zEnterprise System

Hardware Management Console Operations Guide for Ensembles Version 2.12.0

SC27-2622-00

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Note:
Before using this information and the product it supports, read the information in "Safety" on page ix, Appendix B, "Notices," on page 79, and *IBM Systems Environmental Notices and User Guide*, Z125–5823.

This edition, SC27-2622-00, applies to the IBM Hardware Management Console, Version 2.12.0.

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Safety

Safety notices

Safety notices may be printed throughout this guide. **DANGER** notices warn you of conditions or procedures that can result in death or severe personal injury. **CAUTION** notices warn you of conditions or procedures that can cause personal injury that is neither lethal nor extremely hazardous. **Attention** notices warn you of conditions or procedures that can cause damage to machines, equipment, or programs.

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All lasers are certified in the US to conform to the requirements of DHHS 21 CFR Subchapter J for Class 1 or Class 1M laser products. Outside the US, they are certified to be in compliance with IEC 60825 as a Class 1 or Class 1M laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION: Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION: This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

About this publication

This publication describes the IBM zEnterprise® Unified Resource Manager tasks you can use on the Hardware Management Console (HMC). It reflects the licensed machine code for the HMC Application, Version 2.12.0. You can tell if your HMC has this version installed by looking at the title bar on the workplace window or by hovering your mouse over **HMC Version** from the Welcome pane in the tree style user interface.

You can use this publication for the following IBM System z processors:

- IBM zEnterprise 196 (z196)
- IBM zEnterprise 114 (z114)
- IBM zEnterprise EC12 (zEC12)

Use this publication along with the *Hardware Management Console Operations Guide*.

Notes:

- In the zEnterprise environment, the term *CPC* consists of a zEnterprise mainframe and any attached IBM zEnterprise BladeCenter® Extension (zBX). The term *zCPC* refers to the physical collection of main storage, central processors, timers, and channels within a zEnterprise mainframe.
- Tasks can be performed remotely, unless stated otherwise.
- The windows represented in this document are general samples. They might not represent the exact windows that are displayed for your user ID or version.

Related publications

Other IBM publications that you will find helpful and that you should use along with this publication are in the following list. You can access the portable document format (PDF) files from Resource Link® at http://www.ibm.com/servers/resourcelink under the **Library** section.

- *System z Hardware Management Console Operations Guide*, SC28-6919, guides you on using the HMC, assists in navigating you through the classic style and tree style user interfaces, and describes the tasks you can use on the Hardware Management Console.
- *zEnterprise System Support Element Operations Guide*, SC28-6920, guides you on using the SE, assists in navigating you through the classic style and tree style user interfaces, and describes the tasks you can use on the Support Element.
- *zEnterprise System Introduction to Ensembles*, GC27-2609, introduces concepts and describes the value proposition for deploying business solutions in a zEnterprise environment. This introduction also lists the hardware and software products and possible physical configurations.
- *zEnterprise System Ensemble Planning and Configuring Guide*, GC27-2608, leads you through the planning and implementation phases for moving business application solutions from a distributed environment to an integrated set of virtual servers running in a zEnterprise environment.
- *zEnterprise System Ensemble Performance Management Guide*, GC27-2607, helps you define, create, and manage the performance goals of business solutions deployed in a zEnterprise environment.

How to view this guide

If you are accessing the console remotely, this guide is available in a PDF file to view or print as an online document or you can access it on Resource Link™ (http://www.ibm.com/servers/resourcelink).

When the PDF version of the guide opens, a list of bookmarks is displayed on the left side. These bookmarks display the highest-level topics in the order in which they appear as chapters in the book. If

any of these topics have lower-level topics, a **+** is displayed to the left of the higher-level topic. To expand the topic, click once on the **+** and the next level is displayed.

If you are accessing the console locally, this guide is available in HTML format to view as an online document from the console.

When the HTML version of the guide opens, you can scroll forward past the title page where the table of contents is displayed. You can click any of the titles to view the information in which you are interested. Click **Forward** and **Back** at the top of your window to move around in the document. Click **Close** when you are done viewing the document.

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What's new in version 2.12.0

This guide reflects the licensed internal code for the Hardware Management Console Application, Version 2.12.0. You can tell if your Hardware Management Console has this version installed by looking at the title bar on the Hardware Management Console workplace window or by pointing your mouse over **HMC Version** in the top of the work pane window when using the tree style user interface. New enhancements to the version code are described in this guide.

There might be other changes to the licensed internal code that are not described in this guide. For more information, see the PDF files available on Resource Link at http://www.ibm.com/servers/resourcelink or the other documents shipped with your processor.

Technical changes to the text are indicated by a vertical bar (|) to the left of each new or changed line of information.

New and changed tasks

This section summarizes the new and changed tasks for Version 2.12.0. You can also open the **What's New** task on the Hardware Management Console for a list of the enhancements.

The new and changed tasks for Version 2.12.0 include the following:
- Updates to Configure Top-of-rack (TOR) Switch task that you use to configure switches identically.
- The term *workload* is renamed to *workload resource group*.
- The **New Workload** task is renamed to **New Workload Resource Group**.

- The **Workload Details** task is renamed to **Workload Resource Group Details**.
- The **Delete Workload** task is renamed to **Delete Workload Resource Group** task.
- The **Workload Print View** is renamed to **Workload Resource Group Print View**.
- The **Manage zBX Move** task is added.

Chapter 1. Overview

This chapter briefly describes the Unified Resource Manager functions of the Hardware Management Console (HMC) and the Unified Resource Manager tasks that you can perform on the HMC or system resources.

Unified Resource Manager allows for the management and optimization of a zEnterprise System as a single resource pool. An ensemble is a group of one to eight zEnterprise Systems to be managed as one single logical virtualized system.

zBX blade types:

- Optimizers (ordered as part of System z):
  - IBM WebSphere® DataPower® Integration Appliance XI50 for zEnterprise (DataPower XI50z)
- IBM blades (customer procured outside of System z):
  - POWER® blade
  - System x® blade

You can use the following links to access information about the Unified Resource Manager functions:

Ensemble Membership Management

With the appropriate code level installed, the HMC provides tasks for creating an ensemble and controlling membership of the ensemble. The HMC that creates the ensemble is enabled to perform subsequent platform management functions on that ensemble. In addition, the HMC can still perform all the non-ensemble HMC functions on systems, regardless of whether the HMC is managing an ensemble.

The HMC managing the ensemble owns the platform management configuration and policy that spans all of the managed members in the ensemble. It also has an active role in system monitoring and adjustment. With these new responsibilities, the primary HMC is required to have an alternate HMC for redundancy. The alternate HMC has a limited set of tasks and is designated solely as a backup HMC in case the primary HMC fails.

The **Ensemble Management Guide** task assists you with setting up and managing an ensemble. It familiarizes you with the various tasks for creating and managing aspects of an ensemble. For convenience, the guide task also provides links for opening the ensemble management tasks.

Ensemble Membership Management tasks include:

Ensemble managed objects include:

- Ensemble
- Ensemble Members
- Hypervisors
- Storage Resources
- Virtual Networks
- Virtual Servers
- Workloads
- zBX blades
- zBX BladeCenters

See *Introduction to Ensembles* for details about the objects.

Workload Resource Groups and Performance Management

The platform performance manager is responsible for performance monitoring and management across the components of the zEnterprise System, including both the traditional System z components and the IBM zEnterprise BladeCenter extension (zBX) based components.

One of the key concepts supporting the platform performance manager is the workload resource group, which provides the context for managing platform resources based on the requirements of a deployed business application. The workload resource group is supported by a set of the virtual servers that host a business application and the workload resource group provides a grouping mechanism and a management view of these virtual servers. A given virtual server might be exclusively associated with a single workload resource group or shared across multiple workload resource groups.

Associated with a workload resource group is a set of policies which specify goals controlling how platform resources are applied to the virtual servers that make up the workload resource group. These goals are defined in the context of the requirements of the business application the workload resource group represents. Performance policies specify performance goals for the work running in the workload resource group. Performance policies control how platform resources are dynamically provided to the virtual servers making up the workload resource group.

A workload resource group performance policy might contain one or more service classes. A service class is a group of work for which you have similar business goals or business requirements. Each service class contains a business performance goal and a classification rule. The classification rule identifies how one or more fragments of a workload resource group are associated with the service class.

Workload Resource Groups and Performance Management tasks include:

- **"Customize Scheduled Operations" on page 23**
- **"Delete Workload Resource Group" on page 27**
- **"Ensemble Details" on page 27**
- **"Monitor System Events" on page 46**
- **"Monitors Dashboard" on page 47**
- **"New Performance Policy" on page 48**
- **"New Workload Resource Group" on page 50**
- **"Resource Adjustments Report" on page 52**
- **"Service Classes Report" on page 53**
  - **"Hops Report" on page 54**
  - **"View Statistics" on page 54**
  - **"Virtual Server Topology Report" on page 55**
- **"Virtual Servers Report" on page 58**
  - **"Hypervisor Report" on page 58**
- **"Workload Resource Group Details" on page 59**
  - **"Activate Performance Policy" on page 60**
  - **"Add Custom Groups" on page 60**
  - **"Add Virtual Servers" on page 61**
  - **"Performance Policy Details" on page 61**
    - **"New Service Class" on page 62**
  - **"Performance Policy Print/View" on page 63**
  - **"Performance Policy Revisions" on page 63**
  - **"Service Class Details" on page 64**
  - **"Service Class Print/View" on page 64**
  - **"Workload Resource Group Print View" on page 65**
- **"Workloads Report" on page 65**
  - **"Load Balancing Report" on page 66**

See *zEnterprise System Ensemble Performance Management Guide* to help you define, create, and manage the performance goals of business solutions deployed in a zEnterprise environment.

Energy Management

Energy management tasks provide functions to monitor, manage, and customize power allocations within the physical limits of your data center. You can monitor power and thermal properties of your ensemble, CPCs, zBX blades, and zBX BladeCenters by using *Monitors* tasks and their associated *Details* tasks. You can use the **Set Power Cap** task to limit peak power consumption and the **Set Power Saving** task to reduce the average energy consumption of your system resources.

Energy Management tasks include:

- **"CPC Details" on page 20**
- **"Customize Scheduled Operations" on page 23**
- **"Customize/Delete Activation Profiles" on page 23**
- **"Ensemble Details" on page 27**
- **"Monitors Dashboard" on page 47**
- **"Set Power Cap" on page 55**
- **"Set Power Saving" on page 56**

- **"zBX Blade Details" on page 66**
- **"zBX BladeCenter Details" on page 68**

Network Management

Network management is delivered through the network virtualization function. This function has two key roles in ensemble operations and management:

- The network virtualization function manages all connectivity for virtual servers and optimizers across the intraensemble data network (IEDN).
- The network virtualization function manages the VMAC registry for the ensemble. It provides the capability to assign VMAC prefixes to hypervisors and virtual servers. Also, it provides the ability for the HMC administrator to reserve VMAC prefixes for special situations.

Network Management tasks include:

- **"Add Hosts to Virtual Network" on page 40**
- **"Configure Top-of-rack (TOR) Switch" on page 19**
- **"Delete Virtual Network" on page 40**
- **"Manage Virtual Networks" on page 39**
- **"Network Monitors Dashboard" on page 48**
- **"New Virtual Network" on page 41**
- **"Remove Hosts from Virtual Network" on page 41**
- **"Repair Virtual Network" on page 42**
- **"Virtual Network Details" on page 42**

zBX Management

zBX management tasks operate on blade and BladeCenter objects. Some tasks are only valid for particular blade types. Other tasks have windows customized according to the blade type of the target. The zBX BladeCenter tasks also operate with a blade as the target. Additional zBX tasks are interspersed in other task groups; these tasks operate against a CPC object.

The HMC provides a single point of control for updating, fixing, monitoring, querying, activating, and deactivating the ensemble blades. After IBM blades are installed, the hypervisor support is managed as system firmware.

zBX Management tasks include:

- **"Activate zBX Blade" on page 17**
- **"CPC Details" on page 20**
- **"Customize Network Settings" on page 23**
- **"Deactivate zBX Blade" on page 25**
- **"Manage DataPower XI50z" on page 34**
- **"Manage zBX Move" on page 45**
- **"Monitors Dashboard" on page 47**
- **"Set Power Cap" on page 55**
- **"Set Power Saving" on page 56**
- **"zBX Blade Details" on page 66**
- **"zBX BladeCenter Details" on page 68**

Virtual Server Management

Virtual server management tasks on the HMC provide basic management functions for virtual servers hosted by z/VM® and IBM blade hypervisors.

The HMC provides a single point of control for creating, deleting, fixing, monitoring, querying, activating, and deactivating the virtual servers hosted by the hypervisors.

Virtual Server Management tasks include:

- **"Activate Virtual Server" on page 17**
- **"Choose z/VM Virtual Servers to Manage" on page 19**
- **"Customize Scheduled Operations" on page 23**
- **"Deactivate Virtual Server" on page 26**
- **"Delete Virtual Server" on page 26**
- **"Initiate Hypervisor Dump" on page 29**
- **"Initiate Virtual Server Dump" on page 30**
- **"Initiate z/VM Management Guest Dump" on page 31**
- **"Manage Virtual Switches" on page 44**
- **"Migrate Virtual Server" on page 45**
- **"Monitor System Events" on page 46**
- **"Monitors Dashboard" on page 47**
- **"Mount Virtual Media" on page 47**
- **"New Virtual Server" on page 49**
- **"New Virtual Server Based On" on page 49**
- **"Open Graphical Console" on page 51**
- **"Open Text Console" on page 51**
- **"Restart z/VM Management Guest" on page 53**
- **"Virtual Server Details" on page 57**

Storage Management

Storage management provides a common interface for allocating storage resources to an ensemble, adding and removing storage groups (z/VM only), and removing the storage resources from the ensemble, hypervisors, or virtual servers.

Storage Management tasks include:

- **"Manage Storage Resources" on page 35**
  - **"Details" on page 36**
  - **"Storage Group Details" on page 36**
  - **"Test Communication with Storage Resources" on page 37**
  - **"Import Storage Access List" on page 37**
  - **"Add Storage Resource" on page 37**
  - **"Remove Storage Resource" on page 37**
  - **"Export Worldwide Port Name (WWPN) List" on page 38**
  - **"Compare Access List" on page 38**
  - **"Add Storage Resource to Group" on page 38**
  - **"Remove Storage Resource from Group" on page 38**

Chapter 2. User interface (UI) styles

This chapter explains the ensemble-specific tree style and classic style user interface information. See the *Hardware Management Console Operations Guide* for additional user interface information.

Tree style user interface

This section explains how to navigate the user interfaces to perform Unified Resource Manager tasks on the Hardware Management Console (HMC) or on your system resources.

For additional tree style user interface information not covered in this section, see the "Using the tree style user interface" chapter in the *Hardware Management Console Operations Guide*.

Ensemble Management

On a primary Hardware Management Console (HMC), **Ensemble Management** manages ensemble-related objects. When you select **Ensemble Management** from the navigation pane, the work pane displays a **Getting Started** tab, as shown in Figure 1.

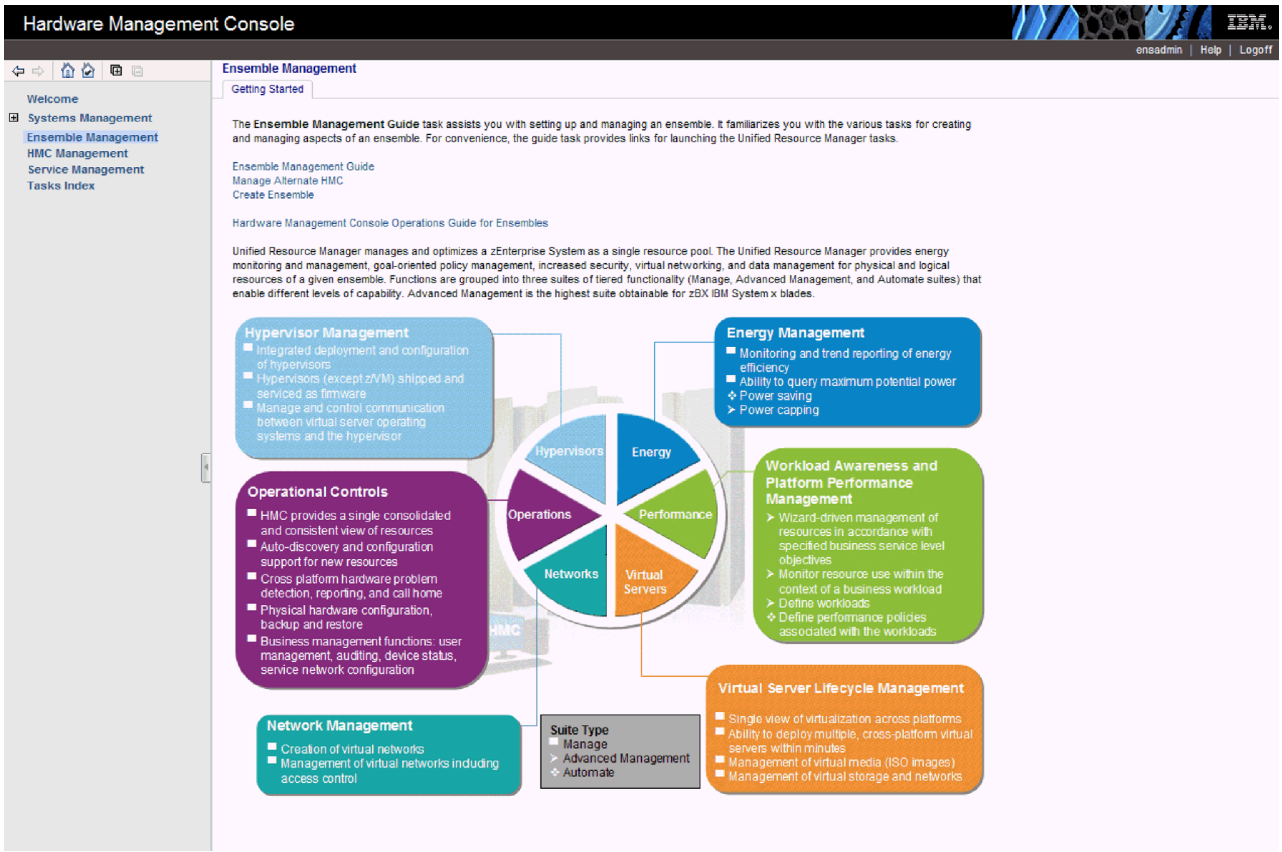

Figure 1. Hardware Management Console tree style user interface Getting Started tab

Use the **Ensemble Management Guide** task to assist you with setting up and managing an ensemble. This task is used by an ensemble administrator or a user ID that is assigned the ensemble administrator role. The default user ID is ENSADMIN. A link is provided on the **Getting Started** tab. For more information about this task, see the "Ensemble Management Guide" on page 29.

If an ensemble is created, the **Ensemble Management** node contains a tree view of the ensemble, as shown in Figure 2.

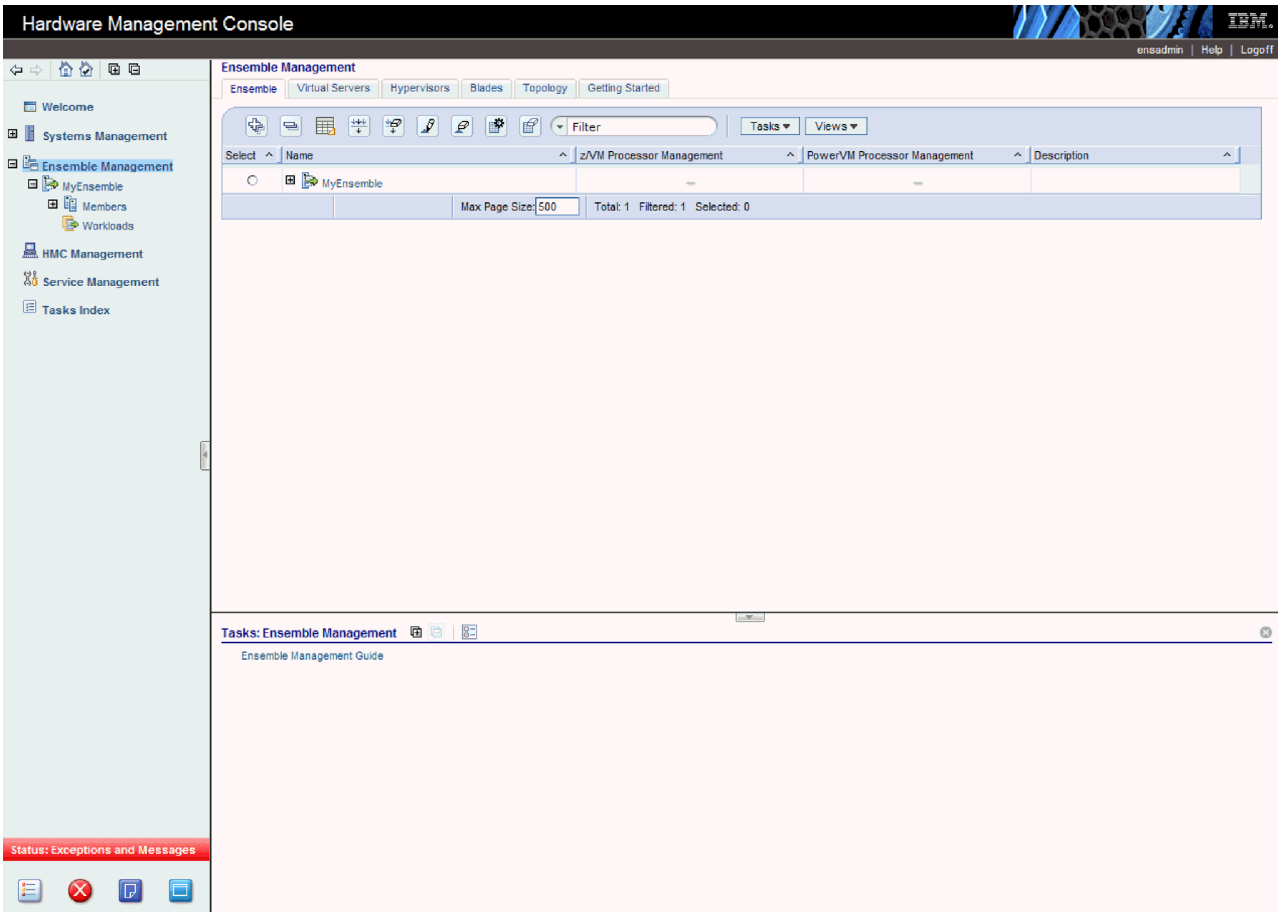

Figure 2. Hardware Management Console tree style user interface Ensemble Management window

On an alternate HMC, when you select **Ensemble Management** from the navigation pane, the work pane displays an **Alternate** tab, as shown in Figure 3 on page 9. The alternate HMC is displayed in the work pane table. The table identifies the Name, Status, Primary HMC, Ensemble, and Description. The alternate HMC has a limited set of tasks available.

