2.1 released February 2005) are as follows:

- Standardized labs to Windows XP Professional Service Pack 2.
- Added Case Studies that discuss real-world applications of skills.
- Enhanced content on Session Initiation Protocol (SIP), H.323 and Megaco/H.248.
- Added optional labs that use OpenPhone, Etherreal and Skype software.

Released February 2005 (version 2.1)

This release is considered an errata rollover. The main differences between this *Convergence Technologies* version 2.1 course and the previous version (version 2.0 released November 2002) are as follows:

- Expanded or added content in various topic areas, including STUN, SIP, the Global System for Mobile Communications (GSM), analog telephone adapters and convergent network service providers.
- Incorporated minor changes to the text and some labs, including corrections of typographical and content errors.

Released November 2002 (version 2.0)

This release is considered a course enhancement. The main differences between this *Convergence Technologies* version 2.0 course and the previous version (version 1.07 released July 2002) are as follows:

- Applied new publishing template to give the course a more professional look and feel.
- Expanded content in some topic areas.

Released July 2002 (version 1.07)

This release was a new course offering. Therefore, no revision history exists.

Preparing the classroom behind a proxy server

If Internet access is required (or preferred) for a class and the classroom is behind a proxy server, you may have problems downloading programs during classroom setup and completing certain labs during class. Most proxy servers already allow HTTP traffic. Difficulties may arise when you require additional services, such as e-mail, FTP, and program downloads.

The following two suggestions are offered.

1. Talk with the network administrator at the location and make sure that:
 - a. The classroom has proper access to all Internet-related protocols used in the class. Examples include HTTP (TCP/UDP port 80), SSL (TCP/UDP port 443), FTP (TCP/UDP port 20, 21), Telnet (TCP/UDP port 23), POP3 (TCP/UDP port 110), SMTP (TCP/UDP port 25), NNTP (TCP/UDP port 119), and Gopher (TCP/UDP port 70). For certain services, such as FTP, you will need all ports above 1023 (registered ports).
 - b. The IP addresses assigned to the computers in your classroom have permission to access the Internet.
2. Download all the required software (with proper licensing) for the course before you arrive at the site, and place the source files on the instructor computer. Students can then access all source files from shares that you create. Consider creating a CD with the required software source files. This will not solve the issues addressed in Suggestion 1, but will solve any download problems.

Classroom Requirements

This section lists the hardware, software and connectivity requirements to implement this course. Before class, the instructor should install and configure the instructor and student systems using the following instructions.

Hardware

Each classroom should be equipped with an individual computer workstation for each student and the instructor. The following table summarizes the hardware requirements for all courses in the CTP program.

| Hardware Specifications | Minimum Requirements |
|------------------------------|--|
| Processor | Intel Pentium III processor (or equivalent) with 300-MHz processor clock speed recommended; 233-MHz minimum required (single or dual processor system) |
| L2 cache | 256 KB |
| Hard disk | 8 GB |
| RAM | 128 MB |
| CD-ROM | 32X |
| Network interface card (NIC) | 10BaseT or 100BaseTX (10 or 100 Mbps) |
| Sound card/speakers | Required for instructor station, optional for student stations |
| Video adapter | 4 MB |
| Monitor | Super VGA (800 x 600) resolution video graphics card and monitor with 256 colors |
| Network hubs | Enough 10-port 10BaseT or 100BaseTX (10 or 100 Mbps) hubs to allow classroom computers to communicate |
| Router | Multi-homed system with three NICs (Windows XP Professional SP2) |

Other equipment

The following additional equipment is necessary to complete the labs in this book.

- Headset and microphone for each student system (correctly configured before class)
- Two IP telephones or other IP telephony devices (speakerphones are ideal)

- Two gateways
- Ethernet cable for Telnet access into one of the gateways
- A serial cable for connecting the two gateways together
- A switch or router and suitable interface cable (optional)

Software

The recommended software configurations for computers used to complete the labs in this book are as follows.

To be installed before class:

- Microsoft Windows XP Professional SP2 — Typical installation. Disable the Windows Firewall before class begins or labs will not work as written.

