AIX System Administration - Part I

Duration: 5 Days　　**Course Code: ASA1**　　**Delivery Method: Virtual Learning**

Overview:

This IBM AIX System Administration training course is for System Administrators and Support Staff,who wish to perform advanced administration tasks,perform basic troubleshooting and improve security. Course Objectives are to be achieved by a mixture of command line syntax and use of the System Management Interface Tool (SMIT).
Although the course is based on AIX Version 7.1,it is also appropriate for prior releases of AIX.

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Target Audience:

The AIX System Administration - Part I course is designed for AIX System Administrators and Programmers and other Technical IT staff who require a greater understanding of the AIX system to enable them to perform basic troubleshooting,make use of advanced security features and highlight current/potential performance issues.
The course assumes knowledge of the IBM AIX Operating System to the level covered in the AIX System Administration - Part I course.

Objectives:

- On completion of the course the delegate will have practical experience of how to troubleshoot system startup problems,perform more advanced LVM tasks,implement system security and understand the ODM files in device configuration.

Prerequisites:

Attendance on the AIX Basics and AIX System Administration - Part I courses or similar knowledge is required. Shell Programming knowledge is beneficial but not essential. This skill can be gained by attending the AIX Shell Programming course.

Follow-on-Courses:
- AIX System Administration - Part II (ASA2)
- AIX Advanced Shell Programming Tools (AASP)
- Oracle SQL (OSP)
- Apache Web Server (APH)
- Perl Programming (PERL)

Content:

AIX System Administration - Part I Training Course   Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: INTRODUCTION TO THE RS6000 (PSERIES)

- Overview
- IBM eServer (pSeries) Hardware Platform
- Brief History
- RISC Technology
- POWER 6 Product Range
- POWER 7 Product Range
- The AIX Operating System
- AIX 7 Overview of Features and Benefits
- Useful Commands

Session 2: OBJECT DATA MANAGER

- Introduction
- ODM Components and Commands
- ODM Components
- ODM Commands - Object Classes
- ODM Commands - Objects
- ODM Commands - Descriptor Information
- Searching the ODM
- Overview of ODM Commands
- What Data is not Managed by ODM?
- The ODM Database
- Database File Names
- ODM File Locations
- cfgmgr and the ODM
- The Predefined Database Files
- PdDv - (Predefined Devices)
- PdAt - (Predefined Attributes)
- CuDv - (Customised Devices)
- CuAt - (Customised Attributes)
- ODM Class Usage
- Adding a New Device
- Additional Device Object Classes
- PdCn - (Predefined Connection)
- CuDep - (Customised Dependency)
- CuDvDr - (Customised Device Driver)
- CuVPD - (Customised Vital Product Data)

Session 3: SYSTEM INITIALISATION

- System Startup and The Boot Process Introduction
- System Startup and the Boot Process
- AIX System Boot Sequence
- The Bootlist and BLV
- The Boot Logical Volume
- Using Bootlists
- Boot Problems
- Accessing a System That Will Not Boot Normally

Session 5: DISK MANAGEMENT

- Local Volume Manager Review
- AIX Disk Storage
- Physical Volume and LVM
- Volume Group Descriptor Areas
- Physical and Logical Storage
- Use Of Logical Volumes
- Mirroring
- Stripping
- Volume Group Limits
- Alternative Mirroring and Stripping with RAID
- RAID Support Using AIX LVM
- Striped Column Support for Logical Volumes

Session 6: LVM SYSTEM DATA AND RECOVERY

- LVN System Data
- LVM Identifiers
- LVM Data on Disk Control Blocks
- Other LVM Locations
- How the LVM uses the ODM
- Physical Volumes and the ODM
- Volume Groups and the ODM
- Logical Volumes and the ODM
- LVM Problems in the ODM
- Re-synchronizing the ODM
- VGDA and Quorum
- Forcing a varyon   AIX System Administration - Part I Training Course   Course Contents - DAY 3

Session 7: DISK MIRRORING AND STALE PARTITIONS

- Mirroring
- Dealing with Stale Partitions
- Mirror Scheduling Policy
- Sequential Mirroring
- Parallel Mirroring
- Mirror Write Consistency (MWC)
- Mirroring the Root Volume Group

Session 8: DISK REPLACEMENT TECHNIQUES

- Overview
- Disk Replacement - Procedure 1
- Disk Replacement - Procedure 2
- Disk Replacement - Procedure 3
- Disk Replacement - Procedure 4
- Disk Replacement - Procedure 5
- Possible Errors after Disk Replacement
- Cycling LED Codes and boot Failure
- Disk in VGDA but not in ODM
- ODM Failures after Disk Replacement
- Collecting LVM Data for Recovery
- Gathering ODM Data
- Gathering LVM data in the Disk Control Block

