

Solaris 9 System Administration Fast Track Training Course

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

Advanced Installation

- Performing a Flash Installation

 - Describe a Flash install

 - Manipulate a flash archive

 - Using a flash archive for installation

- Setting up an AutoClient Server

- Adding AutoClient Support

- How an AutoClient System Works

- Setting up the AutoClient Server

- Adding AutoClients to the Server

- Booting an AutoClient System

- Patching an AutoClient System

JumpStart

- Overview

- Preparing a Custom Jumpstart Installation

- What Happens During a Custom JumpStart Installation

- Setting up the Server

- Setting up the Install Server

- Setting up the Boot Server

- The rules File

 - Validating the rules File

 - Begin and Finish Scripts

- Creating Profiles

 - Profile Keywords

 - Testing the profile

- Example Jumpstart Installation

Role Based Access Control (RBAC)

- Describe RBAC fundamentals

- Overview of Roles

 - Authorizations

Rights profiles

Using RBAC

Manage RBAC by using the Solaris Management Console

Manage RBAC by using the command line

Describe RBAC components and their interaction within RBAC

The Solaris Management Console (SMC)

Describe the function of the Solaris Management Console

SMC tools

SMC commands

The SMC Toolbox

Using SMC

Customizing the SMC

Configuring Access Control Lists (ACL's)

Describe ACLs

Setting ACL's

Manipulate ACLs using the command line

Manipulate ACLs using the File Manager graphic user interface (GUI)

Create default ACLs

Device Administration

Device Drivers

Physical Device names

Device Auto-Configuration

Instance names

Major and Minor Device numbers

Logical Device names

Meta devices

Hardware Terminology

Ports

Terminals

Modems

Cabling

Software Terminology

Service Access Controller (SAC)

Port Monitors

ttymon

listen

Port Monitor Tag (pmtag)

Service Tag (svctag)

Administering Terminals, Modems, and Ports

Adding a Modem Through the Admintool

Service Access Facility (SAF)

sacadm

pmadm

ttyadm

nlsadmin

Setting Up Modems and Terminals by Using SAF

Adding a Terminal to a serial connection

Managing SWAP Space

Describe swap and virtual memory concepts

Configure and manage swap space

Managing Crash Dumps and Core Files

Manage crash dump behavior

Manage core file behavior

Using the Solaris Volume Manager Software

Describe redundant array of independent disks (RAID)

Define each RAID configuration and where they are applicable

Describe Solaris Volume Manager software concepts

Use the SVM utilities to configure disks

Distribute the state database replicas

Build a mirror of the root (/) file system

Networking

Network Fundamentals

Network Topologies

Network Protocols

Network Hardware

Configuring and Monitoring network interfaces

Planning the Network

Setting Up the Network

/etc/hostname.interface

/etc/nodename

/etc/defaultdomain

/etc/inet/hosts

Network Security Files

The secure shell

IP Addressing

Name Service

TCP/IP Commands (ie. telnet, ssh, rlogin, rcp, rsh, rexec, ftp, rwho, finger)

Network Maintenance

The NFS Environment

Servers and Clients

The benefits of NFS on Solaris

NFS Daemons

Setting up NFS

NFS Security

NFS logging

Mounting a Remote File System

WebNFS

How to Enable WebNFS Access

Using a Browser to Access an NFS URL

Describe the fundamentals of the AutoFS file system

AutoFS Maps

Master Map

Direct Map

Indirect Map

When to use Automount

Name Services

Describe the Name Service concept

Local files vs. A naming service

Structure of the NIS Network

Server, slaves, and clients

Information Managed by NIS

Planning your NIS Domain

Configuring an NIS Master Server

Creating the Master passwd File

Creating the Master group File

Creating the Master hosts File

- Other Source Files
- Preparing the Makefile
- Setting Up the Master Server With ypinit
- Starting and Stopping NIS on the Master Server
- Name Service Switch
 - Setting up NIS Clients
 - Setting Up NIS Slave Servers
- NIS+
- Hierarchical Namespace
- NIS+ Tables
- NIS+ Security
- Authentication
- Authorization
- DNS
 - Configuring the DNS client
- LDAP
 - iPlanet Directory Server
 - Setting up the LDAP client

Configuring System Messaging

- Describe the fundamentals of the syslog function
 - Important system log files
 - Configure syslog messaging
- Using the Solaris Management Console log viewer
- Monitoring Users and System Usage
- Monitoring loggins
- Describe the trusted host
 - /etc/hosts.equiv
 - .rhosts
- Securing and restricting super user access
 - RBAC
 - SUDU
 - ASET
- Other security issues

Monitoring System Performance

- Using Solaris tools to monitor system and network performance
- Solaris 9 performance measuring tools to monitor:
 - CPU
 - Disk I/O
 - RAM and SWAP

Overview of the Solaris Certified System Administrator Certification Process

- Why become certified?
- Overview of the testing process
- How to prepare for the 310-014 & 310-015 exams
- What to expect on the exams
- Each Student will receive complimentary UnixEd Practice Exams 310-015A & 310-014A**