



Level 5 Diploma in Unix Networking (189) 149 Credits



Unit: SCO Unix Administration	Guided Learning Hours: 260
Exam Paper No.: 2	Number of Credits: 26
Prerequisites: Knowledge in Unix operating system commands.	Corequisites: A pass or higher in Certificate in Unix Networking or equivalence.
<p>Aim: This is another Unix operating system language in a series of System Administration units covering the essential, routine maintenance activities that are associated with SCO Unix systems. Designed for front-line System Administrators and key operators, this unit provides a solid foundation in a range of daily responsibilities, from managing user accounts to tracking print requests on pre-installed systems. Tasks presented in this unit are performed predominately through the SCO Admin menu interface. As they commence using this unit, learners will have a comprehensive understanding of the first line duties associated with UNIX system administration; including managing user processes, maintaining filesystems, backing up data, managing printers, and performing system startups and shutdowns. Learning these essential components of system administration will help administrators minimise downtime and improve the overall productivity of the organisation. On completion of the unit, learners will be able to: use the SCOAdmin (ADM) to administer SCO systems; analyse user requirements and set system defaults for user accounts; create and modify user accounts; terminate processes running on the system; mount and unmount a filesystem; monitor free file space and directory usage; transfer files to and from disks and tapes; perform filesystem backups; restore files; restore an entire non-root filesystem; manage printers and user print jobs.</p>	
Required Materials: Recommended Learning Resources.	Supplementary Materials: Lecture notes and tutor extra reading recommendations.
Special Requirements: The unit requires a combination of lectures, demonstrations, discussions, and hands-on labs.	
<p>Intended Learning Outcomes:</p> <p>Part I User Service Management</p> <p>1. System Administrator responsibilities and server administration roles in designing, installing, administering, and optimising the system.</p> <p>2. Unix Process Management, how the Operating system functions executes within user process and modes of execution.</p>	<p>Assessment Criteria:</p> <p>Part I User Service Management</p> <p>1.1 Explore Scoadmin tool</p> <p>1.2 Demonstrate how to search SCO documentation and online help</p> <p>1.3 Analyse superuser account attributes</p> <p>1.4 Examine system log files and core files log</p> <p>1.5 Describe user accounts core features</p> <p>1.6 Demonstrate assigning a password to user account and how to manage user accounts</p> <p>1.7 Demonstrate how to setup user accounts</p> <p>1.8 Describe default login group</p> <p>1.9 Describe Discretionary Access Control (DAC)</p> <p>1.10 Analyse and identify system environment files</p> <p>1.11 Demonstrate how to create, remove and retire users</p> <p>2.1 Identify the various states in a Unix process lifecycle</p> <p>2.2 Describe process management commands</p> <p>2.3 Demonstrate how to terminate a process</p> <p>2.4 Outline job scheduling</p> <p>2.5 Describe the hierarchical file system structure; the directory structure and</p>

	<p>directory contents; Superblock, <i>Inodes</i> and Data blocks</p> <p>2.6 Describe the directory file system</p> <p>2.7 Explain disk filesystems</p> <p>2.8 Describe filesystem device files</p> <p>2.9 Define mount and unmounting</p> <p>2.10 Demonstrate how to monitor file systems</p> <p>2.11 Define system log and temporary files</p>
<p>3. Adding disk to Unix operating systems and examining how the volume system (media management) tools examines the layout of disks and other media.</p>	<p>3.1 Describe types of devices</p> <p>3.2 Describe absolute and relative pathnames</p> <p>3.3 Describe commands to archive and extract data</p> <p>3.4 Explain the full, differential backup process; how incremental and differential backups rely on an initial full backup of the drives and how to automate the entire process</p> <p>3.5 Identify backup levels</p> <p>3.6 Describe how to manage backup schedules</p> <p>3.7 Demonstrate restoring backup data</p> <p>3.8 Compare and contrast between full, differential, and incremental backup</p> <p>3.9 Demonstrate the differential backup process</p>
<p>4. How to install the Unix print services and how to set up print services on a UNIX Server.</p>	<p>4.1 Describe functions of print service</p> <p>4.2 Explore how to start and stop print services</p> <p>4.3 Demonstrate how to enable and disable printers</p> <p>4.4 Identify printer troubleshooting commands</p> <p>4.5 Describe the System execution of system startup scripts; multi-user operation; startup and shutdown</p> <p>4.6 Describe normal shutdown process</p> <p>4.7 Describe system startup stages</p> <p>4.8 Contrast single-user vs multiuser modes</p> <p>4.9 Describe bootup hardware information</p>
<p>Part II System Installation, Configuration and Maintenance</p> <p>5. Understand the installation process, software configuration and using SCO Unix; ensuring that system drive 0 (boot drive) has been configured for write-through cache and the drive array configuration.</p>	<p>Part II System Installation, Configuration and Maintenance</p> <p>5.1 Describe the directories structure commands</p> <p>5.2 Explain software storage objects</p> <p>5.3 Identify filesystem types</p> <p>5.4 Describe the UNIX disk structure</p> <p>5.5 Create SCO files, directories and the rules for renaming files and directories</p> <p>5.6 Describe disk space requirements</p> <p>5.7 Describe how to partition disks</p> <p>5.8 Describe TCP/IP network configuration process</p> <p>5.9 Describe how to troubleshoot installation problems</p> <p>5.10 Demonstrate how to license the software</p> <p>5.11 Demonstrate how to configure the various SCO UNIX installation screens</p>