Session 11: PROBLEM SOLVING TOOLS

- Error Log Facility
- Error Log Input Components
- Error Reporting from SMIT
- The errpt Command
- Sample Summary/Intermediate/Detailed Report Output
- Interpreting LVM Error Log Entries
- Error Log Maintenance
- Error Notification Facility
- Notification Methods
- The syslogd Daemon
- Diagnostics
- The diag Command
- Working with diag
- AIX System Dumps
- Overview
- The Dump Process
- The sysdumpdev Command
- The dumpcheck Utility
- Starting a Dump
- Initiating a Dump from a TTY
- LED Dump Codes
- Copying a System Dump
- Automatically Rebooting After a Crash
- Sending a Dump to IBM   AIX System Administration - Part I Training Course   Course Contents - DAY 5

Session 12: PERFORMANCE AND WORKLOAD MANAGEMENT

- Addressing the Problem
- Understanding The Workload And Bottlenecks
- Identifying CPU Intensive Tasks
- Identifying High Priority Processes
- Monitoring CPU Usage with sar
- Monitoring Memory Usage with vmstat
- Monitoring Disk I/O Using iostat
- The topas Command
- The tprof Command
- The svmon Command
- The filemon Command
- Workload Management
- The Performance Diagnostic Tool (PDT)
- PDT Configuration Menu
- PDT File Overview
- The PDT.thresholds File
- Monitoring Files,Directories and Host Availability

Session 13: ADVANCED SECURITY FEATURES

- The Auditing Subsystem
- The Configuration Files
- The Object File
- The Event File
- The Config File
- Using Bin Mode
- Using Stream Mode

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- Accessing A Volume Group and Starting a Shell
- Re-creating a damaged Boot Logical Volume
- Accessing a Volume Group without mounting Filesystems
- The LED Display
- Flashing 888
- Flashing 888 Followed by 102
- Flashing 888 Followed by 103
- Interpreting Flashing 888-103 Errors
- Location Codes
- Understanding SCSI Addressing
- The Problem Summary Form
- Maintaining Firmware Levels
- Firmware From the Internet
- Inventory Scout
- Vital Product Data Upload Service
- AIX Initialisation
- Overview
- rc.boot - Phase 1
- rc.boot - Phase 2
- rc.boot - Phase 3
- More About cfgmgr
- Config_Rules Object Class
- Sample Boot Log Output   AIX System Administration - Part I Training Course   Course Contents - DAY 2

Session 4: BOOT PROBLEM MANAGEMENT

- Introduction
- Boot Problem Management
- LED 553
- LED 551
- LED 552,554,556
- LED 523 to 534,517,518 and 555
- AIX Boot Diagnostic Numbers

- Korn Shell Script Debug

Session 9: EXPORTING AND IMPORTING VOLUME GROUPS

- Overview
- Exporting Volume Groups
- Importing Volume Groups
- Import VG Name Clashes
- Problems with Importvg
- Importing Volume Group using recreatevg   AIX System Administration - Part I Training Course   Course Contents - DAY 4

Session 10: BACKING UP YOUR SYSTEM

- Overview
- Cloning
- Reducing a File System
- Alternate Disk Installation - Overview
- Installing a mksysb Image On Another Disk
- Cloning the Running rootvg to Another Disk
- Removing an Alternate Disk Installation
- Backing up Non-Root Volume Groups
- Using savevg
- Backup from a Split Mirror

- The Audit Command
- Authentication and Access Controls
- Physical Security
- Login Security
- Program Security
- Path Problems
- Encrypted Filesystems in AIX 7.1
- Enhancing Login Security - Login Prompt
- Enhancing Login Security - Restricted Shell
- Customised Authentication Methods
- Two Key Authentication
- Access Control Lists
- ACL Keywords and Format
- The Trusted Computer Base
- The TCB Components
- Checking the TCB
- The sysch.cfg File
- The tcbck Command - Check Mode
- Marking Files As Trusted
- Trusted Communication Path
- Configuring Trusted Path Communications AIX System Administration - Part I Training Course   Addendum: Reference Materials (Sections below are provided within the course handbook for additional reading)

Session 14: Appendix A

- LOGICAL VOLUME SPREADING

Session 15: Appendix B

- AIX MULTIBOS

Session 16: Appendix C

- AIX INTRODUCTION TO NIM

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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