



AIX 6.1 'test drive'

A04

AIX 6.1 Features That Make You Go “ooo” (LAB)

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Revised February 6, 2004

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The IBM benchmarks results shown herein were derived using particular, well configured, development-level and generally-available computer systems. Buyers should consult other sources of information to evaluate the performance of systems they are considering buying and should consider conducting application oriented testing. For additional information about the benchmarks, values and systems tested, contact your local IBM office or IBM authorized reseller or access the Web site of the benchmark consortium or benchmark vendor.

IBM benchmark results can be found in the IBM System p5, @server p5, pSeries, OpenPower and IBM RS/6000 Performance Report at http://www.ibm.com/servers/eserver/pseries/hardware/system_perf.html.

Unless otherwise indicated for a system, the performance benchmarks were conducted using AIX V4.3 or AIX 5L. IBM C Set++ for AIX and IBM XL FORTRAN for AIX with optimization were the compilers used in the benchmark tests. The preprocessors used in some benchmark tests include KAP 3.2 for FORTRAN and KAP/C 1.4.2 from Kuck & Associates and VAST-2 v4.01X8 from Pacific-Sierra Research. The preprocessors were purchased separately from these vendors. Other software packages like IBM ESSL for AIX and MASS for AIX were also used in some benchmarks.

For a definition and explanation of each benchmark and the full list of detailed results, visit the Web site of the benchmark consortium or benchmark vendor.

TPC	http://www.tpc.org
SPEC	http://www.spec.org
LINPACK	http://www.netlib.org/benchmark/performance.pdf
Pro/E	http://www.proe.com
GPC	http://www.spec.org/gpc
NotesBench	http://www.notesbench.org
VolanoMark	http://www.volano.com
STREAM	http://www.cs.virginia.edu/stream/
SAP	http://www.sap.com/benchmark/
Oracle Applications	http://www.oracle.com/apps_benchmark/
PeopleSoft - To get information on PeopleSoft benchmarks, contact PeopleSoft directly	
Siebel	http://www.siebel.com/crm/performance_benchmark/index.shtm
Baan	http://www.ssaglobal.com
Microsoft Exchange	http://www.microsoft.com/exchange/evaluation/performance/default.asp
Veritest	http://www.veritest.com/clients/reports
Fluent	http://www.fluent.com/software/fluent/fl5bench/fullres.htmn
TOP500 Supercomputers	http://www.top500.org/
Ideas International	http://www.idesinternational.com/benchmark/bench.html
Storage Performance Council	http://www.storageperformance.org/results

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Notes on performance estimates

rPerf

rPerf (Relative Performance) is an estimate of commercial processing performance relative to other IBM UNIX systems. It is derived from an IBM analytical model which uses characteristics from IBM internal workloads, TPC and SPEC benchmarks. The rPerf model is not intended to represent any specific public benchmark results and should not be reasonably used in that way. The model simulates some of the system operations such as CPU, cache and memory. However, the model does not simulate disk or network I/O operations.

rPerf estimates are calculated based on systems with the latest levels of AIX 5L and other pertinent software at the time of system announcement. Actual performance will vary based on application and configuration specifics. The IBM @server pSeries 640 is the baseline reference system and has a value of 1.0. Although rPerf may be used to approximate relative IBM UNIX commercial processing performance, actual system performance may vary and is dependent upon many factors including system hardware configuration and software design and configuration.

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 - <http://publib.boulder.ibm.com/infocenter/pseries/v6r1/index.jsp>
- IBM Redbooks
 - AIX V6 Advanced Security Features Introduction and Configuration
 - <http://www.redbooks.ibm.com/abstracts/sg247430.html?Open>
 - Introduction to Workload Partition Management in IBM AIX Version 6
 - <http://www.redbooks.ibm.com/redpieces/abstracts/sg247431.html?Open>
 - IBM System p Live Partition Mobility
 - <http://www.redbooks.ibm.com/abstracts/sg247460.html?Open>
 - IBM AIX Version 6.1 Differences Guide
 - <http://www.redbooks.ibm.com/redpieces/abstracts/sg247559.html?Open>

Things to consider

- This familiarisation session is self-paced
- Text to enter into the system is undelined as shown below
 - lslpp -L -b SystemMgmtClient

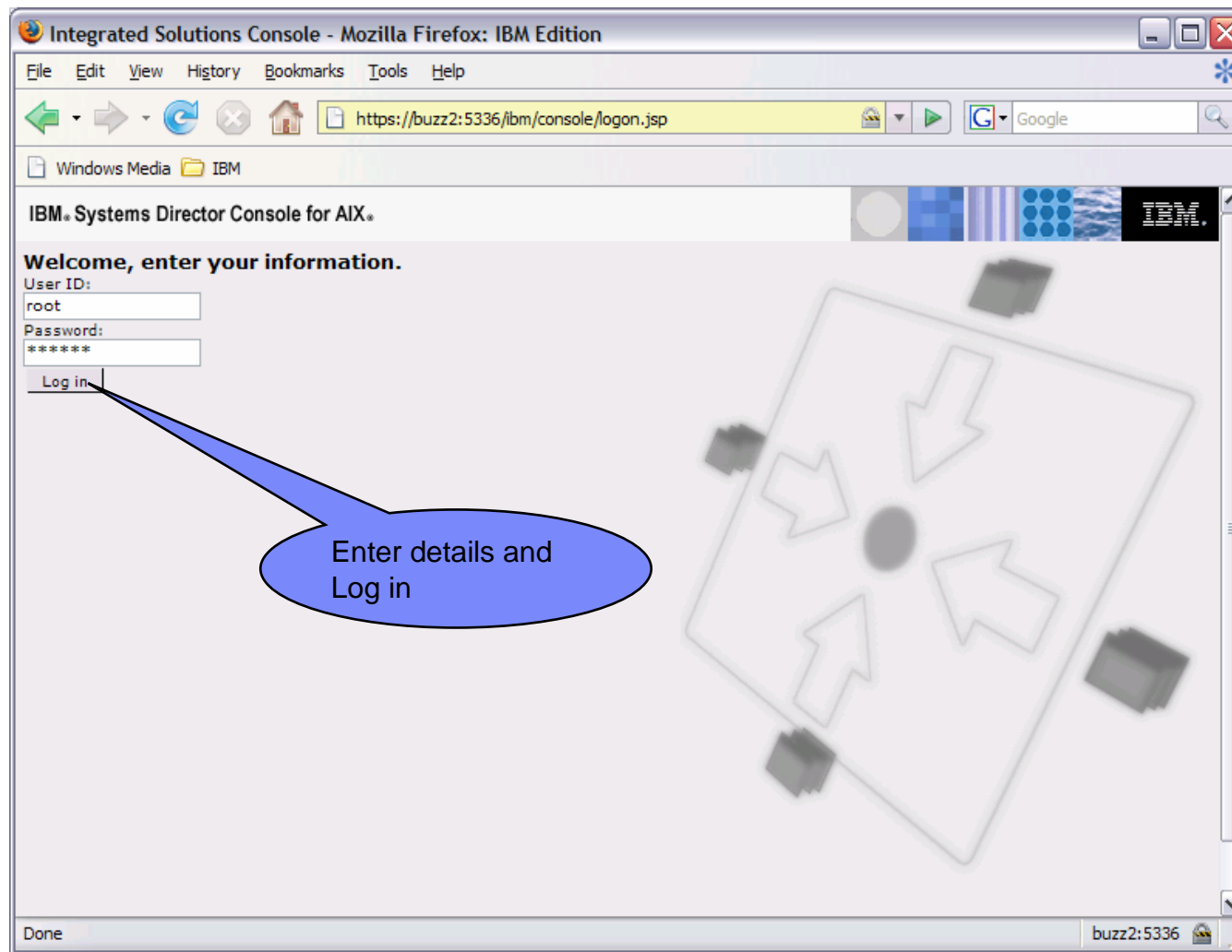
Systems Director Console for AIX

- This section introduces you to the Systems Director Console for AIX
- The 'console' can be viewed through a normal browser with no other software required on the 'viewing' system
- The console is fast, secure and flexible

Systems Director for AIX

- On your laptop/desktop PC, open a browser and enter the address of your AIX 6.1 image in the following form
 - https://'your_host':5336/ibm/console
 - For example if your system is 192.168.0.73
 - <https://192.168.0.73:5336/ibm/console>
- This will open a welcome screen
- Log in as root

Systems Director for AIX



Welcome to the console

Integrated Solutions Console - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

https://buzz2:5336/ibm/console/login.do?action=secure

Windows Media IBM

IBM Systems Director Console for AIX Welcome root Help Logout

Welcome

OS Management Health Settings

Welcome

Welcome To IBM Systems Director Console For AIX [About](#)

The IBM Systems Director Console for AIX provides an easy to use interface for administering the web-enabled AIX management tasks, including previous System Management Interface Tool (SMIT) and Web-based System Management tasks. Use the OS Management navigation tab to view your management task categories. Each category will display subcategories that will lead to all of the tasks you can perform using the console. You may also navigate directly to the tasks using the SMIT tool.

For more information about the console, AIX and System p, or hardware, refer to the following information centers:
IBM Systems Director Console for AIX Information Center.
AIX and System p Information Center.
System hardware Information Center.

Set Up

Set Up IBM Systems Director Console For AIX

As the console administrator you must set up the users and permissions for the system. To do this you must verify the AIX user IDs for console users and grant them permission to use specific console parts based on their specified roles. If no user other than root is to have permissions, no further set up is required.

Done buzz2:5336

Open the 'Health'
'tab'

Have a look at the health stats then open 'OS Management'

The screenshot shows the IBM Systems Director Console for AIX interface. The main content area displays the 'Health' tab with a table of system metrics. A blue callout bubble points to the 'OS Management' link in the left sidebar with the text 'When ready, click here'.

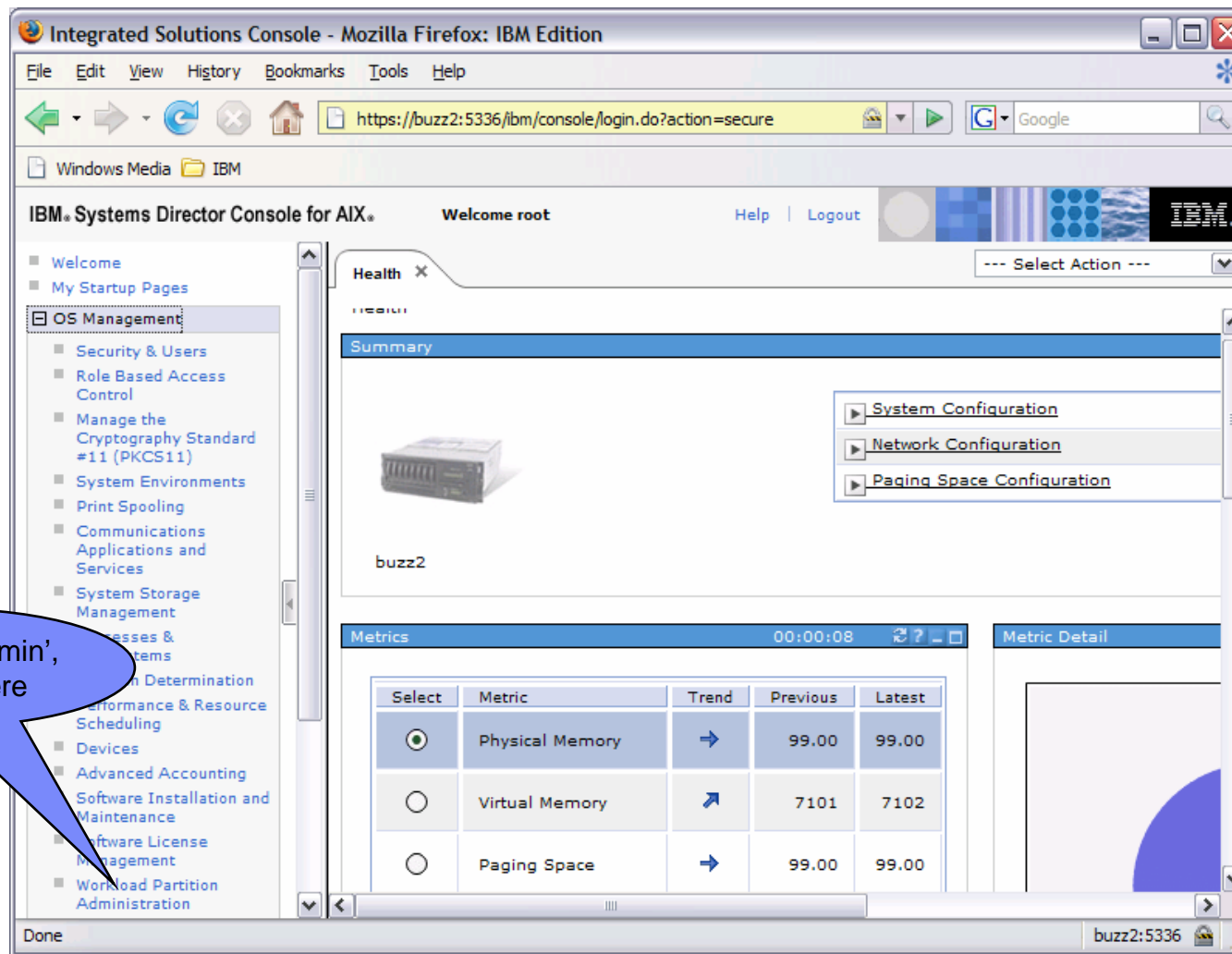
Select	Metric	Trend	Previous	Latest
<input checked="" type="radio"/>	Physical Memory	→	99.00	99.00
<input type="radio"/>	Virtual Memory	→	7088	7088
<input type="radio"/>	Paging Space	→	99.00	99.00
<input type="radio"/>	Total CPU Utilization	↘	10.60	0.30
<input type="radio"/>	CPU 1 utilization	→	6.70	6.70
<input type="radio"/>	CPU 0 utilization	→	0.00	0.00

