

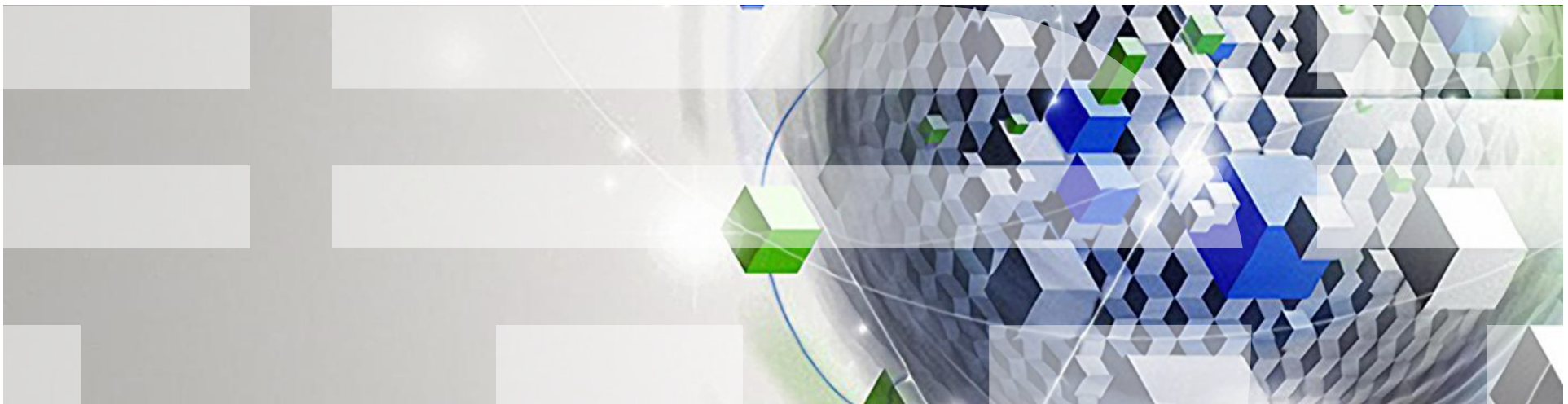


Chris Eisenmann - Certified Consulting I/T Specialist - TSS Advanced Technical Skills

19 May 2011



IBM Power Systems SDMC



Agenda

IBM Systems Director Overview

Overview of Systems Management Direction

- Introduction to SDMC

HMC / SDMC Roadmap

SDMC Details / Screen Shots

IBM® Systems Director – Platform Management



Deploy

Configure Chassis

Push OS Image*

Configure Access



Monitor

Track Power Usage

Record Performance

Notify on HW Problem



Update

Check Compliance

Push Firmware and Drivers

Download Updates



Control

Remote Console

Cap Power*

Migrate VM

PR/SM



* Fee based plug-in required

IBM Systems Director

Upward Integration...

Extend with Advanced Capabilities...

Basic Care and Feeding...

Cross Platform Coverage...

Tivoli software Other ISV Service Management Software
ITM, TPM, TSAM, SRM, ITNM, TADDM

VMControl	Storage Control	Network Control	Active Energy Manager	BOFM	WPAR Manager	...	Additional Plug-Ins	Additional Plug-Ins	Additional Plug-Ins
-----------	-----------------	-----------------	-----------------------	------	--------------	-----	---------------------	---------------------	---------------------

Discovery	Service and Support	
Inventory	Update	
Status	Configuration	
Monitoring	Automation	

AIX Linux

IBM TotalStorage SAN Volume Controller z/VM KVM Xen



Systems Director Editions

Express Edition (Underlying Edition of SDMC)

- ✓ View the relationships between systems
- ✓ Manage virtual machines across multiple hypervisors
- ✓ Remotely access system status and updates



Standard Edition

- ✓ Reduce time to deploy virtual AIX and Linux workloads
- ✓ Monitor and control energy use
- ✓ Monitor and configure networking systems

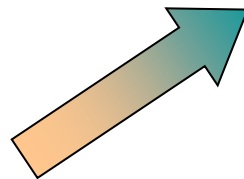
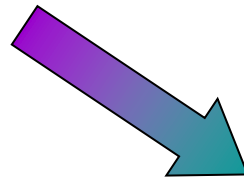
Enterprise Edition

- ✓ Automate workload deployment in system pools of AIX and Linux virtual machines
- ✓ Analyze real-time and historical status
- ✓ Analyze predictive resource capacity data

Systems Director Management Console



Express Edition



SDMC:

- Manage Multiple Systems
- New User Browser Interface
- Enhanced Functionality
- Support 1000 LPARs
- Supports P6 & P7

Power Systems Management Options

- Power Systems clients have **three** different management options

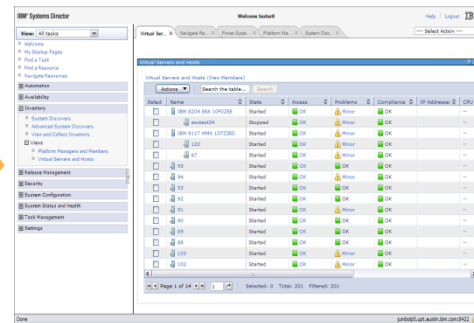
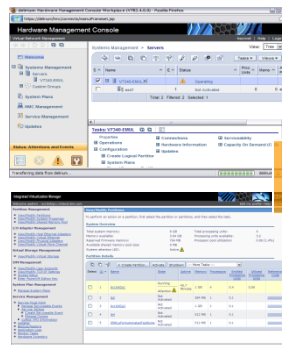
Product	Offering / Packaging	Function
HMC	Physical appliance (uses Linux)	Complete virtualization and service management for Power
IVM	Lightweight utility (built into VIOS)	Basic configuration and service for Power
SDMC	Software (installed on management server)	Comprehensive cross-platform mgmt

