

AIX System Administration - Part II

Course outline

Course Introduction

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

Session 1: INTRODUCTION TO THE RS6000 (P SERIES)

- 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
- cfmgr 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
- 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

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

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

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
- 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

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

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

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
- 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