Page 1 of 1

WPAR Management

- This section shows how to create a system WPAR using the console
- How to start the WPAR
- How to 'connect' to the WPAR

Use the console to administer WPARs



The screenshot displays the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser address bar shows the URL `https://buzz2:5336/ibm/console/login.do?action=secure`. The console interface includes a navigation sidebar on the left with the following menu items:

- Welcome
- My Startup Pages
- OS Management
 - Security & Users
 - Role Based Access Control
 - Manage the Cryptography Standard #11 (PKCS11)
 - System Environments
 - Print Spooling
 - Communications Applications and Services
 - System Storage Management
 - Workload Partition Administration

The main content area shows the 'Health' tab for a system named 'buzz2'. It includes a 'Summary' section with a server icon and three configuration links: 'System Configuration', 'Network Configuration', and 'Paging Space Configuration'. Below this is a 'Metrics' table with the following data:

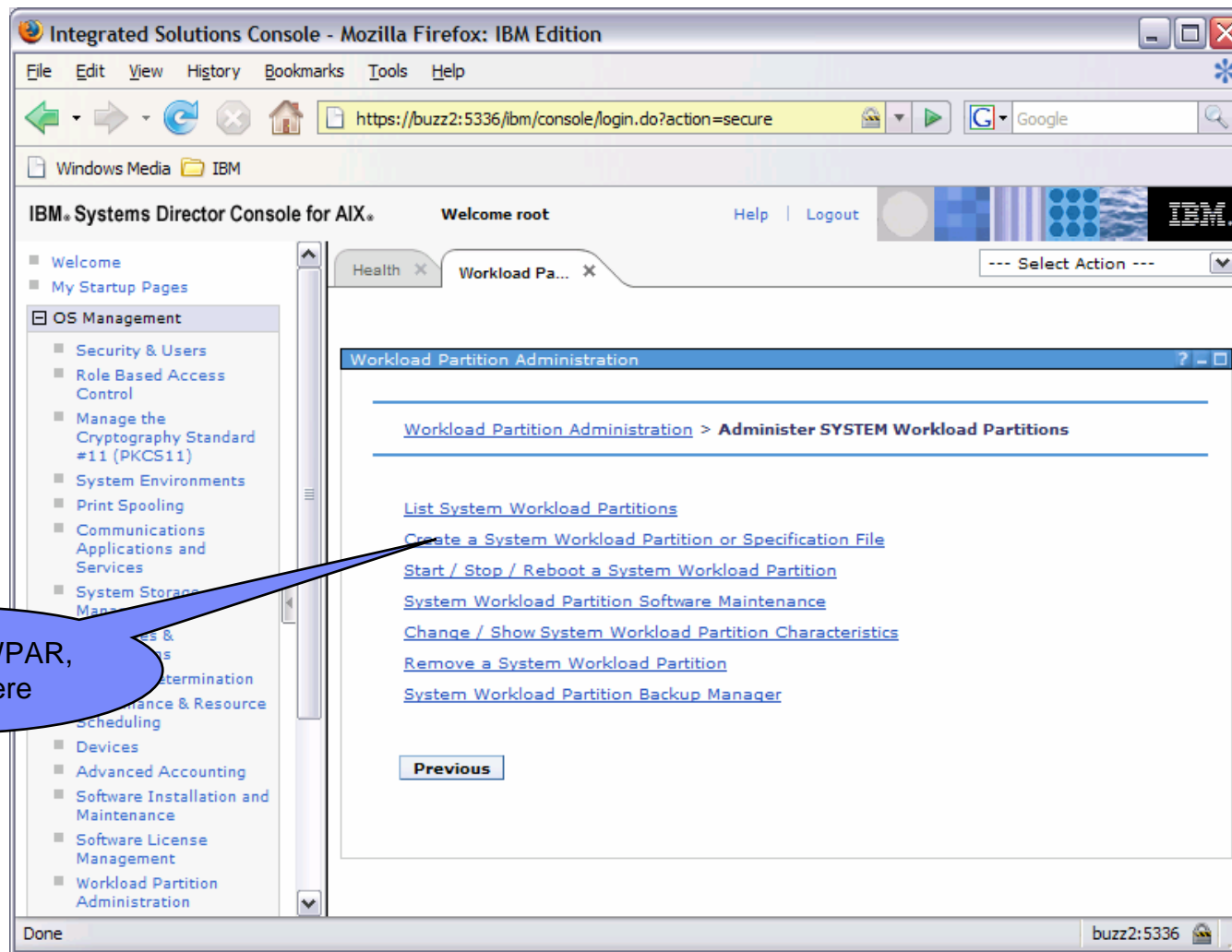
Select	Metric	Trend	Previous	Latest
<input checked="" type="radio"/>	Physical Memory	→	99.00	99.00
<input type="radio"/>	Virtual Memory	↗	7101	7102
<input type="radio"/>	Paging Space	→	99.00	99.00

A blue callout bubble with the text 'For WPAR admin', click here' points to the 'Workload Partition Administration' link in the sidebar.

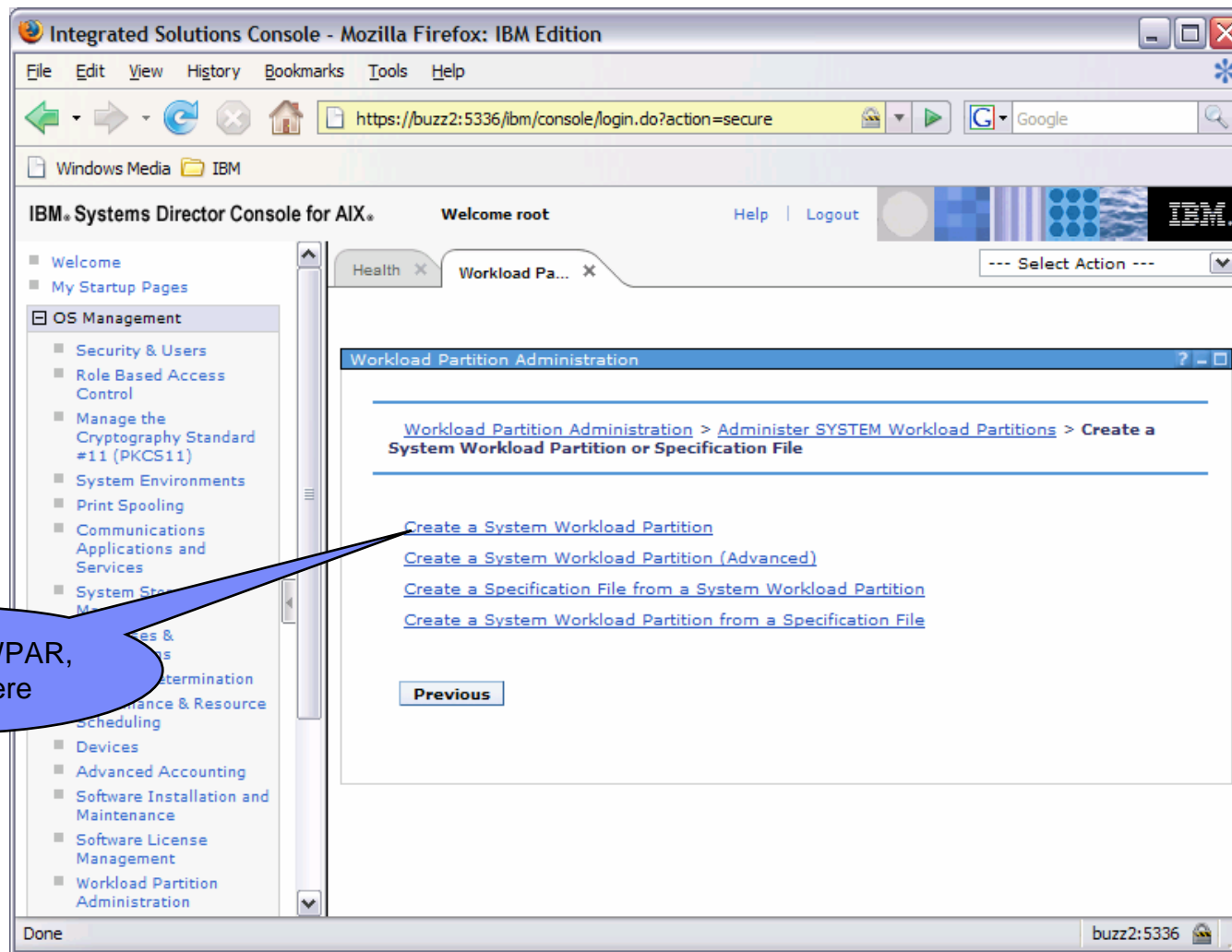
Open the System WPAR administration page

The screenshot shows the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser title is "Integrated Solutions Console - Mozilla Firefox: IBM Edition". The address bar shows the URL "https://buzz2:5336/ibm/console/login.do?action=secure". The page content includes a navigation pane on the left with "OS Management" expanded, showing "Workload Partition Administration" as a sub-item. The main content area displays the "Workload Partition Administration" page with the heading "Welcome To Workload Partition Administration" and several task links: "List All Workload Partitions", "Administer SYSTEM Workload Partitions", and "Administer APPLICATION Workload Partitions". A blue callout bubble with the text "For WPAR admin', click here" points to the "Workload Partition Administration" link in the left navigation pane.

WPAR Setup



WPAR Setup



To create a WPAR,
click here

- WPAR Name: WPAR-1
 - The example uses 'WPAR-1' as the name, you can choose another if you wish
- Network INTERFACE: en0
 - Or other suitable 'en' device
- Internet ADDRESS:
192.168.0.1
 - Using this address, you will be able to 'telnet' into the WPAR from the AIX image but not from 'outside'. In a 'real' environment, use a suitable IP address for connectivity to the network
- Mask: 255.255.255.0

* Workload Partition Name	<input type="text" value="WPAR-1"/>
HOSTNAME	<input type="text"/>
Base Directory	<input type="text"/>
Default Volume group name	<input type="text"/> ▼ ↺
Copy Global Name Resolution Settings	<input type="radio"/> yes <input checked="" type="radio"/> no
Network INTERFACE	<input type="text" value="en0"/> ▼ ↺
Internet ADDRESS (dotted decimal)	<input type="text" value="192.168.0.1"/>
Network MASK	<input type="text" value="255.255.255.0"/>
Create the Workload Partition?	<input checked="" type="radio"/> yes <input type="radio"/> no
Specification Output File	<input type="text"/>
START Workload Partition?	<input type="text" value="no"/> ▼

Integrated Solutions Console - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

https://buzz2:5336/ibm/console/secure/securelogin.do

Windows Media IBM

IBM Systems Director Console for AIX Welcome root Help Logout

Workload Pa... x --- Select Action ---

Workload Partition Administration

Workload Partition Administration > Administer SYSTEM Workload Partitions > Create a System Workload Partition or Specification File > Create a System Workload Partition

* Workload Partition Name WPAR-1

HOSTNAME

Base Directory

Default Volume group name

Copy Global Name Resolution Settings yes no

Network INTERFACE en0

Internet ADDRESS (dotted decimal) 192.168.0.1

Network MASK 255.255.255.0

Create the Workload Partition? yes no

Specification Output File

START Workload Partition? no

OK Launch DCEM Cancel Reset Show Command

* Required Field

https://buzz2:5336/ibm/console/navigation.do?pageID=com.ibm.wsmnit.node.WPAR&moduleRef=wSMIT_FrontEnd&currPage=true# buzz2:5336

Enter the values and, click here

- The WPAR is created, now we need to start it

Note: You will receive a warning about the network address, this can be ignored in the lab'

Integrated Solutions Console - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

https://buzz2:5336/ibm/console/login.do?action=secure


Windows Media IBM

IBM Systems Director Console for AIX Welcome root Help Logout

Health Workload Pa... x

Workload Partition Administration

Create a System Workload Partition

Command successful  Close

Command

Package Name	Version	Architecture	Root	Action	Status
rsct.core.sec	2.5.0.0	ROOT	APPLY	SUCCESS	
rsct.core.sr	2.5.0.0	ROOT	APPLY	SUCCESS	
osm.client	1.7.0.0	ROOT	APPLY	SUCCESS	
rsct.core.rmc	2.5.0.0	ROOT	APPLY	SUCCESS	
rsct.core.sensorrm	2.5.0.0	ROOT	APPLY	SUCCESS	
rsct.core.auditrm	2.5.0.0	ROOT	APPLY	SUCCESS	
rsct.core.exrm	2.5.0.0	ROOT	APPLY	SUCCESS	
rsct.core.fsrm	2.5.0.0	ROOT	APPLY	SUCCESS	
rsct.core.hostrm	2.5.0.0	ROOT	APPLY	SUCCESS	
rsct.core.lprm	2.5.0.0	ROOT	APPLY	SUCCESS	

syncroot: Processing root part installation status.
syncroot: Install root packages are currently synchronized.
syncroot: Synchronizing RPM root files.
syncroot: Checking space requirements

https://buzz2:5336/ibm/console/navigation.do?pageID=com.ibm.wsmnit.node.WPAR&moduleRef=wSMIT_FrontEnd&currPage=true# buzz2:5336

To see the command, click here

To close the panel, click here

The screenshot shows the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser title is "Integrated Solutions Console - Mozilla Firefox: IBM Edition". The address bar shows the URL "https://buzz2:5336/ibm/console/login.do?action=secure". The console interface includes a navigation menu on the left with categories like "Welcome", "My Startup Pages", and "OS Management". The main content area is titled "Workload Partition Administration" and contains a form for creating a new partition. The form fields include: "Workload Partition Name" (WPAR-1), "HOSTNAME", "Base Directory", "Default Volume group name" (with a refresh button), "Copy Global Name Resolution Settings" (radio buttons for yes and no, with 'no' selected), "Network INTERFACE" (with a refresh button), "Internet ADDRESS (dotted decimal)", "Network MASK", "Create the Workload Partition?" (radio buttons for yes and no, with 'yes' selected), and "Specification Output File". A breadcrumb trail at the top of the form reads: "Workload Partition Administration > Administer SYSTEM Workload Partitions > Create a System Workload Partition or Specification File > Create a System Workload Partition".