Strategy: Converge on IBM Systems Director Management

- Standardize the user interfaces. Easier for clients to transition and scale up
- Converge branding: IBM System Director is the strategic management tool

HMC
(Hardware Management Console)

IVM
(Integrated Virtualization Manager)



SDMC
(Systems Director Management Console)

Systems Director Management Options

Hardware Appliance



IBM Provided Hardware

Plus Software Appliance:

- **SDMC Management Base**
- **Systems Director Express Edition**

Turn Key Solution

Software Appliance

Software Appliance:

- **SDMC Management Base**
- **Systems Director Express Edition**

Non Turn Key Solution

Utilize existing x86 virtualization infrastructure

Customer provided hardware

- **Finite set of server options**



SDMC Function Highlights

Functions Included

- **All configuration, service and management capabilities provided by the HMC and IVM today will be supported natively in IBM Systems Director**
 - At a high level SDMC provides Server Management and PowerVM Virtualization Management
 - Console Management becomes a responsibility of Director
- **CLI Interface**
 - Same functionality (for the Server Management and PowerVM Management functions)
 - Syntactically there are no differences.
 - Aliases have been provided to offer almost complete compatibility
- **GUI interface.**
 - Same functionality (for the Server Management and PowerVM Management functions)
 - Completely new to comply with Director look and feel
 - Some modifications to simplify user navigation and tasks

SDMC Features Adds vs HMC

<i>Capability</i>	SDMC	vs	HMC
Simplified Virtualization	✓		
Blades Management	✓		
Mobility between Blades and Servers	✓		
Dual VIOS for Blades	✓		
Active Memory Expansion for Blades	✓		
Virtual Appliance Option	✓		
Consistent Look and Feel	✓		
OS Management and Monitoring	✓		

- SDMC provides simplified Virtualization Management (vs HMC)
- SDMC can manage Blades (HMC cannot)
- SDMC is offered in a virtual appliance (HMC is not)
- SDMC integrates Power hardware, service, and virtualization management into a common look and feel (Director)



SDMC Appliance Offerings: Hardware & Software

- The **Hardware Appliance** is very similar to today's HMC
 - Will use 7042-CR6 hardware platform as the base (with additional DASD & Memory)
- Can chose to run exactly the same software (OS & all) on an x86 Hypervisor (EG VMware or KVM)
- When would you use the **Hardware Appliance**?
 1. Required for all mid/high-end systems (> 550 / 750)
 2. Want a turn-key solution that is delivered, pre-installed, and serviced as one entity
 3. Never used an x86 Hypervisor before and don't feel a pressing need to learn

SDMC Appliance Offerings: Hardware & Software

- When would you use the **Software Appliance**?

1. All of the systems are Low / Mid-range systems (550/750 and below)
2. All of my systems have static IP addresses and don't rely on an HMC for DHCP.

NOTE: While it's possible to use DHCP on the virtual appliance, it complicates the hypervisor network configuration and cabling.

3. Already have an x86 virtualization infrastructure that can have network connectivity to my Power systems.

NOTE: It's possible (and quite easy) to create a bare-bones infrastructure needed to run the virtual appliance, however the hardware appliance is even easier.

