

## Oracle Solaris 10 System Administration – Part 2

### Course Summary

**Length:** 5 Days

**Prerequisite:** Oracle Solaris 10 System Administration – Part 1

#### **Recommendation Statement:**

To succeed fully in this course, students should already know how to:

Manage files and directories · Control the user work environment · Archive files · Use remote commands · Manage UFS and ZFS file systems · Install software · Perform system boot procedures · Perform user and security administration · Manage network printers and system processes · Perform system backups and restores · Understand system startup procedures and the SMF on both SPARC and the x86 platforms.

#### **Course Description:**

This course teaches advanced topics in Solaris 10 system administration. The operating system will be Oracle Solaris 10 (SunOS 5.10 release 8/11 u10). The course is taught on both Sun SPARC and x86-based servers

This course prepares the student for the Oracle Solaris 10 System Administrator Certified Professional Examination – Part 2 (1Z0-878)

#### **Upon completion of this course, you should be able to:**

- Describe remote administration with the Solaris Management Console software
- Manage virtual file systems and core dumps
- Manage storage volumes (SVM)
- Control access and configure system messaging
- Configure role-based access control (RBAC)
- Set up name services
- Introduction to LDAP
- Perform advanced installation procedures (Flash archive, JumpStart and WAN boot)
- Install the OS on a mirrored ZFS root pool
- Perform a Solaris Live Upgrade
- Perform a Solaris Flash installation
- Understand differences between SPARC and x86-based Solaris Operating environments.
- Understand and administer Zones and Containers.
- Use the Solaris Resource Manager with Zones
- Migrate a UFS root file system to a ZFS root pool
- Understand how to work with DTrace

## **Oracle Solaris 10 System Administration – Part 2**

### Detailed Course Outline

#### **Advanced Solaris 10 Installation Procedures**

- Perform a Flash Installation
  - Describe a flash install
  - Create a flash archive
  - Create a differential flash archive
  - Manipulate a flash archive
  - Using a flash archive for cloning a server
  - Using a flash archive for cloning a server disaster recovery
- Perform a JumpStart and PXE Installation
  - 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
  - Creating Profiles
  - Using a Flash Archive for a JumpStart Installation
  - Example Jumpstart Installation
  - Setup JumpStart to create a ZFS mirrored root pool
- Pre-Execution Boot Environment (PXE)
  - Prepare a PXE boot client
  - Setup a DHCP server to support x86 JumpStart clients
  - Network booting the x86-based system
- Install the OS Using a Flash Archive
  - Create a Flash Archive
  - Create a differential Flash Archive
- WAN Boot
  - The WAN boot process
  - Configure the WAN boot environment and the WAN boot server
  - Booting the WAN boot client
  - Using a Flash Archive for a WANboot Installation
- Install the OS using ZFS on the root file system
  - Creating a mirrored root pool
  - Migrating a UFS root disk to ZFS
  - Booting a ZFS root file system
  - ZFS related OpenBoot commands
  - Multiple ZFS boot environments
  - Booting a ZFS file system in FailSafe mode
  - Replacing a disk in a ZFS root pool
  - Boot From a Alternate Disk in a Mirrored ZFS Root Pool
  - Root pool snapshots
  - Recreate a ZFS Root Pool and Restore Root Pool Snapshots
  - Roll Back Root Pool Snapshots

#### **Solaris Live Upgrade**

- Understand the Solaris Live Upgrade Process (when and where to use it)
- Understand the Live Upgrade requirements
- Understand the Live Upgrade commands
- Create an alternate boot environment cloned from a running system
- Create a new boot environment on the SPARC and x86 platforms
- Upgrade a boot environment
- Patch a boot environment
- Modify a boot environment
- Activate a new boot environment on the SPARC and x86 platforms
- Maintain the Solaris Live Upgrade boot environment

- Manage multiple boot environments
- Advantages of using Live Upgrade on a ZFS root environment
- OpenBoot commands and options when using multiple boot environments

### **Managing SWAP Space**

- Describe swap and virtual memory concepts
  - Swap space and TMPFS
- Configure, size and monitor swap space
- Setup swap space
- Expand swap space

### **Managing Crash Dumps and Core Files**

- Understand Core dumps
  - Core dump configuration
  - Manage core file behavior
- Understand Crash Dumps
  - Crash dump configuration
  - Manage crash dump behavior

