

## **Getting Started with OpenSolaris 2009.06 - An Introduction for Technical Evaluators**

**3 days starting 25 January at Guillemot Park, Camberley, Surrey**

**To book please make direct contact with Sarah Clayton – [sarah.clayton@sun.com](mailto:sarah.clayton@sun.com)**

### **Course Description**

This course provides instruction in key features and capabilities of the OpenSolaris 2009.06 Operating System. Topics include installation, network connections, software updates, management of system services, and using Time Slider to create instant backups of the system. Delegates will also be instructed in the basics of system management including file and directory manipulation, viewing system information and managing tasks. Use of role-administration will also be explored. This course does not support the Sun Certified Solaris Associate exam.

### **Who Can Benefit**

The Getting Started with OpenSolaris 2009.06 course is designed for technically competent individuals who are preparing to evaluate OpenSolaris 2009.06 and are unfamiliar with the UNIX Operating System.

### **Course Length**

3 days

### **Prerequisites**

To succeed fully in this course, students must be able to:

- Use basic computer hardware (monitor, keyboard, and mouse)
- Input commands and control characters from a keyboard
- Have administration experience of another enterprise operating system

### **Skills Gained**

On completion of this course students will be able to:

- Install OpenSolaris and access the internet with ease
- Manipulate network connections
- Update the software on the system and install new software packages
- Understand and control the services running on the system
- Access information about the system resources and performance
- Use Time Slider to create snapshots of the system
- Restore files and directories from system snapshots
- Create, manipulate and use alternative boot environments
- Navigate the directory structure and appreciate important file and directory locations
- Administer additional users and administration roles on the system
- Use command line Features and Help resources

## Course Content

### Module 1 – Installation of the OpenSolaris 2009.06 OS

- Requirements for OpenSolaris 2009.06 OS installation
  - Hardware
    - x86/x64 Based processors
    - Minimum 512MB RAM
    - CD/DVD Drive
  - OpenSolaris 2009.06 OS installation and upgrade options
    - Download the software
      - <http://opensolaris.com>
    - Live CD
  - Installation of OpenSolaris 2009.06
    - Live CD
      - Boot Selection
      - Keyboard Layout ( Default US-English)
      - Language (Default English)
    - Desktop
      - Install Software
      - Run OpenSolaris
  - Install Software
    - Required information
      - fdisk disk partitioning ( page 34 Note)
      - Timezone/time
      - Language
      - root password
      - Create a login account
      - set a password for the login
      - hostname
      - Networking
        - Configured automatically manual configuration must be done after first boot
  - **Post Installation**
    - check log files
      - GUI
        - Applications -> System Tools -> Log File Viewer -> File “Open”
          - /var/sadm/system/logs/install\_log
          - /var/sadm/system/logs/sysidtool.log (What is this used for)
          - /var/sadm/system/logs/upgrade\_log (What is this used for)
    - Update System Software Database
      - pkg refresh ( System is synchronised with software listing from the package server. Pkg list -a lists all packages with their status. After pkg refresh is executed the list includes new and updated packages from 72.5.123.21 HTTP GET /release/catalog/0 HTTP/1.1)
    - Check internet connectivity
      - Network AutoMagic NWAM( 2008.11 could only configure a single interface at a time what is the impact and has it changed with 2009.06)
      - GUI
        - System > Administration > Network
        - From command Line network-admin
          - Select Automatic or Manual
          - Manual popup window configure interface
            - Static IP
            - DHCP
            - DNS
            - Hosts
      - Command Line
        - ifconfig
        - dladm

## Module 2 Exploring OpenSolaris

This module will cover items of information the students will need to get the full benefit from this course, but are not covered in other modules

Commands

Variables

Terminology

## Module 3 – Software Updates

- GUI
  - Desktop “Add More Software” icon
  - Task Bar “Package Manager” icon same as Desktop icon
  - Drop Down
    - System -> Administration -> “Package Manager”
    - System -> Administration -> “Update Manager” ( What is the difference)
    - pkg command
      - list
      - update
      - contents
      - uninstall
      - install
      - info
      - verify
      - search
      - rebuild-index
      - set-authority
      - image-update
- Image Packaging System (IPS)
  - Concepts
    - authority
    - versions
    - package names
  - Update and explain images
    - single
    - multiple
    - all
  - Check status of packages
  - Locations
    - Default
      - [pkg.opensolaris.org/release](http://pkg.opensolaris.org/release)
    - Others
      - [pkg.sun.com](http://pkg.sun.com) ( If you register )
      - [pkg.sunfreeware.com:9000](http://pkg.sunfreeware.com:9000)
- Update Manager
  - View verify and search
  - Check for updates
  - update boot environment
- Repositories ( remote location where downloadable software stored)
  - Add a repository
  - Mirror repositories
  - Manage Boot Environments

## Module 4 – Verifying System Configuration (New title)

- Hardware Configuration
  - View hardware information
    - GUI ->
    - Commands
      - prtconf
      - prtdiag
    - disks
    - processors
      - psrinfo
    - memory
      - GUI -> Applications -> System Tools -> Performance Monitor
- System Information
  - host name
    - GUI ->
    - Command
    - hostname
  - ip address
    - GUI ->
    - Command
    - ifconfig -a
  - domain name
    - GUI ->
    - Command
    - domainname
  - Disk space
    - GUI -> Applications -> System Tools -> Performance Monitor -> Disk Usage Analyzer
    - Terminal Window baobab <absolute\_path\_to\_a\_directory>
    - Command
    - df
  - Device Driver Utility
    - GUI -> Applications – Device Driver Utility

