Systems Management

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Agenda

What is Systems Management?

System Management Products by functional area

EVAL *LR = *ON

Systems Management
What is it?

- IBM System Administration Certification (971)

- Systems Operations

- Work Management

- Security

- Performance/Capacity Planning

- Availability

Each Specific Area is a Career

IBM Certification for System Administrators (971)

- Recommended skills include, but are not limited to:
    - Coordinating hardware maintenance and management.
    - Managing storage.
    - Utilizing service tools.
    - Managing file system and database.
    - Managing job environments.
    - Maintaining system security.
    - Creating and maintaining user profiles.
    - Planning and implementing back-ups.
    - Monitoring system performance.
    - Configuring and managing communications.
    - Creating optical images.
    - Installing and applying PTF's.
    - Planning for and implementing server and HMC firmware upgrades.
    - Planning for and implementing i5/OS upgrade.
    - Packaging and deploying System i Access.

System Admin Test Objectives

- Consists of Seven Sections:
  - **Section 1 - Advanced System Management (15%)**
    - Advanced System Management
    - Manage Storage
    - Utilize Service Tools
    - Manage File System and Database
  - **Section 2 - Workload Management (12%)**
    - Manage Job Environments
  - **Section 3 - Security Planning and Implementation (11%)**
    - Maintain System Security
    - Create and Maintain User Profiles
    - Perform Advanced Security Management

System Admin Test Objectives

- **Section 4 - Backup and Recovery Planning and Implementation (13%)**
  - Plan and Implement Back-ups

- **Section 5 - System and Database (9%)**
  - Monitor System Performance
  - Determine Cause of System Performance Issues

- **Section 6 - Communications (16%)**
  - Configure Communications
  - Manage Communications

- **Section 7 - Manage Software (16%)**
  - Create Optical Images
  - Install and Apply PTFs
  - Plan and Implement Server and HMC Firmware Upgrades
  - Plan and Implement i5/OS Upgrades
  - Package and Deploy System i Access and WDSc

Operations Agenda

- Save/Restore

- Managing Hardware

- Managing Output

- Managing Jobs

- Managing Problems

- Start/Stop System

Save Restore

- **What is the recovery plan?**
  - Plan the recovery -- Back up to the plan
  - Test it!!!! (Experience #1)
- Determine Success/Failure of a backup operation
- Identify & respond to operational problems
  - LPAR configurations multiply possible error situations
  - HMC hardware movement
    - Understand how via GUI
    - Command program

Save/Restore

- Restore libraries/objects IFS, Network storage, etc.
  - Do you know were your Virtual i5/OS images are?
  - How about the SCSI connected Intel servers?
  - Now how about source?

- Change configuration options for back up
  - Many new options added to save/restore commands
    - Spool files?
    - Data Queue Data ?
    - Save File data?

- Respond correctly to messages
  - Ensure proper responses (Experience #2)

Save Restore

- Encryption
  - Happens at three different levels
    - System: i.e. i5/OS with BRMS Advanced Feature
      - Requires extra cycles
      - Great for smaller shops
    - Tape Device: i.e. LTO-4 Fibre attach or TS1120 tape drive
      - Pushes encryption to the device
      - LTO-4 encrypt entire tape sets
      - TS1120 encrypts each tape *individually* (most secure method)
    - Appliance
      - Sits between System and tape device
      - Independent of OS and tape device
  - Be dead flat sure key management is solid as hardened high speed steel!!!!!

COMMON Annual Meeting and Expo

- Save Restore Sessions:

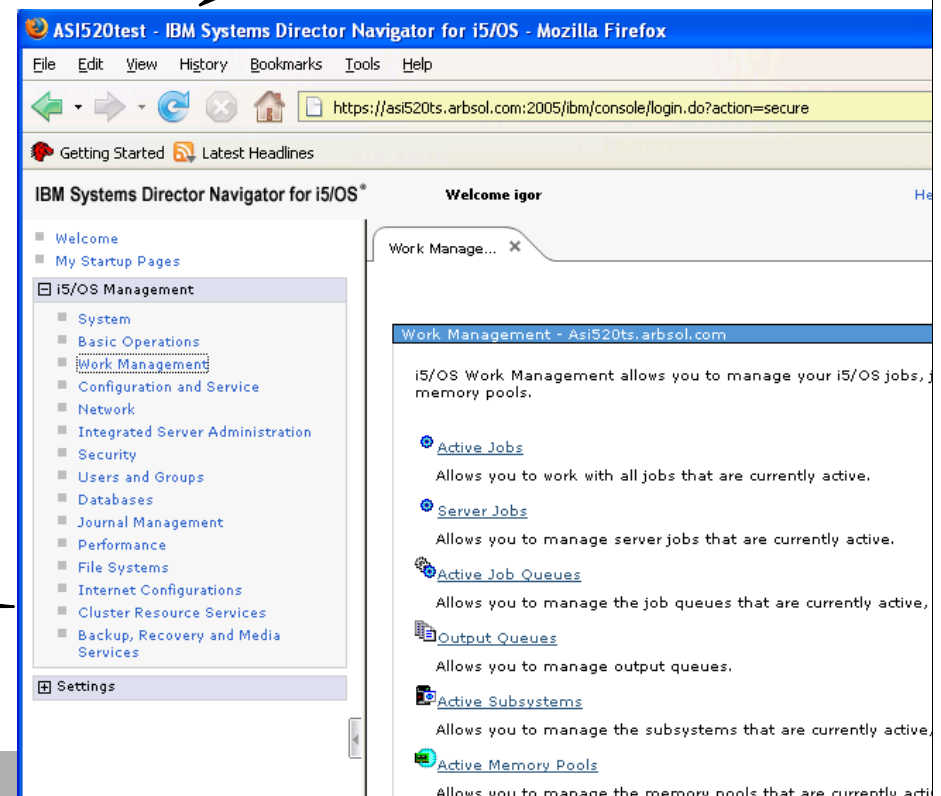| Session ID	Session Title
402342	Backup/Recovery Strategies Update
440024	What's New with Backup/Recovery in V5R4 - Including Virtual Tape Support
470003	Honey, I Shrunk My Backup/Recovery Windows! You Can Too!
403136	Getting the Most Out of BRMS Recoveries!
250116	Effective Backup and Basic Availability Considerations
250387	Save While Active

Managing Hardware

- Re-Allocate CPU / Memory / Disk / etc
  - HMC is critical to understand and maintain
  - Uncapped processors / Processor Pools
- Add new local printers, workstations, Network devices
- Display and Interpret messages about communications lines and devices
- Vary on/off devices
- Manage TCP/IP printers

Managing Jobs

- Job Management
  - Display/change job attributes
  - Display/interpret job descriptions
  - Display history/job logs
  - Manage subsystems
- Three methods available:
  - System i Navigator (GUI)
  - Command Line (5250)
  - System i Director (browser)

Check this out! Browser Based

New at V6R1!

ASI520test - IBM Systems Director Navigator for i5/OS - Mozilla Firefox

File   Edit   View   History   Bookmarks   Tools   Help

https://asi520ts.arbsol.com:2005/ibm/console/login.do?action=secure

Getting Started   Latest Headlines

IBM Systems Director Navigator for i5/OS®   **Welcome igor**

- Welcome
- My Startup Pages
- i5/OS Management
  - System
  - Basic Operations
  - Work Management
  - Configuration and Service
  - Network
  - Integrated Server Administration
  - Security
  - Users and Groups
  - Databases
  - Journal Management
  - Performance
  - File Systems
  - Internet Configurations
  - Cluster Resource Services
  - Backup, Recovery and Media Services
- Settings

Work Manage...

Work Management - Asi520ts.arbsol.com

i5/OS Work Management allows you to manage your i5/OS jobs, memory pools.

Active Jobs
Allows you to work with all jobs that are currently active.

Server Jobs
Allows you to manage server jobs that are currently active.

Active Job Queues
Allows you to manage the job queues that are currently active,

Output Queues
Allows you to manage output queues.

Active Subsystems
Allows you to manage the subsystems that are currently active,

Active Memory Pools
Allows you to manage the memory pools that are currently acti

COMMON Annual Meeting Sessions 08

- 54MA [500169](#) Best Practices for Maintaining the HMC
- 55MA [500170](#) Managing Server Firmware: What, Where,   Why, When, & How
- 56MA [420038](#) Make Managing PTFs a Snap!
- 23CC [510116](#) Subsystems 101
- 25CE [430091](#) i5/OS Concepts for Those New to the System
- 51MB [480051](#) Case Study on HMC
- 52MA [510107](#) Racking Your System i Hardware – Without Asprin**
- 54MF [409048](#) System i Navigator: Overview2.
- 55MF [510197](#) System i Navigator: What's New and Exciting
- 43MC [430183](#) System i Navigator: How To Be a SUPER HERO
- 55CD [520175](#) Electronic Customer Care Enhancements for PTF Ordering on i5/OS
- 56CC [520171](#) How to Integrate a BladeCenter or System x to Your System i
- 56GE [540039](#) Active Energy Manager - Manage Your System i Power Usage!

