

SHARE in Orlando – Session 17436

Top 10 Things You Should Be Doing On Your HMC But You're ~~NOT~~ You Probably Are

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Agenda

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Setting up the HMC for Remote Use

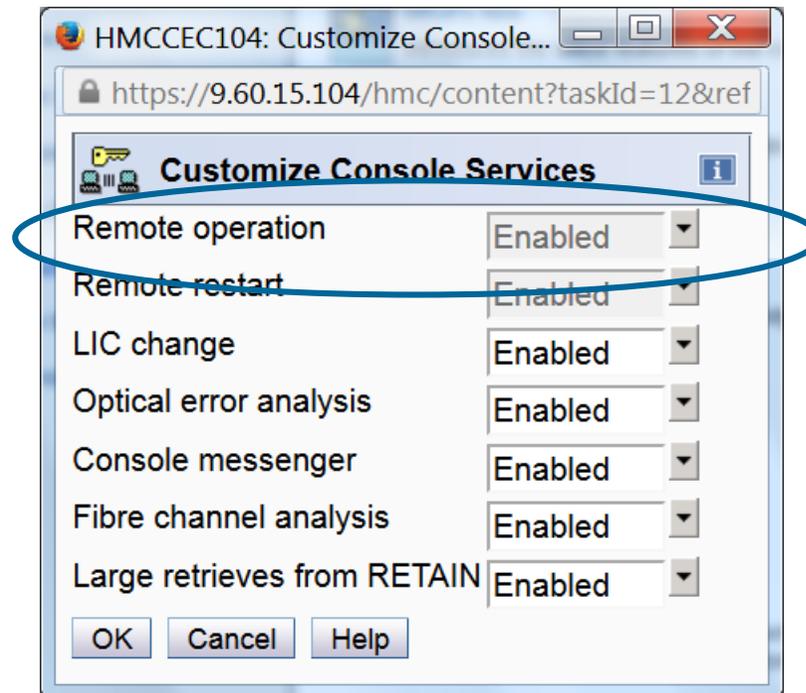
Setting up HMC for Remote Use

- Enables access from anywhere on the Local Area Network
 - Work with your Network Administrator to allow port 443 (HTTPS) and port 9960 (Applets)
 - Could also allow remote access using an existing business VPN
- Allows the HMC to be physically secured
 - Lock it in a restricted area and ask people to login remotely
- Multiple users can access the HMC at the same time
 - HMC is design to handle concurrent users
- Read more information on “IBM z Systems HMC Security”
 - <http://www.share.org/p/do/sd/topic=64&sid=9171>
 - [https://www.ibm.com/servers/resourcelink/lib03011.nsf/pages/zHmcSecurity/\\$file/zHMCSecurity.pdf](https://www.ibm.com/servers/resourcelink/lib03011.nsf/pages/zHmcSecurity/$file/zHMCSecurity.pdf)

Setting up HMC for Remote Use (cont.)

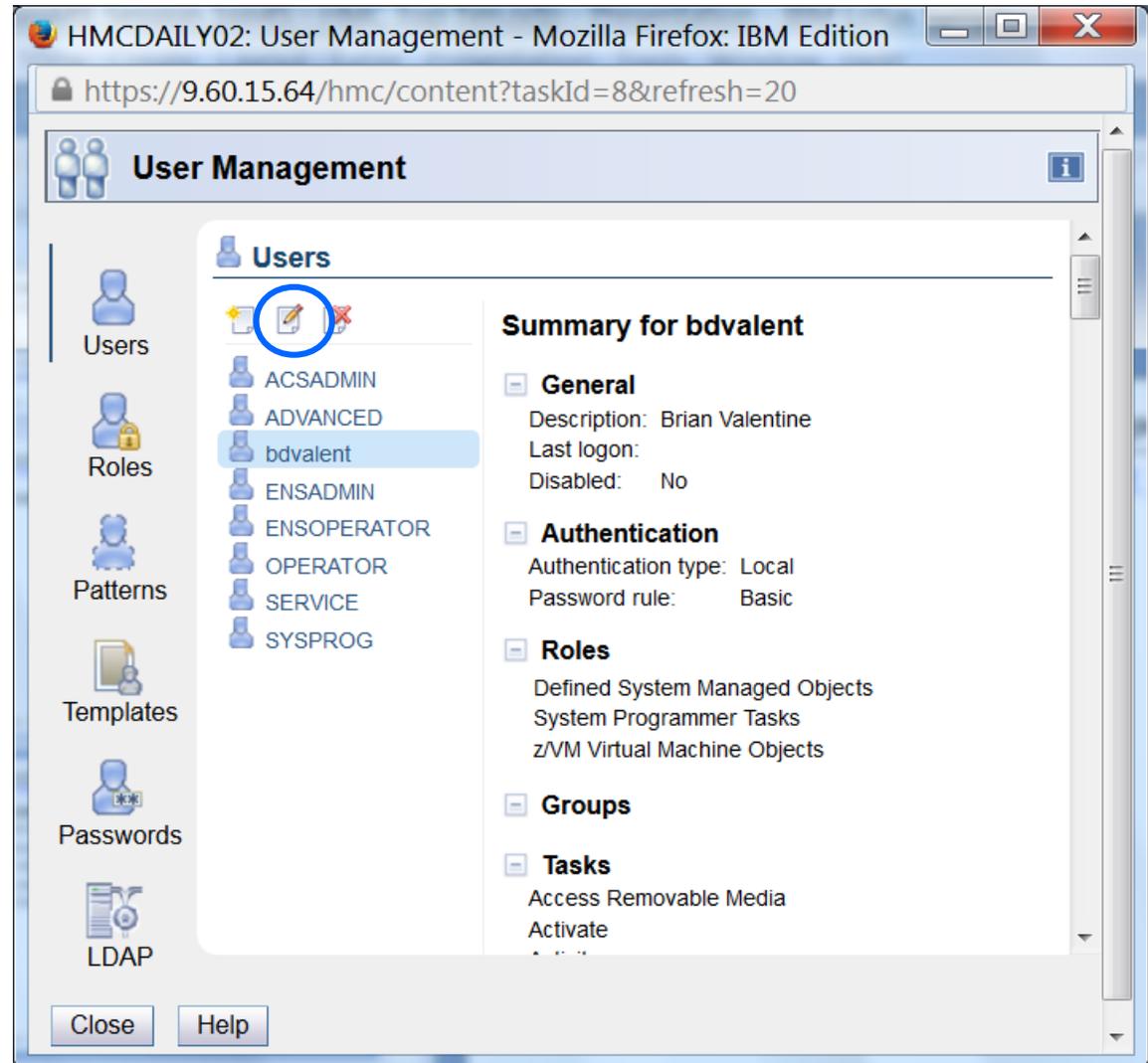
- Enable locally through the **Customize Console Services** task

 **Customize Console Services**
 Customize the enablement of various console services



Setting up HMC for Remote Use (cont.)

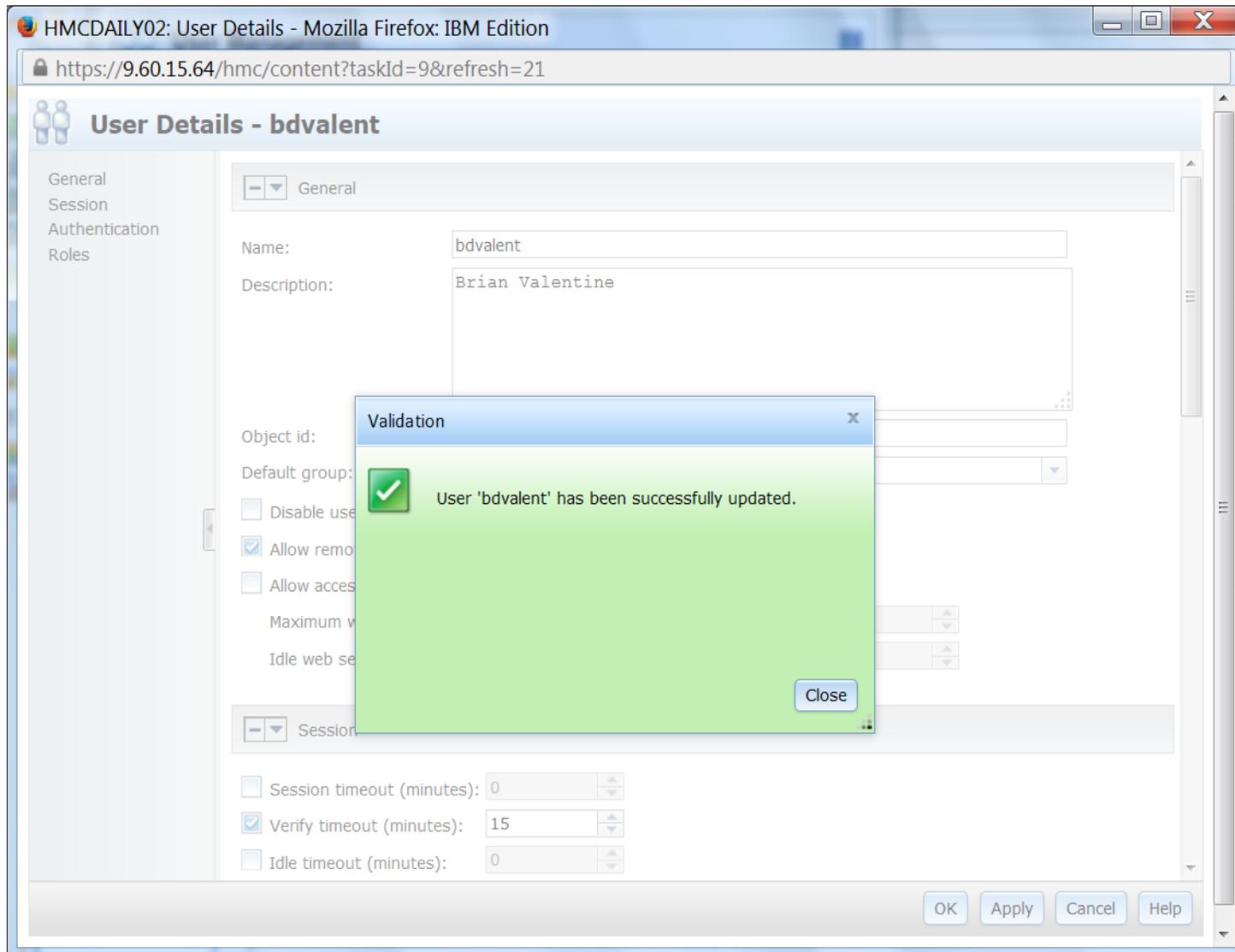
- Enable specific users
 - ACSADMIN log on
 - User management task
 - Select Users
 - Select User to enable
 - Select Details to edit



Setting up HMC for Remote Use (cont.)

The screenshot shows the 'User Details - bdvalent' page in the HMC console. The browser title is 'HMCDAILY02: User Details - Mozilla Firefox: IBM Edition' and the URL is 'https://9.60.15.64/hmc/content?taskId=9&refresh=21'. The page has a left sidebar with 'General', 'Session', 'Authentication', and 'Roles'. The main content area is divided into sections: 'General' (expanded), 'Session', and 'Authentication'. In the 'General' section, the 'Name' is 'bdvalent', 'Description' is 'Brian Valentine', 'Object id' is 'f08441ec-a97c-11e4-b991-5ef3fcf1626d', and 'Default group' is 'No default group'. There are three checkboxes: 'Disable user' (unchecked), 'Allow remote access to the console' (checked and circled in blue), and 'Allow access to Web Services management interfaces' (unchecked). Below these are two spinners: 'Maximum web services API sessions (0-9999):' set to 1,000 and 'Idle web services API session timeout (1-360 minutes):' set to 360. The 'Session' section has three checkboxes: 'Session timeout (minutes):' set to 0 (unchecked), 'Verify timeout (minutes):' set to 15 (checked), and 'Idle timeout (minutes):' set to 0 (unchecked). At the bottom right, the 'OK' button is circled in blue, along with 'Apply', 'Cancel', and 'Help' buttons.

Setting up HMC for Remote Use (cont.)



Securing User IDs

Securing User IDs

• Best Practices

- Do not share HMC user IDs among multiple people
- Make sure each user is permitted only access to the tasks and managed resources needed to perform job responsibilities (see slides)
- Define password rules that adhere to the guidelines for the customer enterprise and make sure each user is configured to use these password rules (see slides)
- Use data replication to ensure that User Profile information (users, roles, password rules, etc) are automatically synchronized among all HMCs installed in the enterprise (see slides)
- Disable the default user IDs
 - Even better DELETE them
 - At a minimum change the default passwords for these users

Securing User Ids (cont.)

- Use the **User Management** task to create custom users

New icon

Create a custom user based on OPERATOR

Create a custom user based on OPERATOR

Securing User Ids (cont.)

- Use the **User Management** task to modify existing default users

The screenshot displays the IBM z Systems Hardware Management Console (HMC) interface. On the left, the 'User Management' task is selected, and the 'Users' sub-task is highlighted. A red circle highlights the 'Users' icon in the left navigation pane. A blue callout bubble points to the 'Details icon' (a person icon) in the top right of the 'Users' list. The main area shows the 'User Details - OPERATOR' window. A blue callout bubble points to the 'Disable user' checkbox, which is checked. Other fields include Name: OPERATOR, Description: Operator level user, Object id: d5ef6360-2e4a-11e7-8b2331d5994, and Default group: No default group. The 'Disable user' checkbox is checked, and there are also unchecked checkboxes for 'Allow remote access to the console' and 'Allow access to Web Services management interfaces'. The bottom of the window has buttons for OK, Apply, Cancel, and Help.

