

Intermediate System Administration For the Solaris 9 Operating Environment

Course Outline

Solaris 9 Overview

- History of the Solaris operating system
- System concepts
 - The main parts of the Solaris OS
 - Kernel and shells
 - The common desktop environment
- Virtual memory and daemons
- Solaris 9 Capabilities
 - Terminology
 - The Client/Server environment
- Describe the role of the system administrator
- Describe the Solaris 9 Directory Hierarchy
 - Describe Solaris 9 file types
 - Describe hard links

System Startup and Shutdown Procedures

- Describe phases of the boot process
- Booting the system
 - Power on
- Boot PROM and program phases
 - Kernel initialization phase
 - The boot command
 - System run states
 - Swapper
- Init Phase
 - rc scripts
- Describe run level fundamentals
- Using run control scripts to stop / start services
 - Adding scripts to the run control directories
- System shutdown
- Shutting down the system
 - /usr/sbin/shutdown
 - /sbin/init
 - /usr/sbin/halt
 - /usr/sbin/reboot
 - /usr/sbin/poweroff
- Stopping the system for recovery purposes (Interrupting an unresponsive system)
- Turning off the power

OpenBoot

- Identify boot programmable read-only memory (PROM) fundamentals
- OpenBoot Environment
 - Accessing the OpenBoot Environment
 - OpenBoot Firmware tasks
- OpenBoot Architecture
- OpenBoot interface
 - The restricted monitor
 - The forth monitor
- Getting help in OpenBoot

- Identify the system's boot device
 - Create and remove custom device aliases
- PROM Full Device Names
 - OpenBoot device aliases
- OpenBoot non-volatile RAM (NVRAM)
- OpenBoot Security
- Openboot Diagnostics
- Input Output control
- boot
- kernel

Installing the Solaris 9 Software

- Requirements and preparation for installing the Solaris 9 software
 - Supported architectures
 - Minimum system requirements
- Software Terminology: Packages, Groups (Clusters), and Configuration Groups
 - Software package
 - Software groups and configuration groups
- Upgrade vs. Initial installation
- System configuration to be installed
 - Server
 - Client
 - Diskless, Javastation, Solstice AutoClient, Standalone
 - Performance issues
- Disk storage systems
 - Considerations for planning partition sizes
 - Partition arrangements on multiple disks
- Methods of installing the Solaris 9 software
 - Interactive
 - Custom JumpStart
 - WebStart
 - Installing over the network
- The Solaris installation process

Managing Local Disk Devices

- Describe disk architecture
- Describe device naming conventions
 - Physical device name
 - Instance name
 - Logical device name
 - Block and character device files
- Tools to list devices
- Reconfiguring devices
- Describe the format utility
 - Perform disk partitioning using the format utility
- Describe the Solaris Management Console (SMC)
 - Perform disk partitioning using the Solaris Management Console (SMC)

Managing File Systems

- A file system defined
- Defining a disk's geometry
 - Disk controller

- Defect list
- Disk label
- Partition table
- Solaris file system types
 - Disk-based file systems (UFS, HSFS, PCFS)
 - Network-based file systems
 - Virtual file systems (SWAPFS, PROCFS, LOFS, CacheFS, TMPFS)
- Disk slices
- Displaying disk configuration information
- Using format
- Logical volumes
- Parts of a UFS file system
 - The bootblock
 - The superblock
 - The inode
 - The storage block
 - Free blocks
- Creating a UFS file system
- Understanding custom file system parameters
- File system operations
 - Synchronizing a file system
 - Repairing file systems
 - Using fsck
- Mounting file systems
 - The /etc/vfstab file
 - Using the mount command
 - Displaying mounted file systems
 - Mounting a file system with large files
 - Mounting a file system with UFS logging enabled
 - The /etc/mnttab file
- Displaying a file system's disk space usage
- Displaying directory size information
- Controlling user disk space usage
- Constructing a file system
 - The labelit command
 - The volcopy command
- Tuning file systems
 - The tunefs command
 - The fstyp command
- Large vs. Small files
- Unmounting a file system
 - The fuser command
- Volume manager (vold)
 - Troubleshooting volume manager
 - Using fdformat
- Information on file systems

System Security

- Physical security
- Controlling system access
- User account information
- Restricted shells

- Controlling file access
 - umask
 - Sticky bit
 - Setting the correct PATH
 - setuid / setgid programs
- Auditing users
 - Monitoring users and system usage
 - Checking who's logged in
 - The whodo command
 - The last command
- Network security
 - Securing superuser access
 - Automated security enhancement tool (ASET)
 - Common sense security techniques

Administering User Accounts

- Describe user administration fundamentals
- Adding, modifying, and deleting a user account with AdminTool
- Adding a group with AdminTool
- Setting up and customizing the user's shell
- Managing initialization files
- The /home directory
- Name services

Software Package Administration

- Describe fundamentals of package administration
- Tools for managing software from the command line and from the system GUI tools
 - Adding and removing software packages
 - Listing and verifying installed packages
- The fundamentals of patch administration
 - Installing / verifying / removing a patch

The LP Print Service

- The Solaris print service
 - The print spooler
 - The print daemon
- Setting up the hardware
 - Ethernet, parallel, serial connections
- Setting up the software
 - BSD vs. SVR4
 - Print server vs. Print client
 - Configuring software for a Solaris printer
- Administering printers
 - Deleting printers and managing printer access
 - Creating printer classes
 - Checking printer status
 - Managing printer queues
 - Modifying, deleting, and canceling print requests
 - Limiting user access
 - Accepting or rejecting print requests
 - Restarting the print scheduler
- Setting up a user's default printer

Modifying the printer with AdminTool

Process Control

- Viewing system processes

- Using signals

 - The kill command

- Scheduling processes

 - Scheduling and changing process priorities

 - The nice and priocntl commands

- Clear frozen and "zombie" processes

- Using the Solaris batch-processing facility to schedule execution of commands

 - Configuring crontab

 - Using the at command

Backup and Recovery

- Backup and recovery fundamentals

- Solaris backup and restoration utilities

 - Using the tar, dd, cpio, and pax utilities

 - Using ufsdump and ufsrestore

- Recovering the root (/) and /usr file system

- Backing up a mounted file system

 - Creating a UFS snapshot

 - Backing up the snapshot file

Overview of the Solaris Certified System Administrator Certification Process

- Why become certified?

- Overview of the testing process

- How to prepare for the 310-014 exam

- What to expect on the exams

- Each Student will receive a complimentary UnixEd Practice Exam - 310-014A**