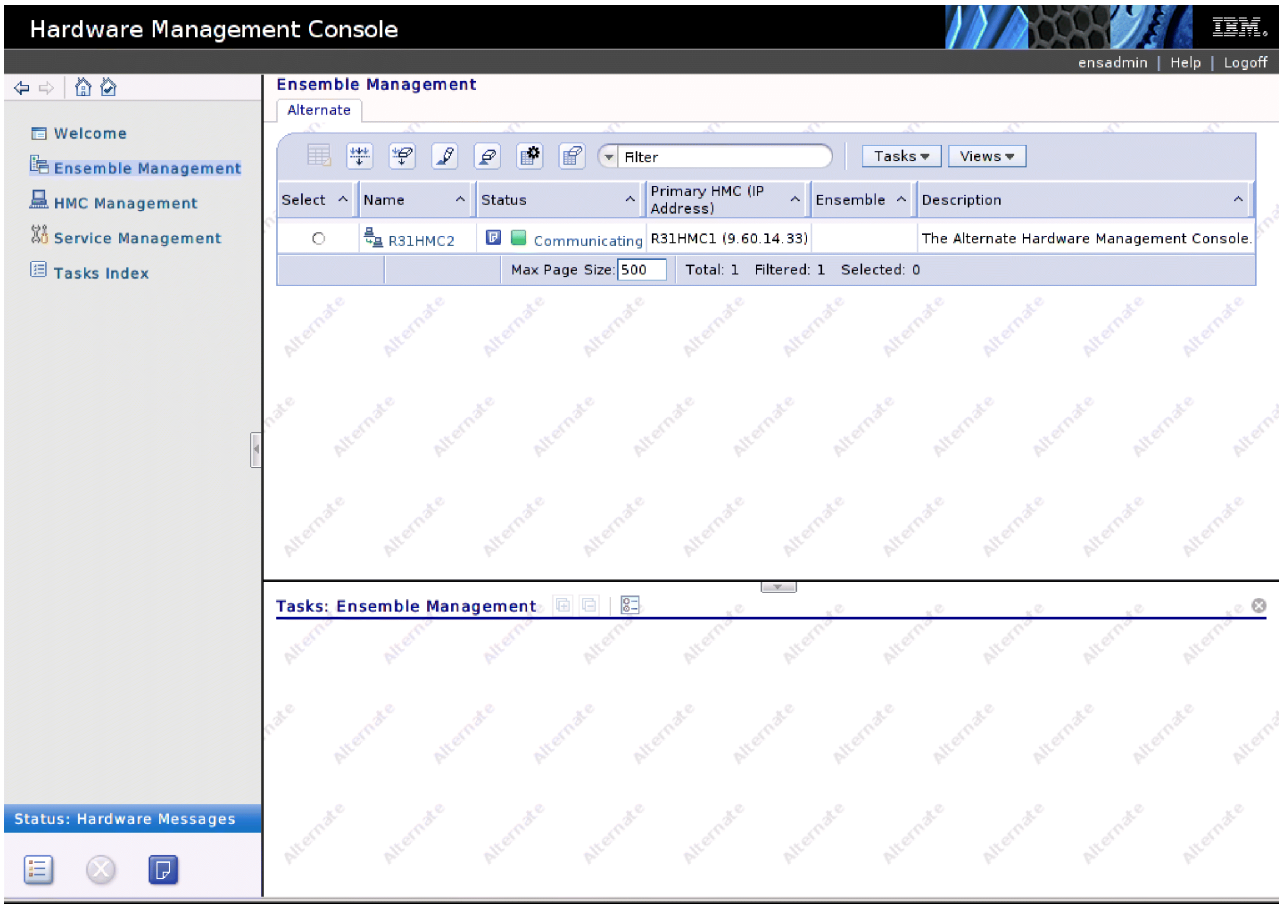

Figure 3. Hardware Management Console tree style user interface alternate HMC Ensemble Management window

Ensemble

The ensemble node represents a collection of CPCs (nodes) that are managed as a single logical virtualized system by the Hardware Management Console.

When you select the ensemble from **Ensemble Management** in the navigation pane, the following tabs are displayed in the work pane (see Figure 4 on page 10):

Ensemble Resources
Displays **Members** and **Workloads**.

Note: When you expand the ensemble in the navigation pane, **Members** and **Workloads** are displayed in the navigation pane.

Virtual Servers
Displays virtual servers defined on all members of the ensemble. For more information about virtual servers, see "Virtual Servers" on page 10.

Hypervisors
Displays hypervisors defined on all members of the ensemble. For more information about hypervisors and their respective virtual servers, see "Hypervisors" on page 10.

Blades

Displays zBX BladeCenters and their respective zBX blades defined on all members of the ensemble. For more information about zBX blades, see “Blades.”

Topology

Displays a topology view of the ensemble resources rooted at the selected scope in the navigation tree.

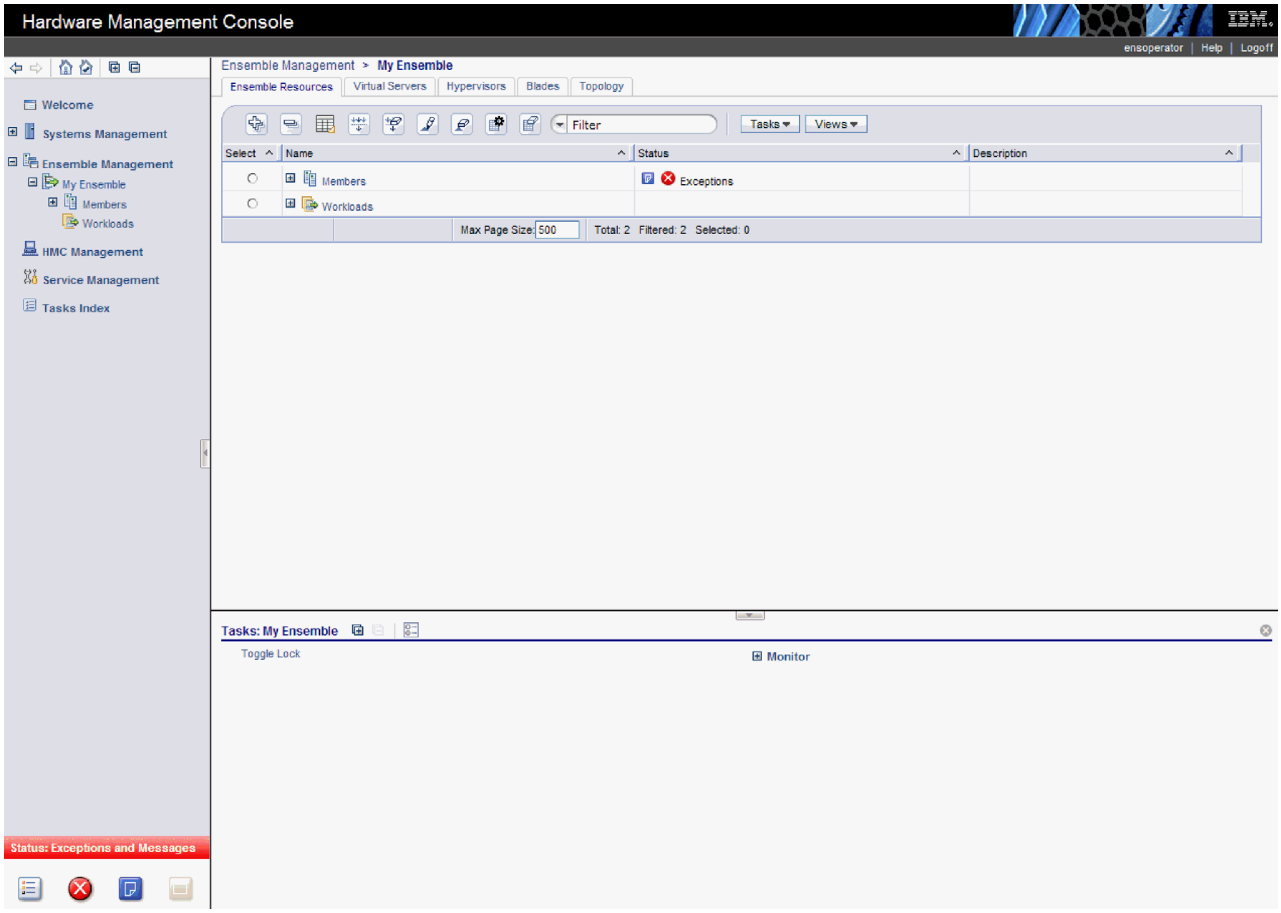

Figure 4. Hardware Management Console tree style user interface ensemble tabs

Virtual Servers:

The **Virtual Servers** tab can be used to display the virtual servers that are defined on all members of the ensemble. When a specific member is selected, only those virtual servers defined on the selected member is displayed in the work pane table. The tasks pad displays the appropriate tasks that can be performed on a selected virtual server.

Hypervisors:

The **Hypervisors** tab can be used to display hypervisors that are defined on all members of the ensemble. If virtual servers are defined for hypervisors, they are displayed as children of their respective hypervisor. When a specific member is selected, only those hypervisors defined on the selected member are displayed in the work pane table. The tasks pad displays the appropriate tasks that can be performed on a selected hypervisor.

Blades:

The **Blades** tab can be used to display zBX BladeCenters and their respective zBX blades that are defined on all members of the ensemble. If virtual servers are defined for any IBM blades, they are displayed as children of their respective IBM blade in the work pane table. When a specific member is selected, only those zBX BladeCenters and zBX blades defined on the selected member is displayed in the work pane table. The tasks pad displays the appropriate tasks that can be performed on a selected blade, BladeCenter, or virtual server.

Classic style user interface

For additional classic style user interface information not covered in this section, see the "Using the classic style user interface" chapter in the *Hardware Management Console Operations Guide*.

Hardware Management Console workplace

Views of the objects in your system are represented in the *Views* area. After you open the objects, they are displayed in the work area and their contents are available for further action.

The following are represented in the *Views* area:

- Groups
- Ensemble
- Exceptions
- Active Tasks
- Console Actions
- Task List
- Books
- Help

Note: After an ensemble is created, the **Ensemble** icon is displayed in the *Views* area. If you delete the ensemble, the **Ensemble** icon is removed from the *Views* area.

Use the **Create Ensemble** task from the *Console Actions Work Area* to create and optionally add members to the ensemble. Use the **Delete Ensemble** task to remove the ensemble from the primary HMC.

On an alternate HMC, double-click the **Groups** icon in the *Views* area to display the alternate HMC object in the *Groups Work Area*, as shown in Figure 5 on page 12. The alternate HMC has a limited set of tasks available.

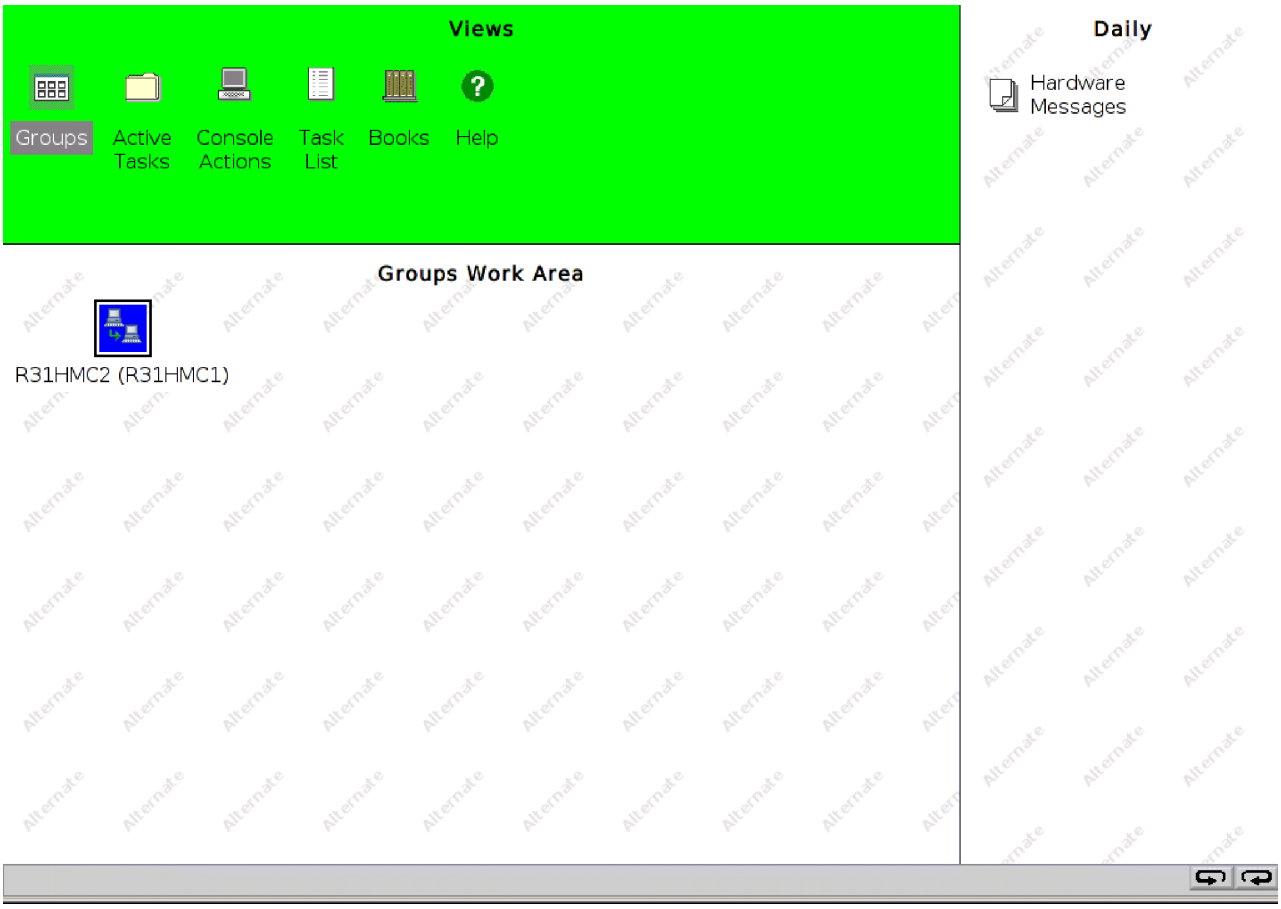

Figure 5. Hardware Management Console classic style user interface alternate HMC object

Ensemble

The objects of the **Groups** view are initially displayed in the *Groups Work Area* when you log on to the Hardware Management Console. To display the **Ensemble** view, double-click the **Ensemble** icon in the *Views* area. Ensemble object icons are displayed in the *Ensemble Work Area*, as shown in Figure 6 on page 13.

The following objects are represented in the *Ensemble Work Area*:

- *Ensemble_Name*
- Hypervisors
- Members
- Virtual Servers
- Workloads
- zBX BladeCenters
- zBX blades

Note: *Ensemble_Name* is the name that you used to create the ensemble. In this case, `My Ensemble` is the ensemble name used throughout this publication.

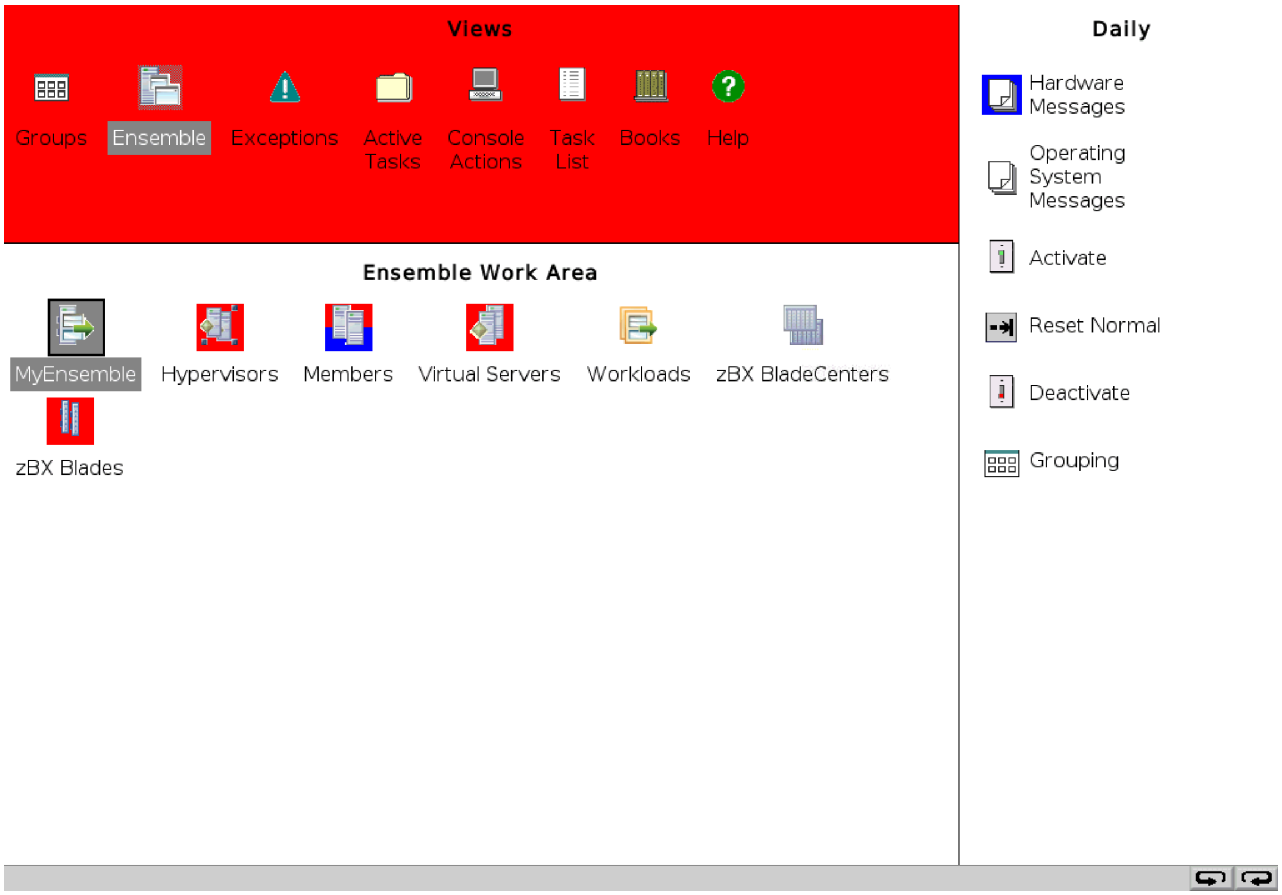

Figure 6. Hardware Management Console classic style user interface Ensemble Work Area

You can add a member to the ensemble or remove one by using the *drag and drop technique* or menu. For more information about adding or removing members, see "Add Member to Ensemble" on page 18 and "Remove Member from Ensemble" on page 52.

Ensemble:

Note: The text below the ensemble icon contains the ensemble name.

You can display the details about the ensemble by double-clicking the **Ensemble** icon in the *Ensemble Work Area*. An alternate way to display this information is to right-click the **Ensemble** icon, and then click **Ensemble Details** from the menu. In both cases, a window opens that displays the ensemble details. For more information about the **Ensemble Details** task, see "Ensemble Details" on page 27.

Hypervisors:

The **Hypervisors** group contains all hypervisors in the ensemble. You can double-click the **Hypervisors** icon in the *Ensemble Work Area* to display all hypervisors in the *Hypervisors Work Area*.

You can display the details about a hypervisor by double-clicking a hypervisor in the *Hypervisors Work Area*. An alternate way to display this information is to right-click a hypervisor, and then click **zBX Blade Details** or **Image Details** from the menu. In both cases, a window opens that displays the details. For more information about the **zBX Blade Details** task, see "zBX Blade Details" on page 66.

Members:

The **Members** group contains all members in the ensemble. You can double-click the **Members** icon in the *Ensemble Work Area* to display all members in the *Members Work Area*.

Virtual Servers:

The **Virtual Servers** group contains all virtual servers. You can double-click the **Virtual Servers** icon in the *Ensemble Work Area* to display all virtual servers in the *Virtual Servers Work Area*.

You can display the details about a virtual server by double-clicking a virtual server in the *Virtual Servers Work Area*. An alternate way to display this information is to right-click a virtual server, and then click **Virtual Server Details** or **Image Details** from the menu. In both cases, a window opens that displays the virtual server details. For more information about the **Virtual Server Details** task, see "Virtual Server Details" on page 57.

Workloads:

The **Workloads** group contains all workload resource groups in the ensemble. You can double-click the **Workloads** icon in the *Ensemble Work Area* to display all workload resource groups in the *Workloads Work Area*. A **Default** workload resource group icon is displayed in addition to workload resource groups that are defined.

You can display the details about a workload resource group by double-clicking a workload resource group in the *Workloads Work Area*. An alternate way to display this information is to right-click a workload resource group, and then click **Workload Resource Group Details** from the menu. In both cases, a window opens that displays the workload resource group details. For more information about the **Workload Resource Group Details** task, see "Workload Resource Group Details" on page 59.

zBX BladeCenters:

The **zBX BladeCenters** group contains all zBX BladeCenters in the ensemble. You can double-click the **zBX BladeCenters** icon in the *Ensemble Work Area* to display all zBX BladeCenters in the *zBX BladeCenters Work Area*.

You can display the details about a zBX BladeCenter by double-clicking a zBX BladeCenter in the *zBX BladeCenters Work Area*. An alternate way to display this information is to right-click a zBX BladeCenter, and then click **zBX BladeCenter Details** from the menu. In both cases, a window opens that displays the zBX BladeCenter details. For more information about the **zBX BladeCenter Details** task, see "zBX BladeCenter Details" on page 68.

zBX Blades: 

The **zBX Blades** group contains all zBX blades in the ensemble. You can double-click the **zBX Blades** icon in the *Ensemble Work Area* to display all zBX blades in the *zBX Blades Work Area*.

You can display the details about a zBX blade by double-clicking a zBX blade in the *zBX Blades Work Area*. An alternate way to display this information is to right-click a zBX blade, and then click **zBX Blade Details** from the menu. In both cases, a window opens that displays the zBX blade details. For more information about the **zBX Blade Details** task, see "zBX Blade Details" on page 66.

Chapter 3. Unified Resource Manager tasks

This chapter describes the Unified Resource Manager tasks that are available on the Hardware Management Console (HMC). Some Unified Resource Manager tasks are available only if the appropriate suite (Manage or Automate) is installed.

See Appendix A, "Unified Resource Manager tasks, roles, and default user IDs," on page 69 for a list of the Unified Resource Manager tasks, task roles, resource roles, and the corresponding predefined user IDs that can perform these tasks. If you cannot access these tasks, contact your access administrator.

For more information about navigating the tree style and classic style user interfaces and about opening the task groups, see the *Hardware Management Console Operations Guide*.

Use the online Help if you need additional information about performing these tasks.

Activate zBX Blade

Use this task to activate the selected zBX blade. Activation is considered a disruptive task.