Securing User Ids (cont.)

- Or use the **User Management** task to delete existing users

Delete icon

User Management

Users

- +
- ✎
- ✖

Users

Roles

Patterns

Templates

ACSADMIN

ADVANCED

ENSADMIN

ENSOPERATOR

IBMOperator

OPERATOR

SERVICE

SYSPROG

Delete Item Verification

You selected to delete the following user. User identification:
OPERATOR.

Warning: Deleting the user will remove it permanently from the list of available users.

ACT03028

Yes No

Create Custom Users and Roles

Create Custom Users and Roles

- Creating a custom user definition for each person that uses the HMC allows for the following benefits:
 - Specific access to the required objects for each user
 - Specific access to the required tasks for each user
 - More granularity in the audit logs, know exactly which person performed specific actions
 - No more sharing of user credentials and passwords
 - Each user will have unique saved sessions on disconnects

Create Custom Users and Roles (cont.)

- **User Management** task – convenient dashboard to manage all aspects of system users that log on to the HMC

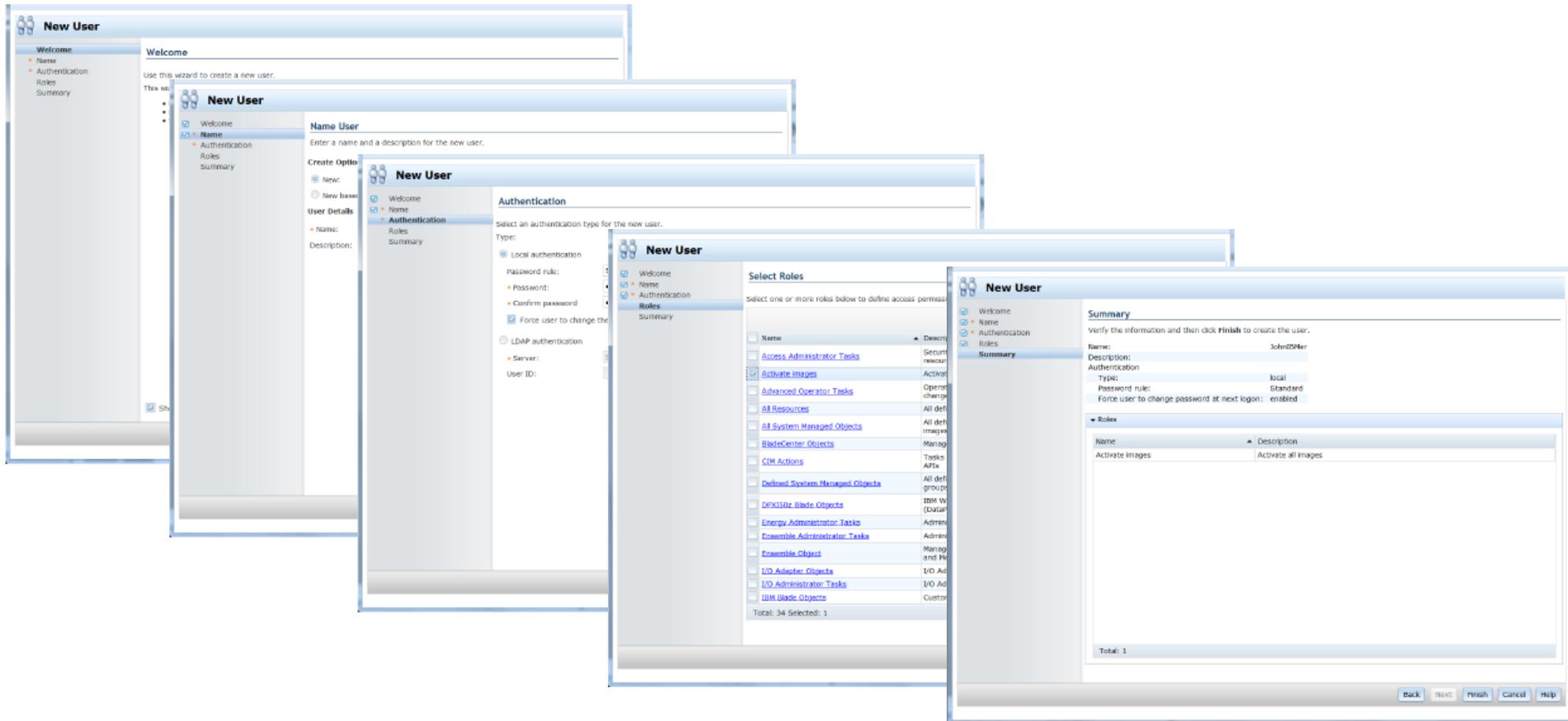
 Users	<p>Users A <i>user</i> object defines the user's authentication, roles which determine access permissions, and a default group to which any objects created by the user will be added.</p>
 Roles	<p>Roles A <i>role</i> defines permissions to tasks, type of objects or specific objects, groups, and task lists.</p>
 Patterns	<p>User Patterns A <i>user pattern</i> is used to automatically create users on this system based on successful authentication of user IDs that conform to a defined string pattern.</p>
 Templates	<p>User Templates A <i>user template</i> defines the settings and permissions for users authenticated with a user pattern. The template requires an LDAP server definition.</p>
 Passwords	<p>Password Rules A <i>password rule</i> defines a set of rules to be used when creating a user password.</p>
 LDAP	<p>LDAP Server Definitions An <i>LDAP server definition</i> specifies host connection and directory entry location information to be used for authentication.</p>

- **User Settings**


User Settings
 Customize the appearance of the workplace

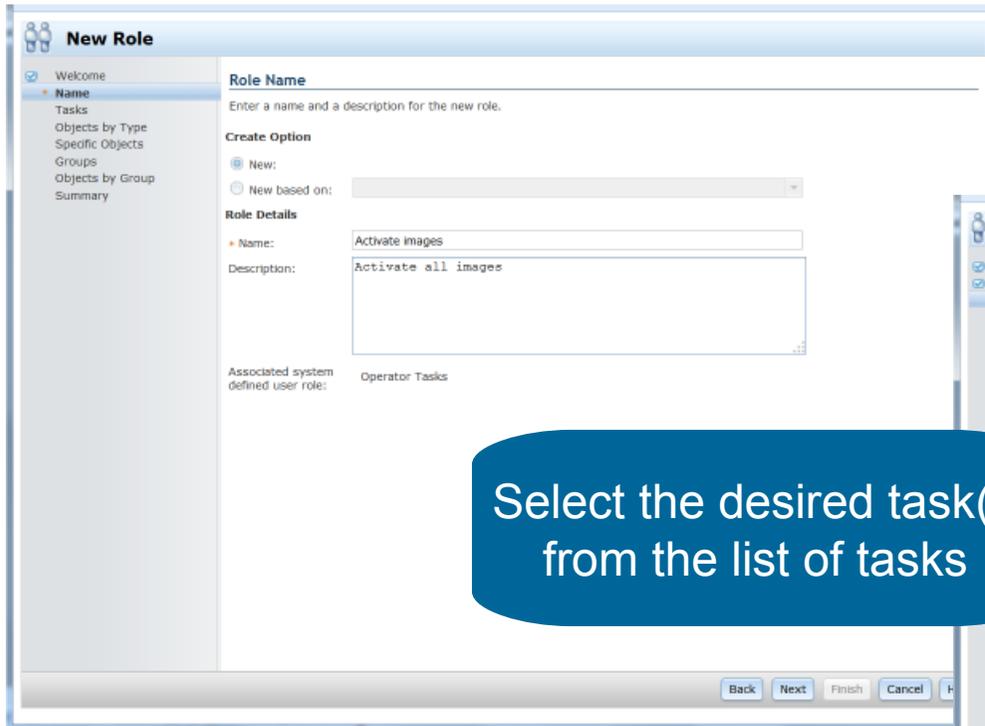
Create Custom Users and Roles (cont.)

- **User Management** wizards provide a guided step-by-step process for each new definition

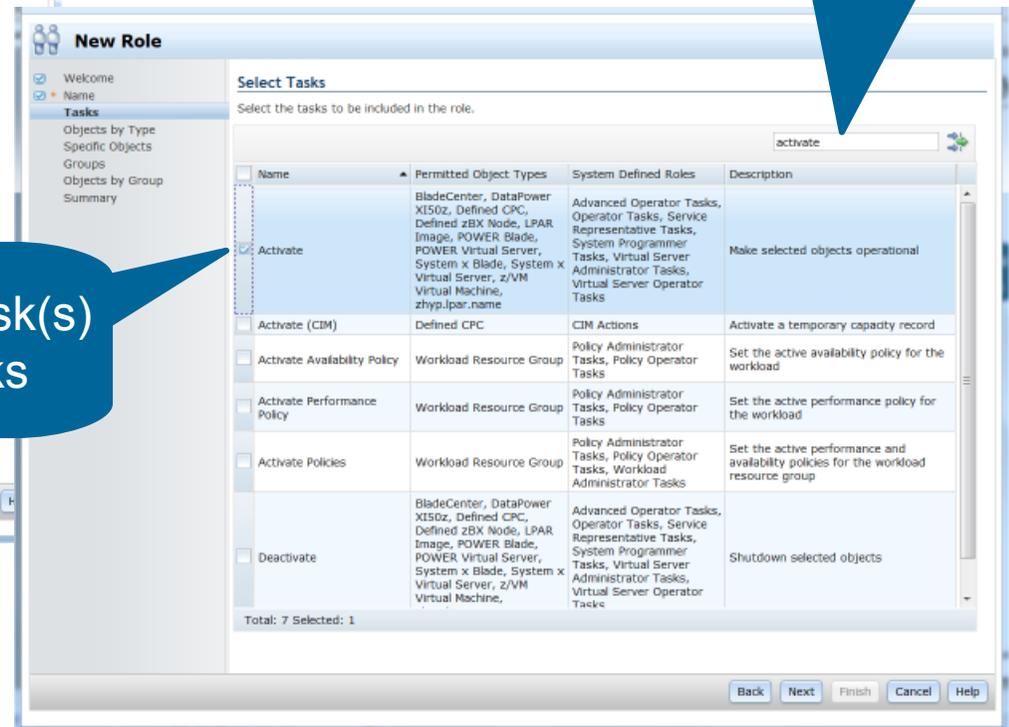


Create Custom Users and Roles (cont.)

- Limit access to specific tasks and objects
 - Create a role with specific task(s) a user should have access to



Select the desired task(s) from the list of tasks



Use the filter to narrow down the list of tasks

Create Custom Users and Roles (cont.)

- Limit access to types of objects and/or specific objects
 - Add to the custom role the object type(s) and specific object(s) a user should have access to

Select the desired object type(s)

Select the desired specific object(s)

Name	Type	Description	Hypervisor	System
POLXSM08	Undefined CPC	Central Processing Complex (CPC)		POLXSM08
POLXSM11	Undefined CPC	Central Processing Complex (CPC)		POLXSM11
POLXSM12	Undefined CPC	Central Processing Complex (CPC)		POLXSM12
POLXSM13	Undefined CPC	Central Processing Complex (CPC)		POLXSM13
POLXSM14	Undefined CPC	Central Processing Complex (CPC)		POLXSM14
POLXSM20	Undefined CPC	Central Processing Complex (CPC)		POLXSM20
POLXSM22	Undefined CPC	Central Processing Complex (CPC)		POLXSM22
POLXSM30	Undefined CPC	Central Processing Complex (CPC)		POLXSM30
POLXSM36	Undefined CPC	Central Processing Complex (CPC)		POLXSM36
POLXSMOZ	LPAR Image	LPAR Image		
P2560057	Node	Node		
POLXSM2B	Undefined CPC	Central Processing Complex (CPC)		
R32	Defined CPC	Central Processing Complex (CPC)		
S15	Defined CPC	Central Processing Complex (CPC)		
S31W	Undefined CPC	Central Processing Complex (CPC)		S31W
S32	Defined CPC	Central Processing Complex (CPC)		S32
S32:APIVM1	LPAR Image	LPAR Image	S32	S32
S32:APIVM2	LPAR Image	LPAR Image	S32	S32
S32:CF01	LPAR Image	LPAR Image	S32	S32

Create Custom Users and Roles (cont.)

- Assign custom roles to users
 - The user permissions are limited to the specific objects and tasks specified in the roles assigned to that user

The screenshot shows the 'New User' wizard in the HMC. The 'Name User' step is on the left, and the 'Select Roles' step is on the right. A blue callout bubble points to the 'Activate Images' role in the 'Select Roles' list.

New User

Welcome

Name

Enter a name and a description for the new user.

Create Option

New

New based on:

User Details

Name: John

Description:

Select Roles

Select one or more roles below to define access permissions for this user.