Click here to go back a screen

The screenshot shows a Mozilla Firefox browser window titled "Integrated Solutions Console - Mozilla Firefox: IBM Edition". The address bar shows the URL "https://buzz2:5336/ibm/console/login.do?action=secure". The page content is the "IBM Systems Director Console for AIX" interface. The left sidebar contains a navigation tree with "OS Management" expanded, listing various system management tasks. The main content area is titled "Workload Partition Administration" and contains a list of actions: "Administer SYSTEM Workload Partitions", "List System Workload Partitions", "Create a System Workload Partition or Specification File", "Start / Stop / Reboot a System Workload Partition", "System Workload Partition Software Maintenance", "Change / Show System Workload Partition Characteristics", "Remove a System Workload Partition", and "System Workload Partition Backup Manager". A "Previous" button is located at the bottom of the list. A blue callout bubble points to the "Start / Stop / Reboot a System Workload Partition" link with the text "Click here to start the WPAR".

Click here to start the WPAR

The screenshot shows a Mozilla Firefox browser window titled "Integrated Solutions Console - Mozilla Firefox: IBM Edition". The address bar contains the URL "https://buzz2:5336/ibm/console/login.do?action=secure". The page content is the "IBM Systems Director Console for AIX" interface. The left sidebar shows a navigation tree with "OS Management" expanded, listing various system management tasks. The main content area is titled "Workload Partition Administration" and contains a breadcrumb trail: "Workload Partition Administration > Administer SYSTEM Workload Partitions > Start / Stop / Reboot a System Workload Partition". Below the breadcrumb, there are four blue hyperlinks: "Start a System Workload Partition", "Start a System Workload Partition in Maintenance Mode", "Stop a System Workload Partition", and "Reboot a System Workload Partition". A blue callout bubble with a white border points to the first link, containing the text "Click here to start the WPAR". At the bottom of the main content area, there is a "Previous" button. The status bar at the bottom of the browser window shows "Done" and "buzz2:5336".

The screenshot shows the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser address bar shows the URL: `https://buzz2:5336/ibm/console/login.do?action=secure`. The console interface includes a navigation tree on the left with categories like OS Management, Security & Users, and System Environments. The main content area is titled 'Workload Partition Administration' and contains a breadcrumb trail: `Workload Partition Administration > Administer SYSTEM Workload Partitions > Start / Stop / Reboot a System Workload Partition > Start a System Workload Partition`. Below the breadcrumb, there is a section for 'Inactive Workload Partitions' with a dropdown menu currently showing 'WPAR-1'. At the bottom of this section are 'OK' and 'Cancel' buttons. A red asterisk and the text '* Required Field' are visible below the buttons. The status bar at the bottom of the browser window shows the URL: `https://buzz2:5336/ibm/console/navigation.do?pageID=com.ibm.wsmnit.node.WPAR&moduleRef=wSMIT_FrontEnd&currPage=true#` and the IP address 'buzz2:5336'.

Check the name is OK and click here

The WPAR is Running 😊

The screenshot shows the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser address bar shows the URL: `https://buzz2:5336/ibm/console/login.do?action=secure`. The console interface includes a navigation pane on the left with categories like 'Welcome', 'My Startup Pages', and 'OS Management'. The main content area is titled 'Workload Partition Administration' and displays a 'Start a System Workload Partition' dialog box. The dialog box shows a 'Command successful' message with a 'Close' button. Below the message is an 'Output' window containing the following text:

```
Starting workload partition WPAR-1.  
Mounting all workload partition file systems.  
Loading workload partition.  
Exporting workload partition devices.  
Starting workload partition subsystem cor_WPAR-1.  
0513-059 The cor_WPAR-1 Subsystem has been started. Subsystem PID is 225374.  
Verifying workload partition startup.
```

The browser status bar at the bottom shows the URL: `https://buzz2:5336/ibm/console/navigation.do?pageID=com.ibm.wsmitt.node.WPAR&moduleRef=wSMIT_FrontEnd&currPage=true#` and the IP address `buzz2:5336`.

Click here to close the panel

WPAR

- The WPAR is started, to check, look at the system and try:
 - Start in the **Global Environment** – '**GE**' ('parent' AIX level)
 - lswpar
 - State should be 'A' (Active)
 - lswpar -R
 - lswpar -N
- To log into the WPAR (from the **GE**), use:-
 - telnet 'Address of WPAR-1'
 - If the WPAR does not have an IP address, clogin WPAR-1 may be used to connect in place of 'telnet'
- Try:
 - Changing the WPAR password
 - Log out and back in to see what has changed
 - The **GE** root password is unchanged
 - When logged into the WPAR do a 'ps -ef' and check what processes are visible – just the WPARs! Then try a 'lsdev'

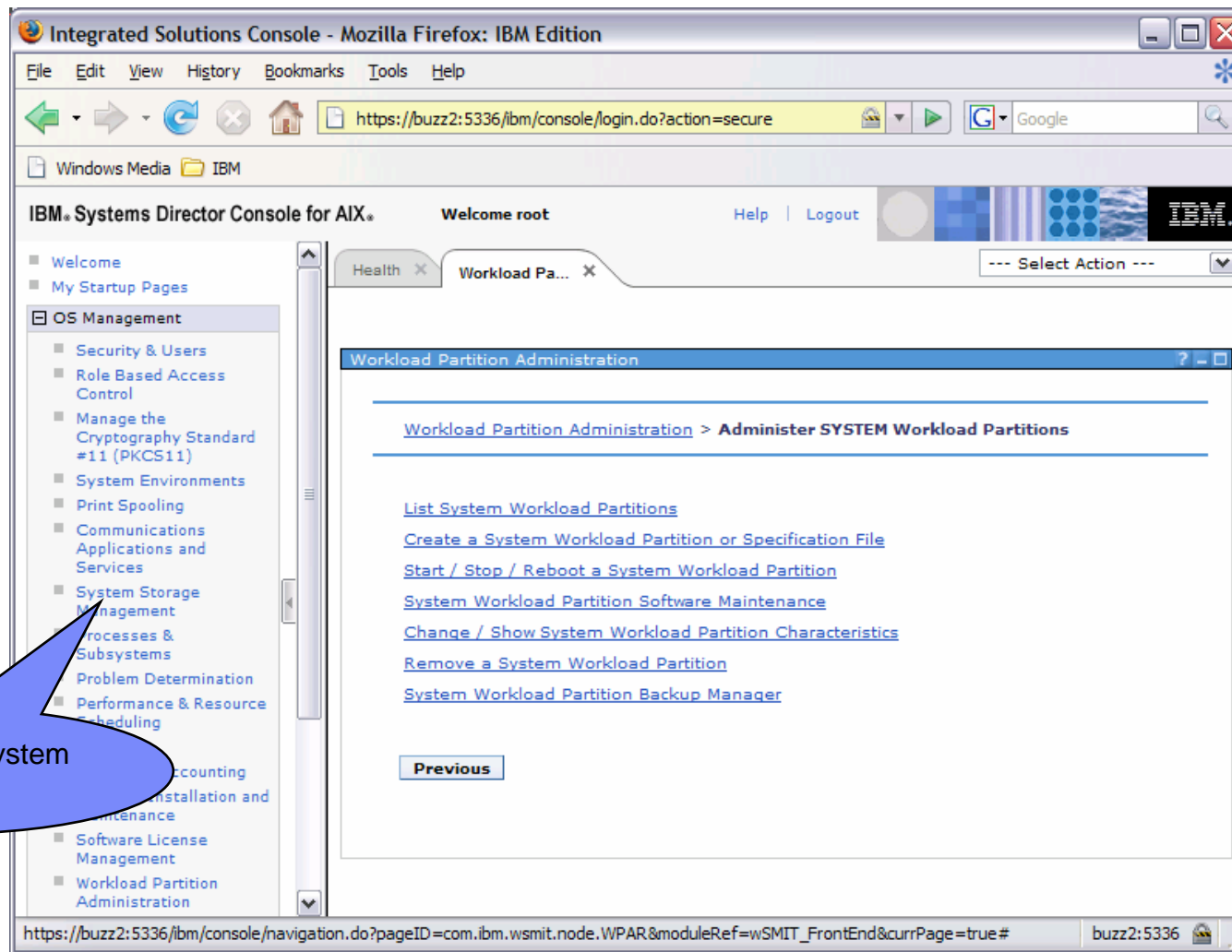
JFS Snapshot Facility

- This section shows how to create an 'internal' JFS2 filesystem snapshot
- All filesystem operations must be performed in the **GE**
 - If you are logged into a WPAR, log out of the WPAR before doing the JFS2 Snapshot exercise

JFS2 Filesystem Snapshot

- JFS2 Integrated Snapshot
 - Up to 64 Snapshots in the same logical volume as the source file system
 - Snapshots accessible under a well known directory name (.snapshots) at the filesystem root
 - Useful for user initiated recovery after accidental deletion, including over NFS
 - Traditional JFS2 logical volume based snapshot still supported (from AIX 5.2)

JFS2 Internal Filesystem Snapshot



Click here for system storage

Need to create a new filesystem for 'internal'

The screenshot shows the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser title is "Integrated Solutions Console - Mozilla Firefox: IBM Edition". The address bar shows the URL "https://buzz2:5336/ibm/console/login.do?action=secure". The page content includes a navigation pane on the left with "OS Management" expanded, and a main content area titled "System Storage Management". A blue callout bubble with the text "Click here for Filesystems" points to the "System Storage Management" link in the left navigation pane.

System Storage Management

Welcome To System Storage Management

System Storage Management provides you with tools you can use to perform common tasks related to physical and logical volumes, file systems, directories, files, and backups. Use the task links on the right to quickly jump to those tasks.

- Logical Volume Manager**
Use these tools to manage physical volumes (disks), and logical volumes that can span multiple physical volumes. [Learn more](#)
Back Up a Volume Group
Restore Files in a Volume Group Backup
- File Systems**
Use these tools to manage file systems. [Learn more](#)
Backup a File System
Restore a File System
- Files & Directories**
Use these tools to manage individual files or directories. [Learn more](#)
Backup a File or Directory
Restore a File or Directory
- System Backup Manager**
Use these tools to plan, make, and restore system [Back Up the System](#)

JFS2 Internal Filesystem Snapshot

The screenshot displays the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser's address bar shows the URL `https://buzz2:5336/ibm/console/login.do?action=secure`. The console interface includes a navigation menu on the left with categories like 'Welcome', 'My Startup Pages', and 'OS Management'. The main content area is titled 'System Storage Management' and contains a list of actions for file systems, including 'List All File Systems', 'Mount a File System', and 'Create and back up a snapshot'. A blue callout bubble with the text 'Click here for Filesystems' points to the 'Add / Change / Show / Delete File Systems' link.