To be installed during class:

- Ethereal — Executable file located on the supplemental CD-ROM.
- OpenPhone — Executable file located on the supplemental CD-ROM.
- GNU Gatekeeper — Executable file located on the supplemental CD-ROM. To be installed by instructor on dedicated system.
- Skype — To be downloaded from the Skype Web site (www.skype.com).

Network and connectivity

Classroom computers should be part of the same local area network (LAN). This class also requires Internet access. Following are two options available to you:

- Obtain valid IP addresses from a DHCP server.
- If no DHCP server is available, obtain TCP/IP configurations from the network administrator, and manually configure each system.

Setup Instructions

Use the following procedures to set up the computers for class.

To set up the hardware

Set up the hardware according to the manufacturer's instructions. (Refer to the requirements listed in the Hardware section of this Classroom Setup Guide.)

To install and configure Windows XP Professional SP2

Before installing Windows XP Professional, consult the hardware compatibility list (HCL). The HCL for Microsoft Windows XP Professional is located at www.microsoft.com/whdc/hcl/default.msp.

1. Begin setup by setting the boot sequence for your computer so that it will boot from the CD drive, then insert the Windows XP Professional CD-ROM and reboot.
2. Accept the licensing agreement by pressing **F8**.
3. Use the following parameters to perform a typical installation of Windows XP Professional SP2 (if installing Windows XP Professional, go to the Microsoft Web site after installation to download and install Service Pack 2).

| When This Information Is Required | Use |
|--------------------------------------|--|
| Phase 1 | |
| Where to install Windows XP | Select or create a partition |
| Specify file system and format | NTFS |
| Phase 2 | |
| Regional and Language Options | Customize for your location |
| Name | Your name |
| Organization | Your organization |
| Product Key | The CD Key for your copy of Windows XP Professional |
| Computer Name | <i>Instructor or StudentX (where X is the assigned student number, such as Student13) Note: If several classrooms are connected, you may encounter name conflicts. If so, add a number or letter to the name. For example, name the instructor computer instructor1 and a student13 computer student13a.</i> |
| Administrator Password | password (all lowercase letters) |
| Confirm password | password (all lowercase letters) |
| Date and Time Settings | Customize for your location |
| Network Settings (Custom or Typical) | Typical |
| Workgroup or Domain | Workgroup |

To install Service Pack 2, go to the Microsoft Update Web page at <http://update.microsoft.com>, and download and install Service Pack 2. Service Pack 2 includes several security enhancements and a firewall. Although the firewall is disabled for this class, all labs have been written to Service Pack 2. If you do not install Service Pack 2, some labs may not work as stated.

Configure Windows XP Professional for use in your classroom by specifying the following settings:

- Specify to obtain a dynamic IP address:
 1. Log on as Administrator.
 2. Select **Start | Control Panel**, then double-click **Network Connections**.
 3. Right-click your LAN connection, then click **Properties** to open the Local Area Connection Properties dialog box.
 4. In the list box, click **Internet Protocol (TCP/IP)**, then click **Properties** to open the Internet Protocol (TCP/IP) Properties dialog box.
 5. Select **Obtain An IP Address Automatically**.

Click **OK** twice, then close the **Network Connections** window.

*Note: If your network does not use DHCP, you must contact your network administrator to receive your IP configuration. After obtaining the configuration information, select the **Use The Following IP Address** radio button and manually enter the IP addresses.*

- Specify the CLASSROOM workgroup:
 1. Select **Start | Control Panel**, then double-click **System** to open the System Properties dialog box.
 2. Click the **Computer Name** tab, then click the **Change** button.
 3. In the Member Of section, select the text in the Workgroup field, type **classroom**, click **OK** four times, then click **Yes** to restart.

Note: If several classrooms are connected, you may encounter name conflicts. If so, add a number to the name. For example, name the workgroup Classroom1.

- Disable the Windows XP firewall on each system in the network:
 1. Select **Start | Control Panel**, then double-click **Windows Firewall** to open the Windows Firewall dialog box.
 2. Select **Off (Not Recommended)**, then click **OK**.
 3. Close the **Control Panel**.

Supplemental CD-ROM

Each coursebook includes a supplemental CD-ROM. The files on the CD-ROM are referenced and used throughout the course.