

Solaris 11 ZFS Administration

Course Summary

Length: 3 Days

Prerequisite:

It is assumed that the student has an understanding of UNIX. Students MUST be experienced in administering a Solaris 10 or 11 system and be proficient in the following areas.

- File management commands (`vi`, `cp`)
- Navigating file systems
- Understand and set file permissions
- Setting up user accounts and customizing the shell environment
- The Service Management Facility (SMF)
- Formatting and partitioning a disk in Solaris using the `format` utility

Course Description:

This course teaches basic topics in Solaris system administration. The operating system will be Oracle Solaris 11.3. Both SPARC-based and x86-based versions of Solaris are covered in this course.

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

- ZFS terms and concepts
- Plan a ZFS environment
- When to use ZFS file systems over traditional file systems and logical volumes
- Create and manage ZFS storage pools and file systems
- Understand ZFS pool and file system properties
- Migrate SVM and UFS file systems to ZFS
- Create bootable ZFS pools
- Create ZFS snapshots and clones
- Backup ZFS file systems and snapshots
- Restore damaged pools and file systems from a backup
- Using ZFS with Solaris Zones
- Delegate datasets to Zones
- ZFS tuning – best practices
- Troubleshooting ZFS and recovering storage pools
- ZFS Delegated Administration
- ZFS Recovery techniques

Oracle Solaris 11 ZFS Administration

Detailed Course Outline

Introduction to the ZFS File System

- Understand ZFS: features and benefits
- ZFS Terms and components
- Hardware and Software requirements
- Choosing a file system: Comparing ZFS, UFS, SVM and Veritas

Getting Started with ZFS

- Create a basic ZFS file system
- Create a ZFS storage pool
- ZFS file system hierarchy
- Hardware requirements
- Overview of ZFS versions

ZFS Requirements

- Identifying the Oracle Solaris ZFS Components Configuration and Management Requirements
- Identifying the ZFS Properties Configuration Requirements
- Identifying the Requirements to Protect Business Data Using ZFS Access Control Lists
- Identify the ZFS Delegated Administration Model Requirements
- Identifying the Business Data Backup and Recovery Requirements
- Managing the ZFS Root Pool

Managing a ZFS Root Pool

- Managing the ZFS Swap and Dump Devices
- Booting From an Alternate ZFS Root File System
- Encrypting ZFS Data

Implementing the Plan to Configure and Manage the ZFS Hierarchy

- Configuring the ZFS Hierarchy for a Business Application
- Sharing ZFS File Systems in a Non-Global Zone
- Encrypting ZFS Data Files
- Migrating ZFS Data (shadow migration)
- Upgrading ZFS Components
- Configuring ZFS Properties

Understand ZFS Properties

- Configuring ZFS Storage Pool Properties
- Configuring File System Properties
- Managing ZFS Properties Within a Non-Global Zone
- Protecting Data Using ZFS ACLs

Implementing a Plan for Data Protection Using ZFS

- Overview of ZFS Delegated Administration
- Delegating ZFS Permissions
- Displaying ZFS Delegate permissions
- Using ZFS Delegated Administration
- Removing ZFS Permissions
- Delegating ZFS administration to a Zone
- Configuring and Managing ZFS ACLs

Implementing the Plan for ZFS Delegated Administration

- Configuring the ZFS Delegated Administration Model
- Backing Up and Recovering ZFS Data

ZFS and Zones

- Adding ZFS volumes and file systems to a non-global zone
- Delegating datasets to non-global zones

- Using ZFS storage pools in a zone
- Managing ZFS properties in a zone

Implementing a Plan for Backing Up and Restoring ZFS Data

- Backing Up ZFS Data Using Snapshots
- Backing Up and Restoring ZFS Data Remotely
- ZFS Data Management Challenge
- Sending and Receiving ZFS Data Streams for backing up live file systems
- Rolling back a snapshot
- Backing up the ZFS boot drive
- Recovery procedures on the ZFS boot drive

ZFS Troubleshooting and Data Recovery

- Monitor ZFS
- Identify ZFS Problems and Failures
- Determine the type of device failure
- Checking the integrity of the ZFS Data
- Repairing a Damaged ZFS Configuration
- Resolving a missing device
- Replacing disks in a ZFS pool
- Troubleshooting and repairing the ZFS boot disk
- Recovering data in a damaged ZFS file system
- Repairing an unbootable system
- ZFS Storage pool recovery
- Understand zpool status output
- Understand system reporting of ZFS error messages and syslog