4. Want to take advantage of x86 virtualization – backups via snapshots, quick restores, mobility, etc.

SDMC Function Differences

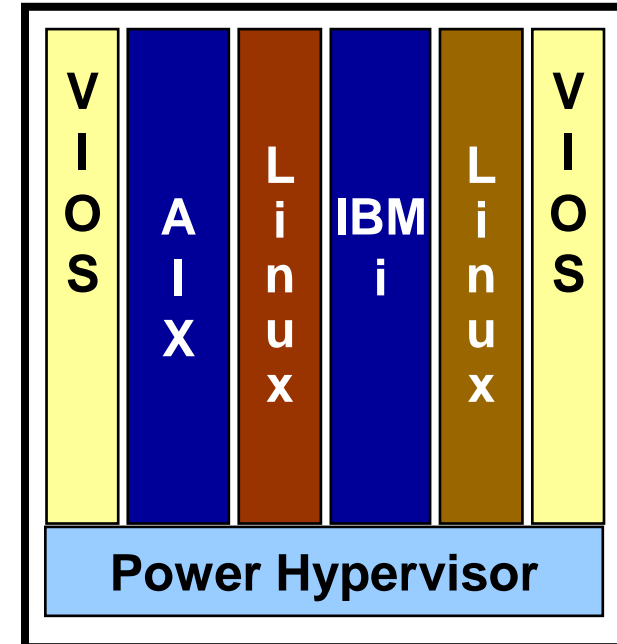
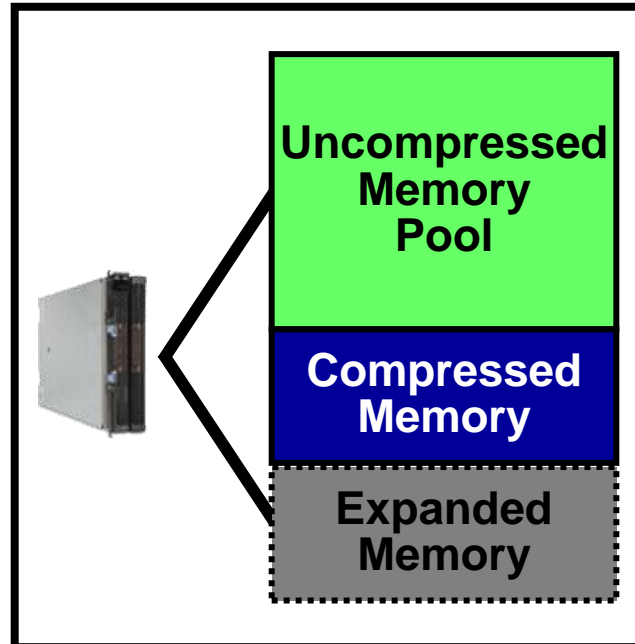
- Functions Being Removed with SDMC
 - Modem Support
 - VPN for Call Home
 - Will still support VPN for inbound support, but not for outbound

- Servers Supported
 - Will support P6 and P7 servers **including blades.**
 - No support for POWER 5 servers

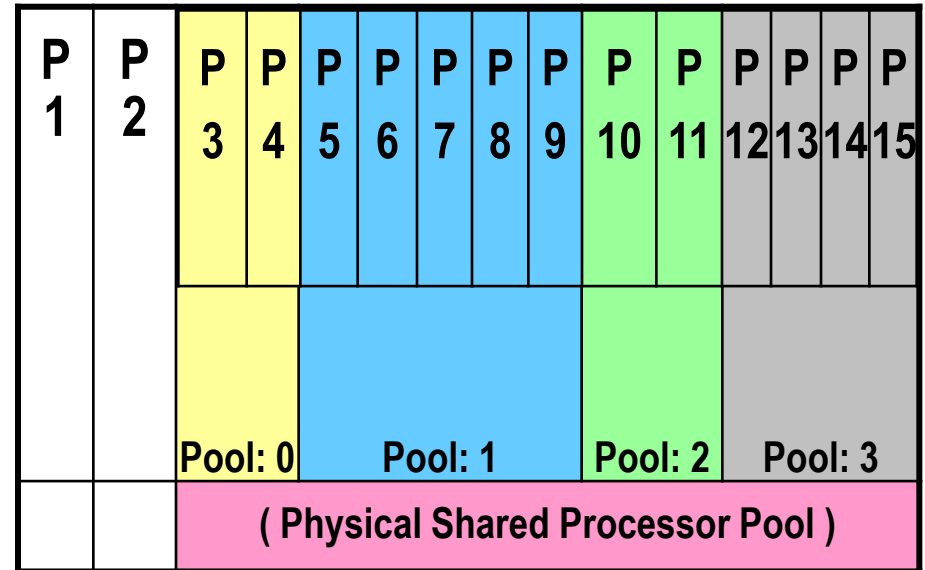
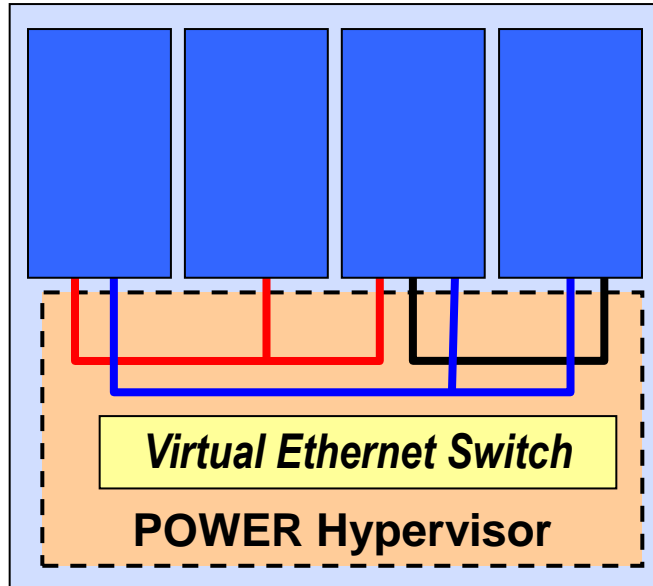
SDMC Support for Blades

■ No Limitations for blades

- LPAR Mobility between any systems
- Shared Processor Pool support
- Active Memory Expansion Support
- Multiple Virtual Network Switches
- Multiple VIOS partitions



Additional SDMC support for Blades



Multiple Virtual Ethernet Switches

Multiple Shared Processor Pools

- **SDMC: Equal support for blades and servers**

SDMC Function - Differences

Enhanced Virtualization Management:

- IVM – like Ease of Use:
 - ❖ Enhanced VIOS / Virtual Adapter management – SDMC manage your virtual slots automatically
 - ❖ More intuitive DLPAR – ability to modify resource assignments whether the partition is On or Off

Terminology:

- Fundamental terminology changes.
 - ❖ Example, a ‘LPAR’ is now a ‘Virtual Server’
 - ❖ Servers are now ‘Hosts’

Additional Function:

- Director provides a lot of additional function including things such as AEM, Image Manager, etc.