<p>6. How UNIX interprets port; drive files; configure them; I/O port and IRQ particular ports used.</p>	<p>6.1 Describe system ports 6.2 Be able to manage ports and terminals 6.3 Be able to configure drives 6.4 Describe how to open TCP or UDP ports under UNIX 6.5 Describe how to find what processes are using which ports on Unix 6.6 Explain the steps involved in securing a network system UNIX system security tools used to fix security holes used by hackers 6.7 Describe security profile 6.8 Outline system administration delegation process 6.9 Explore the root, asroot and su commands 6.10 Demonstrate how to examine protection bits 6.11 Describe Trusted Computing Base 6.12 Describe tuning server performance; performance analysis and performance tuning tool 6.13 Describe how to collect performance data 6.14 Describe kernel tables and parameters 6.15 Identify and deal with performance issues</p>
<p>Part III Network Administration 7. The responsibilities of network administrators in developing client/server applications in the TCP/IP domain.</p>	<p>Part III Network Administration 7.1 Describe hardware and IP addresses 7.2 Describe netmasks and broadcast addresses 7.3 Describe ARP protocol 7.4 Describe /etc/services and /etc/hosts files 7.5 Describe how the "ifconfig" command allows the operating system to setup network and debug interfaces 7.6 Describe the Network Configuration Manager tool 7.7 Demonstrate how to add a network adapter 7.8 Demonstrate to use TCP/IP connectivity commands 7.9 Explain ways routing is configured on a Unix host, how TCP/IP is implemented and monitored across the network 7.10 Define subnetting 7.11 Describe reasons for subnetting 7.12 Demonstrate how to configure a router 7.13 Explain IP routing mechanisms 7.14 Describe how routes are populated</p>
<p>8. The architectural overview of unix network WAN connectivity technologies and LAN/WAN Connectivity/Networking Protocols.</p>	<p>8.1 Describe WAN interface types 8.2 Describe WAN protocols 8.3 Demonstrate how to configure PPP connections 8.4 Configure, administer and troubleshoot TCP/IP tools such as the route, tracert, ping, pathping and netsh commands and</p>

<p>9. Setting up, configuring the Internet service monitoring agent and setting the connection parameters.</p>	<p>network monitor</p> <p>8.5 Describe the /etc/tcp file</p> <p>8.6 Describe the inetd super daemon</p> <p>8.7 Demonstrate how to configure trusted access</p> <p>8.8 Demonstrate DNS Server setup and configuration in Unix; how Domain name services resolves names to the IP addresses of clients and vice verse</p> <p>8.9 Describe DNS operation</p> <p>8.10 Outline DNS files and records</p> <p>8.11 Demonstrate how to configure DNS server</p> <p>8.12 Describe how to query a name server</p> <p>8.13 Demonstrate how to configure DNS clients</p> <p>9.1 Define virtual domains</p> <p>9.2 Describe web services</p> <p>9.3 Explain how to configure FTP server</p> <p>9.4 Describe time synchronisation</p> <p>9.5 Explain the architecture and implementation of Network-Layer Security under Unix, securing protocols and Applications, Principles, mechanisms</p> <p>9.6 Define firewall</p> <p>9.7 Describe packet filtering</p> <p>9.8 Define proxy server</p> <p>9.9 Explain packet security issues</p> <p>9.10 Describe the procedure to configure e-mail options for SMTP on the UNIX system</p> <p>9.11 Analyse email tools</p> <p>9.12 Demonstrate how to configure email</p> <p>9.13 Demonstrate how to configure DNS for use with email</p> <p>9.14 Demonstrate how to enable and disable client/server mail</p>
<p>Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in SCO Unix Administration with a weighting of 100%.</p>	

Recommended Learning Resources: SCO Unix Administration

<p>Text Books</p>	<ul style="list-style-type: none"> • SCO UNIX Operating System: System Administrator's Guide by Santa Cruz Operation ISBN-10: 0130125687 • Essential SCO System Administration by Keith Vann ISBN-10: 013290859X • SCO Open Desktop/SCO Open Server User's Guide by Santa Cruz Operations ISBN-10: 0131068164
<p>Study Manuals</p> 	<p>BCE produced study packs</p>
<p>CD ROM</p> 	<p>Power-point slides</p>
<p>Software</p> 	<p>SCO Unix</p>