![Sun microsystems logo]

Solaris™ 8 Operating Environment System Administrator I SA-238

The *Solaris™ 8 Operating Environment System Administrator I* course provides information about the essential tasks of standalone installation, file system management, backup procedures, process control, user administration, and device management.

Students taking this class will gain the necessary knowledge and skills to perform these essential system administration tasks in the Solaris™ Operating Environment.

Who can benefit

Students who can benefit from this course include system administrators who perform essential system administration procedures in the Solaris Operating Environment.

Prerequisites

To succeed fully in this course, students should be able to:

- Successfully interact with a Solaris Operating Environment as an end-user
- Use the `vi` text editor
- Interact with a windowing system

Skills gained

Upon completion of this course, students will be able to:

- Discuss the client-server environment at Sun Microsystems and other important system administration terms and concepts
- Add users to the system using both Admintool and command-line methods
- Configure user initialization files to provide a consistent login environment
- Implement basic system security
- Identify the function of `root` directory components
- Properly set file permissions using ACLs (access control lists)
- Use the Solaris 8 device naming conventions to configure and name devices
- Manage disk devices
- Use the `format` utility to display information and set up disk partitions
- Monitor and mount file systems including CD-ROM and PC diskette devices
- Perform maintenance on corrupted file systems
- Manage processes
- Configure print services
- Enable 64-bit capability on a standalone system
- Understand boot protocols and options and modify electronically erasable, programmable, read-only memory (EEPROM) boot parameters
- Understand and perform booting and shutdown procedures and options
- Understand and change system states on the Solaris Operating Environment server
- Install the Solaris Operating Environment on a standalone system including update patches
- Use the `pkgadd` command to add software packages
- Perform backups and recovery

50%
Lab

Lab

5
Days

Duration

For further information on courses please visit our Web site at
`http://www.sun.com/service/suned,`
or to order, please call: 1-800-422-8020.

Related courses

Before:

- SA-118: *Fundamentals of Solaris™ 8 Operating Environment for Systems Administrators*

After:

- SA-245: *Shell Programming for System Administrators*
- SA-288: *Solaris™ 8 Operating Environment System Administration II*

Course outline

Module 1 – "Introducing the Solaris 8 Operating Environment Administration"

- Identify the roles of the system administrator
- List the components of the Solaris 8 Operating Environment
- Match the three parts of an operating system (kernel, shell, and file system) to their definitions
- Identify the three most common shells in the Solaris environment
- Distinguish between multitasking and multiuser
- Describe the client-server relationship
- Define the following basic system terms: host, network, IP (Internet Protocol) address, client, and server
- Describe the purpose of NFS, DNS, NIS, and NIS+
- Identify the new features of Solaris 8

Module 2 – "Adding Users"

- Use Admintool and the command line to create a new group and a new user account
- Use the appropriate default environment files from /etc/skel to set up a user environment
- Maintain the /etc/profile file

- Change a password
- Set up password aging on an existing user account from Admintool and the command line
- Lock a user account using Admintool and the command line
- Delete a user account using Admintool and the command line

Module 3 – "System Security"

- Use the id command to determine your UID (user identification) and GID (group identification) numbers
- Describe the superuser account and its importance to system administration
- Describe the purpose of the sysadmin group
- Change user ownership of files and directories
- Change group ownership of files and directories
- Describe how the who and last commands relate to system security
- Describe the format of the /etc/passwd, /etc/shadow, and /etc/group files and explain their importance to system security
- Modify several system default files that enable the system administrator to control and monitor superuser access to the system
- Restrict access to the root account
- Describe how to monitor root logins
- Set up remote access privileges
- Configure access permissions using umask and access control lists

Module 4 – "The Directory Hierarchy"

- Identify file types and creation methods
- Create symbolic links
- List the contents of the `root` directory
- Define the function of subdirectories under the `root` directory
- Describe the function of the `/usr` file system

Module 5 – "Device Configuration"

- Describe the structure that the kernel uses to identify devices connected to the system
- Describe the physical device names that are used to identify a system's devices
- Identify the logical device name used by system administrators to reference disk devices
- Define disk slices
- Reconfigure devices using the `devfsadm` command

Module 6 – "Disks, Slices, and Format"

- Define a disk label
- Define disk slices
- Display a disk volume's table of contents with the `prtvtoc` command
- Use the `format` utility to partition a disk
- Use the `format` utility to create and save a customized partition table
- Use common `fsck` command options