## Module 5 - Introducing the OpenSolaris 2009.06 OS Directory Hierarchy

- Understand important / (root) subdirectories
  - disk based directories
  - pseudo directories
- Naming conventions for Files and Directories
- OpenSolaris 2009.06 file types
  - directories
  - symbolic/soft links
  - hard links
  - Character
  - block
  - inodes

## Module 6 - Controlling System Processes

- Describe OpenSolaris OS processes
- View a process
  - GUI -> Applications -> System Tools -> Performance Monitor -> Processes
  - Command line gnome-system-monitor
    - map memory usage
    - List open files
  - Command
    - prstat
    - ps
    - pgrep
- Modify a specific process
  - GUI -> Applications -> System Tools -> Processes
  - Command line gnome-system-monitor
    - allows you to
      - Change process priority
      - stop or continue a process
  - ps command
  - pgrep command
  - pstop
  - prun
  - priocntl
- Send a signal to a specific process
  - GUI -> Applications -> System Tools-> Performance Monitor ->Processes
  - Command line gnome-system-monitor
    - allows you to
      - Change process priority
      - stop or continue a process
      - end or kill a process
  - Commands
  - kill command
  - pkill command
- cron processes
  - command line crontab
  - No GUI
  - crontab file

## Module 7 - Users and Groups

- User account basics
  - GUI -> System Administration -> "Users and Groups"
  - Requirements
    - uid
    - gid
    - shell
    - password
    - home directory
- Administer user accounts
  - System- users and groups
  - commands
    - useradd
    - usermod
    - userdel
    - groupadd
    - groupmod
    - groupdel

## Module 8 -RBAC

- Understanding role based administration
  - What is a role
    - creating a role
      - No GUI
    - assuming a role
  - What is a authorization
    - granting an authorization
  - What is a profile
    - Creating a profile
      - No GUI
    - Assuming a profile
  - What is a authorization
    - granting an authorization
  
- pfexec command

## Module 9 – System Services and Predictive Self Healing

- Describe Fault Management Architecture
  - Configuration files
  - commands
  - daemons
- Describe the features of the Service Management Facility
  - What is a service
  - Service Identifiers
  - Service states
  - Milestones
  - repositories
  - listing service information
  - Configuration files
  - commands
  - daemons
- Use SMF Administrative Commands
  - svcvadm
    - enable
    - disable
    - restart
    - refresh
    -
  - daemons
- Use SMF Administrative Commands
  - GUI System -> Administration -> Services
    - Activate
    - Deactivate
  - svcvadm
    - enable
    - disable
    - restart
    - refresh

## Module 10 – Introducing ZFS

- What is ZFS
  - describe zfs
    - compression
    - encryption
    - snapshots
    - clones
    - pools
    - datasets
    -
- Creating a ZFS pool
  - zpool command
- View a ZFS pool
  - zpool status
  - zpool list
  - zpool get
- Destroy a ZFS File pool
  - zpool destroy
  -
- Creating a ZFS File system
  - zfs create
- View a ZFS file system pool
  - zfs status
  - zfs list
- Modify the properties a ZFS pool
  - Modify the properties (quota's, reservations, sharenfs and compression of a ZFS pool)
  - zpool set
- Destroy a ZFS File pool
  - zpool destroy
- Components of a ZFS Storage Pool
  - root pool (rpool)

## Module 11 – Timeslider

- Timeslider Service
  - Purpose
  - Command line
- Setup Timeslider
  - By default not enabled
  - To enable
    - Default
    - Advanced
      - select fs to snapshot
- Manage Snapshots
  - Stored
    - \$HOME/.zfs/snapshot
  - View location
    - using Nautlius
    - On command line view \$HOME/.zfs/snapshot
  - Open
    - in current window
    - in new tab
    - in new window ( crashes the browser)
    - in a new terminal window
  - Copy
    - An entire snapshot
      - Different location?
      - To the Desktop
    - individual files
      - Different Location
      - To the Desktop
  - Restore
    - An entire snapshot
      - To same location of where snapshot was taken
      - Different location?
      - To the Desktop
    - individual files
      - To same location of where file was snapshotted
      - Different Location
      - To the Desktop
  - Delete
    - Complete Snapshot
    - Individual files in a snapshot



## Module 12 – Managing Boot Environments

- Manage ZFS boot environments
  - beadm utility
    - create
      - new BE from active
      - new BE from inactive
      - create a snapshot
      - create a new BE based on a snapshot
      - create a new BE and copy to a new pool
    - destroy
    - list
      - States
        - Active
        - active on Reboot
        - Mounted
    - activate
    - mount
    - unmount
    - rename
- Interacting with GRUB
  - command
  - configuration file
    - /rpool/boot/grub/menu.lst
- Modifying Boot behaviour
  - commands
  - configuration file
  - selecting boot environment
- System Recovery
  - failsafe boot (single-user)
- System shutdown