Name	Description
<input type="checkbox"/> Access Administrator Tasks	Security administrator tasks used to configure and control access to machine resources and tasks
<input checked="" type="checkbox"/> Activate Images	Activate all images
<input type="checkbox"/> Advanced Operator Tasks	Operator Tasks role plus additional capabilities such as manage internal code change levels and channel configuration
<input type="checkbox"/> All Resources	All defined and undefined managed objects (includes all objects of all types)
<input type="checkbox"/> All System Managed Objects	All defined and undefined system managed objects (includes systems, LPAR images, and groups)
<input type="checkbox"/> BladeCenter Objects	Managed BladeCenter chassis objects
<input type="checkbox"/> CIM Actions	Tasks supported through the Common Information Model (CIM) interface APIs
<input type="checkbox"/> Defined System Managed Objects	All defined system managed objects (includes systems, LPAR images, and groups)
<input type="checkbox"/> DPXISDz Blade Objects	IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise (DataPower XI50z) blade objects
<input type="checkbox"/> Energy Administrator Tasks	Administrator tasks that provide power and thermal monitoring capabilities
<input type="checkbox"/> Ensemble Administrator Tasks	Administrator tasks used to create and manage an ensemble
<input type="checkbox"/> Ensemble Object	Managed objects related to the ensemble object (including the alternate HMC and Member's group)
<input type="checkbox"/> I/O Adapter Objects	I/O Adapter Objects
<input type="checkbox"/> I/O Administrator Tasks	I/O Administrator Tasks
<input type="checkbox"/> IBM Blade Objects	Customer acquired select blade objects (POWER and System x)

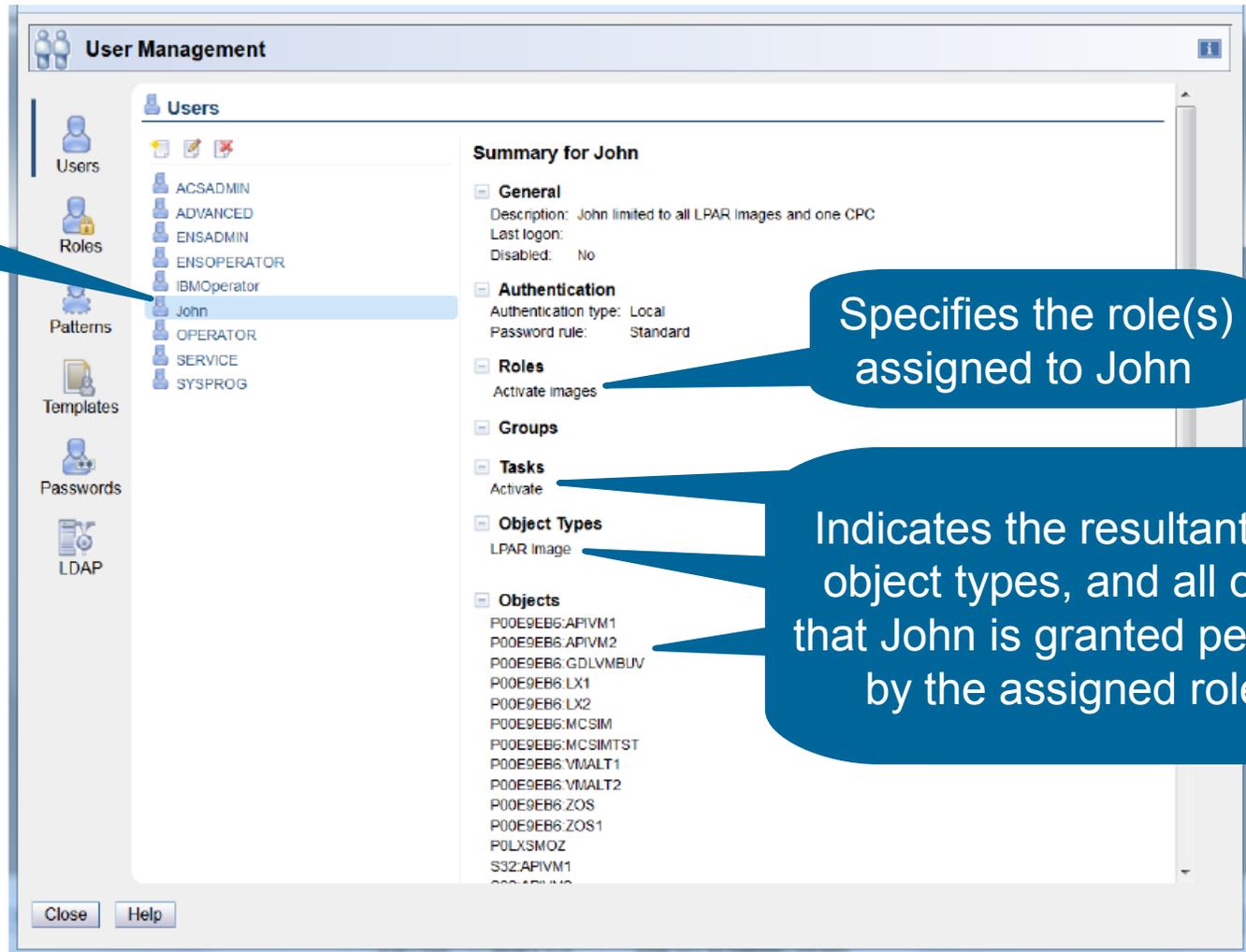
Total: 34 Selected: 1

Back Next Finish Cancel Help

Select the custom role(s) that the user should have access permission

Create Custom Users and Roles (cont.)

- **User Management** dashboard shows the newly created user summary



Custom Authentication Settings

Custom Authentication Settings

- Users can be configured for either local authentication or LDAP
- Local Authentication
 - Governed by Password Rules
 - Allows HMC users to meet corporate password rules
- Lightweight Directory Access Protocol (LDAP)
 - Provided by many enterprise directory servers
 - IBM Security Directory Server
 - Microsoft Active Directory
 - Apple Workgroup Manager
 - Allows HMC users to hook into existing corporate authentication
 - Single password across all HMCs and corporate network

Custom Authentication Settings – Password Rules

- Use the **Password Rules** navigation icon in the **User Management** task, then select the **New** icon to create a new password rule

Password Rules
A password rule defines a set of rules to be used when creating a user password.

New icon (points to the '+' icon in the Password Rules list)

Details icon (points to the 'Basic' rule in the list)

User Management

Password Rules

- Basic
- Standard
- Strict

Summary for Basic

General
 Description: Basic password rule definition

Password Rules

Expiration (days): 0
 Minimum length: 4
 Maximum length: 8
 Consecutive characters: 0
 Similarity count: 0
 History count: 0
 Case sensitive: No

Character Rules

Minimum Length	Maximum Length	Alphabetic	Numeric	Special	Custom 1	Custom 2
4	8	Allowed	Allowed	Not allowed		

Close Help

Custom Authentication Settings – Password Rules (cont.)

- Custom password rules are defined and managed through the **New Password Rule** wizard and **Password Rule Details**

The screenshot displays the 'New Password Rule' wizard in the IBM HMC console. It is divided into three main sections:

- Welcome:** A introductory screen with a 'Welcome' message and a list of tasks: 'Creating and naming the password rule', 'Setting the password rules', and 'Setting the password character rules'.
- Password Rules:** A screen for defining settings and restrictions. It includes options for 'Expiration (days)' (set to 90), 'Minimum length' (8), 'Maximum length' (32), 'Consecutive characters' (0), 'Similarity count' (0), and 'History count' (8).
- Edit Character Rule:** A dialog box for defining rules for specific fragments of the password. It includes fields for 'Minimum length' (7) and 'Maximum length' (31), and dropdown menus for 'Alphabetic characters' (Required), 'Numeric characters' (Required), and 'Special characters' (Allowed).

Two blue callout boxes provide additional context:

- One callout points to the 'Expiration (days)' field, stating: "Specify settings for password expiration, length, etc".
- Another callout points to the 'Edit Character Rule' dialog, stating: "Define rules for specific fragments of the password".

Custom Authentication Settings – Password Rules (cont.)

- **New Password Rule** wizard summary

New Password Rule

Summary

Verify the information and then click **Finish** to create the password rule.

Name: IBM Password Rules

Description:

Password Rules

Expiration (days): 90

Minimum length: 8

Maximum length: 32

Consecutive characters: 0

Similarity count: 0

History count: 8

Character Rules

Minimum Length	Maximum Length	Alphabetic Characters	Numeric Characters	Special Characters	Custom Characters
1	1	Required	Not allowed	Not allowed	1
7	31	Required	Required	Allowed	

Back Next **Finish** Cancel Help

Click **Finish** to create the password rule

Custom Authentication Settings – Password Rules (cont.)

- The new password rule is added to the list of password rules and the summary is shown in the **User Management** dashboard

Newly created password rule

Password rule summary

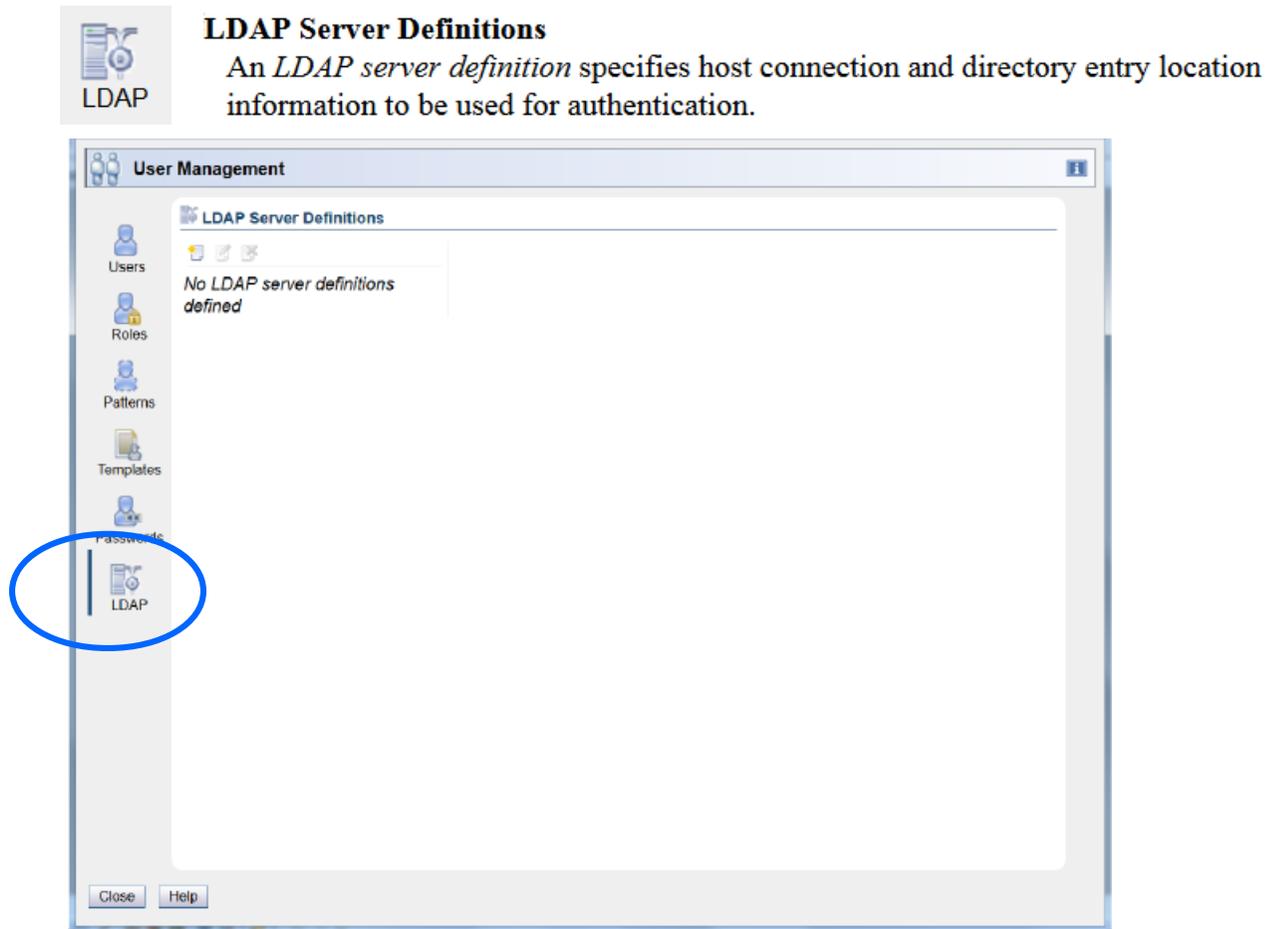
Summary for IBM Password Rules

- General**
Description:
- Password Rules**
Expiration (days): 90
Minimum length: 8
Maximum length: 32
Consecutive characters: 0
Similarity count: 0
History count: 8
Case sensitive: Yes
- Character Rules**

Minimum Length	Maximum Length	Alphabetic	Numeric	Special	Custom 1	Custom 2
1	1	Required	Not allowed	Not allowed		
7	31	Required	Required	Allowed		

Custom Authentication Settings – LDAP Server Definitions

- LDAP servers are configured through the **LDAP Server Definitions** navigation icon in the **User Management** task



Custom Authentication Settings - LDAP Server Definitions (cont.)