### **Introduction to Zones**

- Consolidation and Resource Management
- Describe the advantages of Zones
- Understand Zones and Containers
- Branded Zones for Solaris 8,9, and Linux environments
- Solaris Zones
  - Types of Zones
- Zone States
- Zone Features
- Non-global Zone Root File System Models
  - Whole Root Zones
  - Sparse Root Zones
- Networking in a Zone Environment
- Zone Daemons
- Configuring a Zone
  - The “zonecfg” command and subcommands
  - Zonecfg resource types
  - Creating a whole root Zone
  - Creating a sparse root zone
  - Using a sysidcfg file when configuring a zone
- Viewing the Zone Configuration File
- Installing a Zone
- Booting a Zone
- Halting a Zone
- Rebooting a Zone
- Uninstalling a Zone
- Deleting a Zone
- Making modifications to an existing zone
- Moving a Zone
- Cloning a zone
- Migrating a zone
- Backing up a zone
- Zone Login
  - Initial Zone Login
  - Logging in to the Zone Console
  - Logging in to a Zone
  - Running a Command in a Zone
- Security Considerations when Using Solaris Containers
- Introduction to Solaris Resource Manager
  - Resource controls

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- Using resource controls to contain zones
- Upgrade the Solaris 10 OS with installed Zones
- Patch the Solaris 10 OS with installed Zones
  - Patch the global zone
  - Patching nonglobal zones

### **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

### **Solaris Management Console**

- Starting the Solaris Management Console
- Customizing the Solaris Management Console

### **Using the Solaris Volume Manager Software**

- Describe redundant array of independent disks (RAID) as related to SVM
- Describe Solaris Volume Manager software concepts
  - Understand RAID 0,1, 5, 0+1, 1+0
- SVM volumes
  - Soft partitions
  - Stripes/Concatenated Stripes
  - Mirrors
  - RAID5 volumes
- Planning your SVM Configuration
- Understand SVM Commands
- Understand the state database
  - Creating the State Database
  - Monitoring the state database
  - Recovering the state database
- Create a RAID 0 Concatenated Volume
- Create a RAID 0 Stripe Volume
  - Monitor a volume
- Create a Soft Partition
- Expand an SVM Volume
- Create a Mirror
- Unmirroring a Non-critical File System
- Placing a Submirror Offline
- Mirroring the Root File System on SPARC based systems
- Mirroring the Root File System on x86/x64 based systems
- Unmirroring the Root File System
- Troubleshooting SVM

### **Configure The NFS/AutoFS Environment**

- Servers and Clients
  - NFSv4
- The benefits of NFS on Solaris
- NFS Daemons
- Setting up NFS
- NFS Security
  - NFS logging
- Mounting a Remote File System
- Troubleshooting NFS errors
- Describe the fundamentals of the AutoFS file system

- AutoFS Maps
  - Master Map
  - Direct Map
  - Indirect Map
- When to use Automount

## **Introduction to LDAP**

- Understand the use of LDAP as a naming service
- Describe basic LDAP concepts and terminology
- Identify the Directory Server Enterprise Edition requirements
- Identify Solaris LDAP Client requirements
- Setting up the LDAP client
- Modifying the LDAP client
- Listing the LDAP client properties
- Uninitializing the LDAP client

## **Solaris 10 Name Services**

- Describe the Name Service concept and why it is used
- Structure of the NIS Network
  - Server, slaves, and clients
- Planning your NIS Domain
  - Information to be Managed by NIS
  - Planning your NIS master server and slaves
- Configuring an NIS Master Server
  - Creating the source files
  - Preparing the Makefile
  - Creating custom NIS maps
- Setting Up the Master Server With ypinit
- Starting and Stopping NIS on the Master Server services
- Setting up NIS slave servers
- Setting up NIS clients
- The Name Service Switch
  - Templates
  - Name service sources
  - Name service status codes
- Local /etc files
- Troubleshooting NIS
  - Binding problems
  - Server problems
- DNS
  - Configuring the DNS client
- LDAP
  - Configure the LDAP client
- Name Service Cache Daemon (nscd)
  - Understanding the nscd daemon
  - The nscd.config file and attributes
  - The "nscd" command and options
- Using the "getent" command

## **Configuring System Messaging**

- Describe the fundamentals of the syslog function
- Using "logger"
- Important system log files
- Configure syslog messaging
  - Using the Solaris Management Console log viewer
- Monitoring Users and System Usage
- Monitoring logins

## **Introduction to DTrace**

- Describe the features of DTrace
- Describe the DTrace architecture
- Overview of how DTrace works
- Examining performance problems using DTrace
- Use DTrace to obtain information about system calls
- Understand D Scripts
- Overview of the DTrace Toolkit
- Useful DTrace scripts

## **Overview of the Solaris Certified System Administrator Certification Process**

- Why become certified?
- Overview of the certification and testing process.
- How to prepare for the 1Z0-878 exam.
- What to expect on the certification exams.