Perform the following steps to activate the zBX blade:

1. Select a zBX blade.
2. From the **Daily** task group, open the **Activate** task. The Activate Task Confirmation window is displayed.
3. Review the information on the Activate Task Confirmation window to verify that the object you are activating is the selected zBX blade.
4. If the information is correct, click **Yes** to perform the activation.

   The Activate Progress window indicates the progress of the activation and the outcome.
5. Click **OK** to close the window when the activation completes successfully.

   Otherwise, if the activation does not complete successfully, follow the directions on the window to determine the problem and how to correct it.

Use the online Help if you need additional information about activating the zBX blade.

Activate Virtual Server

Use this task to activate one or more virtual servers. Activation is considered a disruptive task.

Perform the following steps to activate virtual servers:

1. Select one or more valid virtual servers to activate.
2. From the **Daily** task group, open the **Activate** task. The Activate Task Confirmation window is displayed.

3. Review the information displayed on the Activate Task Confirmation window to verify that the object you are activating is the selected virtual server.

   Note: To view the activation parameters about to be used for an object, click **View Details**.
4. If the information is correct and you want to continue this task, click **Yes**. If you want to end the task, click **No**.

   If you click **Yes**, the Disruptive Task Confirmation window is displayed.
5. Review the information displayed on the Disruptive Task Confirmation window.
6. If you want to continue this task, click **Yes** to perform the activation. If you want to end this task, click **No**.

   If you click **Yes**, the Activate Progress window indicates the progress of the activation and the outcome.
7. Click **OK** to close the window when the activation completes successfully.

   Otherwise, if the activation does not complete successfully, follow the directions on the window to determine the problem and how to correct it.

Use the online Help if you need additional information about activating a virtual server.

Add Member to Ensemble

Use this task to add the selected CPC to the ensemble so it is managed as part of a single logical virtualized system. When the task is completed, the CPC is a member of the ensemble.

Perform the following steps to add a member to an ensemble:

1. Select a CPC.
2. From the **Configuration** task group, open the **Add Member to Ensemble** task. A confirmation window is displayed, indicating the member is added to the ensemble.
3. Click **OK** to close the confirmation window.

The following steps are an alternative approach to add one or more members to an ensemble:

1. Select an ensemble.
2. From the **Configuration** task group, open the **Add Member to Ensemble** task. The Add Member to Ensemble window is displayed, containing a table of CPCs.
3. Select one of the eligible CPCs, and then click **Add** to add the CPC to the ensemble. A confirmation window is displayed, indicating the members are added to the ensemble.
4. Click **OK** to close the confirmation window. The Add Member to Ensemble window remains open for you to add more members.
5. Click **Close** to close the window.

Use the online Help if you need additional information about adding members to the ensemble.

Alternate Details

Use this task to view or modify properties of the alternate HMC. Only an ensemble administrator (default user ID ENSADMIN) or a user ID that is assigned the ensemble administrator role and the service representative (default user ID SERVICE) or a user ID that is assigned the service representative role can modify the settings on the Status page.

Perform the following steps to display and optionally modify the alternate HMC details:

1. Select the alternate HMC.
2. Open the **Alternate Details** task. The Alternate Details window is displayed.
3. An ensemble administrator can modify the acceptable status settings on the Status page. Click **Apply** to save the changes.
4. Close the window.

The Alternate Details window includes the following tabs:

General
Displays ensemble information and product information of the alternate HMC. This information includes the name of the ensemble of which the alternate HMC is a member and the machine type, machine model, and serial number of the alternate HMC.

Status Displays the status of the alternate HMC, the date and time of the last communication between the alternate HMC and the primary HMC, and the alternate HMC acceptable status settings. You can also modify the alternate HMC acceptable status settings.

Use the online Help if you need additional information about managing the alternate HMC.

Choose z/VM Virtual Servers to Manage

Use this task to assign z/VM virtual machines to be managed as virtual servers in the ensemble. If you have z/VM virtual machines defined on a CPC that is added as a member of the ensemble, use this task to choose which virtual machines you would like managed as part of the ensemble.

Perform the following steps to choose one or more virtual machines to manage as virtual servers:
1. Select the CPC member of the ensemble.
2. Click the **Hypervisor** tab in the work area.
3. Select the z/VM hypervisor.
4. From the **Configuration** task group, open the **Choose z/VM Virtual Servers to Manage** task. The Choose z/VM Virtual Machines to Manage window is displayed.
5. Select the virtual machines to manage.
6. Click **OK**.

Configure Top-of-rack (TOR) Switch

Use this task to configure the Top-of-rack (TOR) switches associated with the selected CPC. You can change each switch individually or configure them identically.

Perform the following steps to configure a TOR switch:
1. Select a member within the ensemble.
2. From the **Configuration** task group, open the **Configure Top-of-rack (TOR) Switch** task.
3. The **Switch** table displays all IEDN TOR switches that are associated with the CPC. To display the available ports for that switch, select a TOR switch, or select the **Configure switches identically** check box to apply the same configuration to all of the switches in the list.
4. In the **Switch Port** table, select a port on the switch to configure. You can select only one port. Only physical ports defined for external connections are listed.

5. In the **VLAN Settings** area of the window, select a value for **VLAN Mode**. This value is either **Trunk** or **Access**.
6. Still under **VLAN Settings**, select a VLAN ID for the switch from the **Allowed Virtual Networks** list, or select the **Allow all VLAN IDs** check box.

   Notes:
   - If **VLAN Mode** is set to **Access**, you can select only one VLAN ID from the **Allowed Virtual Networks** list. However, if **VLAN Mode** is set to **Trunk**, you can select multiple VLAN ID entries.
   - The **Allow all VLAN IDs** option is available only for **Internal** port types.
7. In the **MAC Address Filtering** area of the window:
   - Select the **Allow all MAC Addresses** check box to allow all MAC addresses to use the selected port. Selecting this check box disables the other **MAC Address Filtering** area option fields.
   - Do *not* select the **Allow all MAC Addresses** check box if you want to add and remove MAC addresses. These are addresses in the list that can use the selected port. To work with these options:
     a. To allow a MAC address to use the selected port, enter a valid MAC address in the **MAC Address** field. Then click **Add**. The address that you entered is displayed in the **Allowed MAC Addresses** list.
     b. To remove a MAC address from the list of addresses that can use the selected port, select the address in the **Allowed MAC Addresses** list. Then click **Remove**. Your selection is deleted from the list.
8. Click **OK** to configure the TOR switch.
9. Click **Cancel** to discard any changes you made to the settings after you opened this task.

Use the online Help if you need additional information about configuring a TOR switch.

CPC Details

Use this task to view or modify the properties of a CPC. Figure 7 on page 21 shows an example of a CPC Details window including the zBX Information and Energy Management tabs.

This section contains information about the ensemble-specific information contained on the CPC Details window. See the "Displaying CPC or image details" section of the *Hardware Management Console Operations Guide* for basic information about this task.

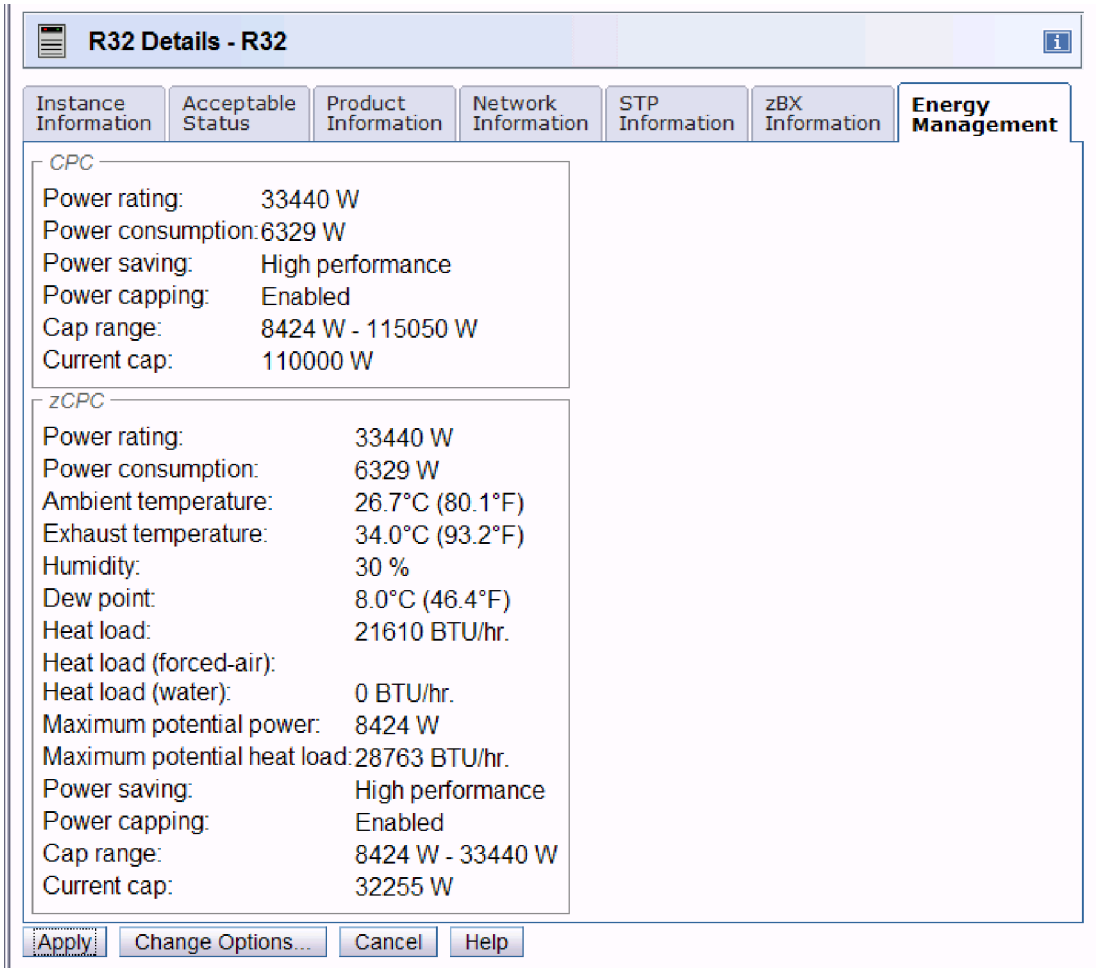

Figure 7. CPC Details window

Perform the following steps to display and optionally modify the CPC details:

1. Select the CPC, and then open the **CPC Details** task. The CPC Details window is displayed.
2. Modify the editable fields as you want.
3. Click **Apply** to save the changes.

In addition to the tabs documented in the *Hardware Management Console Operations Guide*, the CPC Details window includes the following additional information for ensemble management:

Instance Information
Displays the name of the ensemble if an ensemble is managing the CPC.

Note: This field is available only when the CPC is a member of an ensemble.

zBX Information
Displays information about the characteristics and settings of the attached zBX.

Note: This tab is available only when the zBX feature is available.

Energy Management
Displays power and thermal monitoring information.

Note: This tab or certain information contained on this tab is available only when the appropriate feature is installed.

Product Information

Displays the Unified Resource Manager suite level for the CPC. **Manage** and **Automate** suites are possible values.

Manage

Gives you the basics for managing an ensemble. It includes HMC operational controls for IBM zEnterprise BladeCenter Extension (zBX), change management of firmware across the ensemble, energy monitoring, virtual networking with automated provisioning, virtual server management, and a base level of performance management.

Automate/Advanced Management

Advanced Management suite adds wizard function to set up resources associated with a workload resource group and the capability to associate those resources with a named business process. It also provides power capping and capability to monitor and report performance. **Advanced Management** suite is highest suite available for the select IBM System x blades.

Automate suite provides more leverage from the ensemble by managing workload resource groups and energy. This level of support includes all of Advanced Management adding power saving and the ability to manage to a user-defined performance service level policy and enable performance monitoring, reporting, and resource optimization.

The management enablement level is blank if the CPC is not a member of an ensemble.

Use the online Help if you need additional information about the details of a CPC.

Create Ensemble

Use this task to guide you through creating an ensemble and optionally adding members to the ensemble. An *ensemble* is collection of CPCs (nodes) that are managed as a single logical virtualized system by the Hardware Management Console. You can create only one ensemble on the HMC.

A prerequisite for creating the ensemble is to designate an alternate HMC. Use the "Manage Alternate HMC" on page 31 task on the HMC you want to specify it as a potential alternate HMC.

When the ensemble is created, the HMC that created the ensemble (primary HMC) is enabled to manage the ensemble. The specified alternate HMC then has a limited task used solely for backup in case the primary HMC fails. These HMCs receive the appropriate **Primary Hardware Management Console (Version 2.11.0)** or **Alternate Hardware Management Console (Version 2.11.0)** designation on the Login screen and the title bar of all windows for easy recognition of the ensemble management responsibility.

Perform the following steps to create an ensemble:

1. From the **Ensemble Management** group in the tree style user interface, open the **Ensemble Management Guide** task and select the **Create Ensemble** link or from the **Console Actions** view in the classic style user interface, open the **Create Ensemble** task. The Create Ensemble wizard window is displayed.
2. Complete the fields on the **Ensemble Name**, **Alternate HMC**, and **Add Member** pages, clicking **Next** to advance to the next page.
3. From the **Summary** page, review the information, and then click **Finish** to complete the task.

Use the online Help if you need additional information about creating the ensemble.

Customize/Delete Activation Profiles

Use this task to create new activation profiles, customize existing profiles, or delete unwanted profiles that are stored in the Support Element. See the sections related to activation profiles in the *Hardware Management Console Operations Guide* or *Support Element Operations Guide* for basic information about this task. This section contains information about the ensemble-specific activation profile parameters.

Activation profile parameters for an ensemble are:

Set Power Saving
Select the energy management power saving option for the CPC.

Perform the following steps to customize the power saving parameter:

1. Follow the steps to **Customize selected profile** in the activation profiles section of the *Hardware Management Console Operations Guide*.
2. Click **Options** from the **Profile Tree**. Use this window to select the energy management power saving option for the CPC upon performing the power-on reset. Click **Custom energy management** to use the power saving settings configured in the **Set Power Saving** task. Click **Emergency high performance** to override power saving settings and use the high performance setting.

Use the online Help if you need additional information about customizing the activation profile.

Customize Network Settings

Use this task to open the WebSphere DataPower XI50 user interface and configure network settings for the selected DPXI50z zBX blade.

To customize the DPXI50z zBX blade network settings:

1. Select a DPXI50z zBX blade and then open the **Customize Network Settings** task. The WebSphere DataPower XI50 user interface is displayed.
2. Configure the network settings as wanted.

   Notes:

   - For more information, go to http://www.ibm.com/software/integration/ datapower/library/ documentation and select XI50 to visit the DataPower XI50 Information Center.
   - If the WebSphere DataPower XI50 user interface window is left idle for the specified idle timeout, the session expires and you need to log in again to continue.
3. Click **Logout** on the top right corner of the WebSphere DataPower XI50 user interface when finished.

Customize Scheduled Operations

Use this task to schedule the times and dates for certain operations. Calling customize scheduled operations displays all scheduled operations, their scheduled dates and times, the functions, and the numbers of repetitions. See the "Customize Scheduled Operations" section of the *Hardware Management Console Operations Guide* for basic information about this task. This section contains information about the ensemble-specific scheduled operations.

The operations that you can schedule for an ensemble include:

Activate Performance Policy
Schedules an operation to activate a performance management policy for the target workload resource group.

Set Power Saving
Schedules an operation to reduce the average energy consumption of a target CPC, BladeCenter, or Blade.

Activate Virtual Server
Schedules an operation to activate a target virtual server.

Deactivate Virtual Server
Schedules an operation to deactivate a target virtual server.

To schedule any of the previous operations:

1. Select the appropriate target.
2. Open the **Customize Scheduled Operations** task. The Customize Scheduled Operations window is displayed.
   - To add a scheduled operation, point to **Options** from the menu bar, and then click **New**. The Add a Scheduled Operation window is displayed. From this window select an operation that you want performed and select an object on which to perform the operation if you targeted more than one CPC for this task. Then click **OK**. The Set up a Scheduled Operation window is displayed. In this window select the date and time for the operation to occur and specify whether it repeats, and then click **Save**.
   - To delete a scheduled operation, select the operation you want to delete, point to **Options** from the menu bar, and then click **Delete**. The Confirm the Action window is displayed, click **OK** to remove the scheduled operation.
   - To view a scheduled operation, select the operation you want to view, point to **View** from the menu bar, and then click **Schedule Details**. The Details window is displayed.
   - To change the time of a scheduled operation, select the operation, point to **View** from the menu bar, and then click **New Time Range**. The Change the Time Range window is displayed.
   - To sort the scheduled operations, point to **Sort** from the menu bar, and then click one of the sort groups that are displayed.
3. To return to the console, point to **Options** from the menu bar, and then click **Exit**.

Use the online Help if you need additional information about scheduling operations.

Customize User Controls

Use this task to define and customize user roles. A ***user role*** is a collection of authorizations. A user role can be created to define the set of tasks allowed for a given class of user (*task roles*) or it can be created to define the set of managed objects that are manageable for a user (*managed resource roles*). Use this task to

view and manage task roles and resource roles introduced for ensemble management. When you have defined or customized the user roles, you can perform the “User Profiles” on page 56 task to create new users with their own permissions.

See the "Customize User Controls" section of the *Hardware Management Console Operations Guide* for basic information about this task.

This section contains information about the ensemble-specific information for the Customize User Controls window.

The predefined managed resource roles for ensemble management include:
- Ensemble Object
- Virtual Network Objects
- IBM Blade Virtual Server Objects
- Storage Resource Objects
- BladeCenter Objects
- IBM Blade Objects
- DPXI50z Blade Objects
- Workload Objects

The predefined task roles for ensemble management include:
- Ensemble Administrator Tasks
- Virtual Network Administrator Tasks
- Virtual Server Administrator Tasks
- Virtual Server Operator Tasks
- Storage Resource Administrator Tasks
- Workload Administrator Tasks
- Performance Management Administrator Tasks
- Performance Management Operator Tasks
- Energy Management Administrator Tasks

Use the online Help if you need additional information about customizing managed resource roles and task roles.

Deactivate zBX Blade

Use this task to deactivate a zBX blade. Deactivation is considered a disruptive task.

Perform the following steps to deactivate the selected zBX blade:

1. Select a zBX blade.
2. From the **Daily** task group, open the **Deactivate** task. The Deactivate Task Confirmation window is displayed.
3. Review the information on the Deactivate Task Confirmation window to verify the object you are deactivating is the zBX blade.
4. If the information is correct, click **Yes** to perform the deactivation.

   The Deactivate Progress window indicates the progress of the deactivation and the outcome.
5. Click **OK** to close the window when the deactivation completes successfully.

   Otherwise, if the deactivation does not complete successfully, follow the directions on the window to determine the problem and how to correct it.

After the zBX blade is deactivated, the zBX blade is no longer operational.

Deactivate Virtual Server

Use this task to deactivate one or more virtual servers. Deactivation is considered a disruptive task.

Perform the following steps to deactivate virtual servers:
1. Select one or more valid virtual servers to deactivate.
2. From the **Daily** task group, open the **Deactivate** task. The Deactivate Task Confirmation window is displayed.
3. Review the information about the Deactivate Task Confirmation window to verify the object that you are deactivating is the selected virtual server.
4. If the information is correct and you want to continue this task, click **Yes**. If you want to end the task, click **No**.

   If you click **Yes**, the Disruptive Task Confirmation window is displayed.
5. Review the information about the Disruptive Task Confirmation window.
6. If the information is correct and you want to continue this task, click **Yes** to perform the deactivation. If you want to end the task, click **No**.

   If you click **Yes**, the Deactivate Progress window indicates the progress of the deactivation and the outcome.
7. Click **OK** to close the window when the deactivation completes successfully.

   Otherwise, if the deactivation does not complete successfully, follow the directions on the window to determine the problem and how to correct it.

Use the online Help if you need additional information about deactivating virtual servers.

Delete Ensemble

Use this task to delete the selected ensemble from the primary HMC. After the ensemble is deleted, the primary HMC title designation is removed and the alternate HMC is an unassigned alternate HMC.

An appropriate message is displayed if the ensemble contains any members. You must remove all members of the ensemble before deleting the ensemble. Use“Remove Member from Ensemble” on page 52 for each member contained in the ensemble.

Perform the following steps to delete an ensemble:
1. Select the ensemble.
2. From the **Configuration** task group, open the **Delete Ensemble** task. A Delete Ensemble confirmation window is displayed.
3. Click **Yes** to confirm the ensemble deletion or **No** to cancel the deletion.

Delete Virtual Server

Use this task to remove the selected virtual servers from the hosting hypervisor. The virtual servers must be in a **Not Activated** state.

Perform the following steps to delete one or more virtual servers:
1. Select one or more valid virtual servers to delete.
2. From the **Configuration** task group, open the **Delete Virtual Server** task. A Delete Virtual Server confirmation window is displayed.
3. Click **Yes** to confirm the virtual server deletion or **No** to cancel the deletion.

Delete Workload Resource Group

Use this task to delete a target workload resource group and all the performance policies associated with it.

Perform the following steps to delete a target workload resource group:
1. Select a workload resource group.
2. From the **Configuration** task group, open the **Delete Workload Resource Group** task. You are then prompted to verify the action.
3. Click **OK** to proceed.
4. The workload resource group and all the performance policies associated with it are deleted.

Use the online Help if you need additional information about deleting a workload resource group.

Ensemble Details

Use this task to view or modify the properties of an ensemble. Figure 8 shows an example of an Ensemble Details window.

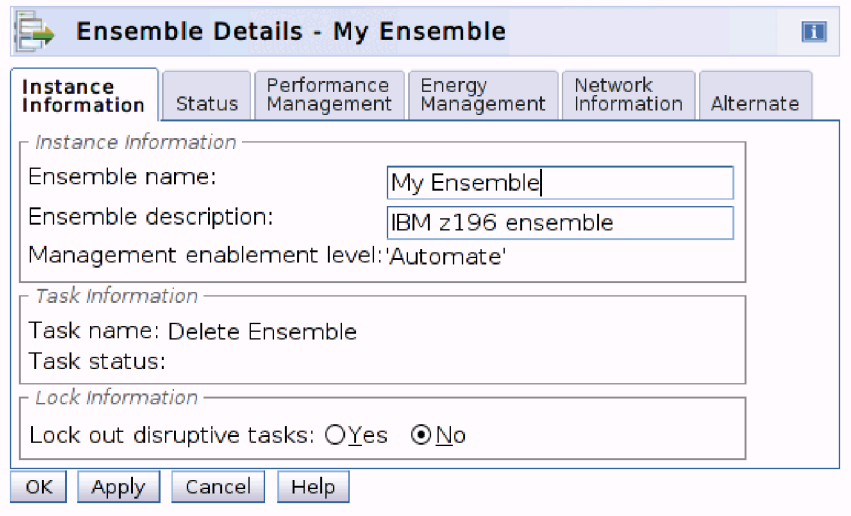

Figure 8. Ensemble Details window

Perform the following steps to display and optionally modify the ensemble details:

1. Select the ensemble.
2. Open the **Ensemble Details** task. The Ensemble Details window is displayed.
3. Use any of the following tabs in the Ensemble Details window:

   Instance Information
   Displays information about the characteristics and settings of the ensemble. You can also modify the ensemble name and description.

