

## HP-UX SYSTEM ADMINISTRATION

This intensive course is designed for experienced UNIX administrators who like to understand the differences between HP-UX and standard UNIX. It is essential that students have existing UNIX system administration experience.

\*Group rates available – Inquire for more details\*

**Duration:** 32 hours

### **Objective**

- Manage HP-UX user accounts
- Configure and manage HP-UX peripherals and device files
- Configure and manage disk devices via LVM
- Configure and manage JFS file systems
- Configure network connectivity and services
- Configure kernel drivers, subsystems, and tunable parameters
- Install HP-UX applications, and patches

### **Audience**

Experienced UNIX System administrator.

### **Prerequisites**

- Students must have at least one year of UNIX system administration experience.

### **Included Labs**

Labs to be provided by the trainer

### **Course Content**

#### **HP-UX System Administration**

- The role of the System Administrator
- Hardware responsibilities
- Software responsibilities
- Responsibilities to users
- Three parts of the OS
- Three most common shells
- Multiserver/Multitasking discussion
- Client server architecture
- HP UNIX hardware
- Login and Logout

## Creating and Managing User Accounts & Introducing SAM

- Users and Groups
- /etc/passwd file
- /etc/group file
- Adding users using SAM
- Managing users with SAM
- Adding and managing and groups from the command line
- Customizing a user account
- /etc/skel directory
- ASCII vs. CDE logins
- Why use SAM?
- Using the SAM GUI

## Shell Features

- HP-UX standard shells
- Specifying what shell to use
- Shell and Environment variables
- Customize the root environment
- Using control characters
- Metacharacters and redirection
- Basic commands such as cat, tail, head, touch, move, copy, remove, etc.
- Control characters
- Using man pages
- Introduction to writing shell scripts

## HP-UX File Hierarchy

- The file system paradigm
- System directories
- Navigating directories and file systems
- UNIX file types

## File System Concepts

- What is a file system?
- File system types
- What's in a file system?
- Accessing a file system
- Hard links
- Symbolic links
- HFS structure
- JFS Structure

## File System Creation

- Creating a new file system
- The newfs command
- Mounting a new file system manually
- Unmounting a file system
- Automatically mounting file systems
- Mounting CDFS file systems
- Mounts vs. links

## File System Repair

- File system maintenance
- File system updates
- The buffer cache
- The fsck command

## File System Management

- Monitoring disk usage
- Routine management

## File System Backup

- Backups
- fbackup
- frecover
- Network backup and recovery
- The make\_recovery utility
- Online Backups
- LVM mirrored backup
- JFS online backup

## Startup/Shutdown

- boot process (interactive and automatic)
- Interacting with the PDC/BootROM
- Interacting with the ISL/IPL
- Loading the kernel
- After the kernel is loaded
- System run levels
- Changing run levels
- Starting services via /etc/inittab and /sbin/rc
- System startup and shutdown commands

## Connecting Peripherals

- HP 9000 Architecture terminology
- Device adapter types
- Installing new interfaces and devices
- SCSI addressing
- SCSI LUN addressing
- Using ioscan to view device addresses

## Configuring Device Files

- HPUX device file overview
- Listing device files (ll, ioscan, lssf)
- The /dev directory
- Device file naming convention
- Disk device file names
- Tape device file names
- Terminal and modem device file names
- How device files are created
- Autoconfiguration
- Creating device files with SAM
- Creating device files with mkfs and insf

## Configuring Disk Devices and LVM

- Pros and cons of disk partitions
- Disk partitioning
- Whole disk partitioning
- LVM device files
- Creating physical volumes
- Creating volume groups
- Creating logical volumes
- Extending a volume group
- Extending a logical volume
- Extending a file system

## Configuring the HP-UX Kernel

- Why reconfigure the kernel
- Using SAM for kernel Configuration
- Moving the new kernel into place
- What if the new kernel won't boot
- Configurable kernel parameters

## Managing Swap Space

- Memory concepts
- Swap concepts

- Swap types
- Pseudo swap
- Enabling swap (command line)
- Automatically enabling swap (/etc/fstab)
- Monitoring Swap Space
- Selecting device swap areas
- Selecting file system swap areas

## Loading the OS

- Software installation and post installation topics
- Introduction to SD-UX
- SD-UX Software structure
- SD-UX software depots
- SD-UX daemons and agents
- Listing software
- Installing/updating software
- Removing software

## OS Patches

- Why install patches?
- Patch naming conventions
- Obtaining patches
- Installing patches
- Using swinstall to manage patches
- Using swremove to remove patches
- Listing patches with swlist

## Networking

- Describe basic networking terms
- Setting up a basic network
- Hostnames and IP addresses
- Choosing a lookup service
- Configuring /etc/hosts
- Configuring a DNS client
- Configuring an NIS client
- Accessing remote systems
- NFS and automounter

## Managing Printers

- LP spooler
- LP printer types
- Adding a local printer
- Adding a remote printer
- Adding a network printer

- LP spooler configuration files
- Submitting a print job
- Managing print queues
- Managing priorities and fences
- Troubleshooting the spooler

### Ignite-UX

- What is Ignite-UX?
- Ignite-UX tools overview
- Ignite-UX client configuration
- HP-UX 11.00 Ignite-UX installation

### Security

- File permissions (setting, changing, and displaying)
- umask - changing default permissions
- Ownership of files and directories
- "Sticky" permissions
- "Superuser" account and restricting "root" access
- ASET
- Trusted Systems
- Enhanced password management
- C2 trusted system concepts
- Plugging the security holes

### General System Troubleshooting

- Common system errors
- Troubleshooting techniques
- Troubleshooting an HP-UX 11.00 system
- Common problems booting to multi-user mode
- Common problems logging in
- When to use the Install CD for Recovery
- Booting from the install CD
- Booting into a recovery shell

### Utilities

- Finding files
- Monitoring processes
- The cron daemon
- Configuring cron
- Scheduling jobs with at

## Troubleshooting Boot problems

- Error messages
- Hardware/software troubleshooting
- Recovering a system
- Repairing Root (/)