SDMC Function - Differences

Users and Roles:

- Same functionality, just new names and ways to create users, roles, and groups.
- Session timeout and idle timeouts are global and not configurable per user

User Interface:

- GUI:
 - ❖ Most tasks will have the same flow – adjusted for Director look/feel
 - ❖ Some function has been enhanced for ease-of-use.
- Command line interface is the same.

Redundancy Model(s):

- New active/passive HA model optional

Terminology Differences

HMC Terminology	SDMC Terminology
Managed System	Server / Host
Hardware Management Console	Platform Manager
Frame / BPA	Power Unit
LPAR	Virtual Server
VIOS	Utility Virtual Server
Users: hscpe / hscroot	pe / sysadmin
Partition Mobility	Relocation
Remove connection	Remove MEP (managed End-Point)
hmcuser	SMUser
hmcoperator	SManager

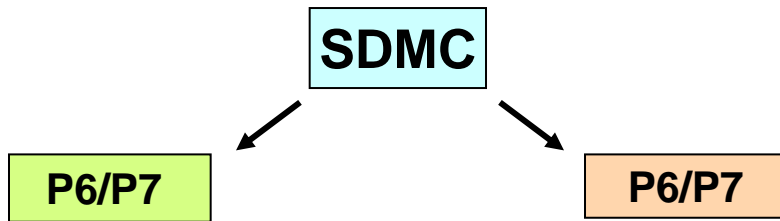
SDMC Function Mapping

Function on HMC	Function on Director / PSM
CEC and Frame Management	Ported from HMC. GUI is new
PowerVM Partition Virtualization	Ported from HMC. GUI is new.
Guided Repair	Ported from HMC. GUI is new
Concurrent Maintenance	Ported from HMC. GUI is new
Problem Analysis	Ported from HMC. GUI is new
Serviceable Event Management	Provided by Director: Service & Support Manager
Call Home	Provided by Director: Service & Support Manager
Updates for Firmware / Device microcode	Provided by Director: Update Manager, and ported from the HMC
HMC Appliance Management	Provided by Director: Console Management (new)
Remote Support (PHYP / IBM i)	Provided by Director: Console Management (new)

Function on IVM	Function on Director / PSM
Management of Power Blades	PSM functionality expanded
Command Line Interface	PSM functionality expanded

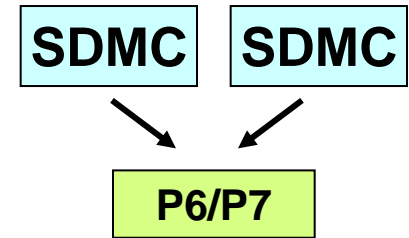
Power Systems Management Scenarios

1) Multiple Power systems



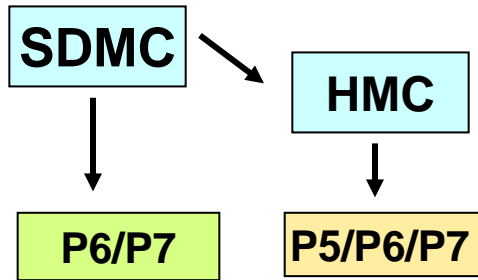
4) Redundant SDMC

Both SDMCs can manage the same server at the same time



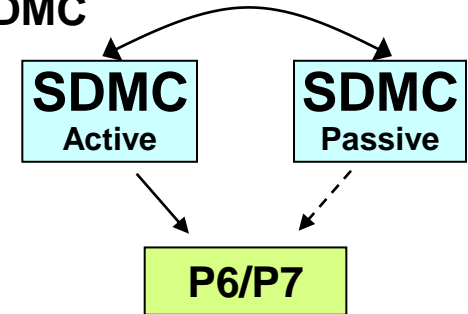
2) Through a HMC

Same SDMC can manage two different Power Systems where one is managed through a HMC



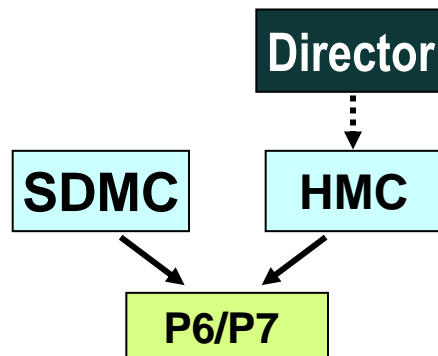
5) Active / Passive HA SDMC

Both SDMCs can manage the same server at the same time



3) HMC and SDMC dual management

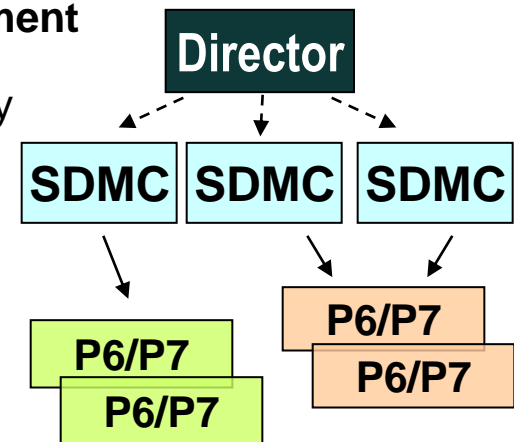
HMC and SDMC can manage the same server at the same time



6) Hierarchical Management

Director can hierarchically manage other Director Appliances.