   The Unified Resource Manager suite level is displayed for the ensemble in the **Management enablement level** field. Possible values are:

   Manage
   Gives you the basics for managing an ensemble. It includes HMC operational controls for IBM zEnterprise BladeCenter Extension (zBX), change management of firmware across the ensemble, energy monitoring, virtual networking with automated provisioning, virtual server management, and a base level of performance management.

   Automate/Advanced Management
   Advanced Management suite adds wizard function to set up resources associated with a workload resource group and the capability to associate those resources with a named business process. It also provides power capping and capability to monitor and report performance. **Advanced Management** suite is highest suite available for the select IBM System x blades.

   Automate suite provides more leverage from the ensemble by managing workload resource groups and energy. This level of support includes all of Advanced Management adding power saving and the ability to manage to a user-defined performance service level policy and enable performance monitoring, reporting, and resource optimization.

   The ensemble Unified Resource Manager suite level displays the aggregated minimum CPC Unified Resource Manager suite level of all CPCs in the ensemble. The management enablement level of **Automate/Advanced Management** signifies all CPCs in the ensemble are at that Unified Resource Manager suite level.

   Status Displays the communication status of the alternate HMC. You can also modify the acceptable communication status.

   Performance Management
   Displays performance management characteristics of the ensemble. You can also suspend or resume performance management.

   Energy Management
   Displays power and thermal monitoring information.

   Network Information
   Configures an ensemble MAC prefix or reserves a MAC prefix.

   Alternate
   Displays the alternate HMC assigned to this ensemble. You can also modify the assigned alternate HMC.
4. Click **OK** to save changes and close the window.

The Lock out disruptive tasks selection is under the **Instance Information** tab. Alternately, you can lock or unlock an object for disruptive tasks by right-clicking the object and then clicking **Toggle Lock**. This task locks the object if it is unlocked or unlocks the object if it is locked. (See the *Hardware Management Console Operations Guide* for information about performing a task on an object and clicking the second set of menu items.)

Use the online Help if you need additional information about the details of an ensemble.

Ensemble Management Guide

Use this task to assist you with setting up and managing an ensemble. This task familiarizes you with the various tasks for creating and managing aspects of an ensemble.

For convenience, the **Ensemble Management Guide** task also provides links for opening the ensemble management tasks. Click **Notes** to add notes about your ensemble, such as steps completed or number of members added.

Perform the following steps to use the ensemble management guide:

1. From the **Ensemble Management** group in the tree style user interface or the **Console Actions** view in the classic style user interface, open the **Ensemble Management Guide** task. The Ensemble Management Guide window is displayed.
2. Click a link to go directly to the task. That task's window is displayed. The guide window remains open.
3. Click **Notes** to add notes on the page. Click **Notes** again to hide the notes information.
4. Click **Close** at any point to save the notes information and close the window.

Use the online Help if you need additional information about the ensemble management guide.

Hardware Messages

Use this task to view consolidated hardware-related messages for all selected hardware in the processor cluster, including your Hardware Management Console. See the "Hardware Messages" section of the *Hardware Management Console Operations Guide* for basic information about this task. This section contains information about the ensemble-specific information for the Hardware Messages window.

You can view the hardware messages for all CPCs in the ensemble. To view all ensemble messages, select the ensemble object, and then launch Hardware Messages. A window opens with a tab for each CPC. If a CPC has no messages, the panel within the tab is empty.

Perform the following steps to display the hardware messages:

1. Select an ensemble.
2. In the tree style user interface, open the **Hardware Messages** task from the **Daily** task group.

   In the classic style user interface, drag the selected object on **Hardware Messages** in any task area.

   The Hardware Messages window opens.

Use the online Help if you need additional information about viewing or deleting hardware messages.

Initiate Hypervisor Dump

Use this task to issue a memory dump request of the target hypervisor to facilitate problem determination. You can use this task if problems with the hypervisor are not detected with the built-in First Failure Data Capture (FFDC) mechanisms or the FFDC mechanisms are not capturing sufficient fault data for problem determination. The dump file consists of the recorded state and the content of the working memory of the management guest at a specific time, generally when the management guest terminates abnormally.

Note:

- This task is considered disruptive.
- This task only works on virtual servers that are hosted on a blade. It does not work for z/VM or z/OS® servers. To take a dump for these servers, use the methods that are implemented in your environment today.
- The dump does not contain customer data.

Perform the following steps to initiate a hypervisor dump:

1. Select a hypervisor.
2. From the **Service** task group, open the **Initiate Hypervisor Dump** task. The Blade dump type selection window is displayed.
3. Select one of the following:
   - **Operating system dump** - Collects the kernel dump along with some basic system information like uname.
   - **Service processor dump** - Collects data from the service processor either after a failure, external reset, or manual request.
   - **Service data dump** - Collects workload resource group service data.
4. Click **OK**.
5. If the Disruptive Task Confirmation window is displayed, review the information about the Disruptive Task Confirmation window.
6. If you want to continue this task, click **Yes**. If you want to end this task, click **No**.
7. Click **OK** to close the window when the dump completes successfully.

Use the online Help if you need additional information about initiating a hypervisor dump.

Initiate Virtual Server Dump

Use this task to send an operating system-specific command to begin a memory dump of the operating system running on the virtual server.

Note: This task is considered disruptive.

System administrators and programmers use the memory dump to analyze and debug new applications, device drivers, and operating system extensions. Having a copy of the operating system memory supports offline debugging of the operating system, off-site analysis, and virtual server comparisons.

The following operating system-specific controls must be set up to properly handle the memory dump:

- Configure the operating system to generate a memory dump.
- Define the type of content in memory dump.
- Define the device type and location of the memory dump.
- Set the size limit for the memory dump.

Use the **Open Text Console** task on the HMC to access the memory dump. You can also use other applications such as an SSH viewer to access the virtual server to view the memory dump.

Perform the following steps to initiate a virtual server dump:
1. Select a virtual server.
2. From the **Service** task group, open the **Initiate Virtual Server Dump** task. The Disruptive Task Confirmation window is displayed.
3. Review the information about the Disruptive Task Confirmation window.
4. If you want to continue this task, click **Yes**. If you want to end this task, click **No**.
5. Click **OK** to close the window when the dump completes successfully.

Use the online Help if you need additional information about initiating a virtual server dump.

Initiate z/VM Management Guest Dump

Use this task to issue a memory dump request of the target z/VM management guest to facilitate problem determination. You can use this task if problems with the z/VM management guest are not detected with the built-in First Failure Data Capture (FFDC) mechanisms or the FFDC mechanisms are not capturing sufficient fault data for problem determination.

The dump file consists of the recorded state and the content of the working memory of the management guest at a specific time, generally when the management guest has terminated abnormally.

Note:

- This task is considered disruptive to the z/VM management guest, causing it to be unavailable for several minutes. Afterward, the z/VM management guest is automatically restarted by the SE if the restart threshold (default set to 10) is not exceeded. If the threshold is exceeded, the z/VM management guest can only be restarted manually by using the "Restart z/VM Management Guest" on page 53 task.

Perform the following steps to initiate a z/VM management guest dump:
1. Select a z/VM hypervisor.
2. From the **Service** task group, open the **Initiate z/VM Management Guest Dump** task. The Dump Confirmation window is displayed.
3. If you want to continue this task, click **Yes**. If you want to end this task, click **No**.
4. Click **OK** to close the window when the dump completes successfully.

Use the online Help if you need additional information about initiating a z/VM management guest dump.

Manage Alternate HMC

Note: Depending on the HMC from which you are logged on, the functions performed by the **Manage Alternate HMC** task differ.

From an HMC that is not the primary HMC or the alternate HMC

If you are logged on to an HMC that is not the primary HMC or the alternate HMC, this task enables or disables the HMC as an unassigned alternate HMC.

Enable as alternate HMC
When selected, this function enables the HMC, to which you are currently logged on, as an unassigned alternate HMC. When enabled, the name and IP address is added to the list of

possible assigned alternate HMCs, which is displayed in the **Create Ensemble** wizard. A primary HMC (managing an ensemble) is required to have an alternate HMC for backup.

You can perform this function on more than one HMC. However, as an unassigned alternate HMC (just as with an assigned alternate HMC), it loses all management capabilities. Therefore, verify that it is appropriate for the HMC to be enabled as an unassigned alternate HMC.

Under certain conditions, attempting to set up the HMC to be an unassigned alternate HMC will fail. These conditions include:

- If the HMC has any CPCs assigned to it
- If the HMC is set up to be an NTP server
- If the HMC is set up to be a call home server
- If the HMC is enabled for data replication
- If the HMC is configured to use DHCP.

Under certain conditions, attempting to set up the HMC to be an unassigned alternate HMC displays a window asking if you are sure that you want to continue. These conditions include:

- If the HMC is set up to be an FTP server through the Enable Electronic Service Agent™
- If API support is enabled on the HMC

You can disable an unassigned alternate HMC by deselecting **Enable as alternate HMC**. You cannot disable an assigned alternate HMC until it is changed to an unassigned alternate HMC by using the **Ensemble Details** task or the **Delete Ensemble** task.

Perform the following steps to enable the HMC as an unassigned alternate HMC:

1. Using the tree style user interface:
   a. From the navigation pane, click **Ensemble Management**.
   b. From either the Ensemble Management Getting Started work pane or the tasks pad, click **Ensemble Management Guide**.
   c. Open the **Manage Alternate HMC** task. The Manage Alternate HMC window is displayed.

   Using the classic style user interface
   a. From the *Views* area, double-click the Console Actions icon.
   b. From the *Console Actions Work Area*, double-click the Manage Alternate HMC icon. The Manage Alternate HMC window is displayed.
2. Select **Enable as alternate HMC**.
3. Click **OK**. The HMC reboots with limited function.

From the primary HMC or the alternate HMC

If you are logged on to the primary HMC, this task performs the following functions:

- Switches control from the primary HMC to the alternate HMC
- Queries the switchover capabilities
- Mirrors data from the primary HMC to the alternate HMC
- Resets the fenced alternate HMC because of an automatic switchover
- Enables or disables the automatic switchover capability
- Enables or disables service mode
- Preloads the alternate HMC with a new level of code
- Copies the alternate HMC IP address information onto the primary HMC.

If you are logged on to the alternate HMC, this task performs the following functions:

- Switches control from the primary HMC to the alternate HMC
- Queries the switchover capabilities.

Switch HMCs

This function allows you to manually switch the roles of the primary HMC and the alternate HMC. A manual switch of the primary HMC and the alternate HMC roles is generally performed when the alternate HMC is preloaded with a more recent version of code or when hardware in the primary HMC needs to be replaced.

It is recommended that you query the switchover capabilities before you actually switch control from the primary HMC to the alternate HMC.

Query switchover capabilities

This function checks the communication path between the primary HMC and the alternate HMC and displays the current switch status. The results include whether the switchover capability is enabled or disabled and the reason why it is disabled.

It is recommended that you query the switchover capabilities before attempting to perform the switchover function to the alternate HMC to ensure that there are no problems and that the alternate HMC is enabled for a switchover.

Mirror primary HMC data

This function copies HMC data from the primary HMC to the alternate HMC. By regularly mirroring HMC data, you help ensure that the alternate HMC looks and works the same as the primary HMC if you ever need to switch to use the alternate HMC. Primary HMC data is mirrored automatically each day. Mirroring also occurs automatically and periodically after many configuration changes. However, you can use this function to immediately mirror HMC data.

Reset fenced alternate HMC

This function resets the alternate HMC that was fenced because of an automatic switchover. Resetting the fenced alternate HMC re-enables the mirroring function so it can effectively be used as an alternate HMC.

To prevent overlaying the data on the new alternate HMC, before you reset the fenced alternate HMC, complete these steps:

1. Copy the log files from both the primary HMC and the alternate HMC to capture any error data.
2. Run the diagnostic tests against the fenced alternate HMC.
3. Verify that the customer wants the automatic switch capability enabled. The automatic switch capability is enabled when the fenced alternate HMC is reset. If the customer does not want the automatic switch capability enabled, you must disable that function after you reset the fenced alternate HMC.

Only a service representative (default user ID SERVICE) or a user ID that is assigned the service representative role can perform this function.

Enable/Disable automatic switchover

The **Enable automatic switchover** function allows the primary HMC to automatically switch to the alternate HMC under certain conditions. The **Disable automatic switchover** function prevent the primary HMC to automatically switch to the alternate HMC.

Note: When **Enable automatic switchover** displays, the automatic switchover function is not in effect. When **Disable automatic switchover** displays, the automatic switchover function is in effect.

The ability to automatically switch the roles of the primary HMC and alternate HMC is the default setting.

Enable/Disable service mode

The **Enable service mode** function puts the alternate HMC in service mode. This prevents automatic switching of roles or mirroring of data from the primary HMC to the alternate HMC while the alternate HMC is being repaired. The **Disable service mode** function removes the alternate HMC from service mode and allows the switchover and mirror function.

Note: When **Enable service mode** displays, this indicates that the alternate HMC **is not** in service mode. Therefore, an automatic switchover or mirror function can occur. When **Disable service mode** displays, this indicates that the alternate HMC **is** in service mode. Therefore, an automatic switchover or mirror function cannot occur.

Only a service representative (default user ID SERVICE) or a user ID that is assigned the service representative role can perform this function.

Preload alternate HMC

This function provides a means to load new AROMs onto the alternate HMC. The internal code changes are loaded onto the alternate HMC to minimize HMC downtime during an upgrade to a new firmware level.

After the alternate HMC is preloaded, you must switch the HMC roles so that the HMC running the code from the new AROM (the alternate HMC) assumes the role of primary HMC. After verifying that the new primary HMC is functioning properly, you must backup the primary HMC data and perform a restore critical data to the alternate HMC. Then the primary HMC and the alternate HMC is in synch again.

Only a service representative (default user ID SERVICE) or a user ID that is assigned the service representative role can perform this function.

Update pair HMC information

This function copies the alternate HMC IP address information onto the primary HMC. If the Ethernet adapter is changed on the alternate HMC, the updated alternate HMC IP address information associated with the Ethernet adapter change must be copied onto the primary HMC to ensure the communication between the primary HMC and the alternate HMC remains connected.

Perform the following steps to perform a specific function of this task from the primary HMC or alternate HMC:

1. Using the tree style user interface:
   a. From the navigation pane, select **Ensemble Management**.
   b. From the tasks pad, open the **Manage Alternate HMC** task. The Manage Alternate HMC window is displayed.

   Using the classic style user interface:
   a. From the *Views* area, double-click the Console Actions icon.
   b. From the *Console Actions Work Area*, double-click the Manage Alternate HMC icon. The Manage Alternate HMC window is displayed.
2. Select the function you want to perform.
3. Click **OK**.
4. Follow the instructions on the subsequent window to complete the task.

Use the online Help if you need additional information about managing the alternate HMC.

Manage DataPower XI50z

Use this task to open the WebSphere DataPower XI50 user interface and manage the selected DPXI50z zBX blade.

1. Select a DPXI50z zBX blade and then open the **Manage DataPower XI50z** task. The WebSphere DataPower Login window is displayed.
2. Log in using dp-admin (password dp-admin) or a user ID created by dp-admin. The WebSphere DataPower user interface is displayed.

Note: If this is the initial time you are logging in, you will be prompted to change the password. After changing the password, the WebSphere DataPower Login window will close and you will need to reopen the Manage DataPower XI50z task.

3. Manage the selected DPXI50z zBX blade as a normal DataPower appliance would be managed.

   Notes:

   - For additional information, go to http://www.ibm.com/software/integration/datapower/library/documentation and select XI50 to visit the DataPower XI50 Information Center.
   - If the WebSphere DataPower XI50 user interface window is left idle for the specified idle timeout, the session will expire and you will need to log in again to continue.

4. Click **Logoff** on the top right corner of the WebSphere DataPower user interface when finished.

Manage Storage Resources

Two different storage resource views are available from this task:

Storage Resources
: Lists each defined storage resource with its hypervisor, providing the owner status, resource type, storage size, group name, and description for each resource.

Virtual Disks
: Lists each virtual disk with its virtual server, providing the disk size and description, hypervisor, storage resource name and description, and shared status for each resource.

With appropriate user authority, attribute and resource settings for a storage group, hypervisor, storage resource, or virtual server can be viewed or modified if you click the links provided in the table columns.

The following storage resource actions are available from this task:

Details
: Shows the name, description, size, and connection information for a single selected storage or hypervisor resource. With the appropriate user role, you can modify the name and description fields. For more information, see "Details" on page 36.

  Note: Details can be viewed or modified if you click the link in the **Storage Resource Name** column of the table.

Details for Storage Group
: Shows the name, description, size, and connection information for a single selected storage resource group. With the appropriate user role, you can modify the name and description fields. For more information, see "Storage Group Details" on page 36.

  Note: Storage Group Details can be viewed or modified if you click the link in the **Group** column of the table.

Test Communication with Storage Resources
: Tries to communicate, in real time, with selected resources. For more information, see "Test Communication with Storage Resources" on page 37.

Import Storage Access List
: Adds storage resources to a hypervisor. The list consists of a number of host worldwide port names (WWPNs) and entries for configured storage resources. The list includes properties such as addressing information or device type information. For more information, see "Import Storage Access List" on page 37.

Add Storage Resource
: Adds a single new storage resource to the list of accessible storage resources of a hypervisor within the ensemble. For more information, see "Add Storage Resource" on page 37.

Remove Storage Resource
Removes a storage resource from the list of accessible storage resources of a hypervisor within the ensemble. For more information, see "Remove Storage Resource" on page 37.

Export Worldwide Port Name (WWPN) List
Exports the aggregated list of host port WWPNs from each selected hypervisor in the form of a text file. For more information, see "Export Worldwide Port Name (WWPN) List" on page 38.

Compare Access Lists
Compares the list of resources accessible to two selected hypervisors. For more information, see "Compare Access List" on page 38.

Add Storage Resource to Group
Adds a storage resource to a z/VM Storage Group. For more information, see "Add Storage Resource to Group" on page 38.

Remove Storage Resource from Group
Removes a storage resource from a z/VM Storage Group. For more information, see "Remove Storage Resource from Group" on page 38.

Discover Storage Resources
Detects the storage resources available to one or more hypervisors. For more information, see "Discover Storage Resources" on page 39

Perform the following steps to display the Manage Storage Resources window:

1. Select the ensemble or a hypervisor.
2. From the **Configuration** task group, open the **Manage Storage Resources** task. The Manage Storage Resources window is displayed.
3. Proceed with one of the manage storage resources actions that you can launch from this window.

Use the online Help if you need additional information about managing storage resources.

Details

Shows the name, description, size, and connection information for a single selected storage or hypervisor resource. With the appropriate user role, you can modify the name and description fields.

To display details, click the link in the **Storage Resource Name** column of the table.

Details are available for the following storage resource types:

FCP Indicates Fibre Channel Protocol (FCP), a transport protocol (similar to TCP used in IP networks) that predominantly transports SCSI commands over Fibre Channel networks.

ECKD™
Indicates Extended Count Key Data (ECKD), which encompasses the channel command word commands used with cached controllers for IBM DASD.

Hypervisor
Indicates a type of firmware on the physical server that creates, controls, and monitors the virtual operating environments for the virtual server.

Use the online Help if you need additional information about managing storage resources.

Storage Group Details

Shows the name, description, size, and connection information for a single selected storage resource group. With the appropriate user role, you can modify the name and description fields.

To display storage group details, click the link in the **Group** column of the table.

Use the online Help if you need additional information about managing storage resources.

Test Communication with Storage Resources

Use this action to test communication between a hypervisor and selected storage resources. This testing can take a long time to complete. If the task is canceled before it completes, partial results are displayed. If any resources are unavailable, this task indicates that resources could not be accessed. If failures occur more information might be available by viewing storage resource Details. If all of the tested storage resources are accessible, a message window confirms this result.

Perform the following steps to test communication with storage resources:
1. Select the **Storage Resources** view.
2. Select a single hypervisor and one or more storage resources in the **Storage Resources** table.
3. Select **Test Communication with Storage Resources** from the **Select Action** list.
4. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Import Storage Access List

Use this action to import a storage access list. Storage access lists have two purposes:

- Authorize the ensemble to manage the storage resources contained in the list.
- Indicate which storage resources can be accessed by each hypervisor in the ensemble.

The list consists of a number of WWPNs and entries for configured storage resources available to each hypervisor. The list includes addressing information or device type information in a *csv* (comma separated value) file and is imported from the HMC or a remote system.

Perform the following steps to import a storage access list:
1. Select **Import Storage Access List** from the **Select Action** list.
2. Select the Storage Access List file location and media device.
3. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Add Storage Resource

Use this action to add a new storage resource to the selected hypervisor.

Perform the following steps to add a new storage resource to a hypervisor:
1. Select **Add Storage Resource** from the **Select Action** list.
2. Select the hypervisor that you want to add the new storage resource.
3. Enter the required data.
4. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Remove Storage Resource

Use this action to remove a storage resource from the list of accessible storage resources of a hypervisor within the ensemble.

Perform the following steps to remove a storage resource from a hypervisor:
1. Select the **Storage Resources** view.
2. Select one or more storage resources in the **Storage Resources** table.

3. Select **Remove Storage Resource** from the **Select Action** list.
4. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Export Worldwide Port Name (WWPN) List

Use this action to export the aggregated Fibre Channel host ports of each hypervisor in the form of a text file. The storage administrator then adds storage resource information to the exported list to describe how the hypervisors are provisioned with storage resources. This modified list is imported as the storage access list. The WWPN list is exported to the HMC or a remote system.

Perform the following steps to export a WWPN list to a hypervisor:
1. Select **Export Worldwide Port Name List** from the **Select Action** list.
2. Select one or more hypervisors for the export operation.
3. Select the file location and media device.
4. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Compare Access List

Use this action to compare the storage connectivity of two hypervisors.

Perform the following steps to compare access lists of two hypervisors:
1. Select **Compare Access List** from the **Select Action** list.
2. Select two or more hypervisors for the Storage Access List comparison.
3. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Add Storage Resource to Group

Note: This task is valid for z/VM hypervisors only.

Use this action to add a storage resource to a group. The details window lists the storage resources in the group and you can use it to add resources.

Perform the following steps to add a storage resource to a storage group:
1. Select the **Storage Resources** view.
2. Select one or more storage resources in the **Storage Resources** table.
3. Select **Add Storage Resource to Group** from the **Select Action** list.
4. Enter the required data.
5. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Remove Storage Resource from Group

Note: This task is valid for z/VM hypervisors only.