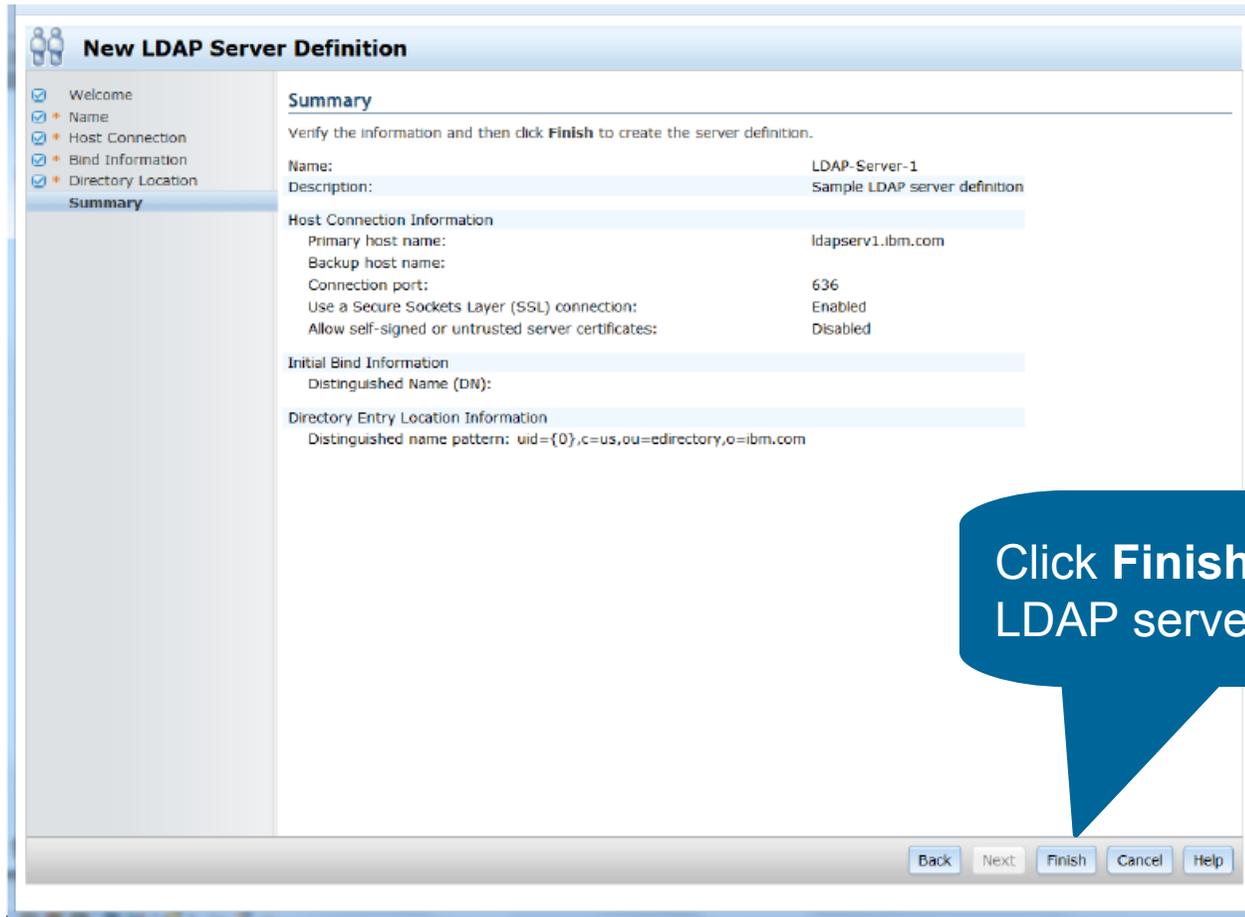
- LDAP server definitions are created through the **New LDAP Server Definition** wizard

The image displays three sequential screenshots of the 'New LDAP Server Definition' wizard in the IBM z Systems Hardware Management Console (HMC). Each screenshot is annotated with a blue callout box providing instructions.

- Top Screenshot:** Shows the 'Welcome' screen. A callout box says: "Specify host name and other connection properties".
- Middle Screenshot:** Shows the 'Host Connection Information' step. Fields include 'Primary host name' (ldapserver1.ibm.com), 'Backup host name', and 'Connection port' (636). A checkbox for 'Use a Secure Sockets Layer (SSL) connection' is checked. A callout box says: "Specify host name and other connection properties".
- Bottom Screenshot:** Shows the 'Directory Entry Location Information' step. It has two radio buttons: 'Use DN pattern' (selected) and 'Search DN tree'. The 'Use DN pattern' option has a 'Pattern' field containing 'uid={0},c=us,ou=edirectory,o=ibm.com'. The 'Search DN tree' option has a 'DN' field, 'Search scope' (radio buttons for 'Entire tree' and 'One level'), and a 'Search filter' field. A callout box says: "Enter a distinguished name (DN) pattern to match (as shown)".

At the bottom of the bottom screenshot, a callout box says: "Alternately, search a directory entry on a DN tree through a property filter".

Custom Authentication Settings - LDAP Server Definitions (cont.)

• **New LDAP Server Definition** wizard summary

New LDAP Server Definition

Summary

Verify the information and then click **Finish** to create the server definition.

Name: LDAP-Server-1
Description: Sample LDAP server definition

Host Connection Information

Primary host name: ldapserv1.ibm.com
Backup host name:
Connection port: 636
Use a Secure Sockets Layer (SSL) connection: Enabled
Allow self-signed or untrusted server certificates: Disabled

Initial Bind Information

Distinguished Name (DN):

Directory Entry Location Information

Distinguished name pattern: uid={0},c=us,ou=edirectory,o=ibm.com

Back Next **Finish** Cancel Help

Click **Finish** to create the LDAP server definition.

Custom Authentication Settings - LDAP Server Definitions (cont.)

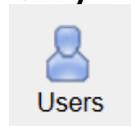
- The new LDAP server definition is added to the list and the summary is shown in the **User Management** dashboard

The screenshot shows the 'User Management' dashboard with a sidebar on the left containing icons for Users, Roles, Patterns, Templates, Passwords, and LDAP. The main area is titled 'LDAP Server Definitions' and contains a list with one entry, 'LDAP-Server-1', which is highlighted. A blue callout bubble points to this entry with the text 'Newly created LDAP server definition'. To the right of the list is a 'Summary for LDAP-Server-1' panel. A blue callout bubble points to this panel with the text 'LDAP server definition summary'. The summary panel includes sections for General, Host Connection Information, Initial Bind Information, and Directory Entry Location, each with specific configuration details.

Section	Property	Value
General	Description	Sample LDAP server definition
	Host Connection Information	
Host Connection Information	Primary host name:	ldapserv1.ibm.com
	Backup host name:	
	Connection port:	636
	Use a Secure Sockets Layer (SSL) connection:	Enabled
Allow self-signed or untrusted server certificates:	Disabled	
Initial Bind Information	Distinguished name (DN):	
	Directory Entry Location	
Directory Entry Location	How to locate a user's directory entry:	Use a DN pattern
	Distinguished name pattern:	uid={0},c=us,ou=edirectory,o=ibm.com

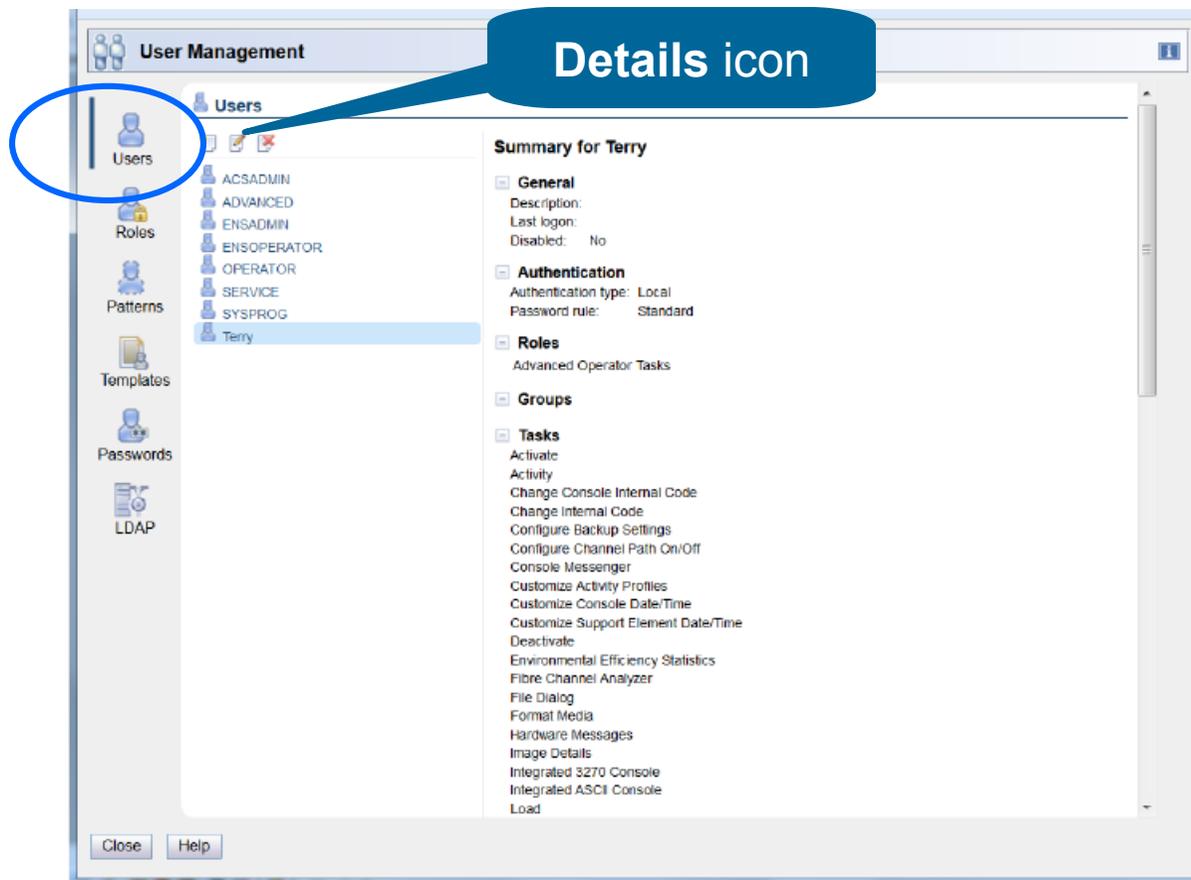
Custom Authentication Settings - Users

- Use the **Users** navigation icon in the **User Management** task, then select the **Details** icon to modify the user properties



Users

A *user* object defines the user's authentication, roles which determine access permissions, and a default group to which any objects created by the user will be added.



Custom Authentication Settings – Users (cont.)

- Configure the authentication type for the user

User Details - Terry

General
Session
Authentication
Roles

Authentication

LDAP authentication

* Server: LDAP-Server-1

User ID: ldapuser

Local authentication

Password rule: IBM Password Rules

* Password:

* Confirm Password:

Force user to change the password at next logon

Delay login after failed attempts

Number of failed attempts before delay:

Delay (minutes):

Disable for inactivity (days):

Minimum time between password changes (minutes): 1,440

Require password for disruptive actions

Require text input for disruptive actions

Set Authentication Type

Set LDAP Server

Alternately, select Local authentication and choose your password rule

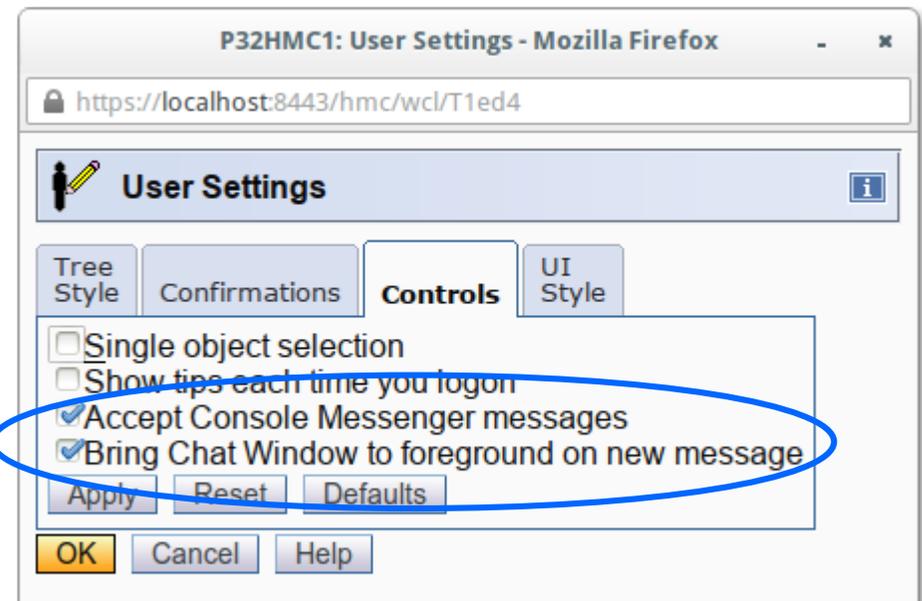
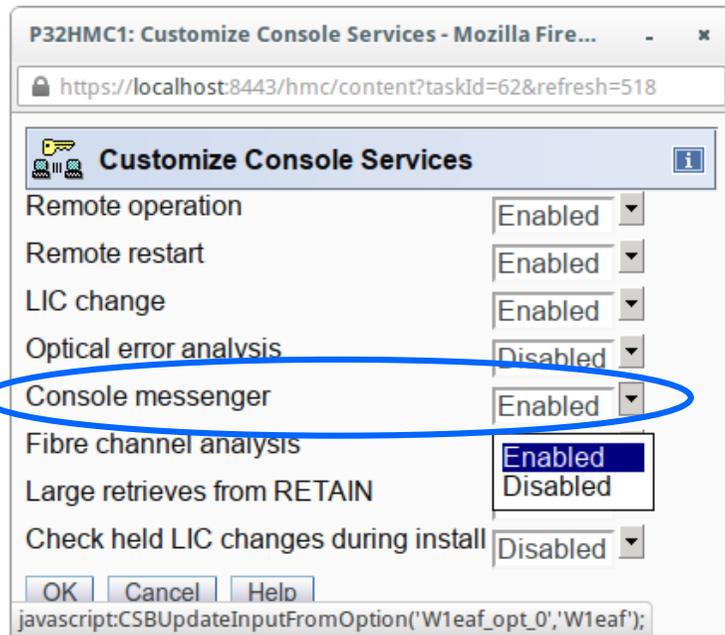
Communicating with Other Users