Module 7 – "The Solaris Operating Environment `ufs` File Systems"

- Define the term *file system*
- Describe the contents of each of the standard Solaris 8 file systems

- Identify the purpose of the key disk-based, RAM (random access memory)-based, and network-based file systems used in the Solaris Operating Environment
- Describe the components of the Solaris `ufs` file systems
- Introduce the concept of shadow inodes
- Create a `ufs` file system using the `newfs` command

Module 8 – "Mounting File Systems"

- Mount and unmount local file systems
- Mount a file system of a specified file system type
- Mount a file system that disables the default `largefiles` option
- Set up your system to mount a local file system automatically at boot time
- Perform a forced unmount of a file system that is in use
- Add a swap file and add a swap file system
- Use `hsfs` to access CD-ROM devices
- Use `pcfs` to access PC disk devices
- Describe the functions of an NFS server and an NFS client
- Determine what directories or file systems a server is sharing
- Mount a remote resource on a client from the command line

Module 9 – "Maintaining File Systems"

- Use the `fsck` utility to check file system consistency
- Describe the advantage of `ufs` logging
- Monitor file systems using the `du`, `df`, `ff`, and `quot` commands
- Troubleshoot and repair disk problems using the `fsck` utility

Module 10 – "Scheduled Process Control"

- Use the `ps` command to list processes running on the system
- Use the `kill` command to terminate processes running on the system
- Use the Process Manager to view and kill processes
- Use the `at` command to execute a command at a future time
- State the function of the `cron` daemon
- Describe the format of the `crontab` file
- Name the two files used to control `crontab` access
- Edit the user's `crontab` file to schedule nightly backups of the user's home directory

Module 11 – "The Solaris Operating Environment LP Print Service"

- Describe a print server and print client
- Use the `lpstat` command to monitor print jobs
- Use the `cancel` command to cancel print jobs
- Use `lpadmin` to set up a printer
- Describe the functions of the LP print service
- Differentiate between local and remote printers
- Submit a print request
- Configure print services using the Solaris Print Manager
- Use the Solaris Print Manager to add a local and remote printer to a system
- Modify a printer's configuration using Solaris Print Manager
- Delete a printer using the Solaris Print Manager

Module 12 – "The Boot PROM"

- Differentiate between Boot PROM (programmable read-only memory) contents and NVRAM contents
- Encode basic Boot PROM command strings to perform testing and configuration operations
- Use OpenBoot™ PROM commands to record basic system configuration information
- Create and remove a custom device
- Boot the system from more than one device
- Troubleshoot the boot process

Module 13 – "/sbin/ij System Boot Process"

- Describe the functionality of the eight system run levels
- List the phases of the boot process
- Describe roles of the `/sbin/init` program
- Describe the features of the autoconfiguration process
- Describe how to add startup files for additional system services
- Name kernel modules directories and the file used to customize the kernel configuration process
- Describe the function of S* & K* scripts
- Describe the `/sbin`, `/etc/rc#.d`, and `/etc/init.d` directories
- Use the `shutdown` command to safely shut down the Solaris 8 Operating Environment
- Differentiate between the `halt` and `poweroff` commands
- Use the `reboot` command to cycle Solaris through single-user and multi-user mode

Module 14 – "Installing the Solaris 8 Operating Environment on a Standalone System"

- Define software configurations, clusters, and packages
- Identify the hardware requirements for installing the Solaris Operating Environment on a standalone workstation
- Prepare an existing system for a standalone installation
- Install the Solaris operating Environment on a standalone workstation
- Enable 64-bit capability

Module 15 – "Administration of Software Packages"

- Display software package information
- Add a software package from a CD-ROM
- Remove a software package
- Add and remove software packages using the Admintool software program
- Add a software package from a spooled directory

Module 16 – "Managing Software Patches"

- Obtain current patch information and patches
- Verify the current patches installed on your system
- Install patches
- Back out patches

Module 17 – "Backup and Recovery"

- Define the importance of regular backups
- Dump a file system to tape using the `ufsdump` utility
- Restore files or a file system from tape using the `ufsrestore` utility
- Recover the `root` (`/`) or `/usr` file systems
- Describe some of the advantages and disadvantages of using the alternative backup utilities `tar`, `cpio`, and `dd`.
- Position a tape to a selected data set using the `mt` utility
- Determine the appropriate backup tools for specific scenarios
- Perform remote backups