Use this action to remove a storage resource from a group. The details window lists the storage resources in the group and allows resources to be removed.

Perform the following steps to remove a storage resource from a storage group:

1. Select the **Storage Resources** view.
2. Select one storage group and one or more storage resources in the **Storage Resources** table.
3. Select **Remove Storage Resource from Group** from the **Select Action** list.
4. Enter the required data.
5. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Discover Storage Resources

Use this action to detect the storage resources available to one or more hypervisors. The discovered storage resource name consists of a prefix and a system generated number. Unique storage resource names are required.

Perform the following steps to list all storage resources and paths available to the selected hypervisors.
1. Select **Discover Storage Resources** from the **Select Action** list.
2. Select one or more hypervisors for storage to be discovered.
3. Select how the prefix of the name is to be generated. If required, enter a user specified prefix.
4. Click **OK** to complete the task.

Use the online Help if you need additional information about managing storage resources.

Manage Virtual Networks

Use this task to perform virtual network configuration tasks, such as creating or removing a virtual network, adding or removing hosts, viewing or modifying virtual network details, or repairing a virtual network.

The Manage Virtual Networks task displays a **Virtual Networks** table that lists the virtual networks that are currently configured for the ensemble. These networks include any user-defined virtual networks, along with the default virtual network that is created automatically. The name, status, VLAN ID, and description of each virtual network is displayed. **Status** can be either **Active** or **Inactive**. **Active** means that one or more hosts are successfully added to this virtual network. **Inactive** means that no hosts are currently associated with this virtual network.

The toolbar of the **Virtual Networks** table contains a **Select Action** option list.

The following virtual network actions are available from this task:

Details
Displays detailed information for the selected virtual network. For more information, see “Virtual Network Details” on page 42.

New Virtual Network
Creates a new virtual network. For more information, see “New Virtual Network” on page 41.

Delete Virtual Network
Deletes a virtual network. For more information, see “Delete Virtual Network” on page 40.

Add Hosts to Virtual Network
Adds hosts to a virtual network. For more information, see “Add Hosts to Virtual Network” on page 40.

Remove Hosts from Virtual Network
Removes hosts from a virtual network. For more information, see "Remove Hosts from Virtual Network" on page 41.

Repair Virtual Network
Repairs a virtual network or forcibly removes a host from a virtual network. For more information, see "Repair Virtual Network" on page 42.

Perform the following steps to display the Manage Virtual Networks window:

1. Select the ensemble.
2. From the **Configuration** task group, open the **Manage Virtual Networks** task. The Manage Virtual Networks window is displayed.
3. Proceed with one of the virtual network management tasks that is launched from this window.

Use the online Help if you need additional information about managing virtual networks.

Add Hosts to Virtual Network

Use this task to add hosts to the selected virtual network. You can launch this task regardless of the status of the virtual network.

Note:
IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise (DataPower XI50z) blades are not shown in the **Select Hosts to Add to the Virtual Network** table. To add a DataPower XI50z to a virtual network, use the **IEDN Interfaces** tab on the **zBX Blade Details** task for that particular blade.

Perform the following steps to add hosts to a virtual network:

1. Select the ensemble.
2. From the **Configuration** task group, open the **Manage Virtual Networks** task. The Manage Virtual Networks window is displayed.
3. Select an entry in the **Virtual Networks** table. This entry represents the virtual network to which you want to add hosts.
4. From the **Select Action** list, select **Add Hosts to Virtual Network**. The Add Hosts to Virtual Network window is displayed.

   The Add Hosts to Virtual Network window includes a **Select Hosts to Add to the Virtual Network** table. This table displays all objects that exist in the ensemble that can be added to a virtual network. The **NIC** table column displays the name or identifier of the network interface.
5. Select one or more hosts that you want to add to the virtual network.

   If the virtual server is z/OS and the NIC is an OSA-Express3 connected to the IEDN with CHPID type OSX, the VLAN ID of the virtual network must be configured on the TCP/IP Interface statement for this OSA. See the *z/OS Communications Server IP Configuration Guide* for steps to configure an interface for the intraensemble data network (CHPID type OSX).
6. Click **OK** to complete the task.

Use the online Help if you need additional information for adding hosts to the virtual network.

Delete Virtual Network

Use this task to delete a virtual network from the ensemble.

Perform the following steps to delete a virtual network:

1. Select the ensemble.
2. From the **Configuration** task group, open the **Manage Virtual Networks** task. The Manage Virtual Networks window is displayed.
3. Select an entry in the **Virtual Networks** table. This entry represents the virtual network that you want to delete.
4. From the **Select Action** list, select **Delete Virtual Network**. A confirmation message is displayed.
5. Click **Yes** to confirm the network deletion or **No** to cancel the deletion.

New Virtual Network

Use this task to create a new virtual network. You must enter both a name and a VLAN ID for the network. Entering a description is optional.

Notes:

- Because you are creating a new virtual network, this task does not require or accept a target.

Perform the following steps to create a new virtual network:

1. Select the ensemble.
2. From the **Configuration** task group, open the **Manage Virtual Networks** task. The Manage Virtual Networks window is displayed.
3. From the **Select Action** list, select **New Virtual Network**. The Create Virtual Network window is displayed.
4. Enter a name for the new virtual network. This entry, in the **Name** field, has a maximum length of 32 characters. The name must be unique and not already used for another virtual network within the ensemble.
5. Enter a description of the new virtual network. This content might contain useful Layer-3 configuration information such as network, netmask numbers, DNS, and router IP addresses.
6. Enter a VLAN ID for the new virtual network. This entry, in the **VLAN ID** field, must be in the range **10 - 1030**. **10** is used for the Default virtual network, although this value can be modified through the user interface. The VLAN ID must be one not already in use for another virtual network.
7. Click **OK** to submit and verify the data entered for the new virtual network. If there are no errors, the task is completed and you are returned to the Manage Virtual Networks window.

Use the online Help if you need additional information about creating a virtual network.

Remove Hosts from Virtual Network

Use this task to remove hosts from the selected virtual network.

The Remove Hosts from Virtual Network window includes a **Select Hosts to Remove from Virtual Network** table. This table displays all virtual servers and appliances currently connected to the virtual network, along with the associated Network Interface Connection.

Top-of-Rack (TOR) switch ports that are configured with defined virtual network VLAN IDs are displayed. These VLAN IDs can be removed from TOR switch ports by using this window or by using the **Configure Top-of-Rack Switch** task.

Perform the following steps to remove hosts from a virtual network:

1. Select the ensemble.
2. From the **Configuration** task group, open the **Manage Virtual Networks** task. The Manage Virtual Networks window is displayed.
3. Select an entry in the **Virtual Networks** table. This entry represents the virtual network from which you want to remove hosts.
4. From the **Select Action** list, select **Remove Hosts from Virtual Network**. The Remove Hosts from Virtual Network window is displayed.
5. Select one or more hosts that you want to remove from the virtual network.
6. Click **Remove** to complete the task.

Use the online Help if you need additional information about removing hosts from the virtual network.

Repair Virtual Network

Use this task to verify that all hosts are configured as you want and to detect any problems that might exist. You can attempt to recover from certain problems by using the repair function. Alternatively, hosts that are found to have a configuration problem can be selected and forcibly removed from the virtual network. You can then use the **Add Hosts to Virtual Network** task to reconfigure the host or hosts.

Perform the following steps to repair a virtual network or forcibly remove a host from a virtual network:

1. Select the ensemble.
2. From the **Configuration** task group, open the **Manage Virtual Networks** task. The Manage Virtual Networks window is displayed.
3. Select an entry in the **Virtual Networks** table. This entry represents the virtual network you want to verify for correct host membership.
4. From the **Select Action** list, select **Repair Virtual Network**. The Repair Virtual Network window is displayed.
5. If problems are detected for any of the hosts:
   a. You can select one or more hosts and click **Repair** to attempt to repair a problem by reassigning the VLAN ID to the selected host or hosts.
   b. You can select one or more hosts and click **Forcibly Remove** to remove the selected host or hosts from the virtual network.

      This operation does not attempt to make any VLAN ID assignment to the hosts.
6. Click **OK** to close the window and complete the task.

Use the online Help if you need additional information about repairing a virtual network or forcibly removing a host from a virtual network.

Virtual Network Details

Use this task to view or modify network information and view host information. You can open this task regardless of the status of the virtual network. Figure 9 on page 43 shows an example of a Virtual Network Details window.

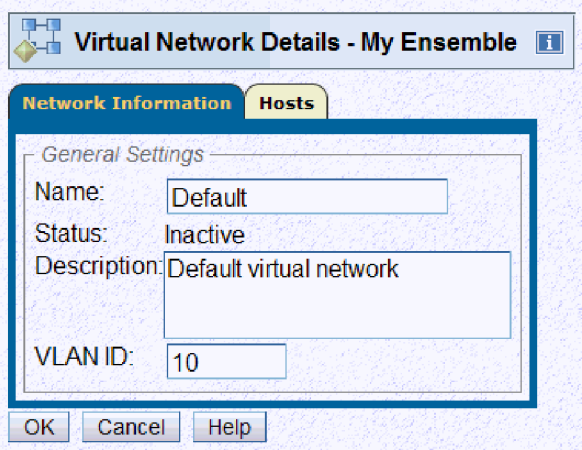

Figure 9. Virtual Network Details window

The Virtual Network Details window includes the following tabs:

Network Information
Displays the status of the virtual network or displays the name, description, and VLAN ID of the virtual network. You can also modify the information.

Hosts Displays the list of hosts that are in the selected virtual network.

Perform the following steps to display and optionally modify the virtual network details:

1. Select the ensemble.
2. From the **Configuration** task group, open the **Manage Virtual Networks** task. The Manage Virtual Networks window is displayed.
3. Select an entry in the **Virtual Networks** table. This entry represents the details of the virtual network with which you want to work.
4. From the **Select Action** list, select **Details**. The Virtual Network Details window is displayed.
5. To view or change network information:
   a. Click the **Network Information** tab. A window area labeled **General Settings** is displayed.
   b. The **Name** field shows the current name of the selected virtual network. If you want to change it, enter a value with a maximum length of 32 characters. The name must be unique (not already used for another virtual network within the ensemble).
   c. View the **Status** field, which shows the status of the virtual network.
   d. The **Description** field shows the current description of the selected virtual network. To change it, enter a new description. An example is `useful Layer-3 configuration information, such as network, netmask numbers, DNS, and router IP addresses.`
   e. The **VLAN ID** field shows the current VLAN ID associated with the selected virtual network. To change it, enter a value in the range of **10 - 1034**. The VLAN ID must be one not already in use for another virtual network.

      Notes:

      - If the VLAN ID is updated, the network virtualization function applies the changed VLAN ID to every virtual server or appliance that belongs to the virtual network. If any of these operations fails, you are notified.
      - If a virtual server cannot dynamically react to a change in VLAN ID, you are notified of the actions required to fully activate the change. The VLAN ID remains unchanged.

f. Click **OK** to verify and submit any changes and complete the task. You return to the Manage Virtual Networks window.

6. To view host information:
   a. Click the **Hosts** tab. A table is displayed that lists the hosts that belong to the virtual network. Hosts are identified in the **Name** column.
   b. For each host listed, you can view the entry in the **Parent Names** column. The parent name identifies the location of the host in the ensemble, based upon a hierarchical series of resources.
   c. For each host listed, you can view the entry in the **NIC** column. The NIC identifies the connecting network interface.
   d. Click **OK** to complete the task and return to the Manage Virtual Networks window.

Use the online Help if you need additional information about virtual network details.

Manage Virtual Switches

Use this task to create, update or remove a virtual switch from the selected z/VM hypervisor. This task provides a way to link an external network to z/VM virtual servers through an OSA-Express, without the need for a routing function. z/VM virtual servers connected to the virtual switch are attached to the OSA-Express LAN. The Manage Virtual Switches task configures guests with IP addresses from the network to which the OSA-Express connects to, without the need to configure Proxy Address Resolution Protocol (ARP) in a z/VM TCP/IP service machine.

The following Manage Virtual Switches actions are available from this task:

Details
Displays or updates the selected vSwitch attributes and description for the select hypervisor.

Create IEDN vSwitch
Creates and defines a simulated virtual switch with hardware properties of an intraensemble data network (IEDN) (managed by the Unified Resource Manager) that a virtual server can connect. An IEDN type of virtual switch can accept only connections from a simulated IEDN or QDIO adapter (when OSDSIM authorization is granted). If connectivity to the physical IEDN internal network is required, then you can specify only IEDN-capable OSA-Express devices (CHPID type OSX).

Create QDIO vSwitch
Creates and defines a simulated Ethernet or IP virtual switch. A Queued Direct I/O (QDIO) virtual switch creates a network composed of both simulated QDIO devices residing on the same z/VM system. Real network devices are located on an external or physical network. A QDIO type of virtual switch can accept only connections from a simulated QDIO adapter. QDIO mode is referred to as OSD because the CHPID type coded in the IOCDS is OSD.

Remove vSwitch
Provides a confirmation window for deleting the selected vSwitch from the target hypervisor.

Perform the following steps to create, update, or remove a virtual switch from the selected hypervisor:
1. Select a z/VM hypervisor.
2. From the **Configuration** task group, open the **Manage Virtual Switches** task. The Manage Virtual Switches window is displayed.
3. Select a single object from the **Manage Virtual Switch** table.
4. Click the arrow on the **Select Action** list, and then select an action from the list.
5. Click **OK** to complete the task.

Use the online Help if you need additional information about managing virtual switches.

Manage zBX Move

An IBM zEnterprise BladeCenter Extension (zBX) can be removed from one CPC and attached to another CPC. If both CPCs are members of the same ensemble, the configuration data from the zBX can be preserved by exporting the data from the donor CPC and importing the data to the target CPC. If the CPCs are members of different ensembles, the configuration data cannot be preserved.

Additionally, one or more IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise blades can be moved from one zBX to another zBX. When moving the blades, if both CPCs containing the zBXs are members of the same ensemble, the configuration data from the DataPower XI50z blades can be preserved by exporting the data from the donor CPC and importing the data to the target CPC.

Use **Manage zBX Move** to manage the movement of the zBX or DataPower XI50z blades within the ensemble. This task must be used by an IBM Service Support Representative (SSR) in conjunction with Miscellaneous Equipment Specification (MES) installation instructions. The customer placed an order for any zBX movement through the configurator to initiate the MES process. The hardcopy installation instructions guide the SSR through the steps ordered by the customer.

The toolbar of the **Manage zBX Move** table contains a **Select Action** option list. The following actions are available from this task:

Details
: Displays the details of the selected zBX profile.

Import...
: Guides you through the process of importing the zBX configuration data from the profile repository on the primary Hardware Management Console to the target CPC.

Verify
: Verifies that the zBX profile data is properly moved to the target CPC. Optionally, removes the zBX profile to unlock the zBX objects.

Delete
: Deletes the selected zBX profile and unlocks the zBX objects.

Detach...
: Guides you through the process of detaching the zBX or DataPower XI50z hardware.

Export...
: Guides you through the process of saving the zBX configuration data to the profile repository on the primary Hardware Management Console. The zBX objects are locked from any changes.

Perform the following steps to display the Manage zBX Move window:

1. Select the ensemble.
2. From the **Service** task group, open the **Manage zBX Move** task. The Manage zBX Move window is displayed.
3. Proceed with one of the zBX move actions that is launched from this window.

Use the online Help if you need additional information about moving the zBX or DataPower XI50z blades.

Migrate Virtual Server

Use this task to migrate the source virtual server definition to another hypervisor of the same type.

The source virtual server is "locked" during migration. No other user actions can be performed against the source virtual server during migration.

Perform the following steps to migrate a virtual server:
1. Select a virtual server with a status of "not operating".
2. From the **Configuration** task group, open the **Migrate Virtual Server** task. The Migrate Virtual Server window is displayed.
3. Select a valid target hypervisor, and then click **Migrate** to migrate the virtual server. A confirm window is displayed.
4. Click **OK** to complete the task.

Use the online Help if you need additional information about migrating virtual servers.

Monitor System Events

This task allows you to create and manage event monitors. Event monitors listen for state changes events from the virtual machines the Hardware Management Console manages.

When an event is received, the monitor tests it with user-defined time and text filters. If the event passes the tests, the monitor sends email to interested users. The **Monitor System Events** task allows you to enable or disable monitors and display or change information about settings such as the SMTP port.

An event monitor has the following characteristics:
- Unique name on the Hardware Management Console
- Persistent
- Enabled or disabled without changing its other characteristics
- Listens to one or more managed objects
- Notifies users by email if an event is received from a managed object and it passes through all the filters of the event monitor
- Contains a regular expression filter that must match the event text for the monitor to notify users
- Limited by time filters, such:
  - A set of days, for example, Monday through Friday
  - A range of times during the day, for example 8 a.m. through 4 p.m.
  - A range of dates, for example, 2/14/2005 to 2/16/2005.

To create or change an event monitor:
1. Select a virtual machine from the **Managed z/VM Virtual Machines Work Area** in the classic interface or from the **All z/VM Virtual Machines** group in the tree interface.
2. Open the **Monitor System Events** task. The Event Monitor Summary window is displayed.
3. View or change **Settings** information:
   - SMTP server
   - SMTP port
   - Minimum time between emails.
4. To create an event monitor, select the **State Change Example** monitor and click **Add...** to create a state change event monitor. (z/VM virtual machines only support state change events.) The Event Monitor Editor window is displayed. Provide the appropriate information in the input fields. Ensure that you select the virtual machines whose state you want to monitor in the list of objects to be monitored. Click **OK** to finish creating the event monitor.

   To edit an existing monitor, select the monitor from the monitor list on the Event Monitor Summary window then click **Edit...** to edit that monitor.

5. To test an event monitor for the specified SMTP server, click **Test...**.
6. Click **OK** from the Event Monitor Summary window when you have completed this task.

Use the online Help if you need additional information about creating and managing event monitors.

Monitors Dashboard

Note: In the zEnterprise environment, the term *CPC* consists of a zEnterprise mainframe and any attached IBM zEnterprise BladeCenter Extension (zBX). The term *zCPC* refers to the physical collection of main storage, central processors, timers, and channels within a zEnterprise mainframe.

Use this task to monitor system activity and display activity details on your system for the selected CPCs.

To monitor system activity for your system:

1. Open the **Monitors Dashboard** task. The **Monitors Dashboard** window is displayed. The overview table includes information on processor and channel usage, power consumption, and ambient air temperature. Expand the Details section to view activity details for the CPCs. You can also click on the CPC's Settings icon for a list of details that are defined for the CPC.
2. To display summaries of processing and channel activity for the selected CPC, expand the Details section for the CPCs you want to monitor.
3. To work with system activity profiles, select **Open Activity Profiles** located above the Overview table. The Customize Activity Profiles window for the selected CPC is displayed.
4. To monitor workload resource groups and policies, select **Open Workloads Report** located above the Overview table.
5. To monitor network metrics and display statistics for the networking resources associated with the IEDN, select **Open Network Monitors Dashboard** located above the Overview table.
6. When you have finished viewing this information, click **Close**.

Use the online Help to get additional information about monitoring your system.

Mount Virtual Media

Use this task to mount virtual media. Virtual media is a virtual DVD drive that can be attached to a virtual server. Virtual media is allocated from IBM blade storage instead of on real media.

The Mount Virtual Media wizard is organized into the following pages:

Welcome

Select Source
Specifies the location and type of the ISO file image to mount as virtual media.

Mount ISO image
Provides options to select, mount, or unmount a virtual media file image as a primary boot device.

Summary

Perform the following steps to mount virtual media:

1. Select a virtual server.

2. From the **Configuration** task group, open the **Mount Virtual Media** task. The Mount Virtual Media window is displayed.
3. Click **Next** to advance to the next page.
4. Select the media source location and then click **Next** to advance to the next page.
5. Enter the required data and then click **Next** to advance to the next page.
6. Review **Summary** information.
7. Click **Finish** to complete the task.

Use the online Help if you need additional information about mounting virtual media.

Network Monitors Dashboard

Use this task to monitor network metrics and display statistics for the networking resources associated with the IEDN. You can view performance of the IEDN resources to validate the healthy flow of traffic both in the form of current and historical data.

Perform the following steps to open and work with the network monitors dashboard:

1. Select the ensemble.
2. From the **Monitor** task group, open the **Network Monitors Dashboard** task. The Network Monitors Dashboard window is displayed.
3. Click **Modify** at the top of the window to specify the mode and reporting interval. The **Report Interval** displays the mode of operation and the start and end times of the currently displayed metrics.
4. Use any of the following tabs in the Network Monitors Dashboard window:

   Virtual Networks
   Displays VLANs defined in the ensemble in the **Metrics** table. By default, metrics for all VLANs are displayed in the table. You can click **Modify** to customize the VLANs displayed.

   Two views are available: **Virtual Switches and Appliances** and **Virtual Networks**. Click the titles to toggle between the views. The **Metrics** table repopulates the network metrics data for the selected view.

   Physical Interfaces
   Displays network metrics for each physical interface in the **Metrics** table. You can view the performance for the physical network interfaces that are contributing to the IEDN. The interfaces consist of virtual switch uplinks, OSXs, and DataPower network interfaces.

   Physical Switches
   Displays network metrics for each top-of-rack (TOR) or ESM switch and its ports in the **Metrics** table.
5. To display a histogram of the selected rows, select **Display Histogram** from the **Select Action** list on the table toolbar.

   Note: The histogram is based on the selected reporting interval.
6. Click **Close** to close the window.

Use the online Help if you need additional information about Network Monitors Dashboard.

New Performance Policy

Use this wizard to guide you through creating a performance policy, and any service classes associated with it.

Perform the following steps to create a performance policy:

1. Select a workload resource group.
2. From the **Configuration** task group, open the **New Performance Policy** task. This action opens the New Performance Policy wizard.
3. Complete the fields on the **Create Performance Policy**, **Create Service Class**, **Service Class Goal**, **Classification Rule**, and **Manage Service Classes** pages, clicking **Next** to advance to the next page.
4. From the **Summary** page, review the information, and then click **Finish** to complete the task.

Note: You might also use the **Workload Resource Group Details** task to view, add, or remove policies from a workload resource group.

Use the online Help if you need additional information about creating a performance policy.

New Virtual Server Based On

Use this wizard to guide you through the process of creating new virtual server definitions based on an existing virtual server definition. With the appropriate user access control authority, this wizard provides access to the **New Workload Resource Group** task.

The New Virtual Server Based On wizard is organized into the following pages:

Welcome

Select Hypervisor
Provides a list of available hypervisors on which you can create new virtual servers.

Enter Name
Provides for defining the name and description of the new virtual server or servers.

Configure Storage
Provides options to configure virtual storage drives for the new virtual server or servers based on the selected virtual server.

Select Workloads
Assigns a workload performance policy to the new virtual server or servers.

Summary

Perform the following steps to create a new virtual server based on an existing definition:

1. Select the existing virtual server.
2. From the **Configuration** task group, open the **New Virtual Server Based On** task.
3. Complete the fields on all pages that require information, clicking **Next** to advance to the next page.
4. Review **Summary** information.
5. Click **Finish** to complete the task.