Communicating With Other Users

- **Console Messenger** task allows sending broadcast messages or start one-on-one chat sessions with other users

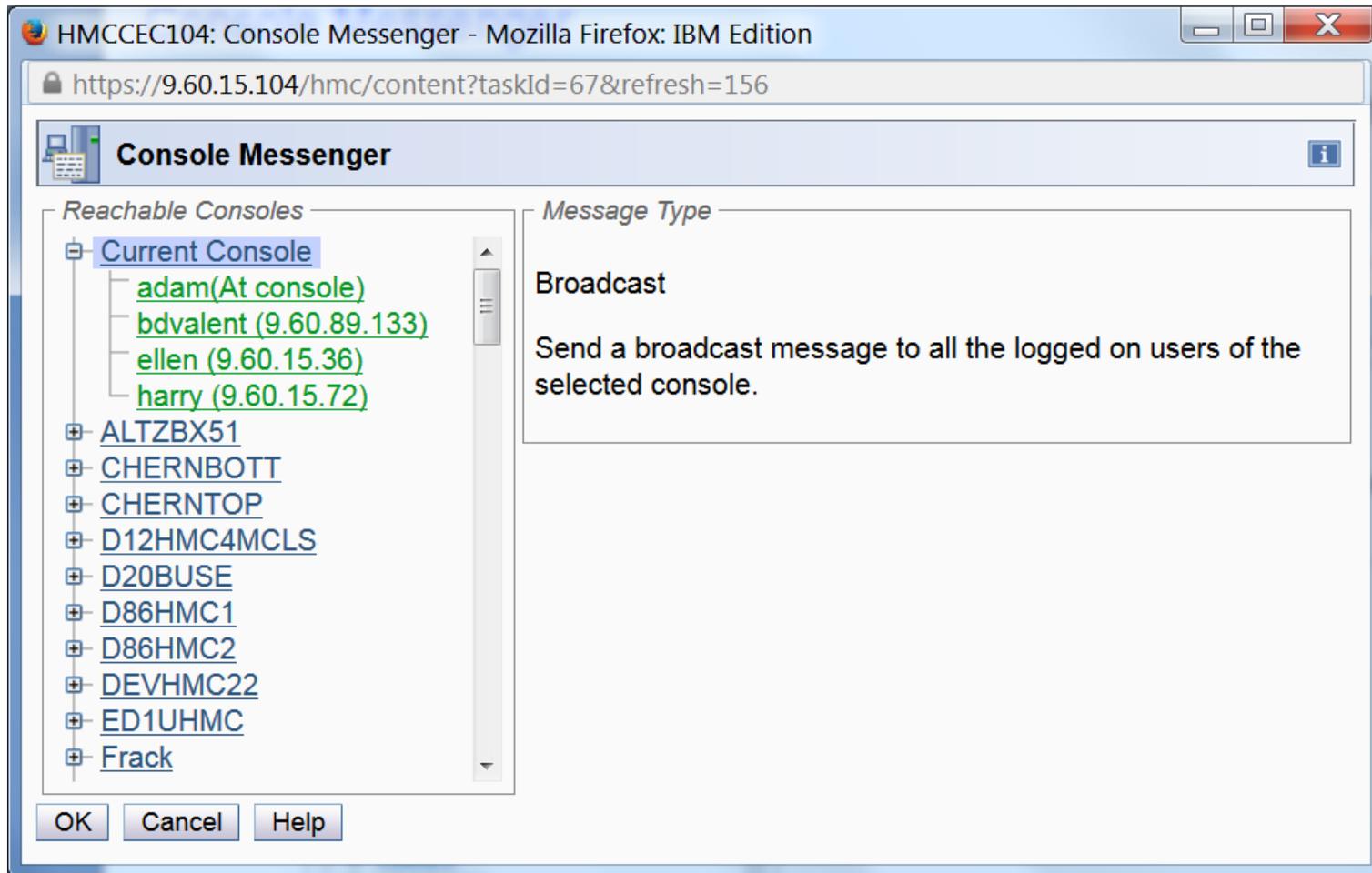


- Must be enabled on the console and for the user



Console Messenger

All HMCs with console messenger enabled and with the same security domain are listed.



Broadcast message to all users of same console

HMCCEC104: Console Messenger - Mozilla Fir...
 https://9.60.15.104/hmc/content?taskId=81&refresh=199

Send Broadcast Message

Recipient
 Current Console

Message
 Pizza is here. We'll be in 3T014 conference room.

Send Cancel Help

HMCCEC104: Console Messenger - Mozilla Firefox: IBM ...
 https://9.60.15.104/hmc/content?taskId=72&refresh=183

Broadcast Message Sent

The broadcast was successfully sent to the following consoles.

Console Name	Sessions Received
HMCCEC104	3

Close

Broadcast Message Received

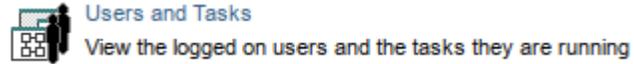
From
 bdvalent on HMCCEC104 [view more info](#)

Message 02/15/15 02:33:25 PM EST
 Pizza is here. We'll be in 3T014 conference room.

Initiate Chat Close Help

Users and Tasks

- Can also be initiated from the **User and Tasks** task



HMCCEC104: Users and Tasks - Mozilla Firefox: IBM Edition

https://9.60.15.104/hmc/content?taskId=69&refresh=158

Users and Tasks

The following is the list of users currently logged on. The table below lists all tasks running in the system.

Users Logged On

Select	Session Id	User Name	Logon Time	Running Tasks	Access Location	Notes
<input type="checkbox"/>	19	adam	2/15/15 1:51 PM	0	At console	
<input checked="" type="checkbox"/>	20	harry	2/15/15 1:54 PM	0	9.60.15.72	
<input type="checkbox"/>	21	ellen	2/15/15 1:56 PM	0	9.60.15.36	
<input type="checkbox"/>	23	bdvalent	2/15/15 2:03 PM	1	9.60.89.133	This is your session

Chat With

Running Tasks

Select	Task Id	Task Name	Targets	Session Id	Start Time
<input type="radio"/>	69	Users and Tasks		23	2/15/15 2:07 PM

Switch To **Terminate**

Close **Help**

Two-Way Communication

HMCCEC104: Console Messenger - Mozilla Firefox: IBM Edition

https://9.60.15.104/hmc/content?taskId=70&refresh=165

Console Messenger Chat

Chat Partner

harry on HMCCEC104
Status : **Logged on**

[view more info](#)

History

02/15/15 02:12:46 PM EST

Me (02:12:57 PM): Hi Harry

Partner (02:13:29 PM): Hi Brian

Me (02:16:45 PM): Are you almost done with your testing on LP01? I would like to get switch in the production image.

Partner (02:17:09 PM): Yes. Go ahead.

Me (02:17:49 PM): thanks

Message

Bring chat window to foreground on message arrival.

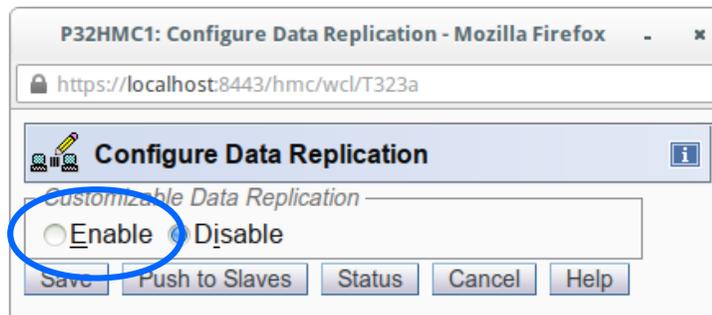
HMC Data Replication

HMC Data Replication

- An HMC task and underlying communication framework
- Allows the exchange of configuration data between linked machines:
 - Acceptable Status Settings
 - Associated Activation Profiles
 - Customer Information Data
 - Group Data
 - Monitor System Events Data
 - Object Locking Data
 - Outbound Connectivity Data
 - User Profile Data
- A convenient way to keep multiple HMC synchronized
- Can be disabled to prevent this exchange
- Exchanges of data (inbound and outbound) are logged

HMC Data Replication (cont.)

- Enabled via **Configure Data Replication** task  [Configure Data Replication](#)
Configure the Data Replication settings for the HMC
- Occurs from the slave machine
- Master must be runnable/reachable
- Master need not be enabled for slave configuration, but it does need to be enabled for actual data exchange



HMC Data Replication (cont.)

- Configuration task allows you to
 - Search for/select masters
 - Select which data types to replicate
 - Establish 'local' modification warnings
 - Warns task user, on the slave, that their changes may interfere with data that is being replicated
 - It may cause a data item to become 'ahead' of the master

HMC Data Replication (cont.)

P32HMC1: Configure Data Replication - Mozilla Firefox

https://localhost:8443/hmc/content?taskId=96&refresh=579

Configure Data Replication

Customizable Data Replication

Enable Disable

Data Source(s)

P32HMC2

New

Delete

Customizable Data Types

Select	Data Types
<input type="checkbox"/>	Customer Information Data
<input type="checkbox"/>	Group Data
<input type="checkbox"/>	Remote Service Data
<input checked="" type="checkbox"/>	User Profile Data
<input type="checkbox"/>	Monitor System Events Data

Local Customizable Data Change Warnings

Select the customizable data types that should generate warning when the type of data is manually changed on this Hardware Management Console and are also configured to be replicated from one or more data sources.

Select	Data Warning Types
<input type="checkbox"/>	Customer Information Data
<input type="checkbox"/>	Group Data
<input type="checkbox"/>	Remote Service Data
<input checked="" type="checkbox"/>	User Profile Data
<input type="checkbox"/>	Monitor System Events Data

Save Push to Slaves Sync from Master Status Cancel Help

Master Name

Requested Data Types From The Master

Warn Users When They Change Selected Data on Local Machine

Used to Force Updates If Slave Gets 'Ahead' Of Master

HMC Data Replication (cont.)

mjh1: Configure Data Replication

Data Replication Status

Data Sources

Name	Status	IP addresses
mjh2	<input checked="" type="checkbox"/> Communicating	10.0.0.2 fe80:0:0:0:c0:ff:fe01:51ff 0.0.0.0 fe80:0:0:0:c1:ff:fe01:51ff

Data Types

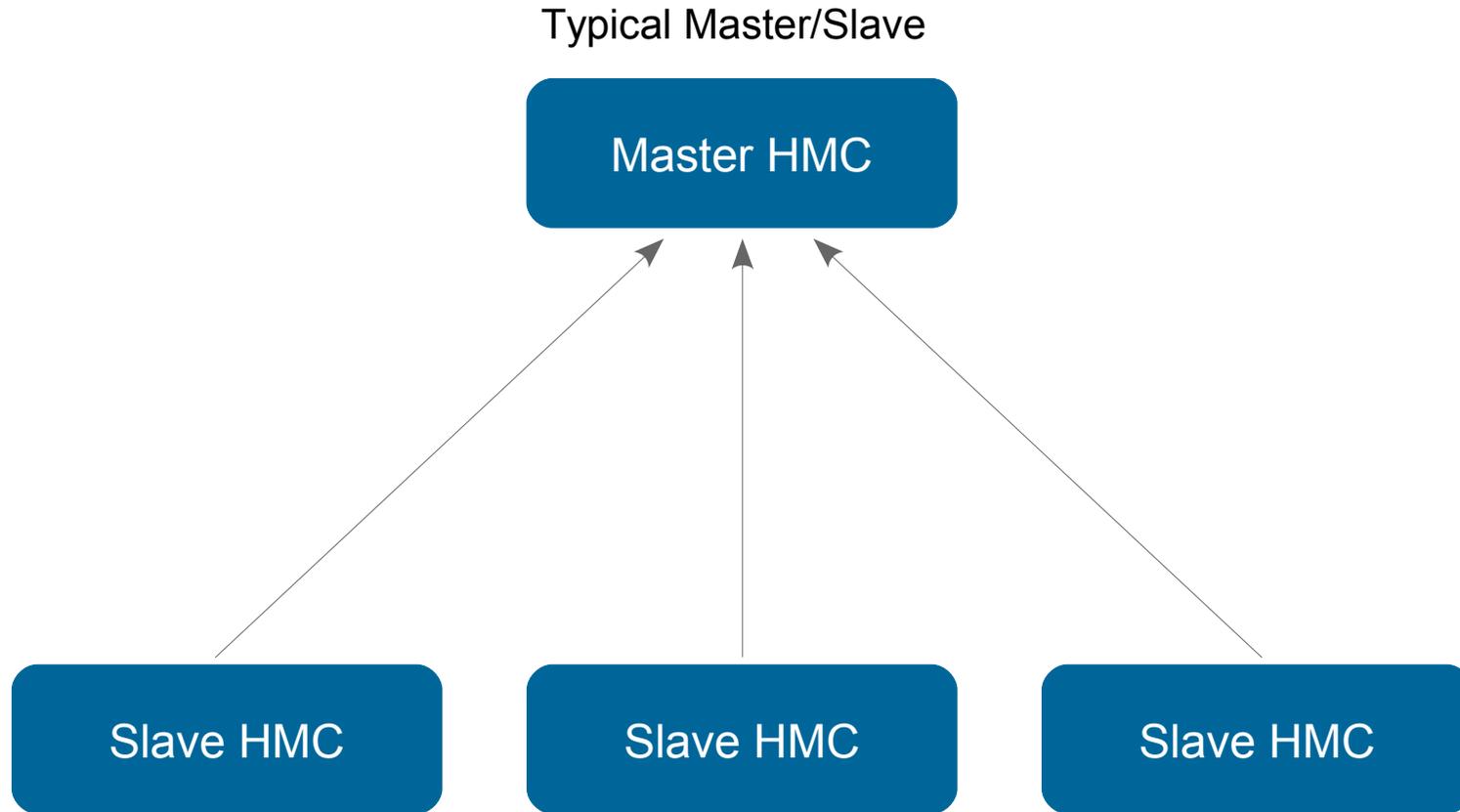
Name	Local Level	Bound to a Master	Updated Since Console Start	Status
Customer Information Data	1	Yes	No	<input checked="" type="checkbox"/> OK
Group Data	0	No	No	<input checked="" type="checkbox"/> OK
Remote Service Data	0	No	No	<input checked="" type="checkbox"/> OK
User Profile Data	0	No	No	<input checked="" type="checkbox"/> OK
Monitor System Events Data	0	No	No	<input checked="" type="checkbox"/> OK
Acceptable Status Settings	0	No	No	<input checked="" type="checkbox"/> OK
Outbound Connectivity Data	0	No	No	<input checked="" type="checkbox"/> OK
Object Locking Data	0	No	No	<input checked="" type="checkbox"/> OK