Note: This capability will be staged overtime



IVM / HMC / SDMC Comparison – General

General Characteristics	IVM	HMC	SDMC
Delivery Vehicle	Integrated into the server	A desktop or rack-mounted appliance	Virtual appliance: Customer provided hardware & hypervisor Physical appliance: A desktop or rack-mounted appliance
Footprint	No overhead beyond VIOS. Runs in 60MB memory / minimal CPU	2-Core x86, 4GB RAM, 1x500GB HD (latest – used to run with less)	4-Core Nahalem x86, 8GB RAM, 2x500GB HD
Installation	Installed with the VIOS (optical or network). Preinstall option available on some systems.	Appliance is preinstalled. Reinstall via optical media or network is supported.	Software appliance: Virtual appliance tooling – apply and go. Relies on third-party / customer tooling. Hardware appliance: Preinstalled.
Servers supported	Blades: JS21 & beyond P5/5+: 560Q Express and below P6/6+: All HV P7: All HV	Blades: None P5/5+: All P6/6+: All P7: All	Blades: P6 & P7 P5/5+: None P6/6+: All P7: All

IVM / HMC / SDMC Comparison – General

General Characteristics	IVM	HMC	SDMC
Multiple system support	One IVM per server	One HMC can manage multiple servers (48 cecs w/ 1000 lpars spread amongst)	SDMC can manage multiple servers (48 cecs w/ 1000 lpars) Director can manage additional non-Power server entities (OS's, etc)
User Interface	Web browser (no local graphical display)	Web browser (local or remote)	Web browser (local or remote)
Scripting and Automation	VIOS command line interface (CLI) and HMC compatible CLI	HMC command line interface	Director command line interface (compatible with HMC & IVM)

Maximum Systems Supported via SDMC

- SDMC scalability
 - Managed Systems:
 - 48 systems (low-end servers) or 32 systems (high-end servers)
 - Partitions
 - 1K LPARs spread across the managed systems.
- Generally expect a 1 to 1 mapping of SDMC to replace existing HMCs
 - Expect fewer SDMCs should be necessary long term.
- Customer may require multiple SDMCs for the following reasons:
 - Enhanced Blade support
 - Redundancy
 - Network Topology: Especially on high-end systems, the FSPs and BPCs are expected to be on private networks

Transition from HMC to SDMC

- Side-by-side Management
 - Servers will support 1 HMC + 1 SDMC
 - Some P7 servers may support more than 2 management consoles in the future
 - SDMC & HMC must have common code levels – same requirement as redundant HMCs today (e.g., 730 SDMC would match up with 730 HMC).
- Transition of configuration data
 - All partition/profile related info is stored on the managed system itself.
 - Transition tool to help bring over static IP managed servers
 - Future enhancement for bringing over custom users, groups and roles

Login Screen

IBM

IBM Systems Director Management Console

User ID:

Password:

Log in

Licensed Materials - Property of IBM Corp. © IBM Corporation and other(s) 2008, 2011. IBM is a registered trademark of the IBM Corporation, in the United States, other countries, or both.

Welcome Screen

IBM® Systems Director Management Console Welcome chris Problems 0 0 Compliance 0 0 Help | Logout --- Select Action ---

View: All tasks

- Welcome
- My Startup Pages
- Find a Task
- Find a Resource
- Navigate Resources
- Automation
- Availability
- Inventory
- Release Management
- Security
- System Configuration
- System Status and Health
- Task Management
- Settings

Welcome

Welcome to IBM® Systems Director Management Console

I'm a 5.20 user; how do I use 6.x?
[About](#)
[Web resources](#)
[Update IBM® Systems Director Management Console](#)

Find a resource Find a task

Resources **Manage** Settings Learn

▼ Welcome (SDMC Version)

Use IBM® Systems Director Management Console (SDMC) to manage your Power Systems resources.

Quick Start
Complete these steps to finish setting up the management console.

Learn more about moving from HMC to SDMC
SDMC Information Center

Power Systems Resources Common Tasks ▼

- Hosts
- Turbo
- Virtual Servers
- Operating Systems
- Power Units

Performance Summary Actions ▼ Search the table... Search

Select	Name	Access	State	Detailed ...	Referenc...	Problems
<input type="checkbox"/>	Turbo	OK	Started	None		Information

Page 1 of 1 1 Selected: 0 Total: 1 Filtered: 1

Settings Tab

View: All tasks

- Welcome
- My Startup Pages
- Find a Task
- Find a Resource
- Navigate Resources

- Automation
- Availability
- Inventory
- Release Management
- Security
- System Configuration
- System Status and Health
- Task Management
- Settings

Welcome

Welcome to IBM® Systems Director Management Console

I'm a 5.20 user; how do I use 6.x?
[About](#)
[Web resources](#)
[Update IBM® Systems Director Management Console](#)

Find a resource Find a task

Resources |
 Manage |
 Settings |
 Learn

Use the tasks on this page to configure and manage SDMC.