Integrated Solutions Console - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

`https://buzz2:5336/ibm/console/login.do?action=secure`

Windows Media IBM

IBM Systems Director Console for AIX Welcome root Help Logout

OS Management

- Security & Users
- Role Based Access Control
- Manage the Cryptography Standard #11 (PKCS11)
- System Environments
- Print Spooling
- Communications Applications and Services
- System Storage Management

System Storage Management

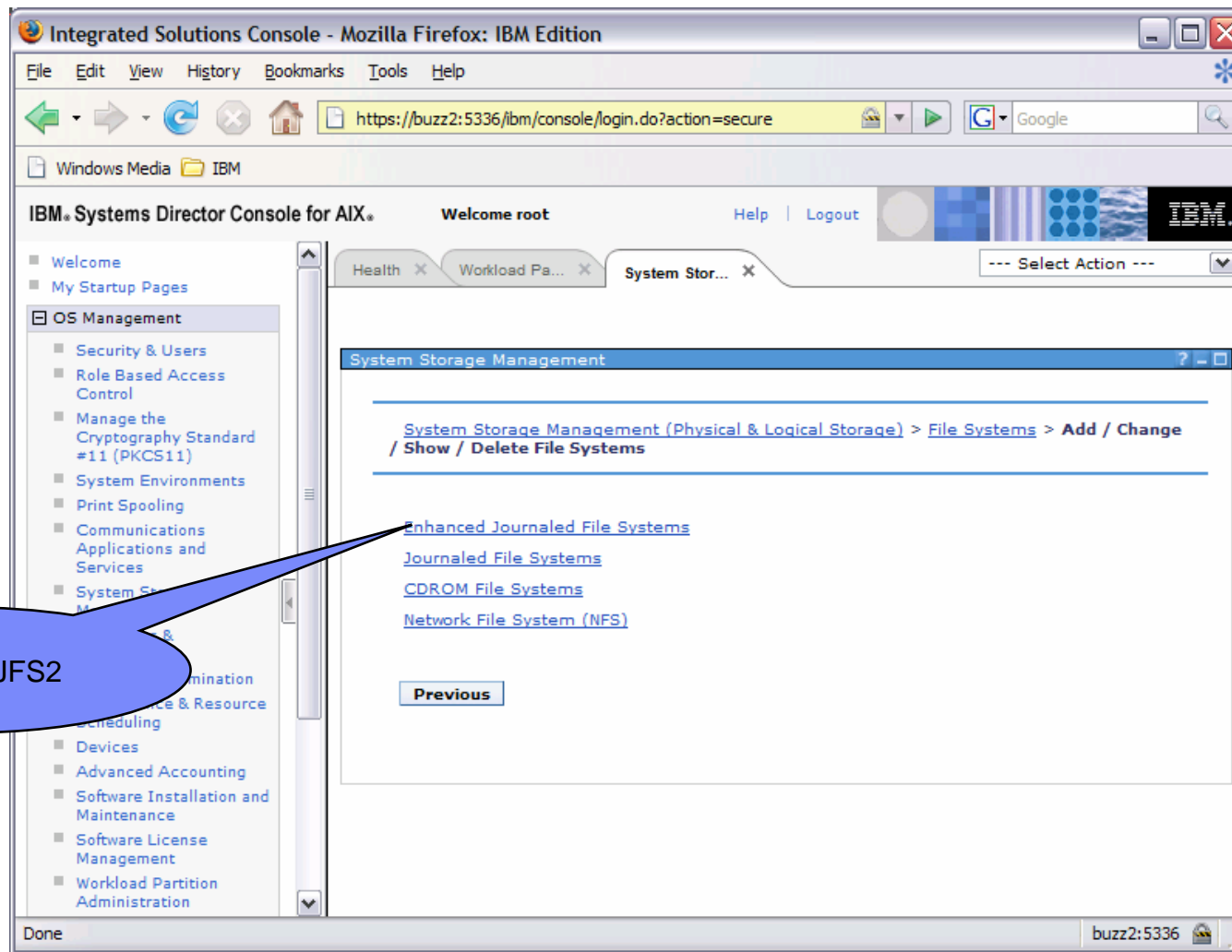
System Storage Management (Physical & Logical Storage) > File Systems

- List All File Systems
- List All Mounted File Systems
- Add / Change / Show / Delete File Systems
- Mount a File System
- Mount a Group of File Systems
- Unmount a File System
- Unmount a Group of File Systems
- Verify a File System
- Backup a File System
- Restore a File System
- List Contents of a Backup
- Create and back up a snapshot

Previous

Done buzz2:5336

JFS2 Internal Filesystem Snapshot



JFS2 Internal Filesystem Snapshot

The screenshot displays the IBM Systems Director Console for AIX in a Mozilla Firefox browser window. The browser title is "Integrated Solutions Console - Mozilla Firefox: IBM Edition". The address bar shows the URL "https://buzz2:5336/ibm/console/login.do?action=secure". The console interface includes a navigation menu on the left with categories like "OS Management", "Security & Users", and "Workload Partition Administration". The main content area is titled "System Storage Management" and contains a list of links for managing Enhanced Journaled File Systems. A blue callout bubble with the text "Click here for JFS2" points to the first link in the list: "Add an Enhanced Journaled File System".

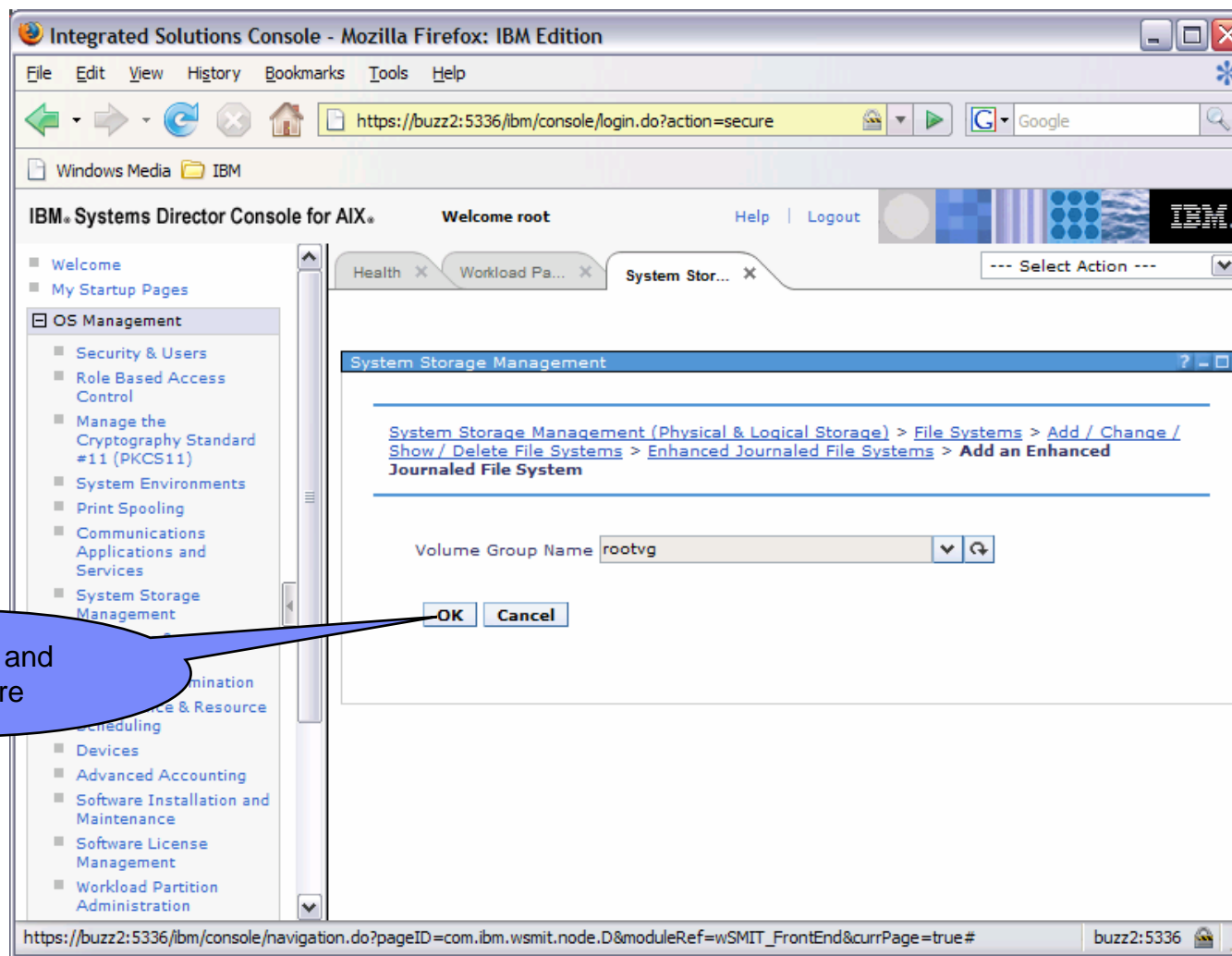
System Storage Management

[System Storage Management \(Physical & Logical Storage\) > File Systems > Add / Change / Show / Delete File Systems > Enhanced Journaled File Systems](#)

- [Add an Enhanced Journaled File System](#)
- [Add an Enhanced Journaled File System on a Previously Defined Logical Volume](#)
- [Change / Show Characteristics of an Enhanced Journaled File System](#)
- [Remove an Enhanced Journaled File System](#)
- [Manage Quotas for an Enhanced Journaled File System](#)
- [Defragment an Enhanced Journaled File System](#)
- [List Snapshots for an Enhanced Journaled File System](#)
- [Create Snapshot for an Enhanced Journaled File System](#)
- [Mount Snapshot for an Enhanced Journaled File System](#)
- [Remove Snapshot for an Enhanced Journaled File System](#)
- [Unmount Snapshot for an Enhanced Journaled File System](#)
- [Change Snapshot for an Enhanced Journaled File System](#)
- [Rollback an Enhanced Journaled File System to a Snapshot](#)

Click here for JFS2

JFS2 Internal Filesystem Snapshot



Select 'rootvg' and click here

JFS2 Internal Filesystem Snapshot

- Parameters required are:
 - Number of Units: 500 seems reasonable (MBytes that is)
 - MOUNT POINT: /testfs
 - You can use something else if you wish
 - Mount automatically at restart: yes
 - Allow internal snapshots: **yes**
 - The rest are defaults

Volume group name	rootvg
SIZE of file system	
Unit Size	Megabytes
* Number of units	500
* MOUNT POINT	/testfs
Mount AUTOMATICALLY at system restart?	<input checked="" type="radio"/> yes <input type="radio"/> no
PERMISSIONS	<input checked="" type="radio"/> read/write <input type="radio"/> read only
Mount OPTIONS	
Block Size (bytes)	4096
Logical Volume for Log	
Inline Log size (MBytes)	
Extended Attribute Format	default
Enable Quota Management?	no
Enable EFS?	<input type="radio"/> yes <input checked="" type="radio"/> no
Allow internal snapshots?	<input checked="" type="radio"/> yes <input type="radio"/> no

JFS2 Internal Filesystem Snapshot

Integrated Solutions Console - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

https://buzz2:5336/ibm/console/login.do?action=secure

Windows Media IBM

IBM Systems Director Console for AIX Welcome root Help Logout

OS Management

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- Problem Determination
- Performance & Resource Scheduling
- Devices
- Advanced Accounting
- Software Installation and Maintenance
- Software License Management
- Partition Administration
- Cluster Systems Management
- Distributed Command Execution Manager
- System Management

Health x Workload Pa... x System Stor... x

--- Select Action ---

Volume group name rootvg

SIZE of file system

Unit Size Megabytes

* Number of units 500

* MOUNT POINT /testfs

Mount AUTOMATICALLY at system restart? yes no

PERMISSIONS read/write read only

Mount OPTIONS

Block Size (bytes) 4096

Logical Volume for Log

Inline Log size (MBytes)

Extended Attribute Format default

Enable Quota Management? no

Enable EFS? yes no

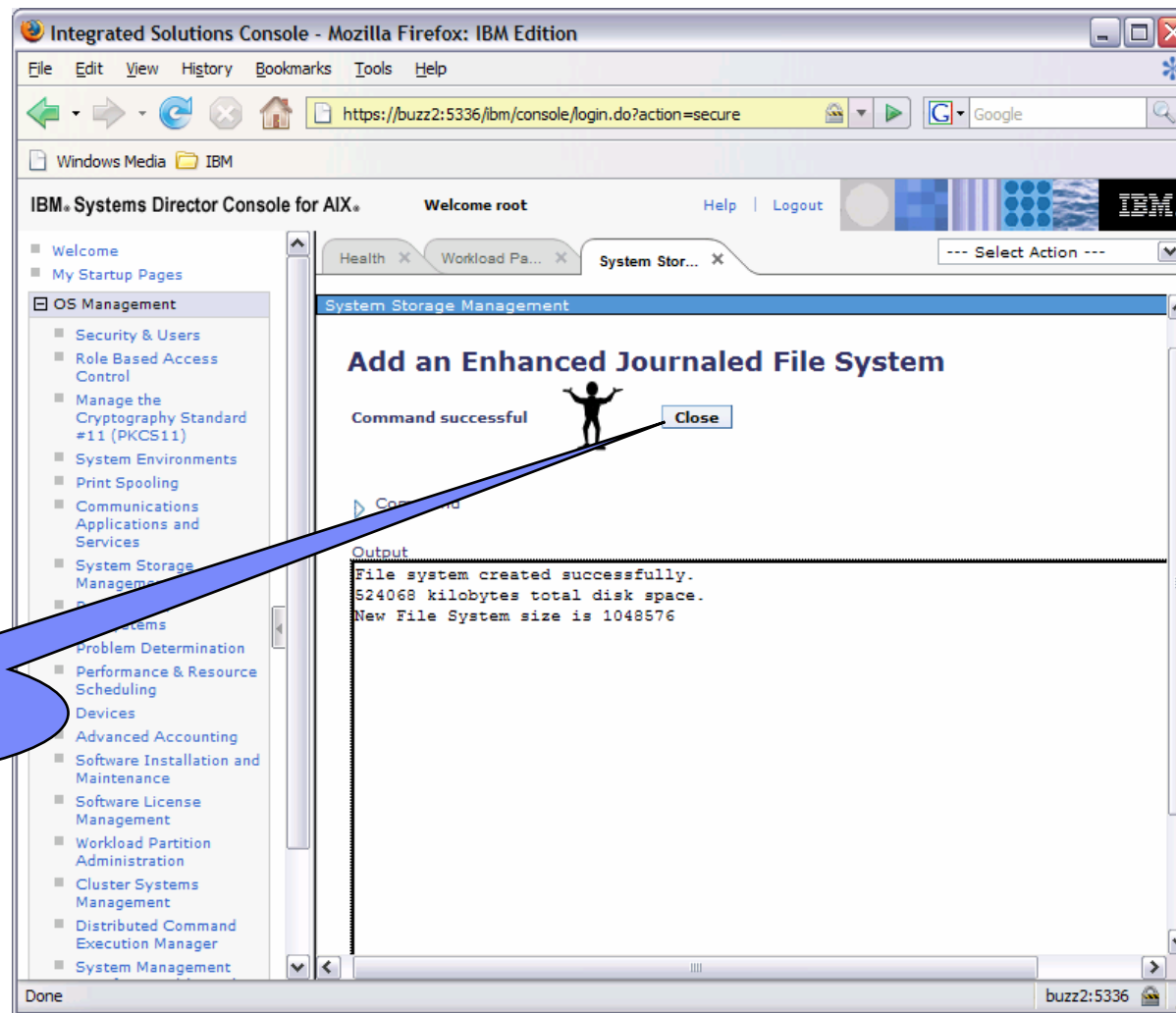
Allow internal snapshots? yes no

OK Launch DCEM Cancel Reset Show Command

Done buzz2:5336

Set the parameters
and click here

JFS2 Internal Filesystem Snapshot



Click here to close the panel

JFS2 Internal Filesystem Snapshot

- The filesystem must be mounted before the snapshot can be created
- Log onto your system and mount /testfs
 - mount /testfs
- 'cd' to /testfs and create some files –these are the files we will 'accidentally' delete...
 - cd /testfs
 - ps -ef >important_ps_file
 - echo hello world > hw.txt