Use the online help if you need additional information about creating a new virtual server based on an existing virtual server.

New Virtual Server

Use this task to add a new virtual server definition to the selected hypervisor. With the appropriate user access control authority, this wizard provides access to the **Manage Virtual Networks**, **Manage Storage Resources**, and **New Workload Resource Group** tasks.

The following data might be required when creating virtual servers:

- Virtual server name
- Virtual server description
- Processing mode: shared or dedicated
- Maximum assignable virtual processors and initial virtual processors

  When you are defining virtual servers, z/VM does not check for overcommitment of CPU resources for all the virtual servers defined in a hypervisor. On z/VM, the sum of the virtual CPUs of all running virtual servers has no practical limits (other than the performance degradation that overcommitment causes). In this sense z/VM supports CPU overcommitment.
- Size of virtual server initial memory

  Only z/VM supports memory overcommitment. In general, PowerVM® Enterprise Edition does not support over commitment (meaning the sum of memory sizes allocated to virtual servers cannot exceed the physical memory that the hypervisor manages).
- Network connection
- Storage needed
- Boot options
- Workload resource group (Including the workload resource group as an input parameter avoids temporarily assigning the virtual server to a default workload resource group)
- Performance management option

Perform the following steps to add a new virtual server to a hypervisor:

1. Select a z/VM or IBM blade hypervisor.
2. From the **Configuration** task group, open the **New Virtual Server** task. The New Virtual Server window is displayed.
3. Complete the fields on all pages that require information, clicking **Next** to advance to the next page.
4. Review **Summary** information.
5. Click **Finish** to complete the task.

Use the online Help if you need additional information about adding a new virtual server.

New Workload Resource Group

Use this wizard to guide you through creating a new workload resource group. With this wizard you can also select virtual servers, create performance policies, and schedule activation of policies related to the new workload resource group.

Perform the following steps to create a workload resource group:

1. Select an ensemble.
2. From the **Configuration** task group, open the **New Workload Resource Group** task. The New Workload Resource Group wizard is displayed.
3. Complete the fields on all pages that require information, clicking **Next** to advance to the next page.
4. From the **Summary** page, review the information, and then click **Finish** to complete the task.

Use the online Help if you need additional information about creating a workload resource group.

Open Graphical Console

Use this task to open a graphical-based console to the VGA output on the selected IBM System x blade virtual server to install or administer the operating system.

Perform the following steps to access a virtual server graphical console:
1. Select a virtual server with a status of `starting` or `operating`.
2. From the **Configuration** task group, open the **Open Graphical Console** task. The graphical console application opens.
3. Install or administer the operating system.
4. Click **Disconnect** or close the window to exit the console.

Use the online Help if you need additional information about opening a graphical console.

Open Text Console

Use this task to open a text-based console with the operating system on the selected IBM blade virtual server. You can scroll the information that is displayed in the command shell. To scroll up, hold Shift and press Page Up. To scroll down, hold Shift and press Page Down.

Perform the following steps to access a virtual server text console:
1. Select a virtual server with a status of `starting` or `operating`.
2. From the **Configuration** task group, open the **Open Text Console** task. The console application opens.
3. Perform the console tasks.
4. Close the window to exit the console.

Use the online Help if you need additional information about open text console.

Operating System Messages

Use this task to view consolidated operating-system-generated messages for all CPC members of the selected ensemble. See the "Operating System Messages" section of the *Hardware Management Console Operations Guide* for basic information about this task. This section contains information about the ensemble-specific information for the Operating System Messages window.

You can view the operating system messages for all PR/SM™ virtual servers in the ensemble. To view all ensemble messages, select the ensemble object, and then open Operating System Messages. A tabbed pane opens with a tab for each operating system image. If an image has no messages, the panel within the tab is empty.

Perform the following steps to display the Operating System Messages:
1. Select an ensemble.
2. In the tree style user interface, open the **Operating System Messages** task from the **Daily** task group.

In the classic style user interface, drag the selected object on **Operating System Messages** in any task area.

The Operating System Messages window opens.

Use the online Help if you need additional information about viewing or deleting operating system messages.

Remove Member from Ensemble

Use this task to remove the selected CPC from the ensemble. When the task is completed, the CPC is no longer managed as part of the ensemble.

If any conditions must be met before removing the member, an appropriate error message is displayed.

Perform the following steps to remove the member from an ensemble:

1. Select the ensemble.
2. Expand the **Members** group.
3. Select a CPC.
4. From the **Configuration** task group, open the **Remove Member from Ensemble** task. A confirmation window is displayed.
5. Click **OK** to complete the task.

Remove Object Definition

Use this task to remove a system (CPC) that is currently part of the **Systems** group in the navigation pane for the tree style user interface or the **Defined CPCs** group in the classic style user interface. If you previously set the appropriate option on the User Settings Confirmations page, during definition removal the Remove Object Definition Task Confirmation window is displayed. Use this window to continue or exit the **Remove Object Definition** task.

See the "Remove Object Definition" section of the *Hardware Management Console Operations Guide* for basic information about this task.

Before you can successfully use the **Remove Object Definition** task, you must first use the “Remove Member from Ensemble” task to remove the CPC. If you do not remove the CPC before using the Remove Object Definition task, the task fails with an appropriate error message.

Resource Adjustments Report

Use this task to list successful and failed resource adjustments for the selected workload resource group, virtual server, or service class, over a specified interval. Information is presented in two tables, one for the successful adjustments, and one for failed adjustments.

A resource adjustments report can be generated and displayed for a workload resource group, virtual server, or service class. The following example uses a workload resource group as the target for the report. Perform the following steps to open and work with the workload resource adjustments report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Workload Resource Adjustments Report** task. The Workload Resource Adjustments Report window is displayed.
3. Modify the data in the **Resource Adjustment Report** tables in one or more of the following ways:
   - Click **Modify** to display options for changing the report intervals.
   - Filter or sort the data in the **Successful Adjustments** table by manipulating the table toolbar information.
   - Filter or sort the data in the **Failed Adjustments** table by manipulating the table toolbar information.
4. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Resource Adjustments Report.

Restart z/VM Management Guest

Use this task to issue a restart request of the target z/VM management guest machine. This task can be used to recover from situations where the z/VM management guest is not operating correctly.

Additionally, this task resets the automatic restart threshold for the automatic restart of the z/VM management guest by the SE.

Perform the following steps to restart a z/VM management guest:

1. Select a z/VM hypervisor.
2. From the **Service** task group, open the **Restart z/VM Management Guest** task. The Reboot Confirmation window is displayed.
3. If you want to continue this task, click **Yes**. If you want to end this task, click **No**.
4. Click **OK** to close the window.

Use the online Help if you need additional information about restarting a z/VM management guest.

Service Classes Report

Use this task to display a report that is illustrating all the service classes defined for the workload resource group for a specified interval. This report provides high-level performance status information. A **Performance Index** chart is available with the **Service Classes Report** task.

Perform the following steps to open and work with the Service Classes Report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Service Classes Report** task. The Service Classes Report window is displayed.
3. Modify the data in the Service Classes report table and chart in one or more of the following ways:
   - Click **Modify** to display options for changing the report intervals.

- Select a particular service class from the table or filter the data you want to be displayed in the service classes report by manipulating the information in the **Service Classes** table.
- To view or hide a particular service class performance index for the selected workload resource group, click an individual service class in the **Performance Index** chart legend in the **Service Class Charts** section.

4. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Service Classes Report.

Hops Report

Use this task to illustrate information for each hop involved with handling a specific service class within a specific workload resource group during the requested interval time frame. A hop corresponds to a tier in the transactional flow, and each hop can have one or more application environments associated with it.

Perform the following steps to open and work with the Hops Report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Service Classes Report** task. The Service Classes Report window is displayed.
3. Select a service class from the table and select **Hops Report** from the list. The Hops Report window is displayed.
4. Modify the data in the Hops Report in one or more of the following ways:
   - Click **Modify** to display options for changing the report intervals.
   - Filter or sort the data in the Hops Report by manipulating the table toolbar information in the Hops Report Table.
5. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Hops Report.

View Statistics

Use this task to show operating system processes and application environment statistics for the selected Virtual Server Topology Report node. The statistics are presented in table format.

Perform the following steps to view statistics for a particular node in a Virtual Server Topology Report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Service Classes Report** task. The Service Classes Report window is displayed.
3. Select a service class from the table and select **Virtual Server Topology Report** from the list. The Virtual Server Topology Report window is displayed.
4. Select a node in the work pane area, and select **View Statistics** from the **Tasks** list. The View Statistics window is displayed.
5. Click **Close** to close the window.

Use the online Help if you need additional information about viewing the statistics of a node in the Virtual Server Topology Report.

Virtual Server Topology Report

Use this task to show the relationships between virtual servers that are running the workload resource group and providing the resources to complete the work.

Perform the following steps to open and work with the Virtual Server Topology Report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Service Classes Report** task. The Service Classes Report window is displayed.
3. Select a service class from the table and select **Virtual Server Topology Report** from the list. The Virtual Server Topology Report window is displayed.
4. Modify the data in the Virtual Server Topology Report in one or more of the following ways:
   - Click **Modify** to display options for changing the report intervals.
   - Control the appearance of the data in the report in any of the following ways:
     - Zoom in or out or fit the image content within the work pane area
     - Change the mouse mode to: make selections and display details, pan the frame in any direction, or create a blue frame around an area to enlarge.
     - Toggle the visibility of a support area, which displays the image overview.
5. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Virtual Server Topology Report.

Set Power Cap

Use this task to limit the peak power consumption of a system resource or group of resources. You can closely manage power allocations within the physical limits of your data center.

You can perform the following actions on the system resources from this task:

- Selecting the power capping setting
- Setting the cap value
- Viewing power capping details on default and hidden columns

Perform the following steps to set the power cap:

1. Select a CPC, zBX BladeCenter, or zBX blade.
2. From the **Energy Management** task group, open the **Set Power Cap** task. The Set Power Cap window is displayed. The window lists the current power capping settings and power cap values for the object.
3. Specify the power capping setting in the **Power Capping Setting** list.
4. Specify the power cap in the **Cap Value** field.
5. Click **OK** to complete the task.

Use the online Help if you need additional information about setting the power cap.

Set Power Saving

Use this task to reduce the average energy consumption of a system component or group of components. You can closely manage power allocations within the physical limits of your data center.

Perform the following steps to set power saving:

1. Select a CPC, zBX BladeCenter, or zBX blade.
2. From the **Energy Management** task group, open the **Set Power Saving** task. The Set Power Saving window is displayed. The window lists the current power saving settings for the object.
3. Specify the power saving setting in the **Power Saving** list.
4. Click **OK** to complete the task.

Note: You can set the power saving setting of the zCPC to **Low power** only one time per calendar day. This field is disabled and set to **Not Supported** if the current zCPC power saving setting is **High performance** but the zCPC has already entered **Low power** once within the calendar day.

Use the online Help if you need additional information about setting the power saving.

User Profiles

Use this task to manage the system users that log on to the Hardware Management Console. A user profile is a combination of a user ID, permissions, authentication mode, and a text description. Permissions represent the authority levels assigned to the user profile for the objects that the user has permission to access.

The predefined default user profiles for ensemble management include:
- ENSADMIN
- ENSOPERATOR

Use "Customize User Controls" on page 24 to view and manage task roles and resource roles introduced for ensemble management. After you defined or customized the user roles, you can use the **User Profiles** task to create new users with their own permissions.

See the *Hardware Management Console Operations Guide* for basic information about this task. This section contains information about the ensemble-specific information for the User Profiles window.

The predefined managed resource roles for ensemble management include:
- Ensemble Object
- Virtual Network Objects
- IBM Blade Virtual Server Objects
- Storage Resource Objects
- BladeCenter Objects
- IBM Blade Objects
- DPXI50z Blade Objects
- Workload Objects

The predefined task roles for ensemble management include:

- Ensemble Administrator Tasks
- Virtual Network Administrator Tasks
- Virtual Server Administrator Tasks
- Virtual Server Operator Tasks
- Storage Resource Administrator Tasks
- Workload Administrator Tasks
- Performance Management Administrator Tasks
- Performance Management Operator Tasks
- Energy Management Administrator Tasks

Use the online Help if you need additional information about customizing the user profiles.

Virtual Server Details

Use this task to view or modify the properties of the selected virtual server. Figure 10 shows an example of a Virtual Server Details window.

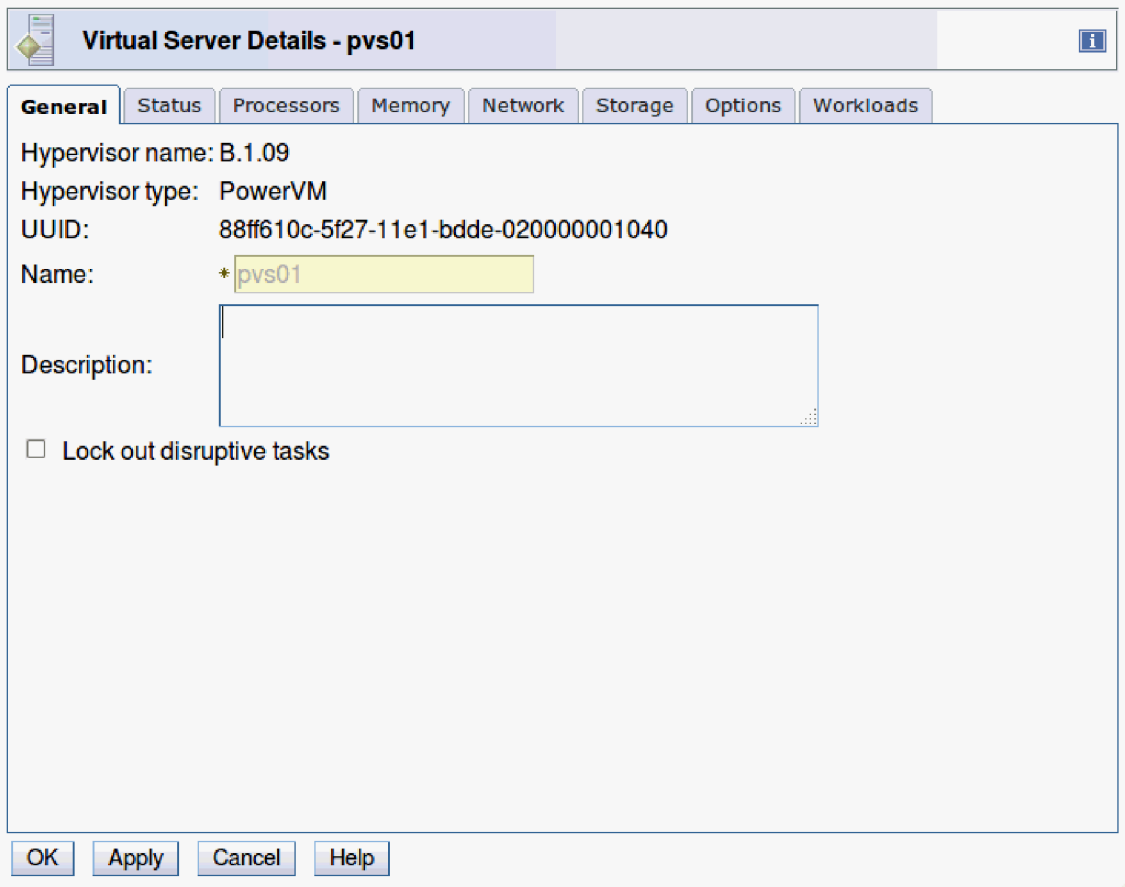

Figure 10. Virtual Server Details window for POWER7 blades

Perform the following steps to display and optionally modify the virtual server details:

1. Select the virtual server, and then open the **Virtual Server Details** task. The Virtual Server Details window is displayed.
2. Use any of the following tabs in the Virtual Server Details window:

Note: Depending on the type of virtual server selected, some of the fields might not be displayed or enabled for modification.

General
Displays the hypervisor name, type, and UUID number. Provides fields for the name and description of the virtual server.

Status Displays acceptable status settings for the virtual server. You can also modify the information.

Processors
For POWER7® blades, displays processor mode that you can modify, including the initial, minimum, and maximum processor capacity settings. For System x blades, displays virtual processors that you can modify and maximum assignable virtual processors.

Memory
For POWER7 blades, displays hypervisor initial, minimum, and maximum dedicated memory settings that you can modify. For System x blades, displays dedicated memory that you can modify and maximum assignable memory.

Network
Displays network adapters that you can add, modify, or remove.

Storage
Displays storage drives that you can add, modify, or remove. Provides mount, unmount, and deploy options for the media source of the virtual server.

Options
Displays options (that is, boot source, enable GPMP support) that can be modified.

Workloads
Shows the available workload resource groups for the virtual server and provides an option to activate or deactivate performance management.

3. Click **OK** to save changes and close the window.

Use the online Help if you need additional information about virtual server details.

Virtual Servers Report

Use this task to display the utilization information for each server resource associated with the selected workload resource group. The report is presented in table format.

Perform the following steps to open and work with a Virtual Servers Report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Virtual Servers Report** task. The Virtual Servers Report window is displayed.
3. Modify the data in the virtual servers report in one or more of the following ways:
   - Click **Modify** to display options for changing the report intervals.
   - Select a particular virtual server from the table or filter or sort the data in the virtual servers report by manipulating the table toolbar information in the **Virtual Servers** table.
4. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Virtual Servers Report.

Hypervisor Report

Use this task to display a report that is illustrating what other virtual servers are running in the same hypervisor instance as the selected virtual server and how these other virtual servers are competing for the shared resources. The report details are displayed in three tables: Virtual Servers Table, Successful Adjustments Table, and Failed Adjustments Table.

Perform the following steps to open and work with the Hypervisor Report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Workloads Report** task. The Workloads Report window is displayed.
3. Select a workload resource group from the Workloads Report Table, and select **Virtual Servers Report** from the list. The Virtual Servers Report window is displayed.
4. Select a Virtual Server from the Virtual Servers Report Table, and select **Hypervisor Report** from the list. The Hypervisor Report window is displayed.
5. Modify the data in the Hypervisor Report tables in one or more of the following ways:
   - Click **Modify** to display options for changing the report intervals.
   - Filter or sort the data in the Virtual Servers table by manipulating the table toolbar information in the Virtual Servers Table.
   - Filter or sort the data in the Successful Adjustments table by manipulating the table toolbar information in the Successful Adjustments Table.
   - Filter or sort the data in the Failed Adjustments table by manipulating the table toolbar information in the Failed Adjustments Table.
6. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Hypervisor Report.

Workload Resource Group Details

Use this task to view or modify the properties of a target workload resource group. The default workload resource group cannot be modified. Figure 11 shows an example of a Workload Resource Group Details window.

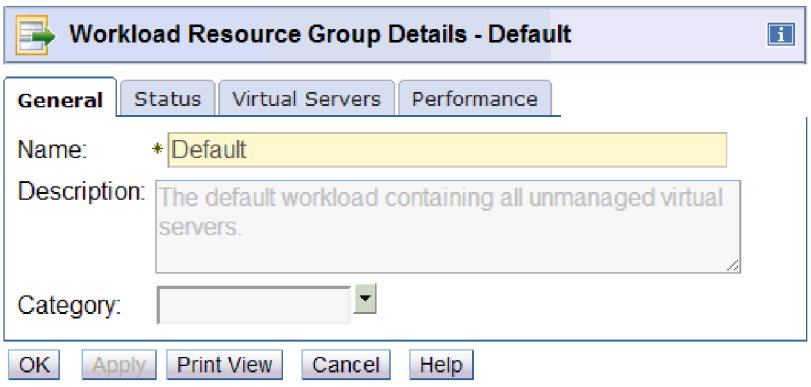

Figure 11. Workload Resource Group Details window

Perform the following steps to display and optionally modify the workload resource group details:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Use any of the following tabs in the **Workload Resource Group Details** window:

   General
   Displays the name, description, and category of the workload resource group. You can also modify the information.

   Status Displays the current status and performance status for the workload resource group. You can also modify the workload resource group acceptable status and compliant performance status settings.

   Virtual Servers
   Displays virtual servers in the workload resource group so you can manage them.

   Use the **Virtual Server Details** task to display information for a selected virtual server name.

   Use the **Hypervisor Details** task to display information for a selected hypervisor.

   Use **Remove** to remove a selected virtual server.

   Use the **Add Virtual Servers** task for adding virtual servers to the table.

   Use the **Add Custom Groups** task for adding custom groups of virtual servers to the workload resource group.

   Performance
   Displays the performance policies of the workload resource group and their corresponding details, including service classes.
3. Click **OK** to save changes and close the window.

Use the online Help if you need additional information about workload resource group details.

Activate Performance Policy

Use this task to activate a performance policy for the target workload resource group.

Perform the following steps to activate a performance policy:
1. Select the workload resource group.
2. From the **Configuration** task group, open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
3. Select a performance policy from the table, and select **Activate** from the list in the table toolbar. This opens the **Activate Performance Policy** task.
4. Click **OK** to activate the performance policy and close the window.

Use the online Help if you need additional information about activating a performance policy.

Add Custom Groups

Use this task to add one or more custom groups of virtual servers to the table in the **Virtual Servers** tab of the **Workload Resource Group Details** task.

Perform the following steps to add one or more virtual servers:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Virtual Servers** tab.
3. Select **Add Custom Groups** from the list in the table toolbar, to open the **Add Custom Groups** task.
4. Select one or more custom groups from the table.
5. Click **OK** to add the selected custom groups to the Virtual Servers table of the **Workload Resource Group Details** task.

Use the online Help if you need additional information about adding custom groups.

Add Virtual Servers

Use this task to add one or more virtual servers to the workload resource group in the **Virtual Servers** tab of the **Workload Resource Group Details** task.

Perform the following steps to add one or more virtual servers:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Virtual Servers** tab.
3. Select **Add Virtual Servers** from the list in the table toolbar to open the **Add Virtual Servers** task.
4. Select one or more virtual servers from the table.
5. Click **OK** to add the selected virtual servers to the Virtual Servers page of the **Workload Resource Group Details** task.

Use the online Help if you need additional information about adding virtual servers.

Performance Policy Details

Use this task to view or modify the properties of a target performance policy. The default performance policy cannot be modified. Figure 12 on page 62 shows an example of a Performance Policy Details window.