Restart and Shut Down tasks

[Shut down or Restart IBM® Systems Director Management Console](#)

Shuts down or Restarts the console (System Shut down or Restart)

Update tasks

[Update IBM® Systems Director Management Console](#) Manage software updates of the console

Configuration tasks

[High availability settings](#) Configure and view SDMC high availability settings

[Configure Date/Time](#) Configure Date/Time

[Configure Network](#) Configure Network

[Configure VPN](#) Configure VPN

Serviceability tasks

[Service and Support Manager Getting Started Wizard](#) Set up Electronic Service Agent to report serviceable problems

Security tasks

[Configure LDAP client](#) Configure the SDMC as an LDAP client

[Configure Kerberos client](#) Configure the SDMC as a Kerberos client

[Create user account](#) Add a user

[Change user account password](#) Change the password for a user account

[View user accounts](#) View and change user account settings

[How to delete a user account](#)

Backup and Restore tasks

[How do I backup and restore the console](#)

Action Menus for Hosts

Welcome to IBM® Systems Director Management Console

Find a resource Find a task

Resources Manage Settings Learn

▼ Welcome (SDMC Version)

Use IBM® Systems Director Management Console (SDMC) to manage your Power System

Quick Start
Complete these steps to finish setting up the management console.

Learn more about moving from HMC to SDMC
SDMC Information Center

Clicking on this button brings up the following menus:

Power Systems Resources

- Hosts
 - Turbo
 - Virtual Servers
 - Operating Systems
 - Power Units

Select	Name	Accept
<input checked="" type="checkbox"/>	Turbo	

Performance Summary Actions

- Related Resources
 - Related Resources
 - Topology Perspectives
- Create Group
- Remove...
- Add to
- Automation
- Hardware Information
- Inventory
- Operations
- Release Management
- Security
- System Configuration
- System Status and Health
- Service and Support
- Properties
- Hosts
- Import Groups
- Columns...
- Export
 - Select All
 - Deselect All
 - Show Filter Row
 - Clear All Filters
 - Edit Sort
 - Clear All Sorts

- Capacity on Demand (CoD)
 - Configuration Plans
 - Configuration Templates
 - Create Configuration Plan
 - Create Virtual Server
 - Current Configuration
 - Deployment History
 - Edit Host
 - Manage System Plans
 - Manage System Profile
 - View Workload Management Groups
 - Virtual Server Availability Priority
- Edit Location...
- Manage Virtual Server Data
- Remote Access
- Virtual Resources

Creating Virtual Server Wizard

IBM® Systems Director Management Console Welcome chris

Problems 0 0 Compliance 0 0 Help | Logout

Create Virt... X --- Select Action ---

Create Virtual Server: Turbo

<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Name <input checked="" type="checkbox"/> Memory <input checked="" type="checkbox"/> Processor <input checked="" type="checkbox"/> Ethernet <input checked="" type="checkbox"/> Storage selection <input checked="" type="checkbox"/> Virtual Storage Adapters <input checked="" type="checkbox"/> Physical I/O <input checked="" type="checkbox"/> Summary 	<p>Summary</p> <p>The following is a summary of your virtual server settings. You can select Back to make changes. You can also use the virtual server properties task to make changes after the virtual server is created.</p> <table style="width: 100%;"> <tr><td>Server Name:</td><td>Turbo</td></tr> <tr><td>Virtual server name:</td><td>VUGpartiton</td></tr> <tr><td>Virtual server ID:</td><td>5</td></tr> <tr><td>Environment:</td><td>AIX/Linux</td></tr> <tr><td>Memory:</td><td>1.0 GB [Dedicated]</td></tr> <tr><td>Processors:</td><td>1 [Shared, DefaultPool(0)]</td></tr> <tr><td>Virtual Ethernets:</td><td>None</td></tr> <tr><td>Host Ethernet adapter ports:</td><td>None</td></tr> <tr><td>Virtual Adapters:</td><td>2 [Fibre Channel, ce154_vios_ceisen (3):20]</td></tr> <tr><td>Physical adapters:</td><td>None</td></tr> </table>	Server Name:	Turbo	Virtual server name:	VUGpartiton	Virtual server ID:	5	Environment:	AIX/Linux	Memory:	1.0 GB [Dedicated]	Processors:	1 [Shared, DefaultPool(0)]	Virtual Ethernets:	None	Host Ethernet adapter ports:	None	Virtual Adapters:	2 [Fibre Channel, ce154_vios_ceisen (3):20]	Physical adapters:	None
Server Name:	Turbo																				
Virtual server name:	VUGpartiton																				
Virtual server ID:	5																				
Environment:	AIX/Linux																				
Memory:	1.0 GB [Dedicated]																				
Processors:	1 [Shared, DefaultPool(0)]																				
Virtual Ethernets:	None																				
Host Ethernet adapter ports:	None																				
Virtual Adapters:	2 [Fibre Channel, ce154_vios_ceisen (3):20]																				
Physical adapters:	None																				

Review New Virtual Server

IBM® Systems Director Management Console Welcome chris Problems 0x Compliance 0x Help | Logout IBM.