** Presented by Mark Olson of IBM and Jim Oberholtzer

Managing Output

- Respond to printer messages
- Display/change attributes of spool files
- Determine status of printers and spooled output
- Hold/release/change spool queues/files
- Verify Cleanup operations

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- 21MB* [409061](#) Printing and Output Management Overview
- 25GB [403767](#) i5/OS Network Printing
- 26GF [410168](#) Infoprint Server Implementation
- 47MG [520011](#) Using Mapping Suite to Reengineer Documents and Document Flow
- 53CA [520113](#) Printing Troubleshooting and Best Practices

Managing Problems

- Have a Plan!!!

- Use software to send out alerts

  - System i Director

  - System i Navigator

- System storage/CPU Utilization

- PTFs

  - Order and apply

    - as determined by system manager

  - Determine status

- Use QSYSOPR and QSYSMSG queues

- System Reference codes

Problem Management

- Determine failure reason
- Service Director/partitions
- Security problems
    - *ALLOBJ not the answer!!
    - Legal ramifications
- Identify/Monitor DB performance issues
- Use DST/SST & HMC to mange system hardware
    - iSeries Navigator
    - HMC Remote client
    - HMC version 7 HTTP client

Start/Stop the System

- Front panel settings
  - i5 vs. legacy
- Start/Stop servers
  - TCP/IP, Host, Management Central
  - Subsystems (QSERVER, QUSRSYS)
- LPAR
  - Activate/deactivate
  - Start stop managing system

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- 25GD 420040 Monitoring System Performance and Health of i5/OS
- 44CE 500021   Monitoring Your System i World
- 51CB 520066   Conducting a Best Practices Audit of Your System i and i5/OS
- 52GE 520176   Serviceability Enhancements on V5R4
- 53MD 540063   IBM Director Installation Cookbook

Operations Agenda - Recap

- Save/Restore

- Managing Hardware

- Managing Output

- Managing Jobs

- Managing Problems

- Start/Stop System

Systems Management Agenda

- Work Management
- Software Installation & Maintenance
- Problem Management
- Manage Security

Work Management

- System Setup
  - Should be done more than once
- Define and measure performance objectives
  - More on this later
- Set up/manage work flow
- Create/Use CL programs (this is a real time saver)
- Know when to ask for help

Question: When and how often should an IPL be performed?

Sessions

- 21AC [250173](#) Introduction to CL Programming
- 33AD [500032](#) Where No CL Has Gone Before
- 43MG [520207](#) Advanced CL Programming Techniques
- 44CC [500174](#) What's New in System APIs for V5R4
- 47CA [500033](#) CL Enhancements - Past, Present and Future
- 52MF [250082](#) Intermediate CL Programming

Software installation

- Recognize when FSP software should be updated
- Recognize when i5/OS PTFs are needed
- Mange system software using PTFs
- Install fixes (cumulative, groups)
  - Websphere, MQ series, Tivoli, and Domino implications
- OS upgrade planning and implications
  - Does the change in the DB/2 query optimizer affect you?
  - Is the Java in your environment – DB/2 access ?
    - Tool box jar file
    - Native jar file

Security

- Create/modify/delete group profiles
- Create/modify/delete directory entries
- Plan/implement physical and logical access controls to the system
- Identify/implement/maintain security related system values
- Single Sign On & EIM
- Resource & object level security
- IFS Security

Strong recommendation: Buy Security Software and use it!

Systems Management Performance/Capacity

- Collection Services
  - Go Perform, PM/iSeries, Performance Navigator, iSeries Navigator

- Historical data management
  - PM/iSeries, Performance Navigator

- QAPM…. Files
  - Performance Tools, Performance Navigator, Query

- The new 32bit JVM does not have tools

Systems Management
Performance/Capacity

- Real Time Monitors
  - iSeries Navigator,
  - IBM Director (multiplatform)
  - iDoctor (Job Watcher, PEX, PTDV)
  - Visual Control for Windows
  - Snapshot
  - QSystem Management
- Historical data management (trending)
  - PM/iSeries, Performance Navigator

Systems Management
Performance/Capacity

- Capacity Planning
  - Performance Navigator
  - WLE new options, capabilities
  - Patrol Predict
  - Teamquest
- Historical data management
  - PM/iSeries, Performance Navigator

Systems Management Availability

- New IBM editions bring this into reach for most companies now

- Lakeview, Datamirror, and Vision all offer multi-tiered products

- IBM cross site mirroring at a storage level

Systems Management
Availability

- Hardware
  - Disk
    - Raid, Mirrored, IASP, Switched Disk
  - CPU
    - Cluster, CoD
  - System
    - 2nd Lpar, 2nd System, Remote System

Systems Management Availability

- Software

  - i5/OS

    - Journaling

    - SMAPP

  - HA Vendors -

    - Data Mirror, iTera (Echo), Lakeview (Mimix), Maximum Availability (NoMax), Vision, Traders (Quick EDD)

Systems Management

Q & A

Where do you find me?

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