ACT05012

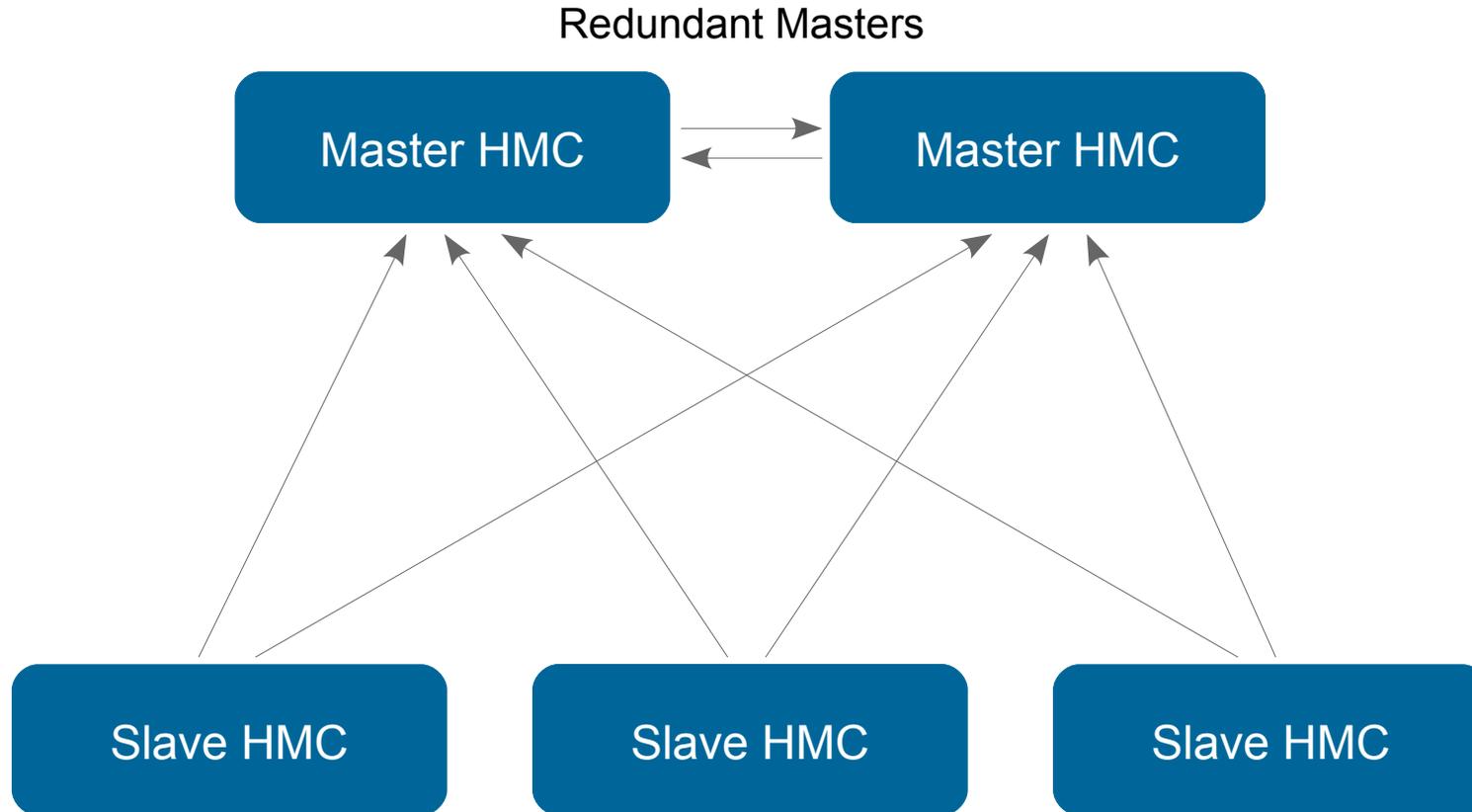
Close

Local Level Information

HMC Data Replication (cont.)



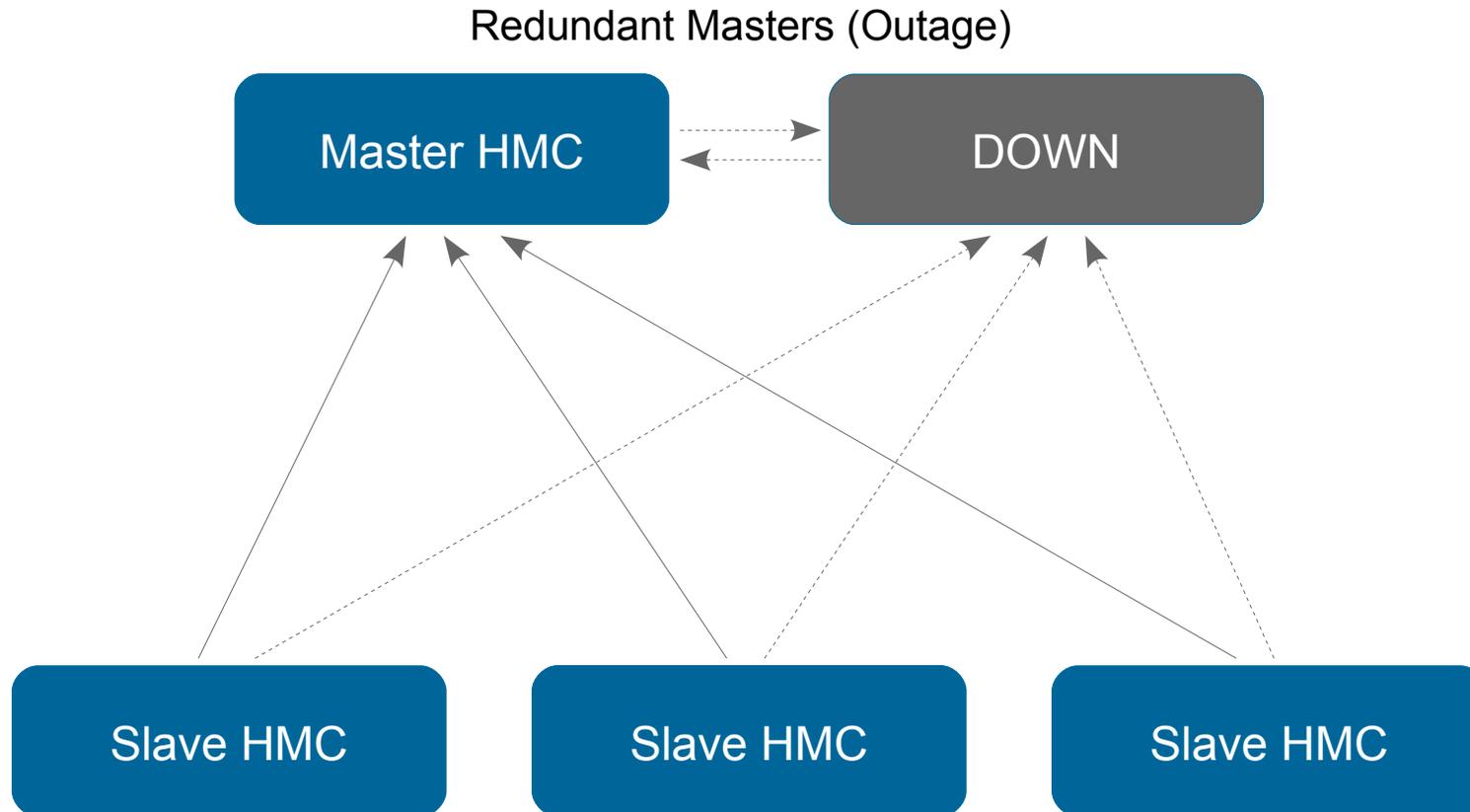
HMC Data Replication (cont.)



Changes made on either master:

- Propagate to all slaves
- And the peer master

HMC Data Replication (cont.)



HMC Certificate Management

HMC Certificate Management

- Self-signed certificate created at the time of HMC installation
 - Not used until remote communications enabled
- Recommend replacing the self-signed certificate with one signed by a Certificate Authority (CA)
 - If the remote users using a network which potentially isn't secure
- If the self-signed certificate is not replaced and a user adds the certificate as an exception, there is a risk of the HMC being “spoofed” and capturing HMC credentials
- If your company does not have its own CA, you can purchase a certificate from a commercial CA that is already in your browser
 - Check your browser for a list of CA certificates already installed and trusted

HMC Certificate Management (cont.)

- Use the *New Certificate* action in the **Certificate Management** task to change the current certificate



Certificate Management

Create, modify, delete, and import certificates used on the HMC, and view certificate signing information

P32HMC1: Certificate Management - Mozilla Firefox

https://localhost:8443/hmc/content?taskId=70&refresh=536

Certificate Management

Create ▾ Selected ▾ Advanced ▾

New Certificate

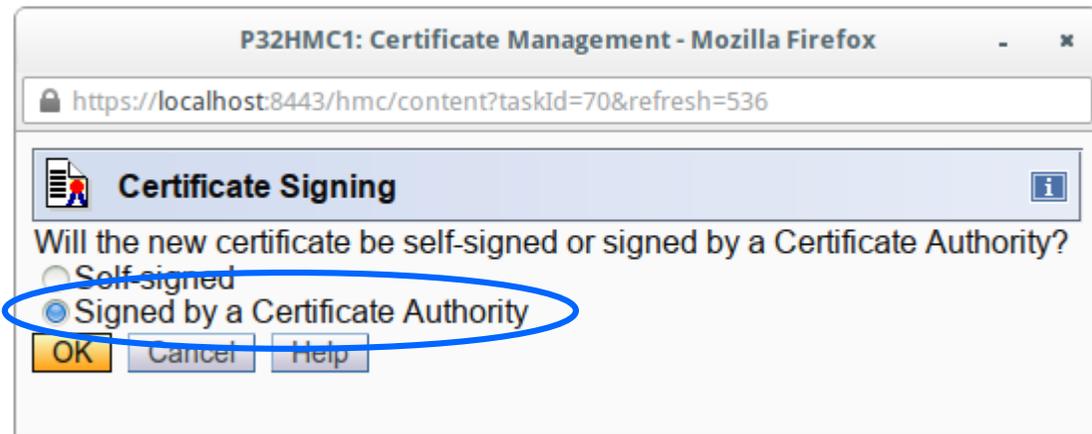
Certificate for this console:

Select	Property	Value
<input type="radio"/>	Version	3
<input type="radio"/>	Serial Number	78745020305661003580885907565053457269
<input type="radio"/>	Issuer	CN=P32HMC1.endicott.ibm.com
<input type="radio"/>	Valid From	Jan 14, 2014 10:19:48 AM
<input type="radio"/>	Valid Until	Jun 26, 2022 11:19:48 AM
<input type="radio"/>	Subject	CN=P32HMC1.endicott.ibm.com
<input type="radio"/>	Subject Alternative Names	DNS: P32HMC2.endicott.ibm.com, DNS: P32HMC1.endicott.ibm.com, IP: 9.60.14.53, IP: 9.60.14.54, IP: 9.60.15.53, IP: 9.60.15.54

Apply Cancel Help

HMC Certificate Management (cont.)

- Select *Signed by a Certificate Authority*



HMC Certificate Management (cont.)