JFS2 Internal Filesystem Snapshot

The screenshot shows the IBM Systems Director Console for AIX interface. The browser window is titled "Integrated Solutions Console - Mozilla Firefox: IBM Edition" and the URL is "https://buzz2:5336/ibm/console/login.do?action=secure". The main content area is titled "System Storage Management" and contains a list of links for managing Enhanced Journaled File Systems. A blue callout bubble with the text "Click here for the snapshot panel" points to the link "Create Snapshot for an Enhanced Journaled File System".

System Storage Management

[System Storage Management \(Physical & Logical Storage\) > File Systems > Add / Change / Show / Delete File Systems > Enhanced Journaled File Systems](#)

[Add an Enhanced Journaled File System](#)

[Add an Enhanced Journaled File System on a Previously Defined Logical Volume](#)

[Change / Show Characteristics of an Enhanced Journaled File System](#)

[Remove an Enhanced Journaled File System](#)

[Manage Quotas for an Enhanced Journaled File System](#)

[Defragment an Enhanced Journaled File System](#)

[List Snapshots for an Enhanced Journaled File System](#)

[Create Snapshot for an Enhanced Journaled File System](#)

[Mount Snapshot for an Enhanced Journaled File System](#)

[Remove Snapshot for an Enhanced Journaled File System](#)

[Unmount Snapshot for an Enhanced Journaled File System](#)

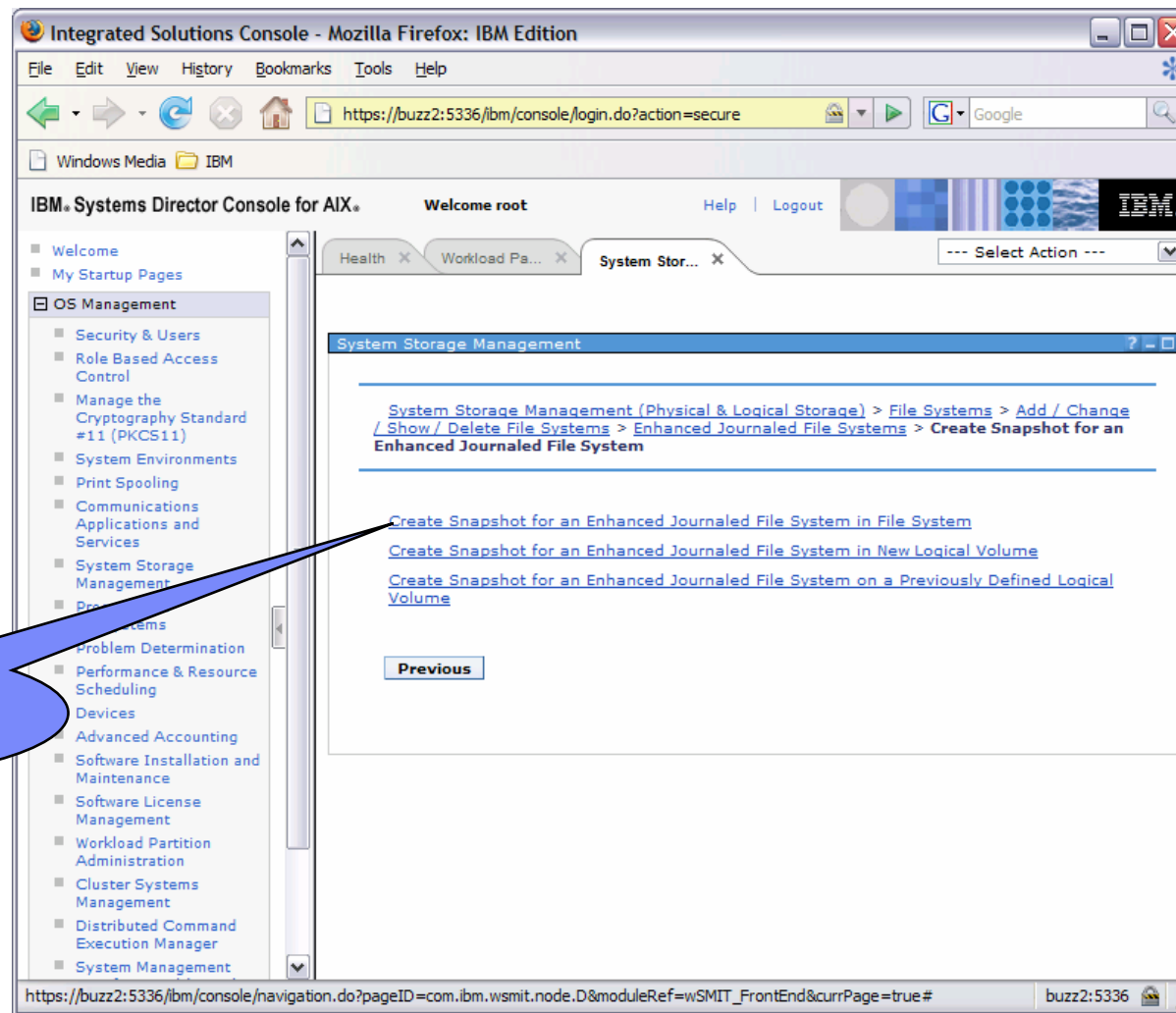
[Change Snapshot for an Enhanced Journaled File System](#)

[Rollback an Enhanced Journaled File System to a Snapshot](#)

[Previous](#)

Click here for the
snapshot panel

JFS2 Internal Filesystem Snapshot



Click here for the snapshot panel

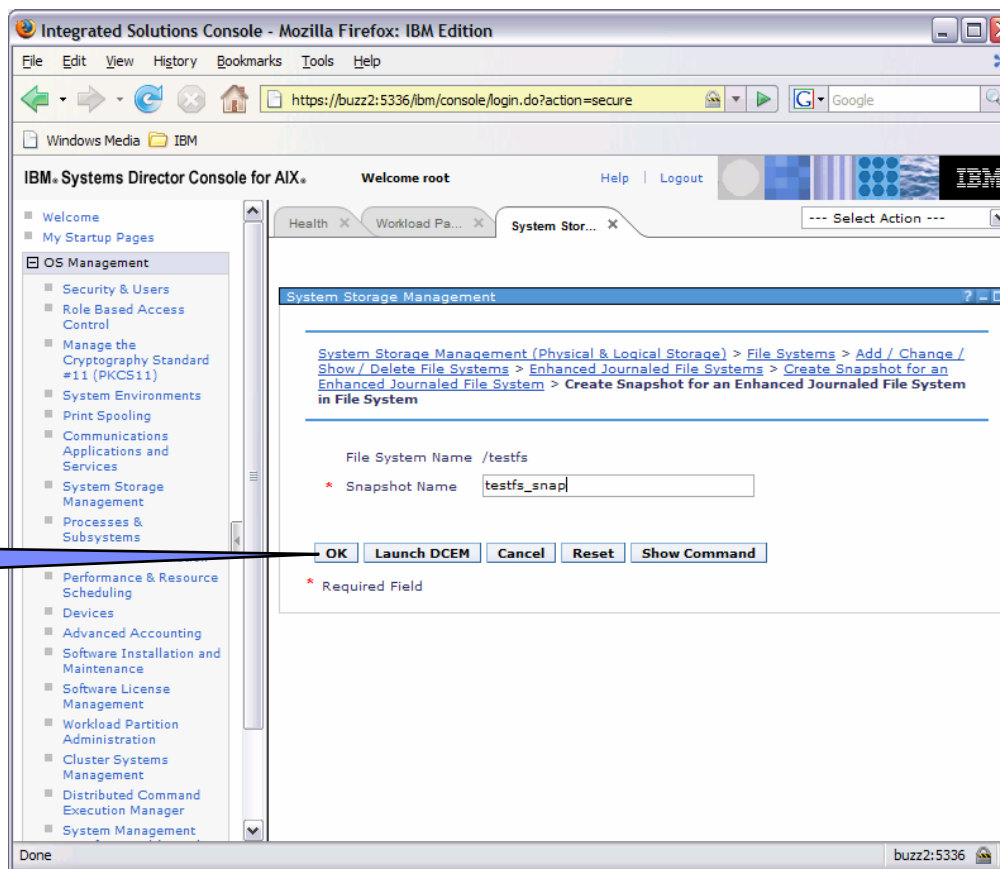
JFS2 Internal Filesystem Snapshot

The screenshot shows the IBM Systems Director Console for AIX interface. The main window is titled "Integrated Solutions Console - Mozilla Firefox: IBM Edition" and displays the "System Storage Management" page. The left sidebar contains a navigation tree with "OS Management" expanded. The main content area shows a breadcrumb trail: "System Storage Management (Physical & Logical Storage) > File Systems > Add / Change / Show / Delete File Systems > Enhanced Journaled File Systems > Create Snapshot for an Enhanced Journaled File System in File System". Below this, there is a form with a "File System Name" dropdown menu set to "/testfs" and "OK" and "Cancel" buttons. A blue callout bubble points to the "OK" button with the text "Select /testfs and click here".

Select /testfs and click here

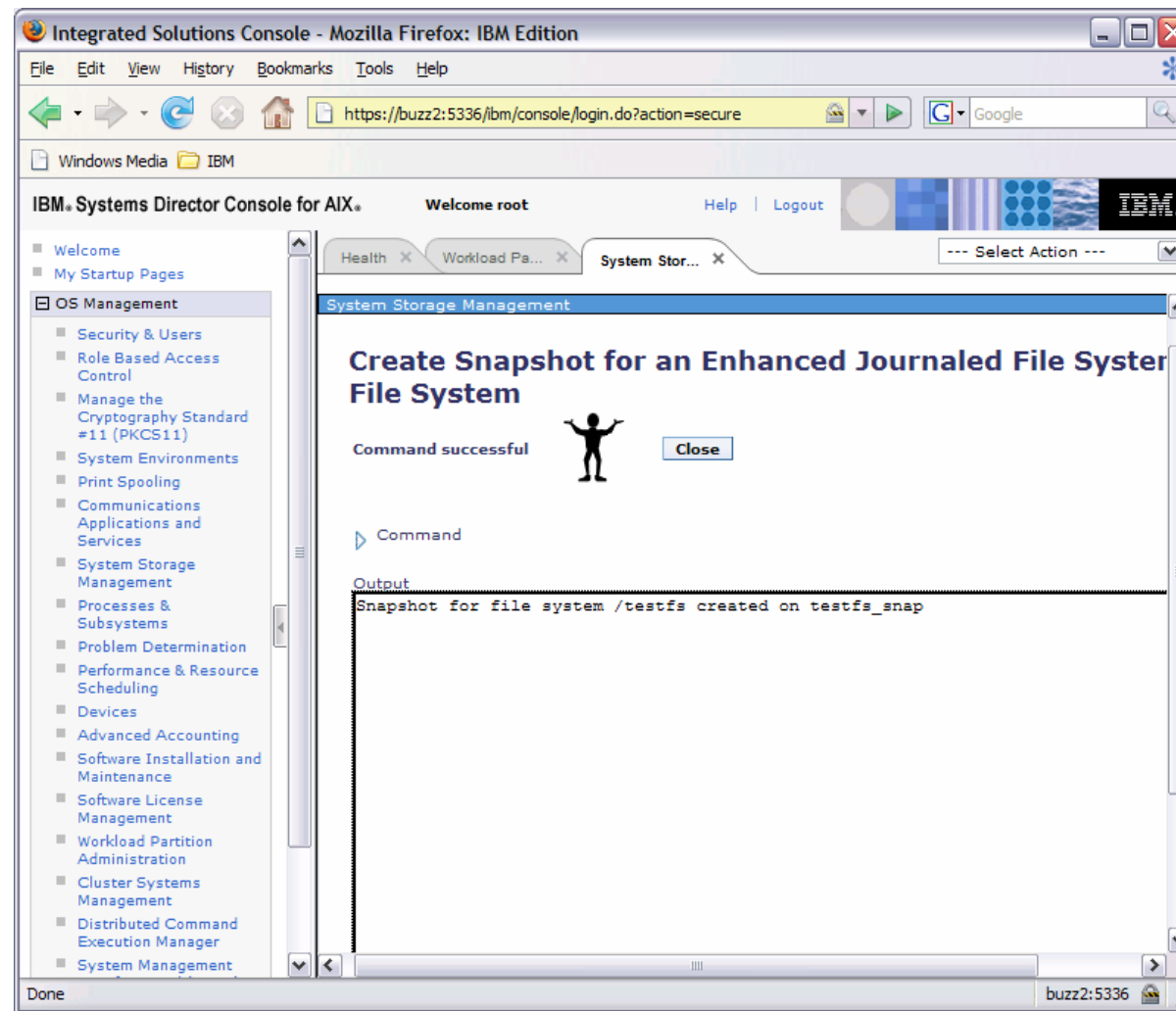
JFS2 Internal Filesystem Snapshot

- The lab' uses 'testfs_snap' as the snapshot name
 - You can use something else if you wish



Enter the name and
click here

The snapshot has been created



JFS2 Internal Filesystem Snapshot

- From a 'telnet'/'putty' window, do:-
 - `cd /testfs`
 - `rm *`
- See what is there, all gone!:-
 - `ls`
- OK, lost the important stuff –DOH! But have a look in:
'/testfs/.snapshot/testfs_snap'
 - `cd /testfs/.snapshot/testfs_snap`
 - `ls`
- Snapshot data is saved in:
 - `/fsname/.snapshot/snapshot_name`
 - `'snapshot'` is a hidden directory, you will not be able to see it with 'ls', do a 'cd' to the `'snapshot'` directory and it will be there.