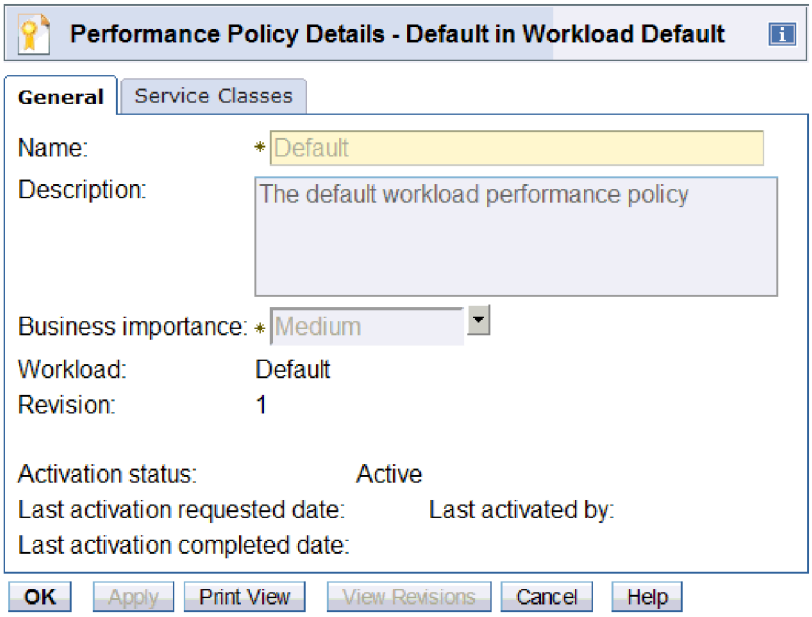

Figure 12. Performance Policy Details window

Perform the following steps to display and optionally modify the performance policy details:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Performance Policies** tab.
3. Select a performance policy from the table, and then select **Details** from the list in the table toolbar. The **Performance Policy Details** task opens.
4. Use any of the following tabs in the **Performance Policy Details** window:

   General
   Displays the name, description, and business importance. You can also modify the information.

   Service Classes
   Displays the service classes of the performance policy for you to manage.

   Use the **New Service Class** task for creating a new service class.

   Use the **Service Class Details** task so you can view or modify a selected service class.

   Use **Delete** to remove a selected service class.

   Use the **Print View** task to display a printable version of a selected service class.
5. Click **OK** to save changes and close the window.

Use the online Help if you need additional information about performance policy details.

New Service Class

Use this wizard to guide you through creating a new service class or using an existing service class to create a new service class. The wizard helps you define performance goals and rules that identify the virtual servers performing work. You can also create multiple service classes to prioritize work items.

Perform the following steps to create a service class:

1. From the **Performance Policy Details** task, click the **Service Classes** tab.
2. Launch the **New Service Class** wizard in one of the following two ways:
   - Select **New** from the list in the table to launch the **New Service Class** wizard
   - Select an existing service class from the table and select **New Based On** from the list in the table to launch the **New Service Class** wizard. Fields in the wizard are populated with values from the selected service.
3. Complete the fields on the **Create Service Class**, **Service Class Goal**, and **Classification Rule** pages, clicking **Next** to advance to the next page.
4. From the **Summary** page, review the information, and then click **Finish** to complete the task.

Use the online Help if you need additional information about creating a service class.

Performance Policy Print/View

Use this task to view a printable version of the properties of a target performance policy. If you are connected remotely to the console, you can also print the information.

Perform the following steps to view a printable version of the performance policy properties:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Performance Policies** tab, select a performance policy from the list, and then select Details from the list. The **Performance Policy Details** task is displayed.
3. Click **Print View** to view a printable version of the properties of the target performance policy.
4. If you are connected remotely to the console, you can also click **Print** to print the information.
5. Click **Close** to close the window.

Use the online Help if you need additional information about printing or viewing performance policy information.

Performance Policy Revisions

Use this task to view the contents of the revision log file for a performance policy. Every time a policy is changed, its previous revision is archived. These revisions are all displayed, including the current policy.

Perform the following steps to view a revision log file for a performance policy:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Performance Policies** tab, select a performance policy from the table, and then select **Details** from the list. The **Performance Policy Details** task is displayed.
3. Click **View Revisions** to view the contents of the revision log file for the performance policy.
4. Click **Close** to close the window.

Use the online Help if you need additional information about printing or viewing revision log file information.

Service Class Details

Use this task to view or modify the properties of a given service class. The default service class cannot be modified. Figure 13 shows an example of a Service Class Details window.

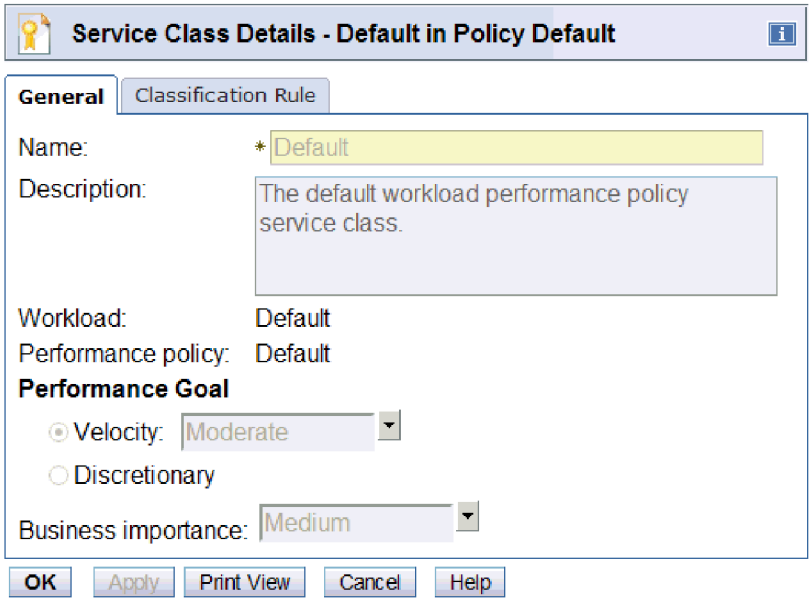

Figure 13. Service Class Details window

Perform the following steps to display and optionally modify the service class details:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Performance Policies** tab.
3. Select a performance policy from the table, and then select **Details** from the list in the table toolbar. The **Performance Policy Details** task opens.
4. Click the **Service Classes** tab.
5. Select a service class from the table, and select **Details** from the list in the table toolbar. The **Service Class Details** task opens.
6. Use any of the following tabs in the **Service Class Details** window:

   General
   Displays general information about the service class, for example, the name, description, workload resource group, performance goal, and business importance. You can also modify the information.

   Classification Rule
   Customizes filters for the classification rule of the service class.
7. Click **OK** to save changes and close the window.

Use the online Help if you need additional information about service class details.

Service Class Print/View

Use this task to view a printable version of the properties of a target service class. If you are connected remotely to the console, you can also print the information.

Perform the following steps to view a printable version of the service class properties:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Performance Policies** tab, select a performance policy from the list, and then select **Details** from the list. The **Performance Policy Details** task is displayed.
3. Click the **Service Classes** tab, select a service class from the list, and then select **Details** from the list. The **Service Class Details** task is displayed.
4. Click **Print View** to view a printable version of the properties of the target service class.
5. If you are connected remotely to the console, you can also click **Print** to print the information.
6. Click **Close** to close the window.

Use the online Help if you need additional information about printing or viewing service class information.

Workload Resource Group Print View

Use this task to view a printable version of the properties of a target workload resource group. If you are connected remotely to the console, you can also print the information.

Perform the following steps to view a printable version of the workload resource group properties:

1. Select the workload resource group, and then open the **Workload Resource Group Details** task. The Workload Resource Group Details window is displayed.
2. Click the **Performance Policies** tab, select a performance policy from the table, and click **Print View** to view a printable version of the properties of the target workload resource group.
3. If you are connected remotely to the console, you can also click **Print** to print the information.
4. Click **Close** to close the window.

Use the online Help if you need additional information about printing or viewing workload resource group information.

Workloads Report

Use this task to list workload resource groups and their active performance policies for a specified interval. The Workloads Report provides high-level performance status and goal achievement information.

Perform the following steps to open and work with the workloads report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Workloads Report** task. The Workloads Report window is displayed.
3. Expand the Workload Charts section at the bottom of the window to view the workload charts. Two charts are available: **CPU Utilization** and **Performance Index**. Click the titles to toggle between the two charts.
4. Modify the data in the workload charts one or more of the following ways:

- Click **Modify** to display options for changing the report intervals.
- Select a particular workload resource group from the table, or filter the data to display in the workload charts by manipulating the information in the **Workloads Report** table.
- Click on an individual service class in the **Performance Index** chart legend in the Workload Charts section to view or hide that service class performance index for the selected workload resource group.

5. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Workloads Report.

Load Balancing Report

Use this task to display a report that lists the load balancing groups to which external routers are distributing incoming work requests. Through Server/Application State Protocol (SASP) communication with the Unified Resource Manager, these external routers receive weight recommendations that enable the routers to distribute incoming work more effectively among virtual servers in the load balancing group.

The **Load Balancing Report** consists of two tables, a **Load Balancing Groups** table, and a **Members** table. By selecting a load balancing group in the **Load Balancing Groups** table, you can display additional information that includes a list of the virtual servers defined to the group and the weight recommendation for each virtual server.

Perform the following steps to open and work with the Load Balancing Report:

1. Select a workload resource group.
2. From the **Monitor** task group, open the **Workloads Report** task. The Workloads Report window is displayed.
3. From the **Workloads Report** table, select a workload resource group, and select **Load Balancing Report** from the Select Actions list. The Load Balancing Report window is displayed.
4. Modify the data in the Load Balancing Report the following ways:
   - Select a particular load balancer group from the **Load Balancer Groups** table to display detailed information for that group in the **Members** table.
   - Filter or sort the data in either table by manipulating the table toolbar information.
5. Click **Close** to close the window.

Use the online Help if you need additional information about manipulating data in the Load Balancing Report.

zBX Blade Details

Use this task to view or modify the properties of the selected zBX blade. Figure 14 on page 67 shows an example of a zBX Blade Details window.

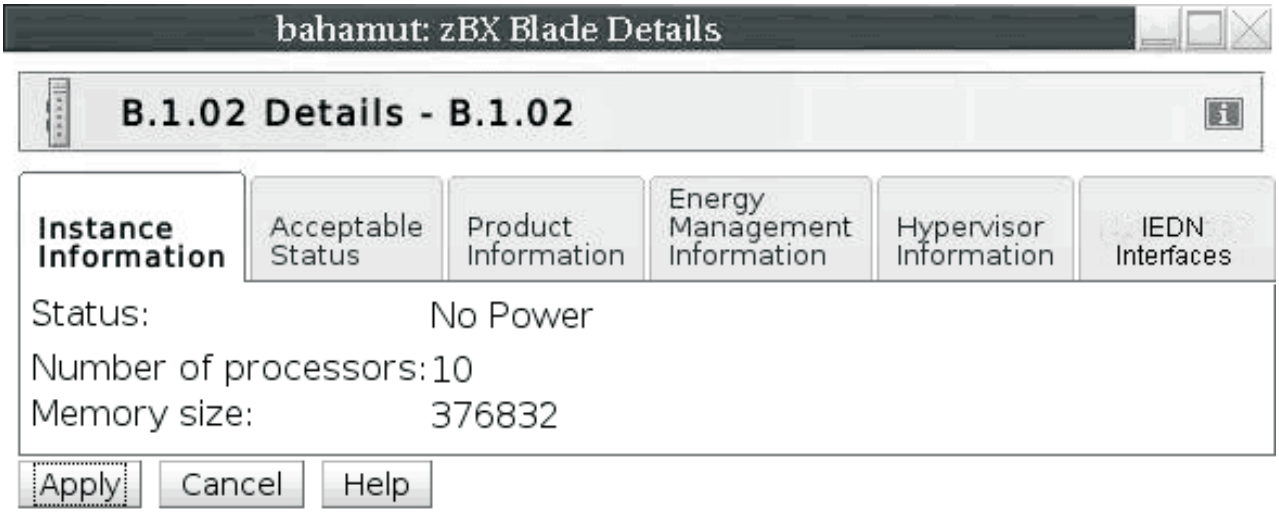

Figure 14. zBX Blade Details window

Perform the following steps to display and optionally modify the zBX blade details:

1. Select the zBX blade, and then open the **zBX Blade Details** task. The zBX Blade Details window is displayed.
2. Use any of the following tabs in the zBX Blade Details window:

   Instance Information
   Displays the status of the zBX blade and other information about the operating conditions, characteristics, and settings of the zBX blade.

   Acceptable Status
   Displays information about the current acceptable or unacceptable status settings for the selected zBX blade. You can also modify the information.

   Product Information
   Displays product information about the selected zBX blade, the machine type, model, serial number, and location.

   Energy Management Information
   Displays the power and thermal monitoring information for the specified zBX blade.

   Note: Certain information contained on this tab is available only when the appropriate feature is installed.

   Hypervisor Information
   Displays the hypervisor description. You can set a virtual server shutdown option for the targeted IBM blade. You can also modify the hypervisor description.

   Note: This tab is only available for IBM blades.

   IEDN Interfaces
   Displays the intraensemble data network (IEDN) interfaces for the targeted IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise (DataPower XI50z) blade. You can add a new interface, view the details of an existing interface, or delete an interface.

   Note: This tab is only available for DataPower XI50z blades.
3. Click **Apply** to save the changes.

Use the online Help if you need additional information about zBX Blade Details.

zBX BladeCenter Details

Use this task to view or modify the properties of the selected zBX BladeCenter. Figure 15 shows an example of a zBX BladeCenter Details window.

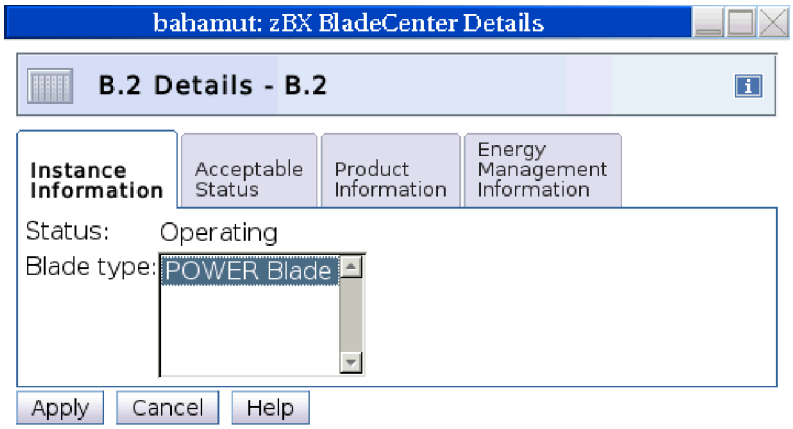

Figure 15. zBX BladeCenter Details window

Perform the following steps to display and optionally modify the zBX BladeCenter details:

1. Select the zBX BladeCenter, and then open the **zBX BladeCenter Details** task. The zBX BladeCenter Details window is displayed.
2. Use any of the following tabs in the zBX BladeCenter Details window:
   Instance Information
   Displays the status of the zBX BladeCenter and its type.
   Acceptable Status
   Displays information to set the current acceptable status settings for the selected zBX BladeCenter. You can also modify the current acceptable status settings.
   Product Information
   Displays product information about the selected zBX BladeCenter, the machine type, model, serial number, and location.
   Energy Management Information
   Displays the power and thermal monitoring information for the specified zBX BladeCenter.

   Note: This tab or certain information contained on this tab is available only when the appropriate feature is installed.
3. Click **Apply** to save the changes.

Use the online Help if you need additional information about zBX BladeCenter Details.

Appendix A. Unified Resource Manager tasks, roles, and default user IDs

This appendix lists the Unified Resource Manager tasks you can perform by using the Hardware Management Console (HMC) with the default task roles, resource roles, and user IDs. You can create customized user profiles so you can have unique user IDs and multiple user roles. Use the **Customize User Controls** task to manage these user roles. Roles are assigned to users with the **User Profiles** or **Manage Users Wizard** tasks.

Resource roles determine which resources a user ID can access. Task roles determine which tasks a user ID can access. Default resource roles, task roles, and user IDs with predefined role assignments are provided, however, you can create your own role and user IDs to customize roles to specific I/T management structure.

Unified Resource Manager task and resource roles

Use Ensemble, Virtual Server, Storage, Workload, Policy, and Energy-related task roles to control access to each management discipline. Table 1 lists the predefined Unified Resource Manager task roles. Abbreviations are used as convenient references within tables and have no other meaning.

Table 1. Unified Resource Manager task roles

Task roles	**Abbreviations**
Access Administrator Tasks	AA
System Programmer Tasks	SP
Operator Tasks	OP
Service Representative Tasks	SER
z/VM Virtual Machine Tasks	ZVM
Ensemble Administrator Tasks	ENSA
Virtual Network Administrator Tasks	VNA
Virtual Server Administrator Tasks	VSA
Virtual Server Operator Tasks	VSO
Storage Resource Administrator Tasks	SRA
Workload Administrator Tasks	WLA
Performance Management Administrator Tasks	PPMA
Performance Management Operator Tasks	PPMO
Energy Management Administrator Tasks	EMA

Use Ensemble, Virtual Server, Storage, Network, Workload, BladeCenter, and Blade-related resource roles to control access to these managed resources. Table 2 lists the predefined Unified Resource Manager resource roles.

Table 2. Unified Resource Manager resource roles

Resource roles	**Abbreviations**
All zCPC Managed Objects	AZM
Defined zCPC Managed Objects	DZM

Table 2. Unified Resource Manager resource roles (continued)

Resource roles	Abbreviations
z/VM Virtual Machine Objects	ZVMO
Ensemble Object	ENS
Virtual Network Objects	VN
IBM Blade Virtual Server Objects	VSASB
Storage Resource Objects	SR
BladeCenter Objects	BC
IBM Blade Objects	ASB
Workload Objects	WL
DPXI50Z Blade Objects	DP

Tasks and resources need to be made available or excluded based on the roles to which they are assigned. You can create your own specific task and resource roles which include specific tasks and resources, however, we provide default roles for your convenience. Table 4 identifies the Unified Resource Manager tasks along with default task and resource roles. The table identifies the task roles in which a particular task is included. It also documents the resource roles that are required to complete a task.

User roles can be set up such that a user has access permission to a virtual server, ensemble member, or other ensemble-related objects and yet does not have access to the ensemble object. To display the ensemble-related objects, the tree style user interface and classic user interface must display the ensemble object to allow navigation to the related objects. While the ensemble object is displayed, no tasks can be launched targeting the ensemble object.

The Details task has unique behavior with respect to roles. The Details task (view only) is always available for all resources accessible to a user ID. If a user ID has permission for the Details task, through an assigned task role, modifications can be made in the details task. Specific Details tasks are assigned to default task roles.

For example consider user ID AVERY. AVERY is given the Workload (WL) resource role but not the Workload Admin (WLA), which contains the Workload Resource Group Details task. AVERY can still launch details task for a Workload, but the content of the task is displayed read-only such that AVERY cannot modify to the resource.

All tasks that can be launched from the main UI are marked in **bold**. Where there are both administrative and operator roles, such as VSA and VSO, any permissions given to the operator are also available for the administrator role. See Table 3 for the tasks mapping legend.

Table 3. Tasks role mapping legend

X	Required role to perform a task
O	At least one of the roles is required to perform a task
A	Optional role required to perform additional function within a task

Table 4. Tasks role mapping

Tasks	Tasks roles															Resource roles										
	AA	SP	OP	SER	ZVM	ENSA	VNA	VSA	VSO	SRA	WLA	PPMA	PPMO	EMA	AZM	DZM	ZVMO	ENS	VN	VSASB	SR	BC	ASB	WL	DP
Ensemble tasks																									

Table 4. Tasks role mapping (continued)

Tasks	Tasks roles															Resource roles											
	AA	SP	OP	SER	ZVM	ENSA	VNA	VSA	VSO	SRA	WLA	PPMA	PPMO	EMA	AZM	DZM	ZVMO	ENS	VN	VSASB	SR	BC	ASB	WL	DP
Create Ensemble				O		O												X							
Add Member to Ensemble				O		O									O	O		X							
Ensemble Details																		X							
- Performance												X						X							
Delete Ensemble						X												X							
Remove Member from Ensemble						X									O	O		X							
Ensemble Guide				O		O																			
Manage Alternate HMC				O		O																			
Alternate Details															X										
Virtual Server tasks																									
New Virtual Server [1]								X							O								O		
New Virtual Server Based On[2]								X							O		O			O			O		
Delete Virtual Server								X									O			O					
Virtual Server Details																	O			O					
- General								X									O			O					
- Status								X									O			O					
- Processors								X									O			O					
- Memory								X									O			O					
- Network[3]							A	X									O	A		O					
- Storage[4]								X		A							O	A		O	A				
- Options								X									O			O					
- Workload[6]								X			A						O			O				X	
Activate Virtual Server		O	O	O					O								O			O					
Deactivate Virtual Server									X								O			O					
Mount Virtual Media									X											X					
Migrate Virtual Server								X												X			X		
Open Text Console									X											X					
Open Graphical Console									X											X					
Initiate Virtual Server Dump									X											X					
Initiate Hypervisor Dump				O		O																	X		
Scheduled Operations Activate		O	O	O		O			X								O			O					
Scheduled Operations Deactivate		O	O	O		O			X								O			O					
Choose z/VM Virtual Servers to Manage								X							X										
Manage Virtual Switches								X							O	O	X								
Storage Management tasks																									
Manage Storage Resources										X					O	O	O	X		O	X		O		
- (Storage Resource) Details										X											X				

Table 4. Tasks role mapping (continued)

Tasks	Tasks roles														Resource roles										
	AA	SP	OP	SER	ZVM	ENSA	VNA	VSA	VSO	SRA	WLA	PPMA	PPMO	EMA	AZM	DZM	ZVMO	ENS	VN	VSASB	SR	BC	ASB	WL	DP
- Test Communication with Storage Resources										X							O				X		O		
- Import Storage Access List										X							O	X			X		O		
- Export World Wide Port Name List										X							O	X					O		
- Compare Access Lists										X							O					X	O		
- Add Storage Resource										X							O	X			X		O		
- Remove Storage Resource										X							O	X			X		O		
- Add Storage Resource to Group										X							X				X				
- Remove Storage Resource from Group										X							X				X				
Virtual Network tasks																									
Network Monitors Dashboard							X											X	X						
Manage Virtual Networks							X											X	X						
- Add Hosts to Virtual Network							X								O	O	O	X	X	O			O		O
- Remove Hosts from Virtual Network							X								O	O	O	X	X	O			O		O
- New Virtual Network							X											X	X						
- Delete Virtual Network							X											X	X						
- Details							X											X	X						
- Repair Virtual Network							X											X	X						
Configure Top-of-rack (TOR) Switch							X								O	O		X							
Workload Resource Groups and Performance Management tasks																									
New Workload Resource Group[8]											X	A			O	O	O	X		O				X	
New Performance Policy												X												X	
- New Service Class												X												X	
Activate Performance Policy													X											X	
Delete Workload Resource Group											X				O	O	O	X		O				X	
Workload Resource Group Details											X													X	
Virtual Servers tab -Add Virtual Servers											X				O		O			O				X	
Virtual Servers tab - Remove Virtual Servers											X				O		O			O				X	
Virtual Servers tab - Add Custom Groups											X				O		O			O				X	
Performance Policies tab - Print View																								X	