- Fill in the specifics for the HMC (e.g. your organization and company)
- The IP address (v4 and/or v6) and the TCP/IP host name of the HMC is included automatically in the certificate
- You will be guided to write the Certificate Signing Request (CSR) to the USB Flash Drive (UFD)

P32HMC1: Certificate Management - Mozilla Firefox

https://localhost:8443/hmc/wcl/T254c

New Certificate

Enter the following information for the certificate signing request to be created:

Organization (e.g. IBM)

Organization unit (e.g. Development)

Hardware Development

Two letter country or region code (e.g. US)

State or Province (e.g. CA)

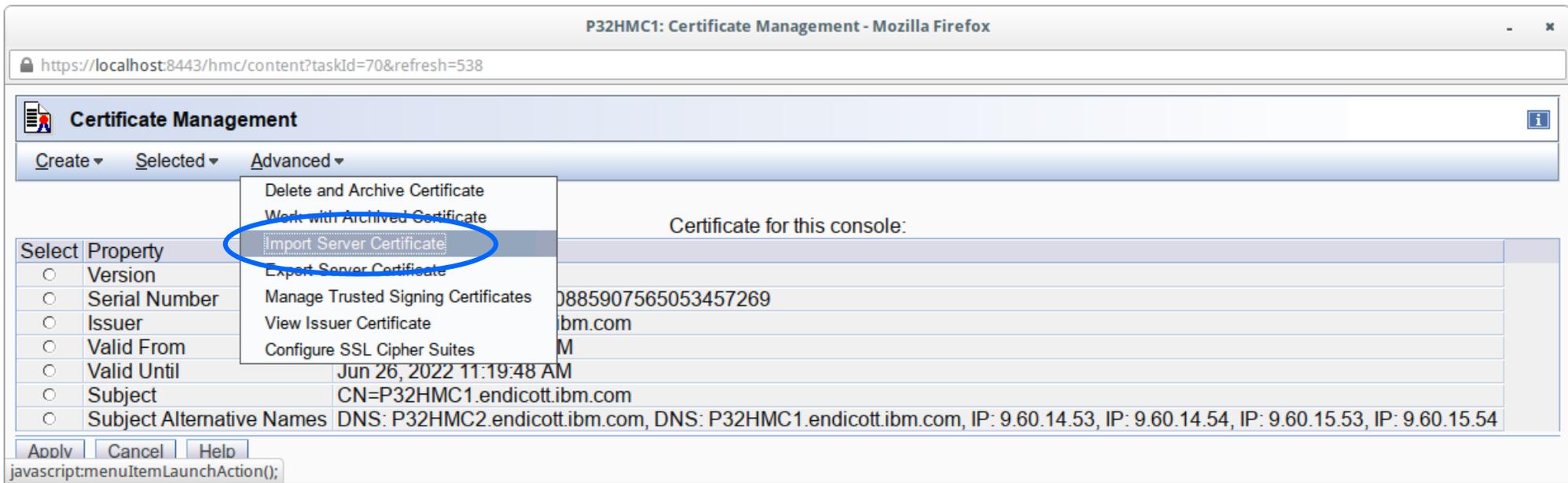
Locality (e.g. Los Angeles)

Number of days until expiration (e.g. 365) *

Email address (e.g. xxxx@ibm.com)

HMC Certificate Management (cont.)

- After generating a new certificate using the CSR, use *Import Server Certificate* to load the new certificate



- Load the new certificate using removable media
- The new certificate will now be used for new HMC connections

Monitor System Events

Monitor System Events

- Allows you to receive an email when a particular event happens for objects that you're interested in
- Supported event types
 - State Changes
 - Hardware Message
 - Operating System Messages
 - Security Log
 - Performance Index
 - Availability Status
- Uses an SMTP server to send out email
 - It's recommended that you use a private SMTP server designated just for the HMCs use

Monitor System Events (cont.)

- Launch **Monitor System Events** task
- Configure SMTP settings



Monitor System Events

Add, edit, test, enable, disable, or delete system event monitors

Event Monitor Summary

Settings

SMTP Server:

SMTP Port: *

Minimum time between emails:* (in seconds, minimum of 60)

Monitors

Select	Name	Description	Last Event	Enabled
<input checked="" type="radio"/>	Availability Status Example	Example availability status monitor		<input type="checkbox"/>
<input type="radio"/>	HW Msg Example	Example hardware message monitor.		<input type="checkbox"/>
<input type="radio"/>	OS Msg Example	Example operating system message monitor.		<input type="checkbox"/>
<input type="radio"/>	Security Log Example	Example security log monitor.		<input type="checkbox"/>
<input type="radio"/>	Service Class PI Example	Example service class PI monitor		<input type="checkbox"/>
<input type="radio"/>	State Change Example	This is example of a state change monitor.		<input type="checkbox"/>
<input type="radio"/>	Virtual Server CPU Example	Example virtual server CPU utilization monitor		<input type="checkbox"/>
<input type="radio"/>	hdwmsg2		Jan 31, 2013 2:43:06 PM	<input type="checkbox"/>
<input type="radio"/>	hdwmsg3			<input type="checkbox"/>

Add... Edit... Delete

OK Test... Help

Monitor System Events (cont.)

- Manage existing monitors or click the *Add* button to create a new monitor

Event Monitor Summary

Settings

SMTP Server: 9.56.214.105

SMTP Port: * 25

Minimum time between emails: * 300 (in seconds, minimum of 60)

Monitors

Select	Name	Description	Last Event	Enabled
<input checked="" type="radio"/>	Availability Status Example	Example availability status monitor		<input type="checkbox"/>
<input type="radio"/>	HW Msg Example	Example hardware message monitor.		<input type="checkbox"/>
<input type="radio"/>	OS Msg Example	Example operating system message monitor.		<input type="checkbox"/>
<input type="radio"/>	Security Log Example	Example security log monitor.		<input type="checkbox"/>
<input type="radio"/>	Service Class PI Example	Example service class PI monitor		<input type="checkbox"/>
<input type="radio"/>	State Change Example	This is example of a state change monitor.		<input type="checkbox"/>
<input type="radio"/>	Virtual Server CPU Example	Example virtual server CPU utilization monitor		<input type="checkbox"/>
<input type="radio"/>	hdwmsg2		Jan 31, 2013 2:43:06 PM	<input type="checkbox"/>
<input type="radio"/>	hdwmsg3			<input type="checkbox"/>

Buttons: Add... Edit... Delete

Buttons: OK Test... Help

Monitor System Events (cont.)

- Enter in a name for the monitor
- Choose the event type
- Select event targets and details
- Select/Enter Event Pattern for matching events
- Limit to a particular schedule
- Enter in one or more email addresses to be notified when the monitor is triggered

Event Monitor Editor

Name:

Description:

Event type:

- State Changes
- Hardware Messages
- Operating System Messages
- Security Log
- CPU Utilization
- Performance Index (PI)
- Availability Status

Event targets:

Select	Object Name
<input type="checkbox"/>	P00E9EB6:MCSIMTST
<input type="checkbox"/>	P00E9EB6:VMALT1
<input checked="" type="checkbox"/>	P00E9EB6:VMALT2
<input type="checkbox"/>	P00E9EB6:ZOS
<input type="checkbox"/>	P00E9EB6:ZOS1
<input type="checkbox"/>	POLXSM28

Event pattern:

Event schedule:

- Limit to times: Start Time: End Time:
- Limit to days: Sunday Monday Tuesday Wednesday Thursday Friday Saturday
- Limit to dates: Start Date: End Date:

Notification list:

Monitor System Events (cont.)

- Email contains events summary since last email

Who	Subject	Date	Size
P32HMC1_EventM	Monitor System Events, Message Count: 1	07/24/2014 10:46 AM	6K



Monitor System Events, Message Count: 1
P32HMC1_EventMonitor to: Jason Stapels

Message Number: 1 *****
 Event: 'State Change'
 Source: 'P00E9EB6 VMALT2'
 Text: 'Operating-->Not Operating'
 Time: 'Jul 24, 2014 10:46:24 AM EDT'
 Monitor:
 Name: 'z/VM Gets Deactivate'
 Description: 'z/VM Partition is no longer operating'
 Enabled: 'true'
 Regular Expression: '.*-->Not Operating # From any state to Not Operating'
 Start Time: 'unspecified'
 End Time: 'unspecified'
 Start Date: 'unspecified'
 End Date: 'unspecified'
 Active Days: '[Sun, Mon, Tue, Wed, Thu, Fri, Sat]'
 Email Addresses: 'jstapels@us.ibm.com'
 Locale: 'en_US'

Absolute Capping

Absolute Capping

- Existing ways to cap the utilization of a partition
 - Dedicated processors
 - Active manipulation of LPAR weights (i.e. WLM)
 - capping via LPAR weights
 - Limit number of shared logical processors to physical capping requirement (may actually cause LPAR to have under-defined logical processors as compared to the partition's weight)

Absolute Capping (cont.)

- Potential drawbacks with methods mentioned
 - Dedicated processors
 - Not very granular, may want to cap less than one processor's worth of capacity
 - May not be possible if there aren't enough engines
 - Loses processor utilization efficiency of shared processors
 - Existing shared processor capping is based off of the weight of all active partitions
 - Customers may fail to compute the capacity correctly
 - Configuration change (processors add) may lead to more capacity being allocated than desired
 - If partitions are deactivated, other active partitions capping increases
 - If only one shared active partition left, result => no capping (100 % of shared pool)

Absolute Capping (cont.)

- Absolute Capping
 - Additional method introduced to ensure software licensing Terms and Conditions related to capacity are always met (ie. Software Pricing)
- A method to define an absolute cap for a given partition
 - If specified, always works independently of any other capping
 - Defines an absolute number of processors to cap the partition's activity to
 - Specified to hundredths of a processor (eg. 4.56 processors) worth of capacity
 - Value not tied to the LICCC processors maximum
 - A value from 0.01 to 255 valid
 - Activation profiles more portable as you migrate to higher machine capacity or newer systems
 - If you specify a value above current machine maximum or number of processors defined for an LPAR (Image), absolute capping will be ignored but other capping means will still be honored

Absolute Capping (cont.)

- Absolute Capping Controls:
 - Activation Profiles
 - Customize Activation Profiles
 - Classic editor
 - Profile wizard
 - Change LPAR Controls Task
 - Change LPAR Weights Scheduled Operation
 - APIs
 - SNMP APIs
 - CIMMOM APIs
 - WebServices APIs

Absolute Capping (cont.)

Group Name <Not Assigned>

Logical Processor Assignments

Dedicated processors

Select	Processor Type	Initial	Reserved
<input checked="" type="checkbox"/>	Central processors (CPs)	8	1
<input checked="" type="checkbox"/>	System z application assist processors (zAAPs)	0	1
<input checked="" type="checkbox"/>	System z integrated information processors (zIIPs)	0	1

Not Dedicated Processor Details for :
 CPs zAAPs zIIPs

CP Details

Initial processing weight: 10 (1 to 999) Initial capping

Enable workload manager

Minimum processing weight: 0

Maximum processing weight: 0

Absolute Capping: None Number of processors (0.01 to 255.0) 5.5

Buttons: Cancel, Save, Copy Profile, Paste Profile, Assign Profile, Help

May be combined with traditional capping or WLM, but not both

LPAR Weight Potential Max Cap: 8

Absolute Cap: 5.5

Absolute Capping (cont.)

P32HMC1: Change LPAR Controls - Mozilla Firefox

https://localhost:8443/hmc/wcl/T3893

Change Logical Partition Controls - P00E9EB6

Last reset profile attempted:
Input/output configuration data set (IOCDs):a0 P32VMIOC

CPs zAAPs zIIPs Processor Running Time

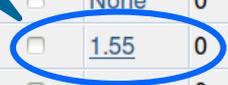
Logical Partitions with Central Processors

--- Select Action ---

Logical Partition	Active	Defined Capacity	Current	Initial Capping	Absolute Capping	Number of Dedicated Processors	Number of Not dedicated Processors
APIVM1	Yes	0		<input type="checkbox"/>	None	0	2
APIVM2	No	0		<input type="checkbox"/>	None	0	1
GDLVMBUV	No	0		<input type="checkbox"/>	None	0	1
LX1	Yes	0	<input type="checkbox"/> 10	<input type="checkbox"/> 10	None	0	4
LX2	Yes	0	<input type="checkbox"/> 10	<input type="checkbox"/> 10	None	0	4
MCSIM	Yes	0	<input type="checkbox"/> 10	<input type="checkbox"/> 10	None	0	8
MCSIMTST	No	0	<input type="checkbox"/> 0	<input type="checkbox"/> 10	None	0	4
VMALT1	Yes	0	<input type="checkbox"/> 10	<input type="checkbox"/> 10	<input type="checkbox"/> 1.55	0	2
VMALT2	Yes	0	<input type="checkbox"/> 10	<input type="checkbox"/> 10	<input type="checkbox"/> None	0	2
ZOS	No	0	<input type="checkbox"/> 0	<input type="checkbox"/> 10	<input type="checkbox"/> None	0	6
ZOS1	No	0	<input type="checkbox"/> 0	<input type="checkbox"/> 10	<input type="checkbox"/> None	0	1

Save to Profiles Change Running System Save and Change Reset Cancel Help

Click on link to make Changes to the Absolute Capping setting



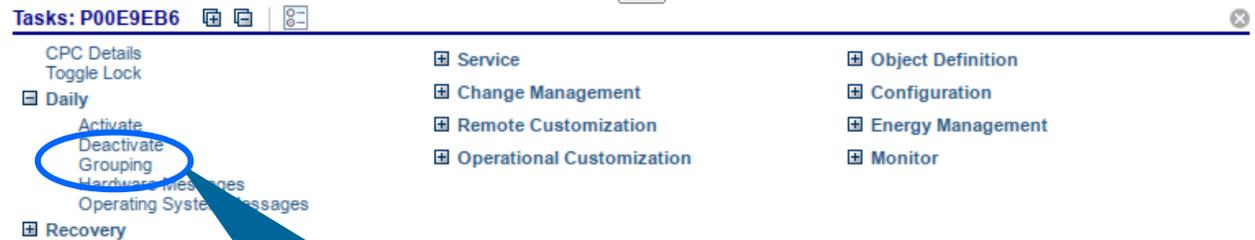
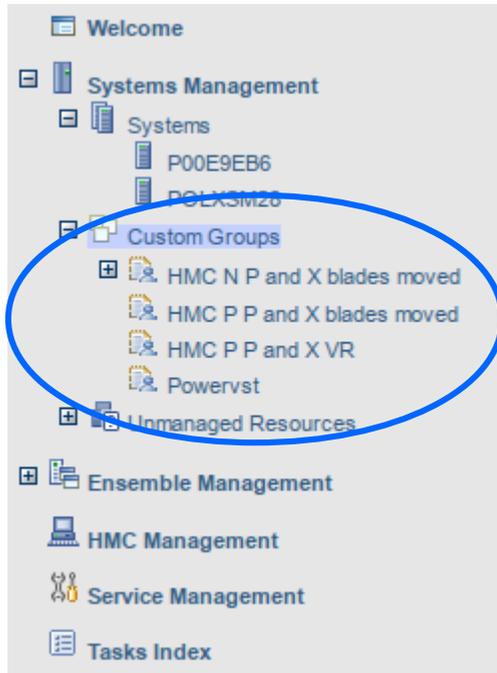
Custom Groups