JFS2 'no log' Feature

- This section shows use of the JFS2 'no log' feature and provides an example 'load' to demonstrate the performance difference

JFS2 'no-log'

- JFS2 "no-log" Feature
 - JFS2 standard metadata logging for filesystem integrity disabled via a mount option
 - Meant to enable faster migration of data to new storage
 - Mount `-o log=NULL` during data migration phase, then unmount and mount with standard logging

JFS2 'no-log'

- Log into your system and get an idea of how the filesystem performs
 - time cp -R /opt /testfs
 - Run it a couple of times and make a note of the time taken
- unmount /testfs , remount with no logging, check the option is OK and redo the test
 - umount /testfs
 - mount -o rw,log=NULL /testfs
 - mount
 - time cp -R /opt /testfs
 - Run it a couple of times and compare with the original numbers

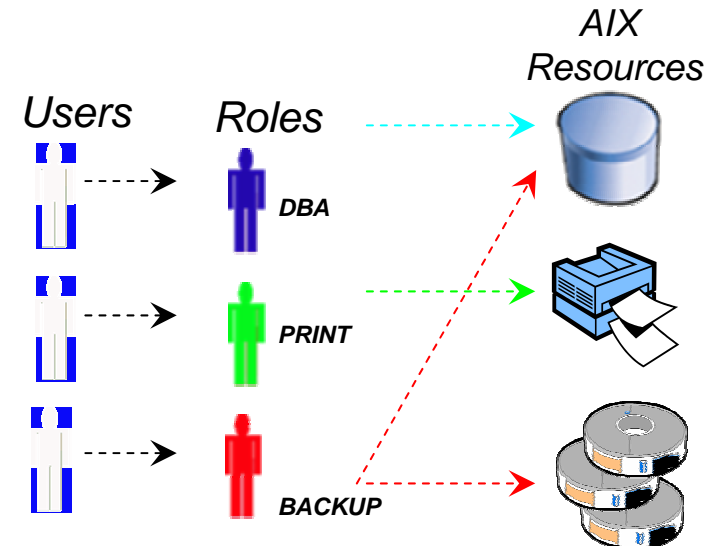
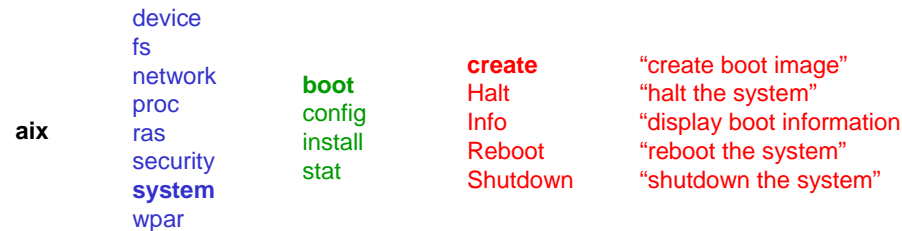
RBAC

- This section shows the use of RBAC to allow a non-privileged user to change the size of a filesystem.
- RBAC has many roles and this exercise only uses one of these, a user can have multiple roles if required.

Planned Role Based Access Control (RBAC)

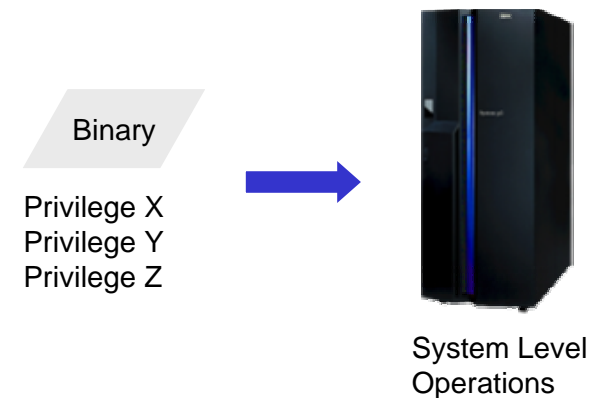
Improved Administrative Security

- Improved security by reducing the need for many root users
- Reduced administration cost through delegation



Improved Program Security

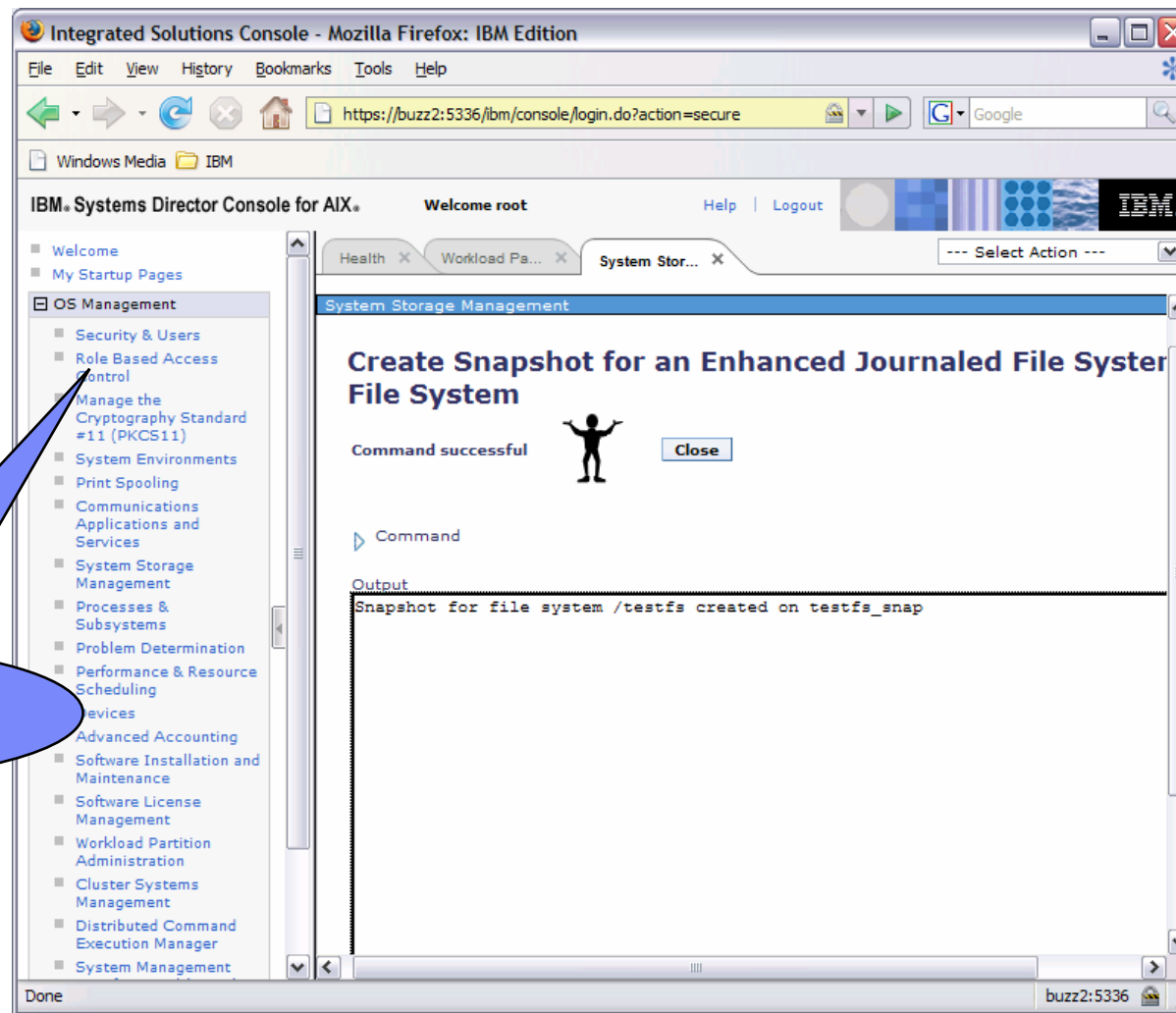
- Allows programs to do system level operations without running as root or having setuid root capability
- Only allow program to perform restricted set of needed operations



RBAC

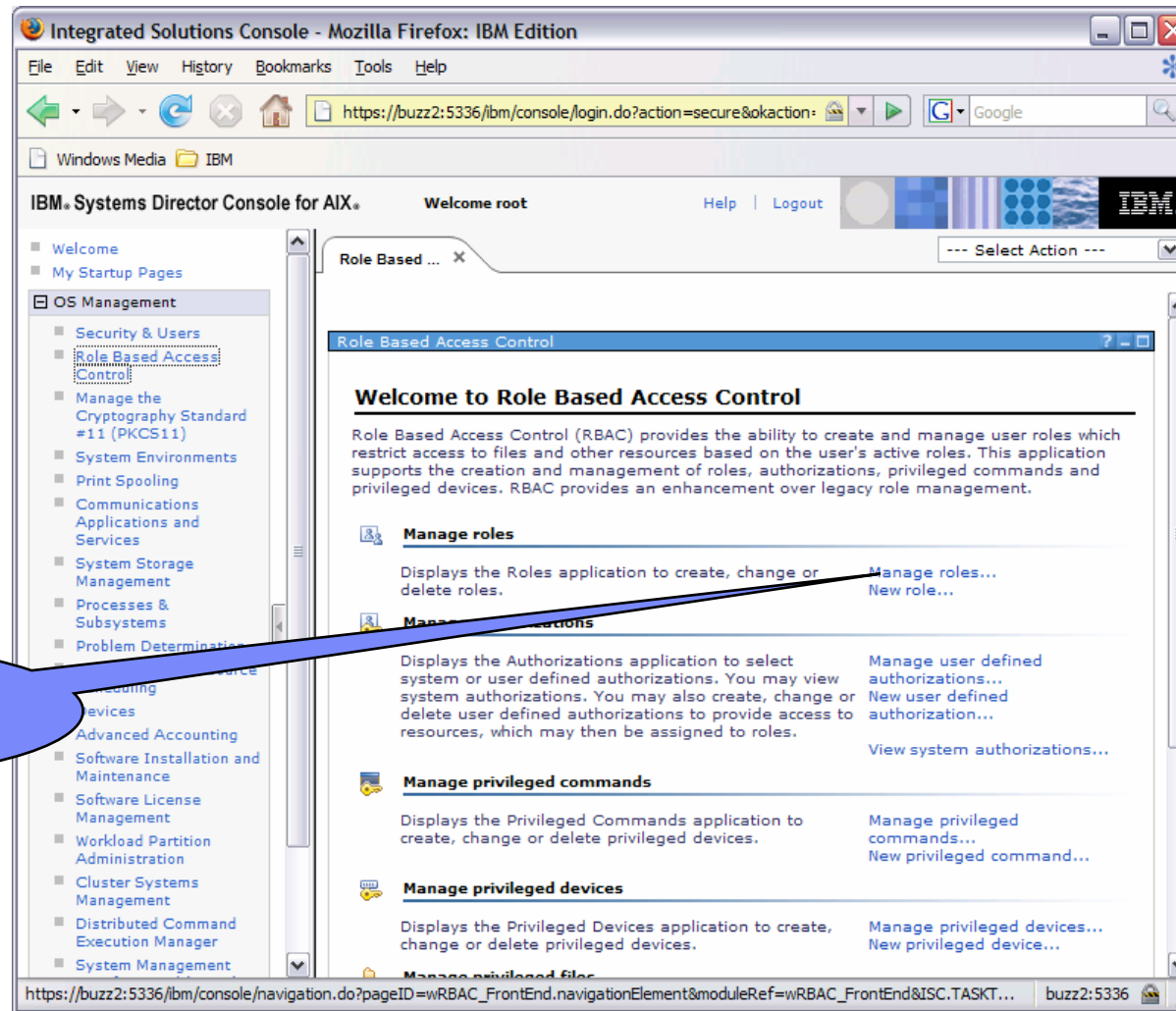
- Log into your system and create a non-privileged user
 - `mkuser nonpriv`
 - The lab' users 'nonpriv' , you can use something else if you wish
- Give 'nonpriv' a password
 - `passwd nonpriv`
 - You will need this later
- Try to change a filesystem from 'nonpriv'
 - `su - nonpriv`
 - `chfs -a size=+128M /testfs`
- DOH!