Manage Prof... x --- Select Action ---

Logical Partition Profile Properties: DefaultProfile @ VUGpartiton @ Turbo

Processors Memory I/O **Virtual Adapters** Power Controlling Settings HCA

Virtual resources allow for the sharing of physical hardware between virtual servers. The current virtual adapter settings are listed below.
 *Maximum virtual adapters:
 Number of virtual adapters: 3
 WARNING: One or more of the logical port definitions reference a shared adapter that is missing or not configured in shared mode.

Select	Type	Adapter ID	Server/Client partitio	Partner Adapter	Required
<input checked="" type="checkbox"/>	Client Fibre Channel	2	ce154_vios_ceisen(3)	20	Yes
<input type="checkbox"/>	Server Serial	0	Any Partition	Any Partition Slot	Yes
<input type="checkbox"/>	Server Serial	1	Any Partition	Any Partition Slot	Yes

Total: 3, Filtered: 3, Displayed:3, Selected: 1

OK Cancel

OK Cancel

Action Menus for Virtual Servers

IBM® Systems Director Management Console

Welcome chris

Problems 0 0 Compliance 0 0

Help | Logout IBM

--- Select Action ---

Welcome to IBM® Systems Director Management Console

I'm a 5.2.0 user; how do I use 6.x? About Web resources Update IBM® Systems Director Management Console

Find a resource Find a task

Resources Manage Settings Learn

▼ Welcome (SDMC Version)

Use IBM® Systems Director Management Console (SDMC) to manage your Power System

Quick Start Complete these steps to finish setting up the management console.

Learn more about moving from HMC to SDMC SDMC Information Center

Click the Actions button

Power Systems Resources

- Hosts
 - Turbo
 - Virtual Servers
 - Operating Systems
 - Power Units

Select	Name	State
<input type="checkbox"/>	tbvio1_Production	Started
<input type="checkbox"/>	tbvio2_Production	Started
<input type="checkbox"/>	ce154_vios_ceisen	Started
<input type="checkbox"/>	EisenTest	Started
<input checked="" type="checkbox"/>	VUGpartiton	Stopped
<input type="checkbox"/>	demo5_Dilley	Started
<input type="checkbox"/>	mhorade2_herr...	Started
<input type="checkbox"/>	mob74_ceisen	Stopped
<input type="checkbox"/>	mob20_ceisen	Started

Performance Summary Actions

- Related Resources
- Topology Perspectives
- Create Group
- Add to
- Automation
- Inventory
- Operations
- Release Management
- Security
- System Configuration
- System Status and Health
- Service and Support
- Properties
- Virtual Server
- Import Groups
- Columns...
- Export
- Select All
- Deselect All
- Show Filter Row
- Clear All Filters
- Edit Sort
- Clear All Sorts

- Delete
- Schedule Operations
- Activate
- Manage Profiles
- Manage Virtual Server
- Save Current Configuration
- Edit Location...
- Remote Access

Page 1 of 1 | Selected

Manage Virtual Server – DLPAR Function

IBM® Systems Director Management Console Welcome chris

Problems Compliance Help | Logout

Manage Virt... X --- Select Action ---

Manage Virtual Server

Host:	Turbo	Name:	mob20_ceisen	Id:	34
Environment:	AIX/Linux	State:	Started - RMC available	<input type="button" value="Tasks"/>	

General Settings

Processor

Memory

Network

Storage Adapters

Storage Devices

Media Devices

Physical ID

Overview

Virtual server name:

OS installed : AIX 6.1 6100-06-01-1043

IP address: 9.19.51.20

Processors: 1.0

Memory 2.0 GB

General Configuration

Maximum virtual adapters: Resource configuration: Configured

Suspend enabled Attention LED: Off

Boot

Boot Mode:

Keylock position:

Automatically start with managed system:

Other Settings

Service and Support

Connection Monitoring Disabled

Service virtual server Disabled

Rendurant Error path reporting

Time reference

Work Load Management

Virtual server workload group:

Power controlling options

Maximum power controlling virtual servers: 1

Relocation via Migration Wizard

The screenshot displays the Migration Wizard interface. At the top, there are tabs for 'Migration operation' and 'Migration Information'. Below these, a 'Virtual server migration status' window is open, showing a table with the following data:

Action	Status
Migration	Success

Below the table, it indicates 'Total: 1, Displayed: 1'. There is a 'Stop...' button and a progress bar labeled 'Progress:'. A 'Close' button is located at the bottom right of this window.

Below the migration status window, there is a section for 'Migrated Virtual Storage Assignments'. It includes an 'Actions' dropdown and a table with the following data:

Slot ID	Slot Type	Destination VIOS
3	SCSI	ce154_vios_ceisen
4	Fibre	ce154_vios_ceisen

Below the table, it indicates 'Total: 2, Displayed: 2'. At the bottom of this section, there is a message: 'If you are satisfied with these settings, select 'Finish' to begin the migration.' and a set of navigation buttons: '< Back', 'Next >', 'Finish', and 'Cancel'.

Relocation via Validation Screens

Validate(1) X --- Select Action ---

Virtual server Migration Validation - p6forSDMCtesting ?