Custom Groups

- A custom group is a set of objects that have been grouped based on a specific set of criteria:
 - Group based on a name pattern
 - Group based on an object type
 - Group based on a specific selection of objects
- A convenient way to work with only the objects that you care about
- Set your group up based on a location or a environment type
- Easily run tasks against the custom group

Custom Groups

- Quickly access from the Tree Navigation pane

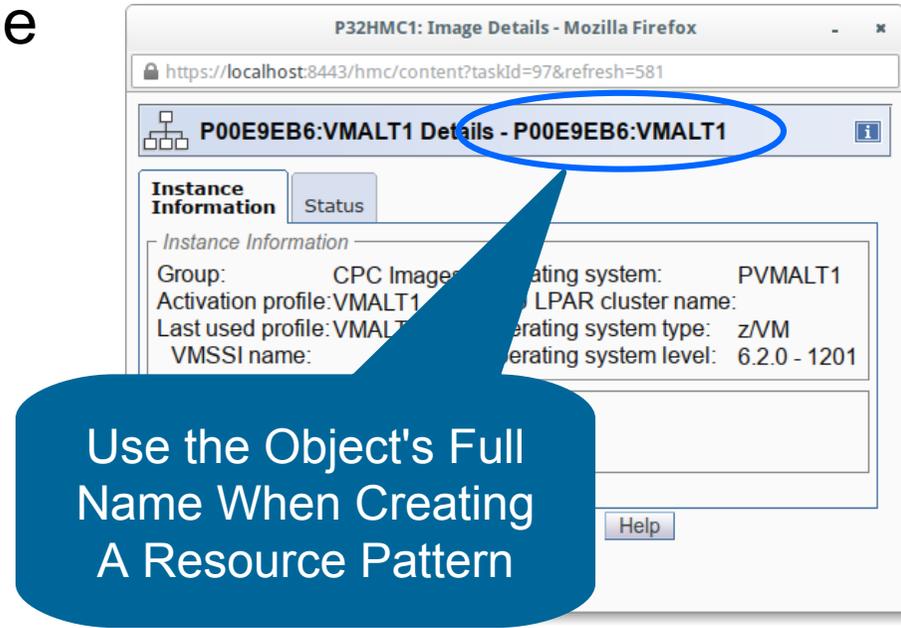
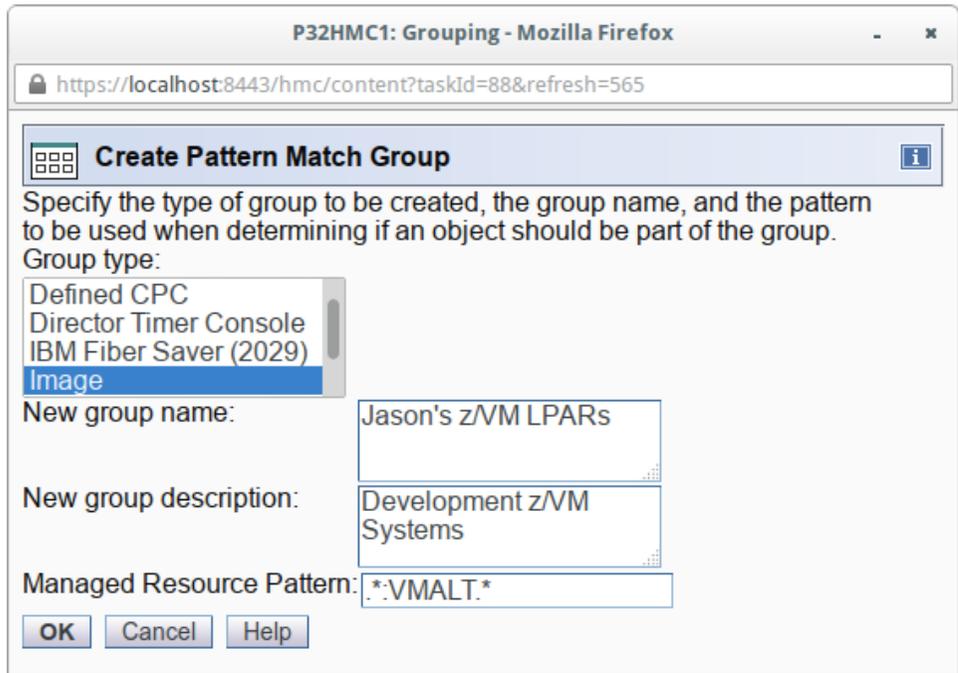


Accessed from the Daily Tasks

- Use the **Grouping** task to configure

Custom Groups (cont.)

- Creating a new custom group based on name filters
- Be sure to use the FULL object name



Custom Groups (cont.)

- Or create a group from a selection of objects

Systems Management > Systems > P00E9EB6

Images | z/VM Virtual Machines | Topology

Filter: [] Tasks: [] Views: []

Select	Name	Status	Activation Profile	Last Used Profile	OS Name	OS Type	OS Level
<input checked="" type="checkbox"/>	APIVM1	Not Operating	APIVM1				
<input checked="" type="checkbox"/>	APIVM2	Not activated	APIVM2				
<input type="checkbox"/>	GDLVMBUV	Not activated	GDLVMBUV				
<input type="checkbox"/>	LX1	Not Operating	LX1	LX1			
<input type="checkbox"/>	LX2	Exceptions	LX2				
<input type="checkbox"/>	MCSIM	Exceptions	MCSIM	MCSIM			
<input type="checkbox"/>	MCSIMTST	Not activated	MCSIMTST				
<input checked="" type="checkbox"/>	VMALT1	Operating	VMALT1	VMALT1	PVMALT1	z/VM	6.2.0 - 1201
<input checked="" type="checkbox"/>	VMALT2	Not activated	VMALT2				
<input type="checkbox"/>	ZOS	Not activated	ZOS				
<input type="checkbox"/>	ZOS1	Not activated	ZOS1				

Max Page Size: 500 | Total: 11 | Filtered: 11 | Selected: 4

Tasks: APIVM1...

Image Details | Toggle Lock

- Daily
 - Activate
 - Deactivate
 - Grouping**
 - Hardware Messages
 - Operating System Messages
 - Reset Normal
- Recovery
 - Access Removable Media
 - Integrated 3270 Console
 - Integrated ASCII Console
 - Load
 - Load from Removable Media or Server
 - PSW Restart
 - Reset Clear
- Operational Customization
 - Configure Channel Path On/Off
 - Customize/Delete Activation Profiles
 - Logical Processor Add
 - View Activation Profiles

Select Objects Then Launch Grouping Task From Daily Actions

P32HMC1: Grouping - Mozilla Firefox

https://localhost:8443/hmc/content?taskId=90&refresh=568

Manage Groups

Selected Item(s):

- P00E9EB6 APIVM1
- P00E9EB6 APIVM2
- P00E9EB6 VMALT1 (PVMALT1)

Select the type of group action to perform.

Group Action

- Create a new group
- Add to an existing group
- Remove from an existing group
- Remove group
- Edit existing group
- Create a new pattern match group

New group name: All Jason's z/VM LPARs

New group description:

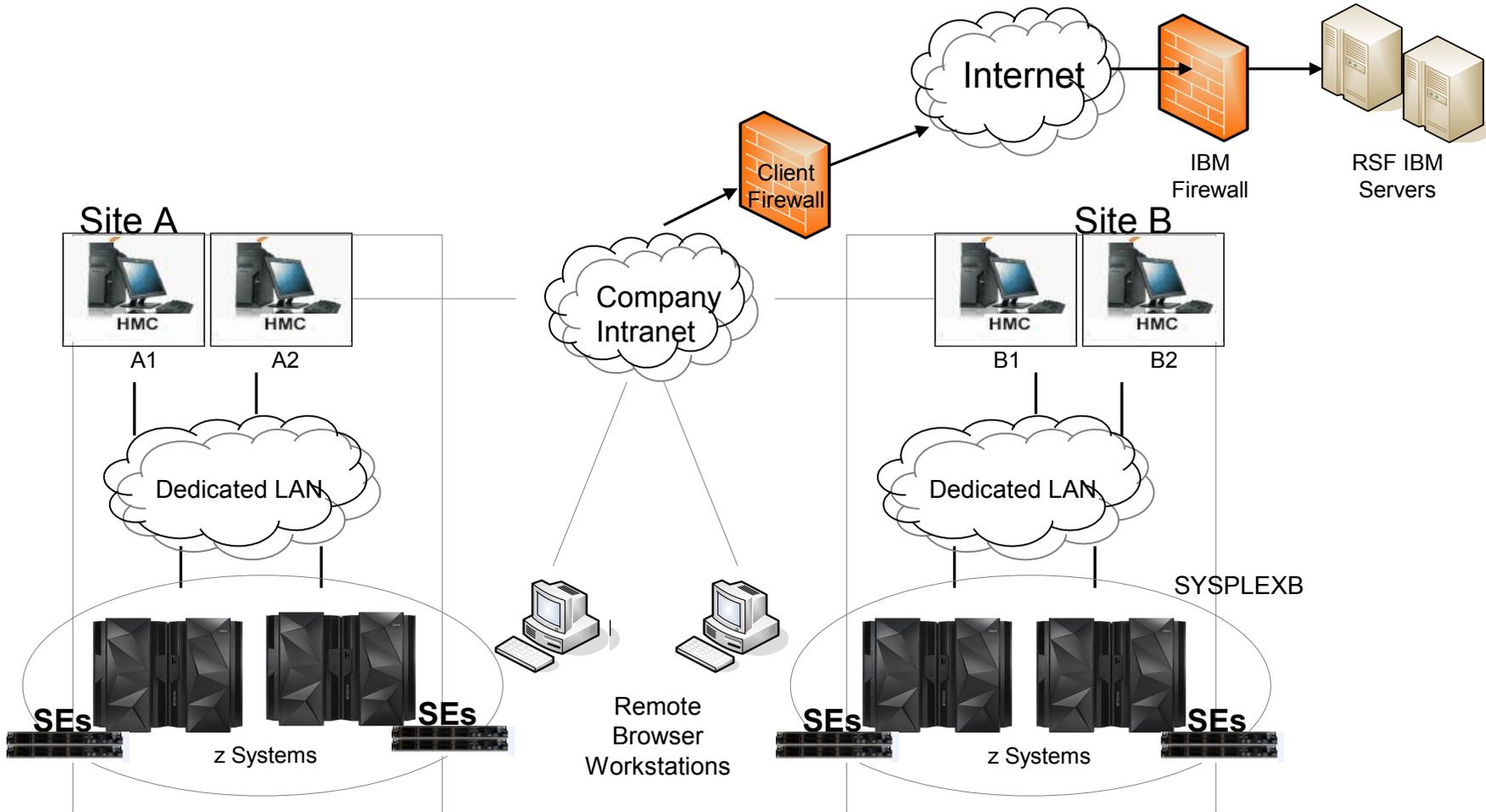
Group name:

- HMC N P and X blades moved
- HMC N P and X VRs
- Powervst

OK | Cancel | Help

Setting up HMCs for Redundancy

Multiple Sysplex Network Topology



Setting up HMCs for Redundancy

- Enable 2 HMCs as Problem Call Home Servers
 - Execute Customize Outbound Connectivity task on each HMC to enable
- Ensure that 2nd HMC Outward Intranet LAN to RSF Servers has outward firewall ports opened for port of multiple RSF servers
 - See HMC 2.13.0 SHARE presentation for list of RSF ips/ports to open
 - Could be two different outward subnets
 - HMC A1 2nd ethernet => subnet intr1, HMC A2 2nd ethernet => subnet intr2
- Have HMCs on different subnet connections to CPCs/SEs
 - Each SE has two network connections
 - Ensure each network connection goes to a different HMC
 - Primary SE em3 => HMC A1 subnet ded1,
 - Primary SE em4 => HMC A2 subnet ded2
 - Alternate SE configured same

Thank you for your time and consideration....



Brian Valentine
HMC/SE Team

Contact for any Questions:

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Other SHARE Sessions of Related Interest

- August 10th, 1:45 – 2:45 PM
 - **17416:** *IBM z Systems Hardware Management Console (HMC) 2.13.0*
- August 11th, 11:15 AM – 12:15 AM
 - **17434:** *The New IBM z13 Part 1: Processor Design, Server Structure, z/Architecture Enhancements, and Operating System Support*
- August 11th, 1:45 – 2:45 PM
 - **17435:** *The New IBM z13 Part 2: Crypto, I/O Design, Features, and Functions, Parallel Sysplex and Implementation Planning*
- August 11th, 3:15 – 4:15 PM
 - **17705:** *Connect the Dots: a z13 and z/OS Dispatching Update*
- August 13th, 3:15 – 4:15 PM
 - **17414:** *How to Make the Most out of BCPii with z/OS 2.2 updates*

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