Table 4. Tasks role mapping (continued)

Tasks	Tasks roles															Resource roles											
	AA	SP	OP	SER	ZVM	ENSA	VNA	VSA	VSO	SRA	WLA	PPMA	PPMO	EMA	AZM	DZM	ZVMO	ENS	VN	VSASB	SR	BC	ASB	WL	DP
Performance Policies tab - Print																								X	
Performance Policies tab - Import Policy												X												X	
Performance Policies tab - Export Policy													X											X	
Performance Policies tab - Policy Details												X												X	
Performance Policies tab - Service Class Details												X												X	
Performance Policies tab - New Policy												X												X	
Performance Policies tab - New Policy Based On												X												X	
Performance Policies tab - Delete Policy												X												X	
Performance Policies tab - Activate													X											X	
Performance Policies tab - View Revisions																								X	
Workloads Report											O	O	O											X	
Workload Resource Adjustments Report											O	O	O											X	
Service Classes Report											O	O	O											X	
- Resource Adjustments Report											O	O	O											X	
- Hops Report											O	O	O											X	
- Virtual Server Topology Report											O	O	O											X	
Virtual Servers Report											O	O	O											X	
- Resource Adjustments Report											O	O	O											X	
- Hypervisor Report											O	O	O											X	
Load Balancing Report													X					X							
Scheduled Operations Activate (Policy)		O	O	O		O							X											X	
Monitor System Events - Service Class Monitor		O				O							X											X	
Monitor System Events - VS CPU Utilization Monitor		O				O							X		O	O	O			O				X	
Energy Management tasks																									
Set Power Cap		O		O										O	O	O						X	X		X
Set Power Saving		O		O										O	O	O						X	X		X
zBX tasks																									
zBX BladeCenter Details																						X			
Customize Network Settings		O		O		O																			X
zBX Blade Details																							O		O
- IEDN[3]							A												A						X
Activate zBX Blade		O	O	O		O																	O		O

Table 4. Tasks role mapping (continued)

Tasks	Tasks roles														Resource roles										
	AA	SP	OP	SER	ZVM	ENSA	VNA	VSA	VSO	SRA	WLA	PPMA	PPMO	EMA	AZM	DZM	ZVMO	ENS	VN	VSASB	SR	BC	ASB	WL	DP
Deactivate zBX Blade		O	O	O		O																	O		O
Scheduled Operations Activate		O	O	O		O																	O		O
Scheduled Operations Deactivate		O	O	O		O																	O		O
Manage DataPower XI50z		O		O		O																			X
Manage zBX Move				X																					
Other tasks																									
Restart z/VM Management Guest									X						O	O									
Initiate z/VM Management Guest Dump				O		O									O	O									
Audit & Log Management	O	O		O		O																			
Monitors Dashboard	O	O	O	O			A[9]				A[10]				O	O	A[11]			A[12]		A[13]	A[14]		A[15]
Add Object Definition	O			O		O									X										
Remove Object Definition	O			O		O									X										

Notes:

1 See the Virtual Server Details task for default roles.
2 Both a hypervisor and a virtual server are required – AZM and ZVMO or ASB and VSASB.
3 VNA is required to launch the Manage Virtual Networks task.
4 SRA is required to launch the Manage Storage Resources task.
6 WLA is required to launch the New Workload Resource Group task.
7 PPMA is required to enable or disable processor management.
8 PPMA is required to create performance policies and service classes in the New Workload Resource Group wizard.
9 Required to launch the Network Monitors Dashboard.
10 Required to launch the Workloads Report.
11 Required to view metrics for z/VM virtual servers.
12 Required to view metrics for IBM Blade virtual servers.
13 Required to view metrics for IBM BladeCenter resources.
14 Required to view metrics for IBM Blades.
15 Required to view metrics for IBM DPXI50z blades.

Unified Resource Manager tasks and default user IDs

The ensemble admin user ID is assigned all ensemble resources and all admin related task roles. The ensemble operator user ID is assigned all ensemble resources and all operator task roles.

Table 5 and Table 6 identifies the ensemble default user IDs and their default task and resource roles.

Table 7 lists the Unified Resource Manager tasks that can be performed on the Hardware Management Console (HMC) and the corresponding predefined default user IDs that can perform these tasks.

Default user IDs and passwords are established as part of a base HMC. The Access Administrator should assign new user IDs and passwords for each user and remove the default user IDs as soon as the console is installed by using the **User Profiles** task or the **Manage Users Wizard**.

The predefined default user IDs and passwords are:

```
ENSADMIN     PASSWORD
ENSOPERATOR  PASSWORD
```

Note: Letter case (uppercase, lowercase, mixed) is not significant for the default user IDs or passwords.

Table 5. Default user IDs and assigned task roles

User IDs	**Task Roles**													
	AA	SP	OP	SER	ZVM	ENSA	VNA	VSA	VSO	SRA	WLA	PPMA	PPMO	EMA
ENSADMIN		X			X	X	X	X		X	X	X		X
ENSOPERATOR									X				X	

Table 6. Default user IDs and assigned resource roles

User IDs	**Resource Roles**										
	AZM	DZM	ZVMO	ENS	VN	VSASB	SR	BC	ASB	DP	WL
ENSADMIN	X		X	X	X	X	X	X	X	X	X
ENSOPERATOR		X	X	X	X	X	X	X	X	X	X

Table 7. Unified Resource Manager tasks and default user IDs

Tasks	**User IDs**		
	ENSADMIN	**ENSOPERATOR**	**SERVICE**
Create Ensemble	X		X
Add Member to Ensemble	X		X
Ensemble Details	X	View Only	X
Delete Ensemble	X		
Remove Member from Ensemble	X		
Manage Alternate HMC	X		X
Alternate Details	X	View Only	X
New Virtual Server	X		
New Virtual Server Based On	X		

Table 7. Unified Resource Manager tasks and default user IDs (continued)

Tasks	User IDs		
	ENSADMIN	**ENSOPERATOR**	**SERVICE**
Delete Virtual Server	X		
Virtual Server Details	X	View Only	
Activate Virtual Server	X	X	X
Deactivate Virtual Server	X	X	
Mount Virtual Media	X	X	
Migrate Virtual Server	X		
Open Text Console	X	X	
Open Graphical Console	X	X	
Initiate Hypervisor Dump	X		X
Initiate Virtual Server Dump	X	X	
Scheduled Operations Activate	X	X	
Scheduled Operations Deactivate	X	X	
Choose z/VM Virtual Servers to Manage	X		
Manage Virtual Switches	X		
Manage Storage Resources	X		
Network Monitors Dashboard	X		
Manage Virtual Networks	X		
Configure Top-of-rack (TOR) Switch	X		X
New Workload Resource Group	X		
New Performance Policy	X		
Activate Performance Policy	X	X	
Delete Workload Resource Group	X		

Table 7. Unified Resource Manager tasks and default user IDs (continued)

Tasks	**User IDs**		
	ENSADMIN	**ENSOPERATOR**	**SERVICE**
Load Balancing Report	X	X	
Workload Resource Group Details	X	View Only	
Workloads Report	X	X	
Workloads Resource Adjustments Report	X	X	
Service Classes Report	X	X	
- Resource Adjustments Report	X	X	
- Hops Report	X	X	
- Virtual Server Topology Report	X	X	
- View Statistics	X	X	
Virtual Servers Report	X	X	
- Resource Adjustments Report	X	X	
- Hypervisor Report	X	X	
Scheduled Operations Activate (Policy)	X	X	
Monitor System Events - Service Class Monitor	X	X	
Monitor System Events - VS CPU Utilization Monitor	X	X	
Set Power Cap	X		
Set Power Saving	X		
zBX BladeCenter Details	X	View Only	
Customize Network Settings	X		X
zBX Blade Details	X	View Only	
Activate zBX Blade	X	X	X

Table 7. Unified Resource Manager tasks and default user IDs (continued)

Tasks	User IDs		
	ENSADMIN	**ENSOPERATOR**	**SERVICE**
Deactivate zBX Blade	X	X	X
Scheduled Operations Activate zBX Blade	X	X	X
Scheduled Operations Deactivate zBX Blade	X	X	X
Manage DataPower XI50z	X		X
Manage zBX Move			X
Restart z/VM Management Guest	X	X	
Initiate z/VM Management Guest Dump	X		X
Audit & Log Management	X		X
Monitors Dashboard	X	X	X
Add Object Definition	X		X
Remove Object Definition	X		X

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Glossary

A.

advanced management module (AMM). A hardware unit that provides system-management functions for all the blade servers in a BladeCenter chassis.

alternate HMC. A System z Hardware Management Console (HMC) that is paired with the primary HMC to provide redundancy.

See also primary HMC.

AMM. See advanced management module.

appliance. A software device that provides a narrow range of functions and generally runs on a hardware platform.

application environment. The environment that includes the software and the server or network infrastructure that supports it.

ARM-instrumented application. An application in which application response measurement (ARM) calls are added to the source code so that management systems can monitor the performance of the application. ARM is an Open Group standard.

Automate suite (Automate). The second of two suites of functionality associated with the IBM zEnterprise Unified Resource Manager. The Automate suite includes goal-oriented monitoring and management of resources and energy management.

See also Manage suite.

B.

blade. A hardware unit that provides application-specific services and components. The consistent size and shape (or form factor) of each blade allows it to fit in a BladeCenter chassis.

BladeCenter chassis. A modular chassis that can contain multiple blades, allowing the individual blades to share resources such as the management, switch, power, and blower modules.

C.

central processor complex (CPC). A physical collection of hardware that consists of main storage, one or more central processors, timers, and channels. In the zEnterprise environment, the CPC consists of a zEnterprise mainframe and any attached IBM zEnterprise BladeCenter Extension (zBX).

See also node and zCPC.

classification rule. A rule used by System z workload resource group manager firmware and software to assign a service class.

CPC. See central processor complex.

D.

DataPower XI50z. See IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise.

discretionary goal. A service class performance goal assigned to low priority work that does not have any specific performance goal. Work is run when system resources are available.

E.

ensemble. A collection of one or more zEnterprise nodes (including any attached zBX) that are managed as a single logical virtualized system by the Unified Resource Manager, through the Hardware Management Console.

ensemble member. A zEnterprise node that has been added to an ensemble.

See also node.

F.

firmware. Licensed Internal Code (LIC) that is shipped with hardware. Firmware is considered an integral part of the system and is loaded and run at power on. Firmware is not open for customer configuration and is expected to run without any customer setup.

G.

GPMP. See guest platform management provider.

guest platform management provider (GPMP). An optional suite of applications that is installed in specific z/OS, Linux, and AIX® operating system images to support platform management functions. For example, the guest platform management provider collects and aggregates performance data for virtual servers and workload resource groups.

H.

Hardware Management Console (HMC). A user interface through which data center personnel configure, control, monitor, and manage System z hardware and software resources. The HMC communicates with each central processor complex (CPC) through the Support Element. On an IBM zEnterprise 196 (z196), using the Unified Resource

Manager on the HMCs or Support Elements, personnel can also create and manage an ensemble.

See also primary HMC and alternate HMC.

HMC. See Hardware Management Console.

hypervisor. A program that allows multiple instances of operating systems or virtual servers to run simultaneously on the same hardware device. A hypervisor can run directly on the hardware, can run within an operating system, or can be imbedded in platform firmware. Examples of hypervisors include PR/SM, z/VM, and PowerVM Enterprise Edition.

I.

IBM blade. A customer-acquired, customer-installed select blade to be managed by IBM zEnterprise Unified Resource Manager. One example of an IBM blade is a POWER7 blade.

IBM System z Advanced Workload Analysis Reporter (IBM zAware). Firmware consisting of an integrated set of applications that monitor software running on z/OS and model normal system behavior. IBM zAware pattern recognition techniques identify unexpected messages, providing rapid diagnosis of problems caused by system changes. Operational controls and views of analytical data are available through the IBM zAware graphical user interface (GUI).

IBM System z Application Assist Processor (zAAP). A specialized processor that provides a Java™ execution environment, which enables Java-based web applications to be integrated with core z/OS business applications and backend database systems.

IBM System z Integrated Information Processor (zIIP). A specialized processor that provides computing capacity for selected data and transaction processing workloads and for selected network encryption workloads.

IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise (DataPower XI50z). A purpose-built appliance that simplifies, helps secure, and optimizes XML and Web services processing.

IBM zAware. See IBM System z Advanced Workload Analysis Reporter (IBM zAware).

IBM zAware disaster recovery environment. An IBM zAware environment that is created expressly for disaster recovery purposes.

IBM zAware environment. A configuration that consists of an IBM zAware partition and the IBM zAware monitored clients that are sending information to the IBM zAware server that is running on the partition. The IBM zAware monitored clients do not have to run in the same IBM zAware host system that contains the partition.

IBM zAware host system. The zEC12 central processor complex (CPC) that contains the logical partition (LPAR) in which the IBM System z Advanced Workload Analysis Reporter (IBM zAware) runs.

IBM zAware model. A description of normal behavior that an IBM zAware server generates for a specific monitored z/OS system. Initially, this model is based on prior data (system and application messages) from the operations log (OPERLOG) for the z/OS system. The model is updated periodically and can be modified to include or exclude specific days of system operation. The IBM zAware server uses this model to detect system problems that are indicated in current data that the server receives from the specific z/OS system.

IBM zAware monitored client. A z/OS partition that sends OPERLOG logstream data to the IBM System z Advanced Workload Analysis Reporter (IBM zAware) for analysis. To detect problems, IBM zAware compares the system and application messages in these log files to a model of normal behavior for this z/OS system, and highlights anomalous results through the IBM zAware graphical user interface (GUI).

IBM zAware partition. The logical partition (LPAR) in the zEC12 central processor complex (CPC) in which only an IBM zAware server runs. The IBM zAware graphical user interface (GUI) provides operational controls and views of analytical data for IBM zAware monitored clients.

IBM zAware server. An instance of the IBM System z Advanced Workload Analysis Reporter (IBM zAware) that is receiving data from monitored clients.

IBM zEnterprise 114 (z114). The newest generation of the entry System z family of servers built on a new processor chip, featuring a 14-way core design with enhanced memory function and capacity, security, and on demand enhancements to support existing mainframe workloads and consolidation.

IBM zEnterprise 196 (z196). The previous generation of the System z high end family of servers built on a new processor chip, featuring a 96-way core design with enhanced memory function and capacity, security, and on demand enhancements to support existing mainframe workloads and large scale consolidation.

IBM zEnterprise BladeCenter Extension (zBX). A heterogeneous hardware infrastructure that consists of a BladeCenter chassis attached to a zEC12, z196, or z114. A BladeCenter chassis can contain IBM blades or optimizers.

IBM zEnterprise BladeCenter Extension (zBX) blade. Generic name for all blade types supported in an IBM zEnterprise BladeCenter Extension (zBX). This term includes IBM blades and optimizers.

IBM zEnterprise EC12 (zEC12). The newest generation of the System z high end family of servers

built on a new processor chip, featuring a 120-way core design with enhanced memory function and capacity, security, and on demand enhancements to support existing mainframe workloads and large scale consolidation.

IBM zEnterprise System (zEnterprise). A heterogeneous hardware infrastructure that can consist of a zEC12, z196, or z114 and an attached IBM zEnterprise BladeCenter Extension (zBX), managed as a single logical virtualized system by the Unified Resource Manager.

IBM zEnterprise Unified Resource Manager. Licensed Internal Code (LIC), also known as firmware, that is part of the Hardware Management Console. The Unified Resource Manager provides energy monitoring and management, goal-oriented policy management, increased security, virtual networking, and data management for the physical and logical resources of a given ensemble.

IEDN. See intraensemble data network (IEDN).

IEDN TOR switch. See intraensemble data network (IEDN) TOR switch.

INMN. See intranode management network (INMN).

intraensemble data network (IEDN). A private high-speed network for application data communications within an ensemble. Data communications for workload resource groups can flow over the IEDN within and between nodes of an ensemble. The Unified Resource Manager configures, provisions, and manages all of the physical and logical resources of the IEDN.

intraensemble data network (IEDN) TOR switch. A top-of-rack switch that provides connectivity to the intraensemble data network (IEDN), supporting application data within an ensemble.

intranode management network (INMN). A private service network that the Unified Resource Manager uses to manage the resources within a single zEnterprise node. The INMN connects the Support Element to the zEC12, z196, or z114 and to any attached IBM zEnterprise BladeCenter Extension (zBX).

M.

Manage suite (Manage). The first suite of functionality associated with the IBM zEnterprise Unified Resource Manager. The Manage suite includes core operational controls, installation, and configuration management, and energy monitoring.

management TOR switch. A top-of-rack switch that provides a private network connection between a zEC12, z196, or z114 Support Element and an IBM zEnterprise BladeCenter Extension (zBX).

member. See ensemble member.

N.

network interface card (NIC). A printed circuit board that plugs into a server. It controls the exchange of data over a network and provides the electronic functions for the data link protocol or access method, such as token ring or Ethernet.

NIC. See network interface card.

node. A single zEC12, z196, or z114 and any optionally attached IBM zEnterprise BladeCenter Extension (zBX). A node can be a member of only one ensemble.

See also central processor complex.

O.

optimizer. A special-purpose hardware component or appliance that can perform a limited set of specific functions with optimized performance when compared to a general-purpose processor. Because of its limited set of functions, an optimizer is an integrated part of a processing environment, rather than a standalone unit.

One example of an optimizer is the IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise.

out-of-band monitoring solution. A type of monitoring solution that runs on a dedicated server rather than relying on the use of a monitoring agent installed in the operating system. For example, the IBM System z Advanced Workload Analysis Reporter (IBM zAware) provides out-of-band monitoring because it runs in a dedicated PR/SM partition and monitors clients that run in other partitions in System z servers.

OSM. An OSA-Express channel path identifier (CHPID) type that provides connectivity to the intranode management network (INMN).

OSX. An OSA-Express channel path identifier (CHPID) type that provides connectivity to the intraensemble data network (IEDN).

P.

performance index. A number that indicates whether the performance goal for a service class was achieved, exceeded, or missed.

performance policy. A description of the performance objectives and importance of a workload resource group.

platform management. The subset of systems management focused on hardware and virtualization management.

PowerVM. See PowerVM Enterprise Edition.

PowerVM Enterprise Edition (PowerVM). A hypervisor that provides a set of comprehensive systems technologies and services designed to enable aggregation and management of IBM POWER blade resources through a consolidated, logical view.

primary HMC. The System z Hardware Management Console (HMC) through which data personnel create and manage an ensemble. This HMC owns configuration and policy information that the Unified Resource Manager uses to monitor, manage, and adjust resources for all members of this ensemble.

See also alternate HMC.

private system control network (PSCN). The private subsystem of the System z servers that is controlled by a fully redundant dual-Ethernet communications network. This network provides communication to all field-replaceable units (FRUs) and hierarchic control through a mirrored system of control cards and IP addresses. The PSCN provides a means for subsystems to communicate and control the dynamic parameters of system operation. The PSCN also supports error reporting, failure data collection and recovery detection, and correction of both the internal hardware and firmware of the System z servers.

PSCN. See private system control network.

R.

rack. A free-standing structure or frame that can hold multiple servers and expansion units, such as BladeCenter blades.

response time goal. A service class performance goal that defines end-to-end response time of work requests.

S.

service class. A collection of work that has the same service goals or performance objectives, resource requirements, or availability requirements.

static power save mode. A zEC12, z196, or z114 function used for periods of low utilization or potentially when a CBU system is sitting idle waiting to take over in the event of a failure. The server uses frequency and voltage reduction to reduce energy consumption of the system. The customer initiates static power save mode by using the HMC or Support Element or Active Energy Manager.

T.

top-of-rack (TOR) switch. A network switch that is located in the first rack of an IBM zEnterprise BladeCenter Extension (zBX).

TOR switch. See intraensemble data network (IEDN) TOR switch and management TOR switch.

transaction. A unit of processing consisting of one or more application programs, affecting one or more objects, that is initiated by a single request.

U.

Unified Resource Manager. See IBM zEnterprise Unified Resource Manager.

V.

velocity goal. A service class performance goal that defines the acceptable amount of delay for work when work is ready to run. Velocity is the measure of how fast work should run when ready, without being delayed by contention for managed resources.

virtual appliance. A prepackaged software application that provides some well-defined business workflow, making it easier to deploy a solution with minimal configuration. Many tiers of operating system and applications can be packaged as a single virtual appliance. These tiers can depend on the hardware resources of different architectures.

See also virtual server collection and virtual server image.

virtual server. A logical construct that appears to comprise processor, memory, and I/O resources conforming to a particular architecture. A virtual server can support an operating system, associated middleware, and applications. A hypervisor creates and manages virtual servers.

virtual server collection. A set of virtual servers that supports a workload resource group. This set is not necessarily static. The constituents of the collection at any given point are determined by the virtual servers involved in supporting the workload resource group at that time.

See also virtual appliance and virtual server image.

virtual server image. A package containing metadata that describes the system requirements, virtual storage drives, and any goals and constraints for the virtual machine (for example, isolation and availability). The Open Virtual Machine Format (OVF) is a Distributed Management Task Force (DMTF) standard that describes a packaging format for virtual server images.

See also virtual appliance and virtual server collection.

virtual server image capture. The ability to store metadata and disk images of an existing virtual server. The metadata describes the virtual server storage, network needs, goals, and constraints. The captured information is stored as a virtual server image that can be referenced and used to create and deploy other similar images.

virtual server image clone. The ability to create an identical copy (clone) of a virtual server image that can be used to create a new similar virtual server.

W.

workload. The amount of application processing that a computer performs at a given time. In z/OS WLM, a workload is a customer-defined collection of work to be tracked, managed, and reported as a unit. For zEnterprise, see workload resource group.

workload resource group. A collection of virtual servers that perform a customer-defined collective purpose. A workload resource group generally can be viewed as a multi-tiered application. Each workload resource group is associated with a set of policies that define performance goals.

Z.

z/VM single system image (SSI) cluster. A collection of z/VM systems (called members) that can be managed, serviced, and administered as one system within which workloads can be deployed. An SSI cluster is intended to share a set of resources among all members.

z114. See IBM zEnterprise 114 (z114).

z196. See IBM zEnterprise 196 (z196).

zEC12. See IBM zEnterprise EC12 (zEC12).

zAAP. See IBM System z Application Assist Processor.

zBX. See IBM zEnterprise BladeCenter Extension (zBX).

zBX blade. See IBM zEnterprise BladeCenter Extension (zBX) blade.

zCPC. The physical collection of main storage, central processors, timers, and channels within a zEnterprise mainframe. Although this collection of hardware resources is part of the larger zEnterprise central processor complex, you can apply energy management policies to the zCPC that are different from those that you apply to any attached IBM zEnterprise BladeCenter Extension (zBX) or blades.

See also central processor complex.

zIIP. See IBM System z Integrated Information Processor.

zEnterprise. See IBM zEnterprise System (zEnterprise).

Unified Resource Manager. See IBM zEnterprise Unified Resource Manager.

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