RBAC



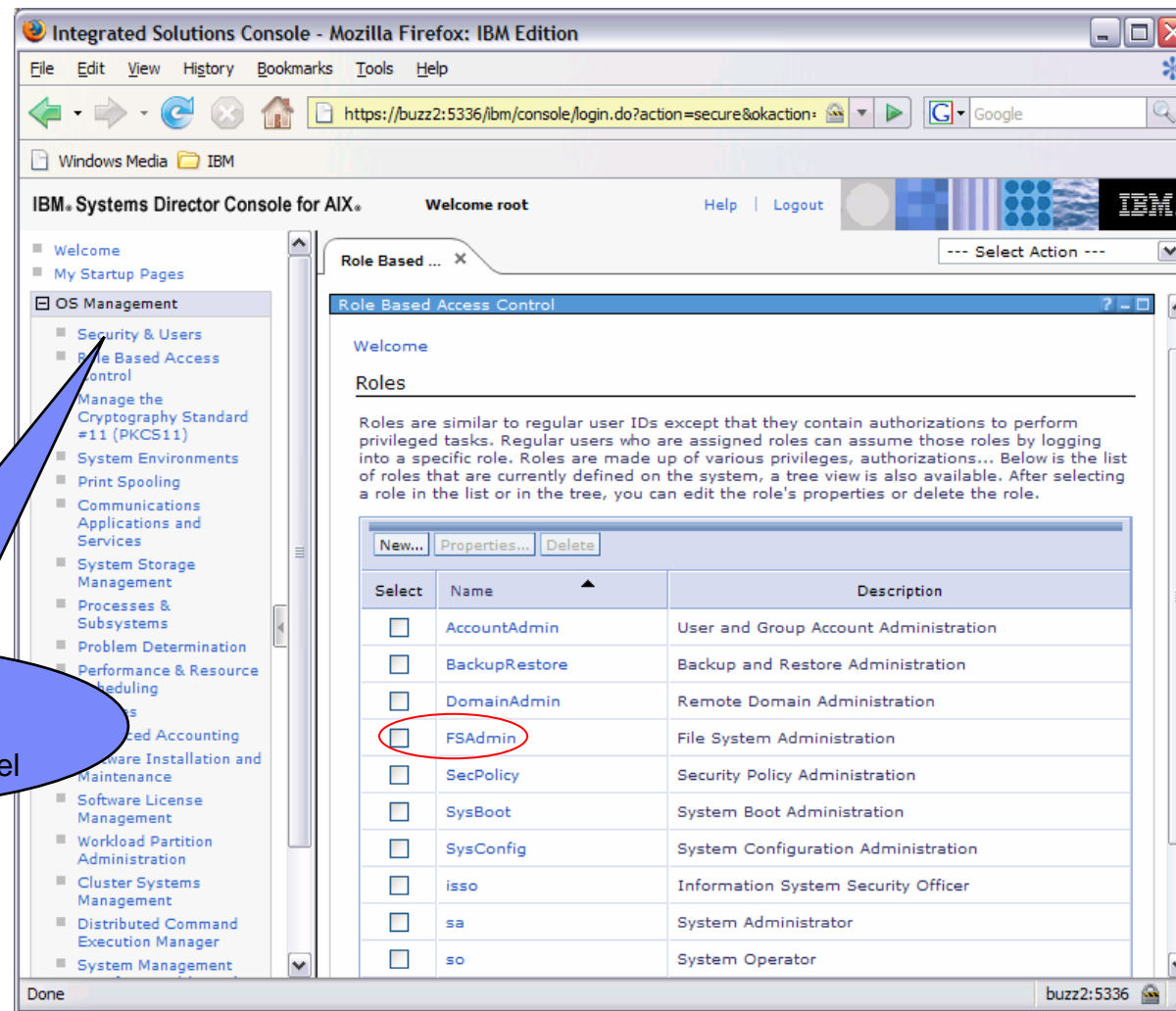
To display the RBAC panel, click here

RBAC



To display the Roles, click here

The role required to administer filesystems is 'FSAdmin' –have a look at the default roles that are defined on the system and available for assignment.



When ready, click here to open the Security and users panel

Integrated Solutions Console - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

https://buzz2:5336/ibm/console/login.do?action=secure&okaction=

Windows Media IBM

IBM Systems Director Console for AIX Welcome root Help Logout

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- Software Installation and Maintenance
- Software License Management
- Workload Partition Administration
- Cluster Systems Management
- Distributed Command Execution Manager
- System Management

Role Based Access Control

Welcome

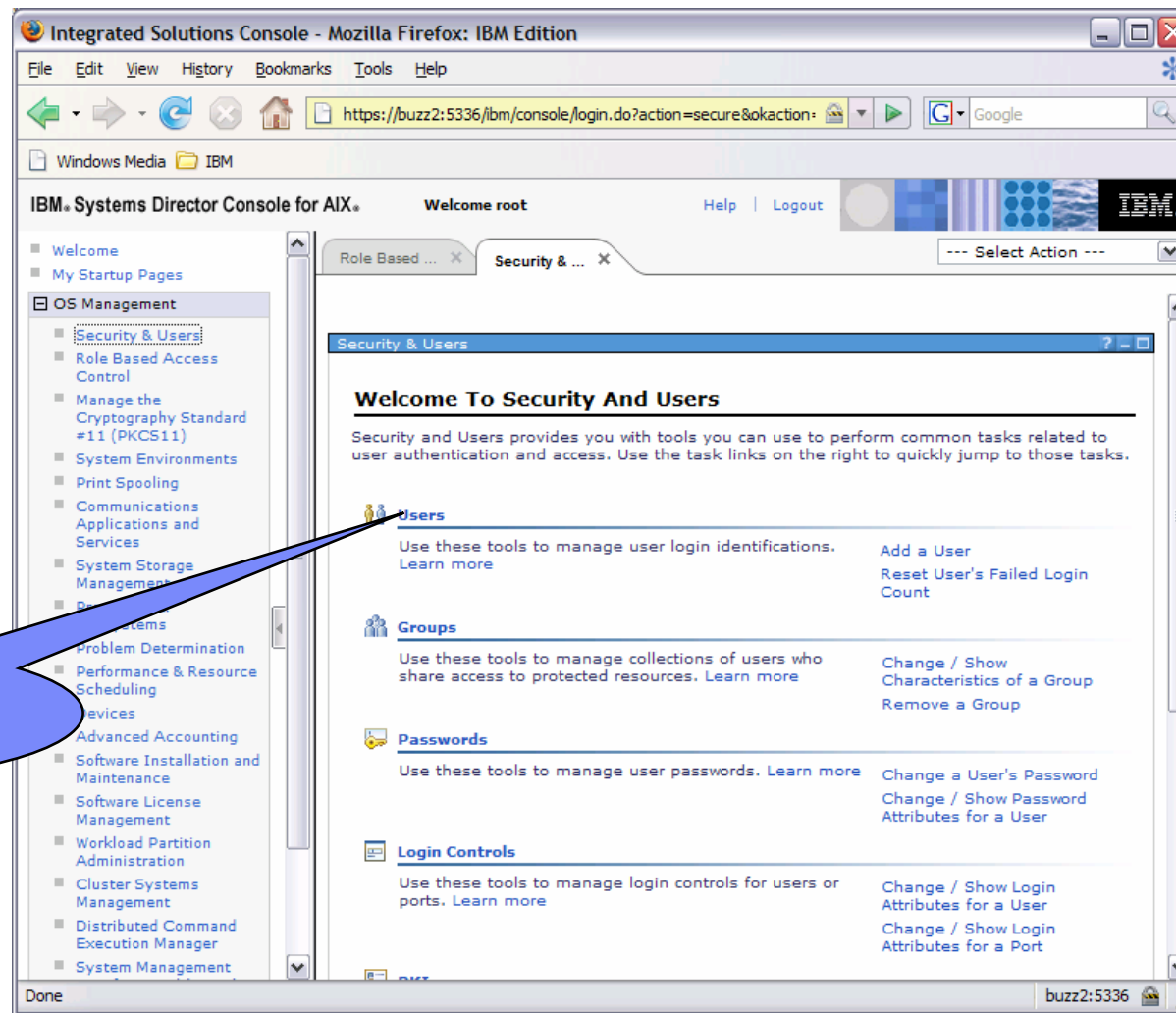
Roles

Roles are similar to regular user IDs except that they contain authorizations to perform privileged tasks. Regular users who are assigned roles can assume those roles by logging into a specific role. Roles are made up of various privileges, authorizations... Below is the list of roles that are currently defined on the system, a tree view is also available. After selecting a role in the list or in the tree, you can edit the role's properties or delete the role.

Select	Name	Description
<input type="checkbox"/>	AccountAdmin	User and Group Account Administration
<input type="checkbox"/>	BackupRestore	Backup and Restore Administration
<input type="checkbox"/>	DomainAdmin	Remote Domain Administration
<input checked="" type="checkbox"/>	FSAdmin	File System Administration
<input type="checkbox"/>	SecPolicy	Security Policy Administration
<input type="checkbox"/>	SysBoot	System Boot Administration
<input type="checkbox"/>	SysConfig	System Configuration Administration
<input type="checkbox"/>	isso	Information System Security Officer
<input type="checkbox"/>	sa	System Administrator
<input type="checkbox"/>	so	System Operator