Select only one virtual i/o server for each virtual slot, if no selection is made then previous selection will be taken.

Validate(1) X --- Select Action ---

Validate(1) X --- Select Action ---

Virtual server migration status: ?

Migration status:

Action	Status
Migration	Success

Total: 1, Displayed: 1

Stop...

Progress:

Close

Select	Slot ID	Slot Type	VIOS
<input checked="" type="checkbox"/>	3	SCSI	ce154_vios_ceisen
<input type="checkbox"/>	4	Fibre	tbvio1_Production
<input type="checkbox"/>	4	Fibre	tbvio2_Production
<input checked="" type="checkbox"/>	4	Fibre	ce154_vios_ceisen

Total: 4, Selected: 2

View VLAN Settings... Validate Migrate Cancel

Questions?

Special notices

This document was developed for IBM offerings in the United States as of the date of publication. IBM may not make these offerings available in other countries, and the information is subject to change without notice. Consult your local IBM business contact for information on the IBM offerings available in your area.

Information in this document concerning non-IBM products was obtained from the suppliers of these products or other public sources. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. Send license inquires, in writing, to IBM Director of Licensing, IBM Corporation, New Castle Drive, Armonk, NY 10504-1785 USA.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The information contained in this document has not been submitted to any formal IBM test and is provided "AS IS" with no warranties or guarantees either expressed or implied.

All examples cited or described in this document are presented as illustrations of the manner in which some IBM products can be used and the results that may be achieved. Actual environmental costs and performance characteristics will vary depending on individual client configurations and conditions.

IBM Global Financing offerings are provided through IBM Credit Corporation in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government clients. Rates are based on a client's credit rating, financing terms, offering type, equipment type and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice.

IBM is not responsible for printing errors in this document that result in pricing or information inaccuracies.

All prices shown are IBM's United States suggested list prices and are subject to change without notice; reseller prices may vary.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

Any performance data contained in this document was determined in a controlled environment. Actual results may vary significantly and are dependent on many factors including system hardware configuration and software design and configuration. Some measurements quoted in this document may have been made on development-level systems. There is no guarantee these measurements will be the same on generally-available systems. Some measurements quoted in this document may have been estimated through extrapolation. Users of this document should verify the applicable data for their specific environment.

Revised September 26,
2006

Special notices (cont.)

IBM, the IBM logo, ibm.com AIX, AIX (logo), AIX 6 (logo), AS/400, Active Memory, BladeCenter, Blue Gene, CacheFlow, ClusterProven, DB2, ESCON, i5/OS, i5/OS (logo), IBM Business Partner (logo), IntelliStation, LoadLeveler, Lotus, Lotus Notes, Notes, Operating System/400, OS/400, PartnerLink, PartnerWorld, PowerPC, pSeries, Rational, RISC System/6000, RS/6000, THINK, Tivoli, Tivoli (logo), Tivoli Management Environment, WebSphere, xSeries, z/OS, zSeries, AIX 5L, Chiphopper, Chipkill, Cloudscape, DB2 Universal Database, DS4000, DS6000, DS8000, EnergyScale, Enterprise Workload Manager, General Purpose File System, , GPFS, HACMP, HACMP/6000, HASM, IBM Systems Director Active Energy Manager, iSeries, Micro-Partitioning, POWER, PowerExecutive, PowerVM, PowerVM (logo), PowerHA, Power Architecture, Power Everywhere, Power Family, POWER Hypervisor, Power Systems, Power Systems (logo), Power Systems Software, Power Systems Software (logo), POWER2, POWER3, POWER4, POWER4+, POWER5, POWER5+, POWER6, POWER7, pureScale, System i, System p, System p5, System Storage, System z, Tivoli Enterprise, TME 10, TurboCore, Workload Partitions Manager and X-Architecture are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml

The Power Architecture and Power.org wordmarks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org.

UNIX is a registered trademark of The Open Group in the United States, other countries or both.

Linux is a registered trademark of Linus Torvalds in the United States, other countries or both.

Microsoft, Windows and the Windows logo are registered trademarks of Microsoft Corporation in the United States, other countries or both.

Intel, Itanium, Pentium are registered trademarks and Xeon is a trademark of Intel Corporation or its subsidiaries in the United States, other countries or both.

AMD Opteron is a trademark of Advanced Micro Devices, Inc.

Java and all Java-based trademarks and logos are trademarks of Sun Microsystems, Inc. in the United States, other countries or both.

TPC-C and TPC-H are trademarks of the Transaction Performance Processing Council (TPPC).

SPECint, SPECfp, SPECjbb, SPECweb, SPECjAppServer, SPEC OMP, SPECviewperf, SPECapc, SPECchpc, SPECjvm, SPECmail, SPECimap and SPECsfs are trademarks of the Standard Performance Evaluation Corp (SPEC).

NetBench is a registered trademark of Ziff Davis Media in the United States, other countries or both.

AltiVec is a trademark of Freescale Semiconductor, Inc.

Cell Broadband Engine is a trademark of Sony Computer Entertainment Inc.

InfiniBand, InfiniBand Trade Association and the InfiniBand design marks are trademarks and/or service marks of the InfiniBand Trade Association.

Other company, product and service names may be trademarks or service marks of others.

Revised February 9, 2010