

Oracle Solaris 11 Advanced System Administration

Course Summary

Length: 5 Days

Prerequisite: Oracle Solaris 11 System Administration

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 · Administer Zones · Install software · Manage software packages using IPS tools · Perform system boot procedures · Understand user and security administration · Manage system processes · Perform system backups and recovery · Configure Network Connectivity · Understand system startup procedures and the Service Management Facility.

Course Description:

This course teaches advanced topics in Solaris 11 system administration. The operating system will be Oracle Solaris 11.2. The course is taught on both Sun SPARC and x86-based servers and students will have access to both server architectures for their labs. This course will teach students how to administer a Solaris 11 Server in a Virtualized environment on SPARC servers running Logical Domains and Zones

This course prepares the student for the Oracle Certified Professional, Oracle Solaris 11 Advanced System Administration Exam (1Z0-822), including the Upgrade to Oracle Solaris 11 System Administrator Exam (1Z0-820)

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

- Manage the Image Packaging System (IPS), Packages and Repositories
- Use the Distribution Constructor tool
- Configure an Automated Install (AI) Server and AI clients (standalones, LDomS and zones)
- Install Guest LDomS and Zones using the Automated Installer
- Build a “Golden Image” using the Distribution Constructor
- Configure Role Based Access Control (RBAC)
- Configure custom Rights Profiles
- Configure Virtual Network Components and a Virtual Network
- Configure Network High Availability and Load Spreading (IPMP)
- Configure Network Link Aggregations
- Configure Network Flows
- Secure System Resources Using Solaris Auditing
- Manage Processes and Priorities
- Evaluate and Manage the System Resources
- Advanced Administration of Zones
- Configure the NFS and CIFS Environment
- Configure System Messaging
- Understand LDomS (Oracle VM)
- Manage guest LDomS
- Understand how to Monitor and Troubleshoot Hardware and Software Failures
- Monitor Performance on Virtual Systems (LDomS) and Zones

Oracle Solaris 11 Advanced System Administration

Detailed Course Outline

Manage the Image Packaging System (IPS), Packages and Repositories

- Create and Manage a Network Repository
- Manage multiple local repositories
- Customize a Repository
- Create a mirrored repository
- Configure publisher stickiness, rankings, and search order
- Obtain and Install Support Repository Updates (SRUs)
- Update the OS from an SRU

Distribution Constructor

- Understand the Distribution Constructor
- Build an Oracle Solaris image using the distribution constructor
- Distribution Constructor manifest files
- Create custom finalizer scripts
- Build the image in stages or one step

Advanced Solaris 11 Installation using the Automated Installer (AI)

- AI installation overview for provisioning servers
- Describe the AI provisioning process
- Configure an AI server and Clients
- Understand the AI manifest and how to customize the manifest
- Create AI manifests using the Interactive Automated Installer wizard
- Configure AI to install LDoms and Zones
- Configure AI to service multiple hosts and architectures
- Create a configuration profile for AI clients
- Understand client requirements
- Verify DHCP configuration and network table
- Monitor an AI installation remotely
- Verify the Installation
- Create bootable media to automate standalone installations

Manage SWAP Space

- Describe swap and virtual memory concepts
- Swap space and TMPFS
- Configure, size and monitor swap space
- Understand ZFS emulated volumes
- Setup swap space
- Expand swap space
- Monitor swap space

Monitor System Performance

- Use monitoring utilities and interpret the output (ps, pgrep, prstat, mpstat, top, and proctools)
- Understand Core and Crash dumps
- Core dump configuration
- Manage core file behavior
- Crash dump configuration
- Manage crash dump behavior
- Manage processes and understand how to utilize process priorities
- Configure and Manage the scheduling class of a zone
- Configure and Monitor the Fair Share Scheduler
- Understand Resource Management (projects, tasks, resource pools and resource capping)
- Implement a plan to evaluate resource allocation and system performance
- Understand a Solaris Container and Configure Containers using System Resource Management
- Monitor System Performance

Role Based Access Control (RBAC)

- Describe RBAC fundamentals
- Overview of Roles, Authorizations and Rights profiles
- Understand the function of profile shells
- Understand process rights management through privileges
- Restrict root with a role
- Manage RBAC by using the command line
- Describe RBAC components and their interaction within RBAC
- Create a role using a profile
- Understand RBAC profiles and roles to assign elevated system access to user accounts
- Delegate zone management tasks
- Delegate ZFS management tasks
- Delegate system administration tasks using profile shells and privileges
- Create a custom rights profile
- Implement Location Based and Time Based Access

Implement Network Security

- Network security
- Secure Shell
- TCP Wrappers
- Kerberos protocol
- Using IPsec and IKE
- Securing remotely accessed file systems

Security Auditing in Oracle Solaris 11

- Describe auditing
- The Basic Audit Reporting Tool (BART)
- Configure Auditing
- Administer the audit service
- Manage the audit records

Advanced Network Topics Networking

- Create Virtual NICs, and a virtual network
- Assign Virtual Network Components to Zones
- Configure virtual networking between Zones
- Allocate system resources to a zone
- Manage virtual network resources
- Tools to monitor datalinks and IP interfaces
- Configure Network Traffic Failover
- Plan the network configuration and failover scenario
- Configure the LAN and local systems
- Configure a reactive network (formerly NWAM)
- Configure custom Network Configuration (NCP) and Location Profiles
- Configure Network Link Aggregation to improve bandwidth
- Configure Network Link fail-over using IPMP
- Manage and monitor an IPMP group
- Manage traffic bandwidth with Flows
- Monitor Network Traffic Statistics

Configure and Manage the NFS Environment

- Share and Unshare ZFS File Systems
- Secure Shared Filesystems
- Automatic Filesystem Sharing
- Accessing NFS Filesystems
- Mount an NFS Filesystem
- Setup the NFS service
- Administer Network Filesystems
- Administer AutoFS
- Commands to manage NFS

- Configure NFS Failover
- NFS Server Logging

Configure and Manage System Messages

- Describe the fundamentals of the syslog and rsyslog facilities
- Using "logger"
- Important system log files
- Configure rsyslog messaging
- Configure SMF and Fault Management Messages with SMTP Notifications

Advanced Zone Administration

- Clone Zones
- Export Zone Configurations
- Move and Migrate Zones
- Monitor Zones
- Tune a Zone's Performance
- Backup and Restore Zones
- Delegate Zone Administration to Privileged Users
- Utilize Resource Controls to Contain Zones
- Configure Immutable Zones to Secure a Zone's Root Filesystem
- Configure Network Virtualization between Zones
- Allocate Physical Resources to a Zone
- Allocate ZFS Datasets to Zones
- Delegate ZFS Administration to a Zone
- Configure a `solaris10` Brand Zone
- Perform a P2V (physical to virtual) Migration
- Provision Zones Using the Automated Installer
- Live Zone Reconfiguration
- Understand Zone Templates and Template Properties
- Kernel Zones
- Understand and Configure an Immutable Global Zone

Oracle VM Server Fundamentals (LDomS)

- Introduction to Oracle VM Server for the SPARC platform
- Understand the Control Domain Configuration
- Understand the Guest Domain Configuration
- Boot, Monitor and Shutdown Logical Domains
- Setup a Guest Domain
- Install a Guest Domain
- Save / Restore a Domain Configuration

Introduction to DTrace

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