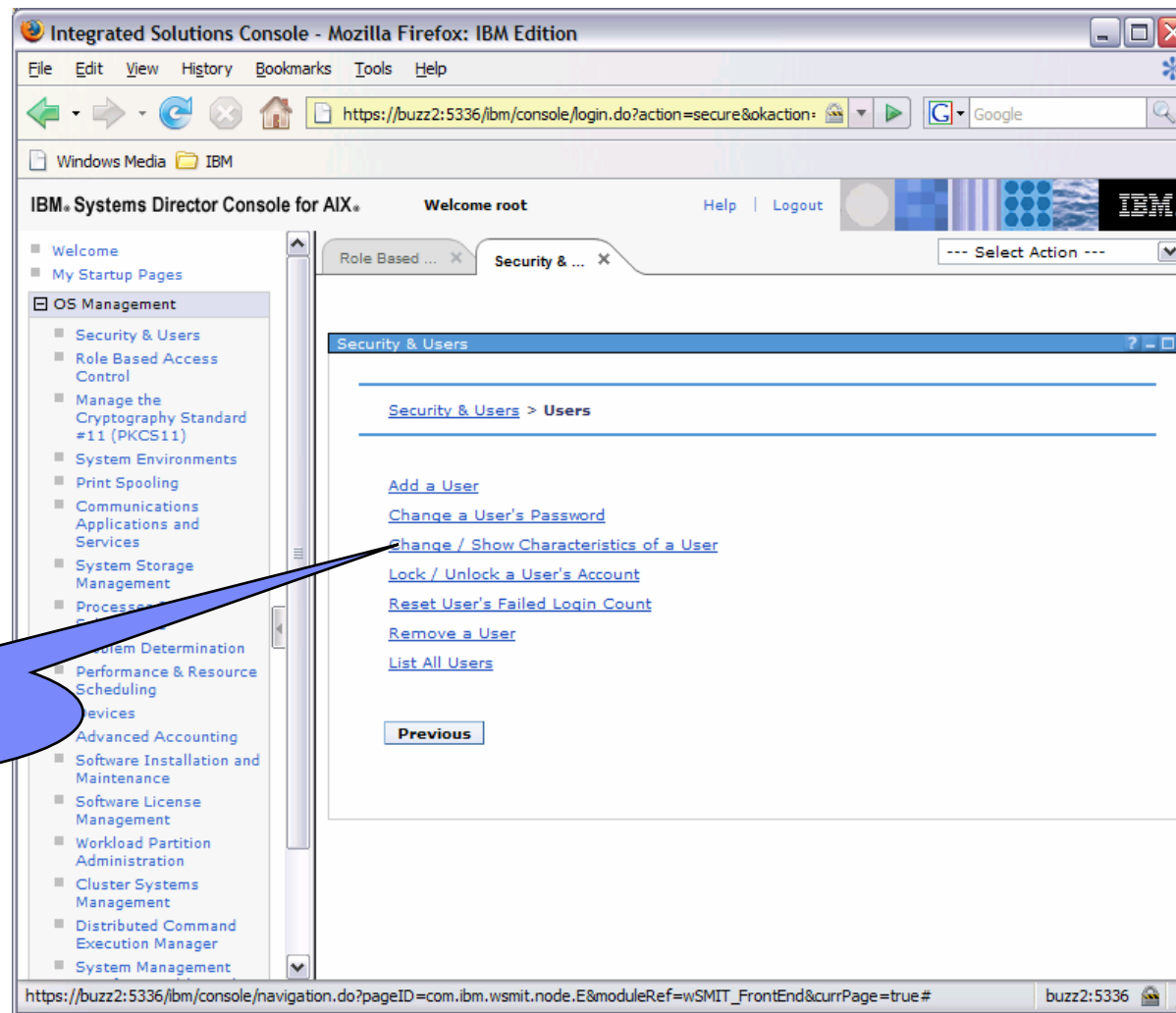
Done buzz2:5336

RBAC



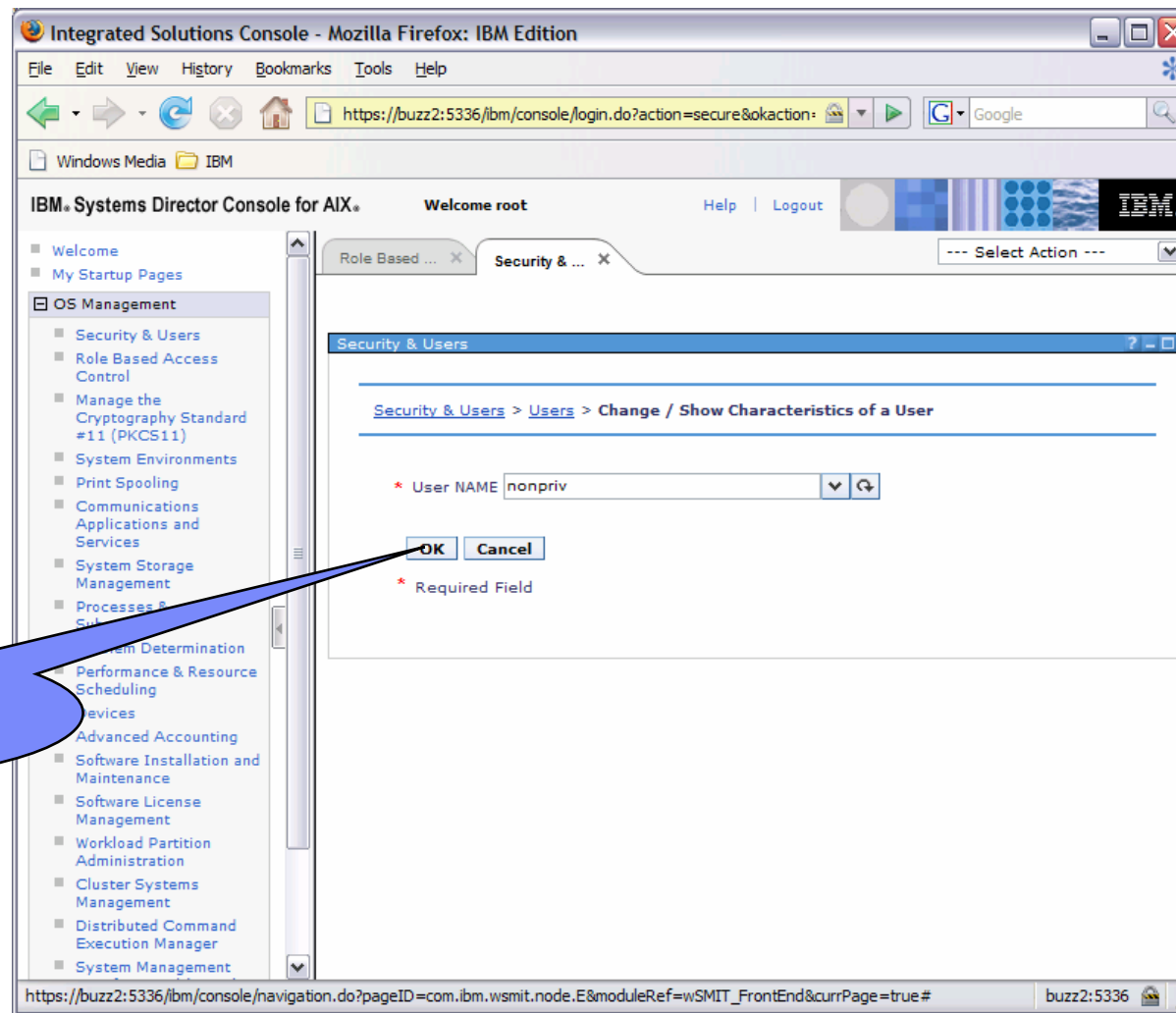
To modify the user,
click here

RBAC



To modify the user,
click here

RBAC

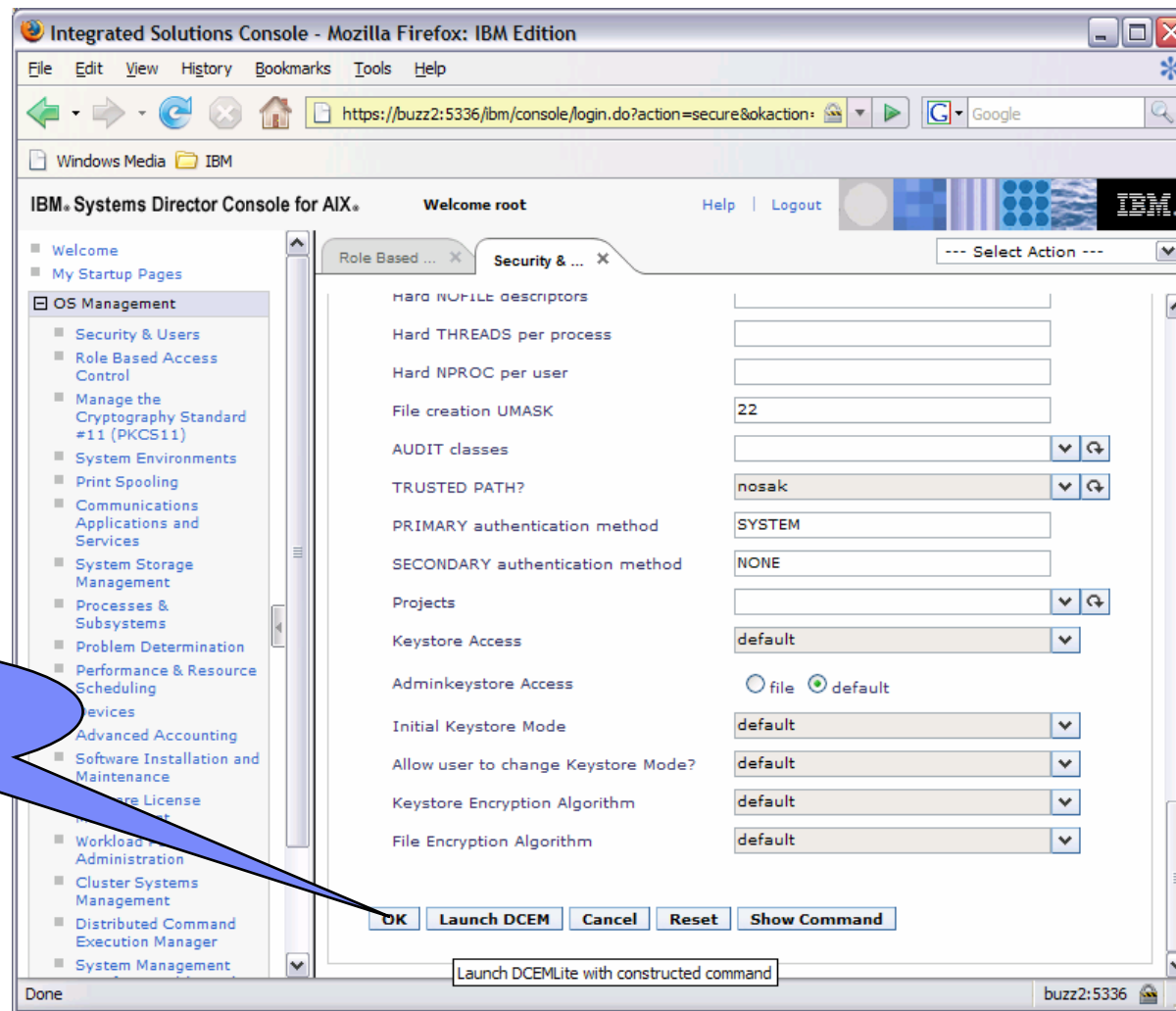


Select 'nonpriv' and click here

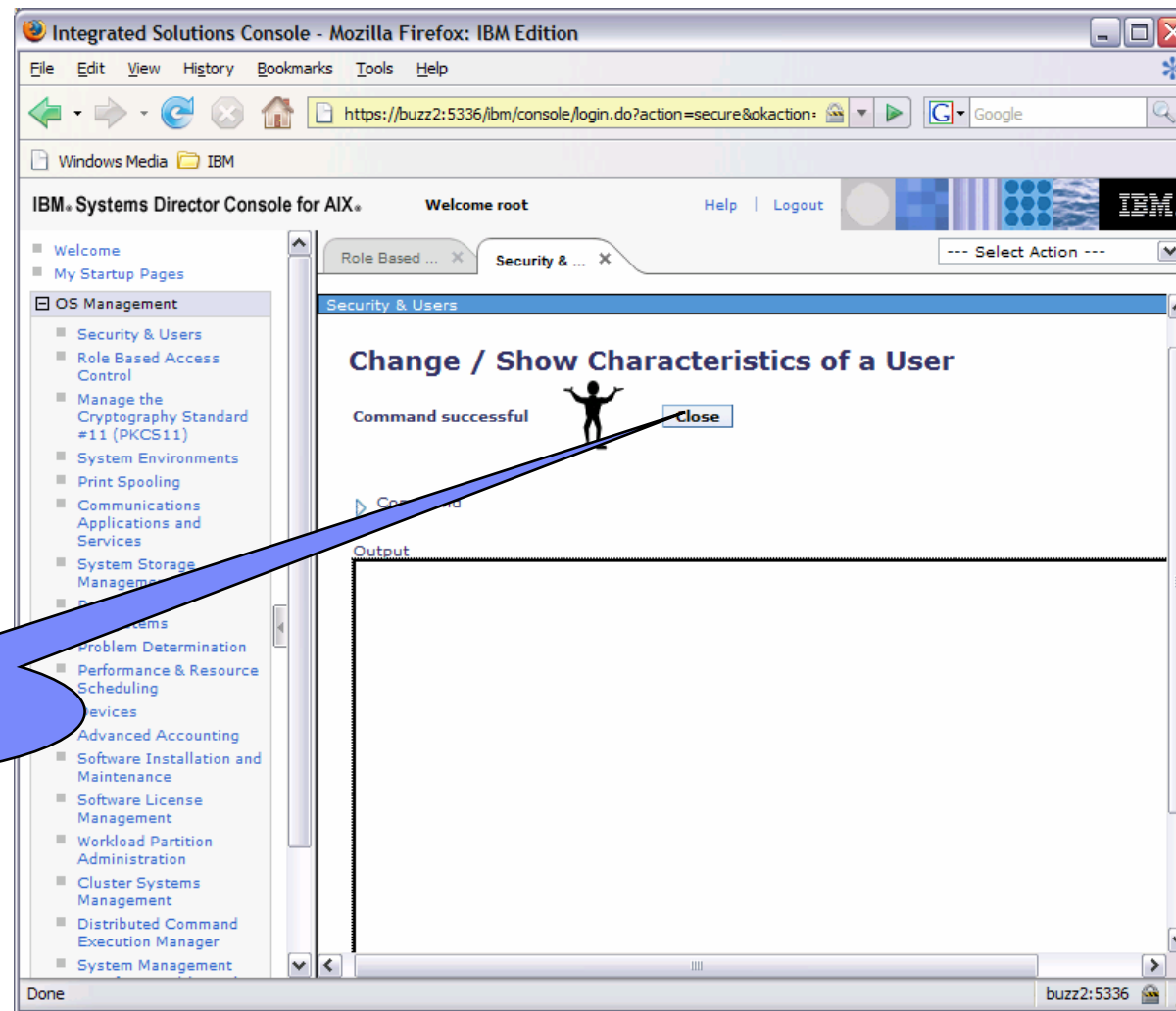
Select the role 'FSAdmin'

The screenshot shows the IBM Systems Director Console for AIX interface. The left sidebar contains a tree view with 'OS Management' expanded. The main content area is titled 'Security & ...' and shows configuration options for a user. The 'ROLES' dropdown menu is open, displaying a list of roles: AccountAdmin, BackupRestore, DomainAdmin, FSAdmin, SecPolicy, SysBoot, SysConfig, isso, sa, and so. The 'FSAdmin' role is highlighted with a red circle. A blue callout bubble with the text 'Select the correct Role' points to the dropdown menu.

RBAC



RBAC



To close the panel,
click here

RBAC

- Log into the system and check the roles of 'nonpriv':
 - lsuser nonpriv
 - 'nonpriv' has the FSAdmin role
- Check the effective roles with:
 - rolelist -e
 - No roles are currently active
- Switch to the FSAdmin role and check the effective roles
 - swrole FSAdmin
 - rolelist -e
 - The role is now active ☺
- Try the 'chfs' again
 - chfs -a size=+128M /testfs

The End

- You have completed this basic familiarity exercise, have a look at the AIX 6.1 differences guide Redbook and see what other great features are in AIX!

AIX V6



- ✓ Mainframe-inspired technologies
- ✓ Innovative features for virtualization, security, continuous availability, and systems management
- ✓ Strong future roadmap and IBM commitment

AIX V6

The Next Step in the Evolution of UNIX™

